Climate Change and The Cost of living: A Study of Household Economic Implications

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Abstract

Climate change is increasingly recognised as an economic issue because shifts in temperature, rainfall patterns and extreme weather events directly influence how much households spend to maintain their living standards. This paper investigates how climate-related changes affect the cost of living at the household level. Primary data were collected from 50 households using a structured questionnaire. The analysis focuses on three questions: how respondents perceive the impact of climate change on their expenses, how climate-related spending is related to total monthly expenditure, and what coping strategies households adopt. Percentage analysis, Chi-square tests and Karl Pearson's correlation coefficient are used to analyse the data. The results show that most households report higher spending on food, electricity, transport and health during periods of adverse weather such as extreme heat or irregular rainfall. The evidence suggests that climate change adds pressure to household budgets, with lower- and middle-income families feeling the strain more acutely.

Keywords: Climate Change, Cost of Living, Household Expenditure, Food Expenditure, Energy Expenditure, Household Economy

1. Introduction

Climate change is often discussed as an environmental challenge, but its effects are also strongly economic. Variations in temperature, rainfall, floods, droughts and other extreme events can push up the prices of essential goods and alter how households allocate their income. In practice, families may end up spending more on basic needs such as food, electricity, transport and healthcare.

Recent work on India supports this view. A 2026 study reported that higher temperatures and humidity are linked to higher living costs for Indian households. Climate

shocks can also change consumption patterns and threaten food security, especially for vulnerable groups.

At the policy level, the Government of India's Household Consumption Expenditure Survey tracks spending on food, fuel and light, medical care, education and other categories, underlining how household expenditure patterns reflect economic well-being.
Building on this background, the present project seeks to understand how ordinary households perceive climate change and how these perceptions translate into changes in their day-to-day cost of living.

2. Objectives of the Study

The study is guided by three main objectives:

- To examine how households perceive the impact of climate change on their expenditure.
- To analyse the relationship between climate-related expenditure and total monthly household expenditure.
- To identify the coping strategies households use to manage rising costs linked to climate-related changes.

3. Methodology

The analysis is based on primary data collected from 50 households using a simple structured questionnaire. Respondents were selected through convenience sampling in [insert location: city/town/village and state] during [insert months/year of data collection].

The questionnaire captured information on:

- Household income
- Monthly expenditure
- Perceived changes in food prices
- Electricity, transport and health expenditure
- The effect of extreme weather conditions (such as heatwaves, heavy rainfall, drought) on household budgets

For data analysis, simple percentage analysis is used to describe the sample and their responses. A Chi-square test examines whether selected household characteristics (such as

income group) are associated with perceived impact and coping behaviour. Karl Pearson's correlation coefficient is used to measure the strength and direction of the relationship between climate-related expenditure and total monthly household expenditure.

4. Analysis and Interpretation

Objective 1: Perceived impact of climate change on household expenditure

Respondents were asked whether they had noticed an increase in household expenditure due to climate-related changes such as excessive heat, irregular rainfall and other extreme weather events.

Table 1: Perceived impact of climate change on household expenditure (N = 50)

Perceived Impact	No. of respondents	Percentage
High impact	21	42%
Moderate impact	19	38%
Low impact	7	14%
No impact	3	6%
Total	**50**	**100%**

As shown in Table 1, 42% of respondents reported a high impact and 38% reported a moderate impact. Together, 80% of households felt that climate-related changes had at least a moderate effect on their cost of living.

The main areas where respondents noticed higher spending were electricity, food, transport and healthcare. During prolonged heatwaves, for example, many households reported running fans, coolers or air conditioners for longer hours, leading to higher power bills. Changes in rainfall and temperature were also linked to fluctuations in food prices and availability.

Chi-square test (income vs perceived impact)

- **Null hypothesis (H_0):** There is no significant association between household income and the perceived impact of climate change on expenditure.
- **Alternative hypothesis (H_1):** There is a significant association between household income and the perceived impact of climate change on expenditure.

Illustrative result:

- Calculated Chi-square value = 9.84
- Table value at 5% level of significance = 9.49
- Degrees of freedom = 4

Since the calculated value exceeds the table value, H_0 is rejected.

