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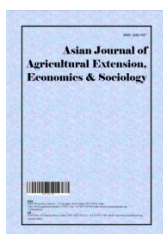
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# **Perception of Palm Sugar Enterprise Units towards E-commerce Platform in Southern Tamilnadu**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Palm sugar is a rapid growing industry. The palm sugar products available through e-commerce platform helps the enterprises to reach more markets leading to more customers and the consumers can get quality products free of adulterations from the traditional producers. The purpose of the paper is to study the awareness and perception of palm sugar enterprise units towards e-commerce platform. Other palm sugar edible allied product enterprises are also considered in the study. The enterprise unit sample comprises of the private enterprises, societies, traders, exporters and distributors. The result of the study shows that a major of the respondents has awareness and knowledge about e-commerce in the palm sugar enterprise sector. Their perception towards e-commerce platform is that, they agree on the common benefits of e-commerce platform like the quick product reach and promotion, and wider customer base with easy interaction and rapid business growth. But still perceive that traditional means of commerce is more advantageous than the e-commerce platform and the government have not taken enough measures for the adoption of e-commerce practices by the palm sugar enterprise units.

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## 1. INTRODUCTION

*Borassus flabellifer* L., often known as palmyrah, is the state tree of Tamil Nadu and a gift from nature to mankind. It is a plant that provides societal benefits in terms of ecology, medicine, economics, and sociology. Palmyrah has been designated as Tamil Nadu's "State Tree." The palmyrah tree protects natural resources by preventing soil erosion. Palm goods are pollution-free and environmentally friendly. It is a plant of the gods that can resist harsh climate conditions and natural disasters. It is one of the most advantageous plants, with economic and therapeutic benefits in every area. It can be found in tropical and dry locations all across the world, from India to New Guinea. The plant is inextricably linked to rural livelihoods, as well as cottage and agro-based industries in India's economy. The plant's applications can be divided into three categories: non-edible, edible, and value-added [1].

Palmyrah belongs to the Borassoideae subfamily of the Arecaceae palm family. The tropical palm palmyrah (*Borassus flabellifer* L.) adorns the semi-arid landscapes of Tamil Nadu (TN), Andhra Pradesh, Orissa, West Bengal, Bihar, Karnataka, and Maharashtra. Palmyrah is a dioecious palm, with female palms yielding the majority of its economic outputs such as immature endosperm, mesocarp pulp, and tuberous seedlings. Palm trees (Palmaceae) are known as the "Princes of the Vegetable Kingdom." Most palms have a straight, unbranched stem, but some, like the rattan, have a branching stem or even a creeping vine. Palmyrah is commonly cultivated by direct sowing during the monsoon season. Palmyrah is a sub-tropical tree that thrives in arid environments [2].

*Borassus flabellifer* is found in India, Burma (Myanmar), Cambodia, and is found throughout South-East Asia and New Guinea. *B. flabellifer* is thought to be a subspecies of the more diversified *Borassus aethiopum* Mart. of Africa. Its dispersal in prehistoric times most likely followed Indian trade lines. The dry landscape of Tamil Nadu, Andhra Pradesh, Odisha, West Bengal, Bihar, Karnataka, and Maharashtra is adorned by palmyrah palms. There are over 102 million palm trees in India, with Tamil Nadu accounting for half of them. More than half of

Tamil Nadu's 51.9 million palms are concentrated in the southern districts, including Thoothukudi, Tirunelveli, Virudhunagar, and Ramnad, with Thoothukudi district alone accounting for 10 million palms. Palms provide a source of revenue for the impoverished in rural areas while also expanding employment opportunities [3].

Tamil Nadu was the first state in India to create a palm products industry. About 5.10 crores of Palmyrah are grown in Tamil Nadu, out of an estimated 8.59 crores in India. Tamil Nadu has the ability to grow and develop the palm products industry to a higher extent in order to attract foreign exchange through palm product exports. Non-edible palm products such as Palm Leaf articles, Palm Naar articles, Palm Fibre and Brush varieties, Date Palm Baskets, and other Handmade palm products are produced as well as edible palm products such as Neera, Palm Jaggery, Palm Sugar, Palm Candy, Preserved Nungu, Palm Fruit Jam, Palm Chocolate varieties [4].

