Indian Public Policy Review 2025, 5(6): 01-19
https://doi.org/10.55763/ippr.2025.05.06.001

IPPR

Quantitative Dimensions of Viksit Bharat

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Abstract

As India aims to become a developed nation by 2047, there is a significant lack of clarity/consensus regarding the definition of a developed country, specific targets to be reached, and projections related to inflation, exchange rate, and population. This study addresses these critical issues, including regional growth dimensions. It uses appropriate quantitative procedures to determine the growth rates needed for India, as well as its states and union territories, to meet the goal of "developed country" status under various scenarios. The time taken to reach this status depends critically on the per capita income to be achieved. The results reveal that approximately 40% of states/union territories will fall short of this target. Generally, only if the target is set at the per capita income of a developed country as of 2023, is it possible to achieve that status. All other scenarios will demand a much higher growth rate. These findings will help policy makers to ensure suitable strategies for achieving their goal.

Keywords: Indian economy, Indian states, Union territories, exchange rate, inflation, ICOR

JEL Codes: C34, E17, E66

Publication Date: 25 January 2025

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1. Introduction

India has pursued market liberalization, greater openness in foreign trade, increased investment in infrastructure etc. These have helped India in achieving considerable progress. India is currently the fastest-growing economy globally. It is the third-largest economy in purchasing power parity (PPP) terms. Its share in world GDP (based on PPP) is 7.86% (IMF website). It is one of the destinations receiving larger amounts of FDI in the country. [1] Its market capitalization has crossed $5 trillion ($ refers to USD) recently.

Beyond financial metrics, India has one of the most modern 'open' digital infrastructures in the world (EY, 2023). It has emerged as global leader in renewable energy.[2] It has improved its space technology and sent spacecrafts to the Moon and Mars. However, India's per capita income – at $ 2,485 – ranks 141st out of 187 countries.

In 2022, the Prime Minister of India in his 75th Independence Day Speech mentioned that India will become a developed country by 2047, the centenary of Indian Independence. While this is an aspirational goal, realizing this goal will have profound implications for more than 1.4 billion Indians, particularly the youth seeking job-led growth and people living in extreme poverty.

However, the Indian economy faces several challenges in reaching this target, including overcoming regional disparities in growth, and environmental issues. Moreover, there remains a lack of clarity or consensus on (i) the definition of a developed country, (ii) specific targets to be reached to become a developed country, and (iii) projections for future inflation, exchange rate, and population, which are critical in determining when we will reach the overall target.

Evidence also indicates that while there are a few signs of convergence, the economic and social outcomes across the Indian states are indeed highly heterogeneous. More than half of India's GDP (52%) is generated by just 6 states: Maharashtra, Tamil Nadu, Karnataka, Uttar Pradesh, Gujarat, and West Bengal. In contrast, the remaining 27 states and union territories together account for only about 48 percent of GDP. Notably, Goa boasts the highest per capita income, which is ten times greater than that of Bihar. A handful of states also dominate in exports and innovation.[3]

While several studies have examined India's potential to achieve developed country status by 2047 (Rangarajan, 2023; Behara et al., 2023; Subramanian, 2024), there is a significant gap in research regarding the regional aspects of this issue, specifically how many states and union territories are likely to reach the per capita income benchmarks associated with developed nations by 2047.

This study aims to address several key questions: What specific targets must India achieve to become a developed country by 2047-48? What challenges does the Indian economy face in realizing this vision? How much growth is necessary to reach this target? Considering past growth trends, when is India likely to achieve this goal? Additionally, what is the regional dimension of the issue? Specifically, how much growth is required for all 33 Indian states and union territories to meet the

per capita income standards of a developed economy? Lastly, based on historical growth trends, how many states and union territories are projected to reach this goal by 2047?

2. Definition of a "Developed Country"

There are several definitions used by different international agencies to identify a developed country. According to Business Development Bank of Canada, "Developed countries have advanced technological infrastructure and have diverse industrial and services sectors, Their citizens typically enjoy access to quality health care and higher education". The United Nations (UN) says, "A developed country—also called an industrialized country—has a mature and sophisticated economy, usually measured by Gross Domestic Product (GDP) and/or average income per resident. Developed countries have advanced technological infrastructure as well as diverse industrial and service sectors".

UNDP's Human Development Index (HDI) considers three standard criteria: life expectancy at birth (representing a long and healthy life); educational attainment (representing knowledge, measured by combining two components – adult literacy, weighted at one-third, and the combined gross enrolment ratios for primary, secondary, and tertiary education, weighted at two-thirds); and real per capita income in PPP$ (representing a decent standard of living). Most developed countries have an HDI value above 0.8. India's score is 0.64 in 2023-24 report.

According to the World Bank (using the Atlas method), a country is classified as developed in 2023 if its per capita income exceeds $14,005. Countries with a per capita income between $4,515 and $14,005 are categorized as upper-middle-income, while those with incomes ranging from $1,146 to $4,515 fall into the lower-middle-income category. Countries with incomes below $1,145 are classified as low-income. While there is no single criterion for defining a developed country, the World Bank's per capita income thresholds are widely accepted by most international agencies.

3. Views on India@2047

Experts and studies present varying perspectives on the aspirational goal of Viksit Bharat.

- EY (2023) contends that even with a modest average real growth rate of 6% per annum, India could evolve into a $26 trillion economy (in market exchange rate terms) by 2047-48, giving a per capita income of $15,000.
- Rangarajan (2023) indicates that India's nominal GDP must grow at 10.18% (or a real growth rate of 6.1%) over the next twenty-five years to achieve a per capita income of $13,205. Alternatively, to reach a per capita income of $15,000, India's nominal GDP would need to grow at 10.74%.

