

Assessing the Poverty Alleviating Effects of MSME in India

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Introduction

- At independence, poverty was said to be alleviated through rapid industrialisation and large public works (Balakrishnan, 2020, ch. 1).
 - Poverty alleviation has been at the center of India's development agenda and We see poverty alleviation feature in multiple 5-year plans (Kapila, 2022).
 - Poverty alleviation is the first on Sustainable Development Goals (SDG).
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- Amutha (2022) claims that MSMEs are the primary source of employment, production, exports, and GDP growth in India.
 - MSMEs contribute to 29% of India's GVA and 36% of manufacturing output (Government of India, 2023).
 - "This sector (MSME) employs an estimated 59.7 million persons spread over 31 million enterprises. MSME sector accounts for about 45% of the manufacturing output and around 40% of the total export of the country" (Kumar, 2020, p. 739).

Literature review

Citation	Summary of findings
Harvie (2003) & Beck et al. (2003) & Maksimov et al. (2017)	Study the effects of SME on poverty on a panel of countries. Harvie (2003) and Maksimov et al. (2017) find SME to alleviate poverty in East Asian countries and low-income countries respectively, while Beck et al. (2003) use a panel of 75 countries and do not find any significant relationship between SME and poverty.
Nursini (2020), Asikhia (2016), Abisuga-Oyekunle et al. (2020), Ali et al. (2014) & Manzoor et al. (2019)	Find SME to have a negative effect on various Poverty measures in Indonesia, Nigeria, a Panel of Sub-Saharan countries, Pakistan, and a Panel of SAARC countries respectively.
Vijayakumar (2013) and Manzoor et al. (2019)	Vijayakumar (2013) and Manzoor et al. (2019) find no effect of SME on poverty or economy in Sri Lanka and Manzoor et al. (2019) don't find a significant effect of SME in Pakistan either.
Sinha and Pental (2017), Manna and Mistri (2017) & Manzoor et al. (2019)	Sinha and Pental (2017) and Manna and Mistri (2017) find that MSME have grown substantially, with notable contributions to employment and GDP, specifically in the state of Chhattisgarh and Tamil Nadu, Uttar Pradesh, Gujarat, and West Bengal, respectively since the last MSME survey. Manzoor et al. (2019) find SME to have poverty-alleviating effects in India.

MSME growth and poverty

- The relationship between employment and poverty reduction could be attained on three conditions: (i) the overall growth rate of labour must be able to absorb new workers with high levels of productivity, (ii) job creation must produce an equitable job distribution between the poor and non-poor, and (iii) the jobs created must have a wage standard or at least a livable, satisfactory wage (Singh, 1999).
- When a high level of economic growth leads to increased production capacity and productivity, the poor have an opportunity to be absorbed into the various productive sectors that can generate higher incomes. Through this process, each labourer absorbed into these sectors would positively affect poverty alleviation (Islam, 2004).
- Thus, combining Islam (2004), Singh (1999), Government of India (2023), and Kumar (2020) MSME sector has a lot of potential in India to aid in poverty alleviation.

Research questions

- Does the number of MSME have an effect on poverty headcount in India?
- If yes, then-
 - What is the nature and magnitude of the effect of the number of MSME on poverty?
 - Does the enterprise level (Micro, Small, Medium) affect the magnitude and nature?
 - Do the ‘grouped MSMEs’ (Small-Medium and Micro-Small) have a different effect from each other on poverty?

Methodology: Data

- This study uses Annual Survey of Industries (ASI) data to identify the count of MSME in states of India.
- Based on the gross value of plants and machinery assets, and Ministry of Micro, Small and Medium Enterprises ([2020](#))'s definition of MSME, this study classifies firms into Micro, Small, and Medium enterprises.
- **Micro:** \leq Rs.10 million, **Small:** \leq Rs.100 million, **Medium:** \leq Rs.500 million.
- This study uses CMIE's CPHS data for poverty estimations.
- This study uses consumption-based poverty, using Planning Commission ([2014](#)) i.e Rangarajan expert committee.
- The poverty threshold for urban hh. is MPCE of Rs. 1407 based on consumption of 2,155 kcal per person, per day; and for rural households is MPCE of Rs. 972 based on consumption of 2,090 kcal per person, per day (Planning Commission, [2014](#)).
- The expert Committee also imputes expenditure on clothing, rent, conveyance and education, rather than limiting the basket to only foods encompassing the normative nutrition levels (Planning Commission, [2014](#)).

