A Causal Link between Receipts and Expenditure of State Governments in India

Rashpaljeet Kaur

Assistant Professor,
PG Deptt. of Commerce,
Mata Gujri College, Fatehgarh Sahib.

Dr. Rajinder Kaur

Professor,
Deptt. of Commerce,
Punjabi University, Patiala.

Abstract

The goal of this paper is to analyze the causal relationship between total receipts and total expenditure of state governments in India for 1991-92 to 2015-16 using modified version of Granger causality test given by Toda and Yamamoto (1995). The study uses the annual time series data. The data is analyzed to determine its stationary using Augmented Dickey Fuller (ADF) unit root test. The four schools of thoughts have been included in this paper on the basis of vast literature available about this relation. Our application of the Toda - Yamamoto Granger causality test found that there is neutrality between total receipts and expenditure of state governments in India. This result supports the institutional separation thought given by Baghestani and McNown (1994).

Keywords: Government Receipts, Government Expenditure, Granger Causality, Toda-Yamamoto.

Introduction

Deficits on government accounts are one of the important indicators of fiscal position. It is found that the deficits of state governments in India have attracted a lot of concern regarding the sustainability of state government finances in India. The State government finances have shown progressive deterioration since the late 1990s (Raju, 2008). There are several factors can be responsible to worsening the financial position of states, like increasing committed expenditure (particularly wages, salaries and pensions) arising out of the implementation of the Fifth and Sixth Pay Commission, losses of public sector enterprises of states (particularly State Electricity Boards) and decreasing assistance from the central government. Other causes are fall in states' own tax revenue relative to GDP, subsidies and inadequate user charges provided by states have also contributed to the deterioration in states fiscal position. Due to the widening gap between revenues and expenditures, states are trying to restore the position by borrowing at high interest rates resulting in rising debt servicing costs which further contributed in the worsening fiscal imbalance. The states have taken up various fiscal reforms i.e. enactment of Fiscal Responsibility Legislation (FRL), larger devolution and transfer by the Twelfth Finance Commission (TFC) through shareable central taxes and grants, implementation of value added tax (VAT) in lieu of sales tax, correction lies in revenue augmentation, improvement in tax administration, streamlining and strengthening existing tax and non-tax collection and plugging of revenue leakages etc. (State Finances: A

study of budgets, 2006-07). These various reform measures proved favourable in improving the fiscal situation as can be observed from the improvement seen on the different deficit parameters since 2004-05(State Finances: A study of budgets, 2006-07). This paper seeks to study the state government finances in India by examining the existence of relationship between revenues and expenditures because these components have greater impact on the levels of deficits.

The relationship of government revenue and expenditure has been examined by many researchers and scholars around the world. Theoretically, the literature has propounded the four main schools of thoughts (i.e "revenue causes expenditure", "expenditure causes revenue", "fiscal synchronization" and "institutional separation") to explain the causal relationship between government revenues and government expenditures which are as follows:

First of these is the "revenue causes expenditure" thought which postulates that the revenue causes expenditure and causality relation runs from revenue to expenditure which mean change in government revenue leads to change in expenditure. This thought is called as the "tax and spend" hypothesis which was advocated by Friedman (1978), who argued that increasing taxes would lead to more spending. The policy implication of this thought is that if the government revenue causes expenditure, budget deficits can be eliminated or avoided by implementing policies aimed at stimulating government revenues (Narayan, 2006, Nwosu and Okafor, 2014). The existence of this thought is confirmed by Narayan (2006), Eita and Mbazima (2008), Wolde-Rufael (2008), Ogujiuba and Abraham (2012), Mehrara and Rezaei (2014), Obeng (2015).

The second is the "expenditure causes revenue" thought, which is known as the "spend and tax" thought advocated by Peacock and Wiseman (1961, 1979) who argued that the rise in government expenditure is mainly due to the crises which lead to the permanent changes in expenditure. They are of the view that severe crisis initially force up government expenditure, more than taxes, is capable of changing public attitudes about proper size of government. The main idea here is that the original tax increases due to the crisis becomes a permanent feature in the tax policies (Narayan, 2005, Gounder and Parsad, 2007). The policy implication of this thought is that the government spends first and later pays for this spending by raising tax revenue. Such a situation can induce capital outflow due to the fear of paying higher taxes in future (Narayan, 2006). In empirical point of view, there is a unidirectional causality relation running from expenditure to revenue. This type of causal relation is confirmed by Narayan(2006), Wolde-Rufael (2008), Lukovic and Grbic (2014), Lojanica (2015).

