AGRICULTURAL MARKETING FOR SUSTAINABLE DEVELOPMENT - A FOCUS ON APMC

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Abstract
Agricultural marketing as a human activity directed at satisfying the needs and wants through exchange process. In Today's developing agro system and societies increasing consciousness towards health in developing country questioned the government, private, public-private organisation to transform the traditional agricultural marketing to modern agriculture marketing system i.e. organized bazaar system which includes different marketing institutions, regulated agriculture markets, online trading, modern food chains to strengthen the countries backbone for sustainable development. Sustainability can be achieved, by stabilizing agro produce prices, increasing employment, increase farmers share in consumers rupees, boost agro based industrialization.

Key Words: - **Agricultural Marketing, Marketing Institutions, Sustainable Development, Reliability, Validity**

INTRODUCTION

Sustainability is a normative concept should be obvious. It embodies a particular moral attitude to the future, expressing how much we care for and is willing to make sacrifices for our descendants and how, and to what degree, non-humans figure in this process. Mankind is considered the superior to the living things in the world. Civilization transformed that into producer of food and other basic requirements from the nomadic behavior in which hunting and snatching were the way of life. Land cultivation and food production marked the beginning of civilization particularly in the riparian lands. Mother Nature has to offer her blessings to satisfy the food needs of all living creatures. Marketing is as critical to better performance in agriculture as farming itself. Therefore, market reform and marketing system improvement ought to be an integral part of policy and strategy for agricultural development. Though the considerable progress has been achieved through the use of high-yielding variety seeds, chemical fertilizers, by the adoption of plant protection measures and by strengthening the network of agricultural marketing organisations. In order to improve the marketing system encouraging cooperative marketing, establishment of regulated markets, and grading, storage and warehousing are essential. In this connection the role of Agricultural Produce Marketing Committee (APMC) is pivotal in promoting the agricultural marketing. As mentioned above traditional agricultural marketing i.e. weekly unorganized bazaar system having drawbacks like Heavy Village Sales of Agricultural Commodities[a] i.e. a majority of farmers in India sell a large part of their produce in villages resulting in low returns for their produce. There is a difference in the price prevailing at different levels of marketing, i.e., the village, the primary wholesale market, the secondary wholesale, and retail levels. The extent of village sales varies from area to area, commodity to commodity, and also with the status of the farmer. The village sale is 20 to 60 percent in food-grains, 35 to 80 percent in cash crops and 80 to 90 percent in perishable commodities.

LITERATURE REVIEW

Swaminathan (2003) [b] had made a comprehensive analysis of the need for imparting a pro-nature, pro-poor and pro-women orientation to technological development and its dissemination for agricultural development. Singh (2003)[c] had called for reforms in the area of agricultural marketing sector which would help in ensuring better marketing opportunities for agricultural produce. Parminder Kaur et al. (2003)[d] study conducted to assess the progress and performance of regulated markets in Punjab with the object of ascertaining the role of regulated markets in the marketing development of the state. Kulkarni (2004)[e] analysed the state wise number of principal markets and submarkets in India and area and number of villages served by these markets. Sing et al (2004)[f] undertaken study on a growth in marketing infrastructure and related economic benefits over the years in Haryana, based on the secondary data from various issues of statistical abstracts of Haryana. Alka Singh et al. (2004)[g] was of the opinions that physical infrastructural facilities as well as market information were not adequate in selected markets of Puri and Cuttack districts of Orissa. Kshirasagar (2006)[h] revealed that farmers faced formidable constraints in using marketing infrastructure facilities such as pre-cooling, cold storage, grading, packing, transportation and marketing. Kerur, N.M. (2007)[i] in his abstract opined that, in agricultural sector reforms, agricultural marketing needs an urgent attention, which acts as a catalyst for agriculture sector growth in the country.

OBSERVATIONS

- To study farmer's opinion about agricultural marketing organisations for sustainable development
- To focus on major agricultural marketing organisations involved in marketing activities.

EXPLORATORY INVESTIGATION

An exploratory qualitative study was undertaken to better understand the key dimensions of agricultural marketing for sustainable development. For this, personal in-depth interviews, comprising open-ended questions with the farmers, were conducted.

