An Empirical Analysis of Socio-Economic Indicators on Income Inequality in India

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Abstract

The study examines the emerging problem of income inequality through the lens of significant socio-economic indicators in India. According to the IMF, too much income inequality could "erode social cohesion, lead to political polarization, and ultimately lower economic growth". The paper uses secondary data from 2000 to 2023 using World Bank reports, RBI reports and PWT 10.0. The disparities in income distribution are analyzed taking employment, education, healthcare, necessities, etc. as independent variables, and their impact is studied on income inequality using Gini coefficient as the dependent variable with the help of statistical tools (SPSS). In the empirical analysis it was found that the overall regression model is statistically significant at 1 percent level. It shows the strong fit of the regression model for data. In addition, the descriptive statistics reveals that while India has experienced steady economic and human development, there persists challenges like volatility in inflation, and inequalities in income. The policy recommendations aiming at addressing the inequalities through social protection, improved necessities, redistributive measures, and fiscal measures are suggested. This analysis also highlights the need of adopting inclusive and equity-oriented development policies to guarantee sustainable growth in India.

Keywords: Income inequality, Gini coefficient, socio-economic indicators, India, employment, public policy, economic development

1. Introduction:

Income inequality in India remains a significant socio-economic challenge, with disparities evident across regions, social groups, and urban-rural divides. The socio-economic indicators such as consumption expenditure, access to education and healthcare, asset ownership, and employment patterns reveal stark differences in income distribution. Income inequality in India has become a growing concern, particularly in the post-liberalization era, where economic growth has not translated equally across all sections of society. Socio-economic indicators such
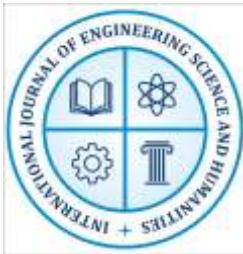
as household income, consumption expenditure, education levels, healthcare access, asset ownership, and employment type reveal deeply entrenched disparities between different socio-economic groups, regions, and communities. Rural-urban divides, caste and gender-based disparities, and unequal access to public goods further worsen these inequalities. Income inequality in India remains a significant socio-economic challenge, despite decades of rapid economic growth and poverty reduction efforts. A growing body of evidence suggests that the benefits of economic development have been unequally distributed, resulting in widening gaps between the rich and the poor. According to the World Inequality Report 2022, the top 10% of the Indian population holds nearly 57% of the national income, while the bottom 50% accounts for only 13%, underscoring a widening income gap (Chancel et al., 2022). This persistent inequality is shaped by historical socio-political structures, unequal access to opportunities, and recent economic policy shifts that have not equally benefited all segments of the population. Further these socio-economic indicators such as income levels, household consumption expenditure, employment type, educational attainment, healthcare access, and asset ownership etc., offer valuable insights into the patterns and depth of inequality across different population groups. This inequality across the population reflects broader socio-economic disparities. Such indicators provide critical insights into the unequal distribution of income and opportunities. Further it also reflects the disparities not only between urban and rural areas but also across gender, caste, and regional lines.

Moreover, the data from the National Sample Survey Office (NSSO) and the Periodic Labour Force Survey (PLFS) specify that relatively small section of the population possess majority of wealth and income accumulation, with limited upward mobility for disadvantaged groups. In addition, inequalities in access to education and healthcare further reinforce the cycle of poverty. It is also observed that low-income households lack access to quality schooling and availability of affordable healthcare that limits their long-term income potential. Intergenerational income inequality is also supported by occupational stratification, where marginalized communities are widely represented in low-wage, insecure, and informal jobs. Undoubtedly, India has witnessed a significant economic growth in recent decades but the benefits have been unevenly distributed. Therefore, the issue of income inequality requires a multidimensional approach that includes progressive taxation, targeted welfare schemes, greater social spending, and policies that promote impartial access to quality education and employment opportunities. The socio-economic indicators help policymakers assess the impact of development policies and identify areas where targeted interventions are needed to ensure more inclusive and sustainable economic growth. Income inequality in India has emerged as a critical socio-economic concern, despite the country's sustained economic growth over recent decades. The indicators—such as income levels, employment status, consumption patterns, access to education, healthcare, standard of

living and asset ownership—serve as key metrics in estimating the distribution of economic well-being across different population groups. These socio-economic indicators depict severe disparities among various caste, gender, and social and economic groups in addition to rural and urban regions. A widely used statistical measure of income inequality is the Gini coefficient, which ranges from 0 (perfect equality) to 1 (perfect inequality). However, when accounting for wealth rather than income, the inequality becomes far more pronounced. Thus, socio-economic indicators, alongside tools like the Gini coefficient, are crucial in diagnosing the extent of income inequality and informing policies aimed at promoting inclusive and equitable development.

