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Prospect of Farming as an Occupation Among Rural Youth of Bihar and West Bengal : An Application of SWOT-AHP Method

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ABSTRACT

Depeasantization of farming is a global issue and India is not an exception to this. In this context, occupational prospect of farming among rural youth needed to be explored. Thus the present study aimed to quantify factors and indicators of prospect of farming as occupation among rural youth of two Eastern Indian states, Bihar and West Bengal. This study employed hybrid method by combining SWOT analysis and Analytical Hierarchy Process (AHP) on primary data collected from 240 rural youth in Bihar and West Bengal. Various indicators identified under strength, weakness, opportunity and threat factors of 'occupational prospect of farming' and priority weights were determined through AHP method. The result showed most important strength, weakness, opportunity and threat factors with respect to prospect of farming as an occupation among rural youth were providing food security (with global priority of 0.147), low income (with global priority of 0.102), employment opportunity (with global priority of 0.010) and highly volatile market (with global priority of 0.127), respectively. Further exploring internal factors, it was found that 'strength' exceeded 'weakness"; while, among external factors, 'threat' exceeded 'opportunity'. Study highlighted the importance of assessing youth perspective in farming. The interplay of both internal and external factors helps to find prospect of farming as occupation. Policy decisions oriented towards reducing threat factors may bring greater occupational prospect in farming as perceived by rural youth.

Keywords Rural youth, Occupational prospect, SWOT, AHP, Farming.

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INTRODUCTION

Employment opportunity of youth vis-à-vis agricultural sector in India forms a fundamental issue. In order to fulfil the vision of prosperous small holder agriculture, it is very much required to specify focus on generational problem on agriculture (White 2012). Youth study cuts across boundary of different disciplines and multi-disciplinary studies are continuously

exploring relevant issues impacting the life of youth. In recent time, world-wide agrarian studies have come up with the findings that youth are dissatisfied with farming and they are leaving farming as occupation worldwide (Ministry of Food and Agriculture 2007) and same is applicable for India (Sharma 2007, Singh and Bhogal 2014). In India, 66 % of population is up to 35 years of age (Census of India, 2011) and National Sample Survey Organization (2013) has pointed out that 64.1% of rural people are engaged in the agricultural sector. India is a predominantly agriculture-based country; and also India is dominated by youth. Accordingly, youth issue in agriculture needs to be seen at a greater depth in order to better understand, why youth are leaving agriculture? So, given this situation, questions are repeatedly being asked about future farmers (Swarts and Aliber 2013, Webster *et al.* 2013). To answer this simple, yet hard question, the problem of study was narrowed down to visualize what sort of occupational prospect is perceived by youth in agriculture.

Various authors have defined youth in many ways, such as, by using age criterion; as phase between children and adult. In many cases, various sort of behavior is attached with the meaning of youth; and in other cases, it is defined as a generation. So, sub-cultural practice or generation or activity may become defining factor for youth (Jones 2009) based on the nature of study. In this study, a rural youth was considered as a male of 18 – 35 years of age, who were village residents and whose family depend on agriculture as source of livelihood. While studying rural youth vis-à-vis leaving farming as occupation, various authors followed qualitative (Jothilakshmi *et al* 2014, White 2012) as well as quantitative approaches (Bezu and Holden 2014, Singh and Bhogal 2014). Studying youth issues in farming is important especially because this is a time when issues like out migration of youth from rural areas (Sharma 2007), growing dissatisfaction of youth in farming (GOI 2005, Mehta 2011), ageing of farming population (Sharma 2006) while younger age of overall population (Chandrasekhar *et al.* 2006, James 2011) creating a situation of demographic dilemma. Present study, however, used a hybrid methodology to assess prospect of farming through integration of Strength, Weakness, Opportunity and Threat (SWOT) framework and Analytical Hierarchy Process (AHP). This hybrid method earlier used in areas like forest certification, manufacturing firm, silvopasture adoption (Kurttila *et al.* 2000, Görener *et al.* 2012, Shrestha *et al* 2004) and this attempt in finding prospect of farming among rural youth is unique. Hence, the study was designed to find important indicators and their overall importance related with the prospects of farming as occupation among rural youth.

