GOVERNMENT OF INDIA
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION

RAJYA SABHA
UNSTARRED QUESTION NO. 3
TO BE ANSWERED ON 01.12.2025

STATISTICAL MODELLING FOR DISTRICT LEVEL DEVELOPMENT PLANNING

3. SHRI MADAN RATHORE:

Will the Minister of STATISTICS AND PROGRAMME IMPLEMENTATION be pleased to state:

(a) whether the National Statistics Office has undertaken studies to develop model-based district-level estimates for key socio-economic indicators;

(b) the methodology adopted to prepare such district-level estimates along with the role of supporting data sources in improving accuracy;

(c) the manner in which these statistical models are expected to support evidence-based and targeted local development planning; and

(d) whether there is any scheme to expand this model-based estimation method to other states and socio-economic indicators; and

(e) if so, the details thereof?

ANSWER

MINISTER OF STATE (INDEPENDENT CHARGE) OF THE MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION; MINISTER OF STATE (INDEPENDENT CHARGE) OF THE MINISTRY OF PLANNING AND MINISTER OF STATE IN THE MINISTRY OF CULTURE [RAO INDERJIT SINGH]

(a): The Steering Committee for National Sample Surveys (NSS) constituted by the National Statistical Commission (NSC) recommended that MoSPI should undertake a pilot study on the feasibility for generating the model-based district-level estimates based on the Household Consumption Expenditure Survey (HCES): 2022-23 data. To explore the possibility of generation of district level estimates of Monthly Per Capita Consumption Expenditure (MPCE), a committee was formed under the Chairpersonship of Dr. Mausumi Bose, former Professor, Indian Statistical Institute (ISI), Kolkata with members from the NSS and DES, Uttar Pradesh. The Committee was mandated to estimate MPCE figures for the districts of Uttar Pradesh utilizing model-based techniques, more specifically, Small Area Estimation (SAE) methods.

(b): Model-based techniques, adopting the Fay–Herriot (FH) and Spatial Fay–Herriot (SFH) models under the Small Area Estimation framework to borrow strength from covariate data and neighboring districts was used to generate reliable estimates of MPCE for the districts of Uttar Pradesh. The detailed estimation methodology along with its benefits and use cases to other identical scenarios have been mentioned in the report available on the website of MoSPI at https://new.mospi.gov.in/uploads/publications_reports/publications_reports1761641209612_6875c53f-d8eb-4458-be3e-1e12a9e528c9_Compiled_Report_final17092025.pdf

(c): Using the methodology as adopted by the Committee, estimates of MPCE values at sub-state level for the state of Uttar Pradesh have been generated. These estimates of MPCE figures, in turn, would provide an idea of the economic conditions of the households and thereby, facilitating policy decisions for implementation of developmental programmes.

(d) and (e): The approach adopted in this study can be extended to other States and other socio-economic indicators. States have been encouraged to adopt similar approaches to fill data gaps and generate district-level estimates, especially where direct survey estimates are weak due to small sample sizes or are not available.

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