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Disparity in Education Expenditure and Economic Growth in India: An Analysis

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Abstract: ***Enhancing the educational achievements of the population has long been recognized as a crucial factor in driving economic growth, tracing back to the era of Adam Smith. Therefore, prioritizing the improvement of educational attainment is imperative for cultivating economic development. India is widely recognized for its alarmingly high number of individuals with limited access to education. The education system is characterized by a chaotic and disjointed combination of public and private institutions, lacking a viable mechanism to establish effective educational standards. The private sector, in particular, has displayed little capability in executing welfare programs aimed at improving education. So, the expenditure directed by Government towards education sector is recognised as an important input in the education production process which would ensure better educational outcomes. Economic growth is a wider concept where education expenditure plays an important role to boost the economy. It is just like fuel to economy. So, expenditure is at most required. Here the paper tries to examine the disparity in public education expenditure and economic growth. So, study has taken 14 major Indian states by grouping into forwarded states and backword states. It is observed that convergence growth performance of developed and backward region has been reducing of regional disparity in the country in terms of Per capita income and in terms of education expenditure it is also reducing. So we can go for nexus analysis between two variables.***

Keywords: Economic Growth, Education Expenditure, Regional Disparity.

1. INTRODUCTION

Since the era of Adam Smith, education has been widely acknowledged as a key determinant of economic growth. Thus, enhancing the educational attainment of the population becomes a crucial necessity for fostering economic development. Unfortunately, India faces a significant challenge as it has a surprisingly high number of individuals with limited access to education. The education system is characterized by a disorderly and fragmented combination of public

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and private institutions, lacking an effective mechanism to implement improvements, especially since the private sector has shown limited capacity in executing welfare programs in education. Recognizing the pivotal role of government expenditure in the education sector as an essential input for ensuring better educational outcomes, it becomes a vital factor in the broader concept of economic growth. In this context, education expenditure serves as the fuel that propels the economy forward, making it an indispensable requirement. Consequently, this study seeks to investigate the disparity in public education expenditure and its impact on economic growth in 14 major Indian states, classified into forward and backward states. But the empirical literature has failed to establish a robust relationship between education expenditures and growth. According to the economic theory, we will expect a positive causal relationship to exist between the two. The results of the above papers indicate that education expenditures do affect growth positively. It means expenditure on education has direct and positive effect on growth. There are also papers such as Nurudeen and Usman (2010) who found that the impact of education expenditures on growth is negative. It is due to the negative tax effect offset the positive education expenditure effect. It means taxation can alter the positive growth effect from increased public education expenditure.

However, there is considerable anecdotal and correlation-based evidence suggesting a relationship between education and economic growth, the evidence often points in different directions. The complex and multi-faceted nature of this relationship, influenced by various contextual factors, makes it challenging to establish a clear and definitive causal link. Further research is needed to better understand the mechanisms through which education impacts economic growth and to identify the most effective policies and strategies for maximizing the potential benefits of education on economic growth.

However, within the field of Economics, there exists a range of theories and models that establish a connection between education and economic growth. Education not only enhances an individual's earning capacity but also generates a "ripple effect" across the economy, leading to a cascade of positive externalities. Before going to analyse the nexus between education expenditure and economic growth, it is an unavoidable analysis that to find out disparities in education expenditure and economic growth in major Indian states. Whenever we discuss on two variables, i.e. education expenditure and economic growth, converged that means dispersion in a set of economies under our study diminishes over time ideally tends to zero. From empirical point of view also study also found some wrangle analysis.

Review of Literature

Kaitila (2014) analysed the topic on "Transnational Income Convergence and National Income Disparity: Europe, 1960~2012" using beta convergence analysis. The study perceived that income convergence through GDP per capita in Europe across the time period 1960 to 2012. The study has calculated both beta and sigma convergence. As per his opinion reached by reasoning that the period following the 2008 global financial crisis, known as the Great Recession, resulted in a reversal of GDP per capita convergence among the EU-15 countries. However, the Ex-transition countries have predominantly sustained their progress in catching

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up. The pace of convergence has been swifter during periods characterized by higher overall GDP growth.

Zulfiqar et al (2017) conducted an analysis on a sample of 60 countries, comprising both developed and developing nations, to examine the concepts of absolute and conditional convergence. The analysis utilized the pooled least square methodology to test these hypotheses. The findings of the study indicated convergence at a mixed level of disaggregation among the countries in the sample. Absolute convergence refers to the tendency for countries with similar characteristics to converge in terms of their economic indicators or levels of development. The study confirmed the presence of absolute convergence among countries with similar characteristics.

