Determinants of Willingness to Adopt M-Commerce among Fisher Women Retailers in Karnataka, India

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Abstract

The study assesses the potential for an intervention of m-commerce in the fisher women retailer community of coastal Karnataka region of India. The study was conducted using primary data with a sample size of 383 fisher women across 26 markets in Udupi, Uttara Kannada and Dakshina Kannada districts of Karnataka, who are engaged in fishing practices. This study analyses m-commerce adoption and digital literacy among fisher woman retailers. Study identifies an insight into the degree of acceptance, zeal to learn and willingness to experiment technology change and shift in the trade practices with a digital platform. The result, using binary logistic regression also identifies variation of significant variable and behaviour of the population across 3 districts. The present study provides the basis for further research to build m-commerce model for the fish retailers in coastal Karnataka..

Keywords

Introduction

The Coastal Karnataka has 191 marine fishing villages spread across the three districts, so on average every 1.6 km there is one fishing village. One of the major trade and commerce in coastal Karnataka is marine fisheries (Bhatta et al., 2000). According to Central Marine Fisheries Research Institute, Karnataka has 30,713 fishermen families, 167,429 fisher's population. Women formed 48% of the population (CMFRI, 2010).

In an era where Information and communication technology (ICT) is pervading all service sectors and business development models, keeping up with the demands of this digitally driven market becomes crucial for surviving one's business (Kramer et al., 2007). The coastal belt of Karnataka has been a hotspot for fishing practices and trade. There are many different communities that live on trading fishes or acting as middlemen or resource providers to other giants of this industry. However, lack of infrastructure and basic technology at the grass root level is affecting the business of several fisher women in this part of the state (Gunakar and Bhatta, 2016). Their digital

illiteracy becomes a cause for their exploitation and marginalization by other big traders in the market and cause a drop in their commerce (Sathiadhas et al., 2011; Tax Research Team, 2016). During the demonetization period (8 Nov 2016 – 30 Dec 2016) in India, although it attracted a lot of flak from all spheres of the society, people eventually prepared themselves for the new era of digital age (Singh and Mittal, 2017). It became the need of the hour to equip oneself and their business tools to keep abreast with the demands of the market.

(Gupta, 1984) and (Srivastava and Uma, 1985) had studied the marketing of fish and fishery products in India, wherein they had analysed price variations among species across states and had identified infrastructural bottlenecks in efficient marketing system. (Abraham, 2006) study show how with the adoption of mobile phones by the fishing community, there was reduction in price variation in marketing fish products in Kerala. But this study fails to give the real life situations where retailers can directly sell their goods to the customers. In the fishing industry issues include high perishability and bulkiness of material, high cost

of storage and transportation, high heterogeneity in size and weight among species, no guarantee of quality and quantity of commodity, low demand elasticity and high price spread recur on an everyday basis (Gunakar and Bhatta, 2016; Aswathy et al., 2014). It becomes challenging for the supplier to reach the customers to sell their fish in the same day. This results in selling the fish abruptly, resulting in low income.

ICT plays a major role in connecting the customers with the sellers (Rock, 2009). To penetrate through ICT solution, their current adoption and willingness to use the technology has to be studied (Li and Huang, 2009). With more than one billion mobile subscriber's in India (Ministry of Communications and Information Technology, India 2016), m-commerce plays a potential role for farmers to directly sell their goods to the customers (Norman, 2009).

The paper intends to explore the socio-economic perspective of fisher women retailer on their current digital adoption, their readiness to move towards and their willingness to go digital in their business. Thus, the focused objectives of this study are: Conducting a comprehensive survey of Socio-demography of the fisher women retailers, to assess their readiness to adopt mobile commerce and identify the determinants to analyse the fisher women retailer's willingness to use mobile commerce.

Materials and methods

As per 2010 survey (CMFRI, 2010), 14867 people are involved in marketing of fish with 12382 women making the larger share. In this study, fisher women retailers were considered across 3 districts of Coastal Karnataka based on the primary data collected from survey of sample size 383 respondents of across 26 fish markets. These 26 fish markets were chosen as per the accessibility covering both Urban and rural areas representing all 3 districts. Fisher women retailers were selected randomly from the total population.

