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DOES HUMAN DEVELOPMENT ACT AS A MEDIATOR BETWEEN SOCIAL SECTOR SPENDING AND ECONOMIC GROWTH IN KARNATAKA?

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ABSTRACT
This study examines the impact of Social Sector Expenditure on Economic Growth, focusing on both its direct effect and its indirect effect through Human Development. The Mediation Analysis found a significant positive relationship between social sector Expenditure and Economic Growth indicating increased public spending in sectors like education, healthcare, and social security enhances the Economic Growth of Karnataka. Furthermore, the study also found the significant indirect effect of social sector expenditure on economic growth through human development, measured by the Human Development Index (HDI) signifying that social sector spending positively influence human development, subsequently reinforcing the economic growth of Karnataka. Thus, policymakers are encouraged to carry out specific social sector development initiatives aimed at promoting human development as a catalyst of sustained economic growth in Karnataka.

INTRODUCTION
The relationship between public expenditure on social sectors and human development has been a subject of extensive research and debate in the field of development economics. Governments across the world have recognized the importance of investing in social sectors such as education, healthcare, and social welfare to promote human development and ultimately, economic growth.(Premalatha, 2020) However, the empirical evidence on the impact of social sector spending on human development and economic growth has been mixed. Number of studies have found a positive and significant relationship between social sector expenditure and human development, suggesting that increased investment in these areas can lead to improvements in indicators such as life expectancy, literacy rates, and infant mortality. On the other hand, other researchers have argued that the impact of social sector spending on human development is more dependent on the effectiveness of the delivery mechanisms and the efficient utilization of resources, rather than the mere increase in expenditures

The state of Karnataka in India presents an interesting case study to explore this relationship. Karnataka has been at the forefront of economic development in India, with a thriving IT sector and a growing manufacturing base. At the same time, the state has also made significant investments in social sector spending, with a focus on areas such as education, healthcare, and social welfare. The question that arises is whether these investments in social sectors have translated into improvements in human development, and if so, whether this has in turn contributed to the state's economic growth. This research paper aims to investigate the mediating role of human development in the relationship between social sector spending and economic growth in Karnataka.

LITERATURE REVIEW
This section explores the previous research work on the relationship between Social Sector Spending, Human Development, and Economic Growth. The relationship between Public Expenditure and Economic Growth has been discussed widely with studies finding positive, negative, or no relationship between them. Some of the Studies have also discussed impact of Public Spending on Human Development.

Bagdigen et al. (2004) tests the validity of Wagner's law in Turkey from 1965 to 2000. The authors found lack of positive impact of public spending on Gross Domestic Product Growth, but Gross Domestic Product influences increase in public spending. Bose et.al. (2007) found that across 30 developing countries public capital expenditure have positive impact on the economic growth whereas current public spending has insignificant impact when budget constraints and omitted variables are controlled. Ahuja & Pandit (2020) found unidirectional causality supporting Keynesian approach where economic growth has positive influence on public expenditure in across 59 countries from 1990 to 2019. Usman et.al. (2011) using augmented Solow Model explained no immediate impact of public spending on economic growth in short run. But found significant long run association between public spending and economic growth in Nigeria.

Qureshi (2009) using system dynamic approach examined the relationship between Human Development, economic growth, and public expenditure in Pakistan. The study found that low public spending has negative impact on Human Development and Economic Growth. Nurvita et.al. (2022) tested the impact of economic growth, public spending on health and education on Human Development during 2012 to 2019 using panel data regression models and found significant positive association between them. Djafar (2009) identified four distinct groups in the typologies of EG-LE and PE-LE relationships such as, vicious, virtuous, LE-lopsided, and different quadrants—highlighting countries like Malaysia, Kuwait, and Singapore in the LE-lopsided group, indicating successful human development strategies. Sasongko & Wibowo (2022) using Sobel Test revealed that public health spending has positive influence on Human Development and economic growth, but education spending has no significant effect on them. With this previous literature, it is observed that there is lack of studies to be conducted to examine the mediating role of Human Development in the relationship between Social Sector Expenditure and Economic growth in Indian States specifically Karnataka. Thus, this paper aims to tests the mediating role of Human Development in the relationship between Social Sector Expenditure and Economic growth in Karnataka.

RESEARCH METHODOLOGY

The present study explains the relationship between Economic Growth, Human Development and Tax Revenue in Karnataka. The research hypothesized that Human Development mediates the relationship between Social Sector Expenditure and Economic Growth. The study employs a lag specification of 2, 1,and 2 years for Social Sector Expenditure, Economic Growth, and Human Development respectively, based on Akaike (AIC) and Schwarz Information Criterion (SIC). The Mediation Analysis is conducted with the help of IBM SPSS 25.0 and PROCESS Macro Model 4 Developed by Preacher and Hayes (2013). The Essential Data required for the analysis has been retrieved from State Finances: A Study of Budgets from Reserve Bank of India (RBI), Economic & Political Weekly Research Foundation India Times Series (EPWRFITS) online database and Global Data Lab.

