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Performance of poverty alleviation programme in Vidarbha region of Maharashtra

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Abstract

Poverty alleviation programmes play an important role in improving the livelihood conditions of rural households by providing employment, housing, financial support and basic social security. The present study was undertaken to assess the performance of major poverty alleviation programmes, with particular emphasis on Indira Awaas Yojana (IAY)/Pradhan Mantri Awaas Yojana-Gramin (PMAY-G) in India, Maharashtra and the Vidarbha region. Secondary time-series data for the period 1995–96 to 2024–25 were analysed using absolute change, relative change, compound growth rate (CGR), coefficient of variation (CV) and Cuddy-Della Valle instability index (CDVI). The results revealed a substantial increase in financial allocation, release and expenditure under IAY/PMAY-G at the national level. In Vidarbha, utilization of funds, beneficiary registration, sanction of houses and house completion recorded significant positive growth rates of 30.27, 19.65, 23.43 and 21.27 per cent per annum, respectively. However, considerable instability was observed in registration and sanctioning activities, as reflected by their high CDVI values of 102.09 and 71.54 per cent, respectively. Completion of houses showed comparatively better stability, with a CDVI of 46.27 per cent. At the district level, substantial inter-district variation was observed, with Nagpur, Bhandara, Akola and Gondia recording relatively high growth in different programme indicators, while Amravati generally showed comparatively lower growth. Overall, the findings indicate that poverty alleviation programmes have expanded considerably in the Vidarbha region, but fluctuations in fund utilization, beneficiary registration and sanctioning remain important implementation challenges. Strengthening timely fund flow, monitoring, beneficiary identification and coordination among implementing agencies is necessary to improve the effectiveness and stability of programme outcomes.

Keywords: Poverty alleviation, PMAY-G, rural housing, Vidarbha, financial performance, physical performance, compound growth rate, instability

1. Introduction

Poverty remains a major development challenge in rural areas, particularly among households with limited access to productive assets, stable employment, adequate housing and basic services. In India, the Government has implemented several poverty alleviation and social protection programmes to improve the livelihood security and socio-economic well-being of vulnerable households. Among these interventions, rural housing programmes have assumed considerable importance because adequate housing contributes not only to household security and dignity but also to improved living conditions and social well-being.

The Indira Awaas Yojana (IAY) was introduced as a major rural housing intervention for providing financial assistance to eligible rural households for the construction of houses. Subsequently, the programme was restructured as the Pradhan Mantri Awaas Yojana-Gramin (PMAY-G), with the

objective of providing pucca houses with basic amenities to eligible rural households. The programme represents an important component of the Government's strategy for reducing housing deprivation and improving the standard of living of rural households.

The effectiveness of a poverty alleviation programme depends not only on the magnitude of financial resources allocated but also on their timely utilization, identification and registration of eligible beneficiaries, sanctioning of houses and timely completion of construction. Therefore, assessment of both financial and physical performance is essential for understanding the implementation status of rural housing programmes.

Maharashtra has a substantial rural population and considerable regional variation in socio-economic conditions. Within the state, the Vidarbha region comprises districts with diverse agricultural, economic and social

characteristics. Such regional differences may influence the implementation and performance of poverty alleviation programmes. Hence, an assessment of the growth, variability and instability of IAY/PMAY-G at the regional and district levels is important for identifying variations in programme implementation and for developing appropriate policy interventions.

Against this background, the present study was undertaken to assess the performance of IAY/PMAY-G in India, Maharashtra and the Vidarbha region. The study particularly focuses on changes in financial and physical performance, compound growth rates, variability and instability over time, with special emphasis on district-wise performance in the Vidarbha region.

2. Objectives

To assess the financial and physical performance, growth, variability and instability of IAY/PMAY-G in the Vidarbha region of Maharashtra.

3. Methodology

3.1 Performance of poverty alleviation programme

The performance of poverty alleviation programmes was analysed using different statistical and econometric tools to understand the magnitude of change, growth behaviour, variability, and instability over the study period from 1995-96 to 2024-25.