The third school of thought is the "fiscal synchronization" advocated by Musgrave (1966), later by Meltzer and Richard (1981). This thought explains that the decision to spend and decision to taxation are taken simultaneously and there is bidirectional causality relation between government revenue and expenditure. Under this view, citizens decide on the level of expenditure and taxes through comparing the benefits provided by government to citizen's marginal cost (Narayan, 2005). On the policy side, if the 'fiscal synchronization hypothesis' does not hold, it implies that expenditure decisions are made in isolation from the revenue decisions, which can lead to serious budget deficits due to more rapidly increase in government expenditures than government revenues (Narayan, 2005). Therefore, improvements on both revenue and expenditure side are required in order to solve the problem of budget deficit (Lojanica, 2015). The third school of thought is supported by Aziz et al. (2000), Gounder et al. (2007) Wolde-Rufael (2008), Ravinthirakumaran K. (2011), Yashobanta and Behera (2012), Al-Zeaud (2014).

Finally, fourth school is the "institutional separation" suggested by Baghestani and McNown (1994) which describes fiscal independence. Government revenue and expenditure decisions are independent from each other because these are determined by the long run economic growth reflecting the institutional separation between government revenues and expenditure (AL-Qudair, 2005, Mehrara and Rezaei, 2014). In empirical sense, there is no causal relation between government revenue and expenditure. The policy implication of this thought is related to the fact that the budget deficit is due to the higher increase in government expenditure as compared to government revenue. Here, government expenditure would be defined on the basis of the population requirements and revenue would depend upon the maximum tax burden tolerated by the population. As a result, the achievement of fiscal balance would then be a matter of pure coincidence (Yashobanta and Behera 2012, Lojanica, 2015). This school of thought is supported through various studies conducted by Narayan (2005, 2006), Wolde-Rufael (2008), Ali and Shah (2012), Hamdi and Sbia (2013).

Therefore, this paper seeks to analyze which of the above mentioned four schools of thought characterizes the inter-relationship between consolidated receipts and expenditures for the state governments in India. In section 2 of the paper briefly discuss a review of literature while section 3 outlines the data and methodology adopted in this paper. Section 4 shows the empirical evidence and section 5 provides the concluding remarks of the paper.

Review of Literature

Most of the studies have analyzed the relationship between revenues and expenditures by using the Granger causality test. The empirical literature suggests that there are mixed findings about causal relationship between government revenue and government expenditure. Like, Narayan (2005)

in his work done to examine the causality relation among government revenue and government expenditure for nine Asian countries. He found that the relation between revenue and expenditure of Nepal supported the tax and spend hypothesis and for Indonesia & Sri Lanka confirmed the relation with the spend and tax hypothesis. He also found that out of nine Asian countries, for the five countries i.e. India, Malaysia, Pakistan, Thailand and Philippiness, there was neutrality between government revenue and expenditure (i.e. supported to institutional separation hypotheses). Narayan and Narayan (2006) found Granger causality results revealed the support for tax and spend thought for Mauritius, Haiti, El Salvador, Venezuela and Chile. There was also evidence for spend and tax thought for Haiti. While, no causal relationship was found in case of Peru, South Africa, Uruguay, Guatemala and Ecuador. Wolde-Rufael (2008) found that there was a bi-directional causality running among revenue and expenditure for Swaziland, Mauritius and Zimbabwe. He indicated that there was no causality relation running in any direction between these two fiscal variables for Botswana, Burundi and Rwanda. He also found the unidirectional causality running from revenue to expenditure for Ethiopia, Kenya, Ghana, Mali, Nigeria and Zambia and a unidirectional causality running from expenditure to revenue for Burkina Faso only. Hamdi & Sbia (2013) found that the empirical results of Toda- Yamamoto procedure show that government expenditures Granger cause revenues for Qatar and the United Arab Emirates, while government revenues Granger cause expenditures for Saudi Arabia only. Mehrara & Rezaei (2014) found unidirectional causality running from government revenue to government expenditure for Iran and these results were in consistent with the revenue-spend hypothesis. Similarly, there is a vast literature that analyzes the relationship between government revenue and government expenditure as mentioned in support of above schools of thought.

