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Exploration of Agricultural Challenges which influence Agricultural Growth to Small and Marginal Farmers in Tamil Nadu

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ABSTRACT

There are several challenges to farmers, however only few among them are discussed in this study. The agricultural challenges analysed in this study are as follows: small land holdings, seeds, manures and fertilizers, irrigation, lack of mechanization, soil erosion, agricultural marketing, inadequate storage facilities, transport and scarcity of capital. Demographic profiles taken in this study are as follows: residence, location, gender, age, education level, occupation, family members, family types and vehicles owned. Under this study major investigated problem is agricultural challenges to farmers. The study was made to know the significant relationship between agricultural challenges and demographic profile. Major concentrated demographic profile is vehicle used by small and marginal farmers and major concentrated agriculture challenge is agriculture market used by them.

The major objective of this study is to know the demographic profile of small and marginal farmers in selected districts of Tamil Nadu and to explore the agriculture challenge of problems in marketing with demographic profiles of farmers. Population of this study is small and marginal farmers of Tamil Nadu. In Tamil Nadu selected districts are taken as sample through stratified random sampling technique. It is recommended that farmers should own their vehicles for shifting their agriculture goods from one market to another for easy selling of goods to meet demand for their goods. This study also recommends enhancing the demographic profile of small and marginal farmers which will overcome the agricultural challenge of agricultural marketing. The study reveals there is significant relationship between the demographic profile and agricultural marketing.

1. Introduction

This study deals with agricultural challenges which influence agricultural growth to small and marginal farmers in Tamil Nadu. There are several challenges to farmers, however only few among them are discussed in this study. The agricultural challenges analysed in this study are as follows: small land holdings, seeds, manures and fertilizers, irrigation, lack of mechanization, soil erosion, agricultural marketing, inadequate storage facilities, transport and scarcity of capital. Demographic profiles taken in this study are as follows: residence, location, gender, age, education level, occupation, family members, family types and vehicles owned.

2. Investigated problems

Under this study major investigated problem is agricultural challenges to farmers. The study was made to know the significant relationship between agricultural challenges and demographic profile. Major concentrated demographic profile is vehicle used by small and marginal farmers and major concentrated agriculture challenge is agriculture market used by them.

3. Importance

The study of agricultural challenges is significant to avoid the constraints of poor production, non ability of marketing, scarcity of capital and so on. There are many agricultural challenges in view of different authors. But in these study agricultural challenges analysed were small land holdings, seeds, manures and fertilizers, irrigation, lack of mechanization, soil erosion, agricultural marketing, inadequate storage facilities, transport and scarcity of capital. It is important to study challenges for overcome difficulties in agriculture and to enhance the growth in agriculture coincidence with gross domestic product. Income of small and marginal farmers is low when compared to medium and large farmers in India. So it is significant to study small and marginal farmers' agricultural challenges.

4. Overview of the study

Importance of vehicles owned by farmers and agriculture challenges to small and marginal farmers are studied to know the significant relationship among them and affects to farmers. For this purpose study takes demographic profile and agricultural challenges in questionnaire. A field study was made with it and relationship also analysed. Major tools used to analysis are Annova and Kruskal- Wallis Test.

5. Review

Data of 2005-06 shows that the small and marginal farmers were 83% (Chand et. al., 2011). Small land holders are facing new challenge on integration of value chains, liberalization, globalization effects, market volatility etc. (Thapa and Gaiha, 2011). Use of tractor has positive effect on employment of agricultural labour and use of market facilities

(Singh, H.K.M., 1979). Role of middleman hides the market price signal to backwards and higher price are completely absorbed by them is an agricultural challenge in agricultural market (Johl, S.S., 1995). Ramawami, C. 2004, explains in his study about the significant of tractors, threshers and farm equipments and easy availability due to custom of hiring, facilitated even small farmers to adopt technologies. Demographic profile of vehicle is significant as per his study. Nayyar (1976) examined various factors which are directly or indirectly related with India's foreign trade for the time period of 1977-85 whether they are from domestic or international market such as price and non-price factor for the competitiveness of domestic export sector, transportation and infrastructural facility which are the major element for the growth of export sector of India on the other hand various external factors like price and non-price factor from the international market, protectionism for domestic industry by foreign country are found the main factor to influence export growth of India adversely.

