An Analytical Review of Causes and Consequences of Food Inflation in Uttarakhand State

Isht Jot Singh
Ph.D. Scholar
Department of Economics
M.J.P. Rohilkhand University,
Bareilly
Email: ishtjotsingh.rdr@gmail.com

Prof. Dhananjay Sharan
Research Supervisor
Department of Economics
Hindu College
Moradabad
Email: hanjaysharma70@gmail.com

Abstract

Food inflation, in other words, is one of the largest agonies India has and the agony is increased with the geography that is giving Uttarakhand additional nuances of pain. Already, our economy has experienced much structural change due to the liberalisation push of 1991, but the prices of food continue to rise due to the gap between demand and supply, unpredictable weather patterns and a handful of policy loopholes. In this paper, the causes and effects of food inflation in Uttarakhand will be discussed and as well as to underline the responsible factors for increasing food inflation in Uttarakhand state. The study is based on secondary data sources collected through the Directorate of Economics and Statistics Uttarakhand, RBI, and NSSO.

Keywords

Food Inflation, Drivers, Consequences, Uttarakhand State.

Reference to this paper should be made as follows:
Received: 26-02-26
Approved: 08-03-26

Isht Jot Singh
Prof. Dhananjay Sharan

An Analytical Review of Causes and Consequences of Food Inflation in Uttarakhand State

Article No. 11
RJPSS Oct.-Mar. 2026,
Vol. LI No. 1,
Pg. 074-087

Similarity Check - 02%

Online available at:
https://anubooks.com/journal-volume/rjpss-2026-vol-li-no-1-mar

https://doi.org/10.31995/rjpss.2026.v51i01.011

https://doi.org/10.31995/rjpss.2026.v51i01.011

Introduction

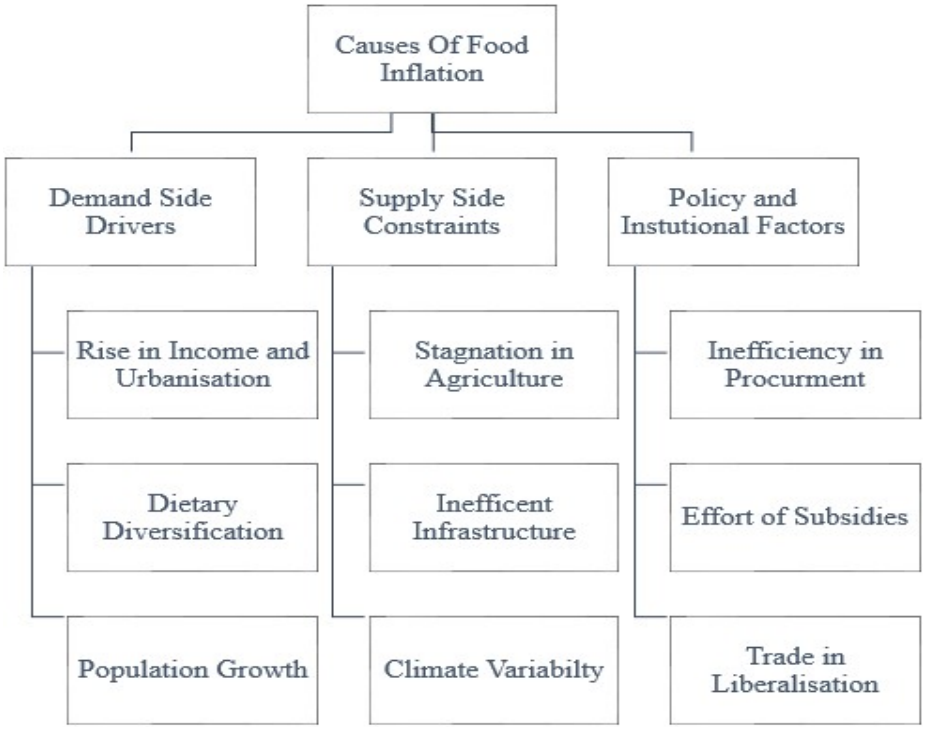
Food inflation is not simply an economic curve, but a socio-political problem that causes a severe blow to the welfare of households and the stability of states. The mountains, discontinuous land, and reliance on the monsoon rain contribute to the problem in Uttarakhand. The market-based reforms followed after 1991, however, the advantages of globalisation and privatisation failed to address the structural bottlenecks of food production and distribution. Uttarakhand, a state that was carved out of Uttar Pradesh in 2000 inherited poor farm infrastructure and poor market access. Urban pressure in such destinations as Dehradun and Rudrapur adds additional strain to supply chains.

