GOVERNMENT OF INDIA
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION

LOK SABHA
UNSTARRED QUESTION NO. 5464
TO BE ANSWERED ON 25.03.2026

MODEL-BASED DISTRICT-LEVEL SOCIAL-ECONOMIC ESTIMATES BY NSO

5464.   SHRI BIPLAB KUMAR DEB:

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 and if so, the details thereof;

(b)   the methodology adopted for generating such district-level estimates and the role of auxiliary data sources in improving accuracy;

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

(d)   whether the Government has any plan to extend this model-based estimation approach and socio-economic indicators to other States particularly in the State of Tripura; 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) 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_reports17616412096 12_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 including Tripura 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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