A Social, Religious, Rural-Urban and Regional Analysis of Average Monthly Expenditure & Earnings of Households of Uttar Pradesh, India

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Abstract

This paper discusses the inequality in average monthly expenditure and earnings across households in Uttar Pradesh. The study is based on the Periodic Labour Force Survey (PLFS) 2023–24 unit-level data for Uttar Pradesh, covering a sample of 9,086 households. PLFS collects data on various aspect of the population like social groups, regional variations, Inequality across different categories are found to be significant and within the groups of various categories, inequality was found to be right loaded. Except religion all other bases of differentiation were found to have an impact on the average monthly expenditure. To measure inequality, tools like Gini Co-efficient, KD curve and Generalised index were calculated. Regression analysis also proved the point that all factors except religion were very significant in determining monthly expenditure of the households**.**

Keywords: Social, Religious, Regional, Rural, Urban, Consumption-expenditure GE (Index), Gini Coefficient, K-D curve

JEL Classification: D31, D63, C14, C21, C51, R23, R 58, O15

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1. Introduction

Household consumption expenditure is a key indicator of the economic behaviour and financial capacity of households. Amount of money households spend on goods and services, housing costs, rent and utilities—as well as spending on public services including education and healthcare forms the total consumption expenditure. This paper explores the possibility of resource generating and expenditure capacity being related to some caste-based criterion in addition to religious, regional and place of residence identities. This study uses data from Periodic Labour Force Survey (PLFS) Data of 2023-24. PLFS data combines population into 04 social groups; General, OBC, SC, and ST. Religion, region and place of residence are other criteria upon which earning and expenditure data is collected and considered for the study of average monthly expenditure and earnings. PLFS survey divides Uttar Pradesh into five major regions i.e.; western plain, eastern plain, central plain, central high lands and Bundel-Khand region. Hindu, Muslim and others are three religious groups considered by survey.

To understand economic trends and behaviour of the individuals, consumption expenditure is one of the most important factors. It provides an insight into consumer confidence and living standards but also plays a central role in assessing economic growth, inflation dynamics, and overall economic health (Madudova & Corejova, 2024). Since household spending constitutes a significant portion of a country's gross domestic product (GDP), changes in this expenditure can signal shifts in economic activity, prompting adjustments in fiscal and monetary policies. Therefore, analysing household consumption is essential for policymakers, economists, and financial institutions to gauge economic stability and forecast future economic performance. Consumption expenditure is one of the important factors in determining aggregate expenditure in the economy and overall GDP growth. Differences in consumption expenditure across social groups in India are largely driven by disparities in household characteristics, particularly education and employment status. This point to underlying structural issues that contributes to persistent social group-based inequality in consumption. From the point of view of government policies, household consumption expenditure serves as a key metric for evaluating the overall financial well-being of citizens. These spending patterns allow governments to make informed decisions that aim to maintain economic stability, support growth, and improve public welfare. Consumption expenditure, calorie intake and level of

poverty are considered to be related to each other (Kapoor, 2020). Average earnings can differ across regions, indicating the presence of "between-group" inequality. Additionally, earnings variations within each region contribute to the "within-group" component of overall inequality. For effective policymaking, it is important to distinguish and analyse these sources of inequality. If a significant portion of inequality stems from regional disparities, policy efforts may need to prioritize regional economic development, particularly targeting less affluent areas. Decomposing inequality helps in identifying its key drivers and supports more informed and targeted policy decisions. The education level of the head of household emerges as the most significant contributor to inequality, followed by household size, social group, and the source of energy for lighting in Uttar Pradesh during the years 2005, 2006, and 2007 (Pandey, 2013).

India is a vast and diverse country, comprising 28 states and 8 union territories. It exhibits significant regional, social, and religious diversity. With ongoing development, a rapidly widening rural-urban gap is also becoming increasingly evident. India's regional, religious and caste diversity significantly impacts borrowing and spending behaviour (Rana et al., 2023). Population wise Uttar Pradesh is largest state of India. In 2023-24, the average Monthly Per Capita Expenditure (MPCE) in India was estimated at Rs. 4,122 for rural areas and Rs. 6,996 for urban areas. The gap between urban and rural MPCE at the national level has been shrinking. It dropped from 84% in 2011-12 to 71% in 2022-23, and further reduced to 70% in 2023-24. All 18 major states saw an increase in average MPCE for both rural and urban areas during this period (Government of India, Ministry of Statistics & Programme Implementation, 2025).

Recent national estimates of the Multidimensional Poverty Index (MPI) reflect notable progress since 2015–16, including in Uttar Pradesh, yet the state still accounts for a large absolute share of deprived households. This underscores the magnitude of the policy agenda (NITI Aayog, 2023, 2024). Its demographic scale, low degree of urban concentration, and modest per-capita income growth make Uttar Pradesh a critical and distinctive case for studying inequality patterns in present-day India.