Methodology

Data Collection and Analysis

The present study is based on secondary sources. All data (for consolidated total receipts and total expenditures of state governments in India) are obtained from Handbook of Statistics on State Government Finances and State Finances: A Study of Budgets, reports of Reserve Bank of India (RBI). The data is collected annually for the period from 1991-92 to 2015-16. The analysis is based on the use of two variables i.e. state governments' receipts (GR) and state governments' expenditure (GE). The empirical analysis has been done on the basis of following econometric tools:

Augmented Dickey Fuller (ADF) unit root test

In order to implement the granger causality test suggested by Toda and Yamamoto (1995), first of all, the time series of each variable under analysis is tested for stationarity and

also determine the maximal order of integration by using Augmented Dickey Fuller (ADF) unit root test. Each variable is converted firstly into natural logarithm before applying the ADF test. The Augmented Dickey Fuller unit root test is used to empirically examine whether a series has a unit root or not. If the series has a unit root, this indicates that the series is non-stationary. Otherwise, the series will be stationary. The time series may be stationary at levels, first or second difference. If a time series is integrated at levels, then it is denoted by I (0). On the other hand, if a time series is stationary at first difference, it means original series is integrated of order 1 and depicted by I (1). Similarly, if the time series is stationary at second difference, we say that the series is integrated of order two and denoted by I (2). In the present study, Augmented Dickey Fuller Unit Root Test is applied for checking the stationarity of variables. To perform ADF test, the following auto regression equation in most general form is used (Lukovic and Grbic, 2014):

$$\Delta Y_t \ = \ \delta_0 + \delta_1 t + \delta_2 Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-i} + \omega_t$$

Where, Yt = observed variable (GRt and GEt).

t = time trend.

d0, d1, d2, a i = a set of parameters that are estimated.

ω_t = a white noise error term.

The null hypothesis (i.e. time series has a unit root) is tested by using ADF unit root test. The test is carried out by using McKinnon test statistic at the various significance levels i.e. 1 percent, 5 percent and 10 percent. This test is performed by using E-Views software.

Toda and Yamamoto Granger Causality Test

Granger causality test is mainly used to test the causal relationship among the two variables. We know that the regression analysis deals with dependence of one variable on another independent variable, but it does not involve causation. For example, two variables, say "A" and "B" affecting each other with distributed lags. Here, Granger causality test make it possible to say that A "causes" B (A? B) or B "causes" A (B? A), or both causes each other. So, Granger causality test is very useful because it shows the direction of causality or we can say that it shows cause and effect relationship.

The various granger causality tests are present to check the causality between variables like Granger (1969) Engle and Granger (1987) Johansen and Jesulious (1990) These tests are not free from limitations because they have some pre-requirements. While applying these tests, it is compulsory to pretest the unit root property and cointegration and even these are very sensitive to model specification. To overcome these limitations, the present study applies a more robust

granger causality test given by Toda and Yamamoto (1995) . This approach is very simple to apply and it also follows an asymptotic Chi-squared distribution. This technique is very useful because it is not necessary to conduct the tests for co-integration among variables before applying this test. This test is essentially performed in two steps. The first step includes the determination of optimal lag length (k) and the maximum order of integration (dmax) of variables in the model. In the present study, Akaike Information Criterion (AIC) has been used to determine the optimum lag length (k) and ADF unit root test has been applied to achieve the maximum order of integration (dmax) Once a VAR (k) and dmax is obtained, then a VAR in levels is estimated with the optimal lag length of p= [k+dmax] The second step is to apply the Wald test (also called as modified Wald (M Wald)) on the first (k) VAR coefficient matrix to make inference on Granger causality. Above discussions can be represented arithmetically in form of following equations (Narayan and Narayan, 2006) :

$$In\ GR_t = \alpha_0 + \sum_{i=1}^{k+dmax} \alpha_i\ In\ GR_{t-i} + \sum_{i=1}^{k+dmax} \beta_i In\ GE_{t-i} + \varepsilon_{1t}$$

$$In\ GE_t = \gamma_0 + \sum_{i=1}^{k+dmax} \varphi_i\ In\ GE_{t-i} + \sum_{i=1}^{k+dmax} \delta_i In\ GR_{t-i} + \varepsilon_{2t}$$

Here, In GR means natural logarithm of government receipts and In GE means natural logarithm of government expenditure. $\_1t$, $\_2t$ and $\_3t$ are serially independent random errors with a mean of zero and a finite covariance matrix (Narayan and Narayan, 2006) In the present study,

this test is also performed by using E-Views software.