In this study, major and minor markets were chosen as per the accessibility of location to include fisher women retailer's from both the segments. A market with number of retailers more than 30 were considered as major market and lesser than 30 as minor market. Although some information on the number of fresh retailers in the market were available, it was challenging to arrive at a number, as these retailers change their market

place from one to another or stay absent for many days.

Udupi District: In this district thirteen markets were selected with five major markets Malpe, Udupi fish market, Kalianpura, Sastan and Kundapura and eight minor markets Kodi Bengre, Shirva, Parkala, Brahmavara, Uchilla, Kapu, Uchilla and Padubidri.

Dakshina Kannada District: Here seven markets were selected with two major market -State Bank fish market and Suratkal, and five Minor markets Urva market, Bejai, Kankanady, Mulki and Kavoor.

Uttara Kannada District: here five major markets were selected namely Karwar, Honnarvara, Bhatkal, Kumta, and Ankola and one minor market Murdeshwara.

For the study, Questionnaire based personal interviews were conducted to understand current adoption, readiness and willingness of the population to adopt digital platform (Davis, 1989) (Gebauer and Shaw, 2004).

District	Frequency	Percentage
Udupi	166	43.3
Dakshina Kannada	85	22.2
Uttara Kannada	132	34.5
Total	383	100

Source: own survey and processing.

Table 1. Distribution of sample fish retailers in 3 districts of coastal Karnataka.

In the pre-survey, it was observed that the fisher women were initially reluctant or suspicious to be part of the survey without agents and union leader's approval. After due approval from the agent and the union leader, survey was conducted among fisher women retailer's. Table 1 provides the distribution of population and markets/ area among the districts considered for the study.

The Primary data was analysed using the Statistical Package for Social Science (SPSS version 14.1). Correlation matrix was used to understand the relation between their willingness to use m-commerce against their age and education. Binary logistic regression backward stepwise method was used to identify the key determinants to analyse the fisher women retailer's willingness to use m-commerce and the statistical significance was set at $P < 0.005$.

Results and discussion

Convenient Random Sampling technique was

used by choosing selected areas in Udupi, Uttara Kannada and Dakshina Kannada district. The repondents mean age was 45 (standard deviation, 8.45) with minimum age 25 and maximum age of 75. The chosen sample size for research is 383 with confidence level 95% and with margin of error 5%.

Survey details provides a comprehensive insight into the various characteristics of fisher women retailer. Table 2 presents the data collected on these fisher women retailers in all three districts.

For any adoption of digital platform it is important to have a bank account. Survey details shows that around 89% of the respondents have a bank account with 100% Aadhar (Aadhaar number is a 12-digit number issued by the government of India to the residents of India after sufficient verification process laid down by the Authority) enrolment and 72.8% have a nationalized bank account. 91.4% of the respondents own a featured mobile phone and only 2.3% have a smartphone. This gives us an opportunity to explore the digital services

for featured phone through Unified Payments Interface (UPI).

It was very intriguing to see 63.4% of the respondents were interested to undergo digital literacy training with 59.8% showing their willingness to use m-commerce for their day to day business. Correlation Matrix was used to see whether there is a relation between age and willingness to use m-commerce and between education and willingness to use m-commerce.

Table 3 illustrates there is significant relationship between age and willingness to use m-commerce with p-value < 0.001 with 71% of the respondents under age of 45 willing to use m-commerce.

Table 4 presents a statistically significant relationship between education and willingness to use m-commerce with p-value < 0.001. Result highlights that education has a major role in fisher women life for bringing any technological change in their day to day life as well as business.

Variables	Category	Frequency	%
Age	<= 35	58	15.1
	36–45	159	41.6
	46–55	131	34.2
	> 55	35	9.1
Education (Class)	Illiterate	56	14.6
	1-3	56	14.6
	4-7	197	51.4
	8-10	68	17.8
	>10	6	1.6
Average/ Day Sales(₹)	<= 2500	104	27.2
	2501–5000	171	44.7
	5001–7500	61	15.8
	>7500	47	12.3
Bank Account	Not Present	42	11
	Present	341	89
Bank Type	National	279	72.8
	Cooperative	62	16.2
	NA	42	11
Aadhar-linked	Yes	383	100
	No	0	0
Phone model	No Phone	24	6.3
	Featured	350	91.4
	Smart	9	2.3
Know to use SMS	Yes	82	21.4
	No	301	78.6

Source: own survey and processing

Table 2: Survey details with N=383 (to be continued).