- Behera et al. (2023) suggest that for India to become a developed country by 2047, its real GDP must grow at an annual rate of 7.6% over the next 25 years, increasing its current per capita GDP from $2,500 to $22,000. [4]
- Banerjee (2024) posits that if India's nominal GDP grows at 12%, with a population deceleration of 0.01% every five years and the Indian rupee depreciating by 2% annually against the US dollar until 2025 (followed by a 0.5% appreciation every five years), per capita income could exceed $26,000 by 2047.
- Shanmugam and Mathew (2024) estimate that the Indian economy will grow at an average rate of 6.02% from 2023-24 to 2047-48, resulting in a per capita income of $15,237 in 2047-48, assuming an inflation rate of 4.5% and a 2% annual depreciation of the exchange rate.
- Subramanian (2024) argues that India could emerge as a $55 trillion economy by 2047 if it achieves an 8% growth rate, along with a 0.5% depreciation of the Indian rupee against the US dollar.
- At the Vibrant Gujarat Summit in Gandhinagar, the Finance Minister of India said that India would be a $30 trillion economy by 2047 based on a conservative estimate (The Economic Times, 2024).
- Deloitte South Asia CEO Romal Shetty said that India needs to grow at 8-9% to become a developed country by 2047 (The Hindu, 2023).

According to Dr. Raghuram Rajan, "*India will not be a developed economy by 2047. It would be non-sense to talk of that goal if so many of your kids don't have a high school education and drop-out rates remain high. The biggest challenge is improving education and skills of workforce.*" (Hindustan Times, 2024). These views and estimates given in earlier studies are based on different assumptions about the norm of developed nation, exchange rate depreciation, inflation, and estimation procedure.

Some studies further analyze the 5 trillion-dollar economy and 7 trillion-dollar economy targets for India. In 2018, the Government of India announced its ambition to achieve a $5 trillion economy by 2024-25, with goals of generating $1 trillion from agriculture and allied activities, $1 trillion from manufacturing, and $3 trillion from services. However, research by Sony and Subrahmanya (2020) and Srikant (2022) indicate that this target is more likely to be reached by 2027-28.

Acknowledging the challenges posed by the COVID-19 pandemic, the Finance Minister later revised the target, stating that India would become a $5 trillion economy by 2027-28. Similarly, in its report titled "Indian Economy: A Review" (January 2024), the Government of India announced a goal of reaching a $7 trillion economy by 2030. Shanmugam and Mathew (2024) project that this milestone will not be achieved until 2032-33.

4. Towards a Developed Country

In 2022-23, India's nominal GDP was ₹2,69,49,646 crore, equivalent to ₹269.50 trillion or approximately $3.30 trillion (using the September 2022 exchange rate of ₹81.55 per US dollar). Based on the projected population of 138.82 crore from the Reports of the Technical Group on Population Projection (July 2020), the per capita GDP was calculated at ₹1,94,139 (approximately $2,381).

To achieve the aspirational goal of becoming a developed nation with a per capita income of $14,006 by 2047-48, it is necessary to determine the required nominal and real growth rates over the next 25 years, starting from 2023-24, based on reliable assumptions regarding exchange rates, inflation, and population.

Assumption on Inflation:

Regarding inflation rate, which is needed to derive the real growth rate, the annual CPI (consumer price index) inflation and GDP deflator-based inflation from 2011-12 to 2023-24 are compared. They usually exhibit year-on-year fluctuations. The average CPI inflation for India was 5.84% and the average GDP deflator-based inflation was 4.54%. [5]

In general, while the CPI-based inflation is considered for economic analyses, the GDP deflator-based inflation is relevant for GDP estimates. However, the target inflation rate used by the Monetary Policy Framework is CPI at 4% (+/-2%). In the long run, the average inflation could be around 4%. Therefore, this study assumes 4 percent inflation. A similar study by EY (2019) also uses a 4% inflation projection.

Assumption on Exchange Rate:

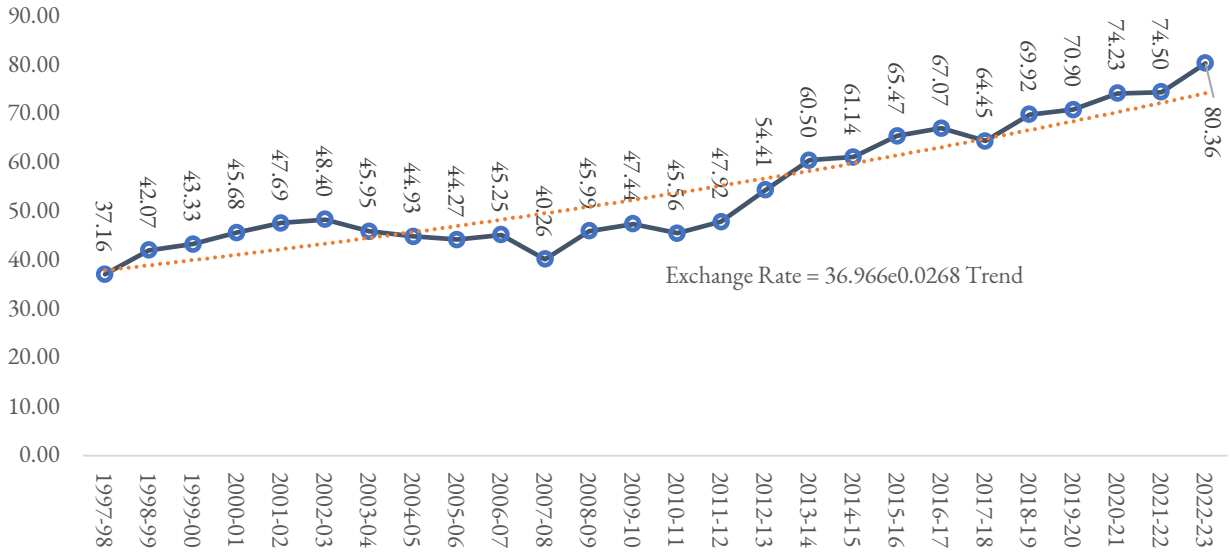
The market exchange rate between two currencies is determined in the global foreign exchange market by the supply and demand of currencies. Many economic factors like inflation, interest rates, balance of trade and services, geopolitical events, etc. can influence these market forces.

