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Analysing Absenteeism in Agriculture: A Dialogue-Based Study using Phi(Φ) Correlation Coefficients

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ABSTRACT

This study examines absentee landlordism within the agricultural sector and explores the sentiments of farmers regarding this phenomenon. Employing descriptive analysis, TextBlob sentiment analysis, topic modeling, and Phi (Φ) correlation coefficients, the study uncovers significant interdependencies among these factors. Topic modeling analysis reveals farmers' key concerns and aspirations, shedding light on their perspectives toward agriculture. While notable hardships persist, farmers maintain a constructive outlook. Drawing on responses from samples, the research identifies key factors driving declining engagement in farming, such as stable alternative income sources, wildlife threats, and high agricultural input costs. Results indicate strong correlations between absenteeism and economic stability, rural-to-urban migration, urbanization, and wildlife-related challenges. The findings highlight that off-farm income opportunities, environmental uncertainties, and inadequate rural infrastructure are primary drivers of absenteeism, prompting rural populations to seek urban livelihoods. Challenges like land fragmentation and poor living standards further impede agricultural sustainability, whereas modern agricultural technologies exhibit minimal influence.

Keywords: Absentee landlordism, Rural shift, Off-farm employment, Agricultural Transition, Sentiment analysis, Phi coefficient

JEL Codes: J43, O13, O15, Q15, Q12, Q18, Q56, R14, R23

I
INTRODUCTION

Absenteeism in the agricultural field refers to the habit of staying away from farming activities without providing a genuine reason. This behaviour negatively impacts the performance of the agriculture sector. Absentee landlords of agricultural land do not live on their land but lease it to others to farm. These include retired farmers and ranchers, individuals who inherit land but live elsewhere, and those who buy land for recreational or investment purposes and reside elsewhere (Petrzelka, 2013). In this context, absenteeism involves farmers regularly or occasionally staying away from farming, with or without valid reasons. In the realm of agricultural studies, the phenomenon of landlord or farmer absenteeism presents a significant challenge that impacts productivity, sustainability, and community engagement in rural areas. This absenteeism, defined as the lack of physical presence or active participation of landlords or farmers in their agricultural activities, can lead to a myriad of issues, including decreased crop yields, neglect of land maintenance, and disconnection from local agricultural practices. As agriculture increasingly shifts towards a more globalized market, the dynamics of land ownership and management have evolved, resulting in complex relationships between absentee landlords and tenant farmers or labourers (Barrett et al. 2022). Dialogue-based research offers a valuable

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framework for understanding these dynamics by facilitating open communication among stakeholders, including landlords, farmers, agricultural workers, and policymakers. This approach emphasizes the importance of narrative and experience sharing, allowing for a deeper understanding of the motivations behind absenteeism and its implications on agricultural outcomes. By fostering collaborative discussions, researchers can identify best practices and develop strategies to mitigate the negative effects of absenteeism, ultimately promoting more sustainable and equitable agricultural practices.

Absentee landlordism in India, rooted in colonial-era land tenure systems like the Permanent Settlement, continues to impact agricultural productivity and equity. Contemporary manifestations include land concentration among dominant castes, leading to increased fallow land and socio-economic disparities (Prashanth & Sridevi, 2022). Informal tenancy arrangements, driven by landlords' fears of losing ownership rights, result in tenants facing insecure tenure, limited access to institutional credit, and reduced incentives for sustainable land management, thereby impeding agricultural productivity (Varkey 2023). Initiatives like West Bengal's Operation Barga aimed to empower sharecroppers and curb absenteeism, but challenges persist due to informal tenancies and inadequate enforcement of tenancy reforms. The need for effective dialogue-based research in this area is underscored by the growing concerns regarding food security and environmental sustainability. As rural communities grapple with the effects of absenteeism, engaging stakeholders in meaningful conversations becomes crucial to developing solutions that address both economic and social dimensions of agriculture. The main objective of the study is to investigate the root causes of absenteeism among farmers, particularly due to their involvement in occupations other than agriculture. The research also focuses on understanding the emotional and sentimental factors contributing to this shift.

II

METHODOLOGY

The study was conducted in the Eastern region of Uttar Pradesh (Purvanchal), India, using a purposive sampling technique to select respondent categories. Data was collected through an interview schedule, targeting a randomly selected sample of 240 farmers, with 60 respondents from each category, including Young, Marginal, and Small Farmers (Case 1), Women and Medium Category Farmers (Case 2), Large-Scale Farmers (Case 3), Elite Class Farmers (Case 4) categories. A bidirectional interview approach was adopted, facilitating structured conversations to gather comprehensive insights into the participants' experiences, with a particular focus on absentee landlordism. The selection of respondents was based on specific criteria relevant to the research objectives, ensuring a representative sample that reflected the perspectives of the farming community in the area. The use of the interview schedule enabled the collection of in-depth, qualitative data, allowing the researchers to investigate the factors contributing to absentee landlordism and disengagement from agricultural activities. All interview transcripts were transcribed verbatim and manually coded using an inductive

approach. The generated codes were systematically categorized into themes through iterative thematic analysis. To enhance reliability, triangulation was conducted via cross-checking among three researchers, ensuring consistency and reducing subjectivity. Descriptive statistical methods were utilized to analyze the raw dialogue-based data, offering a detailed understanding of the phenomenon.

2.1 Word Frequency Analysis

To explore the emotional behaviour within the study, an analysis was conducted utilizing Word Frequency Analysis through a systematic approach involving Text Preprocessing, Tokenization, and Lemmatization/Stemming (Jurafsky et al. 2023; Manning et al. 2008). Sentiment analysis was performed in R Studio using TextBlob (via the textdata and tidytext libraries) and pre-trained models (Bird et al. 2009; Devlin et al. 2018). Topic Modeling was carried out using the Latent Dirichlet Allocation (LDA) algorithm in R Studio with the topicmodels package, aiming to uncover underlying themes in the text data. The dialogues were categorized into sections based on the respondent groups:

Case 1: Young, Marginal, and Small Farmers;

Case 2: Women and Medium Category Farmers;

Case 3: Large-Scale Farmers;

Case 4: Elite Class Farmers.

2.2 Phi Coefficient (Φ)

The Phi coefficient (Φ) was utilized to measure the strength of association between pairs of binary variables, such as "Land Fragmentation" "High Input Costs" and "Absentee Farming." Each variable was derived from structured yes/no questions within the interview schedule, with responses coded as "1" for 'Yes' and "0" for 'No'. To ensure reliability and clarity, these questions were pre-tested with a subset of 20 respondents, allowing for refinement based on feedback. Validation was further enhanced through triangulation with qualitative themes and cross-verification by three researchers during data analysis.

$$\text{Formula:} \quad \Phi = n_{11}n_{00} - n_{10}n_{01} \,/\, \sqrt{(n_{1.}\, n_{0.}\, n_{.1}\, n_{.0})}$$

Where,

n_{11} is the count of instances where both variables are 1 (Yes-Yes),

n_{00} is the count of instances where both variables are 0 (No-No),

n_{10} is the count where the first variable is 1 and the second is 0 (Yes-No),

n_{01} is the count where the first variable is 0 and the second is 1 (No-Yes),

$n_{1.}$ is the total number of instances where the first variable is 1 (Yes),

$n_{0.}$ is the total number of instances where the first variable is 0 (No),

$n_{.1}$ is the total number of instances where the second variable is 1 (Yes),

$n_{.0}$ is the total number of instances where the second variable is 0 (No).

This formula calculates the correlation between two binary variables based on their frequency counts in the contingency table.

2.3 Bidirectional Conversation between a Researcher and a Respondent:

Case 1. Respondent of Young, Marginal & Small category farmers:

Researcher: Why aren't you, as a farmer, doing your main job, which is farming?

Respondent 1: I used to farm when there was more land, but it has been fragmented among siblings, leaving me with insufficient resources and energy for agriculture. I moved to metropolitan cities to achieve a higher standard of living and to educate my children in good schools, which are not available in villages.

Researcher: What about the current situation in your village? Is that another reason why you left farming?

Respondent 2: Yes, every year, my village is severely affected by flood-like conditions. This forces us to move temporarily to nearby cities for alternative income. Sometimes, when we start earning well from these jobs, we decide not to return to farming. Additionally, floods and frequent animal attacks on my standing crops, coupled with the lack of crop security, make farming very discouraging for me.

Researcher: So, it seems like farming has become quite unpredictable. Are there any other reasons why you haven't been able to continue?

Respondent 3: The high prices of inputs and the lack of irrigation facilities have compelled me to seek alternative employment. However, I choose to remain in the village because I enjoy living here and staying connected to my roots and nature.

Researcher: Do you find any satisfaction in working in the village, even though farming has become difficult?

Respondent 4: As a landless labourer, I am occasionally hired for farming, but I prefer non-farming work in the cities for daily wages. I find it more satisfying than agricultural labour because it's more regular and less physically exhausting.

Researcher: As a younger farmer, are you looking for opportunities to continue in farming, or do you see yourself moving away from it entirely?