On the other hand, conditional convergence takes into account the heterogeneity of characteristics among countries. It considers that countries with different initial conditions or structural factors may converge at different rates or to different steady states. The study found evidence of conditional convergence, indicating that countries with heterogeneous characteristics were converging at different rates. This mixed level of convergence suggests that while countries with similar characteristics are experiencing absolute convergence, those with diverse characteristics are subject to conditional convergence. These findings emphasize the importance of considering the specific conditions and characteristics of each country when analysing convergence patterns. The study's use of the pooled least squares methodology allowed for a comprehensive analysis of convergence across the sample of countries. By examining both absolute and conditional convergence hypotheses, the study provides insights into the complex dynamics of economic development and the factors influencing convergence patterns among nations.

Further research and analysis are necessary to delve deeper into the specific characteristics and conditions that contribute to the observed convergence patterns. Understanding these factors can inform policy decisions aimed at promoting convergence and inclusive economic growth among nations with varying levels of development.

In conclusion, the study's findings indicate a mixed level of convergence among the sample of 60 countries. While absolute convergence was observed among countries with similar characteristics, conditional convergence was found to be present among countries with heterogeneous characteristics. These findings highlight the need for tailored approaches and policies considering the diverse conditions of countries to foster convergence and sustainable development globally.

Jayanthakumaran (2010) examined a paper under analysis focuses on "Economic Reforms and Income Convergence/Divergence in Regional India" utilizing convergence analysis. The study explores regional income convergence or divergence, which is closely related to the comparative advantage based on resource diversity. Among the states, Madhya Pradesh, Rajasthan, and Maharashtra were the largest in terms of area, while Delhi, West Bengal, and Kerala were the most densely populated. In terms of literacy rate, Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan significantly lagged behind. Additionally, Manipur, Bihar, Odisha, and Uttar Pradesh were identified as the poorest states in terms of per capita income.

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However, Cashin and Sahay (1996) studied 20 Indian states during the period of 1961-1991. They indicated the presence of absolute beta convergence. This finding suggests that initially poorer states were able to catch up with initially wealthier states in terms of income levels. The observation of convergence highlights the potential for reducing regional disparities and emphasizes the need for policies and investments that promote inclusive growth and development in all states of India.

Kalirajan et al (1999) in their study on 'Convergence of Incomes across Indian States: A divergent view' observed interstate inequalities in India's income levels over the past decades that contradict the assumptions of neoclassical growth theory. The study highlights the role of inequitable public expenditure distribution and its impact on private investment allocation as key factors contributing to widening interstate disparities. Addressing these disparities requires a comprehensive approach, including equitable resource allocation and efforts to improve the investment climate. By addressing these issues, India can work towards reducing income inequalities and promoting inclusive and sustainable development across all states.

Like Disparity in economic growth the paper tries to find out the disparity in education expenditure. Overall, the paper seeks to contribute to the understanding of the disparity in education expenditure among Indian states, providing valuable insights for policymakers, researchers. By identifying and addressing these disparities, it aims to promote equitable access to quality education and to find out the nexus between education expenditure and economic growth. Disparity in education expenditure refers to the unequal allocation of financial resources for education across different states in India. It reflects the variations in funding and investment in education among states, leading to differences in educational opportunities and outcomes.

In India, there is indeed a significant disparity in education expenditure among states. Several factors contribute to this disparity, including variations in states' economic capacity, population size, and fiscal resources. As a result, states with higher economic growth and larger tax revenues tend to allocate more funds towards education, while economically weaker states struggle to allocate adequate resources. The variation in education expenditure has implications for infrastructure development, teacher recruitment and training, access to quality education, availability of educational resources and materials, and overall educational outcomes. States with higher education expenditure often have better educational facilities, well-trained teachers, and improved student-teacher ratios, leading to higher educational performance.

The disparity in education expenditure can exacerbate existing social and economic inequalities, as students from economically disadvantaged states may face greater challenges in accessing quality education. It can contribute to educational gaps, lower literacy rates, higher dropout rates, and limited educational opportunities for marginalized communities and remote regions.

Recognizing the importance of addressing this disparity, the Indian government has undertaken various initiatives to promote equitable education expenditure. These include centrally-

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sponsored schemes and programs aimed at reducing regional disparities and enhancing access to quality education. Efforts are being made to ensure that states with lower education expenditure receive additional support and resources to bridge the gap and improve educational outcomes.
However, despite these efforts, the disparity in education expenditure remains a challenge. Achieving equitable education expenditure across states requires sustained commitment from policymakers, targeted investments, effective implementation of educational policies, and collaboration between the central and state government.

In conclusion, disparity in education expenditure in Indian states is a significant issue that impacts educational opportunities and outcomes. Efforts are being made to address this disparity, but more needs to be done to ensure equitable allocation of resources and improve access to quality education for all students, regardless of their geographical location or socio-economic background.

