



Industrial Powerhouse to Human Development Leader: A Comparative Study of Income Patterns in Maharashtra and Kerala (2011–2024)

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Abstract

This study provides a unique comparison of two distinct growth models by examining the income disparity between Maharashtra and Kerala between 2011 and 2024. It examines social aspects like literacy, health, and poverty alleviation in addition to economic indicators like industrial growth, employment, and the per capita net state domestic product (NSDP). The study also examines how the Covid-19 pandemic, the 2018 floods in Kerala, the 2018 droughts in Maharashtra, the demonetisation process, the GST reforms, and other external shocks influenced the development of both states. The results demonstrate that Kerala closed the gap through robust human development and remittances, while Maharashtra maintained its industrial edge. The study asks the reader a fundamental question: Which path contributes more effectively to income growth; industrial expansion or social development?

Keywords: Income gap, Maharashtra, Kerala, per capita NSDP, economic shocks, industrial expansion, social development.

1. INTRODUCTION

One of the most important worldwide issues of the twenty-first century is the growing disparity in income. In both developed and developing economies, metrics like the decile ratio and the Gini coefficient, which are derived from the Lorenz curve, consistently demonstrate a growing wealth disparity. Economic instability, social discontent, and possible political unrest result when a small percentage of the population controls a disproportionate share of wealth while a large portion of the population struggles to meet basic needs (Mdingi & Ho, 2021). India is not an exception to this worldwide pattern.



Due to the concentration of wealth and resources in the hands of a select few during the colonial era, income inequality in India has historically existed. Up until the early 1980s, welfare-oriented development, land reforms, and redistributive policies all contributed to the reduction of inequality following independence. However, inequality started to increase once more starting in the mid-1980s, particularly following the economic liberalization of the 1990s. Income inequality increased in the 2000s due to sector-specific growth and rapid globalization. Changes in India's inequality have an impact on the entire world because of the country's sizable population and substantial contribution to patterns of income distribution worldwide (Bourguignon & Morrisson, 2002; Panagariya et al., 2013). However, there are still significant interstate differences, with regional variations in per capita income and development results (Dhongde, 2005). Kerala and Maharashtra offer a convincing comparative framework in this regard. One of the most industrialized and urbanized states in India, Maharashtra has a sizable MSME base, excellent infrastructure, high levels of foreign direct investment, and a substantial GDP contribution. Pune is renowned for its industrial and educational foundation, while Mumbai, the country's capital, acts as India's commercial and financial center. The expansion of manufacturing, services, urbanization, and industrialization have been the main drivers of Maharashtra's growth.

Kerala's development trajectory, on the other hand, has been more socially focused. The state has demonstrated a strong focus on human development indicators by achieving high life expectancy, low infant mortality, and high literacy rates (Subrahmanian, 1990). Kerala's income patterns have also been significantly shaped by migration, especially to Gulf nations (Zachariah & Rajan, 2016). Kerala's economy is dominated by the services sector, which has recently contributed the highest percentage of the state's gross state value added. Both states possess significant informal sectors, which, although they provide poorly compensated and unstable employment, have contributed to people's livelihoods and helped decrease extreme poverty (Thadathil et al., 2024). Nevertheless, the factors influencing income growth vary considerably between the two states—economic and industrial elements being more influential in Maharashtra, while social development and migration are more significant in Kerala.



2. LITERATURE REVIEW

Kuznets developed a theory linking inequality with economic growth, often explained through the famous “Kuznets Curve” . He argued that in the early stages of economic development, inequality usually rises because the benefits of growth are concentrated in certain sectors, such as industry and urban areas, while rural and traditional sectors lag behind. However, as development continues and more people gain access to education, better jobs and improved living standards, the gap between rich and poor gradually narrows. Over time, the economy reaches a stage of stability where inequality begins to decline, leading to a more balanced distribution of income . In India, the distribution of wealth at the national level remains highly unequal, even though the country has witnessed rapid economic growth and notable progress in poverty reduction. Over the past thirty years, inequality has widened significantly, as reflected in multiple economic and social indicators. While certain sections of the population have experienced rising incomes and improved standards of living, a large share of the wealth has become concentrated in the hands of a relatively small group. This growing imbalance highlights the fact that the benefits of growth have not been evenly shared, leading to deepening disparities across regions, social groups and income categories, (Yadav & Kirk, 2023).