Customers today expect to be in charge of their online experience, thus self-service features and transactional websites are essential. Customers require reliable information about inventory levels, product specifications, order history, and negotiated discounts when they interact with the web store. E-commerce will aid in the upgrading of business units, as well as helping to reach out to more clients and expand the firm [5].

Commerce has a long history of reaping the benefits of new systems and instruments. Successful businesses are quick to spot emerging opportunities and expand their commercial capabilities as new technologies emerge. It's no different when it comes to conducting business online. New technologies that digitally transmit text and monetary data are excellent tools for many firms to achieve traditional business goals such as simplifying services, establishing new markets, and creating novel company opportunities. Furthermore, they have the ability to generate services that are so novel and different from traditional services that they define a new sort of trade. Electronic commerce (E-Commerce) is the fusion of traditional commercial operations with computer, information, and communication technology, as the name implies [6].

E-commerce is not a brand-new sort of business. It first appeared on private networks in the 1960s, when large companies created electronic data exchange (EDI) systems and banks introduced electronic payments transfers (EFT). E-Commerce, on the other hand, is no longer the sole realm of huge corporations or private networks. The open network Internet, particularly the World Wide Web, not only opens up new economic opportunities for huge corporations, but also provides a feasible entry point into E-Commerce for small and medium-sized businesses [7].

With the above introduction, the study is carried out with the following objectives.

1. To examine the awareness and knowledge of e-commerce among the palm sugar enterprise units in southern Tamil Nadu.
2. To study the perception of palm sugar enterprises towards e-commerce in south Tamil Nadu

## 2. REVIEW OF LITERATURE

Ramdansyahet al. (2019) studies on the perception of palm sugar SMEs and the ability of e-commerce as a media to help develop their business showed that, the e-commerce can be used as a media to disseminate palm sugar SME products in Lebak District. Application of that study was that various constraints, regarding length of access time, high cost of access and difficulty of switching from conventional to technology-based, must be overcome by optimizing the use of all features in e-commerce.

Kolachi [8] revealed that, internet was one of the biggest emerging E-com technologies which has facilitated the business platform in much faster and flexible standards. Due to this technology the business is advanced at an exponential rate of making life very easy and guiding to be equipped with other technological wonders of not only doing business but increasing education activities, knowledge and coordination through organization to organization and customers to customers.

Edwin et al (2014) revealed that the technological innovation that enables small and medium enterprises (SMEs) to compete on the same level with their larger counterparts. It has the potential to improve efficiency and productivity in many areas and, therefore, has received significant attention in many countries of the world.

Kapurubandara et al (2006) revealed that many significant reasons contributing towards the reluctance that SMEs in developing countries they lag behind and are skeptical about adopting the technologies irrespective of their effectiveness. The various factors identified as causes for the reluctance can be broadly classified as Internal Barriers and External Barriers. Internal Barriers can be resolved within the organization by the organization itself, while External Barriers need to be addressed either by government intervention or by collaboration of SMEs.

Nuraini et al [9] revealed that institutional strengthening was done as the efforts to develop, empower, and strengthen the farmers, process, marketers, capital, and others, which were hoped to be able to become the protectors for the bargaining position of the farmers. The strategy of product diversification and packaging innovation can be the strategy of palm sugar enterprise that relates to the products by adding various kinds of the product to expand the market target to gain some profits for the farmer and industry.

Kurnia,et al (2015)provides an integrated view on e-commerce adoption for the Malaysian grocery SME context by considering various e-readiness factors affecting three different levels, namely organization, industry and national. They applied a multi-level e-commerce adoption framework developed for a DC. The study also explored the impact of Industry readiness on e-commerce adoption by SMEs.