Literature Review

Literature sources of food inflation in India indicate numerous motivators. Demand-side studies articulate about the increasing income, urbanisation, and their dietary diversification, which is an increase in per-capita income, leading to a rise in demand for protein-rich foods - milk, pulses, meat leading to inflation of the pull type among the food items. The **NSSO** report also indicates a shift in cereals to veggies, fruits and processed foods by households which increases price pressure and the huge increase in population of India continues to fuel the demand for staple foods. The stagnant farm productivity which was experienced after the Green Revolution particularly in those states which were hilly and had limited access to machines, poor irrigation and bad storage that is inefficient cold-storage facilities, fragmented supply chains, and unsatisfactory transport networks support volatility are the points of concern in supply-side papers. Shocks in rain, extreme weather is highly associated with food price spikes particularly in rain-fed states such as Uttarakhand. Policy studies condemn subsidy systems, procurement inefficiency and trade liberalisation. Rainfall-variability analysis **(Goel and Singh, 2025)** and climate change evaluation (**Shah et al., 2026**) in Uttarakhand demonstrate the close relationship between weather shock and price volatility. The comparison with Himachal Pradesh indicates that pressure on inflation can be alleviated by making investments in cold chains and collaborative marketing.

The macro world in India was rattled by the 1991 reforms of liberalisation, privatisation and globalisation (LPG) policies. GDP increased at a higher rate yet agriculture slowed down creating a structural gap. **Barla (2015)** maintains that the constant food inflation has contributed to maintaining India in a history of long-term inflation due to increasing incomes, and stagnant agricultural production. As **Nair and Eapen (2013)** note, agriculture has been a weak sector since 1991, which contributes to food inflation, but the cause is a controversial issue. Their long-run

estimate divides Indian agriculture into stages and it is revealed that after reform growth was sluggish in comparison with the Green Revolution and food prices increased at a faster rate. **Goel and Singh (2025)** demonstrate that the rainfall variability of Uttarakhand is ±21 + -per cent per annum and drought years highly correlate with food price shocks. Shah et al. (2026) state that climate change is transforming the agro-ecosystems in Kumaun, undermining resilience and increasing the prices of food items. According to NSSO data, though the proportion of food to total expenditure has been declining in the country, it is high in rural Uttarakhand and which is an indication of vulnerability.



Objectives and Methodology

1- To analyse the trend and pattern of Food inflation in Uttarakhand since 1991
2- To underline the factors responsible for increasing food inflation.
3- To analyse the impact of food inflation on Households and producers.
4- To provide some suggestive measures.

The methodology deployed in the study is the mixed method approach combining quantitative data with the qualitative analysis.

https://doi.org/10.31995/rjpss.2026.v51i01.011

Study Area

The present study focuses on the state of Uttarakhand, a Himalayan state in northern India that was carved out of Uttar Pradesh in 2000. Geographically, Uttarakhand is divided into two major region Kumaon and Garhwal each with distinct socio economic and ecological characteristics that influence food inflation dynamics. Kumaon includes districts such as Almora, Nainital, Pithoragarh, Champawat, Baleshwar, and Udham Singh Nagar. Garhwal includes Chamoli, Dehradun, Haridwar, Pauri Gherwal, Repreparing, Uttarkashi and Tehri Gherwal. Food Inflation has always been a burning issue in the state because of its mountainous terrain and dependency on rainfall.