Respondent 5: As a young marginal farmer alongside my father, I do want to continue farming, but only if we get proper training, affordable input prices, and market security for our produce. Without these, I'm not really interested in continuing with traditional farming.

Researcher: Have you explored any modern farming techniques, or are you considering only traditional agriculture?

Respondent 6: Yes, I'm more interested in modern practices, like vertical farming. I focus on producing non-seasonal crops in a controlled environment, which I find

more fulfilling than traditional farming in villages. Additionally, I rent out my small piece of land to active farmers so I can concentrate on these modern practices.

Researcher: It seems like a combination of environmental challenges and economic factors have influenced your decisions. How do you see the future of farming in your village?

Respondent: Farming could have a future, but it will need major changes. We need better support from the government—crop security, better prices for inputs, and training in modern farming techniques. Without these, I think more people will continue to leave farming for city jobs.

This conversation highlights the diverse challenges farmers face, ranging from land fragmentation and environmental issues to economic hardships and the appeal of urban employment.

Case 2. Women and medium-category farmers:

Researcher: Why aren't you, as a farmer, doing your main job, which is farming?

Respondent 1: I have a lot of land for farming, but it's not being cultivated anymore. My son is busy with his government and private jobs, so he's lost interest in farming. It seems like many people nowadays view farming as a low-status job, especially those who are educated. They used to be involved, but now they just don't see the value in it.

Researcher: That's interesting. What are you doing with the land now that it's not being farmed by you or your family?

Respondent 1: I've rented it out to some local farmers for a set period. It's better than letting it go to waste. At least this way, the land is being used, and I get some income from it.

Researcher: So, even though you're not farming, you've found a way to keep the land productive. I recently spoke to another farmer who is also leaving the village. What made him decide to leave?

Respondent 2: I cannot feed my family with such low income from farming. It is better for me to go out and work in other fields, even though I'm a medium-category farmer. I started doing daily wage work or found employment in medical shops in the city. That work provides me with steady income throughout the year, which is something farming doesn't offer.

Researcher: What are you doing with your landholdings, then? Is it still being farmed?

Respondent 2: I questioned whether it made sense to continue with seasonal agriculture when off-farm work is more reliable. So, I rented out my land for a season. That way, I still earn some income from it, and I can support my family with a more stable lifestyle. It's hard to rely on farming alone when other jobs guarantee more consistent earnings.

Researcher: It sounds like the uncertainty of farming is a big factor in your decision. Do you see any way in which you might return to farming in the future?

Respondent 2: Maybe, but only if farming became more profitable or secure. Right now, it just doesn't provide enough, and I can't take that risk with a family to support.

This conversation illustrates the growing disinterest in farming due to economic uncertainty and societal perceptions, along with the increasing reliance on renting out land or seeking more stable off-farm employment.

Case 3. The case of a large-scale farmer:

Researcher: As a large-scale farmer, what led you to the decision to leave agriculture behind?

Respondent:
I wouldn't say I've left agriculture entirely. I'm enjoying my leisure time at home now, but while we have large tracts of land, labor shortages have become a significant challenge. It's hard to find workers, and that's been a factor in reducing my active involvement.

Researcher: So, even though you have the land, labor shortages have made it difficult to continue farming at the same scale. Have you considered other ways to keep the land productive?

Respondent: Yes, I prefer to adopt technology in farming. My focus is more on expanding my agribusiness on a global scale rather than just local, traditional farming. I'm not fully active, but I stay connected with nature and farming part-time.

Researcher: That's interesting. Despite the labor challenges, it sounds like you still see potential in agriculture. Do you find it profitable even with your reduced involvement?

Respondent: Agriculture is definitely a profitable venture, especially if you own large areas of land like I do. With technology and modern farming techniques, it can be even more rewarding. I just need to find the right balance between managing it and exploring other ventures.

Researcher: So, in the future, do you plan to continue expanding through agribusiness or find other ways to use your land?

Respondent: I plan to keep expanding through agribusiness, potentially on a global scale. It's more exciting and manageable for me at this stage than being directly involved in everyday farming activities.

This conversation highlights how large-scale farmers are shifting away from traditional farming due to labor shortages but see opportunities in agribusiness and technology to continue benefiting from their land holdings.

Case 4: The case of elite class farmers or virtual zamindars in Kolna Village, Mirzapur District:

Researcher: As a landowner, what made you choose to lease out your land instead of cultivating it yourself?

Respondent: We've had a long-standing tradition of leasing out land. Frankly, we earn a far better income from leasing than cultivating it ourselves. It's more profitable and less hassle.

Researcher: That's interesting. Is this tradition tied to your family's history with the land?

Respondent: Yes, absolutely. I still hold sentiments of the zamindari system because my ancestors used to lease out land, just like I do now. It's something that has been passed down through generations. Owning and leasing out land has always been a stable way to earn.

Researcher: Do you think agriculture still determines one's living standard, or has that changed over time?

Respondent: Not anymore. Agriculture used to determine living standards in the past, but things have changed. Nowadays, leasing the land brings in a better income without the uncertainties that come with farming.

Researcher: So, in your case, leasing out the land has become the more secure and stable option compared to active farming?

Respondent: Yes, exactly. It's more convenient and profitable, and it aligns with the way my family has always managed our land.

This conversation highlights the continuation of a zamindari-like tradition, where leasing out land is seen as more profitable and stable than direct farming, particularly among elite landowners.

III

RESULTS AND DISCUSSION

3.1 Word Frequency, Sentiments Analysis, and Topic Modelling of Bidirectional Conversation between a Researcher and a Respondent.

Word Frequency: Analysis was done by using Text Preprocessing – Tokenization – {Break down sentences into individual words. Remove stopwords (e.g., "the," "and"), punctuation, and numbers}. – Lemmatization/Stemming: Reduce words to their base forms (e.g., "farming" → "farm").

Topic Modelling: This theme might include terms like "flood," "fragmentation," "costs," and "labors," which reflect the hardships farmers face; Shifts Terms like "urban," "jobs," "renting land," and "modern" may indicate the trend toward urbanization and new farming methods; Tradition Words like "history," "culture," and "land use" may point to the historical and cultural context of farming; Future Aspirations "Technology," "support," "agribusiness," and "training" (see Table 1)

would highlight the positive vision for the future, focusing on growth and innovation.

Figure 1. Word Clouds

TABLE 1. TERMS (lda_model, 10) THE TOP 10 TERMS FOR EACH TOPIC

	(topics)			
	Topic 1	Topic 2	Topic 3	Topic 4
[1,]	"farming"	"farming"	"land"	"land"
[2,]	"modern"	"cities"	"making"	"fragmentation"
[3,]	"provide"	"alternative"	"farming"	"force"
[4,]	"government"	"become"	"major"	"problem"
[5,]	"better"	"crops"	"harder"	"efficiently"
[6,]	"crops"	"uncertain"	"gamechanger"	"crops"
[7,]	"technologies"	"like"	"now"	"manage"
[8,]	"subsidies"	"renting"	"crops"	"floods"
[9,]	"needs"	"now"	"vertical"	"modern"
10,]	"agricultural"	"income"	"rely"	"farmers"

Source: compiled by author Applied LDA to the DTM model

Sentiments analysis: Positive Trends Responses 1, 4, and 5 exhibit strong positive sentiments(see Table 2, Figure 2), indicating optimism and proactive solutions. Anticipation (hope) and trust are recurring themes, showing a forward-looking mindset among respondents. Challenges Acknowledged Sadness and fear are present in some responses, reflecting the struggles and uncertainties faced by farmers. Negative sentiments are generally minimal, emphasizing a pragmatic approach. Diverse Reactions Some responses are neutral or cautious (e.g., Response 3), while others (e.g., Response 5) display strong positivity.

TABLE 2. SENTIMENT SCORES FOR EACH CATEGORY

Response	Anger	Anticipation	Disgust	Fear	Joy	Sadness	Surprise	Trust	Negative	Positive	Interpretation
1	0	1	0	0	1	0	0	1	1	3	Balanced response with a positive outlook (joy and trust) despite acknowledging some challenges.
2	0	1	0	1	1	1	0	1	1	1	Acknowledges difficulties (fear, sadness) but also expresses hope (anticipation) and positivity (joy).
3	0	1	0	0	0	0	0	0	1	0	Primarily neutral with slight anticipation, reflecting a cautious perspective.
4	0	0	1	0	0	1	0	0	0	4	Strongly positive response (high positive sentiment), despite slight sadness and disgust.
5	0	2	0	0	1	1	0	1	1	4	Highly optimistic (strong anticipation and positive sentiment) while recognizing challenges (sadness).

