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BUDGET DEFICIT AND SELECTED MACROECONOMIC VARIABLES IN NIGERIA: A TODA-YAMAMOTO CAUSALITY APPROACH

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ABSTRACT

This study examined the relationship between budget deficit and macroeconomic variables in Nigeria for the quarterly period of 1970 -2011. The study employed the augmented Granger causality test approach developed by Toda and Yamamoto (1995). The result showed a strong unidirectional causality from budget deficit to macroeconomic variables in Nigeria. The result supported the Keynesian proposition. Also the evidence from Johansen co-integration result indicated that there is a positive long run relationship between budget deficit and macroeconomic variables. In view of the findings, appropriate monetary- fiscal policies mix should be pursued. These include among other things, the right combination of appropriate internal- external debt ratio, the ways and means and bond to finance budget deficit in the country with close monitoring of rate of inflation.

INTRODUCTION

The Mundel-Flemming model assumes that an increase in budget deficit causes an increase in interest rate with exchange rate appreciation and capital inflows. This has therefore attracted much empirical and theoretical debate since the mid 1970s on the effects of government deficit on real economic activity in advanced and emerging economies of the world. Despite the theoretical link between budget deficit and macroeconomic variables, there is no general consensus on relationship between them. Two diverging viewpoints exist namely the Ricardian Equivalent Hypothesis (REH) and the Conventional Keynesian Proposition (CKP). According to Ricardo, budget deficit does not matter, because an increase in government budget deficit is effectively equivalent to a future increase in tax liabilities. Taking into account that lower taxation in the present is offset by higher taxation in the future, it means that budget deficits do not influence the macroeconomic variables. Authors such as: Barro (1974), Evans (1987), Darrat (1990) and Cheng (1998) support the Ricardo view that government deficits have no impact on key macroeconomic variables. Conversely, the Keynesian absorption theory posits that changes in budget deficit influence interest rates and other macroeconomic variables. This diverging view has had a long history in the United States of America. Some authors such as Bovenberg (1998), Laumas (1989), Dua (1993) and others support this view. In response to these controversies, so many theoretical and empirical studies have examined this crucial relationship for the advanced countries and the growing economies of the world yet most pertinent conclusion from these works is the heterogeneity of their findings. In the midst of so many models and findings, several arguments arose concerning the interaction between budget deficit and interest rate regarding its effects, magnitude significance or insignificance as the case may be. Budget deficit in Nigeria witnessed a little swing since early 1990s. It was -N7, 414.3m in 1991 and rose to –N53, 233.5m in 1993 and frog leaped to -N70, 270.6m in 1994. Between 1999 and 2008 budget deficit were –N133, 389.2m, -N285, 104.7m, -N108,777.3m, -N221, 048.9m, -N301, 401.6m, -N202, 724.7m, -N172, 601.3m, -N161, 406.3m, -N101, 397.5m, -N117, 237.1m, -N47,378.50m in the respective years therein. Despite this little swing in budget deficit in Nigeria, the alleged interactions between budget deficit and macroeconomic variables in the economy of Nigeria is still not obvious and has remained unclear despite the fact that this study has already been investigated intensely. Arguably, this inconclusiveness originates from the kind and composition of empirical studies, considering different data and estimation techniques used in Nigeria and other various economies of the world. Most of the studies reviewed were

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cross-country based analysis and thus produce mixed results which gave credence to country specific study because of country peculiarities. In all of these it made it difficult in having general consensus as to the exact relationship between the variables, especially in emerging economies such as Nigeria. To overcome this problem, this study focused on Nigeria to determine the exact relationship between budget deficit and selected macroeconomic variables in Nigeria. Other studies that were country specific like that of Obi and Nuruden (2008) and Chimobi and Igwe (2010) all in Nigeria employed VAR model and Granger Causality test using annual data. One major problem of Granger Causality test is that the outcome is sensitive to number of lags introduced in the model (Gujarati and Sangeetha, 2007). Thus, to overcome this problem, we used the AIC, SBC and minimum R^2 criteria to determine the optimum lag length. In addition, we employed the Toda-Yamamoto approach which is an alternative causality testing approach based on the Granger causality equation but augmented with extra lags determined by the potential order of integration of the series causally tested.