Table -1 Trend of Food Inflation in Uttarakhand (1991-2025)

Reason	Food Inflation (%)	Reason	Year	Food Inflation (%)	Reason
1991	5.1	After Liberalisation Reforms	2009	10.2	Drought year
1992	5.4	Medium growth	2010	9.2	High pulses prices
1993	4.8	Stable	2011	10.8	Protein inflation
1994	5.6	Increasing demand	2012	11.5	Rising milk demand
1995	5.2	Supply backlogs	2013	12	Flood disruptions
1996	6	Pulses shortage	2014	9.8	Recovery
1997	5.7	Medium growth	2015	10.5	Global commodity surge
1998	7.2	Drought year	2016	8.7	Drought impact
1999	6.5	Pre-statehood	2017	7.5	Stabilization
2000	6	Statehood year	2018	6.8	Moderate
2001	6.8	Initial volatility	2019	7.2	Rising oils
2002	7.1	Procurement issues	2020	6.5	Pandemic supply shocks
2003	6.4	Stable	2021	5.8	Recovery
2004	7.5	Rising vegetables	2022	7.9	Global edible oil surge
2005	8.5	Pulses inflation	2023	4.2	Moderation
2006	9	Supply chain stress	2024	6.3	CPI peak (Sept +6.28%)
2007	8.8	Rising demand	2025	0.9	CPI trough (Sept +0.88%)
2008	9.5	Global food crisis	2026	NA	

Source: Economic survey, Uttarakhand, India Inflation (2025)

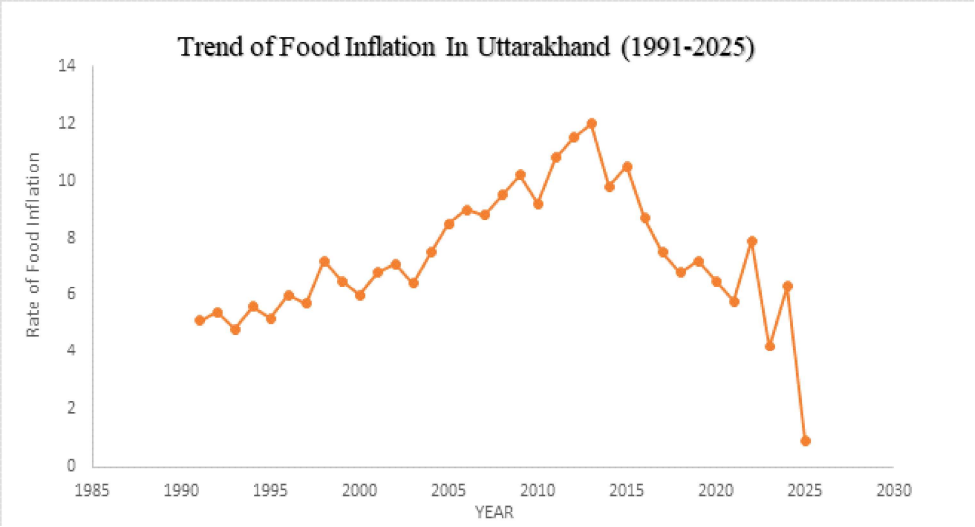
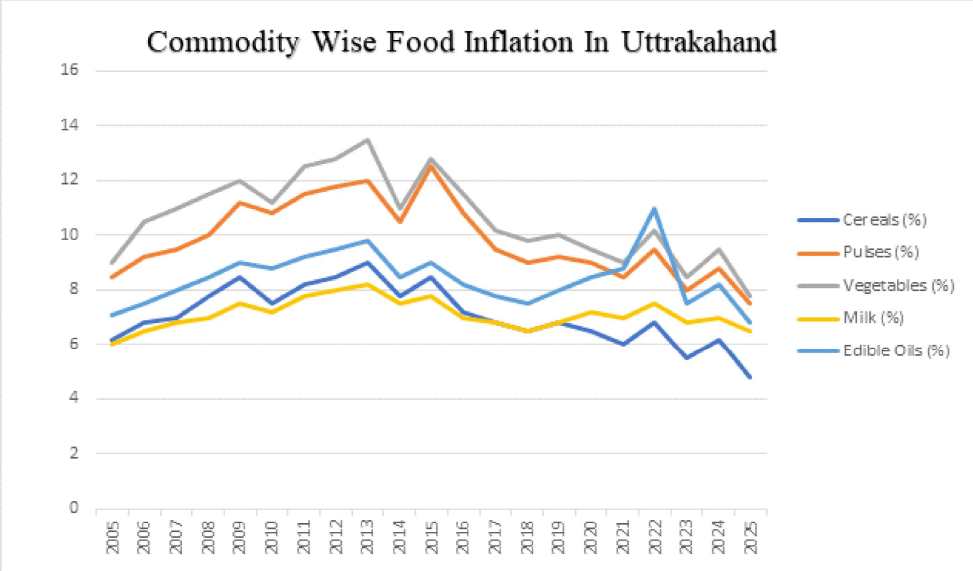