The interrelations between these factors are complex. For instances, inflation and exchange rates are interrelated. When inflation is high, it makes currency weaker. When it is low, the currency is stronger, improving the exchange rate. On the other hand, the exchange rate movements can also affect inflation. When the currency depreciates, it will increase the cost of imports, boosting domestic inflation. Inflation is also closely related to interest rates, which can influence the exchange rates. Therefore, it is a difficult task to predict future exchange rates.

However, the history of average annual exchange rate movement (Figure 1) indicates that the exchange rate increased from ₹37.16 per $ in 1997-98 to ₹80.36 per $ in 2022-23, registering an average rise of 2.68% per year. Over shorter periods, the average rise rate of $ has been less than 2%. For instance, from 2017-18 to 2019-20, the average rise was 1.99%. Additionally, from 2002-03 to

2006-07, it was rise of -1.01%, and from 2002-03 to 2007-08, it was -2.68%. Given these variations, this study assumes 2% rise in the value of $ against the rupee per annum.

Figure 1: Exchange Rate movement (₹ per $)



Source: RBI's Hand Book of Statistics on Indian Economy

Assumption on Population:

The actual population data are available in census reports only till 2011. After that projected population figures are used. The Report of the Technical Group on Population Projection provides projected population for India and all the Indian states/union territories until 2036 (based on census data available up to 2011). We project the future population beyond 2036 using the exponential smoothing method. We will be adding about 27 crores to the population by 2050.

Deriving Required Nominal Growth Rate:

Based on these assumptions, we derive the nominal growth rate required for India to attain developed country status (per capita income of $14,006) by 2047-48 using a simple arithmetic procedure. Multiplying the derived exchange rate of ₹133.79 per dollar and projected population of 162.87 crore, with the target per capita income of $14,006, the nominal GDP in 2047-48 is computed at ₹30,51,95,286 crore. (i.e., ₹3,051.95 trillion). Using the compound interest rate formula, the required nominal growth rate is determined to be 10.19% (Table 1).[6]

That is, the Indian economy needs to grow at a real growth rate of 6.19% per annum for 25 consecutive years from 2023-24 to 2047-48 to become a developed nation, assuming that the per capita income of a developed country is $ 14,006.

India's GDP recorded an average nominal growth rate of 10.89% from 2012-13 to 2022-23. Real growth was only 5.77%. However, India's average nominal rate of growth was 15.51% (and real growth

was 6.89%) from 2005-06 to 2011-12, indicating that India has the potential to achieve this target if it maintains its inflation rate around its target rate of 4%.

Table 1: India's Growth Required to Achieve Per Capita Income of $14,006 by 2047-48 (Dollar value increases 2% per annum and Inflation 4%)

Year	Nominal GDP (₹ Crore)	Nominal GDP (₹ Trillion)	Derived Nominal Growth (%)	Real Growth Rate (%)	Exchange Rate (₹/$)	Nominal GDP ($ Trillion)	Popu-lation ('000s)	Per Capita GDP (₹)	Per Capita GDP ($)
2022-23	26949646	269.50	-	-	81.55*	3.30	1388163	194139	2381
2023-24	29697101	296.97	10.19	6.19	83.18	3.57	1400744	212009	2549
2024-25	32724653	327.25	10.19	6.19	84.84	3.86	1413324	231544	2729
2025-26	36060856	360.61	10.19	6.19	86.54	4.17	1425908	252897	2922
2026-27	39737178	397.37	10.19	6.19	88.27	4.50	1436478	276629	3134
2027-28	43788293	437.88	10.19	6.19	90.04	4.86	1447051	302604	3361
2028-29	48252410	482.52	10.19	6.19	91.84	5.25	1457628	331034	3605
2029-30	53171633	531.72	10.19	6.19	93.68	5.68	1468194	362157	3866
2030-31	58592359	585.92	10.19	6.19	95.55	6.13	1478775	396222	4147
2031-32	64565717	645.66	10.19	6.19	97.46	6.62	1487471	434064	4454
2032-33	71148044	711.48	10.19	6.19	99.41	7.16	1496175	475533	4784
2033-34	78401425	784.01	10.19	6.19	101.40	7.73	1504878	520982	5138
2034-35	86394272	863.94	10.19	6.19	103.43	8.35	1513578	570795	5519
2035-36	95201971	952.02	10.19	6.19	105.49	9.02	1522288	625387	5928
2036-37	104907594	1049.08	10.19	6.19	107.60	9.75	1532195	684688	6363
2037-38	115602684	1156.03	10.19	6.19	109.76	10.53	1540966	750196	6835
2038-39	127388114	1273.88	10.19	6.19	111.95	11.38	1549737	821998	7343
2039-40	140375042	1403.75	10.19	6.19	114.19	12.29	1558509	900701	7888
2040-41	154685957	1546.86	10.19	6.19	116.47	13.28	1567280	986971	8474
2041-42	170455838	1704.56	10.19	6.19	118.80	14.35	1576051	1081538	9104
2042-43	187833422	1878.33	10.19	6.19	121.18	15.50	1584822	1185202	9781
2043-44	206982611	2069.83	10.19	6.19	123.60	16.75	1593594	1298842	10508
2044-45	228084016	2280.84	10.19	6.19	126.07	18.09	1602365	1423421	11290
2045-46	251336661	2513.37	10.19	6.19	128.60	19.54	1611136	1559996	12131
2046-47	276959860	2769.60	10.19	6.19	131.17	21.11	1619908	1709726	13035
2047-48	**305195286**	**3051.95**	**10.19**	**6.19**	**133.79**	**22.81**	**1628679**	**1873883**	**14006**
2048-49	336309250	3363.09	10.19	6.19	136.47	24.64	1637450	2053860	15050
2049-50	370595211	3705.95	10.19	6.19	139.20	26.62	1646221	2251187	16173
2050-51	408376547	4083.77	10.19	6.19	141.98	28.76	1654993	2467543	17379
2051-52	**450009604**	**4500.10**	**10.19**	**6.19**	**144.82**	**31.07**	**1663764**	**2704768**	**18677**

Source: Computed by authors. * Exchange Rate as on September 2022

Other Targets

As indicated above, the Government of India announced the target of achieving a $5 trillion economy by 2024-25 and $7 trillion economy by 2030-31. Results in Table 1 indicate that in the given Scenario (s1), where the average nominal rate of growth of 10.19% is required to achieve developed country status by 2047-48, the Indian economy will reach the 5 trillion-dollar mark in 2028-29 and 7 trillion-dollar mark in 2032-33, paving the way for India's transition into the per capita income level of an upper middle-income country of $ 4,784 in 2032-33.