6. Research Questions

1. How demographic profile factor vehicle does owned influence agricultural growth?
2. What are the challenges affecting farmers in their agriculture growth?

7. Research Objectives

1. To know the demographic profile of small and marginal farmers in selected districts of Tamil Nadu.
2. To explore the agriculture challenge of problems in marketing with demographic profiles of farmers.

8. Research Hypothesis

H0: There is no significant relationship between demographic factors of vehicles owned and challenges of agricultural growth.

H0: There is no significant relationship between demographic factors and agriculture challenge of problems in marketing

9. Research Methodology

Description of samples

Small and marginal farmers are playing vital role in growth of Indian economy. Population of this study is small and marginal farmers of Tamil Nadu. In Tamil Nadu selected districts are taken as sample through stratified random sampling technique.

Sources of Data

This study deals with both primary and secondary data. Primary data is based on structured questionnaire for agriculture challenges. Primary data is collected from selected respondents of three districts of Trichy, Karur and Erode. Secondary data is out from various sources as such: journals, books, conference papers, online resources, etc. which is related to the study. In Trichy selected blocks were as follows: Trichy block, Thottiyam block and Musiri block. Trichy block covers the village/municipal as follows: Agaram, Alathur and Elandapatti. In Thottiyam villages/municipals are as follows: chinnapallipalayam, Elurpatti and Kaduvetti. In Musiri block villages covered are as follows: Amoor, Anjalam and Arachi. When consider to Karur three blocks selected are as follows: Karur, Krishnarayapuram and Kulithalai. Karur block covers the village of Nerur North, Nerur South and Vangal. Krishnarayapuram with Balarajapuram, Mahadanapuram and Mayanur. Kulithalai covers with Alathur, Chinniyampalayam and Inugur. Erode block is classified into Erode Municipal, Chittode and Nasainur. Kodumudi block covers: Sivagir, Unjalur and Thamarapalayam. Modakurichi block is with Arachalur, Nanjai Uthukuli and Elumathur. Based on Cauvery zone and soil classification blocks and villages were randomly selected.

Pilot Study

A pilot study was conducted among 45 respondents using a questionnaire. 15 questionnaire from Karur block, another 15 samples from Krishnarayapuram block and 15 from Kulithalai block. The questionnaire was framed covering major issues such as farm diversification, determinants and challenges which influence agriculture growth to farmers.

Based on the reliability and validity measures inappropriate questions were eliminated and the final questionnaire was redesigned and redrafted. The questionnaire was drafted in regional language namely, Tamil which facilitate easy understanding for the common households especially those residing in the rural areas.

Instrument description (questionnaire)

Questionnaire for agricultural challenges which influence agricultural growth were framed with following table:

Table: 1 Agricultural Challenge

Agricultural Challenges which influence Agricultural growth	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Small Land Holdings					
Seeds					
Manures and Fertilizers					
Irrigation					
Lack of mechanization					
Soil erosion					

Agricultural Marketing					
Inadequate storage facilities					
Inadequate Transport					
Scarcity of capital					

Tools used

Major tools used in this study are as follows: Kruskal-Wallis Test and Annova

Evidence of reliability and validity

The questionnaire was framed by using Cronbach's alpha co efficiennts in order to measure the reliability and validity of data. The value of Cronbach's alpha co efficient was .903 which is well above .901 the standard value. Based on reliability and validity questionnaire was designed by elimination of inappropriate questions.

Sample Design

Sampling technique used in this study is stratified random sampling technique. A field study was made with sample size of 528 respondents. Under this method of sample design, Tamil Nadu state is first stratified into Cauvery zone then Cauvery zone is stratified with red, laterite and black soil. Under these strata three districts were randomly selected with 180 samples each. Three districts were again classified into three blocks for each district with 60 each samples per block (total nine blocks). Out of Nine blocks three villages from each block were randomly selected with 20 samples each (27 villages). Due to incomplete questionnaire 12 samples were rejected out from 540 samples.

10. Analysis and Interpretation

Kruskal-Wallis Test

H0: There is no significant relationship between demographic factors of vehicles owned and challenges of agricultural growth.
H1: There is a significant relationship between demographic factors of vehicles owned and challenges of agricultural growth.

To check the assumption, **NPar Tests and Kruskal-Wallis Test** is used to test the significance difference between two samples.