Table:2 Commodity-Wise Food Inflation

Year	Cereals	Pulses	Vegetables	Milk	Edible Oils
2005	6.2	8.5	9	6	7.1
2006	6.8	9.2	10.5	6.5	7.5
2007	7	9.5	11	6.8	8
2008	7.8	10	11.5	7	8.5
2009	8.5	11.2	12	7.5	9
2010	7.5	10.8	11.2	7.2	8.8
2011	8.2	11.5	12.5	7.8	9.2
2012	8.5	11.8	12.8	8	9.5
2013	9	12	13.5	8.2	9.8
2014	7.8	10.5	11	7.5	8.5
2015	8.5	12.5	12.8	7.8	9
2016	7.2	10.8	11.5	7	8.2
2017	6.8	9.5	10.2	6.8	7.8
2018	6.5	9	9.8	6.5	7.5
2019	6.8	9.2	10	6.8	8
2020	6.5	9	9.5	7.2	8.5
2021	6	8.5	9	7	8.8
2022	6.8	9.5	10.2	7.5	11
2023	5.5	8	8.5	6.8	7.5
2024	6.2	8.8	9.5	7	8.2
2025	4.8	7.5	7.8	6.5	6.8

Source: Economic survey, Uttarakhand, India Inflation (2025)



Food prices in Uttarakhand from 2005 to 2025 have patterns based on structural, climate, and global factors, but these categories of inflation vary. During drought years, such as 2009 and 2016, cereal prices rose by on average 6 to 9 percent, but more so than during dry periods, when less rain meant lower harvests and higher prices of grain. India's structural supply shortages and sensitivity to rainfall changes mean that pulses frequently had the highest inflation rate of all, often over 10%. They saw significant increases in 2009 and 2015. Vegetables became the most volatile commodity; in flood years like 2013, the price doubled, due to post harvest loss, lack of cold storage, and transport bottlenecks that increase seasonal price moves. Milk and dairy products exhibited steady inflation of between 6 and 8 percent, although supply growth lags behind demand as rising incomes and urbanization led to a more protein-rich diet. In contrast, edible oils were particularly sensitive to the global commodity market, with moderate inflation occurring most years and increasing to about 11 percent in 2022 following the international edible oil crisis, which demonstrated the external ties of Uttarakhand 's food economy. Together, this commodity-level view suggests that cereals and pulses are at the forefront of precipitation shocks, vegetables may be at the heart of infrastructure gaps, milk may be at the center of demand pressures, and oils are at the centre of global volatility, and food inflation in Uttarakhand is a multi-layered problem that requires distinct policy solutions.

Table:3 Regional Disparities of Food Inflation

Year	Kumaon	Garhwal	Urban
2010	9	7	8.2
2011	9.8	7.5	8.5
2012	10.2	7.8	8.7
2013	12.5	8.5	9.5
2014	9.5	7.2	8.3
2015	11	7.8	9
2016	9.2	7	8.5
2017	8.5	6.8	8
2018	8	6.5	7.8
2019	8.7	7	8.5
2020	8.2	6.8	8
2021	7.5	6.5	7.8
2022	9.8	7.5	10.2
2023	7	6	7.5
2024	8.5	7	8.8
2025	5.5	4.8	5.2