An examination of disparities in both household income and expenditure in Uttar Pradesh is particularly relevant for two reasons. First, in economies characterized by low average earnings and widespread informality, household consumption provides a more stable

indicator of welfare compared to reported income, which is often volatile and subject to measurement challenges. Second, analyzing income alongside expenditure yields insights into labour-market outcomes, exposure to risk, and the ways in which families mitigate shocks through transfers, migration, or asset liquidation. The availability of the 2023–24 PLFS survey round makes it possible to construct state-representative estimates of per-capita monthly income (PCI) and per-capita monthly consumption expenditure (PCE).

Because Uttar Pradesh accounts for a very large share of India's population, even incremental improvements in distribution translate into significant gains in absolute welfare. On the other hand, persistent inequalities directly affect millions of people. With its predominantly rural economy, limited urban base, and fiscal constraints, the state provides a demanding test of whether recent public investments in infrastructure and welfare delivery are effectively reaching disadvantaged sections to reduce gaps in consumption and enhance income-generating capacity. By presenting carefully disaggregated estimates for both PCE and PCI, and clearly outlining the scope and limitations of PLFS data, the study contributes evidence that is academically rigorous while being directly applicable to state-level policymaking. The discussion moves from descriptive statistics to formal inequality indices and finally to econometric analysis of how expenditure patterns vary with income and socio-economic characteristics in Uttar Pradesh.

2. Literature review

Kumar et al. (2024) conducted a comprehensive study on income and wealth inequalities in India spanning the period 1922–2023. Their findings suggest that inequality declined until the early 1980s but began to rise with the onset of economic reforms, with India's regressive tax structure identified as a key driver of this resurgence. Kapoor (2022) complements this view by arguing that the adoption of socialist policies in the post-independence period contributed significantly to reducing inequality up to the 1970s. He further emphasizes the need to shift analytical attention from wealth inequality to income inequality for a more accurate assessment of disparities. In contrast, Anand and Kumar (2023), examining wealth inequality between 2012 and 2018, challenged the official

narrative of a decline. They argued that survey data underestimates the wealth held by the richest households by about 54%, concluding that wealth concentration has in fact intensified during this period.

Adding to this body of work, Asher et al. (2022) explored intergenerational mobility in India. To overcome data limitations common in developing economies, they introduced a new methodological approach and revealed that intergenerational mobility has been persistently low, especially for daughters across social groups, when compared to sons. Earlier, Haughton (2009), in the seminal *Handbook on Poverty and Inequality*, provided foundational insights into the concepts and measurement of poverty and inequality, employing tools such as the Lorenz curve, the Kakwani method, and the Reynolds–Smolensky approach to assess how taxation affects distributive outcomes. In a related study, Borooah et al. (2014) analyzed rural households using monthly per capita consumption expenditure (MPCE). They highlighted the persistent trade-off between poverty reduction and inequality, noting that caste-based disparities remain deeply entrenched, with Scheduled Castes being most severely affected. These findings are supplemented by Pathak (2011) and he finds that poverty decreased but inequality increased in Uttar Pradesh between 1993-94 and 2004-05, primarily driven by income growth with regional variations. The methodology involved decomposition analysis using Foster-Greer-Thorbecke (FGT) poverty measures, Theil's inequality index, and Datt-Ravallion growth-inequality decomposition on NSS data This is corroborated by Sahoo et al. (2024) found poverty changes varied across Uttar Pradesh regions (2004-2005 to 2011-2012). The central region experienced increased poverty, while other regions saw differential reductions. This was explained by growth elasticity and structural factors such as occupational shifts and landholding patterns, with low poverty elasticity contributing to slower reductions in some areas despite growth.

Expanding the methodological frontier, Azpitarte and Alonso-Villar (2011) introduced Lorenz dominance criteria based on Ray invariance, offering an intermediate tool for comparing income distributions that improves upon absolute and relative inequality measures. Along similar lines, Kumar and Gopika (2018) examined consumption inequality across social groups in India between the years 1993–94 and 2009–10 using Theil’s index and the overlapping index. Drawing on NSSO Consumption Expenditure Surveys (50th, 61st, and 66th rounds), they found a rising trend in inequality both within

and between groups. Reddy (2020) further reinforced this view, emphasizing that inequality has deepened despite periods of rapid economic growth.

Cain et al. (2010), analyzing data from the 38th (1983), 50th (1993–94), and 61st (2004–05) rounds of the NSSO using 30-day recall consumption expenditure for rural and urban households across 16 states, identified a sharp increase in inequality during the 1993–2004 period. Although the rise was more pronounced in urban areas; rural inequality also increased, with education emerging as a key factor behind these disparities. Subramanian and Jayaraj (2015) also found widening inequality between 1983 and 2009. They adopted the Krtscha centrist measure of inequality and NSSO data. At a more localized level, Rana et al. (2023) examined borrowing and spending behaviours among rural households in West Bengal across social and religious lines. Using the Fairlie decomposition method, they found that unreserved Hindus are more likely to save and borrow from formal institutions compared to other Hindu castes and the Muslim population, highlighting structural divides in financial access.