3.2 Absolute change and Relative change

Relative and absolute changes over the base year were worked out through simple tabular analysis. To comprehend the alteration in relative contribution, relative changes were calculated. The absolute and relative changes during the period (1995-96 to 2024-25) were measured using the values of the base year and the current year.

Absolute change = Current year – Base year

Where,

Base Year = (1995-96)

Relative change = $\frac{\text{Current year} - \text{Base year}}{\text{Base year}} \times 100$

Where,

Base Year = (1995-96)

3.3 Compound growth rate

The growth rates were used to measure the performance of the economic variables viz. Central Allocation, Central Release, Total Exp, Target No. Houses and Houses Constructed. The sector-wise growth was analyzed for period (1995-96 to 2024-25) using the exponential growth function given formula:

$$Y = ab^t$$

Where,

Y = Economic Variables

a = Intercept

b = Regression coefficient

t = Time period (Years)

From the coefficient values, the compound growth rates were worked out by using the formula,

$$\text{CGR} = [\text{Antilog}(\log b) - 1] \times 100$$

3.4 Coefficient of Variation (CV)

The coefficient of variation was used to measure the extent of variability in relation to the mean of the series. It provided a relative measure of dispersion and facilitated comparison among variables having different units or magnitudes.

The coefficient of variation (CV) was calculated by using the formula,

$$\text{C.V. (\%)} = \frac{\text{SD}}{\bar{X}} \times 100$$

Where,

SD = Standard Deviation

$$\text{SD} = \sqrt{\frac{\sum (X - \bar{X})^2}{n}}$$

Where,

$\bar{X}$ = Arithmetic mean

X = Variable

n = Number of observations

The simple Coefficient of Variation (CV) often contains the trend component and thus over estimates the level of instability in time series data characterized by long term trends and Cuddy Della Valle's instability was estimated as follows.

3.5 Cuddy Della Valle's Instability Index (CDVI)

The Cuddy Della Valle's Instability Index (CDVI) was used to measure instability in poverty alleviation programme by eliminating the effect of long-term trends in the time-series data. It provides a more reliable estimate of year-to-year fluctuations in programme performance.

The instability index was computed as follows:

$$\text{Instability Index} = \text{CV} \sqrt{(1 - R^2)}$$

Where,

CV = Simple Estimates of coefficient of variation in per cent and

R² = Coefficient of determination obtained from log-linear regression analysis.

4. Results and Discussion

4.1 Financial & physical performance under poverty alleviation programmes IAY / PMAY-G for India

The financial and physical performance of IAY/PMAY-G in India is presented in Table 1. Central allocation increased substantially during the study period, registering an absolute increase of Rs. 54,469 crore and a relative increase of 4,974 per cent over the base year 1995-96. Similarly, central release increased by Rs. 13,619 crores, representing a relative increase of 1,163 per cent. Total expenditure increased by Rs. 19,862 crores, corresponding to a relative increase of 1,702 per cent.

The physical performance of the programme also indicated an expansion in housing targets. The target for house construction increased by 0.73 crore houses, representing a relative increase of 663.64 per cent over the base year. However, the increase in actual house construction was comparatively modest, with an absolute increase of 0.02 crore houses and a relative increase of 22.22 per cent. During the intermediate period, central allocation increased

from Rs. 1,095 crores in 1995–96 to Rs. 9,696 crores in 2015–16, while total expenditure increased from Rs. 1,166 crores to Rs. 14,180 crores. The housing construction target increased from 0.11 crore to 0.21 crore houses during the same period. However, the number of houses actually constructed declined from 0.18 crore in 2015–16 to 0.11 crore in 2024–25, indicating fluctuations in physical implementation despite the expansion in financial allocation.