Kapurubandara et al [10] revealed the indicates viable for e-commerce offers practical solutions for organizations to meet challenges of a predominantly changing environment, the study related to SMEs in developing countries reveal a delay or failure of SMEs in adopting ICT and e-commerce technologies. With the above introduction following are the objectives of the research study.

## 3. RESEARCH METHODOLOGY

Primary data was collected from the population of 90 palm sugar enterprise units, in Tamil Nadu a state of India. The study is confined with the southern Tamil Nadu districts namely Tirunelveli, Thoothukudi, Tenkasi and Kanyakumari. The four districts are selected as, more than half of

Tamil Nadu's 51.9 million palms are concentrated in the southern districts with Thoothukudi district alone accounting for 10 million palms [11-12]. A simple random sample size of 90 palm sugar enterprise units, consisting of private, cooperatives, distributors, traders and exporters are considered in the survey. The tools used for analysis are as follows,

### 3.1 Percentage Analysis

Average and percentage analysis was used to examine and infer the results arrived from the primary survey on the awareness and knowledge.

### 3.2 Likert Scale Technique

Likert scaling technique was used to analyse the perception of benefits of adoption of e-commerce from the respondents. Five-point rating scale is used to analyse the perception. Then highest mean score will be taken for benefits of adoption of e-commerce in palm sugar enterprise units.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
5	4	3	2	1

## 4. RESULTS AND DISCUSSIONS

Respondents were asked to be critical in the comments and feedback. Constructive feedback was received and the questionnaire was adjusted accordingly. The data was checked for any errors or missing value and data was entered into Excel spread sheet for analysis.

### 4.1 Awareness about E-commerce Platform

Awareness means the ability to know and perceive, or to be conscious of events, objects, thoughts, emotions or sensory pattern. In order to measure the awareness of E-Commerce among the palm sugar enterprise units, the respondents were asked whether they have awareness about E Commerce technology. The awareness level of the sample respondents is presented in the table below.

It could be inferred from the above table that most of the respondents were aware about the e-commerce platform. About 55, (61.11%) respondents of the palm sugar enterprise units were aware about the e-commerce platform and 35, (38.89%) respondents are unaware of the e-commerce platform.

### 4.2 Knowledge about E-commerce Platform

To analyze the knowledge about e-commerce, five pointlikert scale is used. The respondents were asked to rank the e-commerce attributes with the level of knowledge in it. In a scale of 5 to 1, with five being the most high knowledge and one being the least knowledge. The table below shows the palm sugar enterprise unit respondents knowledge on the e-commerce attributes. Only the respondents who has awareness about e-commerce is subjected to the level of knowledge regarding the e-commerce attributes. The number of respondents who were enquired about the knowledge on e-commerce is 55 out of 90 respondents. The respondents are asked to rank the following attributes according to their level of knowledge in it. With five being the maximum knowledge about the attributes and the one being the least knowledge about attributes, the table shows the level of knowledge on e-commerce attributes [13-14].

From the above table we can infer that the respondents have maximum knowledge with a score of four about e-mail(56.36%), websites (56.36%), online shopping (30.90%) and videos (29.09%) . The respondents have knowledge with a score of three about mobile applications (34.54%), electronic billing or invoice (36.36%), OTP (One Time Password) (30.90%), online transactions (34.54%), mobile payments (34.54%) and net banking (30.90). The respondents have a least knowledge with a score of one about memes (54.54%), social media marketing (30.90%), digital marketing (58.18%), digital posters, e-supply chain and e-logistics with a 78.18% having the least knowledge.