Tharakan in his journal article says that “progressive socio-economic policies have certainly helped the spread of literacy and popularisation of widespread health practices”. This is certainly an achievement of Kerala. Zachariah & Rajan (2016) analysed the migration trends in Kerala and found that remittances from over 2.4 million Keralite working abroad, mainly in the Gulf, significantly boosted Kerala’s economy by improving standard of living and reducing poverty.

According to the Economic Survey of Maharashtra 2024-25, Maharashtra’s industrial sector forms a crucial part of India’s overall industrial base. The state has consistently attracted both domestic and international investors, thanks to its strong infrastructure and business-friendly environment. Over the years, it has maintained its leading position in the country in terms of foreign direct investment (FDI), reinforcing its role as one of India’s most important industrial and investment hubs.



3. OBJECTIVES

1. To examine and analyze the trends and patterns in per capita income of Maharashtra and Kerala during the period 2011 to 2024.
2. To assess whether the income gap between the two states has widened or narrowed over the selected time period.
3. To evaluate the influence of major economic and social factors on income growth in both Maharashtra and Kerala.

4. HYPOTHESIS

H0a: There is no statistically significant difference in the per capita income of Maharashtra and Kerala during the period 2011 to 2024.

H1a: There is a statistically significant difference in the per capita income of Maharashtra and Kerala during the period 2011 to 2024.

H0b: There is no significant evidence of income convergence between Maharashtra and Kerala over the study period.

H1b: There is significant evidence of income convergence between Maharashtra and Kerala over the study period.

5. RESEARCH METHODOLOGY

This study employs a comparative and quantitative research design to analyze income trends and disparities between Maharashtra and Kerala from 2011 to 2024. The chosen 13-year period facilitates an in-depth examination of long-term trends and encompasses major economic events such as demonetization, the implementation of the Goods and Services Tax (GST), the COVID-19 pandemic, floods in Kerala, and drought conditions in Maharashtra.

The research relies on secondary data sourced from reputable institutions, including the Ministry of Statistics and Programme Implementation (MoSPI), the Reserve Bank of India, state Economic Surveys, NITI Aayog, census data, and reports from the NSSO. The primary dependent variable is the real per capita Net State Domestic Product (NSDP) measured at constant prices from 2011-12. Independent variables consist of economic factors such as industrial development, employment rates, and state expenditure, alongside social indicators like literacy, health, and poverty levels.



To evaluate income differences and convergence trends between the two states, the study employs various analytical techniques, including descriptive statistics, graphical analysis, paired t-tests, and simple linear regression.

6. RESULTS AND DISCUSSION

This chapter analyses the trend in per capita Net State Domestic Product (NSDP) at constant 2011–12 prices for Maharashtra and Kerala from 2011 to 2024 using data from the RBI Handbook of Statistics. To test whether a significant difference exists between their per capita incomes, a paired t-test was applied. The results show a t-statistic of -0.2429 with a p-value of 0.8119 (greater than 0.05), indicating that the null hypothesis cannot be rejected. Thus, there is no statistically significant difference between the per capita incomes of the two states during the study period.

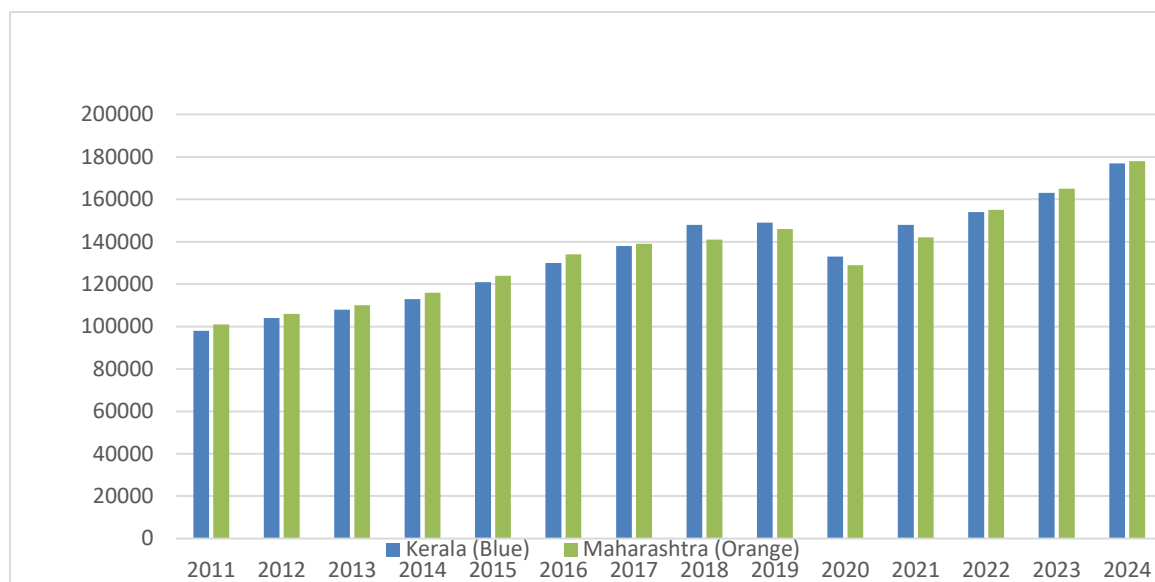
The 95% confidence interval ($-\text{₹}2257.936$ to $\text{₹}1801.507$) includes both negative and positive values, suggesting that the true mean difference may favor either state. Graphical analysis further indicates a steady upward trend in both states. While Maharashtra led until 2017, Kerala overtook thereafter, supported by remittances and strong service-sector performance. Overall, despite different development models and short-term shocks, both states maintained comparable income levels over time.

