



Migration and Monsoon: The Impact of Deviated Rainfall on Rural Migration

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Abstract

As India being a rain fed country the monsoon rain creates a great impact on farming and substantial crop production. Eventually because of deviated rainfall, the farming hampers and this creates a subsequent impact on the people dependent on farming. Due to lack of job, hunger they are migrated in the urban regions for earning bread butter to feed their families. The present study is conducted in Ghoragachha village under Saguna gram panchayat, Nadia, West Bengal. The number of respondents were 60 and they were selected randomly. The data were collected through pilot survey, structured interview and focused group interview. The statistical tools used for data analysis are correlation coefficient, step down regression, path analysis and factor analysis. Age (X_1), education (X_2), exposure to media (X_{14}), disease pest incidence (X_{15}) are some of the variables those have created a significant impact on the migration. The variables which were retained after step down regression is exposure to media (X_{14}), that means this is the most important causal variable which affect the consequent variable.

Keywords: Migration; Monsoon; Rainfall

Introduction

According to a survey conducted by Centre for the Studies of Developing Society (CSDS) and Lokniti for Bharat Krishak Samaj (2013), of 5000 farmers' households across 137 districts in 18 states, showed that 47 per cent of farmers have said that the overall farming condition was bad, 76 per cent of the farmers wanted to quit farming, whereas 60 per cent of farmers wanted their children to migrate and settled to a city. This survey is enough to portray the position of Indian farmers. They are very much pliable of being badly exploited by natural disaster, money lenders and sometimes even by government policies. This condition is become more devastating and awful when the monsoon rain is irregular and scanty. The untimely rain, over rain or no rain makes a condition of flood or drought and this is mostly the reason of loss of production or sometimes even no production. So, the rural farmers are bound to migrate to the far or near towns or cities which create an overwhelming burden to the migrated areas with

it's over populated slums. The unwanted migration of rural farmers is affecting the social balance in two ways, at one side it is creating a mockery out of India's traditional village culture and at another side it is making the cities congested.

Objectives

The present research has got the following objectives for proper justification of the topic and for bringing out the expected outcome:

- Identification of factors and their interaction with monsoon rainfall in terms of sociological components and functions.
- Generation of participatory data as to estimate the nature and impact of monsoon rainfall on the socio-cultural, agro-economic and techno managerial aspects.
- To generate micro level policies based on the empirical data in order to delineate the possible interventions to deal with the sociology of monsoon.

Research setting

The area of investigation of this study is situated in the state of West Bengal located in the eastern part of India. The state of West Bengal in eastern India has a unique social and ecological background which influence the living standard and behavioural patterns of the people in many ways. The area of investigation belongs to the Haringhata block in Nadia district. The area of the study in village Ghoragachha under Rautari gram panchayat.

Research methodology

State, district, sub division, block, panchayet and village is selected through purposive sampling. Sixty respondents are selected through random sampling. Here, in this study we have considered fifteen independent variables against one dependent variable that is migration and monsoon (Y).

These selected independent variables are as follows

SL No	Variables	Notation
1	Age	X ₁
2	Education	X ₂
3	Family size	X ₃
4	Size of holding	X ₄
5	Homestead land	X ₅
6	Family income(farm)	X ₆
7	Family income (off farm)	X ₇
8	Cropping Intensity	X ₈
9	Crop mix	X ₉
10	Livestock	X ₁₀
11	Yield of Rice	X ₁₁
12	Yield of Pulses	X ₁₂
13	Yield of vegetables	X ₁₃
14	Exposure to media	X ₁₄
15	Disease pest incidence	X ₁₅

Table 1

First of all, 5% of the total sample (i.e. 3) has selected randomly for pilot study. These respondents are eventually discarded from main sample to reduce the sampling error. Then the rest respondents are interviewed with the help of an interview schedule listed with some specific and relevant questions. This interview has done with rapt attention and care so that putting word in mouth effect, any personal or communal biasness couldn't take place.

Result and Discussion

The qualitative data is quantified using specific numerical procedure. Then the quantified data were put under five statistical analysis that are- co-efficient of co-variance, step down regression, canonical co-variate analysis, path analysis and factor analysis.

The findings and their revelations are discussed here under

Result

Table 2 presents the coefficient of correlation between Y (migration and monsoon) and 15 independent variables. It has been found that following variables viz. age (x1), education (x2), perception on disease – pest (x14) and exposure to media (x14) have recorded significant correlation with the dependent variable.

Sl no.	Variables	r Value	Remarks
1	Age (x1)	0.999	**
2	Education (x2)	-0.507	**
3	Family size (x3)	0.212	
4	Size of holding (x4)	-0.068	
5	Homestead land (x5)	-0.062	
6	Family income(farm) (x6)	-0.012	
7	Family income (off farm) (x7)	-0.050	
8	Cropping Intensity (x8)	0.066	
9	Crop mix (x9)	-0.126	
10	Livestock (x10)	0.039	
11	Yield of Rice (x11)	-0.149	
12	Yield of Pulses (x12)	-0.137	
13	Yield of vegetables (x13)	-0.119	
14	Exposure to media (x14)	-0.591	**
15	Disease pest Incidence (x15)	-0.591	**

Table 2: Coefficient of Correlation (r): Migration and monsoon(Y)vs. 15 independent variables(x₁-x₁₅).

