Social Sector Expenditure and Gross State Domestic Product in Assam

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Abstract: Spending on social sector benefits the society enhances the human capital of the economy, which have both direct and indirect spill over effects on economy. Social sector expenditure includes expenditure on health, education etc. The objective of the study is to analyse the trend of Social Sector Expenditure and Gross State Domestic Product of Assam and to analyse the relationship between Social Sector Expenditure and Gross State Domestic Product of Assam. The trend of Gross State Domestic Product of Assam at constant 2011-12 prices (in rupees lakhir) is showing a decreasing trend from 1990-91. But after 2015-16, it is showing an increasing trend. The expenditure on social sectors like health, education etc as a whole and Gross State Domestic Product of Assam is showing an increasing trend from 1990-91 to 2016-17. By using cointegration and Granger Causality test an attempt has been made to analyse the relationship between the expenditure on Social Sectors on Gross State Domestic Product in Assam. Granger Causality test reveals that expenditure on Social Sectors has a positive impact on Gross State Domestic Product. But Johansen Cointegration test reveals that there is no integration between the two variables in the long run.

Index Terms: Social Sector Expenditure, Gross State Domestic Product of, human capital, relationships, cointegration, Granger Causality, Assam

I. INTRODUCTION

Social sector expenditure plays an important role in the growth and development of an economy. Social sector expenditure includes expenditure on health, education. Expenditures on education and health create human capital. Which brings individual economic returns and to economy as a whole. Human capital enhances the productivity of physical capital, efficiency of productive resources (Schultz, 1975; Heckman, 2005). Various empirical studies of researchers reveal that economic growth is achieved through investment in human capital in human capital (Kaur & Misra, 2003; Mukherjee & Chakraborty, 2017). Spending on social sector benefits the society and enhances the human capital of the economy, which have both direct and indirect spill over effects on economy.

As per World Bank data India spends 3.8% of GDP on education and 1.4 % of GDP on health which is below the world average of 4.4 % and 6% respectively. Also as per the Human Development Report 2015, UNDP, Human Development Rank of India is 130. However, the share of expenditure of centre is much lower. Developing countries like India needs to invest on social sectors for its balanced growth of the various regions.

A. Objective

1. To analyse the trend of Social Sector Expenditure and GSDP of Assam.
2. To analyse the relationship between Social Sector Expenditure and GSDP of Assam.

B. Research Questions

1. Is there any relationship between the social sector expenditure and the GSDP of Assam?

C. Data and Methodology

Data

In the study, secondary data has been used for the period 1990-91 to 2016-17. Data on social sector expenditure and GSDP of Assam has been taken from RBI bulletin. All the time series data have been deflated to neutralize the impact of changes in prices and are expressed in lakhir rupees at constant 2011-12 prices.

Methodology

Augmented Dickey Fuller (ADF) test is used to check the stationary of the variables used in the model. To analyze the long run relationship between the variables Johansen cointegration test is used. To choose appropriate number of lags VAR Lag Selection Criteria is used. By using Granger causality, the short run relationship between the two variables is analyzed. All the analysis is done in the software E-Views 10 SV.

II. REVIEW OF LITERATURE

In a study in Indian states, Mittal, P (2016) found a relationship between social sector expenditure and Human Development Index (HDI) and social sector expenditure positively influenced HDI. In a study of social sector expenditure in India in the 2000s Chattopadhyay, S (2018) stated the need for monitoring and involvement of people in budget making policy along with the public investment for the development of human capital. Wilson and Briscoe (2004) suggest that there is a significant and positive relationship between human capital (like education and training) and economic growth. Also in an analysis for all EU members’ states, a loose correlation was observed, but it was difficult to establish a clear causal relationship between investment in human capital and economic growth. By using a cointegrated regression model, the panel data set of 13 developed and 11 developing countries a study of Akpolat, Ahmet G. (2014) determined the long-run impact of physical and human capital on GDP over the period 1970-2010. The study illustrated that the impact of education which was taken as a human capital and the impact of physical capital on GDP was higher in developed countries than the developing countries. The impact of life expectancy at birth which was taken as another human capital on GDP was higher in developing countries than the developed countries.
III. TRENDS OF SOCIAL SECTOR EXPENDITURE AND GSDP OF ASSAM

The expenditure on social sectors like health, education etc as a whole and GSDP of Assam are showing both increasing and decreasing trend from 1990-91 to 2016-17 in the following figure.

The following figure presents the trend of Social Sector Expenditure from 1990-91 to 2016-17 in Assam. It is showing an increasing trend.

Figure 1: Trend of SSE in Assam from 1990-91 to 2016-17

Source: RBI Bulletin

The following figure presents the trend of GSDP of Assam at constant 2011-12 prices (in rupees lakh) is showing a decreasing trend from 1990-91. But after 2015-16, it is showing an increasing trend.

Figure 2: Trend of GSDP of Assam from 1990-91 to 2016-17

Source: RBI Bulletin

IV. ANALYSES

A. Unit root test (ADF)

Variables need to be stationary or cointegrated to avoid the spurious regression situation. Hence, to check the stationary ADF test is used. A time series is integrated of order 1, that is, I (1) if it becomes stationary after it is differenced once. Unit Root Tests suggest that the variables are integrated of order one. Therefore it can proceed to test the long run relationship between the variables, I (1) if it becomes stationary after it is differenced once. Unit Root Tests suggest that the variables are integrated of order one. Therefore it can proceed to test the long run relationship between the variables.
The study analyzes the trend of Social Sector Expenditure and GSDP of Assam. The study shows that there is no long run relationship between the variables. But three may be a short run relationship between social sector expenditure and GSDP. Expenditure on Social Sectors like health, education, and GSDP of Assam.

