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Original Research

Pooled Measurement Model of Socio-cultural Factors Influencing Youths Engagement in Agribusiness Activities, Zamfara State, Nigeria

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ABSTRACT: Structural Equation Modeling (SEM) using AMOS graphic software was used for validating the measurement model of the constructs of socio economic factors affecting youths engagement for agribusiness activities. Multistage sampling technique was used in selecting the respondents for the study. Three hundred respondents were randomly selected from each three agricultural zones in study area, making the total of nine hundred respondents used in providing the necessary information for the research. The socio-cultural constructs were measured using a set of items in the questionnaire. Measurement model were analyzed using Confirmatory Factor Analysis (CFA) to assess the meaningfulness of its items in measuring the constructs. Majority of the indicators have factor loading of 0.5 and above suggesting the indicators make sufficient absolute contribution in forming the constructs. Likewise, all the fitness indexes achieved the minimum required value as such the model fit the data.

Keywords: Youths, measurement, socio-cultural and agribusiness
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INTRODUCTION

The age range definition for youth varied from country to country, for example, Rwanda and Uganda defined youth as between the age range of 16 and 30 years, while Niger used a range from 15 to 35 years which is in line with those of the African Union definition of youth as 15–35 years age group (Losch 2013), while the Guatemala defined youth as individuals from 18 to 24 years of age. For the Nigeria, the age range was 18 to 36 years. The meaning of youth in this paper refers to the transition period from childhood to adulthood during which the economic, social and cultural dependencies evolve. The entry in adulthood is characterized by the overcoming of three thresholds which include departure from the family, entry in union and entry in professional life (Antoine et al., 2001). Agribusiness, a term used to mean farming plus all other industries and service activities that constitute the supply chain from farm production through processing to wholesaling and retailing that can create job opportunities and generate incomes.

As reported by different scholars with regard to a growing political commitment across African governments and development partners in developing strategies and implementation of various interventions to facilitate youth engagement in agribusiness, which include the adoption

of the African Youth Charter (AYC) by the African Union, the declaration of the Youth Decade Plan of Action, the establishment of the Youth Desk in the New Partnership for Africa's Development (NEPAD), and the Comprehensive African Agriculture Development Program (CAADP) (Mastewal et al., 2019).

Many researches have been conducted in assessing socio economics factors that are influencing the youth engagement in agribusiness. Research carried out by Anna (2016) investigates factors impacting youth disengagement from agricultural activity in Tanzania. The study found that educational level, land availability, access to funds and machinery all influence youth engagement in agriculture. Another scholar, Kinsing'u, (2016) used Pearson correlation analysis to investigate factors influencing youth agriculture engagement. Youth participation, attitude, geography, and economic considerations all influenced youth participation in agriculture. Sitawa (2016) employed Pearson correlation analysis to study the issues facing young farmers. The study found that access to credit, land, and information helps young people get involved in agriculture. Research conducted by Ibidapo et al. (2017) study the drivers of youth participation in dry season vegetable cultivation in urban settings. The logistic regression results of the research revealed that among other variables, age, education, household size, and loan availability influenced youth involvement in vegetable cultivation. Other scholars such as Adigun et al. (2017) investigate factors influencing young people's involvement in agriculture. A favorable and significant effect of education, agricultural knowledge, and credit on youth participation was revealed using regression. Akinwekomi et al. (2017) found that age, agricultural training, and incentive have favorable effects on youth involvement in agriculture.

Despite these numerous scholars whose researches dwells solely on socio economics factors in one way or the other that affect youths engagement on agribusiness or related activities, non or limited researches were conducted on looking at the socio cultural factors that are influencing youths engagement in agribusiness and or its related activities and thus this important research gap of finding the measurement model of latent constructs of socio cultural factors influencing youths engagement in agribusiness is what this study intended to fill.

METHODOLOGY

Study area

Zamfara State is located at latitude 12^0 11'N and longitude 6^0 14'E .The State shares borders with Sokoto and Niger republic to the north, Katsina state to the east and Kaduna, Niger and Kebbi states to the south. Zamfara occupies land area of 39,762 square kilometer. Agriculture and gold mining are the States main occupations, irrigation is required for cereals and legumes, hence the state slogan "Farming is our pride".

Sampling procedure and sample size

Multistage sampling technique was used in selecting the respondents for the study. The first stage is the purposive selection of the agricultural zones (zone A, Zone B and Zone C) in the State. Zone A comprises of fourlocal government areas including Gusau, Tsafe, Maru and Bungudu local government areas while Zone B comprises four local government areas namely Kaura-Namoda, BirninMagaji, Shinkafi and Zurmi local government areas. Zone C cover the remaining six local government areas comprising Talata-Mafara, Anka, Bakura, Bukkuyum, Maradun and Gummi.