Revelation

The result indicates that those who are having higher education got a propensity for migration. Younger age respondents have shown higher affinity towards migration. Delayed monsoon has every possibility to invite disease and pest problems to make the management further complex and challenging. Higher exposure to media and community has contributed to the respondents to earn impression and knowledge on the effect of delayed monsoon both by quality and quantity.

Result

Table 3 presents the multiple regression analysis between exogenous variable migration and monsoon vs. 15 causal variables.

It has been found that the variable education (x_2), crop mix (x_9), yield of pulses (x_{12}), yield of vegetables (x_{13}), exposure to media (x_{14}), perception on disease pest (x_{15}) have contributed to the substantive variance embedded with the consequent variable y_3 .

Sl no.	Variables	Beta	Beta x R	Reg. coef. B	S.E. of B	t value
1	Age (x1)	1.002	100.164	0.028	0.000	1411.089
2	Education (x2)	-0.009	0.536	-0.001	0.000	2.540
3	Family size (x3)	-0.008	-0.163	-0.001	0.000	4.610
4	Size of holding (x4)	-0.002	0.014	-0.002	0.002	0.894
5	Homestead land (x5)	0.003	-0.018	0.008	0.008	0.982
6	Family income (farm)(x6)	-0.001	0.001	0.000	0.000	1.393
7	Family income (off farm) (x7)	0.001	-0.005	0.000	0.000	1.478
8	Cropping Intensity (x8)	0.000	-0.002	0.000	0.000	0.469
9	Crop mix (x9)	0.002	-0.023	0.000	0.000	2.990
10	Livestock (x10)	-0.001	-0.004	0.000	0.000	1.139
11	Yield of Rice (x11)	0.001	-0.022	0.001	0.002	0.359
12	Yield of Pulses (x12)	-0.007	0.097	-0.156	0.073	2.142
13	Yield of vegetables (x13)	-0.002	0.021	0.000	0.000	2.488
14	Exposure to media (x14)	0.157	-9.265	0.032	0.014	2.286
15	Disease pest incidence (x15)	-0.147	8.669	-0.213	0.098	2.171

Table 3: Step down Regression Analysis, Migration and monsoon(Y) vs 15 causal variables (x_1, x_{15})
 R SQ=100%
 S. E=0

The R^2 value being 0.100, it is to infer that 100% of variants in the consequent variable has been explained by the combination of these 15 causal variables.

Table 4 presents the step wise regression and it has been depicted that the 1 causal variable that is, exposure to media (x_{14}) has been retained at the last step.

Sl no.	Variables	Beta	Beta x R	Reg. coef. B	S.E. of B	t value	VIF
1.	Exposure to media (x14)	-0.591	100.000	-0.123	0.022	5.586	1.000

Table 4: Regression Analysis, Migration and monsoon(Y) vs 1 causal variable(x_{14}).
 R^2 Value-34.98% S.E-.05.

The R^2 value being 0.3498, it is to infer that 34.98% of variants in the consequent variable has been explained by the combination of this 1 causal variable.

radio, new papers etc. they would know about many other income and livelihood opportunities in the places other than their home land. So, they would migrate to the better opportunity places.

Revelation

The migration is been fostered to the respondents who have much exposure to the media. This phenomenon depicts that if the respondents are highly exposed to mass medias like television,

Factor Analysis

Table 5 presents the factor analysis, wherein 15 numbers of independent variables have been conglomerated into 5 dominant factors.

Factors	variables	Factor loading	% of variance	Cumulative %	Factor renamed
Factor 1	Family size (x ₃)	-.899	29.495	29.495	Family resource
	Homestead land (x5)	.844			
	Livestock (x10)	.552			
	Yield of Rice (x11)	.924			
	Yield of Pulses (x12)	.900			
Factor 2	Age (x1)	-.620	23.918	53.413	Perception proficiency
	Education (x2)	.927			
	Exposure to media (x14)	.927			
	Perception on Disease pest incidence (x15)	.927			
Factor 3	Size of holding (x4)	.639	12.301	65.714	Farm resource
	Cropping Intensity (x8)	.752			
Factor 4	Family income (farm) (x6)	.580	9.157	74.871	Family enterprise
	Yield of vegetables (x13)	-.670			
Factor 5	Family income (off farm) (x7)	.584	7.164	82.035	Agro ecological proficiency
	Crop mix(x9)	.734			

Table 5: Factor Analysis: Conglomeration of 15 explanatory variables into 5 factors.

Factor 1

Here, family resource, has accommodated five variables and has rightly been associated with the income impacted by monsoon. Resource endowment helps and supports transformation of monsoon behaviour into a tangible resource generation. For example, only higher farm size can harvest the benefit of good rainfall and can be elucidated through better yield in field crops or livestock produces as well.

