Analysis of Social-Economic Services in Rajasthan

Abstract

The present paper deals with growth and socio-economic sector of Rajasthan. The social sector plays crucial role for the economy of Rajasthan. The economic growth of state depends on the framework of social - sector. The state domestic product is affected by the social and economic factors. For this purpose time-series secondary data for the period 2004 -2014 have been used to analyse the constant growth rate. The constant growth rate has been estimated for various variables relating with the social, economic and general services. The growth of Rajasthan has been proxy by the NSDP. Considering the social services and economic services as the determinants of growth, the growth function has been estimated in linear as well as log-linear forms. All the nominal variables considered have been deflated for the year 2004-2005. As far the results of this study are concerned, all the estimated constant growth rates have been found significant. The role of social as well as economic factors in growth of Rajasthan has been found to be significant also.

Keywords: Social, Economic, Services and Growth

Introduction

Rajasthan has immense development potential. The growth rate of net state domestic product of Rajasthan has wide fluctuations due to uncertainties in agricultural production, which is most entirely depend on rainfall. The expenditure on economic services includes agriculture and allied activities. Thus, the expenditure on economic services plays vital role to contribute in the growth of gross domestic product of a state. On the other hand the industrial sector is the prime sector; the development of a state depends on the expenditure on industrial sector. The establishment of major industries in a state contributes positively to its gross domestic product. The expenditure on science and technology and environment leads a state to develop one. The new dynamic framework is framed on the behalf of the science and technological sector. A state is said to be advanced and develop with high level of education and sports. The art and culture of a state make it a rich state. Thus, the expenditure on social services also plays important part to contribute in the state domestic product. The growth of a state fully depends on domestic product. **Iddo Eliazar** showed the relation between growth and inequality. He highlights the importance of social services in the growth. A comprehensive inequality socio econophysical study these processes are presented. A state having good medical and health facilities is assumed to be developed; here the role of expenditure is also important that how much expenditure a state does on the medical and health to facilitate its people. It is also the responsibility of a state to look after the weaker section of the society, thus the expenditure on social services for the welfare of scheduled caste, scheduled tribe and other backward classes is also important. Rajasthan state has maximum percentage of expenditure on social services. The part of general services cannot be ignored because the expenditure on this part also contributes to the state domestic product. **Samuel Adams** analysed the impact of foreign direct investment and domestic investment on economic growth in sub- Saharan Africa for the period 1990-2003. The results show that the domestic investment is positive and significantly correlated with economic growth in both the OLS and fixed effects estimation. The expenditure on administrative services shows the real picture of the state. On comparing growth rate of Rajasthan with the other states the gross domestic product of Rajasthan performed fairly well between 1980-81 to 1990-91. Its growth rate was 6.6 % per annum, which was higher than the national average of 5.47%. During the reform period

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1991-92 to 1998-99 Rajasthan growth rate declined to 5.85 %, which was lower than the national average 6.5 %. In 2013-14 India's largest state Rajasthan standing at the seventh position shared 4.94% in the total GDP of the country. On keeping all these things in view, the present study deals with the following objectives.

Aim of the Study

1. To analyse the growth of expenditure on General services, Economic services and Social services and thereby estimate the trend equations
2. To asses the growth of Rajasthan through the public expenditure and thereby estimate the growth equations.

Data and Methodology

This study is based on the time series secondary data. The time series secondary data have been used for the year 2004 - 2014 and collected from the budget study of Rajasthan. The various variables used in the study are as

NSDP

Net state domestic product used as dependent variable in both trend and growth equation. The growth of Rajasthan has been considered as proxy variable by NSDP.

General Services

General services are included by the various services like Organs of state, Fiscal services, Interest payment and servicing of debt, Administrative services, Pension & Misc. General services and Grant- in- aid and contribution. it has been used as dependent variable in trend equation while treated as independent variable in the growth equations.

Social Services

These services are considered as independent variable in the growth equations and dependent variable in the trend equations. It include various head of account like Education, Sports, Art & Culture, Medical, Health & Family Welfare, Water Supply, Sanitation, Housing and Urban Development, Labour & Labour Welfare, Welfare of Scheduled Caste, Scheduled Tribe and Other Backward Classes, Social Welfare and Nutrition and others.