2. METHODOLOGY

The methodology outlined suggests that the present study aims to analyse 33 years of public education expenditure (1990-91 to 2022-23) in major Indian states using secondary data. While private education expenditures exist, it is included in the analysis due to data unavailability. To gather the required data for analysis, several sources are utilized. These sources include the Statistics Handbook on Indian Economy, Ministry of Human Resource Development, Finance Account, Indiastat.com, Economic Survey, and other relevant sources. The use of secondary data can provide valuable insights into long-term trends and patterns in public education expenditure. By analysing data from multiple sources spanning over three decades, the study offers a comprehensive understanding of how investment in public education has evolved in major Indian states.

It is important to acknowledge the limitation of excluding private education expenditure due to data unavailability. While this might restrict the analysis to a certain extent, focusing on public expenditure can still provide meaningful information about the overall investment in education and its impact on the selected states.
By leveraging these secondary data sources and conducting a rigorous analysis, the study can contribute to the existing body of knowledge on public education expenditure in India and provide insights that can inform policy decisions and resource allocation in the education sector.

The analysis focuses on emerging trends in fourteen major states in India, which account for a substantial portion (95.5%) of the country's population. By concentrating on key parameters that directly impact on social and economic development with a particular emphasis on gender and equity issues, the analysis aims to provide valuable insights into the development trajectory of these states. The choice to exclude the states and Union Territories from the analysis has been made due to their relatively smaller population size and their potential to introduce noise or outliers in the data. Focusing on the larger states ensures a more comprehensive

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understanding of trends and patterns that could be more indicative of the overall national scenario. By concentrating on gender and equity issues, the analysis likely aims to assess how different social groups, including women and marginalized populations, are faring in terms of development indicators. This approach can help identify disparities in access to resources, opportunities, and outcomes, shedding light on areas that require targeted interventions to promote development. Overall, the analysis's results will likely provide valuable information to policymakers, researchers, and stakeholders, enabling them to make informed decisions and develop strategies to promote more equitable and sustainable development across these major states in India. However, it is important to recognize that trends and conditions are subject to change over time, and continuous monitoring and analysis are essential for keeping track of evolving scenarios

The decision to exclude these smaller states and Union Territories from the detailed study is primarily due to the unavailability of relevant data and the need to maintain analytical and logistical manageability of the data sets. The fourteen states selected for the detailed study have been divided into two groups: a forward group and a backward group. The forward group includes Andhra Pradesh, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Punjab, and Tamil Nadu. These states are considered relatively more developed or advanced in terms of social and economic indicators. On the contrary, the cluster of states including Bihar, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, and West Bengal are often referred to as the "backward group." These states exhibit comparatively lower levels of social and economic development indicators, signifying that they are trailing behind when compared to other states in terms of overall progress and growth.

By focusing on these two groups, the analysis aims to compare and find out the disparities in education expenditure and economic growth. To find out disparities we have employed statistical methods, such as convergence regression analysis or growth rate comparisons, to further explore the relationship between public education expenditure and economic growth and determine if there is any causal link or correlation between the two variables.
By applying the convergence method, study can provide insights into the dynamics of public education expenditure and economic growth disparities among the major states, highlighting patterns of convergence or divergence and identifying factors that may contribute to these trends.

This method demonstrated that in the economy, the growth rate tends to inversely related to initial level of growth, where the speed of convergence is measured by β. Hence, a negative value for β indicates convergence. Otherwise, it is divergence, if, the value is positive. But the absolute value of β shows the intensity with which convergence takes place. The following panel data model is used to estimate disparities, i.e, β convergence coefficient,

$$ln(Y_{i,t}) - ln(Y_{i,t-1}) = \alpha_i - \beta\, ln(Y_{i,t-1}) + u_{i,t} \ldots\ldots (1)$$
$$ln(EE_{i,t}) - ln(EE_{i,t-1}) = \alpha_i - \beta\, ln(EE_{i,t-1}) + u_{i,t} \ldots\ldots (2)$$

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Where, $Yi_{,t}$ represents the GSDP which is proxy for economic growth of i^{th} state at time period t in Eq (1). $EE_{i,t}$ represents the Public Education expenditure of i^{th} state at time period t in Eq (2).

3. RESULT ANALYSIS

The study analyzed the result in following way differently for education expenditure and economic growth.
Table 1 & 2 show results of disparities in GDP and Education expenditure in forward states. It justifies a method that examines the relationship between the growth rate of an economy and its initial level of growth. According to this method, the speed of convergence or divergence is measured by a parameter called β.