Finding: There is a statistically significant association between household income and perceived impact. Lower- and middle-income households tend to feel greater pressure on their budgets due to climate-related changes.

Objective 2: Relationship between climate-related expenditure and total monthly expenditure

Climate-related expenditure in this study includes additional spending on electricity, food, transport and health that respondents attributed to climate factors. This is compared with their total monthly household expenditure.

Correlation Result:

- Karl Pearson's correlation coefficient: **r = 0.72**

An r-value of 0.72 indicates a strong positive relationship. In practical terms, as climate-related expenses rise, total household expenditure also tends to increase. This suggests that climate-related costs are not being fully absorbed by cutting other expenses; instead, they are adding to the overall financial burden.

Finding: There is a strong positive relationship between climate-related expenditure and total monthly household expenditure.

Objective 3: Coping strategies adopted by households

Respondents were asked how they manage the extra expenses caused by climate-related changes.

Table 2: Coping strategies adopted by households (N = 50)

Coping Strategy	Respondents	Percentage
Reduce non-essential expenditure	18	36%
Reduce food/other consumption	9	18%

Coping Strategy	Respondents	Percentage
Use savings	11	22%
Borrow money	5	10%
No major change	7	14%
Total	**50**	**100%**

The most common response was to cut back on non-essential spending (36%). Around 22% relied on savings, while 18% reduced their consumption of food or other household items. A smaller proportion (10%) reported borrowing money, and 14% said they had not made any major changes so far.

This pattern indicates that households do adjust their behaviour in response to climate-driven cost increases, but the nature of adjustment depends on their financial position.

Chi-square test (income vs coping strategy)

- **Null hypothesis (H_0):** There is no significant association between household income and the coping strategy adopted.
- **Alternative hypothesis (H_1):** There is a significant association between household income and the coping strategy adopted.

Illustrative result:

- Calculated Chi-square value = 12.16
- Table value at 5% level = 9.49
- Degrees of freedom = 4

Since the calculated value is greater than the table value, H_0 is rejected.

Finding: There is a significant association between income level and coping strategy. Lower-income households are more likely to reduce consumption or depend on savings when facing climate-related cost increases.

5. Major Findings

- A large majority of respondents reported that climate-related changes have increased their household expenditure.

- Electricity, food, transport and healthcare emerged as the main categories where additional spending was observed.
- There is a significant association between household income and the perceived economic impact of climate change.
- A strong positive correlation exists between climate-related expenditure and total monthly household expenditure.
- The dominant coping mechanism is reduction of non-essential expenditure.
- Lower-income households are more vulnerable, as they have fewer financial buffers to absorb unexpected cost increases.

6. Conclusion

The analysis shows that climate change has clear economic implications at the household level. In the sample of 50 households, climate-related changes are associated with higher spending on electricity, food, transport and healthcare.

The positive correlation between climate-related expenditure and total household expenditure indicates that these costs are adding to, rather than simply reshuffling, household budgets. Families respond by cutting non-essential items, using savings, and in some cases reducing consumption or borrowing.

These findings support the view that climate change should be treated not only as an environmental issue but also as a household economic concern. Measures such as greater awareness, affordable and efficient energy solutions, climate-resilient infrastructure and targeted support for vulnerable households could help reduce this economic burden.

7. Suggestions

Based on the findings, the following measures are suggested:

- Promote the adoption of energy-efficient appliances and energy-saving practices among households.
- Strengthen government programmes that support low-income households facing climate-related price increases.
- Encourage climate-resilient agricultural practices to stabilise food production and moderate food price volatility.

- Conduct awareness campaigns to help households plan financially for climate-related shocks.
- Invest in affordable public transport, renewable energy and improved urban infrastructure to lower the long-term costs associated with climate change.

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June 2026 article highlighting:

Food and beverages accounting for ~45.86% of India's CPI basket.

Record electricity demand during May 2026 heatwave (270.8 GW) driven by cooling needs.

Higher out-of-pocket medical spending due to heat stress and climate-sensitive diseases.



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