Source: Directorate of Economics & Statistics, Govt. of Uttarakhand (2010–2025)

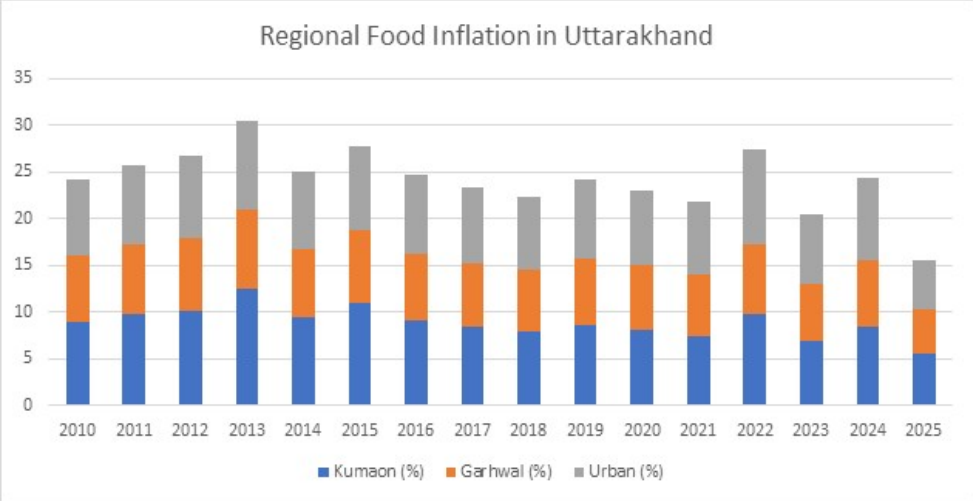


Table: 4 Average Inflation in Regions

Region	Average Inflation (%)	Key Drivers
Kumaon	9.5	Poor connectivity, rainfall shocks
Garhwal	7.2	Better integration with plains
Urban	8.8	Rising demand, processed foods

The geographical terrain of the state can be categorised into three regions for the purpose of study under regional disparities which are listed as follows.

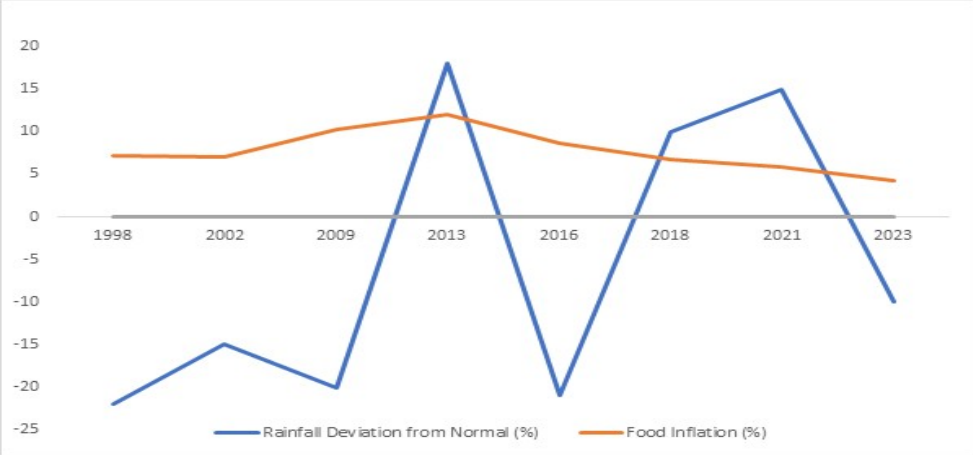
1. Kumaon Region: It includes region of Almora, Nanital, Pithoragarh, Champawat, Bageshwar, Udham Singh Nagar excluding Rudrapur and Haldwani. The poor road connectivity network of the region and heavy dependency on the rain fed agriculture made it most susceptible to the inflation.
2. Garhwal Region: It includes the region of Pauri Garhwal, Chamoli, Tehri Garhwal, Uttarkashi, Rudraprayag excluding the Dehradun and Haldwani belt. It had a better inflation rate as compared to the kumaon region around 7% because of the integrated plain markets.
3. Urban Centres: It includes the region of Dehradun, Haridwar, Haldwani, Rudrapur and Roorkee. The region observed the second highest inflation because of high demand of the processed foods and edible oils as well as the global shocks of 2022 played an omnipotent role in exacerbating the inflation.

