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A Case Study on the Trend of Poverty and its Impact on the Economic Growth of the Indian Economy

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Abstract: *Education is an elaborate process, because it is economic growth and, equally, also alleviates poverty via increased productivity. Poverty is as much related to education as is economic growth. The study thus uses time series data covering the period between 1975 and 2022 for physical capital, poverty, education, and their corresponding effect on economic growth. The fundamental goal of this research study is to analyze how poverty rates, levels of education, and investments in physical capital would work together to affect GDP growth in developing countries. Using secondary data from reputable sources like the World Development Indicators (WDI) database and the World Bank, we did an extensive regression analysis, correlation tests, and Granger causality tests to find out about the effect these factors have on economic performance. This work digs a lot deeper into the complex relationship between Gross Domestic Product (GDP) and the major socioeconomic determinants—poverty, education, and physical capital—in India. Positive and significant impact on economic development derives from education and physical capital. Similarly, it shows that economic growth and poverty are negatively and significantly related. The study also includes elasticity analysis to measure how GDP responds to changes in education, physical capital, and poverty levels. Such elastic measures are informative regarding expected impacts of policy initiatives targeted at education, infrastructure improvement, and poverty alleviation activities. This work has serious implications for development stakeholders and policymakers. Understanding better the drivers of economic growth in developing countries will lead to more empowered and more focused policy formulations by policy decision-makers for sustainable and inclusive development.*

Keywords: Education, Poverty, Economic Growth, Augmented

I. INTRODUCTION

For successful policy formulation and intervention design in creating economic development and public welfare, development economics rides on interaction between GDP growth and socioeconomic determinants of education, physical capital, and poverty. India, a nation currently in the throes of many changes socioeconomic, forms the stage over which we are going to study these knots in connection for our college group project. Very few, if any, studies have focused on such work, thus leaving an enormous gap in knowledge regarding the interrelations and effects of variables such as poverty and education on economic development for countries such as developing India among others. Thus, due to a lack of study, our understanding of how specific mechanisms act in India's socioeconomic context is limited. Further research on this context is therefore urgently needed, given that India's opportunities and challenges are unique. Introduction Development economics is thus contingent on the relationship between GDP growth and socioeconomic traits like education, physical capital, and poverty for policymaking and intervention design toward economic growth and well- being. India is, at this point, emerging from radical socioeconomic transformation and has become the background for considering these points of interdependent complexity in our college group project. Because few, if any, studies have analyzed such connections, a vast knowledge gap exists regarding interactions and impacts of such factors as poverty, education, and economic growth on developing countries like India. Due to a lack of study, our understanding of the specific mechanisms affecting India's socioeconomic setting is limited. Because of its unique opportunities and challenges, further research into this setting is thus urgently necessary. In our study, GDP is taken as proxy for growth and other economic indicators such as employment rates, consumer expenditure, business investment,

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and trade balance relate to GDP growth. The proxy variables are the secondary enrollment rate for education, headcount ratio for poverty, and gross fixed capital formation (GFCF) for physical capital. These proxy variables are chosen with utmost caution in view of their theoretical significance and empirical veracity so that researchers may explore and study interlinked relationships even though measures of the main variables cannot be exactingly obtained or even quite hard to obtain. To fill this gap, our project will employ advanced econometric techniques such as the Granger Causality Test, the Augmented Dickey-Fuller (ADF) Test, and the Correlation Test. Due to these analytical tools, we will be able, therefore, to extensively analyze the relationship between GDP growth, poverty, education, and physical capital in India. So, this study seeks to explain the growth of India's economy by analyzing the complex interdependencies between such socioeconomic indicators as education, poverty, or physical capital. Then, we would like to assess the precise influence of each of these variables on total growth with a measure of this effect termed growth elasticity. We hope that our research will yield information on evidence-based policy choices and so enable policies for sustainable, inclusive development in India. The next sections will conduct a broad review of the relevant literature sections 2, whereas section 3 presents the methodology employed, and sections 4 will present comprehensive analysis and results of the data; section 5 will present the conclusions of our research, and section 6 will discuss possible futures research pathways. We aim to give policymakers and practitioners useful insights and help improve our understanding of the dynamics of India's economic growth.