Internationally, Madudová and Corejová (2024) investigated the relationship between household size and consumption expenditure in Slovakia. Applying ANOVA and regression techniques, they demonstrated a significant link between household sizes—particularly the number of children—and spending patterns, underscoring variations in consumption across family structures. Within the Indian context, Kapoor (2020) studied MPCE and nutrition intake across social and religious groups in Punjab. His findings revealed that while Sikhs had higher calorie, protein, and fat intake, MPCE differences among religious groups were not statistically significant. However, Scheduled Castes, Scheduled Tribes, and Other Backward Classes showed much lower MPCE and nutrition levels compared to unreserved groups, pointing to persistent deprivation. Finally, extending beyond India, Oria (2020) analyzed rural–urban household consumption patterns in Afghanistan using CSO, ALCS, and SFSA 2017 data. The study identified stark rural–urban income disparities, with rural areas showing some advantages in unemployment and crime rates but also facing serious internal inequities and structural disadvantages.

3. Research Gap

The reviewed studies collectively reveal several research gaps that require further investigations. The studies on inequality in India particularly on Uttar Pradesh, exhibit a recurring limitation of insufficient focus on intersectional inequality. Most studies consider broad categories such as region or income group but fail to disaggregate data by caste, religion, sector, or their intersections. Most studies focus on consumption inequalities data at national-level or state-level, often without incorporating critical social stratifiers like social groups, religion, and region. Therefore, the intersectional nature of inequality remains underexplored. Temporal limitations are also visible, with most of the studies limit to pre-2014 period and ignore significant policy and economic developments of the past decade after 2014. These studies lack dynamic modelling of comparison. While some studies use advanced decomposition methods, they often do not simulate the potential impact of targeted policies. They ignore the multilevel disadvantages faced by marginalized subpopulations, particularly in states with entrenched social hierarchies like Uttar Pradesh. There is also limited research engagement on cause effect relationship for Uttar Pradesh even when inequality is decomposed. However, while some works use decomposition techniques to identify sources of inequality, they do not extend to evaluating or modelling the effect of various factors. Addressing these gaps would require integrating disaggregated, multidimensional data, adopting intersectional frameworks, and extending to structural causes of inequality. There is clear dearth of literature on the inequalities of income and expenditure for the households of Uttar Pradesh after 2014.

These shortcomings underline the importance of a fresh Uttar Pradesh-focused analysis. This study places consumption at the center, with income serving as a complementary dimension, while applying survey weights and measures of statistical precision. By employing kernel density estimation along with generalized entropy indices GE(0), GE(1), and GE(2), it becomes possible to pinpoint whether inequality is driven by deficits at the lower end, concentration at the top, or both.

Given this background, the primary objective of this paper is threefold. First, it seeks to measure the inequality in average monthly household expenditure and earnings across different categories of households. Second, it aims to analyze the extent of disparity within each group, thereby highlighting variations that exist even among households

belonging to the same category. Third, the paper intends to examine how a range of social, religious, regional, and rural–urban factors influence household consumption expenditure, with the goal of understanding the broader determinants that shape inequality patterns.

4. Data and Research Methodology

Keeping in mind the limitations of the studies done so far, this study draws upon the post 2014 Periodic Labour Force Survey (PLFS) 2023–24 unit-level data for Uttar Pradesh, covering a sample of 9,086 households. The dataset provides detailed information on household monthly expenditure and earnings, collected using well-defined guidelines issued by the National Statistical Office (NSO). Household expenditure data include usual monthly consumer spending, the imputed value of goods consumed from home production, wages in kind, and free collections. Additionally, durable goods purchased over the past year are annualized and added proportionately. The total monthly expenditure thus reflects both cash and non-cash components of household consumption. Earnings data were collected for all employed individuals, classified as regular wage/salaried workers, casual labourers, and self-employed. For regular and casual workers, gross earnings include cash and in-kind payments, leave salary, and apportioned bonuses, but exclude employer contributions and severance pay.

For the self-employed, earnings were estimated as the difference between gross output valued at basic prices and total business expenses. The output includes goods or services produced for sale, own use, or free distribution, while expenses cover raw materials, utilities, taxes, and wage payments. All values were reported at current prices, and standard procedures were followed to impute and apportion non-cash income and partnership profits. The dataset thus offers a comprehensive measure of both consumption and income inequality**.**

Average per capita monthly expenditure is computed for each group of different categories. This helps in understanding the consumption pattern and living standards of different groups. For side-by-side comparison and visualisation of a variable between two or more groups, K-density curve (kernel density curve) which is a non-parametric method

is used. K-density curve helps us to understand the distribution of households in different expenditure and income groups. This would fill up the research gap for the households of Uttar Pradesh

To understand dynamic inequality of different categories and within category, we have employed Generalised entropy index and Ginni coefficient method. These two are widely used methods of measuring inequality. Generalised entropy index (GE index) measures the sensitivity to inequality within a group while Ginni Coefficient is a measure of overall inequality of a group and used to compare different group for inequality.