It is also noted that the nominal GDP in 2047-48 will be $22.81 trillion – not $26 trillion as indicated in EY (2023), or $ 30 trillion as mentioned by the Finance Minister. India will reach the $26 trillion mark only in 2049-50, and $30 trillion level in 2051-52 (see Table 1). India will attain a $55 trillion economy only in 2059-60 in this scenario (not shown in Table 1).

Adjusting the Per Capita Income Norm of a Developed Country

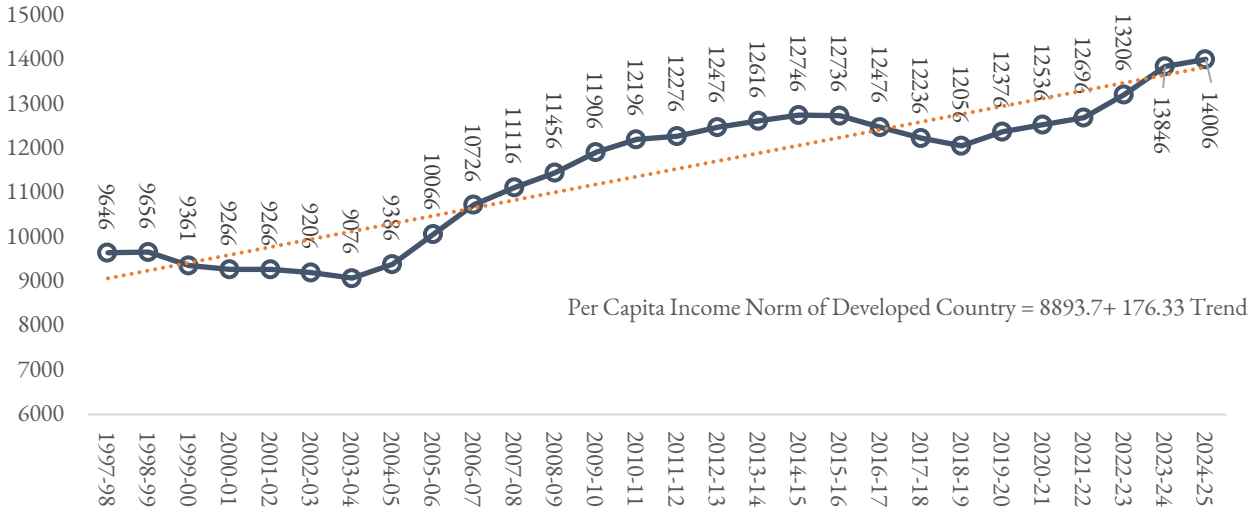
World Bank Norm of per capita income of a developed country is $14,006 for 2023 (2022-23). This figure is likely to change by 2047-48, as it has evolved from $9,646 in 1997-98 to $14,006 in 2024-25 (Figure 2). It is important to note that the World Bank's announcement for the year 2023 was made in 2024-25. The estimated linear trend annual increase is 176.33. This suggests that over the next 25 years, the total change in the norm will be approximately $4,408. Therefore, the per capita income norm of developed country in 2047-48 may be US $18,414, which is the target used in Scenario 2 (s2) / Figure 3.

To reach the target of $18,414 in 2047-48, India's nominal GDP would need to grow at 11.41% per annum (not shown), compared to 10.19% indicated in Table 1. With the latter, if the real income grows only at 6.19%, India will reach only 76% of target by 2047-48. In Scenario s2, India will become a $30 trillion economy by 2048-49, with per capita income crossing $14,006 by 2044-45. $5 trillion and $7 trillion milestones are expected to be achieved in 2027-28 and 2031-32 respectively. In this case, the implicit required average real growth rate is 7.41%, which is about 1.22 percentage points higher than the current required average rate of 6.19%. While achievement of a 6.12% average annual real growth may appear to be within reach, the achievement of 7.41% per annum may not be so.

Average Growth Scenario:

If India's nominal GDP continues to grow at 10.89% (the average rate from 2012-13 to 2022-23) in the next 25 years, India's per capita income will become $14,019 in 2045-46, and cross $18,414 in 2049-50; the $30 trillion economy mark will also be reached in 2049-50. India will become a $5 trillion economy in 2027-28, and reach $7 trillion in 2031-32 in this Scenario (s3).