According to the World Bank, India's Gini index for income inequality has hovered around 0.35, indicating a moderate level of inequality. However, this figure masks more profound disparities when wealth, rather than income, is considered. Moreover, indicators such as low enrollment in higher education, limited access to quality healthcare, and high reliance on informal employment underscore the structural roots of inequality. As such, monitoring socio-economic indicators alongside the Gini coefficient is essential for understanding income inequality and designing targeted policy interventions to promote inclusive growth and social justice.

2. Literature Review

There has been a significant transformation in income distribution in India, particularly since post-liberalization period. Piketty and Chancel (2017) analysed that the top 1% of earners in India captured a growing share of national income rising from around 6% in 1982 to over 22% by 2014, suggesting that market-oriented reforms, while spurring growth, disproportionately favoured the upper economic strata. Himanshu (2019) critiques official survey mechanisms like NSSO and PLFS for underreporting the true extent of inequality, especially due to the omission of ultra-rich households. He therefore advocates for triangulating data sources such as tax records, corporate filings, and asset ownership surveys to gain a more accurate picture of income distribution. He also found that inequality is not only spatial—between urban and rural areas—but also social, with deep divides along caste, gender, and regional lines mainly due to unequal access to education, employment, and land ownership, particularly in states with lower levels of public investment in human capital. In another study, Datt and Ravallion (2002) showed that while economic growth reduced poverty, it often widened inequality in the absence of targeted social protection. Deaton and Drèze (2002) analysed NSSO data and found a significant rise in inequality during the economic liberalization period of the 1990s, especially between urban and rural areas. Dev and Ravi (2007) in a state level study concluded that "inclusive growth'' accompanied by investments in education, health, and employment—was more effective in reducing income gaps. They highlighted the need for redistributive fiscal policies and better targeting of public services to underprivileged groups. In another study, Kurian (2000) observed

that southern and western states with better social indicators (e.g., literacy, health care) show relatively lower income inequality. In contrast, states like Bihar, Uttar Pradesh, and Jharkhand exhibit high poverty and inequality levels due to weak governance, poor infrastructure, and low human capital investment. Himanshu (2010) and Rangarajan & Dev (2011) also emphasized rising rural-urban, inter-state, and caste-based income disparities. More recently, Anand and Thampi (2016) revisited the Kuznets hypothesis and found no clear evidence of the inverted-U relationship in India suggesting that inequality has persisted or even worsened despite sustained economic expansion since the 1990s. Bhalla and Roy (2010) found that bridging the educational divide is essential for addressing the root causes of income inequality. According to Mehrotra et al. (2014), over 90% of workers are in informal jobs with low wages, no job security, and minimal social protection. This labor market structure reinforces income inequality by concentrating wealth and job stability in a small formal sector. Recent work by Abraham et al. (2020) indicates that economic shocks, such as demonetization and the COVID-19 pandemic, have disproportionately affected informal workers, deepening pre-existing income vulnerabilities. Policy interventions like MGNREGA have been instrumental in reducing income volatility in rural India. Drèze and Khera (2017), Kapur & Nangia (2015) highlight that MGNREGA has provided crucial income support during agricultural off-seasons and economic shocks. Rao and Singh (2005) argue that India's federal fiscal structure—despite being designed to address regional imbalance—has not been effective in achieving convergence. They recommend greater decentralization of fiscal powers and targeted investments in backward states to mitigate spatial inequality. Recent satellite-data-based studies (e.g., Asher & Novosad, 2020) further corroborate that infrastructure development, road connectivity, and electrification correlate strongly with reduced regional inequality, pointing to the role of public investment in shaping income distribution.

3. Research Gaps

While a broad range of literature has explored the determinants of income inequality in India, there is limited recent empirical analysis integrating multiple socio-economic indicators such as education, employment, health, and regional disparities using updated datasets. Moreover, the interaction between these variables and their joint impact on income inequality is under-explored.

4. Objectives

- To measure the trends of income inequality in India from 2000 to 2024.
- To identify socio-economic variables affecting income inequality.
- To analyse the impact of these variables using statistical methods.

5. **Data Sources and Methodology:** The study uses secondary data from World Bank reports, RBI reports and PWT 10.0 for the period from 2000 to 2023. It examines the impact of socio-economic indicators such as GDP per capita (constant LCU), inflation (consumer prices, annual %), Urban population (% of total population), People using at least basic drinking water services (% of population), Access to electricity (% of population), Human capital index (based on years of schooling and returns to education), Life expectancy at birth as independent variables; on income inequality taking Gini coefficient(dependent variable) as its proxy variable. The descriptive analysis (to observe trends), and inferential statistics (Multiple regression to assess the impact of each independent variable on income inequality, controlling for others) is undertaken with the help of statistical tools (SPSS).

