Perceptions and inclinations of consumers towards the purchase of fresh agricultural produce via e-business

(Persepsi dan kecenderungan pengguna terhadap pembelian barangan segar pertanian melalui e-perniagaan)

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Keywords: e-business, e-commerce, fresh agriculture produce, perception, behaviour, acceptance

Abstract

E-business has opened up vast opportunities for entrepreneurs in the digital business, benefiting them by reducing the operational costs including start-up and administrative costs, employee wages, payment of taxes and licenses. Online purchasing of fresh agricultural produce is still new among Malaysians. This purchasing trend is gaining popular in large cities such as Klang Valley, Penang and Johor Bahru. Nevertheless, e-business is expected to gain popularity and will in turn become a new trend in the future. A quantitative survey methods were used, through an electronic web-based survey to examine consumers' perceptions and the subsequent acceptance of e-business for agricultural produce in Malaysia. Results from this study found that most buyers are adult female users, aged between 20 and 49 years, with a monthly household income of RM2,001 - RM3,000 per month. Total purchase range between RM50 and RM100 has the highest total respondents, whose household income are between RM1,001 and RM2,000. A total of 45% of consumers make purchases over the Internet several times in a month, followed by purchases once a month (42.6%). About 96% of the respondents, of which 41.9% are men and 54.3% women, were satisfied with the overall purchase. Factors affecting the purchase of these items include specifications, quality, price, and delivery services that meet the requirements of the buyers. In conclusion, the purchase of fresh produce through e-business has the potential to be developed in the future. Apart from changes in ICT and consumers' lifestyle, consumers' buying patterns will also gradually change in the future.

Introduction

Internet usage is growing tremendously in line with the current technology. As a search engine for information and communication, the Internet has enabled consumers to explore the changes in the world of the information and communication technology (ICT). The Internet has been functioning as the source of news, music and software downloading, government transactions, banking, bill payments and others. E-commerce, e-banking, e-government, e-business or any other e- as a prefix can be defined as the electronic means of any transaction through the Internet.

The Internet is a global network that connects millions of computers around the world via copper wires, fibre optic cables, wireless connections, and so on, with a common communication protocol standard. According to Internet Statistics Live (2015), until 30 December 2014 there were about

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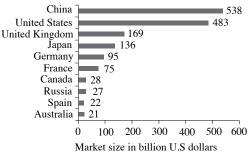
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3.3 billion Internet users, equivalent to 40.4% of the world population. The largest number of Internet users in the world are from China, followed by the United States, India and Japan, while Malaysia is ranked 124 out of 198 countries. The total Malaysian Internet users are more than 20.1 million people in the first quarter of 2014. This amount represented 2.24% of the total population of almost 30 million people in 2014. The use of the Internet in Malaysia has increased by an average of 1.58% per annum, equivalent to 0.02% globally.

Internet business or e-business is currently a trend among consumers and buyers. It is a new transformation change in the business process from conventional purchases to electronic. This trend has become a Malaysian lifestyle, especially for the young and career minded generation. Based on the (MCMC 2014), 38% of Malaysians had used this platform for e-business or for purchasing online. The Companies Commission of Malaysia (SSM 2012) has indicated that there are about 502 thousand to 1 million online transaction in 2015 for companies and business entities registered under the SSM. E-business has been identified to open up opportunities for entrepreneurs in conducting cyberspace businesses which they believe can reduce operating expenses such as the startup cost, administrative expenses, employee wages, payment of taxes and licenses. The business is considered cheaper and easier by this means.

According to the research conducted by Bpost International (2014), global e-business growth is estimated to increase by 20% annually. It was stated in 2014 that the income through e-business has reached nearly 1.5 trillion Euros. *Figure 1* shows the top countries that adopt e-business market in 2014. China is ranked first for e-business market, with market size of USD538 billion (33.65%) followed by the United States, ranked second with a USD483 billion and then United Kingdom (UK) at USD169 billion.



Source: Statista.com. 2015

Figure 1. Countries with the largest business to consumers e-business market size (2014)

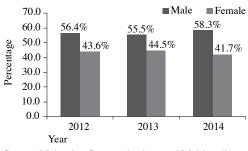
A study conducted by the Bain and Institute of Public Opinion Outcome Study (IPSOS) (2013) had identified that out of 2000 companies in the United States, 64% of them able to increase their business revenue and profit. A total of 48% of respondents indicated that the Internet helped them penetrated the global market, while 73% agreed that business over the Internet could also reduce administrative costs. Hence, e-business enabled them to achieve economic growth, through increased business opportunities, competitiveness and improved market access.