Empirical Results

The total receipts of all state governments can be divided into two broad categories i.e. revenue receipts and capital receipts. The receipts which are non-redeemable in nature with no future obligations or received against past transactions are known as revenue receipts and the receipts which create liability or decrease the financial assets of the governments are termed as capital receipts. The total expenditure of the States consists of revenue expenditure and capital expenditure. Revenue expenditure belongs to those expenditures which are incurred for smooth running of government departments and various services. It also include the interest charges on debt incurred by the government and all transfers consisting grants given to the state government (in case of expenditure of central government) grants to the local bodies and other parties (in case of expenditure of state governments) In broader term, all those expenditures which do not lead to creation of physical or financial assets for the government are treated as revenue expenditures. On the other hand, capital expenditure relates to those expenditures of the government which results to the creation of physical or financial assets. Capital expenditure are mainly of two types: (a) which directly spent like capital outlays i.e. direct expenditure on the economic, social and general services from the capital account of the state government and (b) which spent indirectly by extending loans and advances or repaying loans incurred earlier. The results of Augmented Dickey Fuller unit root test for total receipts and total expenditure of the states governments in India are presented in table 1.

Table 1 : Augmented Dickey Fuller Unit Root Test

Variables	Calculated value of T-Statistic	Critical value of T at 1%	Critical value of T at 5%	Critical value of T at 10%	P-value	Rejection Acceptance of Null Hypothesis	Order of Integration
Total Receipts	-4.47*	-3.75	-3.00	-2.64	0.00*	Reject H0	First order Stationary I(1)
Total Expenditure	-4.55*	-3.75	-3.00	-2.64	0.00*	Reject H0	First order Stationary I(1)

Source: Calculations of author.
Notes: Null Hypothesis (H0): Series has a unit root.
* Significant at 1 per cent, 5 per cent and 10 per cent levels.

The table 1 shows the value of Augmented Dickey fuller test statistics and p-value of each variable in column I against which the null hypothesis is to be tested. It is found that the value of test statistic and p-value in all cases is significant at 1 per cent, 5 per cent and 10 per cent level of significance respectively. The results exhibit that the receipts, expenditure of state governments are non-stationary in their levels. It is clear from the table that the total receipts and expenditures of the states are integrated of order one or I(1).

The maximal order of integration is one (dmax = 1). It can be concluded that the null hypothesis is rejected and there is an absence of unit root in the variables which provides the evidence of stationarity of the time series.

Toda and Yamamoto Granger Causality Test (1995)

Table 2 presents the results of Toda-Yamamoto Granger Causality test which is carried out on total receipts and total expenditure of state governments in India.

Table 2 : Results of Toda - Yamamoto Granger Causality Test

Null Hypothesis (H0)	M Wald statistics	Probability value
Total receipts does not granger cause total expenditure of all states	0.54	0.46
Total expenditure does not granger cause total receipts of all states	0.20	0.66

Source: Calculations of author.

Notes: *Reject at 1 % level of significance and **at 5% level of significance, Optimal lag length (k) is selected by using Akaike Information Criteria (AIC).

