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Determinants of Market Information Infrastructure and Arrivals of Minor Forest Produce (MFP) In High Altitude and Tribal (HAT) Zone of Andhra Pradesh

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Abstract

Infrastructure facilities on market information are telecommunication systems, computers with internet facilities, adequate working staff and display boards which play significant role in disseminate market information to stakeholders. Market information makes stakeholders to take decision about collection and selling of the forest produce, and it has impact on arrivals of the produce. Present paper deals with the factors influencing infrastructure and arrivals in GCC (Girijan Cooperative Corporation) of HAT zone of Andhra Pradesh. GCC staff and 120 traders were taken for the present study. MLRM (Multiple Linear Regression Model) analysis was employed to study the relationship among both independent and dependent variables. The results of the study indicated that major factors influencing MI infrastructure are quantity of market arrivals of MFP, funds received from GCC significant at 1%, active participation of buyers and sellers significant at 5%. Factors influencing market arrivals are remunerative prices realized for MFP in GPCMS (Girijan Primary Co–operative Marketing Society) /PPCs (Primary Procurement Centers) (relative to prices prevailing in shandies), prompt payment of sales proceeds are significant at 1%, and timely market information from GPCMS/PPCs, availability of good road facility to GPCMS/PPCs significant at 5%. Local government should focus on constructing suitable road facilities, conduct awareness programs about value addition units and educate the tribal farmers about importance of MFP.

Keywords: Arrivals, infrastructure, MLRM, MFP, HAT zone

1. Introduction

MFP serve as inseparable sources of spices, medicines, food, flavorings, beverages, perfumes, polishes, paints, construction materials and extracts used in the chemical industry (Arnold and Ruiz Perez, 1998;Singh and Kumar, 2021).HAT zone covers hilly areas of four districts *viz.,* Visakhapatnam, Srikakulam,Vizianagaram and East Godavari of Andhra Pradesh. Andhra Pradesh possesses 18.28% of the total area under forest cover in India. Narrowing down, the forest area of the state constitutes around 22.51% of its total geographical area of 162,975 km^2, amounting to 36,685.67 km^2. Out of this, HAT zone forests cover a sizable portion of 32.49%. When compared to rest of agro climatic zones in Andhra Pradesh, major availability of MFP was observed in this zone. HAT zone covered with vast forest territory, where access to market information through modern devices was one of the major issues because in the study area installation of mobile towers is biggest task for telecommunication departments and existing road facilities also in poor condition (Mehta et al., 2013; Chaudhary et al., 2016) leads to higher transportation cost (Kumari et al., 2016; Sharma et al., 2020).

Honey, hill broom *(Thysanolaena maxima)*, markingnut (*Semecarpus anacardium*), myrobalan (*Terminaliachebula*), naramamidi bark (*Litsea deccanensis*) and seeded tamarind (*Tamarindus indica*) was selected (Kumar et al., 2022b) under study because it contributes 84% share value of income. Statements from India stat website, Chhattisgarh recorded the highest arrivals of MFP (17684.79 MT), constituting 76.74% of that of the nation. Odisha recorded the second highest average MFP arrivals of 4106.91 MT, comprising 17.82% of the nation's total. In terms of value, Chhattisgarh and Odisha recorded Rs.4062.99 and Rs. 839.77 lakhs, respectively. It is disheartening to say that Andhra Pradesh's contribution pales in comparison to both those States, with arrivals of 122.76 MT amounting to Rs. 45.41 lakhs (Anonymous). As one takes note of the fact that the share of Andhra Pradesh regarding quantity of MFP was a meagre 0.53% (0.85% of the total value) when compared with other states, it is a sign to the Andhra

Pradesh Government to prioritize the trade of MFP and the welfare of its producers.