Methodology: Computation of poverty headcount

- *Total Expenditure* is used for classifying poverty. It is computed as the summation of all expenditures incurred by the household.
- Since Rangarajan committee's report was released in 2014, I adjust *Total Expenditure* for inflation using CPI (consumer price index, headline inflation of India) to the base year 2014.
- From *Total Expenditure*, variable $mpce_k$ is computed by dividing *Total Expenditure* by *Household Size*.
- Roy and van der Weide (2022) point out several biases in the instrument design of the CPHS, while comparing CPHS to NAS surveys. This study takes their suggestion to reweigh the adjusted weight.
- "The non-response adjusted weight, by design, adds up to the Census' population projections for a given year. We choose not to rely on these individual weights as due to the passage of time. Instead, we reconstruct individual level survey weights by multiplying household level weights and the household size for each round." (Roy & van der Weide, 2022, p. 11).

Methodology: Computation of poverty headcount

Given that k is rural.

$$HH\ Poor_k = \begin{cases} 1 & \text{if } mpce_k \leq 972 \\ 0 & \text{otherwise} \end{cases}$$

Given that k is urban.

$$HH\ Poor_k = \begin{cases} 1 & \text{if } mpce_k \leq 1407 \\ 0 & \text{otherwise} \end{cases}$$

- If we compute the average of $HH\ Poor$ since it takes values 0 or 1, we will get a proportion i.e. the headcount ratio.

$$P_i = \frac{\sum_{k=1}^N W_i \cdot HH\ poor_k}{\sum_{k=1}^N W_i}$$

- Similarly, computing a weighted mean of the variable $mpce$ at state level will yield us the average MPCE of the state.

$$MPCE_i = \frac{\sum_{k=1}^N W_i \cdot mpce_k}{\sum_{k=1}^N W_i}$$

Methodology: Control variables

- Real per capita GDP: I use real per capita state Gross domestic product (base as 2011) as a control for economic growth. Data is sourced from States of India, CMIE.
- Yield per hectare: Higher levels of agriculture in a region could be a sign of under-development (in an economic sense) of the region. Incomes from agriculture are generally low compared and are often seasonal. Thus I use yield per hectare of foodgrains as a control. The data is sourced from States of India, CMIE.
- Urbanisation rate: Kundu (2007) posits that rural-urban migration can be a tool for poverty alleviation, the shift from casual employment to more stable forms of employment in urban areas has implications for poverty reduction. Thus, I control for urbanisation. The data on urbanisation (%) per state comes from Census Technical Group's projections from the 2011 census.
- Population: Population size has a direct impact on the need for social services, jobs, and resources—all of which are crucial components of poverty. Data is sourced from Census Technical Group's projections from the 2011 census.

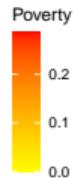
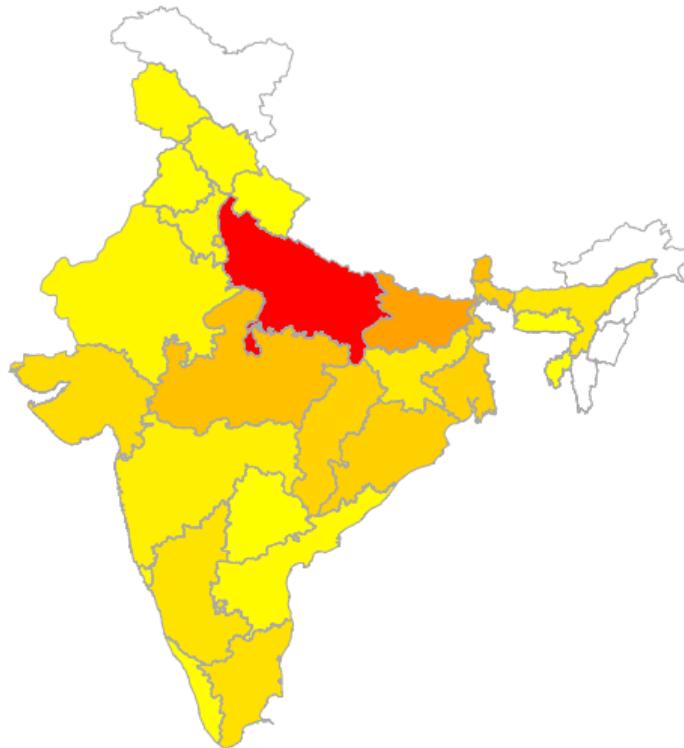
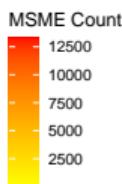
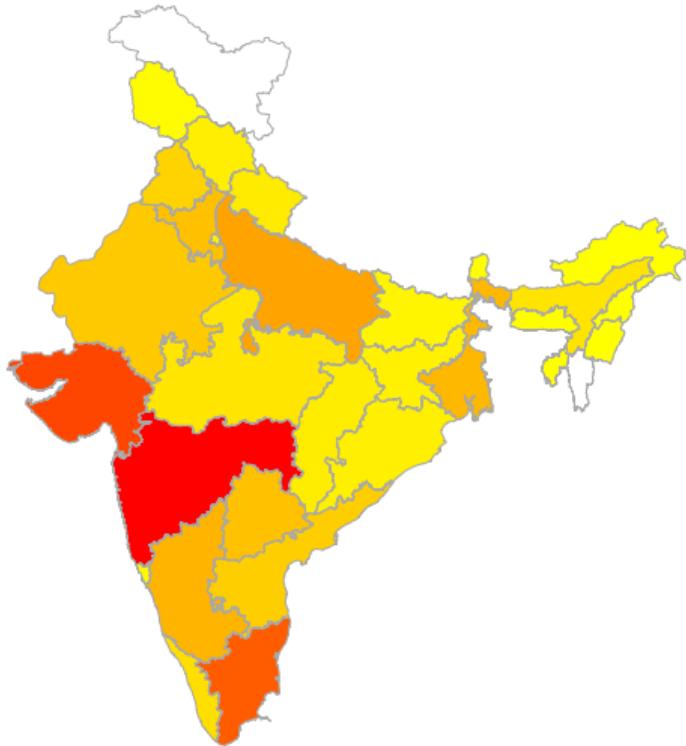
Summary statistics