The table 2 demonstrates the empirical results of granger causality test suggested by Toda-Yamamoto (1995). The granger causality test is applied by using the natural logarithm of total receipts and expenditure of the states of India at their levels. The results from the table 2 indicate that there is no causal relationship running between consolidated total receipts and expenditures of states which implies that the revenues and expenditures decisions are made independently by state governments of India. This evidence supports the fourth school of thought "institutional separation". Our result is supported by Narayan (2005) in his work done to examine the causality relation among government revenue and government expenditure for nine Asian countries. He found that out of nine Asian countries, for the five countries i.e. India, Malaysia, Pakistan, Thailand and Philippiness, there was neutrality between government revenue and expenditure. Our result is consistent with the other study of Narayan and Narayan (2006) for Peru, South Africa, Uruguay, Guatemala and Ecuador where they found no causal relation between revenue and expenditure. Our empirical result is also consistent with that found by Wolde-Rufael (2008) for Botswana, Burundi and Rwanda where the evidence indicates that there was no causality relation running in any direction between these two fiscal variables. Our empirical finding is also quite consistent with the other studies like Ali and Shah (2012), Hamdi and Sbia (2013). This type of result exhibits that the governments can manipulate receipts or expenditure or both in order to reduce budget deficits because revenue and expenditure decisions are made independently by governments. However, a likely implication, in the face of rapid growth in expenditures relative to revenues, is one of serious budget deficits (Narayan and Narayan, 2006).

Concluding Remarks

In this paper, the investigation of causal relationship among receipts and expenditure of state governments in India is conducted by using a modified version of the Granger causality test due to Toda and Yamamoto (1995). This relationship is analyzed on the basis of the data for the period 1991-92 to 2015-16. The ADF unit root test found the variables to be integrated of order one. The results of Toda-Yamamoto granger causality test shows that there is no causal relation between consolidated receipts and expenditures of state governments in India which imply that in these states, expenditure decisions may be made independently from revenue decisions. Our results support the "institutional separation" thought. This exposes the state governments may face to potential budget deficits due to rapid growth in expenditure relative to government revenues.

References:

Aziz, M. A., Habibullah, M. S., Azman, W.N.W., & Azali, M. (2000). Testing for Causality between Taxation and Government Spending: An Application of Toda-Yamamoto Approach. Pertanika Journal of Social Science and Humanities, 8(1), 45-50.

AL-Qudair, K. H. A. (2005). The Relationship between Government Expenditure and Revenues in the Kingdom of Saudi Arabia: Testing for Cointegration and Causality. JKAU: Econ. & Adm., 19(1), 31-43.

Al-Zeaud, H. A. (2014). The Causal Relationship between Government Revenue and Expenditure in Jordan. Global Journal of Management and Business Research, 14 (6), 49-57.

Baghestani, H., & McNown, R. (1994). Do revenue or expenditure respond to budgetary disequilibria. Southern Economic Journal, 61, 311–22.

Chimobi, O. P. (2009). Government Expenditure and National income: A Causality Test for Nigeria. European Journal of Economic and Political Studies, 2, 1-11.

Debnath, S., & Mazumder, R. (2016). Investigating Short Run Causality between Real GDP and Government Expenditure in India since 1950s. Journal of Economics and Sustainable Development, 7(5), 61-71.

Eita, J. H., & Mbazima, D. (2008). The Causal Relationship between Government Revenue and Expenditure in Namibia. Munich Personal Repec Archive (MPRA) Paper No. 9154, June, 1-17.

Friedman, M. (1978). The Limitations of Tax Limitation. Policy Review, 7–14.

Foresti, P (2007). Testing for Granger causality between stock prices and economic growth. Munich Personal Repec Archive (MPRA) Paper No. 2962, 26 April, 1-10. Retrieved from http://mpra.ub.uni-muenchen.de/2962/

Gounder, N., Narayan, P. K., & Prasad, A. (2007). An empirical investigation of the relationship between government revenue and expenditure: The case of the Fiji Islands. International Journal of Social Economics, 34(3), 147-158.

Hamdi, H., & Sbia, R. (2013). Re-Examining Government Revenues, Government Spending and Economic Growth in GCC Countries. Journal of Applied Business Research, 29(3), 737-742. Retrieved from https://www.researchgate.net/publication/287562626

Kundan P., Majagaiya, & Gu, Q. (2010). A Time Series Analysis of Foreign Direct Investment and Economic Growth: A Case Study of Nepal. International Journal of Business and Management, 5(2), 144-148.

Lukovic, S., & Grbic, M. (2014). The Causal Relationship between Government Revenue and Expenditure in Serbia. Economic Themes 52 (2), 127-138.

Lojanica, N. (2015, May 28-30). Government Expenditure and Government Revenue – The Causality on the Example of the Republic of Serbia. Proceedings of Management International Conference (pp. 79-90). Portoroz, Slovenia.