Table 1: Financial & Physical Performance under Poverty Alleviation Programmes IAY / PMAY-G for India (Rs. Crore)

Particulars	Years				Absolute change			Relative change		
	1995-96	2005-06	2015-16	2024-25	2005-06	2015-16	2024-25	2005-06	2015-16	2024-25
Central Allocation	1095	2732	9696	55564	1637	8601	54469	150	785	4974
Central Release	1171	2738	10108	14790	1567	8937	13619	134	763	1163
Total Exp	1166	3654	14180	21029	2488	13013	19862	213	1116	1702
Target of houses	0.11	0.15	0.21	0.84	0.05	0.10	0.73	36.36	90.91	663.64
Houses constructed	0.09	0.14	0.18	0.11	0.04	0.09	0.02	55.56	100.00	22.22

(Base Year -1995-96)

4.2 Financial Performance under Poverty Alleviation Programmes IAY / PMAY-G for Maharashtra

The financial and physical performance of IAY/PMAY-G in Maharashtra is presented in Table 2. Central allocation increased by Rs. 27,964 lakhs, representing a relative increase of 263 per cent over the base year 1995–96. In contrast, central release declined by Rs. 6,890 lakhs, corresponding to a relative decline of 86 per cent. Total expenditure also declined by Rs. 17,415 lakhs, representing a reduction of 92 per cent during the study period.

The physical indicators showed a different pattern. The target for house construction increased by 19,230 houses, representing a relative increase of 21 per cent, while actual

houses constructed increased by 27,090 houses, corresponding to a relative increase of 41 per cent over the base year.

During the intermediate period, central allocation increased from Rs. 8,500 lakhs in 1995–96 to Rs. 69,348 lakhs in 2015–16. Similarly, central release increased from Rs. 8,056 lakhs to Rs. 34,674 lakhs, while total expenditure increased from Rs. 18,966 lakhs to Rs. 58,410 lakhs. The number of houses constructed increased from 66,648 to 1,20,292 during this period. However, the decline in financial release and expenditure by 2024–25 indicates fluctuations in programme implementation.

Table 2: Financial Performance under Poverty Alleviation Programmes IAY / PMAY-G for Maharashtra (Rs. Lakh)

Particulars	Years				Absolute change			Relative change		
	1995-96	2005-06	2015-16	2024-25	2005-06	2015-16	2024-25	2005-06	2015-16	2024-25
Central Allocation	8500	14715	69348	28049	14630	69263	27964	73	716	263
Central Release	8056	12577	34674	18450	4521	26618	-6890	56	330	-86
Total Exp	18966	23831	58410	1551	4865	39443	-17415	26	208	-92
Target of houses (In No)	89776	78478	158763	109006	-11298	68987	19230	-13	77	21
Houses constructed (In No)	66648	94274	120292	93738	27626	53644	27090	41	80	41

(Base Year -1995-96)

4.3 Financial Performance under Poverty Alleviation Programmes IAY / PMAY-G for Vidarbha Region

The financial and physical performance of IAY/PMAY-G in the Vidarbha region is presented in Table 3. Utilization of funds increased by Rs. 2,21,090 lakhs, representing a substantial relative increase of 37,585 per cent over the base year 2005–06. Beneficiary registration increased by 2,17,832 registrations, equivalent to a relative increase of 4,957 per cent. Similarly, house sanction increased by 2,09,792 sanctions, representing a relative increase of 6,018 per cent. House completion increased by 1,09,574 houses,

corresponding to a relative increase of 4,482 per cent over the base year. Although house completion increased considerably, its rate of increase remained lower than that observed for beneficiary registration and house sanction.

Utilization of funds increased from Rs. 588 lakhs in 2005–06 to Rs. 8,941 lakhs in 2015–16 and further to Rs. 2,21,678 lakhs in 2024–25. Similarly, house sanction increased from 3,486 houses in 2005–06 to 74,580 houses in 2015–16 and 2,13,278 houses in 2024–25. House completion increased from 2,445 houses in 2005–06 to 72,967 houses in 2015–16 and 1,12,019 houses in 2024–25.