Source: Self Authored analysis and compilation

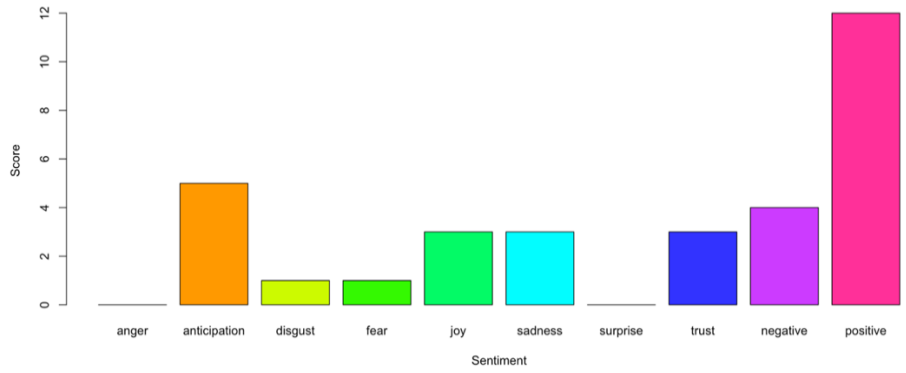

Figure 2. Bar chart showing the emotional tone of the responses provided by the farmers

TABLE 3. SENTIMENT SUMMARY

anger	anticipation	disgust	fear	joy	sadness	surprise	trust	negative	positive
0	5	1	1	3	3	0	3	4	12

The sentiment analysis results summarize the emotional tone of the responses provided by the farmers (Table 3 & figure 2). Anger (0) There is no detectable expression of anger in the responses. This suggests that the farmers' tone is relatively calm, despite the challenges they discuss; Anticipation (5) A moderately high score for anticipation indicates that many respondents are forward-looking or have expressed hope, aspirations, or expectations for improvements in farming practices, modern techniques, or better living conditions; Disgust (1) Disgust is almost absent, which suggests that respondents did not convey strong aversion or repulsion, even when discussing challenges like floods or economic difficulties; Fear (1) Fear is minimal, suggesting that while respondents recognize risks (e.g., floods, crop insecurity), their tone is not dominated by overwhelming apprehension; Joy (3) The presence of joy reflects positive aspects, such as satisfaction with modern farming practices, renting land, or embracing alternative livelihoods; Sadness (3) Sadness is equally present as joy, reflecting the dual nature of the narratives. Challenges like land fragmentation, environmental issues, and declining farming interest have evoked sadness; Surprise (0) The absence of surprise suggests that respondents find the challenges they face as part of expected, routine difficulties in their lives; Trust (3) The moderate trust score indicates some reliance on external factors like government support, modern techniques, or community practices to improve their farming situation; Negative (4) vs. Positive (12) The analysis shows a strong dominance of positive sentiments over negative ones (table 4). While challenges are acknowledged, many respondents express a constructive outlook, highlighting potential solutions and opportunities (e.g., Vertical farming, Agribusiness).

Hopeful Outlook: Farmers exhibit a balanced yet hopeful perspective, with anticipation and trust indicating aspirations for better farming methods and improved livelihood opportunities.

Challenges vs. Solutions: While negative sentiments (like sadness and fear) reflect the difficulties faced in traditional farming, the higher positive sentiment indicates that farmers are optimistic about alternatives like modern techniques or supplementary income sources.

Limited Emotional Extremes: The lack of anger and disgust suggests respondents maintain a pragmatic tone, focusing more on discussing challenges constructively than expressing frustration or outrage(see Figure 3).

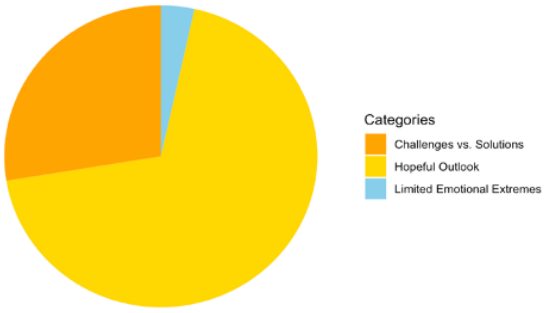

Figure 3. Pie chart showing sentiment distribution trends based on the interpretation of categories.

Negative Sentiments: Challenges like land fragmentation, floods, input costs, lack of security, and social perceptions.

Neutral Sentiments: Descriptions of practices like renting land or modern farming techniques.

Positive Sentiments: Aspirations for better government support, modern farming methods, and agribusiness expansion (see Figure 4).

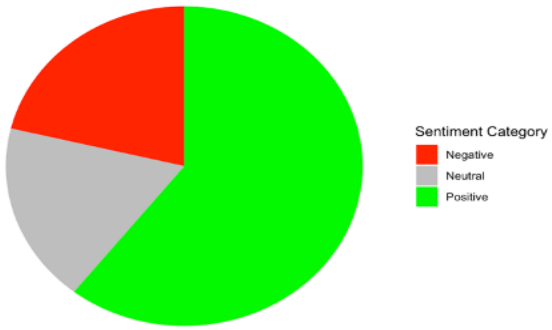

Figure 4. Pie chart showing the expected sentiment distribution

TABLE 4. CASE, ASSOCIATED THEMES, AND SENTIMENTS

Case	Themes	Sentiments
Case 1: Young, Marginal & Small Farmers	Environmental issues, urban migration	Mostly negative, some positive
Case 2: Women and Medium Farmers	Economic stability from renting land	Mixed: negative about farming
Case 3: Large-Scale Farmers	Labor shortages, technology adoption	Positive about profitability
Case 4: Elite Farmers	Leasing tradition, financial stability	Neutral/positive about leasing

Source: Self-authored analysis and compilation

3.2 Factors causing Absenteeism in Agriculture

The descriptive analysis presented in Table 5, figure 5 (Factors contributing to absenteeism); outlines the factors contributing to absenteeism among farmers (n = 240), along with the corresponding percentages for "Yes" and "No" responses. Absenteeism Due to Stable Alternative Income Sources (97.92%): This factor is the most prominent cause of absenteeism. Nearly 98% of absentee farmers report that stable alternative income sources, such as off-farm work, are a significant reason for their shift away from farming. This suggests a strong preference for more reliable and higher-paying alternatives outside agriculture. Many absentee farmers now supplement their income through government and private jobs, reducing their reliance on agriculture. This trend reflects a broader economic strategy that mitigates the financial risks associated with fluctuating agricultural markets. By supplementing their income through non-agricultural means, these farmers can achieve greater financial stability and reduce their vulnerability to agricultural downturns. This shift allows them to maintain financial stability while staying connected to farming, albeit indirectly practicing renting out land (Elorza 2007; Sugden et al. 2012; Bawa et al. 2021; Das et al. 2021).

Conversely, some elite farmers continue to engage in land leasing, a practice that can be traced back to historical zamindari systems and is still practiced in virtual zamindari(Prasanth et al. 2022). This method is often perceived as more economically advantageous than traditional cultivation due to various factors, such as reduced labour costs and the ability to capitalise on land without the direct responsibilities of farming. The legacy of zamindari systems allows these farmers to leverage their assets for profit while minimizing the risks associated with crop production.

Threats Posed by Wildlife to Crops and Human Safety (92.08%): 92.08% of absentee farmers cite wildlife threats such as crop damage and risks to human safety as a significant reason for leaving farming. This issue particularly affects regions prone to human-wildlife conflict, making farming less viable. Research supports this, showing that wildlife predation and crop destruction can severely hinder agricultural productivity, pushing farmers to abandon farming in favour of safer, more reliable livelihoods (Padmakumar et al. 2023; Swami et al. 2019). These factors also contribute to rural-urban migration, as farmers seek more secure and less hazardous environments (Yadav et al. 2020).

High Agricultural Input Costs Versus Marginal Economic Returns (91.25%): A high percentage (91.25%) of absentee farmers find the rising costs of agricultural inputs disproportionate to the low returns they get from their crops. This economic pressure pushes them to explore more profitable or less risky income sources.

TABLE 5. FACTORS LEADING FARMERS TO SHIFT AWAY FROM CULTIVABLE LAND TOWARD OTHER SECTORS OR CAUSING ABSENTEEISM

Factors contributing to absenteeism among farmers	Rank	Absentee landowners/Farmers (Frequency) (n=240)		Percentage(%)	
		(Yes)	(No)	(Yes)	(No)
Absenteeism Due to Stable Alternative Income Sources	1	176	4	97.92	2.08
Threats Posed by Wildlife to Crops and Human Safety	2	166	14	92.08	7.92
High Agricultural Input Costs Versus Marginal Economic Returns	3	164	16	91.25	8.75
Rural-to-Urban Migration for better wages	4	152	28	84.17	15.83
Urbanization and Improved Opportunities	5	149	31	82.92	17.08
Unavailability of farming related resources & lack of access to social services	6	139	41	77.08	22.92
Challenges of Land Fragmentation	7	135	45	75.00	25.00
Staying Connected to Roots while non adapting	8	129	51	71.67	28.33
Poor Living Standards in Rural Areas	9	126	54	70.00	30.00
Natural disasters & calamities, such as floods or droughts, storm, temperature etc.,	10	120	60	66.67	33.33
The government is snatching land forcibly from the peasants for developmental projects	11	107	73	59.58	40.42
Subsidies on farming inputs impacting decisions related to farming practices	12	90	90	50.00	50.00
Piracy and Theft of standing field crops, resources and Livestock	13	81	99	45.00	55.00
Unhealthy Environmental Conditions in Rural Areas	14	73	107	40.83	59.17
Modern-Innovative Technology-driven Agriculture and Land Resources	15	12	168	6.67	93.33
Mean for 'Yes' and 'No' responses respectively				**65.92**	33.08
Standard Deviation (S.D.) for 'Yes' and 'No' responses respectively				**23.26**	76.74

Source: Compiled by author. Each row represents a specific factor leading to absenteeism or shift away from farming.