This study departs fundamentally from existing studies like Obi and Nuruden (2008), Chimobi and Igwe (2010) and Odionye and Uma (2013) all for Nigeria in three main respects. First, two relevant variables (inflation rate and money supply) have been included to illuminate the co-integration and causality inferences. According to Laua *et al*. (2002) cited in Chukwu (2009), "it is well known that the causality and co-integration inferences are strongly influenced by omission of relevant causing variables''. Secondly, high frequency data is employed. Thirdly, Toda-Yamamoto approach is employed to test for causality between budget deficit and macroeconomic variables. Against this backdrop, it becomes relevant to investigate the nature of relationship between budget deficit and macroeconomic variables in Nigerian economy using quarterly data in a multivariate framework. The remaining parts of this paper are as follows: sections 2 reviews related literature, sections 3 discusses data features and methodology, section 4 analyzes the empirical results and discussions and section 5 is the summary and policy recommendations.

Literature Review

Haan and Zelhorst (1990) analyzed the relationship between budget deficit and money growth in the developing countries. The overall conclusion of their study did not provide much support for the hypothesis that government budget deficit influenced monetary expansion and therefore created inflation. Chaudhary and Parui (1991) used a rational expectation macro model of inflation to find that that there is anticipated effect of budget deficit on inflation rates for Peruvian economy. They concluded that the country's huge budget deficit as well as high rates of growth of money did have a significant impact on the inflation rates. Mohammed and Ahmed (1995) studied money supply, budget deficit and inflation in Pakistan based on the monetary quantity theory approach to inflation and came out with the findings that suggested that the domestic financing of budget deficit, particularly from the banking sector was inflationary in the long run. On their own Cevdet, Emre and Suleyman (1996) using annual data studied the causal relationship between budget deficit, money supply and inflation rate in Turkey. They employed unrestricted VAR and ARIMA model and concluded that a significant impact of budget deficit on inflation cannot be refuted under the assumption of long run monetary neutrality. In the same country, Tekin- Kuru and Ozmen (2003) investigated the long run relationship between budget deficits, money supply and inflation. They found that while the endogeneity of supply of money and inflation rejected the validity of the monetarist view, lack of direct relationship between inflation and budget deficit made the pure fiscal theory explanations illegitimate for the Turkish case. Lazano (2008) analyzed the evidence of causal long run relationship between budget deficit, money growth and inflation in Columbia considering the standard (M1), the narrowest (M0) base and the broadest (M3) definition of money supply. He employed Vector Error Correction Model (VECM) with quarterly data for the period of 25 years. His study found a close relationship between the variables. In the case of Nigeria, Onwioduokit (2005) studied the causal relationship between inflation and fiscal deficits in Nigeria using annual data from 1970 to 1994. He employed Granger Causality Test. The variables in his model were ratio of fiscal deficit to gross domestic product, level of fiscal deficit and inflation rate. He found evidence that fiscal deficit caused inflation without a feedback effect however, feedback existed between inflation and the ratio of fiscal deficit to gross domestic product.

Chimobi and Igwe (2010), on their own studied the causal long term effect relationship between budget deficit, money supply and inflation. They employed Vector Error Correction Model (VECM). Their studies show that there is a long run relationship between the variables and that money supply Granger causes budget deficit. Obi and Nurudeen (2008) conducted an empirical test on the "effects of fiscal deficits and government debt on interest rate in Nigeria". The objective of the study was to investigate the effect of fiscal deficits and government debt on interest in Nigeria. They employed Vector Auto-Regression approach (VAR). Their empirical study focused on interest rate as being captured by the lending rate earlier specified by Bhalla (1995) and Lal, D, Blinde and Vasudevan (2002) and the major findings of their study showed that the explanatory variables accounted for approximately 73.6 percent variation in interest rate in Nigeria. The estimation also showed that fiscal deficits and government debt (our variable of interest) re statistically and economically significant.