METHODOLOGY

100 farmers of Bikaner APMC market surveyed randomly and noted their opinion about APMC. Primary data is collected by using questionnaire and secondary data is collected from different websites. Qualitative factors analysed by using statistical tools and techniques i.e. construct validity and reliability tools. For analysis 15 statements were selected based on the agricultural marketing for sustainable development as follows - Agriculture Marketing Organisations, Export Facilities, Marketing Organisation Linkages, Taxation policy At Different level of Marketing, Modern Marketing Chains, Transparency, Grading And Standardization Laboratory, Scientific Transportation, Mode Of Business Transaction i.e. Cash or Credit, Agricultural Prices Forecasting facility, Agricultural Produce Arrival Forecasting, Agriculture Produce Demand Forecasting, Means Of Connectivity, Weather Forecasting Facility, Agricultural Processing Facility etc. and the demographic profile i.e. Age, Gender, Income, Qualifications etc.

RESULT AND ANALYSIS

A) AGRICULTURAL SCENARIO - SECONDARY DATA ANALYSIS

1) TOTAL PRODUCTION OF AGRICULTURAL AND ALLIED COMMODITIES[j]

Table No – 1 The above table represents the cumulative production of different agricultural commodities.

2) IFFERENT AGRICULTURAL MARKETING INSTITUTIONS

Also we have other major public and cooperative agricultural marketing organisations particularly E-NAM, DMI, CACP, FCI,

production of various agricultural and allied produce in India			
Particulars	**Production (000'MT)**	**Particulars**	**Production (In 000'MT)**
Total Cereals	252720	Honey	88
Total Pulses	22950	Total plantation	16867
Total Oilseeds	32100	Total spices	7077
Cotton	56253	**Livestock products****	
Sugarcane	306720	Milk	155600
Total Fruits	92846	Meat	7020
Total Vegetables	175194	Eggs	82939 Million Numbers
Aromatic	1031	Fish	10790
Total Flowers	2246	**2015-16	
Source – Ministry of Agriculture, Cooperation & Farmer's Welfare, GOI. (2016-17)			

JCI, CCI, CWC, SWC, STC, APEDA, MPEDA, NCDC, NAFED, NTGF, NCCF, TCMF, SCMF, PACS, Export Inspection Council, Silk Export Promotion Council, State Agricultural Marketing Boards, Rubber Board, Tea Board, Coffee Board, Spices Board, Coconut Development Board, Tobacco Board, Cardamom Board, Coir Board, National Horticultural Board and NDDB directly and indirectly involved in agricultural marketing activities, i.e. domestic and foreign commodity exchange. Some of them are working solely for single commodity

3) INDIA'S CONTRIBUTION TO MAJOR COMMODITIES[k]

We have seen the production of different commodities above, now we will see the ranking of India for different commodities. India is first in the production of okra, banana, mango, lemon and lime, papaya having 73.6, 26.2, 41.9, 16.4 and 44.4 percentage share in the world production. Second in the production of vegetables and melons, potato, tomato, onion, cabbage and other brassicas, cauliflower and broccoli, brinjal, other fruits excluding melons having 10.7, 12.0, 11.1, 22.1, 11.9, 36.4, 27.1, and 12.2 percent share in the world production. Indian food processing Industry adds value to different agricultural, horticultural, forestry and livestock products which accounts for 1.87 lakh Crore. Total GVA to agriculture, forestry and fishing accounts for 21.73 lakh Crores (storages cold and dry, packaging, primary processing sector,).

Source – NHB annual report.

4) CUMULATIVE AGRICULTURAL AND ALLIED COMMODITY EXPORT – IMPORT

total agri - allied, fisheries, plantation export - import scenario (million us $)			
Sr. N0	**Product**	**Export**	**Import**
1	Agri – Allied include processed	13420.44	12188.54
2	Marine	3467.62	56.70
3	Plantation	-	568.86
Source – Ministry of Commerce and Industry, GOI			

Table No – 2 Above table shows the total agricultural and allied commodities

5) POST HARVEST LOSS PERCENTAGE AND APPROXIMATE MARKET VALUE OF MAJOR AGRICULTURAL COMMODITIES[L]

Table No – 3 Above table shows the total post harvest loss percentage of different agricultural articles. This losses occurs at different stages

Sr.No	Articles	Total Loss %	Production '000 MT	Loss ('000 crore)
1	Cereals	4.65 - 5.99	252720	21906.22499
2	Pulses	6.36 - 8.41	22950	4846.475291
3	Oilseeds	3.08 - 9.96	321000	8589.5664
4	Fruits	6.70 - 15.88	92846	19011.399
5	Vegetables	7.32 - 12.44	175194	16037.785
6	Plantation and Spices	1.18 - 7.89	23944	9874.0803
7	Livestock Products	0.92 - 10.52	270520	20536.36766
			al	**100801.8863**
Source – Central Institute of Post-Harvest Engineering and Technology, GOI				

