**Determinants of Household Consumption Expenditure of Beedi Workers in West Bengal, India**

**ABSTRACT**

This study examines consumption patterns and the key factors influencing the consumption expenditure of beedi worker households in the Murshidabad District of West Bengal. For the present study, 50 sample households of beedi workers have been randomly selected with the help of the Simple Random Sampling Without Replacement Method (SRSWOR). Data collection was done through a pretested questionnaire. Descriptive analysis, including means and standard deviations, was employed to summarise demographic and economic data, while multiple linear regression was used to identify factors affecting consumption. The results show that family size and disposable income significantly increase household consumption, while savings reduce it. Age and education levels of household heads do not significantly impact expenditure. Household spending is predominantly allocated to food and healthcare, which together constitute over 70 per cent of the total expenditure. The regression model explains 65.7 per cent of the variance in household consumption, with disposable income, saving, and family size being the primary drivers. In conclusion, larger households and higher incomes drive higher consumption, while increased savings reduce spending

**Keywords**: Consumption, Beedi workers, Multiple regression model, Income and Saving, West Bengal.

**INTRODUCTION**

Household consumption patterns reflect how income is allocated among goods and services and are essential for understanding economic behaviour and social welfare. Household consumption expenditure plays a pivotal role in driving domestic demand and shaping the macroeconomic landscape, accounting for a significant share of the country's GDP. Over the past two decades, patterns of consumption have shifted notably due to economic liberalization, rising incomes, urbanization and changing lifestyles. In rural areas of India, although food remains the primary expenditure category, its share has gradually declined as spending on education, health and consumer durables increases (Kumari & Singh, 2024). Urban households exhibit a more diversified consumption structure, with a greater emphasis on non-food items and services. Factors such as household income, size, education level, and occupational status influence consumption behaviour across regions (Heshmati et al., 2019; Roy & Kundu, 2022). According to the Household Consumption Expenditure Survey (2023-24), in rural India, the average monthly per capita consumption expenditure (MPCE) is Rs. 4247, while in urban India, it is Rs. 7078. Beedi manufacturing is a significant unorganised sector, particularly in rural areas. The majority of beedi manufacturing facilities are located in rural areas. As a result, the production of beedis is regarded as a rural industry. In these rural locations, there is a considerable supply of cheap female work (Jamuna, 2023). One of the important unorganised industries, especially in rural areas of West Bengal, is Beedi making. Beedi making is to be a rural-based industry, and the Beedi workers are, in general, economically poor (Sk & Ali, 2023). According to the Ministry of Labour & Employment**,** there are 49.82 lakh registered Beedi workers in India. In India, beedi worker households allocate a significant portion of their total expenditure to non-food items compared to food items (Jamuna, 2023). The consumption expenditure pattern of the informal worker depends on socio-economic factors like age group, income level and child education (Barik, 2024).

**OBJECTIVE**

The primary objective of this research is to evaluate household consumption patterns within the selected study area, offering insights into how families allocate their resources across various needs. Additionally, the study aims to identify and analyse the key economic, social, and demographic factors that influence household consumption expenditure. Together, these objectives will help in understanding the dynamics of consumption behaviour and inform targeted policy interventions.

**LITERATURE REVIEW**

**Theoretical Review:**

The study of household consumption expenditure has long been grounded in foundational economic theories that explain the relationship between income and consumption behaviour. Keynes’ (1936) Absolute Income Hypothesis posits that consumption increases with income, but not proportionally, suggesting a declining marginal propensity to consume. This framework laid the basis for much empirical work, though it was later challenged by more dynamic models. Duesenberry’s (1949) Relative Income Hypothesis emphasizes the influence of social comparisons, proposing that individuals' consumption is shaped by their relative income status rather than absolute income levels. Friedman’s (1957) Permanent Income Hypothesis (PIH) advances the notion that consumption decisions are based on individuals’ long-term income expectations rather than current earnings. Similarly, Modigliani and Brumberg’s (1954) Life-Cycle Hypothesis (LCH) argues that individuals plan their consumption and savings behaviour over their lifetime to smooth utility, accounting for variations in income across different life stages. These theories have been expanded to incorporate uncertainty, liquidity constraints, and behavioural factors in recent decades.

**Empirical Studies on Household Consumption:**

Household consumption expenditure serves as a critical measure of welfare and economic stability across both developed and developing contexts. It reflects household behaviour in response to a myriad of economic, demographic, and institutional variables. A considerable body of literature has emphasized income as a dominant determinant of household consumption. In Sub-Saharan Africa, Agyepong *et al*., (2024) and Ekong and Effiong (2020) find that income disparities largely explain variation in household consumption, especially when stratified by poverty levels. This aligns with Keynesian consumption theory, whereby increased income tends to induce greater consumption, particularly among lower-income groups. Roy and Kundu (2022) confirm that informal workers in India prioritize spending on necessary items.