II. LITERATURE REVIEW

The primary foundation for the development of socioeconomic conditions in a country is education. The first step in the development process is therefore education. Quite a number of researches are carried out at the national and international level with a connection to advancement. These have referred to the following literature reviews. Over the years, it has been repeatedly shown, both by the Centre and the States, that there has been a decline in poverty over the years in India, running through all States and social groups, said Panagariya and Mukim in their work in 2014. With regard to the socially disadvantaged segments, however, they saw a much sharper decline in the period from 2004-2005 to 2009-2010, especially for those socially disadvantaged segments considered to be inferior in the caste hierarchy. An absolutely inadequate income is only one dimension of poverty. It becomes more of a social phenomenon when a section of the community cannot satisfy its very basic needs. In further examination, Junofy Anto Rozarina. N. (2013) further emphasized that India is still lagging behind, as compared to all other Western and Far Eastern countries, in regard to poverty, determined by the Global Human Index and the Multidimensional Poverty Index. The Crisis of Development and Poverty, possibly interrelated with health and economic growth, needs to be looked at with panel data pertaining to Indian states if one wanted to understand the development and poverty. The pair additionally put forth that, despite significant decreases in poverty, the rest of India suffers from a very poor state of health. This appears to indicate that, unless there are great health gains made by the poor, further efforts to alleviate poverty could even be limited. Using micro data the nationally representative labor force and household surveys, Filiz Unsal's (2023) study analyzed the determinants and impacts of poverty and inequality in India during the pandemic and found education and employment status to be the two main determinants associated with alterations in income and consumption and poverty. In their study, Hatti, Neelambar; Hari, K. S. (2015) observe that besides the highly unequal distribution of the new resources, economic growth has not had maximized impact in addressing concerns of gross social and economic deprivation endured by the greater masses. Giving consideration to chronic poverty in terms of the extent, duration, and number of deprivations is important since it provides data that enable us to focus attention on locations that are spatial poverty traps and identify which states and regions have a high concentration of people with incomes far below the poverty line.

This aspect was examined by Aasha Kapur Mehta and Amita Shah, where they conducted an overview study on Chronic Poverty in India by outlining the magnitude and type of chronic poverty in remote rural areas or areas subjected to geographical poverty traps. Rarely in poverty studies has any account been given to the linkages among physical capital, education, and economic growth in the Indian context, placing severe emphasis on poverty itself as a main macroeconomic variable. The distinguishing feature of this study will be the way it recognizes the role of poverty in shaping the country's growth, while in contrast, the other studies have attributed it to microeconomic factors. Granger

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Causality Test, Augmented Dickey-Fuller (ADF) Test, and Correlation Test are among those sophisticated econometric methods employed in the research to enhance the credibility of their results. The research further contributes towards a complete analysis into the intricate interaction, as between educational development, economic development, and poverty, within the Indian context. This study will provide some insight into the relations between economic growth, education, and poverty in India, thereby enabling policymakers to formulate plans that promote sustainable development and growth in the country by drawing upon the deep contextual analysis and empirical evidence provided in this research.

III. OBJECTIVES

I. Trend Analysis over Historical Period: There is much to say in the trend with respect to some signs of historical occurrence and factors which have determined such past trends concerning poverty rates in India through the decades of the previous ones.
II. Economic Growth Assessment: Study the relationship between economic growth and poverty below the poverty line in India, more particularly focusing on how various sectors contributed basically in alleviating poverty.
III. Evaluate Government Policies: Evaluation of the efficiency of different government poverty alleviation policies and programs in terms of economic growth in India.
IV. Socio Economic Factors Identification: Identify and analyze the other socio-economic factors contributing to poverty in India in relation to education, health, and employment.
V. Effect of Urbanization: Discuss how urbanization has removed barriers such as no income or asset and has thereby fostered economic growth in terms of poverty alleviation through rural- urban migration.
VI. Regional Disparities: Thus, analyze regional disparities over poverty and economic growth and identify their basis.
VII. Policy Formulation Recommendation: On observations, put policy recommendations for policymaking in developing better strategies for poverty alleviation and economic growth.

IV. FINDINGS

I. Decline in Poverty Rates: Data from the World Bank indicates a steady decline of poverty in India across all states and social groups. Accelerated economic growth between 2004-2005 and 2009-2010 had a drastic reduction in poverty, benefiting socially disadvantaged groups more rapidly compared to upper caste groups. II. Urbanization and Poverty Reduction: In India, a faster decline of poverty has been seen with a higher economic growth supported by a more progressive growth pattern, as highlighted by the NBER. Urban growth of consumption had benefited the urban and rural poor, thus representing strong inter-sectoral linkages. III. Measurement and Methodology: The IGIDR discusses various methodologies used for the measurement of poverty in India. The article brings out the need for good measurement for policy perspective and also gives credence to a multi-dimensional approach for assessing poverty.

V. METHODOLOGY

The current analytical work utilized secondary data from 1975-2022. Primary data used for GDP, secondary school enrollment ratio, and gross fixed capital formation (GFCF) statistics were obtained from the World Development Indicators (WDI). The World Bank was a secondary source for poverty data, which was interpolated as it was only available for every five years: population below the poverty line rate of 2.15 dollars.

