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Weather and Climate Variability Impact on Farmer's Financial Planning: A Longitudinal Study in Khamgaon

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ABSTRACT: This research paper aims to investigate the impact of weather and climate variability on the financial planning of farmers in Khamgaon. The study seeks to analyse the relationship between unpredictable changes in weather patterns and the financial stability of farmers, with a focus on how these variations influence their planning and decision-making processes. The financial planning of farmers, leading to uncertainties in crop production, income fluctuations, and increased agricultural input costs. As a result, farmers face challenges in efficiently allocating resources and managing risks, which ultimately impact their financial stability. This research aims to provide valuable insights into the implications of weather and climate variability on farmer's financial planning in Khamgaon, serving as a basis for policy recommendations and interventions to support the resilience and sustainability of agricultural livelihood in the face of changing climate conditions. The study collects primary data from a diverse sample of farmers to analyze their saving behaviour and investment choices. Factors such as income level, access to financial services, risk attitudes, and socio-economic characteristics are examined as determinants of farmers' financial planning decision-making process. Descriptive research design has been used in order to conduct this research. In order to collect primary data, questionnaires are used. The result of the study on farmer's financial planning found that factors like income level, access to credit, and risk perception influence farmer's decisions. This research examines the distinctive saving and investment patterns of farmers, emphasizing their preference for different investment alternatives.

KEYWORDS: Weather and climate variability, Financial planning, Decision-making processes, Risk management, Saving and investment pattern.

I. INTRODUCTION

Agriculture, being highly dependent on natural factors, is vulnerable to the impacts of weather and climate variability. In recent years, the frequency and intensity of extreme weather events have increased, posing significant challenges to farmers worldwide. Khamgaon, a region known for its agricultural activities, is no exception to these challenges. This research aims to conduct a comprehensive longitudinal study to understand the nuanced effects of weather and climate variability on farmers' financial planning in Khamgaon. As climate patterns shift and extreme weather events become more frequent, farmers face uncertainties that can disrupt their financial stability. These uncertainties manifest in the form of irregular rainfall, unexpected temperature fluctuations, prolonged droughts, or unseasonal heavy rainfall, all of which can significantly impact crop yields and quality. Financial planning is crucial for farmers to mitigate risks and adapt to changing environmental conditions. Understanding how weather and climate variability affect farmers' financial decisions over an extended period is essential for developing effective strategies and policies to enhance agricultural resilience. This longitudinal study will provide valuable insights into the dynamic relationship between climatic variations and farmers' financial planning strategies. By employing a longitudinal approach, we aim to capture the temporal aspects of the impact, allowing for a more in-depth analysis of the evolving challenges faced by farmers. This research will involve the collection and analysis of data from multiple agricultural seasons, considering factors such as crop yield, income fluctuations, resource allocation, and adaptive strategies implemented by farmers. Furthermore, this study will also explore the coping mechanisms employed by farmers in response to weather and climate-related uncertainties, including the utilization of insurance, investment in sustainable agricultural practices, and engagement with technological innovations. The findings of this research can contribute to the development of targeted interventions, policies, and support systems that empower farmers in Khamgaon to navigate the complexities of a



changing climate and safeguard their financial well-being. Ultimately, this research seeks to enhance the resilience of the local agricultural community in the face of ongoing climate challenges.

II. LITERATURE REVIEW

R. K Singh (2020)

This research focuses on examining the effects of climate variability and various stressors on the livelihoods of smallholder farmers. The findings indicate that farmers are experiencing challenges due to a decrease in the duration and frequency of rainy days, as well as unpredictable rainfall patterns. The study suggests that the traditional definitions of normal rainfall and drought may need to be reconsidered. According to the farmers' perspectives, it is not just the amount of rainfall that matters, but also the even distribution of rainfall throughout the growing season. This is crucial for determining crop yields. In essence, the research emphasizes the importance of aligning definitions of weather conditions with the practical experiences and needs of farmers, particularly in the context of changing climate patterns and their impact on agriculture.

Surendra Singh (2020)

This research focuses on uncovering the main factors that drive farmers to adopt practical, cost-efficient climate-smart adaptation strategies. The study discovered that fluctuations in temperature and rainfall have had negative impacts on farmers' livelihoods. However, the findings highlight that two key factors, namely insurance and credit, play significant positive roles in motivating farmers to adapt their farming practices. Essentially, having access to insurance and credit serves as a crucial incentive for farmers, encouraging them to implement strategies that can better withstand the challenges posed by unpredictable weather conditions.