6. **Empirical Analysis:** The analysis comprises of descriptive and inferential statistics where measures of central tendency, dispersion, regression, and the trends of growth rates of all the variables is undertaken in the study. The results are depicted in graphs, charts, and tables.

6.1. **Trend Analysis:** The graphical representation of temporal trends of Ginni coefficient, GDP per capita, Inflation, Urban population, access to basic drinking water, access to electricity, human capital and life expectancy at birth is presented below (Figure 1 to 8)

Figure: 1 to 8
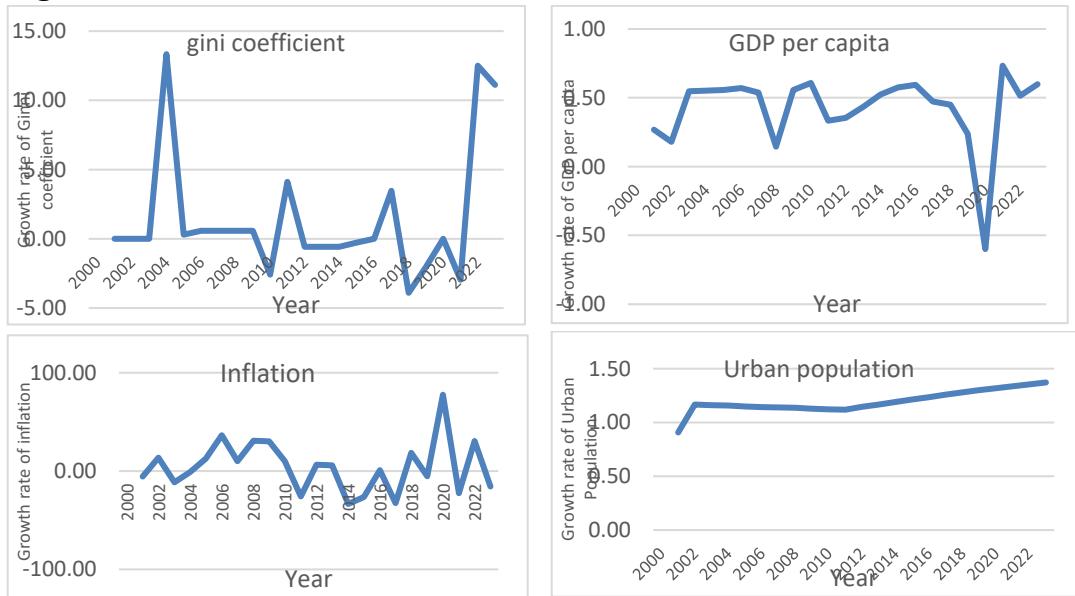
Access to basic drinking water

Access to electricity

Human capital

Life expectancy at birth
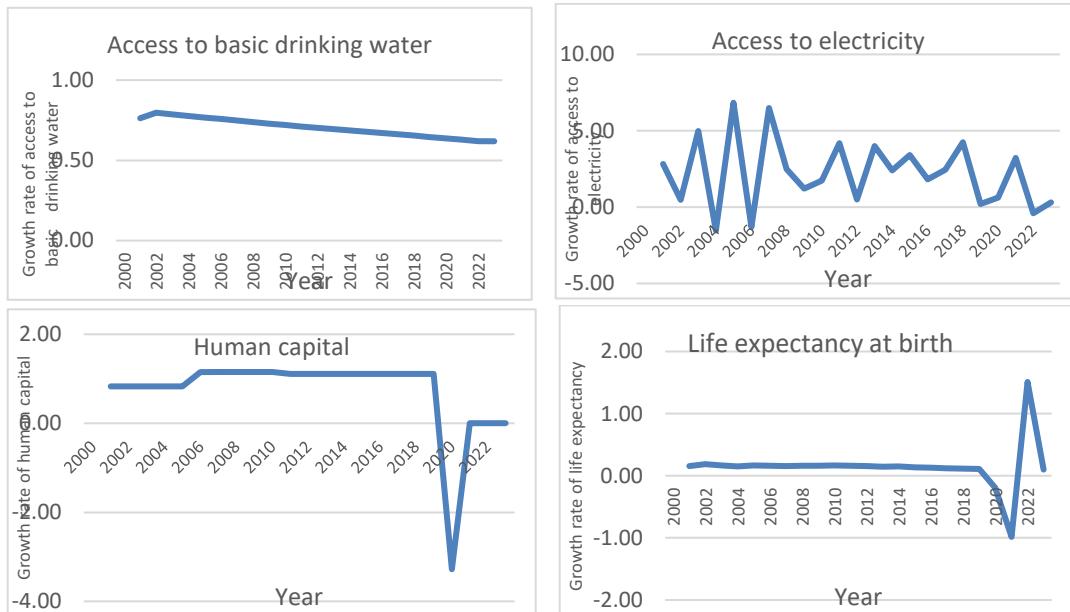
6.2. Descriptive Analysis: The descriptive statistics of the study variables from 2000 to 2023 reveal key trends and variability within India's socioeconomic dimensions. The GDP per capita displayed a relatively stable pattern over the 24-year period, with a mean of 11.16 and a coefficient of variation of 3.07%, indicating minimal annual fluctuations in income levels. In contrast, inflation recorded the highest variability among all variables, with a CV of 40.87%, reflecting significant economic instability and price volatility during certain years.