Table:5 Rain Fall Variability and Food Inflation

Year	Rainfall Deviation From Normal %	Food Inflation %	Notes
1998	-22 (deficit)	7.2	A severe drought cut cereal yields
2002	-15 (deficit)	7.1	Stress from buying things, lack of pulses
2009	-20 (deficit)	10.2	A year of major drought and high inflation
2013	+18 (excess)	12	Flood messed up supply chains
2016	-21 (deficit)	8.7	Drought's effect on grains and pulses
2018	+10(excess)	6.8	Heavy rain hurts vegetables
2021	+15 (excess)	5.8	Monsoon surplus, problem with transportation
2023	-10(mild deficit)	4.2	Moderation, Better buying

Source: Indian Meteorological Department (IMD): Annual rainfall deviation reports for Uttarakhand. Directorate of Economics & Statistics, Govt. of Uttarakhand: *Economic Survey* (inflation data). India Inflation: CPI food inflation statistics (1991–2025)

Rain Fall and Food Inflation



In Uttarakhand, the amount of rain that falls each year can change by as much as 21%. Years of drought (1998, 2009, and 2016) are strongly linked to spikes in food prices. The correlation coefficient (r) from regression analysis is about 0.65, which means that there is a moderate to strong link between shocks in rainfall and inflation. Too much rain also messes up supply chains, which raises the price of vegetables.

Annual deviation: Rainfall changes by 20 to 25 percent from long-term averages.

Years of drought: 1998, 2009, and 2016 all had less than 20% of normal rainfall, which caused food prices to rise sharply (8–12%).

Years with too much rain: The 2013 floods and the heavy monsoon in 2021 messed up supply chains, which drove up the prices of fruits and vegetables.

Interpretation

1. Less rain means lower yields, which means higher prices for cereals and pulses.
2. Too much rain ’! problems with the supply chain ’! higher prices for fruits and vegetables.

Effects of Food Inflation in Uttarakhand

1. Household-Level Effects Less buying capacity: The growing prices of food eat away household spending, particularly in rural regions where food continues to take up approximately 50 percent of spending (see Household Expenditure Table 1991-2023).
2. Dietary changes: The families replace low-cost staple foods with high protein foods. According to NSSO survey, consumption of pulses and milk decreases

in high years of inflation (2013, 2015). Food consumption amounts to around 40, however the cost of modern diets is increasing due to increased inflation in processed foods (oils, milk).

3. Nutritional insecurity: The impact of inflation on households is mostly greater in the poor households, resulting in malnutrition and micronutrient deficiencies.
4. Producer-Level Effects Short-term benefits: In the periods of inflation spikes (e.g. 2015 pulses, 2013 floods vegetables), farmers can make more money. Volatility puts off agricultural investment, which is long-term. Farmers have uncertainty on the prices of inputs (fertilisers, fuel) and on prices of outputs.
5. Distortions in the market: Middlemen reap a large portion of the inflationary prize and small farmers with minimal benefits.
6. Wage pressures: Inflation in food prices increases workers who require higher wages thus the general inflation rose.
7. Fiscal strain: Government expenditure on subsidy (PDS, fertiliser) rises throughout inflation times and it expands fiscal deficits.
8. Inflationary spiral: Food inflation spills over into general CPI, affecting monetary policy decisions by RBI.
9. Climate on investment: The continued inflation diminishes investment confidence in the agricultural and food processing sectors. Social and Political Implications.
10. Aggregation of poverty: Inflation drives poor families below poverty line particularly in rural Uttarakhand.
11. Social unrest: Acute rises in food prices (2013 floods, 2015 pulses crisis) have a historical track record of causing protests and political pressure.
12. Credibility of policy: As a result of poor inflation control, state institutions and food security programmes lose credibility.
13. Regional Effects: Kumaon region: Bad connectivity and rainfall shocks are leading to higher inflation (average of 9.5% see Regional Food Inflation Table 2010-2025). In this case, households are more vulnerable. Garhwal region: More stable (average of about 7.2 percent), yet, it is also subject to pulses and volatility of vegetable prices. Urban centres: Inflation caused by demand (average of 8.8) of processed foods and global commodity connexions.