MATERIALS AND METHODS

The Descriptive research design was used in the present study. Pilot study was conducted in Jalpaiguri district of West Bengal. During this pilot study, a set of probable indicators for prospect of farming as occupation were listed. In this study farming and crop farming was used synonymously.

The prospect of farming was measured in terms of perceived Strength (S), Weakness (W), Opportunity (O) and Threat (T). 'Strength' and 'Weakness' were the factors which were usually within the control of the youth; while 'Opportunity' and 'Threat' were generally beyond their control, but could be managed to enhance or reduce their impact on the business. So, in order to enquire about strength, weakness, opportunity and threat, a preliminary survey was conducted to identify different indicators within those factors. For identification of different indicators, following questions were enquired:

Identification of indicators under 'Strength' factor :

1. What strength does farming have that makes a farmer competitive?
2. How a farmer can do better than anyone else?
3. How about farmer's self-esteem, self-respect?

Identification of indicators under 'Weakness' factor :

1. How farmers can improve their situation?
2. What a farmer should avoid?

Identification of indicators under 'Opportunities' factor:

1. What trends are being seen/ faced in the agricultural sector?

2. What are the markets as well as value-addition opportunities for this sector?
3. What is happening in the community that can be advantageous for this sector?

Identification of indicators under 'Threat' factor:

1. What obstacles do the farmers face?
2. Do changes in society, technology, economy threaten their occupation?
3. Could any particular weakness seriously threaten this sector?

After the identification of various indicators within each factor, an 'interview-schedule' was prepared, and SWOT analysis was done by combining Analytic Hierarchy Process (AHP) (Saaty 1980). AHP is based on pair-wise comparison, but associated with hierarchic formulation of multi-criteria. Thus this has obvious advantage of providing 'objective decision', based on subjective and personal preference of an individual or a group of individuals (Kurttila *et al.* 2000, Nag *et al.* 2017). Multiple-Attribute Decision Making (MADM) was used to rank a limited number of alternatives in presence of conflicting criteria (Sadok *et al.* 2008). AHP utilizes pair-wise comparison method to know the overall priority of each factor considered by rural youth; which, in turn, determines the prospects of farming as an occupation among them. Different identified factors within 'Strength, Weakness, Opportunity and Threat' categories were compared pair-wise on a 9-point scale of importance. Thus, two questions were answered: 1. Which indicators have more relative importance? and 2. How much importance one indicator has got as compared to the other, within a particular factor? Then, calculation was done for finding out relative local priorities, based on 'Eigen-value Technique'. Finally, global priorities were calculated by multiplying local priorities with the scaling factor. So, with the help of AHP, quantitative importance of each factor on the prospects of farming as occupation was measured.

The present study was carried out in the purposively selected Eastern Indian states, namely, West Bengal and Bihar. As Indian policy makers have decided that the next green revolution would come from Eastern India. West Bengal and Bihar are the two states with the largest number of marginal land holdings. Rich natural resource base in one hand and lower socio-economic plight of farmers in other, made the strategy of bringing green revolution an interesting one. Another important dimension would be the rural youth, on whose shoulders the future of agriculture would depend. Districts were classified into two categories; relatively more and relatively less agricultural dependent districts in each state based on Percentage of rural population in total population. Median value was taken as the cutting point. Assumption was majority of the rural people depends on agriculture as source of livelihood. Then, randomly one district was selected from each of the two categories. Accordingly, Coochbehar and Vaishali districts from relatively high rural populated districts; while Nadia and Muzaffarpur districts from relatively low rural populated districts, were selected, randomly. Two blocks were selected, randomly, from each selected district of the two states. Randomly selected blocks of West Bengal are Khardah and Haringhata, from Nadia; Coochbehar-1 and Coochbehar-2 from Coochbehar district of West Bengal. Similarly, Katra and Sakra blocks were randomly selected from Muzaffarpur district; while Chehrakala and Mahua blocks were randomly selected from Vaishali district. Thus eight blocks were selected for the study. The respondents of the study were 18 to 35 years aged rural youth who belonged from farm household. Randomly 30 rural youth were selected from each block. Thus, total sample size was 240. Data was collected through personal interview method.