Factor 2

Now, coming to the next factor that is perception proficiency. Older is the person, higher would be the experience which helps him in developing his overall perception about monsoon. As far as the education is concerned, it is not only referring to formal or institutional education, on the contrary it is basically a progressive learning process. So more the learning more would be the understanding about the monsoon behaviour and its impact on farm yield. Exposure to media added on extra benefits in the perception about monsoon, for example the farmers having higher exposure to hot, cold or both the medias, can forecast the weather more accurately or can be more aware of the dreadful diseases and pests and can act accordingly.

Factor 3

Higher is the size of land, the more benefit is reaped from monsoon. Also, the higher cropping intensity can act as a safe gourd from the fatal impact of monsoon in one side and can increase the income on other.

Factor 4

Higher vegetable yield means higher income from farm, which can be the ensuing investment for opening a farm-based enterprise.

Factor 5

More the diversity of crops in a certain field, less would be the chances of drastic crop loss. For example, if a field comprises of cash crops like coriander, it could then easily compensate the main crop loss due to heavy rain. As far as the income sources other than farming can add more to this risk lowering process. Thus, agro ecological proficiency for a certain zone can be configured.

The variable age (x₁) has enrooted the highest indirect effect (for 8 times) on the consequent variable. Table 6 presents the path analysis to decompose the TE into direct, indirect and residual effect. It has been found that the variable age (1.001) has highest direct effect, while the variable family size has exerted the highest indirect effect (0.214) on the perception of migration and monsoon.

As the age of the respondents is lesser the tendency to migrate from the homeland is higher because younger aged respondents have been keener towards higher income and higher standard of living. Similarly, family size has contributed highest associative impact for this consequent variable as, higher the members higher would be the numbers of stomach that have to fed, so, more

income is required. Ultimately to seek higher opportunities of income migration occurs. In another side, if numbers of the family members are more then there would be more options of earning money. If some members are staying at the homeland, the others can migrate to better opportunity places and can earn money for the fellow members.

SI No.	Variables	Total effect	Direct Effect	Indirect Effect	Highest indirect Effect
1	Age (x ₁)	0.999	1.001	-0.002	X14 (-0.92)
2	Education (x ₂)	-0.507	-0.009	-0.5	X1 (-0.589)
3	Family size (x ₃)	0.212	-0.007	0.214	X1 (0.215)
4	Size of holding (x ₄)	-0.068	-0.002	-0.068	X1 (-0.069)
5	Homestead land (x ₅)	-0.062	0.0002	-0.061	X1 (-0.064)
6	Family income (farm) (x ₆)	-0.012	-0.001	-0.012	X15 (0.017)
7	Family income (off farm) (x ₇)	-0.050	0.0009	-0.049	X14 (-0.015)
8	Cropping Intensity (x ₈)	0.066	-0.0003	0.065	X14 (-0.016)
9	Crop mix (x ₉)	-0.126	0.0001	-0.125	X1 (-0.128)
10	Livestock (x ₁₀)	0.039	-0.001	0.038	X14 (-0.030)
11	Yield of Rice (x ₁₁)	-0.149	0.001	-0.142	X14 (0.020)
12	Yield of Pulses (x ₁₂)	-0.137	-0.007	-0.136	X1 (-0.139)
13	Yield of vegetables (x ₁₃)	-0.119	-0.001	-0.275	X14 (-0.593)
14	Exposure to media (x ₁₄)	-0.591	0.156	-0.445	X1 (-0.593)
15	Disease pest incidence (x ₁₅)	-0.591	-0.146	-0.591	X1 (-0.593)

Table 6: Path analysis: Decomposition of total effect (r) into Direct, Indirect and Residual effect [migration and Monsoon VS 15 consequent variables (x1-x15).

Residual-0.00%.

The residual effect being 0.00 per cent, it is to infer that with the combination of these 15 exogenous variables, 100 per cent of variance can be explained.

So, the predominated factors, as formed by interactionally accommodating them based on factor loading, can offer a strategic implication by effectively downsizing the sphere of variables into well textured factors.

Conclusion

Thomas., *et al.* [1] has suggested that Extreme Late Quaternary climatic events, sometimes of considerable continental extent, are being proposed as major contributors to ancestral human behaviour, particularly migration, in Africa. Most recently, a catastrophic drought in the Afro-Asian monsoon region has been proposed for 16 000-17 000 years ago, driven by global impacts of the Heinrich event 1 (H1), with potentially significant consequences for Palaeolithic cultures. That means migration is

not a recent phenomenon, but with the extent of modernization, climate change etc. it is very much in trend now a day. As the present study suggested, the farmers who are young, have formal education and are enjoying more exposure to media are very much eager to migrate to the urban areas for the sake of modern amenities and higher standard of living. This mind set of the rural youth can be considered as an alarming situation because if the new generation is reluctant of farming then it would be very tough to feed this 1.32 billion population of India. To restrain the rural youth in farms the government has to play a pivotal role. Instead of being a non-remunerative bounded legacy, the farming should seem to a beneficial self-sustaining business to the rural youth. If the government and the supporting agencies can make them feel than they would be adequately benefitted by farming as well as can have a high standard of living, then only they would pay attention to this profession otherwise the agony of farmers and farming is so harsh that mere tradition or legacy can't push them into the oldest profession or can restrain them in villages [2-5].

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