5. Regression analysis

To fill up the research gap of modelling of inequality and look at the impact of various factors on per capita expenditure, we have used linear regression analysis. The theoretical model has the following form:

$$pce = \beta_0 + \beta_1 pci + \beta_2 Durban + \beta_3 Dobc + \beta_4 Dsc + \beta_5 Dst + \beta_6 Dbndl + \beta_7 Dwp + \beta_8 Dcp + \beta_9 Dch + \beta_{10} Dhindu + \beta_{11} Dother + u_i \quad (1)$$

Where:

pce: Per Capita Monthly expenditure

pci: Per capita Monthly earnings

Durban: Dummy for urban household

Dobc: Dummy for OBC household

Dsc: Dummy for SC household

Dst: Dummy for ST household

Dwp: Dummy for household in western plain

Dbndl: Dummy for household in Bundel-Khand region

Dch: Dummy for household in central highland

Dcp: Dummy for household in central plain

Dhindu: Dummy for Hindu households

Dother: Dummy for household following other religion

6. Results and analysis

Table 1 presents summary statistics of average per capita earnings, monthly expenditure, and household size across sector, caste, religion, and region. Urban households fare significantly better than rural ones. Urban residents have more than double the average per capita earnings (₹5763) compared to rural households (₹2708). Correspondingly, average per capita monthly expenditure in urban areas (₹3624) far exceeds that in rural areas (₹2144). This disparity may be due to differences in employment types, wage structures, education levels, and access to financial services and different levels of development.

The General category exhibits the highest economic well-being among the social group categories with average per capita income at ₹5333 and average per capita monthly expenditure at ₹3646 followed by OBCs, SCs and STs. STs is the most disadvantaged Group. STs have the lowest average per capita income (₹2591) and expenditure (₹2064), and both SC and ST households' size are larger compared to other two social groups. These groups had been historically marginalized groups and still continue to face economic disadvantages and restricted access opportunities. Followers of Other religions report the highest average per capita earnings (₹6905) and spending (₹3678) and smallest household sizes (4.35). Hindus report moderate average per capita earnings (₹3864) and expenditure (₹2720), while Muslims have the lowest average per capita earnings (₹3451) and largest household size (5.20).The Central Plain is the most prosperous region, followed by the Western and Central Highland regions. The Eastern Plain is the most disadvantaged, with average per capita income at ₹2780 and spending at ₹2061. This group-wise analysis highlights the need for targeted, inclusive policies to bridge these socio-economic divides.

Table 1: Summary Statistics for Monthly Expenditure and Earnings for Various Groups

Categories	Average per capita earnings (in Rs)	Average Per capita monthly expenditure (in Rs)	Average Household Size
Rural	2708.1	2144.72	4.87
Urban	5763.41	3624.13	4.41
Gen	5333.2	3646.99	4.43
OBS	3538.77	2515.21	4.77
ST	3027.16	2157.03	4.8
SC	2591.87	2064.55	4.81
Hindu	3864.14	2720.38	4.6
Islam	3451.98	2445.39	5.2
Others Religion	6905.33	3678.2	4.35
Bundelkhand	3795.55	2508.69	4.78
Central Highland	3812.51	2898.51	4.36
Central Plain	5323.53	3686.76	4.48
Eastern Plain	2780.51	2061.5	4.73
Western Plain	3836.08	2754.16	5.14

