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Financial Relationships in Indian Federalism: The Repercussion of Revenue and Expenditure on GSDP of Tamil Nadu Economy

S.Ulaganathan

Faculty, Department of Economics, Guru Nanak College, Affiliated to University of Madras, India,

**Corresponding author: ulaganathan@gurunanakcollege.edu.in*

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Abstract: The structure of Indian fiscal federalism has shown several problems during the past seventy years. There is a burning controversy between the union and states while sharing the revenue and expenditure based on the recommendation of the Finance Commission. This paper attempts to examine the fiscal transfers by the Central Government to the state of Tamil Nadu from 2000-2001 to 2019-2020 and also analyzes the impact of revenue source and expenditure on GSDP of Tamil Nadu Economy. The data on GSDP, revenue and expenditure were collected from the Annual Reports of Public Finance Statistics and Finance Commission. A regression model has been applied to estimate the relationship between the Union government and State government in revenue transfers and its impacts on GSDP. The results indicate that the state's own revenue sources, such as, tax and non-tax revenues have a positive effect on the growth of the GSDP of Tamil Nadu. While the public expenditure of the state has not been adversely affected on the GSDP of Tamil Nadu. The result of the multiple regression analysis shows that the revenue transfer from Union Government to State Government has not adversely affected on the GSDP of Tamil Nadu. This means that the revenue share from Central government to State government has not increased over the period. Thus, the study concludes that the inadequate fiscal transfers of the Finance Commission have affected the performance of the Tamil Nadu economy.

Keywords: Indian Federalism, Financial Relations, GSDP, Tamil Nadu Economy

1. Introduction

The nature and structure of Indian fiscal federalism have revealed several problems and working of last seventy years. Its operation in the context of a process of planned economic development has created strain and stress. The imbalance between the union and the states has emerged as a result of their revenue structure not responding to their expanding development and non-development expenditure. In fiscal federalism, the financial resources and functions are divided between the Centre and States. Currently, there exist vertical as well as horizontal fiscal imbalances in Indian fiscal federalism. Sarma (1996), Roy and Raychaudhur (2007), Saraf and Srivastava (2009) have stressed that the unequal fiscal positions of the states attributed to the large regional disparities in the State Gross Domestic Product (GSDP) and wide divergences in the own revenues of the States. An interesting feature of Indian fiscal federalism is that the financial dependence of the States on the Centre has considerably increased after the implementation of Finance Commissions in India. Despite the scientific nature of our inter-governmental fiscal relations, the work of fiscal federalism has displayed some signs of dissatisfaction. It has resulted in the infringement of the budgetary of the States.

In turn, States have been forced to depend in an unconscionable manner on the Central discretionary grants and loans. Thus, depriving them of their fiscal autonomy to a considerable extent. The sad plight of the things is that a major part of the States exchequer is comprised of the revenue transferred to them from the Centre. It would have not been in the form of statutory transfers like the sharing of taxes. Sivagnanam and Naganathan (1999), Anil Kumar (2009), Srivastava and Rao (2011), Garg, Goyal and Pal (2014) have a view that the real problem is that a big chunk of Central resources transferred from the Centre to states flows in the form of discretionary grants and loans, not on the recommendations of the statutory body viz., Finance Commission, but on the recommendations of the political and constitutional body like Planning Commission over which the Centre has the real control. This trend has inclined to disrupt the federal character of our Constitution and some experts have suspected whether India is a federation. Consequent to this, there is a lot of tension in the Centre-States fiscal relationship due to the heavy concentration of fiscal powers at the Central level. There is discontentment among the States which are of the view that their fiscal autonomy has been made by the States to review the whole Union States fiscal relations and they are also demanding for more fiscal powers to cope with independence with all duties assigned to them under the Constitution. Strong demands are also being made to amend the constitutional suitability for correcting fiscal imbalance.

Under these issues, the main objectives of the study are tried analysis the level of Union Government transfers to balance the fiscal conditions of Tamil Nadu Economy and also to examine the impact of state revenue and expenditure on State Gross Domestic Product for the past 20 years from 2001 to 2020. Based on these objectives, the study also frames hypothesis testing is that there is no positive relation between revenue-expenditure factors and GSDP. The study has been divided into four sections, first of this section is focused on the introduction to the relationship between union-states in financial transfers and shares in India. Section two deals with data and description of the models, the third section of the study is the results of models regarding the impact of revenue and expenditure on GSDP in Tamil Nadu Economy. The final and fourth sections is furnishing the conclusion and suggestions of the study in future research.