Moreover, several studies underscore the role of socio-demographic variables in shaping consumption patterns. Education, household size, occupation, and the gender of the household head are consistently identified as significant predictors. Sekhampu and Niyimbanira (2013) report that employment status and household size significantly influence expenditure, whereas gender and age of the household head do not. In Bangladesh, Sultana *et al*., (2024) find that income, education, and savings positively correlate with consumption levels, reinforcing the view that human capital development enhances household purchasing behaviour. Household consumption expenditure in Ethiopia is significantly influenced by factors such as income, household size, and home ownership, while education and marital status show varying effects across regions and models (Enbeyle *et al*., 2020; Gebreselassie & Ndlovu, 2020). Arapova (2018) demonstrates that household consumption in 13 Asian countries is significantly influenced by income, population, and fiscal factors, highlighting a regional shift toward consumption-driven growth despite a persistently high propensity to save. Rusdiana *et al*., (2020) found that among Indonesian fishermen households, both income and the number of family members significantly and positively influence consumption patterns, particularly in spending on essential needs like food, housing, and education.

The access to credit and informal income sources further moderates household consumption. Fadillah (2023) reveals that among Indonesian voting committee households, side income exerts a stronger influence on consumption than salary, highlighting the importance of informal financial mechanisms. Yonas (2024), using a multinomial logistic regression approach in Areka Town, Ethiopia, demonstrates that access to credit significantly increases the likelihood of households consuming normal goods, while increased saving reduces it.

From a macroeconomic perspective, consumption is affected by variables such as inflation, interest rates, government expenditure, and trade openness. In a comprehensive study of OECD countries, Varlamova and Larionova (2015) show that inflation and disposable income positively influence consumption, whereas higher taxes and imports are associated with reduced spending. Zeynalova and Mammadli (2020) indicate that VAT and exchange rates significantly affect household consumption, while income tax and household disposable income do not exert statistically significant effects.

Cross-national and regional studies extend this inquiry further. In Ghana, Bonsu and Muzindutsi (2017) utilize a multivariate cointegration framework to identify long-run relationships between consumption and macroeconomic variables, notably income and inflation. In rural Bangladesh, Hossain and Al-Amin (2018) establish that non-farm income substantially enhances consumption, offering implications for rural development and poverty alleviation strategies.

Recent analyses have also examined changing consumption patterns over time. Kumari and Singh (2024) find that in both rural and urban India, non-food expenditures have surged in the last two decades, suggesting shifts in household priorities due to modernization. Lewis and Ilembo (2024) employ quantile regression on Tanzanian data and find that income and education significantly influence consumption across different expenditure levels, although education exhibits a negative relationship at higher quantiles.

Further, studies from emerging and advanced economies bring attention to behavioral and structural determinants. Zhang *et al*., (2024) observe that speculative and precautionary motives for money holding negatively affect household consumption in China, particularly among wealthier households. Li, Wu, and Xiao (2020) demonstrate that digital finance in China significantly enhances household consumption by improving financial accessibility for low-income groups. In the Middle East, Paramastuti and Suliswanto (2024) report that GDP and population growth positively influence consumption, while inflation acts as a constraint.

**RESEARCH METHODOLOGY**

**Study Area**

 The study area for this research is the Murshidabad District of West Bengal. The entire area is mostly populated by the Minorities, many of whom live in poverty, have little access to education, and rely on physical work for a living. For this research, the Jangipur sub-division was chosen purposively. The Suti-II block has been chosen purposively for this study because a significant portion of its population works in the beedi sector. Most of the female beedi labourers are from Minority communities. For this study, a cluster of two villages from Block Suti-II is purposefully selected.

**Sample design and size:**

A complete list of beedi workers’ households for the two villages is prepared separately. For each village, 25 sample households are randomly selected with the help of the Simple Random Sampling Without Replacement Method (SRSWOR). This way, 50 sample respondents have been randomly selected for the research study.

**Data collection:**

First, a questionnaire schedule is prepared for the pilot survey. The primary data has been collected using a pretested schedule in the study area.

**Descriptive Analysis**

Descriptive statistical techniques, such as mean, median, standard deviation, and percentages, have been used to summarise the data collected from sample households.