Musgrave, R. A. (1966). Principles of budget determination. Public Finance: Selected Readings (Eds) A. H. Cameron and W. Henderson. New York: Random House, 15–27.

Meltzer, A. H., & Richard, S. F. (1981). A rational theory of the size of the government. Journal of Political Economy, 89, 914–27.

Mehrara, M., & Rezaei, A. A. (2014). The Relationship between Government Revenue and Government Expenditure in Iran. International Journal of Academic Research in Business and Social Sciences, 4(3), 171-182.

Narayan, P. K. (2005). The government revenue and government expenditure nexus: empirical evidence from nine Asian countries. Journal of Asian Economics, 15, 1203–1216.

Narayan, P. K., & Narayan, S. (2006). Government revenue and government expenditure nexus: evidence from developing countries. Applied Economics, 38, 285–291.

Nwosu, D. C., & Okafor, H. O. (2014). Government Revenue and Expenditure In Nigeria: A Disaggregated Analysis. Asian Economic and Financial Review, 4(7), 877-892.

Ogujiuba, K., & Abraham, T. W. (2012). Testing the Relationship between Government Revenue and Expenditure: Evidence from Nigeria. International Journal of Economics and Finance, 4(11), 172-182. Published by Canadian Center of Science and Education.

Obeng, S. (2015). A Causality Test of the Revenue-Expenditure Nexus in Ghana, Adrri Journal of Arts and Social Sciences, 11(1). Published by Africa Development and Resources Research Institute.

Peacock, A. T., & Wiseman, J. (1961). The Growth of Public Expenditure in the United Kingdom. Princeton, NJ: Princeton University Press for the National Bureau of Economic Research.

Peacock, A. T., & Wiseman, J. (1979). Approaches to the analysis of government expenditure growth. Public Finance Quarterly, 7, 3–23.

Pooja (2011, June). Economic Growth, Income inequality and Public Policy in India. Doctoral thesis, Department of Economics, Punjabi University, Patiala, 80-89.

Ravinthirakumaran, K. (2011). The Relationship between Government Revenue and Expenditure in Sri Lanka. Faculty of Commerce and Management Studies, ICBI, 1-15. Retrieved from https://www.researchgate.net/publication/282332660

Raju, S. (2008, August). The Revenue-Expenditure Nexus: Evidence for India. Contemporary Issues and Ideas in Social Sciences, 1-33.

RBI (2004). Handbook of Statistics on State Government Finances. Retrieved from https://www.rbi.org.in/Scripts/OccasionalPublications.aspx?head=Handbook of Statistics on State Government Finances

RBI (2010). Handbook of Statistics on State Government Finances. Retrieved from https://www.rbi.org.in/Scripts/OccasionalPublications.aspx?head=Handbook of Statistics on State Government Finances - 2010

RBI (2012-13). Handbook of Statistics on the Indian Economy. Retrieved from https://www.rbi.org.in/Scripts/AnnualPublications.aspx?head=Handbook+of+Statistics+on+Indian+Economy

RBI (2013-14). Handbook of Statistics on the Indian Economy. Retrieved from https://www.rbi.org.in/Scripts/AnnualPublications.aspx?head=Handbook+of+Statistics+on+Indian+Economy

RBI (2002-03). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2003-04). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2004-05). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2005-06). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2006-07). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2007-08). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2008-09). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2009-10). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2010-11). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2011-12). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2012-13). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2013-14). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2014-15). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

RBI (2015-16). State Finances: A Study of Budgets. Retrieved from https://www.rbi.org.in/SCRIPTs/AnnualPublications.aspx?head=State Finances : A Study of Budgets

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. Journal of Econometrics, 66, 225-250.

Wolde-Rufael, Y. (2008). The Revenue–Expenditure Nexus: The Experience of 13 African Countries. Journal Compilation, African Development Bank. USA: Blackwell Publishing Ltd.

Yashobanta, Y. P., & Behera, S. R. (2012, December 6). Causal Link between Central Government Revenue and Expenditure: Evidence for India. Munich Personal Repec Archive (MPRA) Paper No. 43072, 1-30, Retrieved from https://mpra.ub.uni-muenchen.de/43072/