For the second stage, in each zone the point of the resource allocation for the zone was choosing. The selection of these points is of two reasons; one of which agribusiness and related activities are predominantly are carried out in the areas and second reason is that the security situation is little bite better at those locations.

The third stage involves random selection of the respondents living in those selected locations. Initially, a respondent will be ask about his age before proceeding to the actual interview. Any respondent whose age is above 30 years will not be allowed to participate in the interview. Three hundred respondents were randomly selected in each of the three locations making the total of nine hundred respondents used for the study in providing the necessary information for the research.

Analytical technique

Confirmatory Factor Analysis (CFA) is used to group the variables with similar characteristics together or explain the variance in the observed variables in terms of the underlying dimension (Habing, et, al., 2005). Unlike Exploratory factor analysis (EFA) which is data reduction, imposes no substantive constructs on the data and no restriction on the pattern of relationships between observed and latent variables (Browne and Cudeck, 1989). The studies become complicated when they have a huge number of variables. However, factor analysis is a method for data reduction where a small number of factors from the large number of variables are capable of explaining the observed variance in the large number of variables (Gaskin and Happell, 2014).

Factor analysis is a useful tool for investigating variable relationships for complex concepts such as socioeconomic status and psychological scales. It allows researchers to investigate concepts that are not easily

Table 1. Factor Loading for the pooled measurement model.

Construct	Item no.	Factor Loading	Comment
Belief	Q17A	0.79	Required level is achieved
	Q17B	0.74	Required level is achieved
	Q17C	0.69	Required level is achieved
	Q17D	0.61	Required level is achieved
	Q17E	0.45	To be deleted
Attitude	Q23A	0.76	Required level is achieved
	Q23B	0.65	Required level is achieved
	Q23C	0.52	Required level is achieved
Emotional Behavior	Q26A	0.30	To be deleted
	Q26B	0.62	Required level is achieved
	Q26C	0.45	To be deleted
	Q26D	0.70	Required level is achieved
	Q26E	0.55	Required level is achieved
Intention	Q30B	0.63	Required level is achieved
	Q30C	0.42	To be deleted
	Q30D	0.64	Required level is achieved

measured directly by collapsing a large number of variables into a few interpretable underlying factors. For this study, Structural Equation Modeling (SEM) using AMOS graphic software was used for validating the measurement model of the constructs of the socio economic factors affecting youth's engagement for agribusiness activities. The procedure is to assess unidimensionality, validity and reliability of the latent constructs.

The latent constructs of socio economic factors affecting youth's engagement for agribusiness activities cannot be measured directly. Instead, the constructs are measured using a set of items in a questionnaire. The researcher analyzes a measurement model using CFA to assess the meaningfulness of its items in measuring the constructs. Low factor loading item means that particular item is not meaningful in measuring the construct and thus need to be deleted. The items used for the study to measure the constructs of socio economic factors affecting youth engagement for agribusiness activities are presented in the Appendix (Table 4).

Unidimensionality will be achieved by looking at measuring items having the acceptable factor loading of 0.5 and above will be retained and any item with less than that will be deleted. Validity is the ability of instrument to measure what it supposed to measure for a latent construct (Awang, 2015). Two types of validity were tested to the measurement model which are convergent, and construct validity. The first one will be achieved if all items in measurement model are statistically significant. Construct validity will be achieved if fitness indexes achieved the required level of > 0.90 (Brown and Cudeck, 1993). For absolute fit indexes Chi-square (P-value< 0.05), Root Mean Square Error of Approximation (RMSEA< 0.08), Goodness of Fit Index (GFI > 0.90). For incremental fit indexes, Comparative Fit Index (CFI > 0.90), Turker Lewis Index (TLI >0.90), Adjusted Goodness Fit Index (AGFI >0.90), Normed Fit Index (NFI > 0.90). For the parsimonious fit index, Chi-square/degree of freedom (chi-sq/df< 3.0) was used as acceptable level.

RESULT AND DISCUSSION

Factor loading

Due to problems when analyzing CFA for every measurement model separately, pooled CFA for all latent constructs were combined as shown in in the Amos graphic presentation (Figure 1) and CFA procedure were executed. After running the pooled measurement model, results were presented in (Table 1) and Figure 1.Q17A to Q30D are the response items for the constructs and the standardized estimates indicate the factor loading for each item in a measurement model. Majority of the items meet the required value. For construct BELIEF only one item Q17E has the low factor loading which need to be deleted. Likewise the construct EMMOSIONAL RESPONSE have two items with low factor loading Q26A and Q26C. The last construct INTENSION has only one item with low factor loading that is Q30C (Table 1). An item having low factor loading simply means that particular item is deem useless to measure that particular construct. An item having low factor loading could be among one of the following reasons: ambiguous statements, double meaning statements, sensitive statements and biased statements etc. (Awang, 2015). The indicator may contribute sufficiently in absolute terms to the formation of the construct if the indicator loading is 0.5 or greater (Hair et al., 2022).