Economic Services

Economic services include Agriculture and Allied Activities, Rural Development and Special Area Programme, Industries and Minerals, Irrigation, Flood Control, Energy & Petroleum, Transport, Science, Technology and Environment and General Economic Services.

By applying the Ordinary Least Square method of estimation trend equations and growth equations have been econometrically estimated which are to be explained as below.

Trend Estimation

Considering the various functional forms of the trend equations for the total expenditure, Net state domestic product, Expenditure on General services, Expenditure on Social services and Expenditure on Economic services following three trend equations have been estimated.

$$Y = a + bt \quad\quad ....(1)$$
$$Y = a + bt + ct^2 \quad\quad ....(2)$$

$$\ln Y = a + bt \quad\quad ....(3)$$

Where, Y is considered indicator of Total Expenditure, T is the time and a, b and c are the constant parameters to be estimated. In the above log-lin model, b is the constant growth rate of the respective variable over the period of study.

Growth Model

The growth equation accesses the growth of Rajasthan considering the Net state domestic product (NSDP) as dependent variable and Expenditure on general services (EGS), Expenditure on economic services (EES) and expenditure on social services (ESS) are the independent variables. For the estimation of growth of Rajasthan following growth models have been used.

$$NSDP = a + b\ EGS \quad\quad .... (4)$$
$$NSDP = a + b\ EES \quad\quad .... (5)$$
$$NSDP = a + b\ ESS \quad\quad .... (6)$$
$$NSDP = a + b\ EGS + c\ EES + d\ ESS \quad\quad .... (7)$$

The above models have been estimated in linear and log-linear forms.

Analysis of Results

The analysis of the estimated trend results in all models has been given in Tables 1.

In term of the linear trend the regression co-efficient w.r.t. all the variables are highly positively statistically significant at 1% except in case of the total expenditure, where its coefficient is significant at 10%. Quadratic ally speaking the increasing trends can be seen in expenditure on general services, economic services and social services.

In this way the total expenditure can also be same as showing the significant increasing trend in the period of study. As far as the estimates of log-lin model are concerned it is clear that in the period of study expenditure on general services, on economic services and on social services has been found increased constantly by 12%, 18% and 17% respectively. Aggregative the total expenditure has been found increased with about 15.4% constantly in the period of study. In all the cases the value of R^2 are highly statistically significant at 1% level, showing a very -very high variation being explained by the time.

Table-2 shows the correlation matrix showing the Karl Pearson's simple correlation coefficient. The table shows that the relationship between NSDP & EGS, NSDP & ESS and NSDP & EES are statically significant. The table also shows the explanatory power of EGS, ESS and EES which is also significant at 1% level. Clearly expenditure on general services explains 97.4% variation in NSDP. Expenditure on social services is responsible for the 93% change in NSDP. About 89% variation in NSDP has been found to be explained by the expenditure on economic services.

To access the role of EGS, ESS and EES on the economic growth of Rajasthan growth equations have been estimated in linear as well as log-linear functional forms where, NSDP has been used as a measure of economic growth. In case of expenditure on general services the respective elasticity is 0.66 which is statistically significant at 1% level. It shows that if EGS is expanded by 100% the NSDP increases

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by 66%. The linear models also support the results of the log-linear model. The value of the coefficient of the determinant is highly statistically significant showing about 98% variation in NSDP is being explained by EGS.

In case of expenditure on social services it has been found that the NSDP increases by 46% as a result of 100% increase in ESS, here about 97% variation in NSDP is being explained. As per the linearly estimated results the regression coefficient is 4.45 which is positively significant at 1% level. Expenditure on economic services explained about 95% variation in NSDP significantly as been reported by the estimated log-linear model, where the regression coefficient of 0.44 significantly shows that the NSDP increases by 44% as a result of 100% increase in EES. These results have also been supported by the estimated model in the linear form.