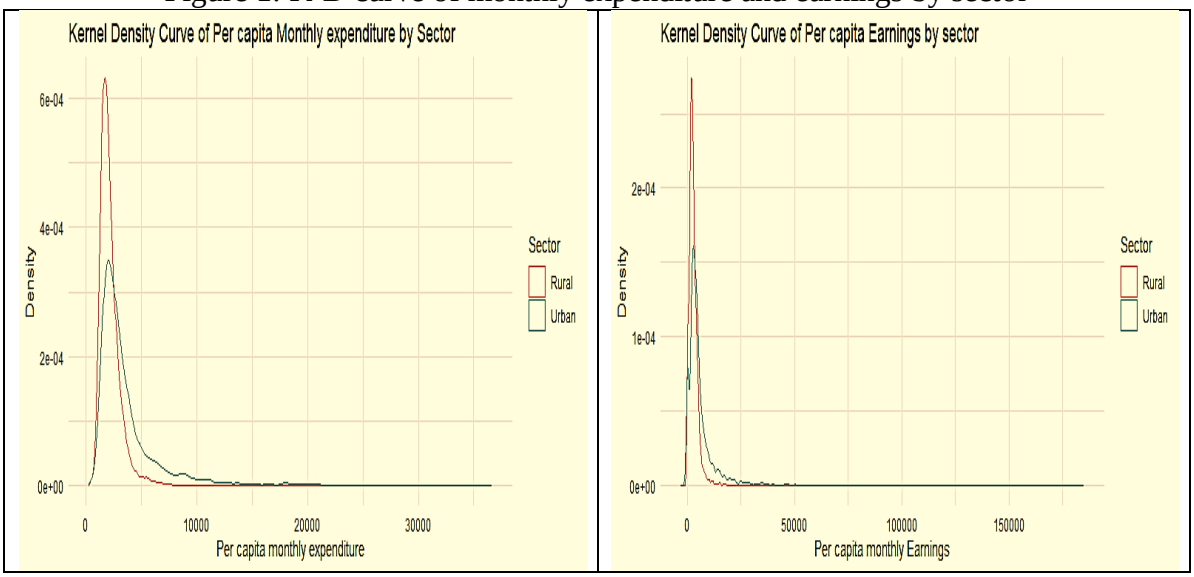
Source: Authors' Calculation

7. Inequality Analysis

Combined K-D curve of Rural-Urban areas for per capita monthly expenditure and Income is right skewed indicating that less number of households is in higher monthly expenditure and earnings group. In rural areas concentration of households around mean expenditure is more pronounced compared to urban areas. Compared to rural areas, percentage households in higher earnings group in urban areas is more than that of rural areas. Similar trend for Rural- Urban is visible for earnings from the K-D curve of earnings. The General category enjoys the highest earnings and savings ability, while ST and SC groups remain economically disadvantaged, with lower earnings and higher consumption ratios.

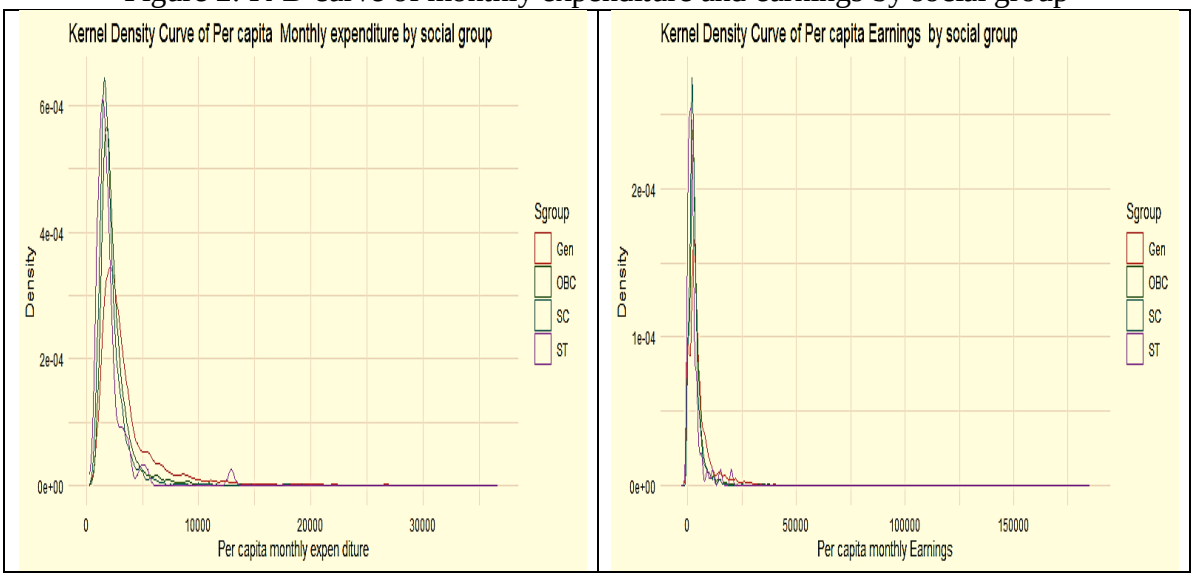
K-D curve of average monthly expenditure for social groups in graph 2shows that mean monthly expenditure and earnings distribution across social groups is right skewed. Maximum concentration of households around the average is highest for the SC category. OBC and ST have almost same level of concentration of households around mean value. Percentage of households in higher expenditure group is largest for General category. K-D curve for average earning also exhibits similar pattern for various social groups. The only exception is that in higher earnings groups, all other social categories have approximately same level of representation.