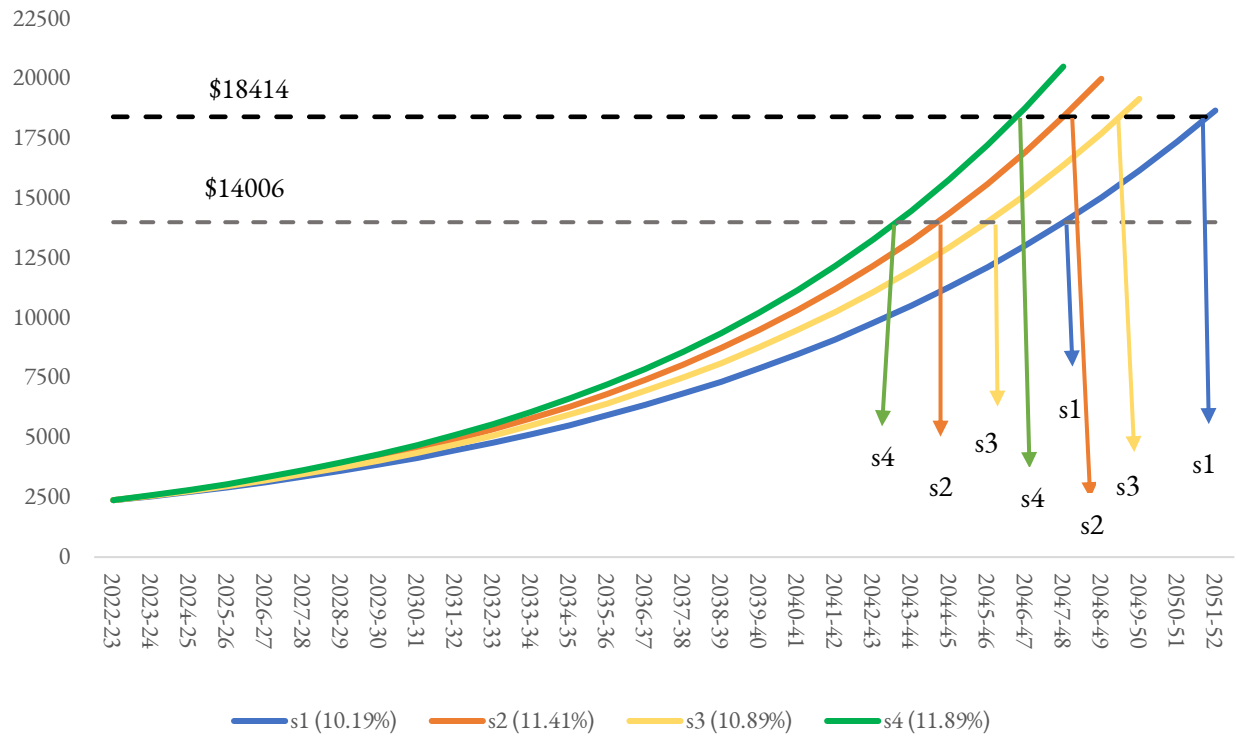
Figure 2: Movement in Per Capita Income Norm of Developed Country by World Bank



Source: World Bank

Optimistic Scenario:

If India's average nominal growth rate in the next 25 years increases by 1 percent (with the expectation that future technological advancements and initiatives of the governments' growth-induced policies will result in higher growth), from 10.89% to 11.89% (i.e., real growth of 7.89%), India's per capita income will reach the $14,006 mark in 2043-44 and $18,414 mark in 2046-47 (not shown). Under this optimistic scenario (s4), $30 trillion economy mark will be reached in 2046-47. $5 trillion and $7 trillion marks will be achieved in 2027-28 and 2031-32 respectively. Figure 3 shows these simulation results in four different scenarios. Any scenario which requires a real growth rate of above 6% will demand extraordinary effort.



Sources: Computed by authors.

5. Regional Dimension of Viksit Bharat

Regionally-imbalanced growth is a significant challenge faced by India and to address this issue, it is imperative to determine the growth rates required by different regions (i.e., states and union territories) to achieve the World bank's per capita income norm of an advanced economy. For each of 33 Indian states and union territories, we compute the required nominal GSDP growth for the next 25 years to achieve the per capita income of an advanced economy by 2047-48, using the same assumptions on exchange rate and inflation as in Table 1.

Scenario 1:

Column 1 of Table 2 shows the required rate to reach $14,006 by 2047-48, using the assumptions from Scenario 1.

- Goa and Sikkim require only about 5.3% nominal growth to reach this milestone, while Chandigarh needs 6.6%.
- The required rate will be between 7-8% for Telangana, Delhi, Tamil Nadu, Karnataka, and Andaman & Nicobar Islands.
- It will be between 8-9% for Kerala, Haryana, Maharashtra, Gujarat, Andhra Pradesh, and Himachal Pradesh.
- For Uttarakhand, Mizoram, Punjab, and Arunachal Pradesh, the required rate ranges between 9-10%

- Puducherry, Odisha, West Bengal, Tripura and Jammu & Kashmir require 10-11% rate of growth.

Table 2: Growth Rates Required to Reach Per Capita Income Norm of Developed Economy by Indian States and Union Territories