**Table 1. Awareness about e-commerce platform**

S.No	Response/ Category	No.of respondents	Percentage
1	Yes	55	61.11
2	No	35	38.89
	Total	90	100

**Table 2. Knowledge about e-commerce platform**

S.no	Title	5	4	3	2	1	Mean
a.	E-mail	10 (19.23)	31 (56.36)	14 (25.45)	0 (0.00)	0 (0.00)	3.9
b.	Websites	4 (7.27)	31 (56.36)	16 (29.09)	4 (7.27)	0 (0.00)	3.6
c.	Videos	4 (7.27)	26 (28.88)	16 (29.09)	6 (10.90)	3 (5.45)	3.4
d.	Memes	0 (0.00)	0 (0.00)	6 (10.90)	19 (34.54)	30 (54.54)	1.6
e.	Mobile applications	4 (7.27)	14 (25.45)	19 (34.54)	13 (14.44)	5 (9.09)	3.0
f.	Electronic billing / invoice	4 (7.27)	14 (25.45)	20 (36.36)	11 (20.00)	5 (9.09)	3.0
g.	Online shopping	2 (3.63)	14 (25.45)	17 (30.90)	17 (30.90)	5 (9.09)	2.8
h.	OTP (One Time Password)	2 (3.63)	14 (25.45)	17 (30.90)	13 (23.63)	9 (16.36)	2.8
i.	Online transactions	2 (3.63)	12 (21.81)	19 (34.54)	13 (23.63)	9 (16.36)	2.7
j.	Mobile payments	2 (3.63)	12 (21.81)	19 (34.54)	13 (23.63)	9 (16.36)	2.7
k.	Net banking	2 (3.63)	12 (21.81)	17 (30.90)	13 (23.63)	11 (20.00)	2.7
l.	Social media marketing	2 (3.63)	10 (18.18)	15 (16.66)	11 (20.00)	17 (30.90)	2.4
m.	Digital marketing	0 (0.00)	6 (10.90)	11 (20.00)	6 (10.90)	32 (58.18)	1.8
n.	Digital posters	0 (0.00)	2 (3.63)	4 (7.27)	6 (10.90)	43 (78.18)	1.4
o.	E-supply chain	2 (3.63)	4 (7.27)	0 (0.00)	6 (10.90)	43 (78.18)	1.5
p.	E-logistics	2 (3.63)	4 (7.27)	0 (0.00)	6 (10.90)	43 (78.18)	1.5

**Table 3. Perception towards e-commerce platform**

S.no	Statement	SA	A	N	DA	SDA	Mean
1.	E-commerce helps in easy procurement of raw materials	4 (7.27)	25 (45.45)	18 (32.72)	8 (14.54)	0 (0.00)	3.5
2.	E-commerce helps in easy marketing	4 (7.27)	29 (52.72)	20 (36.36)	2 (3.63)	0 (0.00)	3.6
3.	E-commerce helps in quicker product reach.	4 (7.27)	37 (67.27)	14 (25.4)	0 (0.00)	0 (0.00)	3.8
4.	E-commerce helps in quicker product promotion	7 (12.72)	40 (72.72)	8 (14.54)	0 (0.00)	0 (0.00)	4.0
5.	E-commerce eliminates middle men.	14 (25.4)	29 (52.72)	12 (21.81)	0 (0.00)	0 (0.00)	4.0
6.	E-commerce requires social media knowledge.	8 (14.54)	35 (63.63)	12 (21.81)	0 (0.00)	0 (0.00)	4.0
7.	E-commerce is a costly platform	9 (16.36)	31 (56.36)	15 (27.27)	0 (0.00)	0 (0.00)	3.9
8.	E-commerce helps in easy interaction with the customer	8 (14.54)	21 (38.18)	18 (32.72)	2 (3.63)	0 (0.00)	3.8
9.	E-commerce helps to get a wider customer base.	2 (3.63)	26 (47.27)	25 (45.45)	2 (3.63)	0 (0.00)	3.6
10.	Advertising cost is reduced in e-commerce platforms.	2 (3.63)	31 (56.36)	20 (36.36)	2 (3.63)	0 (0.00)	3.6
11.	E-commerce helps in rapid business growth	2 (3.63)	41 (74.54)	8 (14.54)	4 (7.27)	0 (0.00)	3.7
12.	E-commerce as a commercial means and has its advantage over traditional commercial means	4 (7.27)	2 (3.63)	12 (21.81)	33 (60.00)	4 (7.27)	2.5
13.	Do you think government of India is doing enough to promote e-commerce	6 (10.90)	0 (0.00)	10 (18.18)	31 (56.36)	8 (14.54)	2.4