**Econometric Analysis**

A multiple linear regression model (MLR) is widely applied to identify the socio-economic and demographic factors affecting household consumption expenditure (Sekhampuand Niyimbanira, 2013; Hone and Marisennayya, 2019; Sultana *et al*., 2024). The model is specified as follows:

*Ci​=β0​+β1​Ydi​+β2​Agei​+β3​Ni​+β4​Educi​+β5​Si​+ ​ui​*

Where:

* *Ci* = Total household consumption expenditure per month (in Rupee) for household *i*, *i*=1, 2, ………,50
* *Ydi​* = Monthly household income
* *Agei* = Age of household head
* *Ni* = family size
* *Educi​* = Education level of household head
* *Si​* = Household saving status
* *ui​* = Error term
* *β0​* = Constant or autonomous consumption
* *β1,β2,…,β5*= Coefficients of the explanatory variables

**Table 1. Descriptions of Variables**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Type** | **Description** |
| **Dependent Variable**  1. Household Consumption Expenditure **(**HCE) | Continuous | HCE is calculated by summing the household's reported spending on both food and non-food items. Here Total monthly consumption is calculated by summing expenditures across 7 categories: Education, food, healthcare, clothing, Fuel, electricity expense and other miscellaneous expenses. |
| **Independent Variables**  1. Household Income  2. Family Size  3. Education Level  4. Age  5. Saving Status | Continuous  Continuous  Dummy  Continuous  Dummy | The net income available to the household after taxes, is obtained from various income sources.  The total household members in number  If Household head, Illiterate = 0, Primary = 1  Secondary pass =2, Higher Secondary pass =3.  The age of the household head in years.  Whether the household is saving (yes=1, no=0). |

**RESULTS AND DISCUSSION**

**Demographic Characteristics of the Respondents**

Table 2 illustrates that the average age of the respondents is 43.20. The average member of the household is 4.7. The result reveals that the lowest monthly income is Rs. 8000 and the highest is Rs. 18500. The monthly average income of households is Rs. 11540.

**Table 2: Descriptive Statistics of the Respondents**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Statistics** | **N** | **Minimum** | **Maximum** | **Mean** | **Std. Deviation** |
| Age | 50 | 30 | 60 | 43.20 | 8.538 |
| Family Size | 50 | 3 | 6 | 4.68 | .868 |
| Education | 50 | 0 | 3 | .66 | .798 |
| Income | 50 | 8000 | 18500 | 11540.00 | 2118.529 |

**Total monthly consumption expenditure of households**

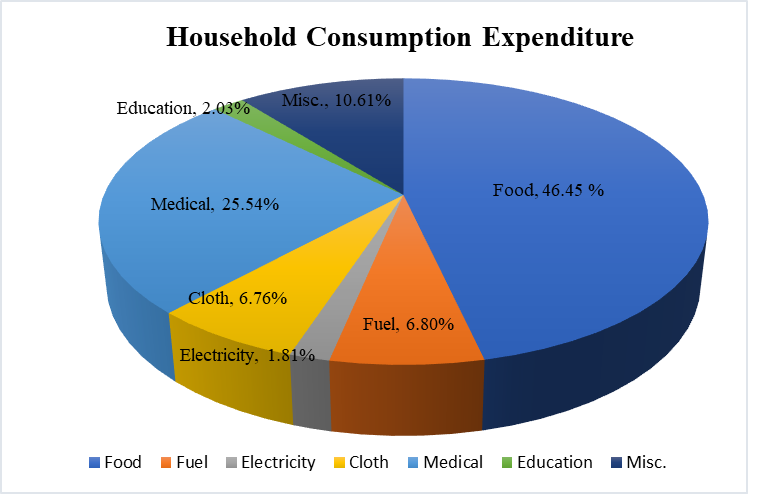
The households' total monthly consumption in rupees is shown in Table 3. Table 3 shows that the minimum consumption level is Rs. 6200 per month and the highest is Rs. 10155 per month. The average total household consumption expenditure is Rs. 8119.1 per month.

**Table 3: Summary of the total monthly consumption of households**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Statistics** | **N** | **Minimum** | **Mean** | **Median** | **Maximum** | **Std. Deviation** |
| Value | 50 | 6200 | 8119.10 | 7958.50 | 10155 | 969.154 |

**Patterns of Household Consumption Expenditure**

The household consumption expenditure (Figure 1) shows that nearly half (46.45 per cent) of the total spending is allocated to food, making it the dominant category in household budgets. Medical expenses account for 25.54 per cent, reflecting a significant portion dedicated to healthcare needs. Other notable expenditures include fuel (6.80 per cent), clothing (6.76 per cent), and miscellaneous items (10.61 per cent), covering a variety of everyday essentials. Education and electricity receive smaller shares at 2.03 per cent and 1.81 per cent respectively, indicating lower priority compared to basic needs like food and healthcare.



**Figure 1: Patterns of Household Consumption Expenditure**

**Econometric results**

The table presents the results of a multiple regression analysis where the dependent variable is influenced by age, family size, education, disposable income, and savings. Family size and disposable income have significant positive impacts on the dependent variable household consumption expenditure, with p-values of 0.029 and 0.000. On the other hand, savings show a significant negative relationship with the dependent variable, also at the 1 per cent significance level (p = 0.000). Age and education do not have a statistically significant effect, as their p-values exceed 0.05. The regression model explains 67.3 % (R2**=** .673) of the variance in the dependent variable, with an adjusted R² of 0.635 and the Durbin-Watson statistic is 1.6.