Variable	Mean	Median	SD	Min	Max
Poverty headcount (%)	13.38	9.65	12.55	0.011	65.7
MPCE (Rs.)	2437	2279	50.88	1002	5900
MSME	3275	1946	3279.755	29	13284
Micro	807	525.8	738.771	9	3042
Small	1442.5	908.6	1404	17	5649
Medium	1025.3	530.1	1196	3	5043
SGDP (Rs.)	155236	140075	92450.85	29251	485645
Yield (per Hectare)	5809	5588	1707.204	2157	10574
Urbanisation (%)	38.03	34.05	20.74	10.10	99.63
Population ('000)	53929	36334	48992.73	664	224979

Summary statistics

- Highest poverty, lowest MPCE: Odisha, 2014.
- Lowest poverty, highest MPCE: Goa, 2017.
- Highest MSME count: Maharashtra, 2019.
- Lowest MSME count: Tripura, 2019.
- Highest yield: Punjab, 2018.
- Lowest yield: Maharashtra, 2016.
- Highest urbanisation: Delhi, 2019.
- Lowest urbanisation: Himachal Pradesh, 2014.
- The data contains a panel of 25 states and 6 time periods (2014-2019).

Heatmap of MSME vs Poverty in India



Econometric models: Diagnostic tests

- Hausman test is conducted to determine which model to use: random-effects or fixed-effects.
- This study uses two-way fixed-effects models.
- For model diagnostics: ‘Durbin-Watson’ test- Autocorrelation, ‘Breusch-Pagan’ test- Heteroscedasticity, and VIF- Multicollinearity.
- Groupwise Heterscedasticity and Autocorrelation is detected.
- Robust Clustered Standard Errors are computed using Heteroscedasticity Consistent Covariance Matrix (HCCM) type HC3 (Long & Ervin, [2000](#)).

Econometric models: Equations

$$P_{it} = \beta_0 + \beta \ln MSME_{it} + \gamma \ln[Controls] + \epsilon \quad (1)$$

$$MPCE_{it} = \beta_0 + \beta MSME_{it} + \gamma [Controls] + \epsilon \quad (2)$$

$$P_{it} = \beta_0 + \beta_1 \ln Micro_{it} + \beta_2 \ln Small_{it} + \beta_3 \ln Medium_{it} + \gamma \ln[Controls] + \epsilon \quad (3)$$

$$MPCE_{it} = \beta_0 + \beta_1 Micro_{it} + \beta_2 Small_{it} + \beta_3 Medium_{it} + \gamma [Controls] + \epsilon \quad (4)$$

$$P_{it} = \beta_0 + \beta_1 \ln MSE_{it} + \beta_2 \ln Medium_{it} + \gamma \ln[Controls] + \epsilon \quad (5)$$

$$P_{it} = \beta_0 + \beta_1 \ln SME_{it} + \beta_2 \ln Micro_{it} + \gamma \ln[Controls] + \epsilon \quad (6)$$