MATERIALS AND METHODS

Quarterly series from 1970: Q_1 to 2011: Q_4 were employed. These data were sourced from Central Bank of Nigeria statistical bulletin (2011) and interpolated into quarterly series. Interest Rate (INR), Inflation (INF) and Money Supply (MSY) were used as key macroeconomic variable in the model while Budget Deficit (BUD) is measured as the difference between government total expenditure and total revenue. To fully explore the data generating process, we first examined the time series properties of model variables using the Augmented Dickey- Fuller test.

The ADF test regression equations with constant are:

$$\Delta BUD_t = \alpha_0 + \alpha_1 BUD_{t-1} + \sum_{j=1}^{k} a_j \, \Delta BUD_{t-1} + \varepsilon_t \ldots \quad (1)$$

$$\Delta INR_t = \beta_0 + \beta_1 INR_{t-1} + \sum_{j=1}^{k} b_j \ \Delta INR_{t-1} + \varepsilon_t \ldots \quad (2)$$

$$\Delta INF_t = \gamma_0 + \gamma_1 \ INF_{t-1} + \sum_{j=1}^{k} \varphi_j \ \Delta INF_{t-1} + \varepsilon_t \ldots \quad (3)$$

$$\Delta MSY_t = \lambda_0 + \lambda_1 \ MSY_{t-1} + \sum_{j=1}^{k} \sigma_j \ \Delta MSY_{t-1} + \varepsilon_t \ldots \quad (4)$$

where ⊗ is the first difference operator ε_T is random error term that is iid, k = no of lagged differences In equations (1) through (4), the null hypothesis holds as:

Ho: $\alpha_i = \beta_i = \gamma_i = \lambda_1 = 1$ (unit root) H_1: $\alpha_i \neq \beta_i \neq \gamma_i \neq \lambda_1 < 1$ (level stationary)

where j is the lag length, K is the maximum distributed lag length α_0, β_0, γ_0, λ_0 ,are the constant terms ε_T is independent and identically distributed error term. The long run equilibrium relationship between budget deficit and interest rate was investigated using Full Information Maximum Likelihood (FIML) Multivariate Johanson cointegration procedure. The Johansen co-integration test is given as

$$Y_t = A_1 Y_{t-1} + \ldots + A_p Y_{t-p} + BX_t + \varepsilon_T \ \ldots \quad (5)$$

Where Y_t is a vector of non stationary I(1) variables; X_t is a vector of deterministic variables and ε_T is a vector of innovations. We may rewrite this as in VAR form as:

$$\Delta Y_t = \pi Y_{t-1} + \sum_{i=1}^{p-1} \delta_i \ Y_{t-p} \ A_p \ Y_{t-p} + BX_t + \varepsilon_t \cdots \quad (6)$$

where

$$\pi = \sum_{i=1}^{p} A_t - 1, \quad \delta_i = -\sum_{j=i+1}^{p-1} A_p + BX_t + \varepsilon_t \cdots \quad (7)$$

If the coefficient matrix π has reduced rank r < k, then there exist k < r, matrices α and β each with rank r such that π = αβ and βY_t is I(0) (Granger 1987). r is the number of co-integrating relation (the co-integrating rank) and each column of β is the co-integrating vector. Johansen's method is to estimate the π matrix from unrestricted VAR and to test whether the rejection implies by the reduced rank π.

The relationship between budget deficit and macroeconomic variables can be represented in a dynamic Vector Error Correction Model (VECM) as follows:

$$\Delta INR_t = \beta_0 + \beta_1^a \sum_{i=1}^{q} \Delta INR_{t-1} + \beta_2^a \sum_{i=1}^{q} \Delta BUD_{t-1} + \beta_3^a \sum_{i=1}^{q} \Delta MSY_{t-1} + \beta_4^a \sum_{i=1}^{q} \Delta INF_{t-1} + \beta_5^{ecm} ECM_{t-1} + \varepsilon_{1t}. \quad (8)$$