Table: 2
Ranks

	Vehicles owned	N	Mean Rank
small land holding	Two Wheelers	480	241.10
	Four Wheelers	48	498.50
	Total	528	
seeds	Two Wheelers	480	242.00
	Four Wheelers	48	489.50
	Total	528	
manures and fertilizers	Two Wheelers	480	241.70
	Four Wheelers	48	492.50
	Total	528	
irrigation	Two Wheelers	480	241.10
	Four Wheelers	48	498.50
	Total	528	
lack of mechanization	Two Wheelers	480	240.50
	Four Wheelers	48	504.50
	Total	528	
soil erosion	Two Wheelers	480	240.50
	Four Wheelers	48	504.50
	Total	528	
agricultural marketing	Two Wheelers	480	241.40
	Four Wheelers	48	495.50
	Total	528	
inadequate storage facilities	Two Wheelers	480	244.10
	Four Wheelers	48	468.50
	Total	528	

inadequate transportation	Two Wheelers	480	245.30
	Four Wheelers	48	456.50
	Total	528	
scarcity of capital	Two Wheelers	480	242.90
	Four Wheelers	48	480.50
	Total	528	

Table: 3

Test Statistics[a,b]

	small land holding	seeds	manures and fertilizers	irrigation	lack of mechanization	soil erosion	agricultural marketing	inadequate storage facilities	inadequate transportation	scarcity of capital
Chi-Square	135.566	122.762	127.323	139.557	141.197	140.747	134.680	109.867	93.372	115.450
df	1	1	1	1	1	1	1	1	1	1
Asymp. Sig.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Vehicles owned

Oneway

H0: There is no significant relationship between demographic factors and problems in marketing

H1: There is significant relationship between demographic factors and problems in marketing

To check the assumption, **ANOVA** test is used to test the significance difference between two samples

Table: 4

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Residence	high cost of transport	120	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	lack of storage facility	72	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	delay in settlement	96	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	unstable price	108	1.5556	.49922	.04804	1.4603	1.6508	1.00	2.00
	non availability of regulated market	132	2.0000	.00000	.00000	2.0000	2.0000	2.00	2.00
	Total	528	1.3636	.48150	.02095	1.3225	1.4048	1.00	2.00
Location	high cost of transport	120	1.2000	.40168	.03667	1.1274	1.2726	1.00	2.00
	lack of storage facility	72	2.0000	.00000	.00000	2.0000	2.0000	2.00	2.00
	delay in settlement	96	2.0000	.00000	.00000	2.0000	2.0000	2.00	2.00
	unstable price	108	2.1759	.38253	.03681	2.1030	2.2489	2.00	3.00
	non availability of regulated market	132	2.7348	.44310	.03857	2.6586	2.8111	2.00	3.00
	Total	528	2.0379	.63312	.02755	1.9838	2.0920	1.00	3.00
Gender	high cost of transport	120	1.8000	.40168	.03667	1.7274	1.8726	1.00	2.00
	lack of storage facility	72	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	delay in settlement	96	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	unstable price	108	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	non availability of regulated market	132	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	Total	528	1.1818	.38606	.01680	1.1488	1.2148	1.00	2.00
Age	high cost of transport	120	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	lack of storage facility	72	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	delay in settlement	96	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00