Empirical results

Term	(1) <i>P</i>	(2) MPCE	(3) <i>P</i>	(4) MPCE	(5) <i>P</i>	(6) <i>P</i>
<i>MSME</i>	-16.337* (9.529)	-0.060 (0.058)				
<i>Micro</i>			7.384 (4.710)	0.037 (0.340)		6.657 (4.570)
<i>Small</i>			-21.685*** (7.644)	-0.648 (0.465)		
<i>Medium</i>			-19.112** (8.121)	0.417 (0.276)	-22.836** (9.033)	
<i>MSE</i>					-4.760 (8.199)	
<i>SME</i>						-37.647*** (10.2412)
<i>SGDP</i>	-17.775 (19.167)	0.004*** (0.001)	-17.542 (14.547)	0.003* (0.001)	-11.187 (17.761)	-20.097 (16.203)
<i>Urban</i>	2.680** (1.281)	-65.451* (38.667)	2.723*** (1.002)	-50.812 (40.534)	2.589** (1.221)	2.795*** (1.044)
<i>Yield</i>	12.810 (9.042)	0.100 (0.166)	8.924 (8.031)	0.099 (0.162)	11.493 (8.486)	9.416 (8.103)
<i>Population</i>	223.283* (131.256)	-0.000* (0.000)	270.026** (108.222)	-0.000 (0.000)	259.609** (126.023)	251.890** (107.417)
Obs	137	137	137	137	137	137
<i>R</i> ²	0.17	0.075	0.17	0.09	0.22	0.24
F-stat	4.151	1.664	4.151	1.488	4.7129	5.363
P-value	≤ 0.001	0.149	≤ 0.001	0.179	≤ 0.001	≤ 0.001

*** : $p \leq 0.01$, ** : $p \leq 0.05$, * : $p \leq 0.1$

Emirical results

- The coefficient for Micro and MSE is positive and statistically insignificant.
- A possible reason for Micro-enterprises not contributing to poverty-alleviation could be their limited capital. This lack of capital can lead to difficulties in expanding the business and may force these enterprises to use informal labour to save costs if it even employs people.
 - Additionally, limited funds might mean using less advanced technology, resulting in lower productivity.
 - Consequently, Micro-enterprises might offer lower wages than Small and Medium enterprises. Together, these factors suggest that Micro-enterprises could unintentionally worsen poverty due to these inherent limitations and inefficiencies.
- Small-Medium enterprises by definition have more capital than Micro, thus can operate at a bigger scale, use better technologies, and employ more people, possibly at better wage rates. Thus, SME have a poverty alleviating effect.
- When Micro enterprises expand, they evolve into Small enterprises. This progression is accompanied by an enhancement in the enterprise's capabilities, which can have positive implications for both employment opportunities and wage levels within the enterprise.

Limitations

- Somanchi (2021) refutes the claim of CPHS being nationally representative and claims that it underrepresents women and young children, overrepresents well-educated households, and underrepresents the poor.
- Trade or Service MSME are not factored in in this study. Kanitkar (1994) finds that only 19% of rural Micro-enterprises in his sample are involved in manufacturing, while higher proportion of Micro-enterprises are involved in services.
- This study uses consumption-based poverty headcount as the main unit of analysis. Amartya Sen in "Equality of what?" argues on using MDP over any resource-based poverty measure. Due to time constraints and knowledge gaps, I am compelled to use a resource-based poverty measure.

Future scope of research

- Using a robust poverty measure like Multidimensional Poverty.
- Looking at poverty alleviation through labour absorption and output of MSME.
- Linking productivity of MSME to wages, and its effect on Poverty.

Conclusion

- Study concludes that the number of MSME has poverty-alleviating effects on the states of India.
- 1% increase in the number of MSME, reduces poverty by 0.16 percentage points.
- Small and Medium enterprises have poverty-alleviating effects, whereas Micro has a more complicated relationship.
- Effect of Small and Medium enterprises at an individual level:
 - 1% increase in the number of Small ent. reduces poverty by 0.21 percentage points.
 - 1% increase in the number of Medium ent. reduces poverty by 0.19 percentage points.
- MSE and SME have different effects on poverty.
- Effect of Small and Medium enterprises grouped together (SME): 1% increase in the number of SMEs, reduces poverty by 0.37 percentage points.

Feedback

Thoughts? Questions? Comments?

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