6) MODERN FOOD DISTRIBUTION CHAINS AND MARKETING CHANNELS IN INDIA

The agri supply chains in India and their management are now evolving to respond to the new marketing realities and other internal changes like rise in the level of disposable income of consumers, change in the food basket of the consumers towards high value products like fruits, vegetables and animal protein. The APMC acts, E-NAM, APMR acts being implemented by the different states of India. Implementing such types of acts Indian agricultural supply chain management system added a new significance in the modern food distribution chain i.e. birth of government, private, cooperative retail chains like Big Bazaar, D-Mart, Easy day, Food world, Hyper City, Lulu Hypermarket, Margin Free Market, Maveli Stores, More, Namdhari's Fresh, Nilgiri's, Reliance Fresh, Safal, Spencer's Supply co, Star Bazaar, Triveni Supermarket, Subhiksha stores etc.

B) SURVEY ANALYSIS – PRIMARY DATA ANALYSIS

DEMOGRAPHIC CHARACTRISTICS OF RESPONDENTS

Data collected was analysed through a series of validated tools and procedures. The critical step involved in the development of a measurement scale is the assessment of the reliability of constructs. The factor analysis of the collected data was conducted next. Further, confirmatory factor analysis was performed in order to confirm the findings. The results of the analysis are described as follows.

No	Characteristic	%Respondent		N0	Characteristic	% Respondent
1.	**Age**	22		**3**	**Gender**	
	Below 30	22			Male	72
	31-40	26			Female	28
	41-50	12				
	51-60	18		**4**	**Income**	
					Upto 300000	16
2	**Qualification**				300000-450000	42
	High School	20			451000-600000	24
	Higher Secondary/College	40			600000-800000	10
	Undergraduate	40			800000 and Above	8
Source – Primary Data						

Table No – 4 The above table describes about demographic charactristics of the respondents.

ASSESSMENT OF RELIABILITY

The reliability of items was assessed by computing the coefficient alpha (Cronbach, 1951), that measures the internal consistency of the items. For a measure to be acceptable, coefficient alpha should be above 0.7 (Nunnally, 1978). In the

present study, all alpha coefficients ranged from 0.69 (close to the cut-off value of 0.70) to 0.83**,** indicating good consistency among the items within each dimension.

EXPLORATORY FACTOR ANALYSIS
KMO AND BARTLETT'S TEST RESULTS

kmo and bartlett's test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.815
Bartlett's Test of Sphericity	Approx. Chi-Square	1247.706
	Df	105
	Sig.	.000

Table No - 5

From the Table 5, it can be seen that KMO value greater than 0.6 is acceptable; but if it is more than 0.8 is much better for good results. Bratlett test results also show that the values are significant and thus acceptable. The items in the respective category were individually subjected to PCA with varimax rotation and Kaiser Normalization. (Kaiser and Rice, 1974).

RELIABILITY AND CONSTRUCT VALIDITY MEASURES

Table 6 explains reliability of the variables used for determining the agricultural marketing shows significant effect on sustainable development. Table 7, Indicates that items in each subscale load on one factor. Explains obtained Eigen values, Cronbach alpha, is concerned with the degree of interrelatedness among a set of items designed to measure a single construct (Netemeyer, Bearden & Sharma, 2003). Table depicts the reliability alphas for various constructs. As can be seen, the coefficient alphas for all the four subscales are above 0.60 which is an acceptable limit for early stages of basic research (Nunnally & Bernstein, 1994)[M], also reliability measure shows that there is significant relationship or effect of variables on current study.

anova (reliability statistics)						
		Sum of Squares	**Df**	**Mean Square**	**F**	**Sig**
Between People		1705.429	99	17.227		
Within People	**Between Items**	259.249	14	18.518	6.838	.000
	Residual	3753.551	1386	2.708		
	Total	4012.800	1400	2.866		
Total		5718.229	1499	3.815		
Grand Mean = 4.52,						

Table No – 6

Construct	Item Label	Eigen Value	Factor Loading	Cronbach Alpha	Variance Explained
A	S1	5.614	0.828	0.823	37.428
	S2	2.937	0.807	0.828	19.580
	S3	2.399	0.868	0.822	15.991
	S4	1.226	0.844	0.824	8.172
B	S5	0.674	0.731	0.835	4.496
	S6N	0.409	0.809	0.841	2.727
	S7	0.363	0.892	0.833	2.423
	S8	0.296	0.697	0.827	1.973
	S9	0.241	0.800	0.831	1.603
C	S13	0.138	0.962	0.847	0.921
	S14	0.081	0.963	0.848	0.538
	S15	0.061	0.938	0.841	0.406
D	S10	0.205	0.928	0.831	1.363
	S11	0.186	0.944	0.829	1.241
	S12	0.171	0.813	0.828	1.137