Variables	N	Minimum	Maximum	Mean	Std. Deviation	CV
GDP per capita	24	10.62	11.70	11.16	0.34	3.07
Inflation	24	3.33	11.99	6.09	2.49	40.87
Urban population	24	27.67	36.36	31.65	2.65	8.38
Access to basic drinking water	24	79.88	93.30	86.70	4.15	4.78
Access to electricity	24	60.30	99.60	80.51	13.38	16.62
Human Capital	24	1.78	2.17	1.99	0.12	6.23
Life expectancy at birth	24	4.14	4.28	4.21	0.04	0.98
Gini coefficient	24	30.00	41.00	34.13	2.41	7.08

On the other hand, the urban population showed a steady growth trend, with a mean value of 31.65% and moderate variability of 8.38%, suggesting gradual urbanization. Access to essential services displayed notable improvement over time. The percentage of people using at least basic drinking water services had a high average (86.70%) and relatively low variability recording
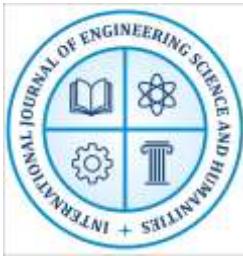
coefficient of variation of 4.78%, suggesting consistent policy led efforts for improving water access. Similarly, access to electricity improved evidently, ranging from 60.3% to nearly full coverage, but with higher variability of 16.62% that may be due to significant gains in earlier years. Human Capital (HC), that is taken as a proxy for education and health, had a mean of 1.99 and a CV of 6.23%, indicating steady and sustained developments. Life expectancy at birth, with a remarkably low CV of 0.98%, remained highly stable, increasing only slightly across the years, representing consistent health outcomes.

The Gini coefficient, used to measure income inequality, had a mean value of 34.13 with a moderate CV of 7.08%. This implies that while there were some changes in inequality levels, they were not extreme. The pattern of slight increases and fluctuations in the Gini index may indicate underlying disparities in wealth distribution despite economic growth.

Overall, the descriptive statistics suggest that while India has experienced steady economic and human development, challenges such as inflation volatility and income inequality persist. The low variability in core development indicators like GDP per capita and life expectancy contrasts with the more dynamic shifts seen in infrastructure-related variables such as electricity access.

6.3. The impact of socio-economic indicators on income inequality: Further, the regression analysis was used to study the impact of socio-economic variables on income inequality. For the study, Gini coefficient was taken as the proxy variable for the inequality in the income in the economy and GDP per capita (constant LCU), inflation (consumer prices, annual %), Urban population (% of total population), People using at least basic drinking water services (% of population), Access to electricity (% of population), Human capital index (based on years of schooling and returns to education), Life expectancy at birth as independent variables. The results yielded 0.902 as coefficient of determination (R^2) suggesting that approximately 90.2% of the variability in the dependent variable is explained by the model. This implies that the selected independent variables collectively provide a very high explanatory power to explain the economic inequalities. Furthermore, the adjusted R^2 value of 0.857 indicates that even after adjusting for the number of predictors in the model, 85.7% of the variation in the dependent variable remains explained. The F-statistic for the regression model is 19.770, with a significance level (p-value) of .000. This indicates that the overall regression model is statistically significant at the 1% level. In other words, the independent variables, taken together, significantly predict the dependent variable. These results determine that the regression model is a strong fit for the data and effectively captures the relationship between the variables under investigation.