Table 3: Financial and Physical Performance under Poverty Alleviation Programmes IAY / PMAY-G for Vidarbha Region (Base Year – 2005-06)

Particulars	Years			Absolute change		Relative change	
	2005-06	2015-16	2024-25	2015-16	2024-25	2015-16	2024-25
Utilization of Funds (In Lakh)	588	8941	221678	8352	221090	1420	37585
Breakup Registration (In No)	4394	92558	222226	88164	217832	2006	4957
Breakup sanction (In No)	3486	74580	213278	71094	209792	2039	6018
Completion (In No)	2445	72967	112019	70522	109574	2884	4482

4.4 Compound Growth Rate of IAY / PMAY-G for India

The compound growth rates of the financial and physical indicators of IAY/PMAY-G in India were positive and statistically significant at the 1 per cent level. Central allocation recorded a compound growth rate of 16.84 per cent per annum, with an R^2 value of 0.96, indicating a strong increasing trend.

Central release and total expenditure recorded compound growth rates of 13.98 and 13.83 per cent per annum, respectively. The target for house construction and actual houses constructed registered growth rates of 6.74 and 4.07 per cent per annum, respectively.

Although the physical indicators exhibited positive growth, the comparatively low R^2 value of 0.35 and CDVI value of 43.56 for houses constructed indicate fluctuations in physical achievement over the study period.

Table 4: Compound Growth Rate of IAY / PMAY-G for India

Particulars	CGR	R^2	Calculated 't'	CV	CDVI
Central Allocation	16.84***	0.96	27.44	120.39	22.79
Central Release	13.98***	0.91	17.09	101.50	30.01
Total Expenditure	13.83***	0.88	14.98	108.49	36.11
Target (No. of houses)	6.74***	0.80	10.55	73.31	32.86
Houses constructed	4.07***	0.35	3.89	54.09	43.56

Note: ***Significant at 1%, **Significant at 5%, *Significant at 10%.

4.5 Compound Growth Rate of IAY / PMAY-G for Maharashtra

The compound growth rates of all major financial and physical indicators were positive and statistically significant at the 1 per cent level. Central allocation recorded the highest growth rate of 39.79 per cent per annum, with an R^2 value of 0.81.

Central release and total expenditure recorded growth rates of 9.01 and 8.17 per cent per annum, respectively. The target for house construction increased at a rate of 6.39 per cent per annum, while actual houses constructed increased at 6.08 per cent per annum.

However, the relatively high CDVI values for central release (88.29 per cent) and houses constructed (83.94 per cent) indicate substantial instability in fund flow and physical implementation.

Table 5: Compound Growth Rate of IAY / PMAY-G for Maharashtra

Particulars	CGR	R^2	Calculated 't'	CV	CDVI
Central Allocation	39.79***	0.81	11.29	133.60	56.68
Central Release	9.01***	0.32	3.69	107.66	88.29
Total Expenditure	8.17***	0.31	3.55	95.59	79.31
Target (No. of houses)	6.39***	0.57	6.17	121.03	78.74
Houses constructed	6.08***	0.50	5.38	119.73	83.94

Note: ***Significant at 1%, **Significant at 5%, *Significant at 10%.

4.6 District-Wise Compound Growth Rate of IAY/PMAY-G in the Vidarbha Region

District-wise analysis revealed positive growth across all major programme indicators, including fund utilization, beneficiary registration, house sanction and completion, although considerable inter-district variation was observed. Fund utilization recorded particularly high growth in Nagpur (46.26 per cent), Bhandara (44.81 per cent) and Akola (43.47 per cent). Registration growth was highest in Bhandara (36.97 per cent) and Nagpur (33.08 per cent). House sanction recorded the highest growth in Bhandara (40.95 per cent), Nagpur (40.75 per cent) and Wardha (38.93 per cent).

House completion recorded comparatively high growth in Bhandara (39.64 per cent), Gondia (38.32 per cent) and Wardha (31.63 per cent). In contrast, Amravati recorded comparatively lower growth, particularly in house sanction and completion.

The predominance of positive and statistically significant growth rates indicates an overall expansion of IAY/PMAY-G across the Vidarbha region. However, the substantial inter-district variation highlights differences in programme implementation and achievement across districts.