"Yes" indicates the number of absentee farmers who agreed with that particular factor. "No" shows the number of farmers who did not agree with that factor.

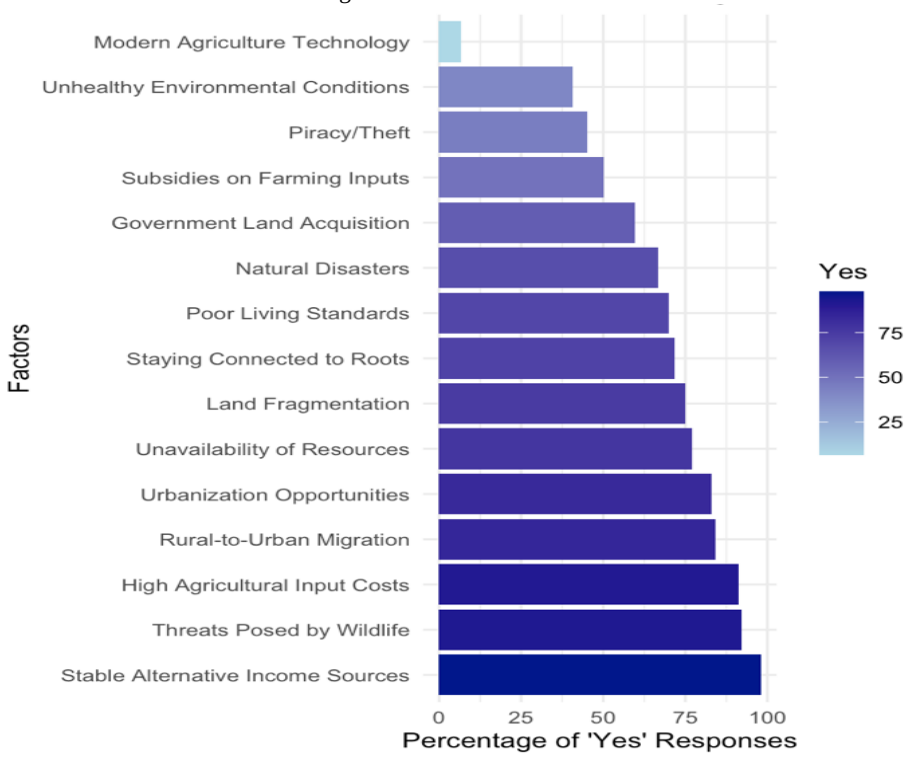

Figure 5. Ranking of the Factors contributing to absenteeism

These escalating costs, paired with low returns on investment, are rendering farming increasingly unprofitable, creating economic pressure that discourages younger farmers from staying in the sector. In contrast, 8.33% of respondents did not view this as a major concern, possibly because they consider farming a noble profession, are overly confident in overcoming these challenges, or are wealthier farmers who can better absorb the costs. The rising costs of agricultural inputs such as seeds, fertilizers, and equipment, coupled with low returns on investment, make farming increasingly unprofitable. This economic strain discourages younger farmers from continuing in the sector (Anzar 2020; Das et al. 2021).

Rural-to-Urban Migration for Better Wages (84.17%): Over 84% of absentee farmers migrate to urban areas in search of better employment opportunities and higher wages, indicating a significant trend of rural-to-urban migration that affects agricultural participation. This migration is driven by the perceived economic advantages of urban living, such as higher-paying jobs, better infrastructure, and more opportunities for social mobility. Studies confirm that rural-to-urban migration is a significant factor influencing absenteeism, as individuals in rural areas often face limited job prospects and lower wages compared to urban centers).

These factors lead many to abandon farming for the promise of improved living standards and economic security. Similar observation identified, In China, migration from rural areas to cities has often led to labor shortages in agricultural sectors, reducing productivity and farm efficiency. A study by Wu and Xu (2018) found that labor migration from rural to urban areas in China has significantly impacted agricultural output, as younger, skilled workers leave their family farms in search of better opportunities in cities. This trend is exacerbated by limited mechanization and the dependence on manual labor in rural farming systems, which reduces farm efficiency when labor is lost (Wu & Xu 2018). Yang (2017) explored rural labor migration in Southeast Asia and found that, while migration increases household income, it also creates a shortage of labor, diminishing the labor force available for agriculture. This causes farmers to abandon or reduce the size of their farming operations, which ultimately lowers agricultural productivity.

Urbanization and Improved Opportunities (82.92%): With 82.92% of absentee farmers citing urbanization as a reason for absenteeism, this reflects the trend of farmers leaving due to better infrastructure, educational opportunities, and healthcare services available in cities. This aligns with research indicating that urban areas attract rural inhabitants due to the promise of improved living standards and access to essential services, which are often lacking in rural settings. Studies by Ruben (2024) highlight how urbanization has become a significant driver of rural-to-urban migration, as people seek better employment, social mobility, and quality of life. These factors strongly influence the decision to abandon farming for more stable opportunities in urban areas

Unavailability of Farming-Related Resources and Lack of Access to Social Services (77.08%): A substantial percentage (77.08%) of absentee farmers cite the unavailability of farming-related resources (like seeds and water) and limited access to essential social services (such as healthcare and education) as key factors driving them to leave agriculture. This aligns with research indicating that the lack of basic infrastructure and resources in rural areas significantly hinders agricultural productivity and encourages migration to urban areas for better opportunities (Ruben 2024).

Challenges of Land Fragmentation (75%): The data indicates in Table 1, that 75% majority of which is young, marginal, and small farmers view land fragmentation—where agricultural land is divided into smaller, less productive plots—makes farming unprofitable, leading to absenteeism, as a significant challenge contributing to absenteeism from cultivable land. This suggests that smaller landholdings and the associated difficulties in managing fragmented plots are key factors driving farmers away from active farming (Tan 2006). In contrast, the remaining 25%, likely consisting of larger-scale farmers, do not perceive land fragmentation as a major issue, possibly due to their larger, more consolidated landholdings, which provide better stability and efficiency in farming practices. Small and marginal farmers, particularly the younger generation, face difficulties due to land fragmentation. As farm sizes shrink, profitability decreases, pushing many to seek alternative livelihoods outside agriculture (Kingra et al. 2009; Hilmi 2013; Ahmad 2020). Additionally, land fragmentation has a negative effect on

yields by reducing the marginal outputs of agricultural inputs. This issue is particularly significant in areas with high opportunity costs of labor, where the negative impact is more pronounced (Lu 2018).

Staying Connected to Roots While Not Adapting (71.67%): 71.67% of absentee farmers report that staying connected to their agricultural roots, while not adapting to modern practices or technology, leads to their absenteeism. This highlights a potential gap in the adoption of innovation in rural communities. While 28.33% do not maintain this connection. Even as many farmers transition away from traditional farming practices, they retain a strong connection to their agricultural heritage. These individuals actively seek training, market security, and innovative techniques to address contemporary challenges. Their focus is not only on achieving financial stability but also on ensuring personal satisfaction in their endeavours (Bilewicz 2021).

Poor Living Standards in Rural Areas (70%): A significant portion of absentee farmers (70%) point to poor living conditions (e.g., lack of basic infrastructure, limited access to amenities) as a push factor towards absenteeism. This aligns with findings from several studies highlighting that poor living conditions are a primary driver for rural-urban migration and absenteeism in farming. For example, research has shown that the lack of basic infrastructure in rural areas, such as roads, healthcare, and electricity, often forces individuals to move to urban areas for better living standards (Ruben 2024). These conditions not only reduce the quality of life but also diminish the attractiveness of farming as a viable livelihood option. Furthermore, studies indicate that when smallholder farmers face economic difficulties linked to poor living conditions, they are more likely to abandon agriculture in favour of other sources of income (Karata 2024). Poor living standards thus become a push factor, compelling many farmers to leave the sector in search of urban opportunities, where living conditions and prospects for social mobility are perceived as more favourable. This dynamic underlines the urgent need for rural development policies that focus on improving infrastructure, healthcare, and overall living conditions to retain farmers and enhance agricultural productivity in rural areas(Rathour et al. 2023).