The above evidence revealed the importance of MFP and its income contribution for organizations. In the tribal areas of Andhra Pradesh, the GCC/GPCMS and PPCs has been charged with the responsibility to disseminate market information among tribal farmers. GCC had good infrastructural facilities and ground level GPCMS and PPCS for collection of MFP with help of timely provide information to stakeholders. Currently, GCC possesses a vast network comprising of 26 affiliated GPCMS, and serves as a funding agency to its societies for MFP procurement. GPCMS procure the MFP through PPCs at the door steps of the tribals, at constantly updated prices fixed and declared by GCC and deliver the produce to GCC periodically or occasionally. So, GPCMS are designated as agents to GCC for the procurement of MFP and Surplus Agricultural Produce (SAP) from the tribals in their respective areas of operation. A commission @ two % is paid by GCC to the GPCMS on the value of the produce purchased and handed over to it. Continuous efforts from GCC helped for both tribal farmers and traders are the beneficiaries for increasing their access to more market opportunities.Timely dissemination of market information, remunerative prices, prompt payment and good road facilities for MFP makes good arrivals. With these background of study supports in depth study of infrastructure facilities, arrivals and relevant factors association with mentioned depended variables.

2. Materials and Methods

In the present study data was collected on market information infrastructure and arrivals from GCC staff at various levels i.e. Division level, GPCMS level. Present study covered six MFP based on total share value of the produce. Ten GPCMS and relevant PPCs (across five Divisions) were selected for depth investigation during 2020–21. MLRM was carried out to analyze the factors determining strengthening of infrastructure (MI) in GPCMS/PPCs and market arrivals of selected MFP in GPCMS/PPCs. Each model included one dependent variable and five explanatory variables. The following linear model was employed for the analyses:

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\mu_i \quad \text{..... (1)}$$

In the above models, β_0 is the intercept term, giving average effect of Y when all the included variables were absent. The stochastic terms μ_i and ε_i reflect intrinsic randomness in the data of respective models. β_1 to β_5 are partial regression coefficients. The partial regression coefficient, (β_1 to β_5) measures change in the mean value of Y per unit change in X_i holding other variables constant (Table 1).

3. Results and Discussion

3.1. Determinants of infrastructure (MI)

MLRM employed to analyze the determinants of strengthening of infrastructure (MI) in GPCMS/PPCs revealed that market arrivals of MFP in GPCMS/PPCs and funds received from GCC are the major influential factors that are significant at one % level. In study area market arrivals of selected MFP is major contributory factor for generating revenue by the GCC and this in turn facilitate infrastructure investment on MI in GPCMS/PPCs this finding is in line with the findings of Kaur and Kaur

Table 1: Determinants for strengthening infrastructure (MI) and Market arrivals in selected GPCMS/PPCs

Variables	Strengthening MI	Variable type	Market arrivals	Variable type
Dependent Variable (Y)	Investments made on strengthening MI (Rs)	Continuous	Quantity of market arrivals of MFP in GPCMS/PPCs (Quintals)	Continuous
Independent Variables				
X_1	Quantity of market arrivals of MFP (Quintals)	Continuous	Rainfall (mm)	Continuous
X_2	Number of farmers participated in selling MFP in GPCMS/PPCs	Continuous	Remunerative prices realized for MFP in GPCMS/PPCs (relative to prices prevailing in shandies) (1 if realized remunerative prices, '0'otherwise)	Dummy variable
X_3	Number of buyers participated in transactions at GPCMS/PPCs	Continuous	Timely market information from GPCMS/PPCs (1 if there is information, '0'otherwise)	Dummy variable
X_4	Funds received from GCC (Rs)	Continuous	Availability of good road facility to GPCMS/PPCs (1 if available, '0'otherwise)	Dummy variable
X_5	Availability of physical amenities like pucca building, internet connectivity etc. (1 if available, '0'otherwise)	Dummy variable	Prompt payment of sales proceeds (1 if there is prompt payment, '0'otherwise)	Dummy variable

2003, Khunt and Gajipara, 2008.This is because, GPCMS and PPCs at the grass root level are aimed to protect the tribal farmers from exploitation by middlemen and petty traders. It also aimed at establishing a mutually beneficial relationship between the tribals and the procurement agencies (Table 2).