Banarjee (2015)

This research paper employs a qualitative methodology to investigate how farmers in four villages in Maharashtra and Andhra Pradesh perceive changes in rainfall and temperature. The study delves into the impacts of these perceived changes on agriculture and explores the adaptive strategies implemented by farmers. Additionally, the paper assesses the accuracy of these perceptions by comparing them with actual climatic data. Furthermore, the research extends its focus to understand the determinants of adaptive capacity among farmers. It achieves this by examining a specific case of improved water management as an adaptation mechanism. In essence, the paper not only explores the subjective experiences of farmers regarding climate change but also evaluates the reliability of their perceptions through a comparison with objective climatic data.

Bushra Pravin (2019)

This research paper conducts an in-depth examination by comprehensively reviewing a variety of reports, articles, documents, and literature related to the assessment of climate change impacts on crop productivity. The primary focus is on understanding how climate change influences and affects agricultural productivity. Given that agriculture is inherently reliant on climate conditions, changes in the climate have direct consequences on agricultural practices. By exploring a range of existing studies and literature, the research aims to shed light on the ways in which climate change directly affects agricultural practices, emphasizing the critical connection between climate variations and the productivity of crops.

S. U. Nwibo, Mbam (2013)

The study is focus on determinants, savings, investment, capacities, farming households. the determinants of saving and investment capacities of farming households in udi local government area of 120 respondents. data were collected using stuctured questionnaires and were analysed using descriptive and inferential statistics. lack of sufficient returns, heavy consumption, risk of capital loss inadequate bank branches. high administrative cost, inadequate information, low literacy level, poor market structure and high perishable nature of agricultural produce were identified as the major constraints to savings and investments. Based on the findings, the study concluded that there was a high propensity to save and invest among farming households.

Senthilkumar P., (2017)

The research study shows that amount of savings was important to identify the income of the farmers. It is interpreted that a huge inclination to save and invest among farmers and that age, level of education, number of members in experience in farming, and income of the household showed a beneficial impact on the value volume to save and invest. Proper awareness programs should be initiated towards the education of the farmers related to savings and investment.,



and the enlargement of micro-credit facilities to farmers on time which can help them to increase production which indirectly will improve farmers surplus.

Nikhil Yadav (2017)

The study is focus on commodities, derivatives, farmers investment, price discovery. commodities derivatives are emerging platform for farmers as well as other stakeholder. India is moving towards knowledge economy for this transformation there is urgent need to include indian farmers institutional system of financial planning. Primary as well as secondary sources of data collection have been taken. Research design is descriptive nature. most of the tabulated data is represented on the basis of questionnaires and interview.

Suresh Babu K L, Jasdev Singh and Sanjay Kumar (2019)

The researcher examined the farm investment, expenditure, marginal and small farmers. A sample of 120 marginal and small farmers consisting 60 each from the study states were selected by using multi-state random sampling technique with reference period of 2017-18. the study suggested that in order to ensure the livelihood security of marginal and small farmers. the investment pattern comprised of farm investment dairy investment and household investment. The gross farm income refers to the value of the total output per year.

Snehal J. Mirajkar (2021)

The study is focus on saving and investment pattern, existing savings and investment pattern, farmers. India is as agricultural country. Around 60% population in India is living on agriculture. Agriculture is the main contributor to the GDP of India. farmers saving and investment pattern plays important role in the development of the Indian economy.

Pandey G. N. (2011)

The research paper is focus on savings and investment pattern, existing savings a d investment pattern, farmers. farmers saving and investment pattern plays important role in the development of the indian economy. Food savings and investment programs lead to a improvement in the allocation of resources, promotion of equal distribution of income and reduction in cost and cost period. this research review is beneficial to understand the existing pattern of savings and investment of farmers.

III. RESEARCH METHODOLOGY

Objectives

1. To know farmers view about the investment.
2. To understand various factors that affect farmers decision.
3. To know various investments alternatives that is mostly preferred by the farmers.
4. To understand the role of social networks and institutions in influencing investment and saving decisions.

Hypothesis:

Null Hypothesis(H0):

H0: There is no significant impact of weather and climate volatility on farmer's financial planning.