$$\Delta BUD_t = \beta_0 + \beta_1^b \sum_{i=1}^{q} \Delta BUD_{t-1} + \beta_2^b \sum_{i=1}^{q} \Delta INR_{t-1} + \beta_3^b \sum_{i=1}^{q} \Delta MSY_{t-1} + \beta_4^b \sum_{i=1}^{q} \Delta INF_{t-1} + \beta_5^{ecm} ECM_{t-1} + \varepsilon_{1t}. \quad (9)$$

$$\Delta MSY_t = \beta_0 + \beta_1^c \sum_{i=1}^{q} \Delta MSY_{t-1} + \beta_2^c \sum_{i=1}^{q} \Delta BUD_{t-1} + \beta_3^c \sum_{i=1}^{q} \Delta INR_{t-1} + \beta_4^c \sum_{i=1}^{q} \Delta INF_{t-1} + \beta_5^{ecm} ECM_{t-1} + \varepsilon_{1t}. \quad (10)$$

$$\Delta INF_t = \beta_0 + \beta_1^d \sum_{i=1}^{q} \Delta INF_{t-1} + \beta_2^d \sum_{i=1}^{q} \Delta BUD_{t-1} + \beta_3^d \sum_{i=1}^{q} \Delta INR_{t-1} + \beta_4^d \sum_{i=1}^{q} \Delta MSY_{t-1} + \beta_5^{ecm} ECM_{t-1} + \varepsilon_{1t}. \quad (11)$$

where β^s are parameters to be estimated, Δ is the difference operator, ε_T, k are as defined above. The parameter β_i^{ecm} where i=1,2,...,4 should be negative (<0). Following Sinha and Sinha (2007) and Rambalg and Doran (1996) as cited in Agu and Chukwu (2008), the Toda-Yamamoto (1995) causality test is valid for series that are integrated or cointegrated and serves also as an augmented Granger causality test and is formulated as follows:

Let d_{max} = maximum order of integration in the VAR system below: The VAR ($_{c + dmax}$) shall be estimated to use the modified WALD test for linear restrictions on the coefficients of VAR which follows an asymptotic X^2-distribution. Using the Schwarz-Bayesian Information Criteria (SBC) and Hannan-Quinn Information (HQ) criteria, the optimum lag length is determined to be three (3). To increase the number of lags in the WALD model up to the maximum cointegration level of variables entered in the model is crucially fundamental in opting for the Toda-Yamamoto causality testing procedure. The Toda-Yamamoto approach is an alternative causality testing approach based on the Granger causality equation but augmented with extra lags determined by the potential order of integration of the series causally tested. Employing the Seemingly Unrelated Regression (SURE) framework, we estimate a VAR (4) as follows:

$$\begin{bmatrix} INR_t \\ BUD_t \\ MSY_t \\ INF_t \end{bmatrix} = \beta_0 + \beta_1 \begin{bmatrix} INR_{t-1} \\ BUD_{t-1} \\ MSY_{t-1} \\ INF_{t-1} \end{bmatrix} + \beta_2 \begin{bmatrix} INR_{t-2} \\ BUD_{t-2} \\ MSY_{t-2} \\ INF_{t-2} \end{bmatrix} + \beta_3 \begin{bmatrix} INR_{t-3} \\ BUD_{t-3} \\ MSY_{t-3} \\ INF_{t-3} \end{bmatrix} + \beta_4 \begin{bmatrix} INR_{t-4} \\ BUD_{t-4} \\ MSY_{t-4} \\ INF_{t-4} \end{bmatrix} + \begin{bmatrix} \mu_t^{inr} \\ \mu_t^{bud} \\ \mu_t^{msy} \\ \mu_t^{inf} \end{bmatrix} \ldots \quad (9)$$

To test that Budget deficit (BUD) does not Granger cause macroeconomic variables (INR), (MSR) and (INF), the null hypothesis is stated as:

$H_0 : \beta_{ij} = 0$

Versus

$H_1 : \beta_{ij} \neq 0$ where β_{ij} are the coefficients of the variables

RESULTS AND DISCUSSIONS

Unit Roots Test Result

In this study, the Augmented Dickey Fuller (ADF) unit roots tests was employed to test for the time series properties of model variables. The null hypothesis is that the variable under investigation has a unit root against the alternative that it does not. The decision rule is to reject the null hypothesis if the ADF statistic value exceeds the critical value at a chosen level of significance (in absolute term). These results are presented in Table 1 below.