Natural Disasters and Climate Change (66.67%): Approximately 66.67% of absentee farmers cite natural disasters, such as floods, droughts, storms, and temperature fluctuations as significant factors contributing to their decision to leave farming. These unpredictable and extreme weather events render agriculture highly risky, leading many farmers to seek more stable and reliable income sources. Research shows that climate change is increasing the frequency and intensity of such disasters, further destabilizing rural livelihoods and pushing farmers to abandon agricultural practices (Parry et al. 2007). Additionally, climate variability and extreme events are increasingly viewed as major threats to agricultural sustainability, with many farmers migrating to urban areas or diversifying into non-agricultural sectors as a result.

Government Land Acquisition for Development Projects (59.58%): About 59% of absentee farmers report land loss due to government land acquisitions for

developmental projects. This causes displacement and leads them to shift away from farming. This phenomenon is common in regions where urbanization, infrastructure development roads, schools, government farms, cold storage, etc., or industrialization projects require vast amounts of land, which disrupts farmers' livelihoods. Research highlights the significant impact of such land acquisition on rural communities. For instance, a study by Borras and Franco (2012) explores how land grabbing, often supported by government policies, leads to the displacement of rural populations and negatively affects local agricultural productivity. Similarly, the World Bank (2015) reports that land acquisitions for large-scale development projects often result in reduced agricultural capacity, forcing farmers to seek alternative livelihoods or migrate to urban areas in search of new opportunities. The displacement caused by land grabs has long-term consequences, not only for those directly affected but also for agricultural systems that rely on smallholder farmers.

Subsidies on Farming Inputs Impacting Decisions (50%): Subsidies on farming inputs have a significant yet complex impact on farmers' decisions, as reflected in recent studies. About 50% of absentee farmers highlight that farming subsidies, while designed to alleviate production costs and encourage farming, can inadvertently influence their decisions to leave agriculture for alternative income sources. The research underscores that subsidies often fail to fully address systemic barriers such as insufficient land access, input affordability, and market uncertainties. For instance, in Ghana's "Planting for Food and Jobs" (PFJ) program, which subsidized seeds and fertilizers, initial success was recorded with increased productivity. However, challenges like corruption in implementation and farmers' inability to co-finance the subsidized inputs created disparities in access and adoption rates, limiting the program's effectiveness in fostering sustainable agricultural engagement (Agyemang et al. 2022). Similarly, a meta-analysis of input subsidy programs in Sub-Saharan Africa suggests mixed outcomes. While subsidies have enhanced short-term productivity in some contexts, they often fail to provide long-term solutions to structural issues, such as access to capital or fluctuating input prices. This can lead to disillusionment among farmers, contributing to absenteeism as they seek more predictable income sources outside agriculture (Karata 2024). These findings collectively suggest that while subsidies hold promise for increasing agricultural output, they must be paired with broader structural reforms to effectively retain farmers and reduce absenteeism. Programs should emphasize transparent implementation, equitable access, and integration with other incentives like market guarantees and rural infrastructure development.

Piracy and Theft of Crops, Resources, and Livestock (45%): 45% of absentee farmers are affected by the theft of their crops, resources, and livestock. This crime can discourage farmers from staying in their rural areas if it threatens their livelihood. This aligns with findings from various studies emphasizing the adverse effects of theft on rural livelihoods. Livestock theft, in particular, has been identified as a major driver of rural economic instability, leading to poverty and migration. For instance, research in South Africa highlights that theft of livestock not only disrupts agricultural productivity but also wipes out household wealth in

severe cases, leaving families unable to recover their economic standing. This often pushes individuals to migrate to urban areas in search of alternative employment, exacerbating rural depopulation. Furthermore, it limits farmers' ability to reinvest in agriculture or livestock, which is vital for their livelihoods and community sustenance (Clack 2024). In Lesotho, similar issues have been documented, where livestock theft significantly impacts poor households by removing a key source of income and insurance. The loss of livestock reduces the ability to fund essentials such as education and healthcare, contributing to rural poverty and forcing many young individuals to seek jobs in urban centers (Khoabane 2009).

Overall, theft acts as a disincentive for farmers to continue agricultural practices, often pushing them into absenteeism or complete abandonment of farming. This aligns with global observations where rural insecurity is a critical factor in reshaping land-use patterns and fostering migration. Effective policies addressing rural crime could, therefore, play a crucial role in stabilizing rural economies and supporting agricultural resilience.

Unhealthy Environmental Conditions in Rural Areas (40.83%): Approximately 40.83% of absentee farmers report unhealthy environmental conditions, such as pollution from nearby industries (e.g., brick kilns), as a contributing factor to absenteeism. This is particularly relevant in rural areas where small-scale industries and factories pollute the air, water, and soil, making living and farming conditions less viable. While it is a notable concern, it is not the most influential factor for absenteeism when compared to other issues like economic instability, lack of resources, or urbanization.

Studies suggest that environmental degradation, including pollution and the resulting health impacts, can force farmers to leave rural areas in search of better living conditions. According to a study by He, et al. (2020), industrial pollution has been linked to health problems and reduced agricultural productivity, which in turn contributes to rural out-migration. Additionally, environmental quality plays a significant role in rural livelihoods and decision-making, although economic factors often outweigh environmental ones in driving migration.

Despite the rising concern about poor environmental conditions in rural areas, studies like those by Yao et al. (2023) indicate that while this issue contributes to absenteeism, it remains less influential compared to other socio-economic challenges, such as lack of job opportunities or better urban infrastructure.

Modern-Innovative Technology Driven Agriculture (6.67%): The study revealed that 97% of respondents (Irrespective of gender) expressed a willingness to continue farming if innovative technologies were introduced, provided that appropriate training and guidance were also available. These respondents saw the potential benefits of modernizing their practices through technological advancements. In contrast, the remaining 3% were hesitant to adopt new technologies, citing traditional practices and a reliance on outdated equipment. This minority group, consisting of highly conventional farmers, expressed concerns and fear regarding the transition to modern farming techniques. Utilizing modern agricultural technologies, such as precision farming and automated machinery,

addresses the issue of labour shortages and enhances scalability. This also supports farmers who aim for global agriculture market expansion (Bryceson 1999; Hayward 2017). Farming can be highly profitable when supported by technological advancements and large tracts of land. Innovations such as vertical farming, automation, and market integration improve productivity and sustainability (Dhanaraju et al. 2022). As part of their adaptation, some farmers are exploring modern, sustainable farming techniques such as vertical farming (Hayward 2017). These practices not only promise higher returns but also align with a desire to provide a better standard of living and educational opportunities for their children.

Technological Adaptation and innovation in agriculture show minimal impact on absenteeism, This also suggests that while technological interventions had not significantly deterred migration, they had positively influenced younger generations' interest in staying within agriculture. Young farmers often show greater adaptability to advanced farming practices and technologies, viewing them as tools for improving productivity, securing markets, and achieving higher incomes. This aligns with research indicating that the adoption of innovative technologies and improved agronomic practices can enhance farming's appeal, especially when paired with supportive market structures and economic incentives (see Table 5, figure 5). Table 6, can be used to summarize the contributing factors to absenteeism, categorizing them as top, middle, lower, and outliers.

Mean & Standard Deviation: The mean percentage of "Yes" responses across all fifteen factors is 65.92%(Table 5). This indicates that, on average, about 66% of farmers agree with the factors listed in the table as reasons for absenteeism or shifting away from cultivable land. However, this is just an average, and individual factors may still differ significantly. There are both high and low levels of agreement across the factors. SD is relatively high, suggesting that there is a widespread response of "Yes" across the factors. Some factors are overwhelmingly supported (e.g., stable income sources and wildlife threats), while others have more mixed or lower levels of agreement (e.g., modern technology and environmental conditions). A high standard deviation means that farmers' responses are not consistently uniform across all factors, pointing to some factors being much more influential than others in causing absenteeism or shifts away from agriculture.