Figure 1: K-D curve of monthly expenditure and earnings by sector



Source: Authors' compilation

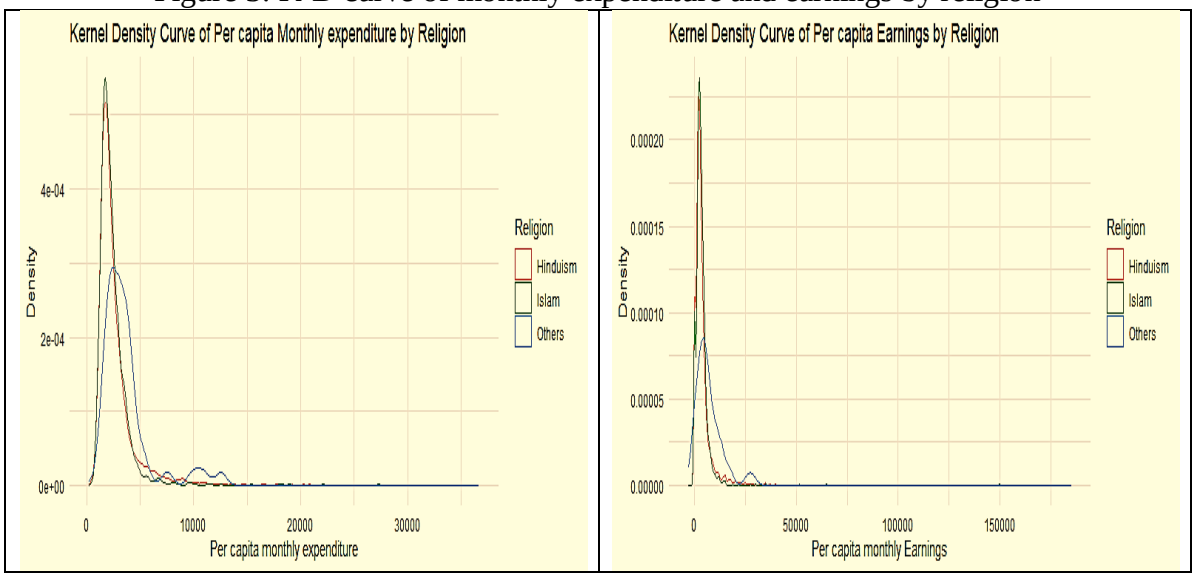
Figure 2: K-D curve of monthly expenditure and earnings by social group



Source: Authors' compilation

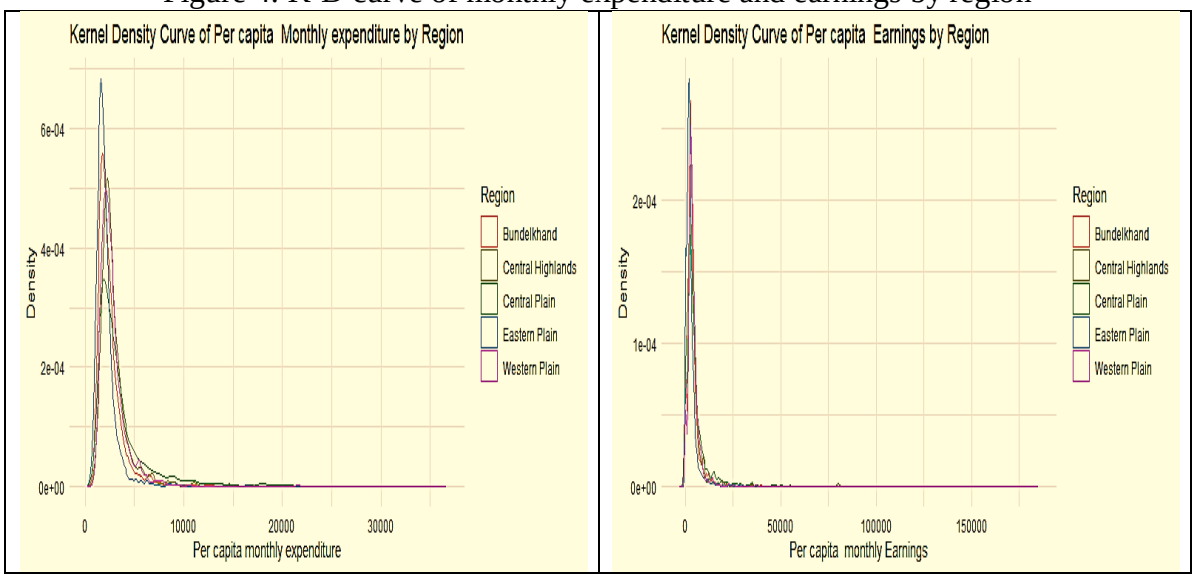
K-D curve for religious groups indicates that least concentration of the households around mean is for the category "Others". Highest level of concentration is found for the Hindu households, followed by Muslim households. All K-D curves are right skewed indicating that fewer households are in high expenditure and earnings group but this is highest for "others" category.