Data Analysis and Discussion

I. Structural Constraints and Geographic Constraints.

1. **Rain-fed agriculture:** The large dependence on monsoons makes production very unpredictable. Table 4 proves that the droughts years (1998, 2009,

2016) shows 20 percent deficit of rainfall which aligns 'with the spikes of the inflation during this tenure.

2. **Weak connectivity**: Kumaon is always recording high inflation. Table 3 (2010-2025) - Kumaon average 9.5per cent vs. Garhwal 7.2per cent.

II. Demand Side Drivers

1. **Income growth and urbanisation:** Increased demand of high protein foods. Food share decreased 65 percent to 45 percent countrywide, yet in rural homes, food expenditure is estimated at nearly half, and so rural families are vulnerable to inflation.

III. Supply Side Constraints

1. **Losses and poor storage of harvests:** 20-30 percent wastage of fruit and vegetables. Table -2 veggies: over-13.5 per cent. highs in flood year 2013.
2. **Transportation congestions:** Remote locations are more expensive.

Table -3 Kumaon peaks in flood/ drought due to poor road access.

IV. Policy-Institutional Gaps.

1. **Lack of systems of good procurement:** The areas of MSP are few in hill districts. Cereals Inflation (2005 -2025)- moderate average 6.5% with peaks of 9% in 2013 on account of procurement shortcomings.
2. **PDS inefficiencies:** Leakages decrease effects. Household Expenditure Table, rural households continue to spend around 50 percent on food and the impact of subsidisation is very limited.

V. External and Global Factors

1. **International commodities price fluctuations:** One of the times, edible oils soared to 11 per cent inflation in 2022 due to a global crisis.
2. **Pandemic disruptions (2020):** The pandemic literally put the supply chain into mayhem, with pulses, vegetables, and oils increasing 9, 9.5, and 8.5 per cent, respectively. Table 2 Pulses (9%), vegetables (9.5), oils (8.5) all spiked in pandemic supply chain breakdown.

Key Findings

– The study finds that the phenomenon is highly structural, cyclical, and geographically uneven due to the weak mountain ecology of the state, the scarcity of arable land, and rain-fed agriculture and variability in rain is the primary cause of volatility as it is indicated by the correlation coefficient of about 0.65 between rainfall deviation and food inflation.

– Regional differences are very high with Kumaon having a higher percentage of 9.5 of the inflation rate than Garhwal with 7.2 which indicates poor

connectivity and bottlenecks in their supply chains whereas urban centres experience demand induced inflation of processed food and global commodity links.

– The inflation impacts are multidimensional, households have less purchasing power and reduced nutritional security, producers have unstable returns and avoid investing, and the state economy incurs fiscal pressure and inflationary spillovers to wages and monetary policy.

– The responses to the policy like the Public Distribution System, subsidies, and crop diversification programmes have offered some relief but are reactive and skewed, and not sufficient to address the structural vulnerabilities in the procurement, storage and transportation.

In general, it is discussed that food inflation in Uttarakhand is not just another economic number but a symptom of ecological vulnerability, infrastructure shortages, and policy imbalances, and has far reaching consequences on the well-being of households, regional equity, and long term food security, indicating the dire necessity of combined measures involving climate resilience, infrastructure growth, and specific social protection.

Concluding Remarks:

The study concludes that inadequate infrastructural position and rainfall variability has been the most aggregative factor in the volatility as shown by the high correlation between change in rainfall and inflationary volatility.