3.3 The Correlation between two Binary Variables based on their Frequency Counts

Biserial correlation is typically used when to assess the relationship between a continuous variable and a binary variable. In the dataset, the variables are binary ("Yes"/"No"). A more appropriate correlation measure for binary

TABLE 6. TOP, MIDDLE, LOWER AND OUTLIERS FOR THE CAUSE OF ABSENTEEISM

Top Factors	%	Middle Factors	%	Lower Factors	%	Outliers	%
Stable alternative income sources	97.92	Rural-to-urban migration for better wages	84.17	Government land confiscation	59.58	Modern technology-driven agriculture	6.67
Wildlife threats to crops and human safety	92.08	Urbanization and improved opportunities	82.92	Subsidies impacting farming practices	50		
High agricultural input costs versus marginal returns	91.25			Piracy and theft	45		

Source: Compiled by author

TABLE 7. PHI COEFFICIENT MATRIX BASED ON THE "YES" AND "NO"

	Stable Income	Wildlife Threats	High Input Costs	Rural Migration	Urbanization	Unavailability of Resources	Land Fragmentation	Connected to Roots	Poor Living Standards	Natural Disasters	Govt Land Confiscation	Subsidies on Inputs	Piracy and Theft	Unhealthy Environment	Modern Technology
Stable Income	1.00														
Wildlife Threats	0.88	1.00													
High Input Costs	0.84	0.87	1.00												
Rural Migration	0.73	0.76	0.80	1.00											
Urbanization	0.72	0.75	0.79	0.85	1.00										
Unavailability of Resources	0.63	0.67	0.72	0.78	0.83	1.00									
Land Fragmentation	0.70	0.72	0.75	0.75	0.80	0.82	1.00								
Connected to Roots	0.66	0.69	0.72	0.72	0.78	0.79	0.85	1.00							
Poor Living Standards	0.65	0.67	0.70	0.70	0.75	0.75	0.80	0.85	1.00						
Natural Disasters	0.55	0.58	0.60	0.65	0.70	0.68	0.75	0.78	0.82	1.00					
Govt Land Confiscation	0.50	0.53	0.55	0.60	0.65	0.62	0.70	0.73	0.77	0.88	1.00				
Subsidies on Inputs	0.40	0.46	0.48	0.53	0.58	0.55	0.63	0.68	0.70	0.80	0.85	1.00			
Piracy and Theft	0.30	0.35	0.40	0.43	0.48	0.45	0.55	0.58	0.62	0.70	0.75	0.80	1.00		
Unhealthy Environment	0.20	0.25	0.30	0.35	0.40	0.35	0.45	0.50	0.55	0.62	0.67	0.72	0.85	1.00	
Modern Technology	-0.05	-0.10	0.05	0.10	0.15	0.05	0.10	0.05	0.15	0.25	0.30	0.35	0.45	0.60	1.00

Source: compiled by authors

Diagonal Elements (1.00): These represent the Phi coefficient of a factor with itself, which is always 1. It shows perfect correlation

Strong Positive Correlations:

Stable Income and Wildlife Threats: Phi = 0.88 (Strong positive correlation)

Rural Migration and Urbanization: Phi = 0.85 (Strong positive correlation)

Govt. Land Confiscation and Natural Disasters: Phi = 0.88 (Strong positive correlation)

Moderate to Weak Correlations:

Subsidies on Inputs and Piracy and Theft: Phi = 0.80 (Moderate positive correlation)

Connected to Roots and Poor Living Standards: Phi = 0.85 (Moderate positive correlation)

Modern technology exhibits mostly weak to negative correlations with other factors—most notably with stable income (-0.05). This suggests that technology adoption may actually encourage, rather than discourage, continued participation in farming.

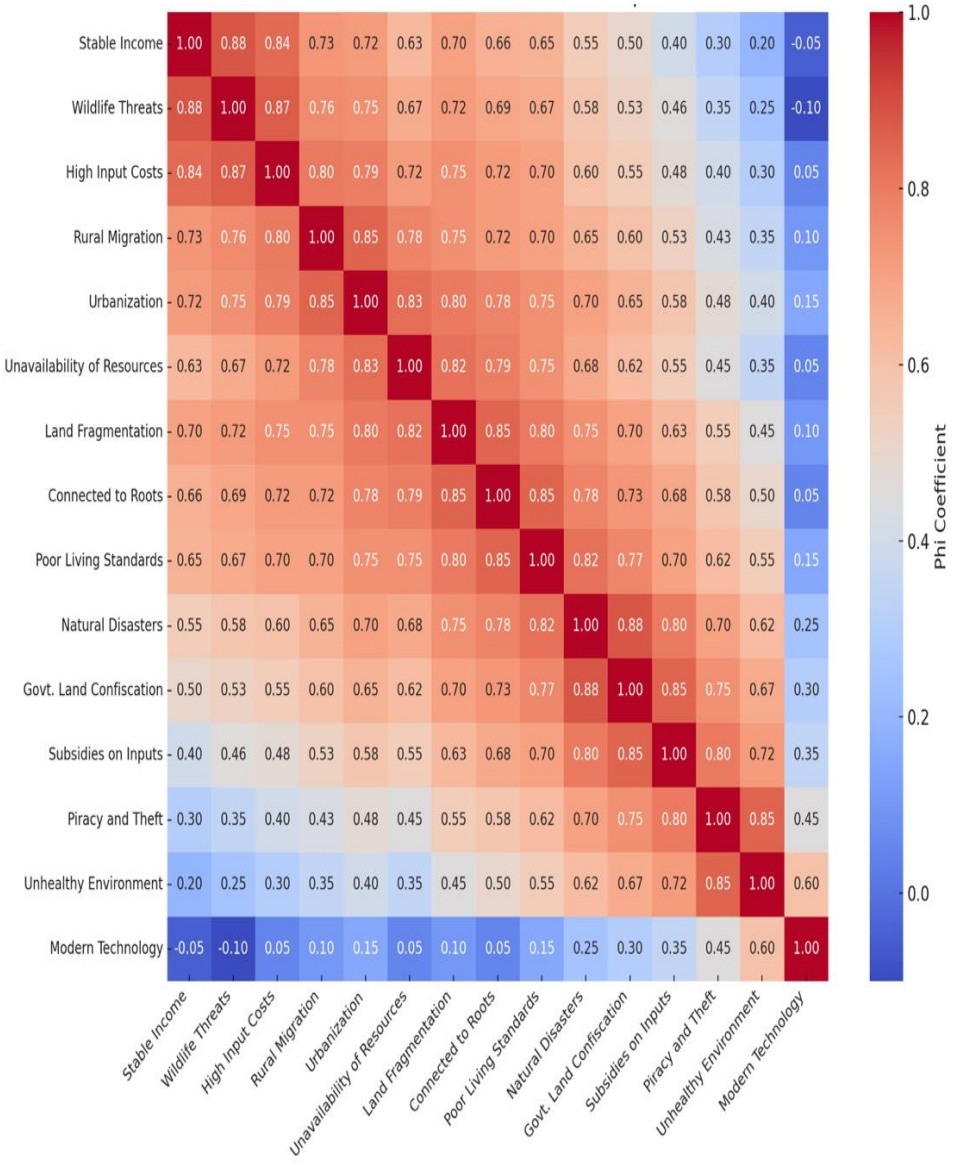

Figure 6. Heatmap visualizing the Phi Coefficient Matrix, using Python.

variables is *Phi coefficient or Cramér's V,* especially when looking at the association between two dichotomous (binary) variables.

Notes: It highlights the pairwise relationships between the factors leading to farmers shifting away from cultivable land or causing absenteeism. High correlations (in red) indicate a strong association between variables. Low correlations (in blue) suggest weaker or negligible relationships . The diagonal values are always 1.0 since a factor is perfectly correlated with itself.

The Phi Coefficient analysis reveals notable interrelationships among factors associated with farmers' absenteeism and migration from cultivable land (see Table 7 & Figure 6). Strong correlations are observed with variables such as wildlife threats (0.88) and high agricultural input costs (0.84), suggesting these factors are closely linked to absenteeism patterns. While not implying causality, these associations point toward the possible role of economic vulnerabilities in shaping farmers' decisions regarding continued engagement in agriculture. Rural households often pursue off-farm income sources as they tend to provide more stable and predictable returns compared to the increasingly volatile agricultural sector, affected by climatic, economic, and institutional uncertainties (Barrett et al., 2001; Ellis, 2000).

Significant correlations with agricultural input costs (0.87) and migration-related variables (0.76) underscore the complex challenges confronting rural livelihoods. In areas with frequent wildlife conflict, crop damage, and economic losses may influence farmers to seek non-agricultural income sources (Rao et al., 2019). Furthermore, correlations with migration and urbanization (0.80 and 0.79, respectively) suggest a pattern wherein agricultural distress and limited rural employment opportunities correspond with movement toward urban centers. This is consistent with evidence from developing economies like China, where migration, while reducing farm labor availability, often enhances household income through urban employment (de Brauw et al., 2002; Rozelle et al., 1999).

Correlations with inadequate rural infrastructure—such as lack of electricity, irrigation, transport, and market access (0.83)—and exposure to extreme climatic events (floods, droughts, storms, heatwaves, frost) indicate how environmental and infrastructural constraints may jointly shape migration patterns. These conditions are indicative of a "push-pull" dynamic, wherein rural hardships drive people away, while urban areas attract with perceived better opportunities in education, healthcare, and employment (Tacoli, 2004; Deshingkar & Farrington, 2009).

Land fragmentation and poor living standards show moderate correlations with several variables, such as natural disasters (0.75) and emotional or cultural ties to ancestral land (0.85). Literature on land fragmentation highlights how it inhibits mechanization, scale efficiency, and overall productivity, thereby weakening the economic resilience of rural households (Blarel et al., 1992; Tan et al., 2006). These socio-cultural and structural impediments often discourage investment in agriculture and foster an environment conducive to absenteeism.

Environmental health factors show weaker yet significant correlations (e.g., with subsidies at 0.72), suggesting their role as indirect influences on farming decisions. Meanwhile, modern technology exhibits only weak correlations (generally below 0.35), with a negligible correlation to stable income (-0.05). This indicates that while technology adoption may exist, its immediate association with improved income outcomes and reduced absenteeism appears limited. This finding aligns with other studies that caution against overestimating the economic impact of technological adoption in the absence of broader systemic support, such as training,

infrastructure, and market integration (Binswanger-Mkhize, 2012; Feder et al., 1985).