If the value of β is negative, it suggests that there is convergence in the economy. In other words, economies with higher initial levels of growth tend to experience slower growth rates over time, and vice versa. This implies that the economy is moving towards a balanced state or catching up with other economies. A higher absolute value of beta indicates a faster convergence rate. For example, if β is large and negative, it suggests that economies with higher initial levels of growth are experiencing rapid convergence, meaning they are catching up to economies with lower initial levels of growth at a relatively fast pace. In forward states both Economic growth (GDP) and Education expenditure are converging. But education expenditure converges with larger initial level of growth.

In this context, beta (β) is a coefficient used in regression analysis to represent the rate of convergence between two variables. A negative beta suggests that there is convergence, meaning economies or education expenditures with higher initial levels will tend to grow or converge towards those with lower initial levels, and vice versa.

Table1: Disparity in GDP in Forward States

Variable	**B coeff.**	**Std. error**	**t- statistic**	**Prob.**
LNGDP1	-0.053*	0.065	-8.258	0.0000
C	4.2829*	0.526	8.141	0.0000

Note: * means 1% level of significance.

Table 2: Disparity in Education Expenditure in Forward States

Variable	**B coeff.**	**Std. error**	**t- statistic**	**Prob.**
LNEE1	-0.646*	0.07	-9.206	0.0000
C	2.264*	0.250	9.03	0.0000

Note: * means 1% level of significance.

From Tables 3 & 4, the negative value of β implies that economies with higher initial GDP growth rates or higher initial education expenditures will tend to grow at a slower rate over time, eventually catching up with economies or education expenditures that had lower initial

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levels. In Backward states both Economic growth (GDP) and Education expenditure are converging. But education expenditure converges with larger initial level of growth.

Table 3: Disparity in GDP in Backward States

Variable	B coeff.	Std. error	t- statistic	Prob.
LNGDP1	-0.513*	0.06	-7.746	0.0000
C	3.635*	0.477	7.608	0.0000

Note: * means 1% level of significance.

Table 4: Disparity in Education Expenditure in Backward States

Variable	B coeff.	Std. error	t- statistic	Prob.
LNEE1	-0.635*	0.068	-9.329	0.0000
C	2.199*	0.239	9.181	0.0000

Note: * means 1% level of significance.

4. CONCLUSION

The study observed that both economic growth (GDP) and education expenditure are converging. It's important to note that convergence usually refers to income or growth levels, rather than specific expenditures. The convergence of education expenditure with larger initial levels of growth could indicate that countries with higher initial growth rates are investing more in education over time, narrowing the gap with countries that had lower initial growth rates. In summary, education and economic growth are mutually reinforcing. Education fosters human capital development, innovation, labour market efficiency, poverty reduction, and social stability. Simultaneously, economic growth provides resources for investment in education and creates opportunities for individuals to apply their education for better development. By prioritizing education and fostering economic growth, societies can achieve holistic and sustainable development.

5. REFERENCES

1. Brehm, J., & Rahn, W. (1997). Individual-level Evidence for the causes and consequences of social capital. American Journal of Political science, 41(3), 999-1023
2. Cashin, Paul and Ratna Sahay .1996. International Migration, Centre- State Grants and Economic Growth in the states of India, IMF staff papers, 43(1), 123-71
3. Jayanthakumaran, K. (2010). Economic Reforms and Income Convergence/Divergence in Regional India. Indian Economic Review, 45(1), 29–48.
4. Kaitila, V. (2014). Transnational Income Convergence and National Income Disparity: Europe, 1960~2012. Journal of Economic Integration, 29(2), 343–371.
5. Kothari, V. N., & Panchamukhi. (1980). Economics of education: A trend report. New delhi: Lakdowala ed., A survey of research econmics.
6. Lochner, Lance and Moretti,2004.The effect of Education on crime: Evidence from Prison inmates, Arrest and Self-reports. American Economic Review, 94(1), 155-189.

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http://journal.hmjournals.com/index.php/JPOME
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7. Meher, S. (2009), Interstate disparities in Fiscal capacities and Fiscal transfer in India, Dannish books, New Delhi, Pp 229-236.
8. Nurudeen, A. and Usman, A. (2010): Government Expenditure and Economic Growth in Nigeria, 1970-2008: A Disaggregated Analysis. Business and Economics Journal, Vol. 2010: BEJ-4.
9. N.J. Kurian. (2000). Widening Regional disparity in India: Some Indicators. Economic and political weekly, 35(7), 538-550
10. Rao, M.G., Shand, R.T., & Kalirajan, K.P.(1999). Convergence of Incomes across Indian States: A divergent view. Economic and Political weekly, 34(13), 769-778.
11. Schultz, T. (1961). Investment in human capital. American economic review.
12. Zulfiqar, K., Chaudhary, M. A., & Aslam, A. (2017). Convergence Hypothesis: A Cross Country Analysis. Pakistan Economic and Social Review, 55(1), 229–250.