Table 1. Unit Roots Test Result

Variable	ADF statistics		ADF statistics	
	Level	Critical values	1st difference	Critical values
MSY	-0.487356	1% -3.4708	-14.45447	1% -3.4710
		5% -2.8789		5% -2.8790
		10% -2.5759		10% -2.5760
BUD	-1.507511	1% -3.4708	-13.72950	1% -3.4710
		5% -2.8789		5% -2.8790
		10% -2.5759		10% -2.5760
INR	-1.735770	1% -3.4708	-15.40390	1% -3.4710
		5% -2.8789		5% -2.8790
		10% -2.5759		10% -2.5760
INF	-2.861124	1% -3.4708	-13.51887	1% -3.4710
		5% -2.8789		5% -2.8790
		10% -2.5759		10% -2.5760

The results of Table 1 above show that all the variables are non-stationary in level form since their ADF values are less

than the critical values at 1% and 5% the null hypothesis of a unit root was accepted for all the variables but was rejected in 1st difference. Thus, we conclude that the variables under investigation are integrated of order one. (i.e. I(1)). Since the variable are integrated of the same order. We therefore, examine their co-integrating relationship using Johansen co-integration procedure.

Co-integration Test Result

A necessary but not sufficient condition for co-integrating test is that each of the variables be integrated of the same order. The Johansen co-integration test uses two statistics test namely: the trace test and the likelihood eigenvalue test. The first row in each of the table test the hypotheses of no co-integrating relation, the second row test the hypothesis of one co-integrating relation and so on, against the alternative of full rank of co-integration. The results are presented in Table 2 below.

Table 2. Co-integrating Test Result between the Variables: RIR BOD MOS INF

Eigen value	Likelihood Ratio	5% critical value	1% critical value	Hypothesized No of CE(s)
0.402940	56.09390	47.21	54.46	None*
0.152230	16.89780	29.68	35,65	At most 1
0.054462	4.346720	15.41	20.04	At most 2
0.001192	1.090663	3.76	6.65	At most 3

*(**) denotes rejection of the hypothesis at 5% (1%) significance level.
L.R. test indicates 1 co-integrating equation(s) at 5% level of significance

Interpretation of co-integrating results

From Table 2 above, the likelihood statistics indicates the presence of one co-integrating equation at 5% significance level which implies that budget deficit (BOD) and macroeconomic variables are co-integrated. This shows that there is a long-run relationship between budget deficit and macroeconomic variables in Nigeria. This implies causality in at least one direction.

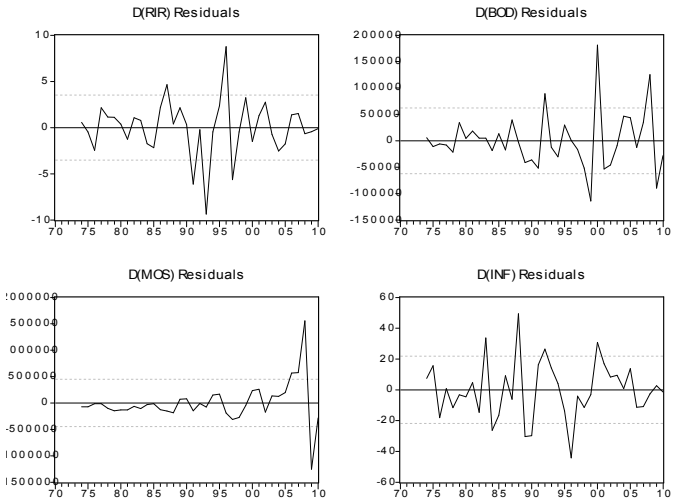
Table 3. Toda-Yamamoto Causality (modified WALD) Test Results