The data on household expenditure indicates that even though the proportion of foodstuff in total expenditure has decreased gradually, the rural household is very vulnerable as they spend almost half of their income on food and they experience the impact of nutritional insecurity even in high inflation years whereas the urban household is under pressure of demand generated processes and world commodity linkages. Commodity wise analysis identifies pulses and vegetables to be the most inflation prone commodities, both related to the limitation in the supply side, and post-harvest inefficiencies, regional differences indicate Kumaon to be constantly inflation prone than Garhwal with their poor connectivity and market integration. Such policy responses, despite good intentions, have been reactive and partial, and subsidies, PDS, and crop diversification programmes have provided some immediate relief, but have not helped to overcome structural weaknesses in procurement, storage, and climate resilience. Food inflation has more far-reaching impacts beyond the field of economics, increasing poverty, causing a decline in household welfare, putting strain on the fiscal resources, and reducing the credibility of policy, and thus, it is a multidimensional issue with social and political impacts. In the future, Uttarakhand needs a combined approach that integrates climate resilient agriculture,

investments in cold chains and rural connectivity, social protection of vulnerable households, and measures area specific to the unique challenges of Kumaon, Garhwal, and urban centres. It is only through the bridging of the policy intent and implementation and the incorporation of climate adaptation into the economic planning that the state can hope to stabilise the food price, protect nutrition and secure equitable growth in the decades to come.

Suggestive Measures:

1- Provide subsidised cereals to the needy households under public distribution systems

2- Buffer stock management: The central government has buffer stocks of wheat and rice. Uttarakhand Procurement is lesser compared to plains states, which causes such a gap in supply in hill districts.

3- Irrigation schemes: Micro irrigation and watershed programmes were implemented in order to lessen the reliance on rainfall, the rainfall shock is still correlating well with inflation ($r = 0.65$), implying that irrigation area coverage is not sufficient.

4- Programmes of crop diversification: Marketing of horticulture and high value crops. Yearly loss after harvest is excessive (20-30%), which has continued to make vegetable inflation very unstable.

5- Storages, cold chains: Attempts to minimise waste of fruits/ vegetables. Inflation of vegetables remains in the two-digit range (average 12%), with the highest in 2013 floods, which is indicative of infrastructure lapses.

6- Road connectivity projects: Char Dham highway and rural road projects are meant to reduce the transport bottlenecks. It is proven that connectivity gaps are still present in.

7- Education on nutrition programmes: Children and women are provided with subsidised food through Mid-Day Meal Scheme and ICDS. Nutritional effects of inflation offset.

8- Awareness campaigns: Protest nutritional diversification and domestic consumption. Restriction: The urban households are still consuming processed foods and this has resulted in inflation of the oils and milk.

9- The subsidies on fertiliser and energy are meant to lower the price of inputs. Leakages and disproportionate allocation minimise the effects on small farmers.

10- Monetary policy: RBI manipulates the repo rates to regulate inflation spillovers. Inflation food prices (2013, 2015, 2022) were part of overall CPI pressure, which was causing monetary tightening. Climate Adaptation Policies.

References:

1. *Economic survey of Uttarakhand 2021–22*. Dehradun: Government of Uttarakhand.
2. India Inflation. (2025). *Consumer price index (CPI) food inflation trends for Uttarakhand, 2023–2025.* www.indiainflation.com
3. Indiastat. (2024). *State-level CPI food inflation statistics: Uttarakhand.* www.indiastat.com
4. Ministry of Statistics and Programme Implementation (MoSPI). (1991–2024). *Household consumption expenditure surveys (HCES), various rounds*. New Delhi: National Sample Survey Office.
5. *Studies on rainfall variability and agricultural impacts in Uttarakhand* 2025*,* Govind Ballabh Pant University of Agriculture and Technology.
6. Reserve Bank of India. (2023). *Annual report 2022–23.* Mumbai
7. Shah, R., Singh, A., & Goel, P. (2026). Rainfall variability and food security in Himalayan states: Evidence from Uttarakhand. *Environment & Ecology*, 44(2), Pg. **215–229**.
8. Goel, P., & Singh, R. (2025). Climate change and agricultural productivity in Uttarakhand: A regional analysis. *Springer Climate Change Economics*, 12(3), Pg. **145–162**.