Statistic	Value
t-value	-0.2429
degrees of freedom (df)	13
p-value	0.8119
mean difference	-228.2143
95% CI Lower	-2257.936
95% CI Upper	1801.507
Statistic	Value

FIGURE 6.1: PAIRED T-TEST RESULTS



PER CAPITA NET STATE DOMESTIC PRODUCT- STATE-WISE



**FIGURE 6.2: PER CAPITA NET STATE DOMESTIC PRODUCT-STATE WISE
(base year 2011-12)**

The second objective aims to examine whether the income gap between Maharashtra and Kerala is widening or not. This is done with the help of a linear regression analysis and the equation is; $y_t = \alpha + \beta \cdot \text{year}_t + \epsilon_t$ where, y_t is the dependent variable that shows the gap which is the difference between the per capita NSDP of Maharashtra and Kerala and is expressed as $y_t = \text{PCI}(\text{Maharashtra}_t) - \text{PCI}(\text{Kerala}_t)$. A positive y_t indicates that Maharashtra is ahead and a negative value indicated that Kerala is ahead with respect to per capita NSDP.

α is the intercept term

β is the slope coefficient term and main parameter of interest. It shows the average yearly change in the PCI gap.

- If $B < 0$: the gap shrinks over time (convergence)
- If $B > 0$: the gap increases (divergence)
- If $B = 0$: no trend in the gap

year_t is the independent variable, representing the time dimension which is from 2011 to 2024. It is used to capture whether the income gap changes systematically with time. ϵ_t is the error term, which captures random shocks or fluctuations in the PCI gap.



The regression results indicate a negative slope or a downward sloping regression line (figure 3)

i.e a negative β which is -301. This means that the income gap between the two states has declined approximately by an average of ₹301 per year. This implies that there a slight convergence, meaning that Kerala is gradually moving closer to Maharashtra's per capita NSDP level.

The p-value is obtained is 0.2085 which is greater than 0.05, and according to the decision criteria, we accept the null hypothesis. The r-square value 0.1283 states that only small portion of the PCI gap is explained by time, concluding with an implication that the income convergence has been weak and irregular. This means the gap has narrowed in certain years and widened in other (2011-15). Refer Table 1. For example, in certain years the income gap was very low or Kerala was ahead than Maharashtra (2018-2021) while in other years Maharashtra continued to maintain higher level of income as compared to Kerala (2022-24). These irregularities suggest that while Kerala has achieved rapid growth in these years, Maharashtra's stronger industrial base and urbanisation has helped in maintaining the lead in several years. However, Kerala has managed to maintain high income growth especially after 2017. On the other hand, Maharashtra's income growth has been quite volatile due to certain economic shocks.

PER CAPITA NET STATE DOMESTIC PRODUCT- STATE-WIS
(At Constant Prices) base year 2011-12)

Year	Kerala	Maharashtra	Income Gap
2011	97912	99597	1685
2012	103551	104008	457
2013	107846	109597	1751
2014	112444	115058	2614
2015	120387	122889	2502
2016	129251	133686	4435



2017	137181	137808	627
2018	147347	140782	-6565
2019	147951	145626	-2325
2020	132531	127550	-4981
2021	147376	140718	-6658
2022	152870	153664	794
2023	161957	163820	1863
2024	176072	176678	606

Source: RBI Handbook and Author's Calculations.