B. Cointegration Test

The Johansen Cointegration Test is done to check the long run relationship between the variables Social Sector Expenditure and GSDP of Assam.

C. Granger Causality

The existing literature shows that to test causal relationship between two variables in Granger Causality test is done.

The Granger Causality Test Reveals that Social Sector Expenditure has impacts on GSDP in Assam.

V. CONCLUSION

The study analyzes the trend of Social Sector Expenditure and GSDP of Assam. The study shows that there is no long run relationship between the variables. But three may be a short run relationship between social sector expenditure and GSDP. Expenditure on Social Sectors like health, education has a positive impact on GSDP. The reason for not getting a long run relationship may be due to indirect relationship between the variables. As spending in social sector generates human capital and that human capital fosters growth and development through direct or indirect spill over effects. Hence, the government should implement such policies related to the social sector for the betterment of the economy. As Assam being the underdeveloped state, for the development of this region special concern is much needed in the social sectors for the upliftment of the region as it is the corridor to the north-eastern part of the country and emerges as India’s corridor to South East Asia.

REFERENCES

1. Akpolat, Ahmet G. (2014), “The Long-Term Impact of Human Capital Investment on GDP: A Panel Cointegrated Regression Analysis”, Economics Research International, Vol. 2014
2. Chattopadhyay, Soumyadip (2018), “Social Sector Expenditure in India in the 2000s: Trends and Implications”, Journal of Development Policy and Practice, Vol. 3(1), No 16-40
3. Gujrati, D.N., Porter, D.C., Gunasekar, S., (2012), Basic Econometrics, New Delhi: Mc Graw Hill.
4. Mittal, Pranjal (2016), “Social Sector Expenditure and Human Development of Indian States”, MPRA, Paper No 75804
5. Mohanty, Asit Ranjan and Bibhuti Ranjan Mishra (2017), “Cointegration between Government Expenditure and Revenue: Evidence from India”, Advances in Economics and Business, Vol. 5(1), No 33-40
6. Naidu, Suwastika: Pandaram, Atishwar and Chand, Anand (2017), “A Johansen Cointegration Test for the Relationship between Remittances and Economic Growth of Japan”, Modern Applied Science, Vol. 11, No 10
7. Wilson, Rob A. and Briscoe, Geoff (2004), “The impact of human capital on economic growth: a review”, Cedefop Reference series,54

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Table 1: Unit Root Test (ADF)

| variable | ADF test statistics | Probability | Decision | ADF test statistics | Probability | Decision |
|----------|---------------------|-------------|----------|---------------------|-------------|----------|
| GSDP     | -0.932413           | 0.9366      | Non Stationary | -3.911926          | 0.0268**    | Stationary |
| SSE      | -1.875702           | 0.6380      | Non Stationary | -7.078127          | 0.0000***   | Stationary |

*** 1% level of significance, ** 5% level of significance, * 10% level of significance

A. VAR Lag Order Selection Criteria:

To choose appropriate number of lags VAR Lag Order Selection Criteria is used. The lag length has to be determined before conducting the Johansen Cointegration Test and Granger Causality table. Table 2 presents the result of the VAR Lag Order Selection Criteria for lnGSDP and lnSSE. It is observed from the table 2 that lag length of one is selected as the best lag length under the Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), and Hannan-Quinn Information Criterion (HQ). Each test is at 5% level.

Table 2: VAR Lag Order Selection Criteria

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|-----|------|----|-----|-----|----|----|
| 0   | -15.43656 | NA | 0.013110 | 1.341274 | 1.438050 | 1.569142 |
| 1   | 0.68.78314 | 149.0041* | -2.74e-05* | -4.829472 | -4.539142 | -4.745868 |

*indicates lag order selected by the criterion

The Johansen Cointegration Test reveals that there is no a long run relationship between the two variables. Hence, Granger Causality Test is done to test the causal relationship between social sector expenditure and GSDP.

Table 3: Johansen Cointegration Test

| Hypothesized No of CE(S) | Eigen Value | Statistics | Trace | Max- Eigen | 0.05 critical value | Probability | 0.05 critical value | Probability |
|--------------------------|-------------|------------|-------|------------|---------------------|-------------|---------------------|-------------|
| None                     | 0.368268    | 17.62122   | 11.48224 | 25.87211   | None                | 0.368268    | 17.62122            | 0.368268    |
| At most 1                | 0.217733    | 6.138986   | 6.138986 | 12.51798   | At most 1           | 0.217733    | 6.138986            | 0.217733    |

Johansen Cointegration Test reveals that there is no a long run relationship between the two variables. Hence, Granger Causality Test is done to test the causal relationship between social sector expenditure and GSDP.

C. Granger Causality

The existing literature shows that to test causal relationship between two variables in Granger Causality test is done.

Table 4: Granger Causality Test

| Null Hypothesis | F-Statistics | Probability |
|-----------------|-------------|-------------|
| SSE does not Granger causes GSDP | 4.01384 | 0.0500 |
| GSDP does not Granger causes SSE | 0.35496 | 0.5671 |

The Granger Causality Test Reveals that Social Sector Expenditure has impacts on GSDP in Assam.