Table No - 7

Before starting tests, first factorial analysis was done; this gave KMO, Eigen values, average variance explained and other measures. Now from TVE table analysis need to correct rotated component matrix, from which sixteenth new variable named S6N was extracted for further analysis, new rotated component matrix generated with 4 highest eigen values. Also all 15 variables were divided into 4 sub categories according to regression loading, and then further calculations for validity analysis done by using different tools. We get the same results i.e.whether model is fit or unfit.

There can be fractional changes in some values of the finally accepted model after calculating values by different methods.

REGRESSION ANALYSIS USING IMPUTED VALUES OF CONSTRUCT FOR RELIABILITY

Anova						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	73.213	3	24.404	11.573	.000[b]
	Residual	202.431	96	2.109		
	Total	275.644	99			
a. Dependent Variable: D		**b. Predictors: (Constant), A, C, B**				

Table No – 8

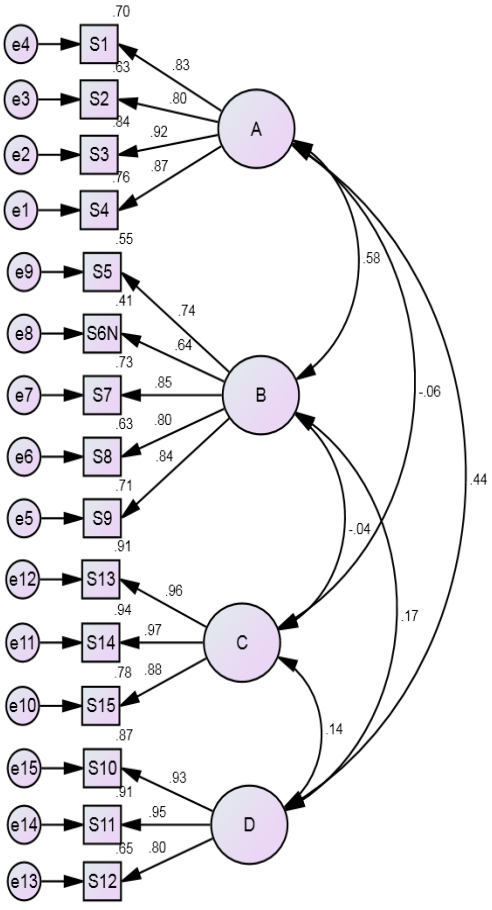
Tables 8, 9 and 10 shows F Value and P Value, for the imputed construct A, B, D affected by the presence of A, B, C, D significantly. But construct C is not affected by the A, B, and D significantly. Construct 'C' represent non significant effect by other construct, so we can consider the construct A, B and D for further calculation

Anova						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	61.937	3	20.646	21.962	.000[b]
	Residual	90.245	96	.940		
	Total	152.182	99			
a. Dependent Variable: B		**b. Predictors: (Constant), C, A, D**				

Table No - 9

Anova						
Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	133.842	3	44.614	35.730	.000[b]
	Residual	119.871	96	1.249		
	Total	253.713	99			
a. Dependent Variable: A		**b. Predictors: (Constant), B, C, D**				

Table No – 10
MODEL



Standard View

CONTENT VALIDITY - The content validity of a construct can be defined as the degree to which the measure spans the domain of the construct's theoretical definition (Rungtusanatham, 1998). For the present study, the content validity of the instrument was ensured as the agricultural marketing dimensions for sustainable development and items were identified from the literature and were thoroughly reviewed by professionals and academicians.

CONSTRUCT VALIDITY - It involves the assessment of the degree to which an operationalization correctly measures its targeted variables (O.Leary-Kelly and Vokurka, 1998). According to them, establishing construct validity involves the empirical assessment of unidimensionality, reliability, and validity (convergent and Discriminant validity). In the present study, in order to check for unidimensionality, a measurement model was specified for each construct and CFA was run for all the constructs. Individual items in the model were examined to see how closely they represent the same construct. A comparative fit index (CFI) of 0.90 or above for the model implies that there is a strong evidence of unidimensionality (Byrne, 1994). The CFI values obtained for all the four constructs in the scale are equal to or above 0.90 as shown in Table. This indicates a strong evidence of unidimensionality for the scale. Once unidimensionality and reliability of a scale is established, it is further subjected to validation analysis (Ahire, Golhar and Waller, 1996).