IV
CONCLUDING REMARKS

The study examines the factors contributing to absenteeism through dialogue-based interviews, sentiment analysis, topic modelling, and Phi correlation coefficients. The findings reveal that the primary drivers of absenteeism include stable alternative income sources, wildlife threats, high input costs, and rural-to-urban migration. These challenges are exacerbated by structural issues such as land fragmentation, inadequate rural infrastructure, and limited access to institutional support. Despite these difficulties, the analysis highlights a positive outlook among many respondents. Younger and marginal farmers, in particular, express a willingness to re-engage with agriculture, provided with adequate training, technological access, and income security. Meanwhile, elite and large-scale landholders perceive leasing as a more lucrative option, reinforcing a virtual zamindari system that further disconnects ownership from cultivation. Addressing absenteeism and rural disengagement requires an integrated policy approach that prioritises land consolidation, risk mitigation, technological advancements, and institutional reforms. Such measures could enhance agricultural sustainability and encourage broader participation in farming activities.

3.4 Potential policy recommendations to address the issue based on the dialogues with respondents

For absenteeism across diverse farmer categories (large, marginal, and elite landholders), five key policy strategies are recommended (Table 8).

Mitigating Risks from Wildlife and Climate Events: Absenteeism due to wildlife threats and climate risks can be reduced through integrated measures such as physical barriers, compensation schemes, and the promotion of climate-resilient crops. These initiatives enhance safety and encourage continued engagement in farming (Nyhus 2016; Lipper et al. 2014; Mukeka et al. 2019).

Land Consolidation for Economies of Scale: Fragmented landholdings hinder mechanization and efficiency. Voluntary land consolidation, supported through incentives like tax relief or financial assistance, can improve land productivity and facilitate access to technology (López 2021; Kassam et al. 2019).

Addressing Virtual Zamindari through Land Redistribution: The prevalence of absentee landlordism, rooted in historical leasing traditions, reduces agricultural productivity. Reforms aimed at redistributing underutilized land to marginal and landless farmers, with tenure security and training, could revitalize rural livelihoods (Janvry 1981; Binswanger-Mkhize et al. 2009; Ghosh 2023).

Promoting Technology-Driven Agriculture: Technology-intensive agriculture can mitigate labor shortages and make farming attractive to youth. Governments

should promote access to innovations like precision farming, vertical agriculture, and automation through subsidies, training, and rural tech hubs (Zheng et al. 2022; Rejeb et al. 2022; Nguyen et al. 2023).

Enhancing Institutional and Market Support: Secure markets and institutional backing are critical to sustaining farmer participation. Strengthening the MSP system, expanding crop insurance, investing in rural infrastructure, and promoting digital platforms and cooperatives can increase income stability and reduce absenteeism (Manjunath 2017; Raji et al. 2024; Tumenta et al. 2021).

TABLE 8. A SUMMARY OF THE POLICY IMPLICATIONS

Policy Implication	Rationale	Policy Measures	Expected Outcomes
Mitigate risks posed by wildlife and natural disasters linked to climate change:	Physical barriers limits wildlife and crops direct interactions, and Financial relief can motivate farmers to stay engaged	Erecting fences, trenches, or natural barriers (e.g., thorny hedges) around farmland. Introducing schemes to compensate farmers for crop or livestock losses, introduce drought-tolerant, flood-resistant, or saline-tolerant crops.	- mitigate conflict between humans and wild animals, crop loss minimization. - Higher profitability for farmers.
Land Consolidation Programs	Fragmented land limits farming efficiency, mechanization, and productivity.	- Incentives for voluntary consolidation (tax breaks, financial assistance). - Support for smallholder farmers to pool resources and access technology.	- Increased farm size. - Improved productivity through modern practices. - Higher profitability for farmers.
Redistribution of Cultivable Land	Underutilization of land by absentee landlords reduces agricultural output.	- Redistribute underutilized land to marginalized or landless farmers. - Provide training and land tenure security for new landholders.	- Increased land usage. - Improved rural livelihoods and reduced economic inequality. - Boost in agricultural output.
Promoting Technology-Intensive Agriculture	Labor shortages, climate risks, and market volatility challenge traditional farming.	- Promote precision agriculture, drones, and automated systems through subsidies and credit programs. - Public-private partnerships (PPPs) for R&D in agri-tech.	- Higher productivity and lower operational costs. - Attraction of younger generations to farming. - Risk mitigation.
Improving Institutional Support & Market Security	Market volatility, lack of infrastructure, and limited access to credit discourage farming.	- Strengthen the Minimum Support Price (MSP) system. - Agricultural insurance schemes. - Develop rural infrastructure and storage facilities. - Digital platforms for market access.	- Reduced financial risks for farmers. - Stable income through fair prices. - Enhanced market access and profitability.

Source: compiled by authors

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Ethical Considerations and Conflict of Interest The privacy of the respondents was strictly maintained, ensuring confidentiality throughout the research process. The authors adhered to all ethical guidelines, safeguarding the respondents' personal information. Furthermore, we declare that there is no conflict of interest among the authors or the respondents involved in the study. The research was conducted impartially, and all parties remained unbiased in their contributions.

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REFERENCES

Agyemang, S.A., Ratinger, T., & Bavorová, M. 2022. The impact of agricultural input subsidy on productivity: The case of Ghana. The European Journal of Development Research. 34(3),1460-1485

Ahmad, M. I., Oxley, L., & Ma, H. 2020. What makes farmers exit farming: A case study of Sindh province, Pakistan. Sustainability. 12(8), 3160. https://doi.org/10.3390/su12083160

Barrett, C. B., Marenya, P., & Sangsrirat, S. 2022. Land tenure and absenteeism in agricultural settings: Implications for productivity and food security. Agricultural Economics. 53(2), 245-260. https://doi.org/10.1111/agec.12649

Barrett, C.B., Reardon, T., & Webb, P. 2001. Nonfarm income diversification and household livelihood strategies in rural Africa: Concepts, dynamics, and policy implications. Food Policy. 26(4), 315–331. https://doi.org/10.1016/S0306-9192(01)00014-8

Bawa, S. G., & Callahan, S. 2021. Absent landlords in agriculture: A statistical analysis. U.S. Department of Agriculture, Economic Research Service. ERR-281.

Bilewicz, A., & Bukraba-Rylska, I. 2021. Deagrarianization in the making: The decline of family farming in central Poland, its roots and social consequences. Journal of Rural Studies. 88, 368-376. https://doi.org/10.1016/j.jrurstud.2021.04.008

Binswanger-Mkhize, H., Bourguignon, C., and Brink, R. 2009. Agricultural land redistribution: Toward greater consensus. World Bank Publications.

Binswanger-Mkhize, H.P. 2012. Is there too much hype about index-based agricultural insurance? Journal of Development Studies. 48(2), 187–200. https://doi.org/10.1080/00220388.2011.625411

Bird, S., Klein, E., & Loper, E. 2009. Natural Language Processing with Python. O'Reilly Media, Inc. ISBN: 9780596516499

Blarel, B., Hazell, P., Place, F., & Quiggin, J. 1992. The economics of farm fragmentation: Evidence from Ghana and Rwanda. World Bank Economic Review. 6(2), 233–254. https://doi.org/10.1093/wber/6.2.233

Borras, M., Franco, J.C., Go´mez, S., Kay, C., and Spoor, M. 2012. Land grabbing in Latin America and the Caribbean. The Journal of Peasant Studies. 39(3–4), 845–872. http://dx.doi.org/10.1080/03066150.2012.679931

Bryceson, D. 1999. African rural labour, income diversification and livelihood approaches: A long-term development perspective. Review of African Political Economy. 26(80), 171-189. https://doi.org/10.1080/03056249908704347

Clack, W. 2024. An Analysis of Livestock Theft in South Africa (2013-2023): Towards a Deeper Understanding of Livestock Dynamics for Enhanced Countermeasures. International Journal of Rural Criminology. 8(3), 335–371. https://doi.org/10.18061/ijrc.v8i3.9999

de Brauw, A., Huang, J., Rozelle, S., Zhang, L., & Zhang, Y. 2002. The evolution of China's rural labor markets during the reforms. Journal of Comparative Economics. 30(2), 329–353. https://doi.org/10.1006/jcec.2002.1788

Deshingkar, P., & Farrington, J. 2009. Circular migration and multilocational livelihood strategies in rural India. Oxford University Press.

Devlin, J., Chang, M. W., Lee, K., & Toutanova, K. 2018. BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding. arXiv preprint arXiv:1810.04805

Dhanaraju, M., Chenniappan, P., Ramalingam, K., Pazhanivelan, S., and Ragunath, KRK. 2022. Smart Farming: Internet of Things (IoT)-Based Sustainable Agriculture. Agriculture. 12(10), 1745. https://doi.org/10.3390/agriculture12101745

Ellis, F. 2000. Rural livelihoods and diversity in developing countries. Oxford University Press.