Convergent validity

This was achieved when all items in a measurement model are statistically significant. The result of the analysis is presented in (Table 2).The regression weights

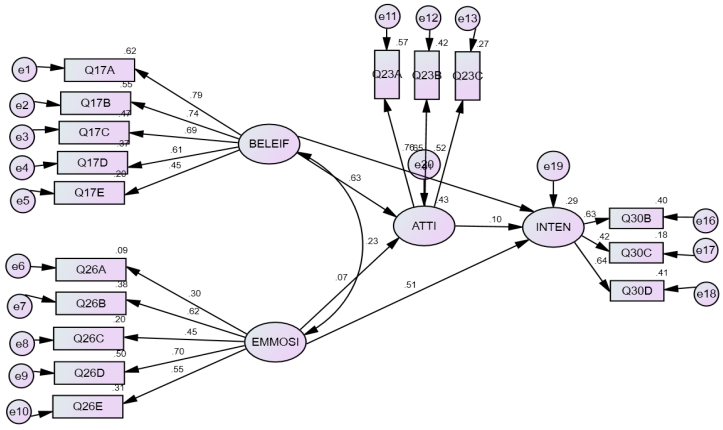

Figure 1: Pooled Measurement Model of Socio-cultural Factors Influencing Youths Engagement in Agribusiness

Table 2. The regression weights of the measurement model.

Path		Path	Beta Estimate	S.E.	C.R.	P
Q17A	<---	BELEIF	1.962	0.248	7.911	***
Q17B	<---	BELEIF	1.416	0.182	7.771	***
Q17C	<---	BELEIF	1.572	0.208	7.568	***
Q17D	<---	BELEIF	1.293	0.180	7.171	***
Q17E	<---	BELEIF	1.000			
Q26A	<---	EMMOSI	0.507	0.112	4.520	***
Q26B	<---	EMMOSI	0.993	0.131	7.556	***
Q26C	<---	EMMOSI	0.736	0.119	6.200	***
Q26D	<---	EMMOSI	1.167	0.148	7.864	***
Q26E	<---	EMMOSI	1.000			
Q23A	<---	ATTI	1.000			
Q23B	<---	ATTI	0.734	0.081	9.061	***
Q23C	<---	ATTI	0.584	0.075	7.799	***
Q30B	<---	INTEN	0.933	0.149	6.263	***
Q30C	<---	INTEN	0.628	0.116	5.432	***
Q30D	<---	INTEN	1.000			

Table 3: Fitness indexes for measurement model.

Name of Index	Index Value	Comment
RMSEA	0.054	The required level is achieved
CMIN/DF	2.029	The required level is achieved
NFI	0.920	The required level is achieved
TLI	0.90	The required level is achieved
CFI	0.92	The required level is achieved

result from the analysis as indicated in (Table 2) shows how each indicator represent its relative important for forming the construct.

Construct validity

There are several fitness indexes that reflect how fit is the model to the data at hand. However there is no agreement among the researchers which fitness indexes to use. Table 3 presents how the fitness indexes for the measurement model are assessed. All the fitness indexes achieved the required value as such model fit the data.

Conclusion

Pooled measurement model using CFA were used to assessed the meaningful items that measured socio-cultural constructs influencing Youth engagement in agribusiness activities. Unidimensionality, convergent

and construct validity of the items were assessed and almost all the items meet the minimum requirement, hence they measured the socio-cultural constructs influencing Youth engagement in agribusiness activities. Improvement could be made on this research by performing similar research with removing the meaningless indicators that have low factor loading and assessing the reliability of the measurement model.

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Appendix

Table 4: Statements (Items) Used in Measuring Constructs of Socio economic Factors.

Statement	Questionnaire Number
Belief Statements	
Agribusiness serves as a source of employment	Q17A
It help to improve the standard of my living	Q17B
It serve as a business to me	Q17C
It serve as additional way of earning	Q17D
It serve as a security to me and my family	Q17E
Emotional Response Statements	
I like small scale business	Q26A
I like seen myself with people in business	Q26B
I like to processed agricultural row materials to others product	Q26C
I like to convert agricultural row materials to others product	Q26D
I like to be civil servant not to be in agribusiness activities	Q26E
Attitude Statements	
I am operating the agribusiness	Q28A
I can operated it but I don't have the capital	Q28B
If I have background I can operate the agribusiness	Q28C
I am feeling shy to operate the agribusiness	Q28D
My family/relative and friends will encouraged me to do agribusiness activities	Q28E
Intention Statements	
I have the intention on agribusiness activities	Q30A
I have the intention on activities related to business	Q30B
My parent/relatives and friend have influence on my intention toward agribusiness activities	Q30C
My parent/relatives and friends have nothing to do with my influences toward agribusiness activities	Q30D