RESULTS AND DISCUSSION

Table 1: Descriptive Statistics

	LNNSDP	LNSSE	HDI
Mean	11.17540	14.06013	0.565531
Median	11.13412	13.91634	0.566500
Maximum	12.03202	15.95868	0.680000
Minimum	10.38613	11.95538	0.447000
Std. Dev.	0.498982	1.261555	0.080297
Skewness	0.173224	0.029465	0.061890
Kurtosis	1.809530	1.704976	1.626138
Jarque-Bera	2.049660	2.240746	2.537091
Probability	0.358858	0.326158	0.281240
Sum	357.6127	449.9242	18.09700
Sum Sq. Dev.	7.718482	49.33716	0.199878
Observations	32	32	32

From the Table 1 its observed that the Jarque-Bera tests for all variables yield p-values above 0.05, indicating no significant departure from normality. These statistics collectively suggest that the data is reasonably well-behaved and suitable for further analysis, including regression and mediation analysis, to explore the relationships between social sector spending, human development, and economic growth.

Table 2: Correlation Matrix

	LNNSDP	LNSSE	HDI
LNNSDP	**1.000000**	**0.995359**	**0.989936**
LNSSE	**0.995359**	**1.000000**	**0.994691**
HDI	**0.989936**	**0.994691**	**1.000000**

The correlation matrix (Table 2) for the variables LNNSDP, LNSSE, and HDI indicates very strong positive relationships among them. These strong correlations imply that social sector spending and human development are integral to economic growth, highlighting the importance of policies aimed at enhancing social sector spending to drive economic growth. The high degree of interdependence among these variables supports to further conduct Mediation Analysis.

Table 3: Mediation Analysis

Direct Effect of Social Sector Spending on Economic Growth

Effect	se	t	p	LLCI	ULCI
.1437	.0556	2.5861	.0154	.0297	.2578

According to Table 3, the direct effect of social sector spending on economic growth was found to be significant. The estimated effect size is 0.1437 with a standard error of 0.0556. This effect is statistically significant, as indicated by a t-value of 2.5861 and a p-value of 0.0154, which is less than the conventional threshold of 0.05. The 95% confidence interval for this effect ranges from 0.0297 to 0.2578, suggesting that the true effect size is likely to be positive and falls within this interval.

The positive effect size of 0.1437 indicates that, all else being equal, an increase in social sector spending is associated with an increase in economic growth. This finding supports the hypothesis that investments in social sectors, such as education, healthcare, and social security, directly contribute to enhancing economic performance. The significant p-value reinforces the reliability of this result, indicating that there is less than a 2% probability that this observed effect is due to random chance.

The confidence interval provides additional context, showing that even the lower bound of the interval (0.0297) is positive, reinforcing the conclusion that the relationship between social sector spending and economic growth is indeed positive and significant. Thus, policymakers can be reasonably confident that increasing social sector spending will positively influence economic growth.

Table. 4. Indirect Effect of Social Sector Spending on Economic Growth (through Human Development)

	Effect	BootSE	BootLLCI	BootULCI
HDI	.2426	.0519	.1335	.3410

According to Table 4 the indirect effect of social sector spending on economic growth through human development (measured by the Human Development Index, HDI) was found to be significant. The estimated indirect effect size is 0.2426, with a bootstrapped standard error of 0.0519. The 95% bootstrap confidence interval for this effect ranges from 0.1335 to 0.3410.

This indirect effect size of 0.2426 indicates that social sector spending positively influences human development, which in turn positively impacts economic growth. The significance of this indirect effect is supported by the fact that the entire 95% bootstrap confidence interval is above zero, suggesting a robust mediation effect.

The bootstrapped standard error of 0.0519 is relatively small, indicating a precise estimate of the indirect effect. The lower bound of the confidence interval (0.1335) and the upper bound (0.3410) further confirm that the true indirect effect is positive and substantial.

These results suggest that investments in social sectors such as education, healthcare, and welfare significantly enhance human development, which subsequently leads to increased economic growth. This mediation effect underscores the importance of improving human development outcomes as a pathway through which social sector spending can drive economic performance.

In conclusion, both the direct and indirect effects of social sector spending on economic growth are significant. The indirect effect through human development highlights a crucial mechanism by which social sector investments contribute to economic growth, reinforcing the importance of comprehensive social policies that promote human capital development.

CONCLUSION

The mediation analysis reveals that social sector spending has a significant positive effect on economic growth, both directly and indirectly through human development. The direct effect analysis indicates that increased social sector spending directly boosts economic growth, which is also statistically significant. Additionally, the indirect effect through human development is even more pronounced affirming the substantial role of human capital in mediating this relationship.

These findings suggest that investments in education, healthcare, and social welfare not only directly enhance economic performance but also improve human development outcomes, which in turn further stimulate economic growth. The significance of both direct and indirect effects underscores the dual pathways through which social sector spending can drive economic prosperity. Policymakers should, therefore, prioritize and sustain investments in social sectors as a strategic approach to achieving long-term economic growth. Enhancing human capital through improved health and education can act as a catalyst for economic development, making social spending a pivotal element in economic policy.

For future research, it would be beneficial to explore the specific components of social sector spending that most effectively drive human development and economic growth. Additionally, investigating the long-term impacts of sustained social spending and the potential differential effects across various socio-economic contexts could provide deeper insights. Further research could also examine the role of other potential mediators and moderators in this relationship, such as technological advancements, institutional quality, and labour market dynamics, to develop a more comprehensive understanding of the mechanisms at play.

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