States/UTs.	Required Nominal Growth Rate (%) to reach $14,006 by 2047-48	Required Nominal Growth Rate (%) to reach $18,414 by 2047-48	Avg. Nominal Growth Rate (%) (2012-13 to 2022-23)	With Avg. Rate		1% Extra Growth Over Avg. Growth	
				Year of Reaching $14,006	Year of Reaching $18,414	Year of Reaching $14,006	Year of Reaching $18,414
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	8.55	9.75	11.93	2039-40	2042-43	2038-39	2040-41
Arunachal Pradesh	9.70	10.91	11.25	2043-44	2046-47	2041-42	2044-45
Assam	12.04	13.09	11.74	2048-49	2051-52	2045-46	2048-49
Bihar	16.12	17.40	10.68	2064-65	2068-69	2059-60	2063-64
Chhattisgarh	11.45	12.68	10.43	2051-52	2054-55	2048-49	2051-52
Goa	5.30	6.46	7.55	2037-38	2042-43	2035-36	2039-40
Gujarat	8.44	9.63	12.40	2037-38	2041-42	2036-37	2039-40
Haryana	8.24	9.43	11.62	2038-39	2041-42	2037-38	2040-41
Himachal Pradesh	8.57	9.76	9.34	2045-46	2049-50	2042-43	2046-47
Jharkhand	13.24	14.48	10.08	2058-89	2062-63	2054-55	2057-58
Karnataka	7.59	8.77	12.86	2035-36	2038-39	2034-35	2037-38
Kerala	8.03	9.22	10.03	2041-42	2045-46	2039-40	2043-44
Madhya Pradesh	11.74	12.97	13.41	2044-45	2047-48	2042-43	2045-46
Maharashtra	8.34	9.53	10.13	2042-43	2046-47	2040-41	2043-44
Manipur	12.31	13.55	11.05	2051-52	2055-56	2048-49	2051-52
Meghalaya	11.83	13.06	8.18	2063-64	2069-70	2057-58	2062-63
Mizoram	9.27	10.48	14.30	2037-38	2040-41	2036-37	2038-39
Nagaland	11.03	12.25	10.77	2048-49	2052-53	2046-47	2049-50
Odisha	10.65	11.87	11.67	2045-46	2048-49	2043-44	2046-47
Punjab	9.37	10.57	8.97	2049-50	2053-54	2046-47	2049-50
Rajasthan	11.01	12.24	10.97	2048-49	2051-52	2045-46	2048-49
Sikkim	5.34	6.50	13.07	2029-30	2032-33	2028-29	2031-32
Tamil Nadu	7.53	8.71	11.17	2038-39	2041-42	2036-37	2039-40
Telangana	7.20	8.38	12.60	2035-36	2038-39	2034-35	2037-38
Tripura	10.82	12.04	12.97	2042-43	2045-46	2041-42	2043-44
Uttar Pradesh	13.31	14.56	11.04	2054-55	2057-58	2051-52	2054-55
Uttarakhand	9.00	10.20	9.39	2046-47	2050-51	2043-44	2047-48
West Bengal	10.75	11.97	10.44	2048-49	2052-53	2046-47	2049-50
Andaman& Nicobar	7.91	9.10	10.41	2040-41	2044-45	2038-39	2042-43
Chandigarh	6.60	7.78	10.52	2035-36	2039-40	2034-35	2037-38
Delhi	7.30	8.48	10.51	2036-37	2041-42	2035-36	2038-39
Jammu & Kashmir	10.92	12.14	10.00	2050-51	2054-55	2047-48	2051-52
Puducherry	10.22	11.43	9.43	2051-52	2056-57	2047-48	2051-52
India (GDP)	10.19	11.41	10.89	2045-46	2049-50	2043-44	2046-47

Source: Computed by authors.

- The required rate will be between 11-12% for Rajasthan, Nagaland, Chhattisgarh, Madhya Pradesh, and Meghalaya
- It will be 12-13.3% for Assam, Manipur, Jharkhand and Uttar Pradesh.
- Bihar's economy will need to grow at 16.12% to reach the target of $14,006 by 2047-48.

Thus, in 15 states/union territories, the required rate is higher than the national average of 10.19%. It is also observed that only in 13 states/union territories, the required growth rates are higher than their 11-year average nominal growth rate from 2012-13 to 2022-23 (see Column 3, Table 2). Among these 13, the gap between existing average rate and required rate is closer to 1% in Punjab, Puducherry, West Bengal, Jammu & Kashmir, Rajasthan, Nagaland, Chhattisgarh, and Assam; conversely, in Manipur, Uttar Pradesh, Jharkhand, Meghalaya, and Bihar the gap is greater than 1%.

These 13 states/union territories will reach the target of $ 14,006 after 2047-48 if they continue to grow at their existing average growth rate. In particular, Meghalaya will reach this target only in 2063-64, and Bihar in 2064-65. Therefore, these 13 states/union territories need special attention to improve their average growth performance.

With adjusted norm:

Column 2 of Table 2 shows the required rate to reach the per capita income target of $18,414 by 2047-48.

- The required growth rate is about 6.5% for Goa and for Sikkim. That is, they have to grow about 1.2 percentage points higher than the rate required to achieve $14,006.
- Almost all other states and union territories require 1.0-1.3 percentage points higher growth to achieve this target.

With this target, the 11-year average nominal growth rate from 2012-13 to 2022-23 (shown in Column 3) was less than the required growth rate in 16 states and union territories. This means that these 16 states will reach the target of US$18,414 after 2047-48 if they continue to grow at their existing rates. Of these 16 states and union territories, Bihar's average growth is 6.72% lower than the required rate, Meghalaya's rate is 4.88% lower, Jharkhand's rate is 4.4% lower, and Uttar Pradesh's rate is 3.53% lower. In Arunachal Pradesh, Himachal Pradesh, Odisha, and Uttarakhand, the gap is less than 1%.

In the remaining 17 states and union territories, the average rate was higher than required rate. They will achieve the target per capita income of US$18,414 on or before 2047-48 (Column 5, Table 2).

- Sikkim will reach the target in 2032-33
- Telangana and Karnataka in 2038-39.
- Chandigarh and Mizoram will reach in 2039-40 and 2040-41 respectively.

- Gujarat, Haryana, Tamil Nadu, and Delhi will attain in 2041-42.
- Andhra Pradesh and Goa will reach the target in 2042-43
- Andaman & Nicobar Islands will attain the target in 2044-45
- Tripura and Kerala in 2045-46.
- Arunachal Pradesh and Maharashtra will reach in 2046-47
- Madhya Pradesh in 2047-48.

Optimistic Scenario:

If we assume an optimistic scenario where all states and union territories will improve their growth performance by 1 percentage point above their respective average growth between 2012-13 to 2022-23, 3 more states/union territories (Himachal Pradesh, Odisha and Uttarakhand) will achieve the US$18,414 milestone on or before 2047-48 (Column 7, Table 2). [7]

Thus, 20 states/union territories will reach the target on or before 2047-48 if they improve their nominal growth rate by 1% over their average growth from 2012-13 to 2022-23. The remaining 13 states/union territories, even if they increase their average growth by 1 percentage point, will miss the bus. These regions need special attention. Notably, even in this optimistic scenario, Bihar will reach the target only by 2063-64, Meghalaya by 2062-63, Jharkhand by 2057-58, and Uttar Pradesh by 2054-55.

One Trillion Dollar Economy Target:

A few states set an ambitious target of achieving a one-trillion-dollar economy. Maharashtra and Uttar Pradesh set their target to achieve one trillion-dollar economy by 2027. Tamil Nadu and Gujarat set their target to become one trillion-dollar economy by 2030. Karnataka has a road map to achieve the status of US $1 trillion economy by 2032.