2. Method and Description of Models

In this research, study emphasis is laid on tax revenue, non-tax revenue, expenditure-development expenditure and non-development expenditure, and also the grant-in-aid. As is stated, this study is based on secondary data made available through the different sources as under i) Annual Reports and monthly Bulletin published by RBI, ii) Budget documents of different years, iii) Hand Book of Tamil Nadu Statistics for 2001 to 2020, iv) Finance Commission Reports – (I to XIV) and v) State Finance Commission Reports of Tamil Nadu.

From the collected data, simple linear regression equations are used to estimate the effect of each variable on GSDP in the Tamil Nadu economy. A multiple linear regression model was also used to compare the state revenue and expenditure factors are regressed upon the natural log of GSDP for Tamil Nadu. A multiple linear regression model was constructed that explains the main determinants of log GSDP in Tamil Nadu during 2001-2020. In this model, Tax revenue, non-tax revenue, income tax, share from central tax, economic services, social services, general service and compensation are regressed upon a log of GSDP separately i.e., the effect of each of these factors on the log of GSDP is studied without controlling for any other factor from 2000-2001 to 2019-2020.

The following multiple linear regression models are used to carry out the analysis mentioned in the step process of model description:

i) the first model is to estimate the effect of log revenue factors regressed upon a log of GSDP

Model –I: Impact of State Revenue factors on GSDP

$$\ln GSDP_t = \beta_0 + \beta_1 \ln(Trev)_t + \beta_2 \ln(Ntrev)_t + \beta_3 \ln(Intax)_t + \beta_4 \ln(ShCen)_t + \varepsilon_t$$

ii) the effect of log expenditures of state regressed upon the natural log of GSDP.

Model –II: Impact of State Expenditure factors on GSDP

$$\ln GSDP_t = \beta_0 + \beta_1 \ln(Ecoser)_t + \beta_2 \ln(Soser)_t + \beta_3 \ln(Genser)_t + \beta_4 \ln(Compsn)_t + \varepsilon_t$$

iii) the joint effect of log revenue and expenditure factors regressed upon the natural log of GSDP, Model –III: Joint Effect of State Revenue and Expenditure factors on GSDP

$lnGSDPt = \beta 0 + \beta 1ln(Trev)t + \beta 2\ ln(Ntrev)t + \beta 3ln(Intax)t + \beta 4ln(ShCen)t + \beta 5ln(Ecoser)t + \beta 6ln(Soser)t + \beta 7ln(Genser)t + \beta 8ln(Compsn)t + \varepsilon t$

where t denotes period, εt's are the random error terms with an expected value of zero, all βi's for i= 1,2,3,4,5,6,7,8 are slope coefficients of respective explanatory variable that measures how explanatory variable affects the dependent variable and β0's are the intercept coefficient. Here, lnGSDP is the natural log of Gross State Domestic Product (at factor cost), lnTrev is the log of Tax revenue, lnNtrev is the log of non-tax revenue, Intax is the log of income tax, lnShCen is the log of share from central tax, lnEcoser is the log of economic services, lnSoser is the log of social services, lnGenser is the log of general service and lnCompsn is the log of compensation.

3. Findings and Discussions

3.1 Individual Effects of Revenue and Expenditure Factors on GSDP

This section discusses the results of a simple linear regression analysis in which each of the revenue and expenditure factors was regressed upon the log of GSDP individually from 2000-2001 to 2019-2020. Table 1 shows estimates for coefficients of each factor considered for the analysis when a simple linear regression was estimated using the ordinary least square method.

When each variable was individually regressed on the log of GSDP, results obtained showed that a positive relationship between the log of revenue-expenditure factors and the log of GSDP at a 1 per cent level of significance. R-square i.e. coefficient of determination is high for all of the factors.