### 4.3 Perception towards E-commerce Platform

In Table 3 Perception towards e-commerce platform was analysed and presented. The respondents who have knowledge on e-commerce are only enquired with the questions regarding the e-commerce perception. Out of the total sample size 90, only 55 respondents were aware of the e-commerce practices. This table shows the response of those 55 respondents only. To study the perception following statements were quoted.

From the Table 3, we can infer that the perception of respondents are as follows. It is inferred that 75% respondents have agreed that E-Commerce helps in rapid business growth, 72% respondents have agreed that E-commerce helps in quick product promotion, 67% agreed that e-commerce helps in quicker product reach, 63% agreed that it requires social media knowledge. 53% agreed that E-commerce is a costly platform, but it reduces the cost involved in advertising. 49% respondents agreed that it helps in easy interaction with the customer, and 47% respondents agreed that it helps to get a wider customer base. And only 54% and 45% of the respondents agreed that it helps in easy marketing and easy procurement of raw material respectively. Among the respondents 60% (33 respondents) have disagreed that "E-commerce as a commercial means and has its advantage over traditional commercial means". About 31 respondents (56.4%) have disagreed that the government has taken enough measures to promote e-commerce.

### 5. CONCLUSION

The present study was carried out with 90 respondents from the palm sugar enterprise units located in the four districts of southern Tamil Nadu, a state in India. The four districts are namely Tirunelveli, Thoothukudi, Tenkasi and Kaniyakumari are selected as, more than half of Tamil Nadu's 51.9 million palms are concentrated in the southern districts with Thoothukudi district alone accounting for 10 million palms. (Rajan., 2018)

In the total of 90 respondents only 55 respondents are aware about the e-commerce platform. Those respondents have the knowledge about the e-commerce attributes like

e-mail, websites, videos, electronic billing and mobile application is high, that is 41.13%. But the knowledge regarding the social media marketing, e-logistics, e-supply chain and digital posters is found to be least with 3.54%.

The respondents have agreed on the benefits of the e-commerce platform such as, easy marketing (54%), the easy procurement of raw material (45%), quick product reach (67%) and promotion and increased customer base (47%) with easy interaction (49%). About 75% respondents have agreed that e-commerce helps in rapid business growth. On the other hand the respondents find e-commerce as a costly platform and traditional commerce in advantageous than e-commerce (60%). The respondents (56.4 %) also find that the government has not taken enough measures to promote the adoption of e-commerce platform.

Based on the above discussion, it can be concluded there is a better scope for the e-commerce platform for the development of the palm sugar enterprises in Southern Tamil Nadu districts. The awareness towards e-commerce platform is quite high (61.1%), but the adoption of e-commerce platform for the utilization of its benefits is very low (7.78%). The respondents who have awareness about e-commerce but not practising it can be given proper training programme and good technical support. These enterprises can be encouraged to enter and explore the e-commerce platform and to run their business successfully. As a result, enterprises will produce quality palm sugar products and get a reasonable price for the quality that is produced. The genuine palm sugar products will increase in the e-commerce platform, suppressing the adulterated palm sugar products. Thus, the development of palm sugar enterprise unit's product can be achieved with its ability to reach a wider market. The Central government or the local government which concern and fosters the existence of palm sugar enterprise units should come up with various measures that covers training programme on the e-commerce adoption and technical assistance to continuously practise e-commerce. The government support will help in the development of palm sugar enterprise units, encouraging the palmyrah palm farmers to get a reasonable price for their produce. The e-commerce adoption will also create a sustainable market linkage with better connectivity to reach various markets nationally and internationally. The enterprise units will get access to wide

customers and various other markets with e-commerce adoption.

## CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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