

**GOVERNMENT OF INDIA
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION**

**LOK SABHA
UNSTARRED QUESTION NO. 1649
TO BE ANSWERED ON 10.12.2025**

**STATISTICAL MODELLING FOR DISTRICT-LEVEL DEVELOPMENT
PLANNING**

**1649. SHRI ANURAG SHARMA:
SHRI SHASHANK MANI:
SHRI TATKARE SUNIL DATTATREY:
DR. RAJKUMAR SANGWAN:**

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

- (a) whether the National Statistics Office (NSO) has undertaken studies to develop model-based district-level estimates for key socio-economic indicators and if so, the details thereof district-wise including Baghpat District, Uttar Pradesh (U.P.);**
- (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 the said statistical models are expected to assist in evidence-based and targeted local development planning;**
- (d) whether there is any plan of the Government to extend this model-based estimation approach to other States and socio-economic indicators and if so, the State-wise details thereof including U.P.;**
- (e) the details of steps being taken to ensure that local level officials are able to understand these insights and act on it effectively; and**
- (f) whether any data sharing arrangement has been put in place for other ministries, such as the Ministry of Panchayati Raj and the Ministry of Rural Development, to make good use of the data collected and insights generated and 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. The district-wise MPCE Estimates (in Rs.) of Uttar Pradesh (U.P.) using Model-based Small Area Estimation (SAE) Approach for Rural and Urban Sector are given in Annexure.

(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_report_s1761641209612_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, including Baghpat District, 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) to (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.

(f): The report has been placed in public domain through MoSPI's website and is freely accessible by Ministries/Departments and other users.

Table: District-wise MPCE Estimates (in Rs.) of Uttar Pradesh (U.P.) using Model-based Small Area Estimation (SAE) Approach for Rural and Urban Sector

District	MPCE (Rural)		MPCE (Urban)	
	FH	SFH	FH	SFH
Saharanpur	3692	4056	4935	5025
Muzaffarnagar	3967	4020	6081	6136
Bijnor	3892	3930	3581	3585
Moradabad	3572	3582	4096	4086
Rampur	3750	3478	4153	4144
Amroha	3661	3722	3052	3056
Meerut	4279	4272	5482	5484
Bagpat	4347	4306	6995	6999
Ghaziabad	4044	4092	5597	5631
Gb Nagar	4454	4353	9705	9477
Bulandshahr	3922	3962	4272	4287
Aligarh	3614	3626	4238	4254
Hathras	3559	3561	4447	4426
Mathura	3531	3578	4135	4125
Agra	3590	3566	4808	4809
Firozabad	3105	3182	4187	4190
Mainpuri	3509	3415	4161	4185
Badaun	2899	2955	4183	4179
Bareilly	3633	3545	4628	4624
Pilibhit	3135	3147	3915	3918
Shahjahanpur	3327	3275	4341	4279
Kheri	3087	3081	4416	4406
Sitapur	3099	3097	3698	3714
Hardoi	2831	2841	3864	3877
Unnao	3049	3032	4476	4462
Lucknow	3248	3206	6622	6593
Rae Bareli	2926	2931	3979	3981
Farrukhabad	3146	3144	4473	4458
Kannauj	2597	2667	3449	3456
Etawah	3310	3228	5440	5295
Auraiya	2884	2883	3581	3583
Kanpur Dehat	3094	3077	3823	3831
Kanpur Nagar	2929	2907	4934	4937
Jalaun	3464	3393	4305	4315
Jhansi	3777	3690	4644	4765
Lalitpur	3133	3186	4288	4300
Hamirpur	2896	2994	5053	5074
Mahoba	3999	3868	4832	4850
Banda	2865	2876	4335	4322

Table: District-wise MPCE Estimates (in Rs.) of Uttar Pradesh (U.P.) using Model-based Small Area Estimation (SAE) Approach for Rural and Urban Sector

District	MPCE (Rural)		MPCE (Urban)	
	FH	SFH	FH	SFH
Chitrakoot	3510	3314	3924	3921
Fatehpur	2936	2935	3922	3941
Pratapgarh	2847	2853	3716	3698
Kaushambi	2971	2975	3568	3557
Prayagraj	2967	2948	5048	5034
Barabanki	3041	3050	5155	5180
Faizabad	2609	2639	4827	4859
Ambedkar Nagar	3019	2980	2653	2649
Sultanpur	2904	2893	3636	3618
Behraich	3340	3375	4761	4782
Shrawasti	4462	4118	4182	4089
Balrampur	3559	3572	5087	5211
Gonda	3636	3622	8133	7861
Siddharth Nagar	2666	2706	3060	3124
Basti	2961	2959	3371	3397
Sk Nagar	2943	2922	4505	4417
Maharajganj	2778	2770	4170	4142
Gorakhpur	2878	2883	5777	5763
Kushinagar	2739	2746	3545	3550
Deoria	3105	3079	3883	3877
Azamgarh	2885	2891	3163	3156
Mau	2814	2808	2937	2930
Balliya	2753	2765	2581	2575
Jaunpur	2713	2718	3429	3413
Ghazipur	2579	2579	2771	2738
Chandauli	2367	2353	3401	3398
Varanasi	2755	2697	4171	4148
Bhadohi	2446	2444	3499	3479
Mirzapur	2409	2393	3909	3910
Sonbhadra	2357	2337	5524	5094
Etah	3833	3776	4354	4351
Kasganj	3372	3366	4001	3993
Shamli	3976	4026	6021	6137
Sambhal	3569	3557	4087	4074
Hapur	4043	4065	5578	5582
Amethi	2916	2906	3828	3826

Note: FH denotes Fay-Herriot (FH) model and SFH denotes Spatial FH