RESULTS AND DISCUSSION

In the present study, prospect of farming was analyzed by using AHP, in combination with SWOT analysis. The quantitative importance of each of the SWOT factors to the overall prospects of farming as an occupation among rural youth were determined, presented in Table 1.

Various indicators were identified under Strength, Weakness, Opportunity and Threat factors in relation to farming as an occupation among rural youth. Then, those indicators were ranked and quantitative importance of each of the indicator to each of the SWOT factor as well as to the overall prospects of farming among rural youth were determined, and summarized

Table 1. Priority weights of SWOT groups in relation to prospect of farming as occupation.

Groups	Priority weights	λtrax	Consistency index (CI)	Consistency ratio (CR)
Strength (S)	0.301338	4.053018	0.017673	0.019636
Weakness (W)	0.21361			
Opportunity (O)	0.220689			
Threat (T)	0.264362			

in Table 2. For the prospect of farming as an occupation (Table 2), the most important indicator under strength factor was providing 'Food Security' with global priority of 0.147. Similar result was found by Timmer (2002), who stated that Agriculture made important contributions to nutrition, food security, and macroeconomic stability beyond the pro-poor growth linkages. Most important indicator under 'Weakness' factor associated with the prospect of farming as occupation was 'Low income' with global priority of 0.102. Otsuka (2013) concluded agriculture in tropical region of Asia has started to face an

Table 2. Local and global priority weights of categorized SWOT factors in relation to prospect of farming as an occupation.

SWOT groups	Priority of the group (Scaling factor)	SWOT factors	Consistency ratio (CR)	Priority of the factors within SWOT priority	Global or overall priority of the factor
Strengths (S)	0.301338	S1: Providing food security	0.086293	0.489232	0.147425
		S2: Farming enables farmer to be self-dependent		0.232594	0.07009
		S3: Possession of knowledge and expertise of farming		0.161497	0.048665
		S4: Maintenance of cultural heritage		0.077418	0.023329
		S5: Scope of yield improvement		0.039258	0.01183
		λ_{Trax} 45.386592		CI= 0.0966.48	
Weakness (W)	0.213610	W1: Low income	0.073135	0.475764	0.101628
		W2: Uncertainty in production		0.250979	0.053612
		W3: High physical labor		0.196452	0.041964
		W4: Lack of skill		0.076805	0.016406
		λ_{Trax} 4.197466		CI= 0.065822	
Opportunity (O)	0.220689	O1: Employment opportunity	0.051700	0.452032	0.099759
		O2: Market demand for agricultural commodities		0.301382	0.066512
		O3: Support from GO, NGO		0.168621	0.037213
		O4: Modern techniques of farming		0.077965	0.017206
		λ_{Trax} 4.139589		CI= 0.04653	
Threat (T)	0.264362	T1: Market is highly volatile	0.070344	0.482176	0.127469
		T2: High social status in jobs of other sector than farming		0.269513	0.071249
		T3: High cost of input		0.172997	0.045734
		T4: Reduction in soil fertility		0.075314	0.01991
		λ_{Trax} 4.18993		CI= 0.063331	