Variables	Category	Frequency	%
Have Debit Card	Yes	282	73.6
	No	101	26.4
Awareness about Cashless Payment	Yes	277	72.3
	No	106	27.7
Customer request for Digital Payment	Yes	65	17
	No	318	83
Interested in digital training	Yes	243	63.4
	No	140	36.6
Willingness to use m-commerce	Yes	229	59.8
	No	154	40.2

Source: own survey and processing

Table 2: Survey details with N=383 (continuation).

		Age				Total	p-value
		<=35	36-45	46-55	>55		
Willingness to use m-commerce	Yes	42	112	64	11	229	
	No	16	47	67	24	154	< 0.001
Percentage		72.4	70.4	48.8	31.4	59.7	

Source: own survey and processing

Table 3. Correlation matrix on age and fish retailers willingness to use m-commerce.

		Education Level				Total	p-value
		0	1-3	4-7	8-10		
Willingness to use m-commerce	Yes	10	21	129	63	229	
	No	46	35	68	5	154	< 0.001
Percentage		17.8	37.5	65.4	92.6	59.7	

Source: own survey and processing

Table 4: Correlation matrix on education level and fish retailers' willingness to use m-commerce.

		District			Total	p-value
		Udupi	Dakshina Kannada	Uttara Kannada		
Willingness to use m-commerce	Yes	97	70	62	229	
	No	69	15	70	154	< 0.001
Percentage		58.4	82.3	46.9	59.7	

Source: own survey and processing

Table 5: Correlation matrix on fish retailers' willingness to use m-commerce in each district.

Table 5 reveals the respondents from three districts and their view on using m-commerce with p-value < 0.001. Result infers that Dakshina Kannada District (82.3%) respondents are keen to move their business to m-commerce platform in comparison to Udupi (58.4%) and Uttara Kannada (46.4%) districts.

Table 6 shows the combined result of respondents of three districts. It reveals that **education** (p-value < 0.001) of fisher women, **having a debitcard** (p-value < 0.001) and **awareness about cashless payment** (p-value <0.001) had a significant influence on the output variable i.e. willingness to use m-commerce. Our analysis showed that

average per day sales (p-value < 0.004) of fisher women with sales greater than Rs. 5000/- had a significant, yet weakly positive relation.

Key Determinants for individual districts Udupi, Dakshina Kannada and Uttara Kannada districts were analysed using binary logistics regression – backward stepwise method. Result analysis shows that in Udupi district **awareness about cashless payments** (p- value < 0.002) had a significant influence. In Dakshina Kannada district **using SMS** (p-value < 0.001) had a higher positive significance. In Uttara Kannada district **education** (p-value <0.001) and **having debit card** (p-value < 0.001) had a higher significance value.

Variables	P value	Exp(B Odds Ratio)	95% C.I for Exp(B)	
			Lower	Higher
Education	.000	1.258	1.133	1.397
Average Per day sales	.004	1.000	1.000	1.000
Phone Type	.054	0.219	.047	1.025
Use Debit Card	.000	3.605	1.752	7.417
Heard about Cashless Payment	.000	6.230	3.294	11.786
Customer request for digital payment	.014	2.845	1.231	6.577

Source: own survey and processing

Table 6. Identification of significant variables that have positive impact on willingness of fisher women retailers of coastal Karnataka to use m-commerce.

Conclusion

This study reflects upon education and age of the fisher women retailers are important determinants for their willingness to adopt to the digital platform. Fisher women who were aware of promotion of cashless payments and related commercial created willingness among women to accept digital platform for their trading activities. As the study reveals different determinants based on the districts, a thorough study on determinants of each districts individually would throw some other dimensions for adoption of m-commerce model. Further investigation and studies are necessary to fine tune the customer's readiness and willingness among three districts. Income of fisher woman retailers and quality of their life can be enhanced by an appropriate m-commerce model which is built by considering the above all determinants.

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