	unstable price	108	1.7778	.41768	.04019	1.6981	1.8575	1.00	2.00
	non availability of regulated market	132	2.0000	.00000	.00000	2.0000	2.0000	2.00	2.00
	Total	528	1.4091	.49213	.02142	1.3670	1.4512	1.00	2.00
Education	high cost of transport	120	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	lack of storage facility	72	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	delay in settlement	96	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	unstable price	108	1.1111	.31573	.03038	1.0509	1.1713	1.00	2.00
	non availability of regulated market	132	2.0000	.00000	.00000	2.0000	2.0000	2.00	2.00
	Total	528	1.2727	.44578	.01940	1.2346	1.3108	1.00	2.00
Occupation	high cost of transport	120	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	lack of storage facility	72	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	delay in settlement	96	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	unstable price	108	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	non availability of regulated market	132	1.9091	.28857	.02512	1.8594	1.9588	1.00	2.00
	Total	528	1.2273	.41947	.01825	1.1914	1.2631	1.00	2.00
Family type	high cost of transport	120	1.3417	.47626	.04348	1.2556	1.4278	1.00	2.00
	lack of storage facility	72	1.2083	.40897	.04820	1.1122	1.3044	1.00	2.00
	delay in settlement	96	1.2917	.45692	.04663	1.1991	1.3842	1.00	2.00
	unstable price	108	2.0000	.00000	.00000	2.0000	2.0000	2.00	2.00
	non availability of regulated market	132	2.0000	.00000	.00000	2.0000	2.0000	2.00	2.00
	Total	528	1.6136	.48738	.02121	1.5720	1.6553	1.00	2.00
Family members	high cost of transport	120	1.1583	.36658	.03346	1.0921	1.2246	1.00	2.00
	lack of storage facility	72	1.3056	.46387	.05467	1.1966	1.4146	1.00	2.00
	delay in settlement	96	1.2500	.43529	.04443	1.1618	1.3382	1.00	2.00
	unstable price	108	1.0463	.21111	.02031	1.0060	1.0866	1.00	2.00
	non availability of regulated market	132	1.9091	.28857	.02512	1.8594	1.9588	1.00	2.00
	Total	528	1.3598	.48041	.02091	1.3188	1.4009	1.00	2.00
Vehicles owned	high cost of transport	120	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	lack of storage facility	72	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	delay in settlement	96	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	unstable price	108	1.0000	.00000	.00000	1.0000	1.0000	1.00	1.00
	non availability of regulated market	132	1.3636	.48288	.04203	1.2805	1.4468	1.00	2.00
	Total	528	1.0909	.28775	.01252	1.0663	1.1155	1.00	2.00

Table: 5
ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Residence	Between Groups	95.515	4	23.879	468.323	.000
	Within Groups	26.667	523	.051		
	Total	122.182	527			
Location	Between Groups	150.665	4	37.666	325.197	.000
	Within Groups	60.577	523	.116		
	Total	211.242	527			
Gender	Between Groups	59.345	4	14.836	404.136	.000
	Within Groups	19.200	523	.037		

	Total	78.545	527			
Age	Between Groups	108.970	4	27.242	763.274	.000
	Within Groups	18.667	523	.036		
	Total	127.636	527			
Education	Between Groups	94.061	4	23.515	1152.977	.000
	Within Groups	10.667	523	.020		
	Total	104.727	527			
Occupation	Between Groups	81.818	4	20.455	980.625	.000
	Within Groups	10.909	523	.021		
	Total	92.727	527			
Family type	Between Groups	66.482	4	16.620	148.083	.000
	Within Groups	58.700	523	.112		
	Total	125.182	527			
Family members	Between Groups	56.682	4	14.170	114.110	.000
	Within Groups	64.947	523	.124		
	Total	121.629	527			
Vehicles owned	Between Groups	13.091	4	3.273	56.036	.000
	Within Groups	30.545	523	.058		
	Total	43.636	527			

11. Recommendations/Suggestions

It is recommended that farmers should own their vehicles for shifting their agriculture goods from one market to another for easy selling of goods to meet demand for their goods.

12. Findings

From Table -3, at 5 % level of significance the value of the Kruskal-Wallis Test statistics are lesser than 0.05 (0.000 < 0.05, respectively). So the Null Hypotheses is rejected and concluded that there is significant difference between demographic factors of vehicles owned and challenges of agricultural growth.

ANOVA test shows that the significance value is 0.000 < 0.05. Therefore, the Null Hypotheses is rejected and concluded that there is significant difference between demographic factors and problems in marketing.

13. Limitations

1. The study is confined to Tamil Nadu State only.
2. Due to time and money savings sample size is limited only 528.
3. The study is only about small and marginal farmers.
4. The study is limited only to Agricultural Challenges.

14. Conclusions

Agricultural goods are perishable. Price of the product may vary according to cost of production, storage capacity, demand, etc. Agricultural marketing is buying and selling of agricultural goods. Low productivity is because of improper marketing. Improper marketing occurs due to hindrance of transport, non suitable price available in market etc. Constraints of these difficulties are overcome through possession of vehicles by farmers to transport their agricultural goods.

15. Future study

Researcher can further study demographic factors with farm diversification, agricultural prospects, subsidiary activities etc. of small and marginal farmers.

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