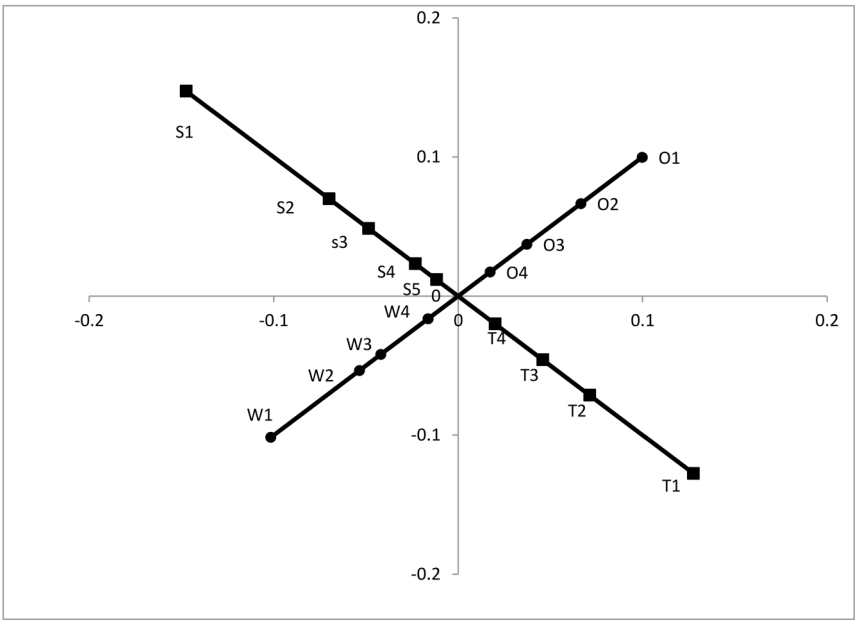

Fig. 1. Occupational prospect of farming among rural youth.

income problem and this problem could be resolved by increasing income from non-farm sector. The result of AHP showed most important indicator under 'Opportunity' factor was 'Employment opportunity' with global priority of 0.010. Employment opportunity through farming was also reported by Dev and Rao (2005). 'Highly volatile market' with global priority of 0.127 stands first among the indicators under perceived 'Threat' factor by the rural youth. This finding corresponds to the study of Philip (2010) where it was mentioned that basic reason for the farmer's distress is dependency on the volatile price movements in the market.

Regarding positive factors (both internal and external), rural youth were of the opinion that, at least, they would have food available with them, if they involved themselves in farming. They have also opined that they were easily employed in farming sector as they have family tradition of farming. But, regarding the negative factors (both internal and external), the low income from farming was cited by rural youth. It could be because the majority of land-holding were marginal in nature; and thus, income could not become lucrative. The most important 'Threat' factor was volatile market; it may be because of weak linkage with the market, in terms of collective selling, collective bargaining, price fluctuation in local market.

Various indicators under SWOT factors have been collectively represented in four quadrant graphs (Fig. 1), to show how the SWOT groups affect overall prospects of farming as an occupation among rural youth, as perceived by them. Vertical division of the graphical plot produces two halves, left-half (internal factors) and right-half (external factors). Horizontal division of the graphical plot produces two halves, upper-half (positive factors) and lower-half (negative factors). Fig.1 has portrayed the overall picture of farming as an occupation among rural youth; wherein 'strength' factors exceed 'weakness' factors (within internal factors) and threat factors exceeded opportunity factors (within external factors). It indicated that the rural youth perceived positive factors which were in their control as more important than negative factors which were beyond their control. 'Strength' factors exceeded 'opportunity' factors (within positive factors) and Threat factors exceed weakness

factors (within negative factors). This indicated that the rural youth perceived greater importance of internal factors than external factors within positive factors. This may be because rural youth feels and understand the potentiality of farming as an occupation. Youth perceived importance of external factors within negative factors which implies negativity prevailing in the system beyond agriculture. Apart from citing various cons associated with farming, none of the respondents had sold their farming land and started other occupation; they might have started other occupation (s) but continued farming as a family occupation. Moreover no fallow land was seen, on account of the migration of family members. This signified their inherent belief towards the potential of farming, while acknowledging the external factors which may be playing the most deteriorating role. Similarly, scholars like Otsuka *et al.* (2016) and Yamauchi (2016) indicated wage, input cost, reduced possibilities of mechanization influenced and helped vis-à-vis in minimizing comparative advantage by small holder farmers in Asian continent. Results of the research study showed that: In order to bring synergy with the internal factors, greater role of external apparatus is necessary to bring prosperous future of farming as an occupation.

CONCLUSION

Thus, the study calls for a system approach to deal with the issue of occupational prospects of farming. So the study contributed to the existing set of literature of 'youth perspective on farming' by providing insights of internal and external factors influencing occupational prospect of farming. Therefore, based on findings, the study advocates policy planners, that, negative forces in form of 'Threat' (external factors) were found to be causing more harm in occupational prospect than 'Weakness' (internal factors). A multipronged strategy which may inculcate eradication of social stigma, market intervention to provide scope of forward and backward linkages, natural resource management strategy for sustenance of natural capital, recognition of agricultural skills, and rural infrastructural development are very much required.

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