- If these states grow at the required rate to reach the per capita income target of US $14,006 by 2047-48, Uttar Pradesh will be the first state to reach the trillion-dollar economy mark in 2035-36, followed by Maharashtra in 2036-37 (not shown). Gujarat will reach the trillion-dollar mark in 2044-45. Tamil Nadu and Karnataka will reach this milestone in 2046-47.
- If these states grow at the required rate to reach the per capita income target of US $ 18,414 by 2047-48, Maharashtra and Uttar Pradesh will reach the trillion-dollar economy mark in 2034-35, Gujarat in 2041-42, and Tamil Nadu and Karnataka in 2042-43.
- If these states continue to grow at the existing average growth rate from 2012-13 to 2022-23, Maharashtra will be the first state to reach the target in 2033-34, followed by Karnataka in 2035-36, Gujarat in 2036-37, Tamil Nadu in 2037-38, and Uttar Pradesh in 2038-39.

- In the optimistic scenario, where states improve their average growth rate by 1%, Maharashtra will attain the one trillion-dollar economy mark in 2032-33, Karnataka in 2034-35, Gujarat and Tamil Nadu in 2035-36, and Uttar Pradesh in 2036-37.

These results clearly indicate that none of the five states are likely to reach the target on their own declared timelines.

6. Current Challenges Faced by the Indian Economy

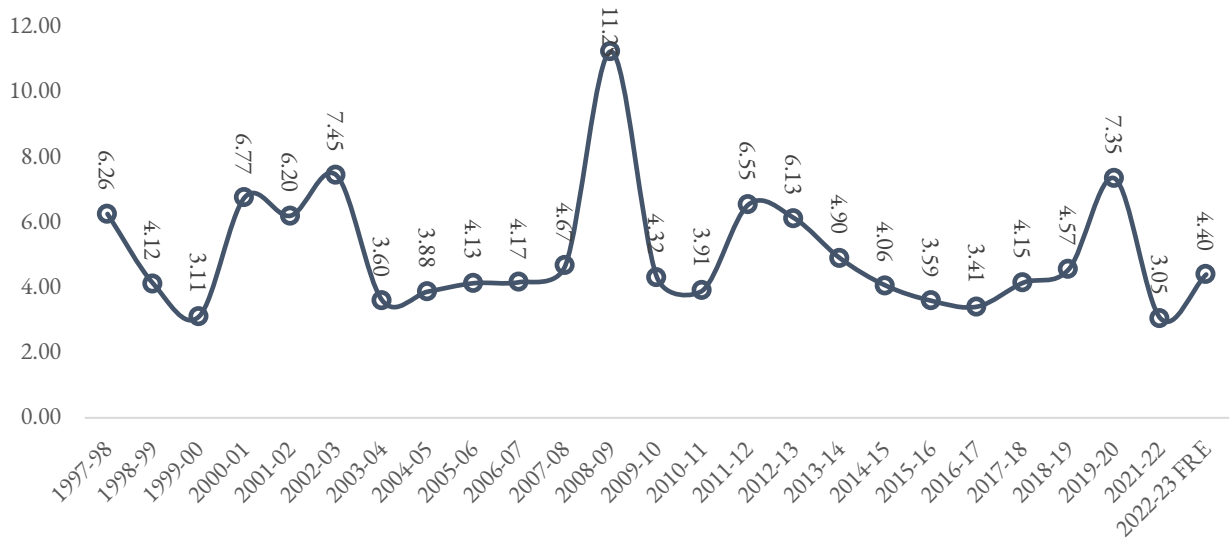
While India is the third-largest economy in PPP$ (after USA and China), it is the World's most populous country, with more than 1.4 billion people. As per the World Bank definition, it is a lower middle-income country with per capita income of only $2,390 (in 2022), as against USA's per capita income of $76,770, and China's of $12,850. It needs to multiply per capita income by about 7.4 times to reach US$18,414 (or 5.86 times to reach $14,006), the minimum threshold for developed country status by 2047-48. The required average growth rate for the next 25 years to achieve this aspirational goal is 7.41%, which is about 1.4 percentage points higher than the current average rate of 6%. Certain challenges continue to hinder efforts to elevate growth potential to the necessary level.

Following the Harrod-Domar equation, the growth rate is equal to the investment rate divided by the incremental capital-output ratio (ICOR), which is the additional unit of capital required to produce an additional unit of output (Rangarajan 2017). The ICOR is derived by dividing investment rate by growth rate. Figure 4 presents the ICOR for India from 1997-98 to 2022-23. (ICOR for 2020-21 is not included, as due to the GOVID 19 pandemic, India registered a negative growth rate).

During this period, the average ICOR for India is 5.04. To grow at 7.41%, we need to raise the investment rate to 37.4% of GDP, from a current level of close to 30% only. After 2015-16, the investment rate has stabilized around 28%; with the recent increase in growth primarily attributed to a rise in the central government's capital expenditure, an unsustainable trend due to the accompanying high fiscal deficit.

To address this, we must boost private investments—both corporate and non-corporate—since they are a major component of overall investment. This, in turn, relies on a stable financial and fiscal system. We must also remember in 2007-08, the Gross Fixed Capital Formation rate of India was 35.8% of GDP.

Figure 4: Incremental Capital Output Ratio in India



Source: Computed by authors using the Gross Fixed Capital Formation and GDP data from MoSPI.

According to the Economic Survey (2022-23), the General Government Debt to GDP ratio increased to 89.6% at the end of the pandemic year 2020-21, and the combined fixed deficit was 13.1%. Although these figures have slightly declined in recent years, the debt-GDP ratio is significantly higher than the 60% sustained level suggested in New FRBM Committee Report. Many studies, including Shanmugam and Renjith (2023), show that the current levels of public debt of both the Centre and all States are unsustainable and hindering growth. Therefore, both the Central and State Governments need to bring their debt down to sustainable levels.