Table 6: District-Wise Compound Growth Rate of IAY/PMAY-G in the Vidarbha Region

Particulars	Utilization of Funds		Breakup Registration		Breakup sanction		Completion	
District	CGR	CV	CGR	CV	CGR	CV	CGR	CV
Akola	43.47***	164.61	20.10*	255.3	36.15***	188.16	36.12***	92.19
Washim	32.36***	93.70	5.95	175.10	23.87***	103.55	24.29***	77.10
Amravati	23.95***	84.77	15.15***	121.00	15.48***	100.92	13.68***	69.10
Buldhana	28.57***	135.62	28.07***	201.40	32.87***	167.99	28.63***	79.71
Yavatmal	38.28***	126.57	18.37**	208.60	24.37***	167.86	20.44***	75.55
Nagpur	46.26***	82.38	33.08**	140.80	40.75***	95.06	31.08***	67.54
Chandrapur	37.60***	90.01	18.47**	161.00	22.81***	139.03	27.70***	69.22
Gondia	41.06***	124.85	23.14***	161.20	28.98***	115.40	38.32***	104.73
Bhandara	44.81***	110.91	36.97***	167.30	40.95***	120.69	39.64***	108.77
Gadchiroli	30.74***	94.25	11.50*	121.70	22.26***	127.66	29.62***	72.00
Wardha	22.48***	99.48	18.72	140.40	38.93***	134.46	31.63***	67.43

Note: ***Significant at 1%, **Significant at 5%, *Significant at 10%

4.7 Compound Growth Rate of IAY / PMAY-G for Vidarbha Region

The Vidarbha region recorded statistically significant positive compound growth rates for all major programme indicators. Fund utilization increased at a rate of 30.27 per cent per annum, while beneficiary registration and house sanction increased at rates of 19.65 and 23.43 per cent per

annum, respectively. House completion recorded a growth rate of 21.27 per cent per annum.

Despite the positive growth trends, considerable instability was observed in beneficiary registration and house sanction. The CDVI values for registration and sanction were 102.09 and 71.54 per cent, respectively. In comparison, house completion recorded a relatively lower CDVI of 46.27 per

cent, indicating comparatively greater stability in the completion stage. These findings suggest that while the programme has

expanded substantially in the Vidarbha region, fluctuations in beneficiary identification, registration and sanctioning may affect the consistency of programme implementation.

Table 7: Compound Growth Rate of IAY / PMAY-G for Vidarbha Region

Particulars	CGR	R ²	Calculated 't'	CV	CDVI
Utilization of Funds (In Lakh)	30.27***	0.64	5.65	98.70	59.20
Breakup Registration	19.65***	0.49	4.17	143.26	102.09
Breakup sanction	23.43***	0.67	6.17	126.35	71.54
Completion	21.27***	0.60	5.21	73.29	46.27

Note: ***Significant at 1%, **Significant at 5%, *Significant at 10%,

5. Conclusion

The study revealed that IAY/PMAY-G has expanded substantially in India, Maharashtra and the Vidarbha region, as reflected in the positive growth of major financial and physical indicators. In the Vidarbha region, utilization of funds, beneficiary registration, house sanction and house completion recorded significant compound growth rates of 30.27, 19.65, 23.43 and 21.27 per cent per annum, respectively.

Despite the positive growth trends, considerable instability was observed in beneficiary registration and house sanction, indicating fluctuations in the implementation process. House completion exhibited comparatively lower instability, suggesting relatively greater consistency at the final stage of programme implementation. The district-wise analysis revealed substantial variation in programme performance across Vidarbha. Nagpur, Bhandara, Akola and Gondia recorded comparatively higher growth in different programme indicators, whereas Amravati generally exhibited lower growth, particularly in house sanction and completion. Overall, the findings indicate that sustained growth in programme performance needs to be complemented by improvements in implementation efficiency. Greater attention should be given to timely release and utilization of funds, accurate identification and registration of eligible beneficiaries, expeditious house sanction, regular monitoring and effective coordination among implementing agencies. These measures can contribute to more consistent and equitable implementation of rural housing programmes in the Vidarbha region.

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