Table -1: Individual effect of log revenue-expenditure on log GSDP

Variables	Coefficients	t – value	Sig.	Adjusted R^2
Ln Tax Revenue	1.094	22.41	0.000	0.945
Ln Non-Tax Revenue	1.238	16.808	0.000	0.97
Ln Income Tax	1.114	9.804	0.000	0.766
Ln Share from Central	1.315	18.738	0.000	0.924
Ln Social Services	1.165	17.197	0.000	0.91

Ln Economic Services	1.277	12.631	0.000	0.845
Ln General services	0.895	19.021	0.000	0.926
Ln Compensation	0.741	14.101	0.000	0.872

Source: Author's Construction

3.2 Effect of State's Revenue on GSDP

This subsection discusses the results of multiple linear regression analysis in which both revenue and expenditure factors were regressed upon the GSDP of Tamil Nadu in the period from 2000-2001 to 2019-2020.

Data, as presented in Table 2, shows that the results of log revenue factors were regressed upon log GSDP of Tamil Nadu during the periods from 2000-2001 to 2019-2020. Estimated results show the state's tax revenue is positively affected to GSDP of Tamil Nadu at 1 per cent level of significance, whereas the effect of the share of the central tax is negative at 10 per cent level of the significance for the period of two decades from 2000-2001 to 2019-2020. There is no significant association between the state's revenue and GSDP of Tamil Nadu during the period of Ist decade. The impact of tax revenue and income tax is significantly positively associated with the GSDP of Tamil Nadu from 2000-2001 to 2019-2020.

Adjusted R-square for these models is considerably high indicating that the variations in GSDP are being explained by the revenue variables considered in the model for Tamil Nadu economy during the overall period of 2001-2020.

Table -2: Impact of log revenue on log GSDP for the period from 2000-2001 to 2019-2020

Variables	Overall Period	I Decade	II Decade
	2001-2020	2001-2010	2011-2020
Ln Tax Revenue	1.922* (3.486)	1.857 (1.235)	1.713** (3.733)
Ln Non-Tax Revenue	0.067 (0.234)	-0.404 (-0.704)	-0.251 (-1.751)
Ln Income Tax	0.102 (0.72)	0.305 (0.487)	0.113*** (2.333)
Ln Share from Central	-1.182*** (-1.716)	-0.286 (-0.148)	-0.656 (-1.645)

Constant	2.212** (2.187)	-4.778 (-0.622)	2.293 (1.97)
Adjusted R2	0.945	0.751	0.976
No. of Observation	20	10	10

Note: Dependent Variable: Log GSDP
Figures in ( ) are t- values, *, ** and *** denotes the level of significance at 1 per cent, 5 per cent and 10 per cent respectively

3.3 Effect of State's Expenditures on GSDP

Data, as given in Table 3, shows that the result of multiple linear regression analysis in which the log expenditure factors were regressed upon log GSDP of Tamil Nadu from 2001 to 2020.

Estimated results show that the general service expenditure has a significant effect at 10 per cent of the level and all other expenditure variables like social services, economic services, general services and compensation are not significantly positive affected to GSDP of Tamil Nadu for the overall period from 2000-2001 to 2019-2020. During the Ist Decade, the estimated coefficients for baseline (intercept) expenditure and compensation are significantly and negatively affected by GSDP at the 1 per cent level. The social services, economic services and general services have insignificantly positive effects except for social services during the period of Ist decade. However, there is no significant association between the state's expenditure and GSDP of Tamil Nadu during the past 2011 to 2020.

Adjusted R-square for this model is also considerably high indicating that the variations in GSDP are being explained by the expenditure variables considered in the model for Tamil Nadu economy during the overall period of 2001-2020.

Table -3: Impact of state's expenditures on log GSDP for the period 2000-2001 to 2019-2020

Variables	Overall Period	I Decade	II Decade
	2001-2020	2001-2010	2011-2020
Ln Social Services	0.166 (0.307)	2.964** (3.737)	0.161 (0.259)
Ln Economic Services	0.238 (0.572)	0.705 (1.203)	-0.286 (-0.581)
Ln General services	0.568***	0.223	0.902

	(3.614)	(1.307)	(0.942)
Ln Compensation	0.061 (0.421)	-0.951* (-4.196)	0.147 (0.459)
Constant	2.584* (1.733)	-24.941* (-4.294)	3.974 (0.749)
Adjusted R2	0.941	0.918	0.856
No. of observation	20	10	10

Note: Dependent Variable: Log GSDP

Figures in ( ) are t- values, *, ** and *** denotes the level of significance at 1 per cent, 5 per cent and 10 per cent respectively

3.4 Joint Impact of Revenue and Expenditure Factors on GSDP

The results of multiple linear regression analysis indicate that both revenue and expenditure factors were regressed upon GSDP of Tamil Nadu in the period between 2001 and 2020.