The other important activities of GPCMS/PPCs like procuring MFP from tribals at reasonable and fair prices, prompt payment of sales proceeds, supplying essential commodities and other daily requirements at a fair price through a network of fair price shops (otherwise called as Daily Requirement depots), meeting their credit requirements in an easy, convenient and effective manner, imparting training to tribals in collecting the MFP without endangering the trees and environment, providing market information from time to time, guarding against deterioration and degradation of MFP, researching to find better information dissemination and storage techniques etc., have certainly contributed for gaining confidence among the tribal farmers. So, the strengthening of GPCMS/PPCs with requisite infrastructure facilities at grass root level will definitely contribute towards safeguarding the tribal farmers' interests. The increased revenue of GCC through the retail sales of MFP and consequent allocation of funds to GPCMS/PPCs have exerted positive and significant influence (at 1% level) on strengthening MI in the HAT zoneresults corroborates with the findings of Pavithra etal., 2018. This is because, market information pertaining to facilities available at GPCMS/PPCs and timely dissemination of market prices data of MFP to farmers and traders enable them to derive maximum benefit of their sales and purchases. Further, it will increase the efficiency in marketing. It is also found interesting that the competitive environment between farmers and traders (through their active participation) also contributed significantly (at 5% level) to strengthen MI at GPCMS/PPCs. This signifies that, allocation of funds from GCC and increased arrivals of produce to GPCMS/PPCs and active participation of farmers and traders are the major influential factors that contribute to strengthening of MI infrastructure in selected GPCMS/PPCs.

Table 2: Determinants for strengthening infrastructure (MI) in GPCMS/PPCs

Variables	Coefficients	SE	't' cal
Constant	14537.623	7028.886	3.491
Quantity of market arrivals of MFP (Quintal)	4.061**	1.135	3.577
Number of farmers participated in selling MFP in GPCMS/PPCs	5.543*	2.590	2.140
Number of buyers participated in transactions at GPCMS/PPC	1.580*	0.763	2.070
Funds received from GCC (Rs)	0.662**	0.151	4.388
Availability of physical amenities	1.845NS	1.764	1.046
Adj R^2	0.762**		

**: Significant at (p=0.01) level; *: Significant at (p=0.05) level, NS: Non–significant; Raw Data Source: Field Survey

3.2. Determinants of market arrivals of selected MFP

MLRM was again employed to analyze the determinants of market arrivals of MFP in GPCMS/PPCs. The findings (Table 3) revealed that all the considered explanatory variables (except rainfall) have exerted positive and significant influence on market arrivals of MFP in GPCMS/PPCs. It is interesting that the market prices prevailing for MFP (relative to prices prevailing in shandies) have exerted positive and significant influence (at 1% level) on market arrivals in GPCMS/PPCsthis finding is in line with the findings of Singh et al., 2017. This is mainly because of competitive environment and prompt dissemination of market prices information from time to time (significant at 1% level) to farmers through display boards, SMS and daily announcements through radio, local television channel *etc* this finding is in line with the findings of Jairath and Shalendra, 2016, Kumar et al., 2022a.

Table 3: Determinants of market arrivals of MFP in GPCMS/PPCs

Variables	Coefficients	SE	't' cal
Constant	275.327	94.058	2.927
Rainfall	0.228NS	0.165	1.388
Remunerative prices realized for MFP in GPCMS/PPCs (relative to prices prevailing in shandies)	61.244**	21.020	2.914
Timely market information from GPCMS/PPCs	3.976**	1.250	3.182
Availability of good road facility to GPCMS/PPCs	6.096*	2.890	2.109
Prompt payment of sales proceeds	8.409**	2.119	3.968
Adj R^2	0.831**		

**: Significant at (p=0.01) level; *: Significant at (p=0.05) level, NS: Non–significant; Raw Data Source: Field Survey

Further, prompt procurement and payment of sales proceeds have also contributed for significant (1% level) increase in market arrivalsthis finding is in line with the findings ofSonu and Badal,, 2016. So, the GPCMS/PPCs should focus on above three influential factors to promote market arrivals of MFP. Further, strengthening link roads to GPCMS/PPCs also contributed significant influence on market arrivals of MFP to GPCMS/PPCsthis finding is in line with the findings of Manjunath and Kannan, 2012.

4. Conclusion

The major influencing factors on market information infrastructure on market information are arrivals, active participation of buyers and sellers, and funds from GCC. The main factors influencing market arrivals are prices, immediate payments, timely dissemination of information and road facilities. Educate the local tribal towards importance of market information and value of MFP. Road connectivity in the studied area needs to be upgraded with pucca roads for improving interconnectivity among the villages and to the outside world.

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