Figure 3: K-D curve of monthly expenditure and earnings by religion



Source: Authors' compilation

Figure 4: K-D curve of monthly expenditure and earnings by region



Source: Authors' compilation

K-D curve analysis for regions throws some important light on the distribution of households in different expenditure groups. All K-D curves are bell shaped and skewed to the right indicating that across regions concentration of households in higher expenditure group is less. Though for different region it is different. Eastern plain have lowest concentration in higher expenditure group. Western plain followed by central plain and

central highlands have highest concentration in higher expenditure group. Similar trends from K-D curve are visible for the average earning across regions.

8. Monthly Per capita expenditure and Earnings inequality within different groups

Inequality measurement is an important aspect to capture the well-being of the households across different categories. Gini coefficient is used to measure relative inequality for average per capita monthly expenditure and earnings across different categories. To look at the distribution of inequality within a category Generalised Entropy (GE) Index is also calculated. GE(0) capture the inequality in the lower quantiles and GE(1) also known as Theil's index measures overall inequality and GE(2) is a measure of inequality in upper quantiles of a group.

A detailed analysis of income inequality, based on the Gini coefficient and Generalized Entropy (GE) indices (GE(0), GE(1), GE(2)), exhibits significant disparities across caste, sector, religion, and region. These variations highlight pronounced inequalities among different groups and within groups. Scheduled Tribes (STs) exhibit the highest income inequality, with a Gini coefficient of 0.511 and a GE(0) value of 0.4646. Though the most economically disadvantaged, the presence of relatively affluent individuals within the group contributes to higher level inequality, as reflected in the higher GE(2) score of 0.7512. In contrast, the General category also shows a high Gini of 0.4796, and the highest GE(2) value (1.0515), suggesting a wide gap between the average and the richest members. Other Backward Classes (OBCs) and Scheduled Castes (SCs) demonstrate comparatively lower inequality levels. SCs, in particular, have the lowest GE(0) and GE(2) scores, indicating not just lower incomes overall, but also a more uniform income distribution, potentially because a majority are clustered around similarly low-income levels.

Sector-wise, inequality is more pronounced in urban areas (Gini: 0.4561) compared to rural areas (Gini: 0.3426). The GE(1) and GE(2) values in urban areas (0.4113 and 0.8019) far exceed rural figures (0.2119 and 0.3005), suggesting that urban centres are

marked by significant income differences. Rural areas, while economically weaker overall, exhibit less internal disparity.

Table 2: Inequality Measure of Per Capita Monthly Earnings across groups

Categories	Gini	GE(0)	GE(1)	GE(2)
General	0.4796	0.3929	0.4715	1.0515
OBC	0.4117	0.2962	0.3413	0.6133
SC	0.3823	0.2507	0.2823	0.4764
ST	0.511	0.4646	0.4867	0.7512
Rural	0.3426	0.2079	0.2119	0.3005
Urban	0.4561	0.3471	0.4113	0.8019
Hinduism	0.4537	0.3554	0.419	0.8559
Islam	0.3511	0.2182	0.2865	0.8708
Others	0.3773	0.2363	0.237	0.2868
Bundelkhand	0.3731	0.2344	0.3002	0.6086
Central Highlands	0.4138	0.2954	0.3648	0.8157
Central Plain	0.4629	0.3601	0.4235	0.8389
Eastern Plain	0.4493	0.3526	0.4317	1.0789
Western Plain	0.3073	0.1591	0.175	0.2471

Source: Authors' Calculation

Hindus reflect moderate inequality levels (Gini: 0.4537), while Muslims show a lower Gini (0.3511) but a relatively high GE(2) of 0.8708. This indicates that while most Muslim households may be concentrated around low-income levels, a few high-income earners cause income polarization. Other religions show the most equal income distribution, with a Gini of 0.3773 and very low GE values, suggesting relative economic homogeneity within this group.

Regional differences are also significant. The Eastern Plain shows the highest inequality in terms of GE(2) (1.0789), indicating income concentration among a few rich households. The Central Plain and Central Highlands follow closely. In contrast, the Western Plain has the lowest inequality (Gini: 0.3073; GE(2): 0.2471), indicating a more balanced income distribution across households in the region.

The data highlights deep-rooted economic disparities based on location, caste, religion, and region. Urban populations, the General category, and "other religions" earn the highest incomes and save more. In contrast, rural populations, SC, ST, and economically weaker regions like the Eastern Plain have lower earnings and limited savings potential. The high earnings gap between groups further indicates economic inequality, with lower earnings communities relying more on spending and having minimal financial security. Addressing these disparities requires targeted economic policies, better financial inclusion, and improved opportunities for lower earnings communities.

9. ANCOVA Analysis

This regression analysis is based on an ANCOVA model, where per capita monthly expenditure is the dependent variable. The independent variables include both quantitative and qualitative factors. The quantitative variable is per capita earnings. while the qualitative variables include sector (urban vs. rural), social group (General, OBC, SC, ST), religion (Hindu, Islam, Others), and region (Eastern Plain, Central Plain, Central Highland, Western Plain, Bundel-Khand). Dummy variables are used to represent the categorical variables, with the reference categories being rural (Drural), ST (Dgen), Bundel-Khand (Dep), and Islam (Dislam).