Elorza, J.O. 2007. Absentee landlords, rent control and healthy gentrification: A policy proposal to deconcentrate the poor in urban America. Cornell Journal of Law and Public Policy. 17(1), 1 https://scholarship.law.cornell.edu/cjlpp/vol17/iss1/1

Feder, G., Just, R.E., & Zilberman, D. 1985. Adoption of agricultural innovations in developing countries: A survey. Economic Development and Cultural Change. 33(2), 255–298. https://doi.org/10.1086/451461

Ghosh, D. 2023. Enhancing agricultural productivity through land reform: A case for marginalized communities. Agricultural Economics. 54(1), 85-99. https://doi.org/10.1111/agec.12650

Hayward, J. 2017. Beyond the ownership question: Who will till the land? The new debate on China's agricultural production. Critical Asian Studies. 49(4), 523–545. https://doi.org/10.1080/14672715.2017.1388978

He, X., Z. Luo, and J. Zhang (2022). The impact of air pollution on movie theater admissions. Journal of Environmental Economics and Management. 112, p. 102626

Hilmi, A. (2013). Peasants & nature. The role of peasants in opening up a range of opportunities for future generations [Tesis doctoral]. Universitat Politècnica de València. https://doi.org/10.4995/Thesis/10251/34788

Janvry, D., Emerick, A.K., Gonzalez-Navarro, M., and Sadoulet, E. 2015. Delinking land rights from land use: Certification and migration in Mexico. American Economic Review. 105(10): 3125-49

Jurafsky, D., & Martin, J. H. 2023. Speech and Language Processing (3rd Edition). Draft Manuscript. https://web.stanford.edu/~jurafsky/slp3/

Karata, R. 2024. The impact of smart input subsidy program on farm productivity: Evidence from Tanzania. Scientific African. 24, e02181 https://doi.org/10.1016/j.sciaf.2024.e02181

Kassam, A., Stobbe, L., & Suttie, J. M. 2019. Policies and strategies for land consolidation: Enhancing agricultural productivity in developing countries. Land Use Policy. 81, 340-347. https://doi.org/10.1016/j.landusepol.2018.11.004

Khoabane, S., & Black, P. 2009. The effect of livestock theft on household poverty in developing countries: The case of Lesotho. Working Papers 02/2009, Stellenbosch University, Department of Economics.

Kingra, S. H., Singh, S., & Karam, S. 2009. Agrarian crisis and depeasantization in Punjab: Status of small/marginal farmers who left agriculture. Indian Journal of Agricultural Economy. 64(4), 1-19. DOI: 10.22004/ag.econ.204658

Lipper, L., Thornton, P., Campbell, B. et al. 2014. Climate-smart agriculture for food security. Nature Climate Change. 4, 1068–1072. https://doi.org/10.1038/nclimate2437

López, R., & Moya, M. 2021. The impact of land fragmentation on agricultural productivity: Evidence from smallholder farms. Journal of Agricultural Economics. 72(2), 404-419. https://doi.org/10.1111/1477-9552.12400

Manjunath, S., & Kannan, E. 2017. Effects of Rural Infrastructure on Agricultural Development: A District Level Analysis in Karnataka, India. Journal of Infrastructure Development. 9(2):1-14 DOI: 10.1177/0974930617732258

Manning, C. D., Raghavan, P., & Schütze, H. 2008. Introduction to Information Retrieval. Cambridge University Press. ISBN-10. 0521865719; ISBN-13. 978-0521865715

Mukeka, J.M. et al. 2019. Human-wildlife conflicts and their correlates in Narok County, Kenya. Global Ecology and Conservation. 18. e00620. https://doi.org/10.1016/j.gecco.2019.e00620

Nguyen, T. T., Lee, J., & Kim, S. 2023. Public-private partnerships in agricultural innovation: A framework for sustainable development. Journal of Agricultural Innovation. 15(1), 85-102. https://doi.org/10.22004/ag.econ.320460

Nyhus, P. J. 2016. Human-Wildlife Conflict and Coexistence. Annual Review of Environment and Resources.

Padmakumar, V., and Shanthakumar, M. 2023. The impact of human-wildlife conflict on biodiversity conservation in India. Journal of Entomology and Zoology Studies. 11(3): 107-110.

Parry, M. L., et al. 2007. Climate Change 2007: Impacts, Adaptation, and Vulnerability. IPCC Fourth Assessment Report. file:///Users/sachinrathour/Downloads/Climate_Change_2007_Impacts_Adaptation_and_Vulnera.pdf

Petrzelka, P., Ma, Z., & Malin, S. (2013). The elephant in the room: Absentee landowners and conservation management. Land Use Policy. 30, 157–166.

Prasanth, D., & Sridevi, G. 2022. Land, caste, and tenancy: Understanding the origins and effects of absentee landlordism in the changing context. Rural Society. 31(3), 196-209.

Raji, E., Ijomah, T.I., & Eyieyien, O.G. 2024. Improving agricultural practices and productivity through extension services and innovative training programs. International Journal of Applied Research in Social Sciences. 6 (7), 1297-1309, DOI: 10.51594/ijarss.v6i7.1267

Rao, S.S., Sinha, B., & Srivastava, S. 2019. Human–wildlife conflict: Issues and strategies for mitigation. In S. Sinha (Ed.), Environmental Security and Sustainable Development in South Asia. Springer, pp. 199–218.

Rathour, S., Badal, P.S., Sourav, S.K., Kamalvanshi, V., Singh,V., and Gawhare, A.A. 2023. Actors of land saying to farming: A global review on de-/repeasantization and ansentee landlordism. International Journal of Social Science and Economic Research. 08 (11), 3453-3482.

Rejeb et al. 2022. Drones in agriculture: A review and bibliometric analysis. Computers and Electronics in Agriculture. 198 (2022) 107017. https://doi.org/10.1016/j.compag.2022.107017

Rozelle, S., Taylor, J.E., & de Brauw, A. 1999. Migration, remittances, and agricultural productivity in China. American Economic Review. 89(2), 287–291. https://doi.org/10.1257/aer.89.2.287

Ruben, R. 2024. What Smallholders Want: Effective Strategies for Rural Poverty Reduction. Sustainability. 16, 5525. https://doi.org/10.3390/su16135525

Sugden, F., & Gurange, G. 2012. Absentee landlordism and agrarian stagnation in Nepal: A case from the Eastern Tarai. Nepal Institute of Development Studies. https://doi.org/10.13140/RG.2.1.4403.8161

Swami, A.K., Paraste, J., Maravi, S., and Chaudhry, S. 2019. Human wildlife conflicting species and its impact on rural people of Central India. Journal of Emerging Technologies and Innovative Research. 6(6):91-100. DOI: 10.1729/Journal.20990

Tacoli, C. 2004. Rural-urban linkages and pro-poor agricultural growth: An overview. FAO and Overseas Development Institute (ODI). https://www.odi.org/publications/1940-rural-urban-linkages-and-pro-poor-agricultural-growth-overview

Tan, S., Heerink, N., & Qu, F. 2006. Land fragmentation and its driving forces in China. Land Use Policy. 23(3), 272–285. https://doi.org/10.1016/j.landusepol.2004.12.001

Tumenta, B.F., Fonteh, A.A., and Manu, I.N. 2021. Role of agricultural cooperatives in rural development in the era of liberalization in the North West and South West regions of Cameroon. Journal of Agricultural Extension and Rural Development. 13(1):69-81 DOI: 10.5897/JAERD2020.1211

Varkey S. 2023. The role of prevailing agrarian relations in lower crop productivity and profitability: evidence from Uttar Pradesh, India. Agrarian South: Journal of Political Economy 12(4): 455–487.

World Bank. 2015. Land acquisition, resettlement and rehabitation policy framework. https://documents1.worldbank.org/curated/en/333171590649580480/pdf/Land-Acquisition-Resettlement-and-Rehabilitation-Policy-Framework.pdf

Yadav S., Mohan M., Sandilaya D., Boro P., Sharma A., Sanatan S. and Ramesh. K. 2019. Human-Wildlife Conflict: Assessment of socio-psychological perspectives and actual threat from leopard in Motichur

Range, Rajaji Tiger Reserve. Technical Report. Wildlife Institute of India and Uttarakhand Forest Department. https://wii.gov.in/images/images/documents/publications/rr_2019_human_wildlife_conflict.pdf

Yao, R., Ye, J., and Song, L. 2023. The Impact of the Rural–Urban Migration of Chinese Farmers on the Use of Rural Homesteads: A Threshold Model Analysis. Land. 12(7), 1356; https://doi.org/10.3390/land12071356

Zheng, X., Zhang, L., & Wang, Y. 2022. Mechanization and precision agriculture: Pathways to addressing labor shortages in the agricultural sector. Agricultural Systems. 189, 103084. https://doi.org/10.1016/j.agsy.2021.103084