Null hypothesis	Chi-Square (X^2)	P-value	Conclusion
BUD does not granger cause INR	4.5628	0.00004	Reject Ho
INR does not granger cause BUD	0.7762	0.25740	Do not reject Ho
BUD does not granger cause MSY	1.65167	0.13155	Do not reject Ho
MSY does not granger cause BUD	2.7353	0.68940	Do not Reject Ho
BUD does not granger cause INF	6.7834	0.00013	Reject Ho
INF does not granger cause BUD	0.9272	0.57840	Do not Reject Ho

Interpretation of Toda-Yamamoto Causality Test Result

From Table 3 above, the Toda-Yamamoto causality test revealed that budget deficit causes interest rate without a feedback. Also budget deficit causes inflation without a feedback while there is no direction of causality between budget deficit and money supply. This indicates a strong unidirectional causality running from budget deficit to macroeconomic variables like interest rate and inflation in Nigeria. The conclusion was arrived based on the fact that their Chi-square statistics were statistically significant at 5% as indicated by their p- values. These two outcomes support the Conventional Keynesian Proposition (CKP) which posits that changes in budget deficit influence interest rates and other macroeconomic variables. These results corroborate the findings of Bovenberg (1998), Laumas (1989), Dua (1993) and Odionye and Uma (2013).

The Graphical Trend of the Residuals of the Variables used



The residuals trend above for interest rate (RIR) maintained the interval of ± 5 between 1970 and 1985 but drifted away from the interval between 1986 and 1995 and thereafter moved back to the interval. Budget deficit residuals moved within the interval of ± 2000 but started oscillating from 1992 to 2010. While residuals of inflation rate was oscillatory during this period, that of money supply maintained an interval of ± 3000 and became explosive after 2006.

Summary and policy recommendations

The main findings are itemized below as follows: (a) The ADF results show that the series are non stationary in their level form and are integrated of order one. (2) Johansen co-integration test result shows evidence of co-integration implying that there is a long run relationship between budget deficit and macroeconomic variables in Nigeria. (3) The Toda-Yamamoto causality test indicates a strong unidirectional causality running from budget deficit to macroeconomic variables like interest rate and inflation in Nigeria. This validates the Keynesian Proposition Based on the research findings, the following recommendations were made to arrest the enumerated problems. Since there is a unidirectional causality running from budget deficit to macroeconomic variables, appropriate monetary- fiscal policies mix should be pursued. To achieve this, focus should be on the following:

1) Policy makers should focus on the right combination of appropriate internal- external debt ratio, the ways and means and bond to finance budget deficit in the country with close monitoring of inflation.
2) Restrictive monetary, fiscal, and exchange rate policies should be maintained in order to fight highly pervasive and persistent increase in the general price level and increasing interest rate.
3) Inflation-adjusted interest rate policy should be pursued in order to reduce the cost of servicing debt and the budget deficit

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APPENDIX

YEAR	QUARTERLY	MSY	BUD	INR	INF
1970	Q1	994.1	-298.425	7	1.725
	Q2	1010	-141.75	7	1.7
	Q3	1025.9	14.925	7	1.675
	Q4	978.2	-455.1	7	1.75
1971	Q1	1085.075	114	7	3.59
	Q2	1128.35	56.4	7	5.53
	Q3	1171.625	-1.2	7	7.47
	Q4	1041.8	171.6	7	1.65
1972	Q1	1291.8	-2.575	7	8.21
	Q2	1368.7	53.65	7	7.01
	Q3	1445.6	109.875	7	5.81
	Q4	1214.9	-58.8	7	9.41
1973	Q1	1729.95	423.6	7	6.84
	Q2	1937.4	681.1	7	9.07
	Q3	2144.85	938.6	7	11.3
	Q4	1522.5	166.1	7	4.61
1974	Q1	2824.525	790.1	7	18.63
	Q2	3296.75	384.1	7	23.73
	Q3	3768.975	-21.9	7	28.83
	Q4	2352.3	1196.1	7	13.53
1975	Q1	4657.175	-593.625	6.75	30.7225
	Q2	5073.15	-759.35	6.5	27.515
	Q3	5489.125	-925.075	6.25	24.3075
	Q4	4241.2	-427.9	7	33.93
1976	Q1	6403.525	-1013.45	6	21.195
	Q2	6901.95	-936.1	6	21.29
	Q3	7400.375	-858.75	6	21.385
	Q4	5905.1	-1090.8	6	21.1