Estimated results show that the revenue factors like tax revenue, non-tax revenue and income taxes are significant positive affected on GSDP of Tamil Nadu at 1 per cent and 5 per cent levels respectively. The effect of the share of the central tax on GSDP is insignificant and negative for a period of two decades from 2001 to 2020. In the case of expenditure factors like social services, economic services and compensation are negatively associated with GSDP in which general services is only significant at 10 levels. In addition, the effect of general services has positive significance at the 5 per cent level.

The effect of non-tax revenue and share from central tax is significantly positive, whereas the economic services and compensation are significantly low negatively associated with GSDP of Tamil Nadu during the period of Ist decade. In the last 10 years (2011-2020), both the revenue and expenditure factors were insignificantly negative associated with GSDP of Tamil Nadu except the tax revenue.

The adjusted R-square for this model is 0.972 which is considerably high indicating that approximately 97 per cent of the variations in GSDP are being explained by the revenue and expenditure variables considered in the model for Tamil Nadu economy during the periods from 2000-2001 to 2019-2020.

Table-2: Joint impact of log revenue and expenditure factors on log GSDP for the period from 2000-2001 to 2019-2020

Variables	Overall Period	I Decade	II Decade
	2001-2020	2001-2010	2011-2020
Ln Tax Revenue (β1)	.011* (23.448)	-0.572 (-3.463)	1.802 (1.571)
Ln Non-Tax Revenue (β2)	0.559** (2.336)	1.545*** (9.416)	-0.233 (-0.482)
Ln Income Tax (β3)	0.239** (2.115)	0.186 (4.355)	0.088 (0.73)
Ln Share from Central (β4)	-0.772 (-1.535)	1.314*** (8.297)	-0.347 (-0.356)
Ln Social Services (β5)	-1.006*** (-2.053)	1.445*** (7.625)	0.016 (0.014)
Ln Economic Services (β6)	-0.277 (-0.932)	-1.048*** (-9.646)	-0.028 (-0.073)
Ln General services (β7)	0.344** (2.691)	0.285 (5.827)	-0.506 (-0.282)
Ln Compensation (β8)	-0.15 (-1.39)	-0.759*** (-21.623)	-0.009 (-0.031)
Constant (β0)	2.651** (2.401)	-13.72*** (-10.507)	4.438 (0.687)
Adjusted R2	0.972	0.989	0.920
Sample	20	10	10

Note: Dependent Variable: Log GSDP

Figures in ( ) are t- values, *, ** and *** denotes the level of significance at 1 per cent, 5 per cent and 10 per cent respectively

4. Conclusion

In this final section, an attempt has been made to recapitulate the salient features of the study and to derive the conclusions emerging from the foregoing analysis. The analysis of the previous section has shown that the performance of Tamil Nadu economy is positively associated with the GSDP of Tamil Nadu and also the state's revenue and expenditure are highly influenced by the State Gross Domestic Product in the past 20 years from 2000-2001 to 2019-2020. Based on the above multiple regression model's investigations involving a variety of formulations of the relationship under consideration it is concluded that model III which is estimated with the entire data gives the most satisfactory estimation and explanation of the relationship under investigation. It may be concluded that the co-efficient of the state's expenditure is significantly negative and that the state's revenue is significantly positive for the overall period in Tamil Nadu. However, the model has estimated that the revenue share from the union government is a negative effect on the GSDP of the Tamil Nadu economy for the past 20 years and is significant at a ten per cent level. This means that the tax revenue share from the Central government to the State government has increased at decreasing rate during the period from 2000-2001 to 2019-2020.

Thus, it is clear from the above that the unfair fiscal transfers of the Finance Commission have discouraged the performance of Tamil Nadu. However, the existence of negative implications in itself may not be a cause for concern if there exists an efficient and fair mechanism of intergovernmental transfers strongly linked to revenue/tax effort criteria to encourage the revenue mobilization efforts of the state. The Fifteenth Finance Commission should come up with some bold corrective measures, particularly by assigning considerable weightage for revenue effort factor in its devolution formula.

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