While headline employment indicators have improved in recent years (according to the Periodic Labour Force Survey, which is being questioned), concerns persist over the quality of the jobs created, real growth in wages, and low female labour force participation rate (39.8% in 2022-23 as against male LFPR of 83.2%) (Rangarajan and Babu, 2024). Further, the sectoral transformation from agriculture to industry has been relatively slow, especially in terms of employment.

While large firms have driven productivity growth, there has not been appreciable job creation. The majority of employees are employed in small firms characterized by low productivity and limited growth, creating a significant "missing middle" (IFC, 2022).

India needs to strengthen its industrial sector, which has backward and forward linkages with other sectors, and will provide more employment opportunities. In particular, MSMEs can increase employment opportunities and industrial GDP. In advanced nations, MSMEs contribute 40-50% of GDP and 70% of employment. In India, these figures are 30% and 24% respectively. Special attention is required in this regard.

India faces a shifting external environment with rising geopolitical tensions and changing patterns of globalization, climate change and policies to achieve the transition to net zero, digital transformation and other technological changes[8], all embedded in a complex macroeconomic context

(IFC, 2022). Growth-oriented reforms need to create more job opportunities, particularly quality jobs to meet the high aspirations of youth entering the labour market.

In the context of fast-moving technological advancements, the future contribution of labour force will depend on the skill set available to them. However, currently about 90% of the Indian labour force is in the unorganized sector. According to Patra (2022), employability and process of the existing labour force is only 50%. UNDP's HDI report also indicates poor quality of human capital in India, as India ranked 134 out of 193 nations. Efforts are needed to improve the presence of employable skills among the workforce.

India also faces regional imbalances in growth; nearly half of its states/union territories, including Bihar, Meghalaya, Jharkhand, and Uttar Pradesh, are lagging far behind the other states. Special drives to improve the growth performance of these laggard states will improve the overall growth of the country.

7. Summary and Conclusions

Our analyses above indicate that 10.19% growth of nominal GDP from 2023-24 onwards will enable India to attain the World Bank's current norm of per capita income of an advanced nation of $14,006 by 2047-48. However, after adjusting for the trend in dollar value and exchange rates, the target is $18,414 by 2047-48. To achieve this, the required nominal growth rate is 11.41%. Given the current trend growth rate, obtaining 7.41% real growth rate till 2047-48 will be hard to achieve.

The rate of growth derived under various scenarios gives the average growth rate required to achieve these targets over the period. Given that the growth rate will not be uniform over the period, in the initial years, the rate of growth will have to be even higher, then coming down as the base rises.

Since what is required is a rise in nominal growth, one may think it is easily achieved by raising prices. This is not correct; if the general price level keeps on rising, this will lead to a depreciation of the currency. This is what purchasing power parity theory said. This may be blocked for a time because of capital flows. But this higher depreciation cannot be indefinitely postponed. Higher depreciation will demand even higher nominal growth. A moderate inflation is implicit in all these calculations.

Due to significant regional disparities, states and union territories require varying levels of nominal economic growth to achieve the per capita income target of $14,006 by 2047-48, ranging from 5.3% for Goa to 16.12% for Bihar. Similarly, the necessary growth rates to reach the target income level of $18,414 by 2047-48 range from Goa needing 6.46% to Bihar requiring 17.9%.

If all the 33 states and union territories grow at their existing average growth rates, only 17 of them will reach $18,414 target by 2047-48; 20 of them will reach $14,006 target by 2047-48. If all regions improve their growth performance by 1% over their existing average rate, 27 will reach the target of

$14,006 by 2047-48, and 20 will attain the target of $18,414 by 2047-48. Thus, about 40% of them will miss the bus. Bihar, Meghalaya, Jharkhand, and Uttar Pradesh need special attention.

In this paper, we have outlined the quantitative dimensions of the vision of a Viksit Bharat. We have set out the required growth rates under various assumptions. However, the outcomes over the next 25 years will depend on multiple factors, making any long-term projections inherently conditional. As already mentioned, any scenario with an assumption of real growth rate higher than 6% will demand efforts in multiple directions, such as increasing the investment rate and reducing ICOR. Quantitative dimension of the aspirational goal is just the beginning. A strategy of development must follow.

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Notes

[1]The FDI influx of $596 billion from 2014 to 2023 almost doubled the figure of $298 billion from 2005 to 2014.

[2]According to International Renewable Energy Statistics-2023 released by International Renewable Energy Agency, India has the fourth-largest installed capacity of renewable energy.

[3] Maharashtra and Gujarat alone accounted for 50 percent of total exports. Gujarat alone accounted for about 25 percent of India's total gross fixed capital formation, followed by Maharashtra and Tamil Nadu.

[4] They assume India's inflation differential vis-à-vis advanced economies at 2 percent. Accordingly, the rupee is expected to depreciate by 2% per annum. Population growth is assumed at 0.6%, as used by the United Nation for calculating per capita GDP.

[5]

Table: CPI and GDP Deflator Based Inflation (%) for India

Inflation	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Avg
CPI	9.86	9.46	5.97	4.88	4.49	3.61	3.41	4.80	6.15	5.47	6.65	5.38	5.84
GDP def. based	7.93	6.19	3.33	2.28	3.24	3.97	3.88	2.41	4.81	8.35	6.75	1.33	4.54

Sources (Basic Data): RBI's Hand Book of Statistics on Indian Economy and MoSPI, Government of India.

[6]From the compound interest formula: $Y_t = Y_0 (1+r)^t$, (where Y_t – the nominal GDP in 2047-48, Y_0 – the nominal GDP in 2022-23, t -25 years), the required nominal rate of growth is computed as r % = {Exp [Ln (Y_t/Y_0) / t]-1} x 100.

[7]In this optimistic scenario, 27 states/union territories out of 33 will reach the per capita income target of $14,006 on or before 2047-48. Only 6 states/union territories – Chhattisgarh, Meghalaya, Manipur, Jharkhand, Uttar Pradesh, and Bihar – will not achieve the target in 2047-48.

[8] New technologies will improve productivity, but they may have adverse implications for employment