Notes: Factor loadings greater than 0.5 is acceptable (Hair et al. 1995). **Alpha** values of 70% or higher are considered acceptable (Nunnally, 1978). **KMO** static value above 0.6 being acceptable (Kim and Mueller, 1978). **Item** deleted on account of low factor loadings (Hair et al., 1995).

MODEL FIT determines the degree to which the structural model fits the sample data. Table 12 shows a Chi square value ($\chi 2$) of 153.837 with 84 degrees of freedom. The CMIN/DF (minimum discrepancy divided by degrees of freedom) ratio was 1.831, which is within the recommended range of less than 5, which is indicative of an acceptable fit between the hypothetical model and the sample data (Carmines & McIver, 1981)[N]. The goodness- of-fit index (GFI) was 0.821 and adjusted goodness of- index (AGFI) was 0.745. The root mean square error of approximation (RMSEA) was 0.092, which falls within the cutoff value of 0.06 (Hu & Bentler, 1999) [O]. The Tucker-Lewis Index (TLI) was 0.928 while the Comparative Fit Index (CFI) was 0.943. The Bentler-Bonett normed fit index (NFI) was 0.884 and Bollen's

incremental fit index (IFI) was 0.944. The values for fit indices are shown in Table and all exceed the recommended level of 0.90, suggesting that the hypothesized model represented an adequate fit to the data.

ITEM RELIABILITY, COMPOSITE RELIABILITY AND AVERAGE VARIANCE EXTRACTED (AVE) Item reliability indicates the amount of variance in an item due to the underlying constructs rather than to error (Suh & Han, 2002). The item reliability of individual items can be assessed by squaring their respective standardized factor loadings (Segars, 1997)[P]. Indicator reliabilities should exceed 0.50, which provides evidence that items explain more variance than is explained by the error term (Bollen, 1989; Segars, 1997)[Q]. Table 13 reveals that all the items had R2 values greater than 0.50 excluding S6N, which shows that all variables are significantly related to their specified constructs and thus verifying the positive relationships among indicators and constructs (Hair et al., 1998). Composite reliability is a measure of the internal consistency of the construct indicators, which depicts the degree to which the items indicate the common latent (unobserved) construct (Hair et al., 1998)[R]. Anderson & Gerbing (1988) state that even a perfectly unidimensional scale will be of little practical use if the resultant composite score has unacceptably low reliability. Highly reliable constructs are those in which the indicators are highly intercorrelated, indicating that they are all measuring the same latent construct (Koufteros, 1999; Lu, Lai & Cheng, 2007)[S]**.** All constructs had composite reliability above the recommended level of 0. 70 (Hair et al., 1998). **AVE** measures the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error (Fornell & Larcker, 1981) [T]. Higher values of variance extracted indicate that indicators are truly representative of the latent construct (Hair et al., 1998). AVE values greater than 0.50 are considered adequate for any construct (Bagozzi & Yi, 1988; Hair et al., 1998)[U]. Table shows that all the constructs have AVE values above the recommended level of 0.50, thus providing further evidence of reliability.

MODEL FIT INDICES

Index of Fit	**Chi-Square(DF)**	**CMIN/DF**	**GFI**	**AGFI**	**P CLOSE**
Value	153.837	1.831	0.821	0.745	0.003
	NFI	**IFI**	**TLI**	**CFI**	**RMSEA**
	0.884	0.944	0.928	0.943	0.092

Table No – 11

PARAMETER ESTIMATES

LATENT VARIABLE	**ITEM LABEL**	**STANDERDISED FACTOR LOADING**	**CRITICAL RATIO**	**R^2**	**AVE**	**COMPOSITE RELIABILITY**
A	**S1**	0.83	10.207	0.6889	0.732	0.916
	S2	0.80	9.495	0.64		
	S3	0.92	13.273	0.8464		
	S4	0.87	**_a**	0.7569		
B	**S5**	0.74	8.356	0.5476	0.606	0.884
	S6N	0.64	6.508	0.4096		
	S7	0.85	9.810	0.7225		
	S8	0.80	9.053	0.64		
	S9	0.84	**_a**	0.7064		
C	**S13**	0.96	15.757	0.9216	0.878	0.956
	S14	0.97	16.257	0.9409		
	S15	0.88	**_a**	0.7744		
D	**S10**	0.93	11.309	0.8649	0.807	0.926
	S11	0.95	11.607	0.9025		
	S12	0.80	**_a**	0.64		
_a Indicates a parameter fixed at 1.0 in the measurement model, All Critical Ratios (t-values) are significant at 0.05.						