In Malaysia, e-business services had started since 1994 and became more popular by 2002. However, the trade only focused on certain products like clothes and personal accessories, household items, computer software and hardware, books and publications, electronic products, as well as fresh and processed food items (MCMC 2010). In the middle of 2010, online shopping increased tremendously and many sellers in Malaysia begun to be more active and added more products to their selling list over the Internet, including service businesses. Business over the Internet can be divided into two categories: products and services such as in banking, hospitality and ticketing which have been gradually accepted by consumers.

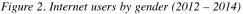
Presently, trading of household products such as fresh agricultural produce and processed foods through e-business is not impossible any more. Processed food is defined as any food that has been cooked, containing a mixture of ingredients and packaged in boxes, plastics, cans or glass bottles (International Food Information Council Foundation 2010). Processed foods evolves canning, freezing, refrigerating, dehydration and aseptic methodological processes. They are altered from their natural forms for security and safety reasons (i-Sihat 2012). Fresh products are originally from natural resources, have not been cooked and are easily spoiled by natural processes. Although fresh produce has a short shelf life, it contains various nutrients. Practically, processed foods are easier to be handled, stored or transported, but fresh produce require special attention and care. Currently in Malaysia there are about four active traders or online providers that operate fresh produce businesses on the Internet. These are Tesco online, Red Tick, Freshcart and Food World (Top 10 of Malaysia 2015). Fresh agriculture produce include fruits, vegetables, flowers, meats, fish, seafood and eggs.

Statistics of Internet usage in Malaysia

According to the Internet Users Survey Report 2014 published by the (MCMC 2014), a study was carried out with 3,607 respondents from all over Malaysia. It was found that for the year between 2012 and 2014, majority of the Internet users were men with an average percentage of 56.7%, while the female users were 43.3%(Figure 2). It also showed that the male users increased, however the female users decreased 6.2% annually. The decreased amongst women users was due to several reasons such as time factor and their financial status. Perhaps the importance of household management either in housework or in family expenses were of more priority to the working women. In addition, most female users tended to surf the Internet only in their free time and were satisfied as long as they had an Internet connection. Male users, on the other hand, always thought



Source: Malaysian Communications and Multimedia Commission (2012 – 2014)

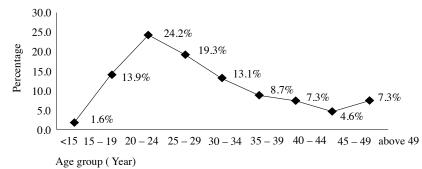


that Internet and the latest smart phones were must-have trending devices. Hence, most male Internet users, rather than their female counterparts, tend to subscribe to high range-capacity Internet packages (MCMC 2014).

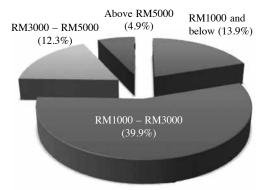
Figure 3 shows the percentage of Internet users across the age groups between 15 and 49 years and above. Majority of the users (43.5%) were from the group age ranged from 20 to 29 years. This group had high exposure and responsive to the Internet updates. The group also had high purchasing power which facilitated their use of the Internet as well as giving them a means of a new shopping source. This trend increased with the increased in the Malaysian population with more adults being in this age group than any other groups. However the overall trend decreased when the age is increased.

A survey conducted in 2014 also showed that the majority of Internet users in Malaysia were working people with a monthly income ranging between RM1,000 and RM3,000 (39%). This was followed by the lower income 13.9% (RM1,000 and below) and the second middle income group of between RM3,000 and RM5,000 (12.3%) (*Figure 4*).