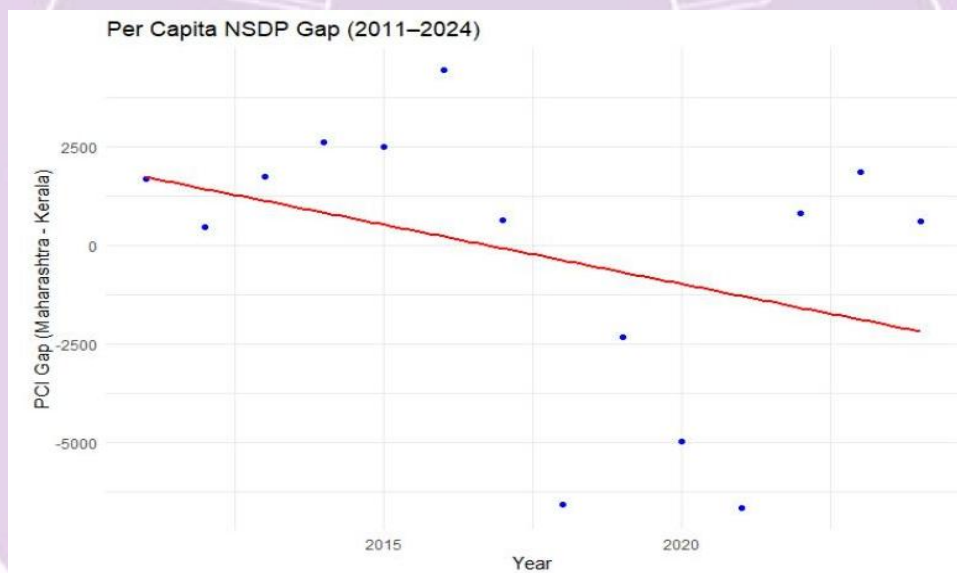


Table 6.3: PER CAPITA NET STATE DOMESTIC PRODUCT & INCOME GAP

Source: RBI Handbook and Author's Calculations.

Figure 6.4: Simple linear regression line

Statistic	Value
Intercept Estimate	607083.6
Intercept Std. Error	456937
Intercept t value	1.329



Intercept Pr(> t)	0.209
Year Estimate	-301
Year Std. Error	226.5
Year t value	-1.329
Year Pr(> t)	0.209
Residual Std. Error	3416
Degrees of Freedom	12
Multiple R-squared	0.1283
Adjusted R-squared	0.05568
F-statistic	1.766
F-statistic DF	1 and 12
F-statistic p-value	0.2085

FIGURE 6.5: REGRESSION ESTIMATES

The third objective focuses on the key role of the social and economic factors in shaping the economic growth of Maharashtra and Kerala. The overall growth of any state is influenced by both the economic and social factors, which can have negative or positive effects on the economy. Between 2011 and 2024, Maharashtra and Kerala experienced a series of economic and social shocks that shaped their economies. After the 2008 global financial crisis Maharashtra's industrial growth slowed down and therefore by 2011-12, Maharashtra's industrial GSDP had fallen, while Kerala being a service-oriented economy was gradually expanding its tourism and IT sector which improved the state's income. Also, there was a huge flow of remittances during 2010-12 and hence, it boosted the household incomes and raised the per capita NSDP narrowing the income gap between the two states in 2012 and showing the signs of convergence.

Following this period, Maharashtra experienced growth in its industrial sector, driven by manufacturing centers in key cities such as Mumbai, Pune, and Nashik, along with significant advancements in railway and roadway infrastructure. The 'Magnetic Maharashtra' summit successfully drew substantial investments to the state, boosting its revenue. However, challenges like demonetization in 2016, the implementation of the Goods and Services Tax in



2017, the NBFC crisis, and the COVID-19 pandemic from 2020 to 2022 caused a temporary disruption in the state's economic progress. In contrast, Kerala has made strides in its human development index and developed a service-oriented economy supported by remittances, IT exports, tourism, and social welfare initiatives. Despite these challenges, Kerala succeeded in narrowing the income disparity and catching up with Maharashtra. Let us discuss each impact in detail:

1. Demonetization

On November 8, 2016, the Government of India declared ₹500 and ₹1000 notes invalid, resulting in the withdrawal of nearly 86% of the cash in circulation. This action aimed to combat black money and counterfeit currency but led to immediate cash shortages. Sectors reliant on cash, daily wage workers, small businesses, and rural families were particularly adversely impacted.