Gini Coefficient = - 492.07 - 0.090 Inflation - 5.828 Urban Population - 0.255 Access to Electricity - 54.70 Human Capital + 29.37 GDP per capita + 50.56 Life Expectancy + 3.44 Access to basic drinking water

The regression model further examines how various socio-economic indicators influence income inequality (measured by the Gini coefficient). The coefficients represent the expected change in the Gini coefficient for a one-unit change in the predictor variable, holding other variables constant. From the empirical estimation, it is found that the significant predictors of inequality in the model are: urban population, human capital, GDP per capita, life expectancy, and access to drinking water. The results depict 1% increase in urban population is associated with a 5.83-point decrease in the Gini coefficient. This is statistically significant and suggests that greater urbanization may reduce income inequality. Further, 1-unit increase in the Human Capital Index corresponds to a 54.7-point decrease in the Gini coefficient. This is a highly significant predictor, suggesting that improving human capital significantly reduces income inequality. Unlikely, higher GDP per capita is associated with higher inequality. A one-unit increase in GDP per capita is linked to a 29.38-point increase in the Gini coefficient. This result is statistically significant, but may reflect growth patterns that are not inclusive. Life expectancy has a positive and significant relationship with the Gini coefficient, which is somewhat counterintuitive and might signal structural inequalities persisting even with improving health outcomes. Also, a positive and significant predictor. This may suggest that while access to basic services improves, it does not automatically reduce inequality and may even correlate with uneven development. Whereas, inflation and access to electricity has negative impact on income inequality as its coefficients are negative and statistically insignificant, which shows that inflation did not come out to be a significant determinant of inequality that may be due to wide fluctuations in the trend of inflation as discussed earlier also in descriptive statistics. Moreover, electricity access also does not have a clear impact on income inequality in the model.

Income inequality in India remains a complex and persistent challenge, deeply embedded in the country's socio-economic structure. This literature review and conceptual framework highlight the multifaceted nature of inequality and the significant roles played by education, employment patterns, regional disparities, economic growth, and social protection policies.

7. Conclusion

There is significant evidence that suggests that economic growth has lifted millions of people out of the vicious circle of poverty but the fact cannot be ignored that the growth has not been uniformly inclusive. Economies are navigating a critical juncture with deepening economic inequality. Disparities in access and quality of education, inflation, informal labour sector, low female labour participation, jobless growth, etc. continue to shape unequal income distribution. The policies aimed at reducing inequalities have limited reach and uneven implementation, that further worsen the disparities, especially in less developed regions.

The theoretical outline developed in this study highlights the interconnection of socio-economic indicators and their collective impact on income inequality. With integration of multiple

variables, the study provides a more inclusive understanding of inequality dynamics particularly in Indian context. The framework presented in the study not only guides empirical analysis but also underlines the need for multidimensional policy involvements.

The analysis therefore clearly suggests that India must adopt a holistic approach that combines all the factors, such as inclusive education, labor market reforms, gender equity measures, and robust social protection mechanisms to overcome the problem of inequality. Targeted efforts to bridge regional gaps and support marginalized communities are crucial for achieving equitable and sustainable development. Such integrative strategies are important to address the structural roots of income inequality in the country and move toward a more just economic future.

References

Deshpande, A. (2011). The Grammar of Caste: Economic Discrimination in Contemporary India. Oxford University Press.

Datt, G., & Ravallion, M. (2002). Is India's economic growth leaving the poor behind? Journal of Economic Perspectives, 16(3), 89–108.

Dev, S. M., & Ravi, C. (2007). Poverty and inequality: All-India and states, 1983–2005. Economic and Political Weekly, 42(6), 509–521.

Drèze, J., & Khera, R. (2017). Recent social security initiatives in India. World Development, 98, 555–572.

Himanshu. (2019). Inequality in India: A review of levels and trends. Indian Journal of Human Development, 13(2), 137–154.

Kingdon, G. (2020). The quality of education in India: Status and challenges. Oxford Review of Education, 46(4), 444–460.

Kurian, N. J. (2000). Widening regional disparities in India: Some indicators. Economic and Political Weekly, 35(7), 538–550.

Kuznets, S. (1955). Economic growth and income inequality. The American Economic Review, 45(1), 1–28.

Mehrotra, S., Gandhi, A., Saha, P., & Sahoo, B. K. (2014). Joblessness and Informal work in India: The new normal?. Economic and Political Weekly, 49(44), 45–54.

Piketty, T., & Chancel, L. (2017). Indian Income Inequality, 1922–2015: From British Raj to Billionaire Raj? World Inequality Lab Working Paper No. 2017/11.

Rao, M. G., & Singh, N. (2005). Political Economy of Federalism in India. Oxford University Press.

Tilak, J. B. G. (2007). Post-Elementary Education, Poverty and Development in India. International Journal of Educational Development, 27(4), 435–445.