…….Continue

1977	Q1	7920.45	-1291.53	6	19.4575
	Q2	7942.1	-1801.65	6	17.435
	Q3	7963.75	-2311.78	6	15.4125
	Q4	7898.8	-781.4	6	21.48
1978	Q1	8545.2	-1751	6.25	12.9575
	Q2	9105	-680.1	6.5	12.525
	Q3	9664.8	390.8	6.75	12.0925
	Q4	7985.4	-2821.9	6	13.39
1979	Q1	11443.6	602.475	7.125	11.245
	Q2	12662.6	-256.75	7.25	10.83
	Q3	13881.6	-1115.98	7.375	10.415
	Q4	10224.6	1461.7	7	11.66
1980	Q1	15365.875	-2456.93	7.5	11.85
	Q2	15631.15	-2938.65	7.5	13.7
	Q3	15896.425	-3420.38	7.5	15.55
	Q4	15100.6	-1975.2	7.5	10
1981	Q1	16644.675	-4452.6	8.1875	14.6475
	Q2	17127.65	-5003.1	8.875	11.895
	Q3	17610.625	-5553.6	9.5625	9.1425
	Q4	16161.7	-3902.1	7.5	17.4
1982	Q1	18789.975	-5419.2	10.1875	14.485
	Q2	19486.35	-4734.3	10.125	22.58
	Q3	20182.725	-4049.4	10.0625	30.675
	Q4	18093.6	-6104.1	10.25	6.39
1983	Q1	21501.825	-3188.48	10.5625	34.735
	Q2	22124.55	-3012.45	11.125	30.7
	Q3	22747.275	-2836.43	11.6875	26.665
	Q4	20879.1	-3364.5	10	38.77
1984	Q1	24096.9	-2755.23	11.5	17.23
	Q2	24823.8	-2850.05	10.75	11.83
	Q3	25550.7	-2944.88	10	6.43
	Q4	23370	-2660.4	12.25	22.63
1985	Q1	26555.65	-4343.35	9.5625	4.19
	Q2	26833.7	-5647	9.875	7.35
	Q3	27111.75	-6950.65	10.1875	10.51
	Q4	26277.6	-3039.7	9.25	1.03
1986	Q1	28959.2	-7663.15	12.25	12.675
	Q2	30528.6	-7072	14	11.68
	Q3	32098	-6480.85	15.75	10.685
	Q4	27389.8	-8254.3	10.5	13.67
1987	Q1	36612.275	-7457.5	17.25	22.57
	Q2	39557.15	-9025.3	17	35.45
	Q3	42502.025	-10593.1	16.75	48.33
	Q4	33667.4	-5889.7	17.5	9.69
1988	Q1	45848.925	-12904.4	19.075	57.075
	Q2	46250.95	-13647.8	21.65	52.94
	Q3	46652.975	-14391.3	24.225	48.805
	Q4	45446.9	-12160.9	16.5	61.21
1989	Q1	52456.8	-16880.1	26.475	34.405
	Q2	57858.6	-18625.4	26.15	24.14
	Q3	63260.4	-20370.8	25.825	13.875
	Q4	47055	-15134.7	26.8	44.67
1990	Q1	73371.6	-25525.9	24.1275	8.4475
	Q2	78081	-28935.7	22.755	13.285
	Q3	82790.4	-32345.4	21.3825	18.1225
	Q4	68662.2	-22116.1	25.5	3.61
1991	Q1	97896.225	-36699.5	22.4575	29.42
	Q2	108292.65	-37643.7	24.905	35.88
	Q3	118689.075	-38588	27.3525	42.34
	Q4	87499.8	-35755.2	20.01	22.96
1992	Q1	146433.925	-43438.6	26.93	51.9
	Q2	163782.35	-47345	24.06	55
	Q3	181130.775	-51251.3	21.19	58.1
	Q4	129085.5	-39532.2	29.8	48.8
1993	Q1	215595.625	-58935.9	18.99	65.09
	Q2	232712.05	-62714.2	19.66	68.98
	Q3	249828.475	-66492.4	20.33	72.87
	Q4	198479.2	-55157.7	18.32	61.2
1994	Q1	279899.55	-52453	20.795	70.4675
	Q2	292854.2	-34635.3	20.59	64.175
	Q3	305808.85	-16817.7	20.385	57.8825
	Q4	266944.9	-70270.6	21	76.76
1995	Q1	331656	8762.35	20.07	42.27
	Q2	344548.5	16524.7	19.96	32.95
	Q3	357441	24287.05	19.85	23.63
	Q4	318763.5	1000	20.18	51.59
1996	Q1	385182.95	22787.05	18.19	13.285
	Q2	400032.4	13524.7	16.64	12.26
	Q3	414881.85	4262.35	15.09	11.235
	Q4	370333.5	32049.4	19.74	14.31