This ANCOVA regression model provides valuable insights into how demographic and economic factors influence monthly expenditure. The results show that earnings have a strong and statistically significant impact, with higher earnings leading to higher spending. The results exhibit strong evidence of structural disparities influencing economic outcomes across various social groups and geographies.

The intercept with value rupee 1572.3 represents the average value of per capita monthly expenditure of the dependent variable for the reference categories; Rural, General caste, Islam religion, and the Eastern region. All other coefficient in the model is interpreted relative to these baseline groups. Urban residents spend more than rural residents, highlighting the cost-of-living differences. Social group disparities are evident, with General category households spending the most, while OBC, SC and ST groups spend less. Regional differences are also significant, with the Western plain, central highland

and Central Plains exhibiting higher spending levels than Bundel-Khand and the Eastern Plain.

Table 3: Regression Results Heteroskedasticity-robust standard errors, variant HC1

Variables	Coefficient	Std. Error	t-ratio	p-value	
Constant	1572.42	74.3191	21.16	<0.0001	***
pci	0.189171	0.0198571	9.527	<0.0001	***
Durban	683.088	58.5947	11.66	<0.0001	***
Dobc	−611.787	60.7828	−10.07	<0.0001	***
Dsc	−921.587	66.0276	−13.96	<0.0001	***
Dst	−687.336	170.655	−4.028	<0.0001	***
Dhindu	491.518	46.5833	10.55	<0.0001	***
Dother	55.7341	296.485	0.188	0.8509	
Dbndl	57.4864	32.7304	1.756	0.0791	*
Dcp	863.793	56.012	15.42	<0.0001	***
Dch	469.945	65.3913	7.187	<0.0001	***
Dwp	410.601	46.3551	8.858	<0.0001	***

Mean dependent var	2675.85		S.D. dependent var	2118.869
Sum squared resid	2.38E+10		S.E. of regression	1618.897
R-squared	0.416952		Adjusted R-squared	0.416246
F(11, 9074)	143.8718		P-value(F)	1.70E-306
Log-likelihood	−80027.47		Akaike criterion	160078.9
Schwarz criterion	160164.3		Hannan-Quinn	160108

Source: Authors' Calculation. Note: Rural, General, Islam, and eastern plain are reference category dummy variable

Hindu households show a significant advantage over the reference group, with a coefficient of ₹491.52. This indicates a meaningful economic disparity between religious communities. The dummy for "Other" religions is not statistically significant, suggesting their economic outcomes are similar to those of the reference category.

In conclusion, the regression model highlights the substantial influence of income, caste, religion, sector, and region on economic well-being. It reinforces the reality that marginalized caste groups, rural populations, and certain regions continue to face systemic disadvantages, while urban, upper-caste, and central plain households enjoy economic advantages. These findings stress the need for inclusive, equity-driven policies.

Overall, this ANCOVA model provides valuable insights into how income, social identity, location, and other factors shape consumption patterns in Uttar Pradesh, offering a strong basis for policy interventions aimed at promoting equitable economic growth.

10. Conclusion

The data presents the average monthly expenditure across different demographic groups, focusing on rural and urban populations, caste categories, and regional divisions. .From the analysis, a clear pattern emerges. Urban households tend to have higher average monthly expenditures than rural households. The highest recorded expenditures are found in urban areas, where the general category population spends significantly more on average compared to other caste groups. Similarly, within rural areas, the general category also shows relatively higher expenditures, followed by Other Backward Classes (OBCs), Scheduled Castes (SCs), and Scheduled Tribes (STs), who tend to have the lowest expenditures. This disparity reflects socio-economic inequalities, with historically disadvantaged communities facing financial constraints.

Regionally, expenditure patterns vary. The Western Plain and Central Plain regions exhibit higher expenditures, particularly among urban populations. In contrast, Bundel-Khand and the Eastern Plain regions, especially in rural areas, show lower expenditure levels. The Central Highland region displays a more balanced expenditure pattern but remains lower than the Western and Central Plains. These differences may be attributed to economic opportunities, agricultural productivity, industrial presence, and infrastructure development in different regions.

These findings have several policy implications. First, targeted economic programs for lower social groups (ST, SC, and OBC) should be strengthened to improve their financial conditions and increase expenditure capacity. Second, urban-rural disparities should be addressed through infrastructure and employment-generation initiatives in rural areas. Lastly, regional economic imbalances must be tackled through focused development efforts in economically weaker regions like the Eastern Plain and Bundel-Khand to improve their standard of living. The paper does not analyse the policy initiatives to solve the inequalities across groups. This can be studied in future work.

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