Alternate hypothesis (H1):

H1: There is a significant impact of weather and climate volatility on farmer's financial planning.

Sampling Size and Technique:

Weather and climate volatility impact on farmers financial planning, a simple random sampling technique will be used. This involves randomly selecting a sample of farmers from the population of interest. By using simple random sampling, every farmer in the population have an equal chance of being selected, ensuring a representative sample for accurate findings.

Scope of The Study:

This research in the Khamgaon region aims to investigate the direct impact of weather and climate variability on farmers' financial planning. The study will analyze historical climate data, financial records, and adaptation strategies employed by farmers to understand the dynamics of their economic decision-making. Additionally, it will explore the role of local socio-economic factors and institutional support in shaping farmers' responses to climate variability. The research seeks to provide targeted insights to enhance the resilience of farmers in the Khamgaon region to the challenges posed by weather and climate volatility.



Analysis And Interpretation:

Analysis 1

Various factors that affect farmers decisions					
Counts in %					
	Least impactful	Less Impactful	Moderately impactful	Most impactful	Total
Weather condition	25	10	37.5	27.5	100
Market prices	10	25.5	14.5	50	100
Government Support	40	20	10	30	100
Technological access	37.5	20	25.2	17.3	100

Table No. 1

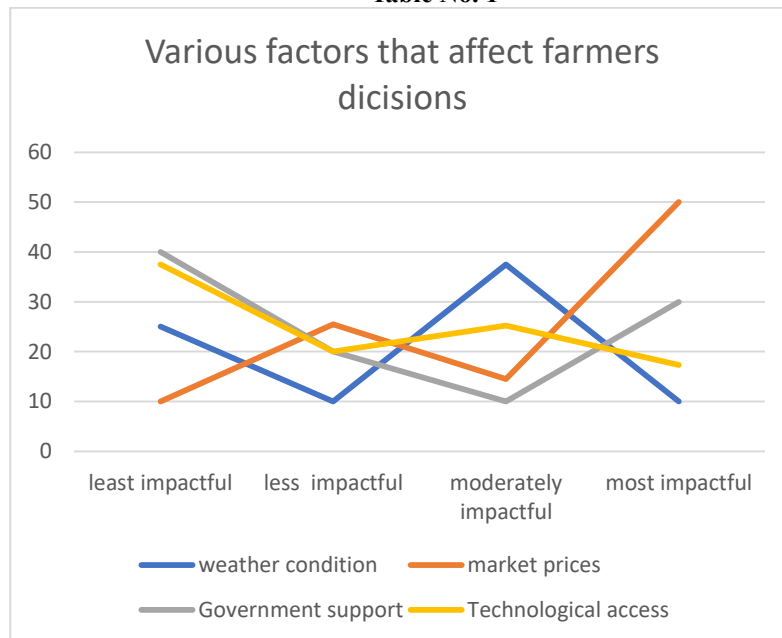


Figure No. 1

The research data suggests that farmers consider various factors when making decisions. Market prices were perceived as the most impactful factor, with 50% of respondents stating this. This indicates that farmers prioritize profitability and adjust their decisions based on market conditions to maximize their financial gains. Weather conditions were moderately impactful for 37.5 of respondents, highlighting the recognition of its influence on crop yields and farming operations. Government support was moderately for 30% of respondents, indicating the perceived importance of subsidies and incentives. Technological access was perceived as least impactful by 37.5of respondents, suggesting that farmers may not prioritize or have access to advanced farming techniques or machinery. Overall, this data highlights the significance of market prices and weather conditions in farmer’s decision-making process.

IV. CONCLUSION

In analyzing the factors influencing farmers' decisions, market prices emerge as the most pivotal, with a significant 50% of respondents deeming them most impactful. Weather conditions follow closely behind, considered moderately impactful by 37.5% of participants. Conversely, government support is perceived as less influential, with 40% ranking it least impactful. Technological access falls in between, with 37.5% ranking it least impactful and a noteworthy 17.3% considering it moderately impactful. In conclusion, while market prices and weather conditions hold substantial sway over farmers' choices, the perceived impact of government support and technological access varies, suggesting a



nuanced landscape wherein economic factors play a prominent role in decision-making while the role of support mechanisms and technology is subject to contextual nuances and regional differences.

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