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2000	Q1	1106026.9	-133095	18.0575	15.02
	Q2	1245921.7	-162413	18.135	15.51
	Q3	1175974.3	-191731	18.2125	16
	Q4	1036079.5	-103777	17.98	14.53
2001	Q1	1386775.475	-241137	19.93	15.4025
	Q2	1528588.225	-261225	21.57	14.315
	Q3	1457681.85	-281313	23.21	13.2275
	Q4	1315869.1	-221049	18.29	16.49
2002	Q1	1695918.9	-276732	23.815	15.065
	Q2	1888767.5	-252063	22.78	17.99
	Q3	1792343.2	-227394	21.745	20.915
	Q4	1599494.6	-301402	24.85	12.14
2003	Q1	2054790.825	-195194	20.3275	20.3825
	Q2	2193988.875	-187663	19.945	16.925
	Q3	2124389.85	-180132	19.5625	13.4675
	Q4	1985191.8	-202725	20.71	23.84
2004	Q1	2401402.45	-169803	18.8725	10.4
	Q2	2677031.55	-164205	18.2575	11.18
	Q3	2539217	-167004	18.565	10.79
	Q4	2263587.9	-172601	19.18	10.01
2005	Q1	3118110	-146404	17.7775	10.82
	Q2	3724637.8	-116400	17.4325	9.32
	Q3	3421373.9	-131402	17.605	10.07
	Q4	2814846.1	-161406	17.95	11.57
2006	Q1	4473382.9	-105357	17.18	8.0675
	Q2	5364345.3	-113277	17.02	7.0625
	Q3	4918864.1	-109317	17.1	7.565
	Q4	4027901.7	-101398	17.26	8.57
2007	Q1	6649078.7	-99772.5	16.69	8.695
	Q2	8327583.1	-64843.2	16.19	12.965
	Q3	7488330.9	-82307.8	16.44	10.83
	Q4	5809826.5	-117237	16.94	6.56
2008	Q1	9566970.925	-69439.8	15.1975	14.425
	Q2	10367242.18	-113562	13.7125	13.075
	Q3	9967106.55	-91501.1	14.455	13.75
	Q4	9166835.3	-47378.5	15.94	15.1
2009	Q1	11161149.23	-159637	13.1325	12.2
	Q2	11948692.08	-207662	13.4575	11.8
	Q3	11554920.65	-183650	13.295	12
	Q4	10767377.8	-135624	12.97	12.4
2010	Q1	9256847.875	-173756	10.465	8.95
	Q2	3085616.625	-57918.1	4.155	3.65
	Q3	6171232.25	-115837	7.31	6.3
	Q4	12342463.5	-231675	13.62	11.6
2011	Q1	12342463.5	-231675	12.6	12.5
	Q2	12342463.5	-231675	11.45	12.4
	Q3	12342463.5	-231675	11.7	11.7
	Q4	12342463.5	-231675	11.9	10.3

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