After evaluating the role of EGS, ESS and EES in affecting the level of NSDP individually in table-3, Table-4 shows the estimates of the growth equations by considering all types of expenditures all together in forms of all multiple growth equation. The growth equation in table-4 has been estimated both in linear and log-linear forms. First of all it is to be explained that as per table-2 there is very high degree of correlation between EGS and ESS, EGS and EES show the problem which is being faced is the multi co linearity. It is clear that the values of the absolute ratio is very low, values of R^2 and $\bar{R}2$ are very high and the significance level of the regression coefficient have not been as required. Thus all is due to the presence of the problem of multi-co linearity.

Conclusions and Policy Implications

As far the results of this study are concerned, all the estimated constant growth rates have been found significant and the role of expenditure on general, social and economic factors plays positively to increase the gross domestic product in Rajasthan. Simple observation shows that the percentage of expenditure on general services to total expenditure has been decreasing and the percentage of expenditure on social and economic services are rising. While maximum variation in net state domestic product is found by the expenditure on general services and minimum variation by the economic services. Thus, there is need of the policy which can ensure the highest productivity on the expenditure on economic services. This is so because of the comparatively lower productivity of its own, compared with the expenditure on general and social services.

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Table-1

Model Variabe	Linear Y=a +bt			Quadratic Y=a+bt+ct²				Log-Lin InY=a+bt		
	A	B	R²	A	B	C	R²	A	B	R²
Total Exp.	686130 (1.82)	623775*** (10.28)	0.929*	2.10* (9.50)	-8353 (0.90)	64300.9* (7.86)	0.993*	14.29* (536.3)	0.154* (35.79)	0.994*
NSDP	93062.6* (24.05)	13047.5* (20.92)	0.982*	10340* (19.71)	786369* (3.59)	471.26** (2.43)	0.990*	11.546* (704.7)	0.080* (30.32)	0.991*
EGS	5263.93 (7.66)	1734.85* (15.67)	0.968*	7675.99* (13.09)	528.82*** (2.2)	109.64* (5.05)	0.993*	8.89* (319.3)	0.12* (26.65)	0.989*
EES	275.12 (0.17)	1765.22* (6.96)	0.858*	5757.39* (4.15)	-975.21 (1.68)	249.19* (4.85)	0.968*	8.10* (101.4)	0.176* (13.71)	0.959*
ESS	1322.25 (0.75)	2736.98* (9.65)	0.921*	7574.12* (5.26)	-388.96 (0.65)	284.18* (5.33)	0.984*	8.63* (203.2)	0.17* (25.13)	0.987*

Note: Values in parentheses are the absolute t-ratios.
*- Significance level at 1%,   **- Significance level at 5%,   ***- Significance level at 10%

Table-2
Correlation Matrix

NSDP	EGS	ESS	EES	
1.0000	0.9869*	0.9646*	0.9422*	**NSDP**
	(0.974)**	(0.000)**	(0.000)**	
	1.0000	0.9893*	0.9553*	**EGS**
		1.0000	0.9757*	**ESS**
			1.0000	**EES**

Note: *- Significance level at 1%

 **- Explanatory power for NSDP w.r.t. the variable concerned.

Table-3

Variables	linear	Log-linear
Constant	32688.0**	5.58*
	(2.59)	(5.56)
EGS	12.73*	0.721***
	(4.98)	(2.15)
ESS	-5.02***	-0.191
	(2.35)	(0.78)
EES	2.59	0.149
	(1.64)	(1.81)
R^2	0.986*	0.986*
R^{-2}	0.980*	0.980*
F	145.66	149.61
D-W	2.75	2.23

Note: Values in parentheses are the absolute t-ratios.
*- Significance level at 1%
**- Significance level at 5
***- Significance level at 10%

Table-4

Model Variable	Linear Y=a+ bx			Log-Linear InY=a+bx		
	A	b	R^2	a	b	R^2
EGS	55698.1*	7.37*	0.974*	5.66*	0.66*	0.979*
	(8.35)	(17.28)		(17.55)	(17.55)	
ESS	91911.4*	4.45*	0.930*	7.61*	0.46*	0.969*
	(11.66)	(10.34)		(27.49)	(15.85)	
EES	99830.3*	6.51*	0.888*	8.04*	0.435*	0.949*
	(10.71)	(7.95)		(24.84)	(12.20)	

Note: Values in parentheses are the absolute t-ratios.
*- Significance level at 1%
x- Variable Respectivel

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