**Table 4: Results of multiple regression analysis with all variables**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Unstandardized Coefficients** | | **Standardized Coefficients** | **t** | **p-value** |
| **B** | **Std. Error** | **Beta** |
| **(Constant)** | 6158.110 | 759.792 |  | 8.105 | .000 |
| **Age** | -15.182 | 11.067 | -.134 | -1.372 | .177 |
| **Family Size** | 218.101 | 96.713 | .195 | 2.255 | .029\*\* |
| **Education** | -97.690 | 112.014 | -.080 | -.872 | .388 |
| **Income** | .224 | .042 | .490 | 5.353 | .000\* |
| **Saving** | -1359.060 | 179.806 | -.661 | -7.558 | .000\* |

R2- .673, Adjusted R2- .635, Durbin-Watson-1.6 \*\*Significant at 5%, \*Significant at 1%

we removed the nonsignificant variables like age and education and fitted the model with significant variables. The results are shown in Table 5.

**Table 5: Results of multiple regression analysis with the selected variable**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Unstandardized Coefficients** | | **Standardized Coefficients** | **t** | **p-value** |
| **B** | **Std. Error** | **Beta** |
| **(Constant)** | 5650.873 | 672.976 |  | 8.397 | .000 |
| **Family Size** | 211.20 | 96.629 | .189 | 2.186 | .034 |
| **Income** | .206 | .040 | .450 | 5.215 | .000 |
| **Saving** | -1320.377 | 177.816 | -.642 | -7.426 | .000 |

R2- .657, Adjusted R2- .635, Durbin-Watson- 1.62, \*\*Significant at 5%, \* Significant at 1%

**The estimated regression model is written as follows:**

i = 5650.873 + .206 (Disposable income) + 211.2 (family size) - 1320.377 (Save)

Where, i represents the estimated monthly total consumption of the household.

The intercept of ₹5650.873 represents the baseline level of consumption expenditure when all independent variables are held constant. This value, while theoretical, offers a foundational understanding of the minimum subsistence-level spending.

The variable family size exhibits a positive and statistically significant association with consumption expenditure (β = 211.20, p = 0.034). This indicates that, on average, each additional household member of beedi workers increases consumption expenditure by ₹211.20, holding other factors constant. larger households incur proportionally higher expenses because of the increased demand for food, utilities, healthcare and other basic needs. This finding is in conformity with the finding of Rusdiana *et al*., (2020) and Sultana *et al*., (2024).

Income shows a strong and significant positive effect on consumption expenditure (β = 0.206, p < 0.001), with a standardized coefficient of 0.450. This implies that a ₹1 increase in income leads to a ₹0.206 increase in consumption, indicating a high marginal propensity to consume among beedi workers. The strength of this relationship suggests that income remains a crucial determinant of household welfare and access to essential goods and services. This finding is similar to Keynesian consumption theory, where consumption is directly related to disposable income. The finding is in agreement with the findings reported by Rusdiana *et al*., (2020); Ekong & Effiong, (2020); Sultana *et al*., (2024) and Yonas (2024).

Savings displays a highly significant and negative relationship with consumption expenditure (β = -1320.377, p < 0.001). The negative coefficient implies that for each unit increase in saving, consumption expenditure declines substantially. It suggests that beedi workers who prioritize saving may reduce their present consumption, possibly as a strategy to cope with income volatility or anticipated future expenses. It is similar with the study conducted (Enbelye *et al*., 2020 and Yonas, 2024) saving amount is negatively related with consumption.

**CONCLUSION**

The study analysed the demographic characteristics and household consumption patterns of 50 respondents. The average respondent age is 43.20 years, with a mean household size of 4.7 members. Monthly household income ranges from Rs. 8000 to Rs. 18500, with an average of Rs. 11540. Household consumption primarily focuses on food (46.45 per cent), followed by medical expenses (25.54 per cent), with an average monthly expenditure of Rs. 8119.10. The final regression analysis shows that family size and disposable income have positive effects on household consumption, while savings have a significant negative effect. Variables like age and education were found to be insignificant. The final regression model explains 65.7 per cent of the variance in consumption expenditure. In conclusion, larger households and higher incomes drive higher consumption, while increased savings reduce spending. These insights can help policymakers and NGOs better understand the financial behaviour of beedi workers, guiding interventions that balance consumption needs with saving behaviour for long-term welfare.

**Consent**

As per international standards or university standards, respondents’ written consent has been collected and preserved by the author(s).

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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