In Maharashtra, industrial employment fell from 1.97 million in 2015–16 to 1.93 million in 2016–17, with unemployment increasing from 2.1% to around 4.8%. There was also a decline in the number of industries and working capital, although Gross Value Added (GVA) began to recover in 2017–18, signaling a gradual stabilization.

In Kerala, cash shortages disrupted traditional industries such as fisheries, coir, cashew, and plantation agriculture. Migrant workers experienced difficulties with wage payments, and remittances were temporarily stalled. Nevertheless, despite these short-term challenges, per capita income growth remained stable in both states, partly due to a shift towards a more formalized economy.

2. Goods and Services Tax (GST)

The implementation of GST on July 1, 2017, reformed India's indirect tax framework. Maharashtra gained some advantages initially due to its robust industrial sector, although the removal of Octroi diminished the state's tax authority. Enhanced ease of doing business encouraged investments.

Kerala, with a consumption-driven economy and a smaller industrial sector, faced mixed outcomes. Revenue growth slowed over time, but industries like tourism thrived under the new unified tax system.



3. 2018 Calamities

In 2018, Maharashtra faced a drought that significantly impacted agriculture and industry, leading to a slowdown in growth. In contrast, Kerala experienced severe floods, which caused substantial damage; however, the state managed to achieve a growth rate of 7.5% in 2018–19, driven by strong performance in its secondary and tertiary sectors, demonstrating resilience.

4. Covid-19 Impact

The pandemic triggered a sharp economic downturn across the country. Maharashtra witnessed a growth contraction of –8% in 2020–21, with significant declines in both industry and services. Kerala's Gross State Domestic Product (GSDP) declined by –9.2% (at constant prices), although the agricultural sector showed some relative improvement.

5. Economic Crossover

Between 2018 and 2022, Kerala's per capita Net State Domestic Product (NSDP) briefly exceeded that of Maharashtra, bolstered by high literacy rates (over 95%), increased health expenditures per capita, and low multidimensional poverty levels, as reported by NITI Aayog. These social investments played a crucial role in maintaining Kerala's relative income stability, despite facing structural challenges.

7 FUTURE SCOPE OF RESEARCH

1. Extension of Time Period – Future research could extend the timeframe beyond 2011–2024 to analyze long-term trends and assess the impact of forthcoming policy reforms and shifts in the global economy.
2. Comparative Study with More States– Additional states, such as Gujarat, Tamil Nadu, Karnataka, Goa, and Himachal Pradesh, can be included in the research to explore various development models across India.
3. Inclusion of Additional Indicators– Future inquiries could integrate indicators such as gender equality, digital accessibility, infrastructure quality, environmental sustainability, and policies promoting green growth.
4. Micro-level Analysis – Utilizing district and household-level data can provide insights into inequalities across rural and urban areas, the status of migrant workers, women's employment, and the dynamics of small enterprises.



5. Integrated Growth Model Study– A study could investigate a "mixed model" that combines industrial growth (evident in Maharashtra) with a focus on human development (as seen in Kerala) to achieve balanced and sustainable development.

8.LIMITATIONS

1. The research relies solely on secondary data from government sources, which may have reporting gaps or delays.
2. The analysis is confined to the period 2011–2024, missing insights from earlier historical trends and future projections.
3. A limited range of socio-economic indicators is presented due to data availability constraints.
4. The assessment of economic shocks is conducted primarily at a macro level, leaving out micro-level consequences.
5. The absence of updated census data beyond 2011 restricts a more comprehensive demographic analysis.

The study comparing per capita income trends in Maharashtra and Kerala from 2011 to 2024 concludes that although both states followed distinct development paths, their income levels gradually converged over time. Maharashtra's growth was largely driven by industrial expansion, urbanisation, and investment-led development, but it showed higher volatility during economic shocks such as demonetization, GST implementation, droughts, and the Covid-19 pandemic. In contrast, Kerala's service-oriented economy, strong remittance inflows, and consistent investment in human development indicators such as literacy, healthcare, and poverty reduction provided greater stability and resilience. The statistical analysis indicates a narrowing but irregular income gap, with Kerala even surpassing Maharashtra in certain years. Overall, the findings highlight that sustainable economic progress does not depend solely on industrial growth; rather, a balanced integration of economic strength and social development offers a more stable and inclusive model for long-term growth.

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