Table No - 12

SCALE VALIDATION

Once the reliability and the structure of the scale are supported, the validity of the instrument has to be assessed.

CONVERGENT VALIDITY

A measure is said to possess convergent validity if independent measures of the same construct converge, or are highly correlated (Netemeyer, Bearden & Sharma, 2003)[V]. Convergent validity can be accessed from the measurement model by determining whether each indicator's estimated pattern coefficient on its posited underlying factor is significant or not (Anderson & Gerbing, 1988). In the AMOS output file, the t-value is the critical ratio, which represents the parameter estimate divided by its standard error (Netemeyer, Bearden & Sharma, 2003). As can be seen from above table that, all the factor

loadings are significant at 0.05 significance level, which supports the convergent validity. According to Fornell & Larcker (1991), convergent validity of the construct is also demonstrated when the average variance extracted is above 0.50. Above table shows that the AVEs for all the constructs are above 0.50, which further supports the convergent validity of the measures.

DISCRIMINANT VALIDITY ANALYSIS

	D	A	B	C
D	0.898			
A	0.440	0.856		
B	0.165	0.579	0.778	
C	0.136	-0.057	-0.041	0.937

Table No - 13

* Based on (Fornell & Larcker, 1981), AVE in the Diagonal and squared correlation off-diagonal.

Discriminant validity refers to the extent to which measures of theoretically unrelated constructs do not correlate highly with one another (Brown, Churchill & Peter, 1993). The Discriminant validity of the measures in the present study was established by comparing the average variances extracted with the squared correlation between two constructs (Fornell & Larcker, 1981). If the squared correlation between constructs is less than either of their individual AVEs, it would suggest that each of the constructs has more error-free variance than shared with other constructs (Ping Jr., 2004). From Table 13, it can be seen that all AVEs are higher than squared inter-construct correlations. This result provides evidence of Discriminant validity.

DISCUSSION

As stated above from agricultural scenario of Indian agricultural as far as from the production point of view India consume around 90-95% of the total production and what export is about 2-3% of the total and another losses which occurred from the point of harvesting to final consumption are around more than 100801 thousand Crores. Now what we need to change is, increase the export by minimizing PH losses, as we cannot export from the required quota, so that we can convert the wasting uneconomical part to economical one, and in this way we can achieve our target of reducing losses and increasing export efficiently. Now we can relate the agricultural marketing helps in sustainable development of Indian agriculture. First part of analysis represents the facts about the cumulative agricultural production of different commodities, different modern marketing chains, agricultural export and import, post harvest losses of different commodities in India. Second part analyses the feedback of respondents about agricultural marketing, which shows the impact of agricultural marketing on increasing export and also decreasing post harvest losses for sustainable development as follows, a review of literature revealed that there is no doubt among researchers on the sustainable development as an effect of agricultural marketing activities. The purpose of this study was to examine the cumulative effect of agricultural marketing variables. Another aim of the study was to describe the development and refinement of a scale for measuring sustainable development and its antecedents. First, fifteen variable measures were developed and purified for measuring sustainable development using standard scale development procedures on a sample of 100 farmers of Bikaner APMC. Confirmatory factor analysis was then applied on data collected from 100 farmers. Results revealed that all the indicators had adequate item reliability. All the model fit indices were above the recommended criteria. Reliability was assessed using coefficient alpha, composite reliability and average variance extracted and all the values obtained were above the accepted range, thus establishing the reliability of the constructs. Convergent and discriminate validity was established for all the fifteen parameters.

IMPLICATIONS

The present study makes both academic and practical contributions. From an academic point of view, it contributes to the existing literature on agricultural marketing for sustainable development. The study first provides a theory-based framework for understanding the direct effects of different variables which affects the agricultural marketing and ultimately farmer's sustainable development. A significant contribution that the model makes is the appreciation of the construct 'A, B, and D' while construct 'C' shows neutral results in presence of A, B, D construct, but it shows the direct effect on others significantly, and its influence on sustainable development. Using data collected from farmers who uses agricultural marketing organisations services, it establishes reliability and validity of the scale. The newly refined and validated measures can be used by future researchers to study sustainable development as an effect of agricultural marketing.

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