Research Design:

While so many studies have tried to give the correlation of GDP with other economic variables, not much research was conducted about the exact dynamics or interrelation of GDP with poverty, education, and physical capital in developing countries among the rest. Furthermore, there have been some studies trying to focus on those constructs in European regions, but a vacuum exists regarding their significances to developing countries. The study thus seeks to study the relationship between poverty, education, physical capital, and their effects on GDP-the primary focus being on developing countries that have undergone rapid socio- economic transformations. The methodology involves applying several models to explain the dynamics in the above variables. First, a simple linear regression model is drawn out to explain the relationship of GDP with poverty, education, and physical capital separately. Next, the explanation draws

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all of the variables in one ballpark using a multivariate regression model. Through this model, we aim to expose the complex interlinkages between GDP, poverty, education and physical capital in a developing economy with respect to the roles played by different socioeconomic factors. Our investigation will shed light into the missing links that make all factors come together as a proposition towards a better understanding of what drives economic growth and development in these economies, hence policy implications possible for any policymakers and practitioners working to reduce poverty, improve education, and invest in physical capital for sustainable economic development.

Data Collection:

GDP Data: Data were drawn from the World Development Indicators (WDI) database for the respective target countries and years. GDP figures are in constant 2011 US dollars to account for inflation. Education Data (Secondary Enrollment Rate): WDI database from which respective countries and years were obtained. Secondary enrollment rate refers to percentage of the population of secondary school aged persons enrolled in secondary education. Physical Capital Data (GFCF): This is from the WDI database for India and necessary periods within the ambit of the study. By definition, GFCF amounts to gross fixed capital formation as a percentage of GDP. Poverty Data: Government agencies responsible for collecting poverty statistics provide this data source. The percentage of people below the poverty line is then given as a percentage in this instance under consideration, involving 2.15 US dollars a day. Given the 5 yearly interval release, interpolation of values was performed to obtain approximate figures for the years in between 1975 to 2022.

VI. CONCLUSION

This worked out in long detail as this study shows the complex interrelationship GDP has with education, physical capital, and poverty in India. Numerous inferences based on the intensive statistical tests, economic modelings are: Importance of Control Variables: The regression analysis indicates that GDP is affected by education, physical capital, and poverty. Poverty or, I mean to say higher levels of poverty, is linked with lower GDP growth while enhancement or improvement in physical capital and education is directly proportional to GDP growth. High Correlations: These correlation tests showed that there were very high positive correlations between the GDP and education and the GDP and physical capital. Also, there is a negative correlation between GDP and poverty indicating the reverse relationship between poverty levels and GDP. Page out of Stationarity: Such as Augmented Dickey-Fuller Test proves that the variables are not stationary in time. This strengthens the results of regression because they can be modeled and predicted. Causal Relations: GDP declining in future would link dependency with past historical poverty rates in the Granger causality test. Here, for our case test, order 7 is shown, as in the analysis we have lagged values up to 7 periods. This last point highlighted the significance of reducing poverty to grow the economy. Elasticity Voices: It gives very critical insight into how these dimensions would likely react to interventions in each, by expressing the elasticity analysis reaction of GDP to movements in physical capital poverty and education. Hence, this work takes forward our understanding of the machinery behind economic growth in low-income developing countries. Well, these proved the need, first and foremost, for investment in physical infrastructure and education; at the same time, most emphasized the inherent importance of poverty reduction efforts in assuring sustained economic development. Evidence-based policymakers aiming to raise living standards and promote inclusive growth in emerging economies will find lessons from these well-researched findings. Evidence resulting from research indicates to the government and other decision-makers pay attention to SR and LR solutions of alleviation of poverty. They must consider implementing short-term and long-term policies to reduce poverty. Education, training, and action on poverty alleviation are crucial in taking the GDP growth to the next level for India. It will help in eliminating poverty for more poor people in India. Increase the social safety net for the lower socio-economic class of India to reduce poverty. Then enhance the quality and quantity of education to research after that in India through the government. Create Poverty Alleviation and promote Education-related policy innovations to expedite the country's economic development. 6. Future Scope Dummy variable treatment of endogeneity and multidimensional poverty index. Dummy variables: Include dummy variables which oat an exogenous shock or structural change like LPG Policy (D1), 2007 Financial Crisis (D2), COVID confounding factors and separate causal relationships. (D3) or policy reforms. This also controls for Multidimensional Poverty Indexes (MPIs) 1975-2022: Record several aspects of poverty in addition to income, such as education, health,

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and social inclusion. The adoption of a whole- of-poverty approach decreases the risk omitted variable bias and increases richer descriptions of dynamics of poverty. Availability of data is one issue against the advantages of MPIs: The merger of MPIs will enhance the precision of statistical models in that it comprises several aspects of deprivation. This will seriously increase the validity and rely on research outcomes, thus supporting evidence-based policy towards inclusive development. In the process of using dummy variables and MPIs in empirical research, one could lessen endogeneity problems and also learn more on the dynamic relationship of poverty, economic development, and policy intervention.

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