Figure 5 shows the percentage of Internet users by 2014 in Malaysia. Selangor were the highest percentage of Internet users (inclusive of the federal territory of Putrajaya) at 24.1%. The second highest was from Johor (11.7%), followed by the federal



Source: Malaysian Communications and Multimedia Commission (2008, 2009 and 2011) Figure 3. Percentage of Internet users and non-users across age group (2014)



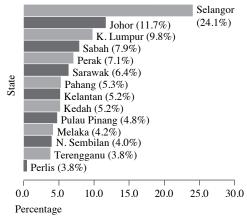
Source: Malaysian Communications and Multimedia Commission 2014

Figure 4. Percentage of Internet users revenue in 2014

territory of Kuala Lumpur (9.8%), Sabah (7.9%), Perak (7.1%) and Sarawak (6.4%). Looking at the rate of Internet penetration in Selangor, Kuala Lumpur and the Klang Valley, these areas are the focal point for Internet business or e-business operations.

The trend in e-business for fresh agriculture produce is still new among Malaysians and is presently found to be concentrated in big cities such as those in the Klang Valley, Penang and Johor Bahru. However, e-business transactions showed potential to be become a new purchasing trend in the future. According to a report by Nat (2013), e-commerce is expected to grow by 11% in 2023 from the present 3.3%. It shows that Internet purchases are able to increase three times as expected.

A media statement had been released by the Chairman of the Malaysian



Source: Malaysian Communications and Multimedia Commission 2014

Figure 5. Percentage of Internet users by 2014

Communications and Public Relations regarding the online purchasing trend in Malaysia and had indicated that the trend was on the increase in a surprising manner - four-fold over the past three years (Fatin Hafizah 2013). This trend is due to the changes in the Malaysian lifestyle and consumer's preferences towards online shopping. Modern living is currently the choice of the urban populations. They choose to shop online since they can avoid queing as in conventional buying. This is reflected by the increase in the posted items from 662 thousand in 2013 to 1.2 million in 2014 (Fatin Hafizah 2013). This trend steadily increased in line with the pace of technology in Malaysia and globally.

This study was therefore undertaken to identify the perceptions and inclinations of consumers towards e-business in purchasing fresh agriculture produce over the Internet. This study will provide information to entrepreneurs regarding the above consumers behavior that can be used in strategising their online marketing.

Methodology

Survey methods were used to obtain the data and information. A stratified random sampling was selected for this study. The respondents choosen were Internet users who shopped online. Their social background and experiences are the significant variables in assessing their likelihood of online purchasing of fresh agriculture produce. An electronic web-based survey was used for this study. This system was developed in collaboration with the Information Management Centre of MARDI and able to transfer respondent feedback directly to the database automatically, based on the Hypertext Markup Language code (HTML). This system could also eliminates transcription errors and prevents alterations of responses from respondents (Dorine et al. 2003). In addition, the chances of reliability and validity of the survey respondents are high and it could also avoid repetitive answers from the same respondents (Yun and Trumbo 2000). The e-survey system contains coded and open ended questionnaires. This e-survey was posted on the MARDI's official website and the social media including facebook, twitter and instagram.

Data analysis

Descriptive statistics for the demographic profile of the data obtained from the study were carried out and a cross tabulation analysis (crosstab) was used to study the correlation between identified variables. This analysis was shared by the examination of the frequencies of two or more variables. In this study, significant variables would include the socio-cultural factors, experiences and tendency of users to purchase fresh items of agriculture products via e-business.

Results and discussion *Demographic profile*

The respondents' profiles were used to indicate the relationship between sociodemographic characteristics such as age, gender, occupation, marital status and household income with their preferences towards online purchasing of fresh agriculture produce. There were 741 respondents participated in this survey, with 586 had purchased goods over the Internet, while the rest (155) did not. Of the 586 experienced respondents, only 129 or 23% had done online purchasing of fresh produce and they made up the sampling number of the study. Majority of non-experienced users did not try to shop online because of their fear being cheated by the sellers (57%) or were unsure with the security of the Internet services (33%).

The demographic profile in *Table 1* showed that 55.8% of the respondents were female and 44.2% were male. Majority of the respondents (44.25%) fell within the age range of 30 to 39 years. Almost 80% of the respondents were working people: 41% from the public sector, 28% from the private sector with 11% being self-employed. Almost half of the households earned more than RM3.000 a month which were categorised as the medium and mediumhigh income groups. Majority of the respondents (73.6%) were single with high level education, with more than 76.7% of them graduated from college or university. This was one of the lead factors that determined the purchase frequency among the consumers.

Purchase transactions of fresh agriculture produce purchase

Purchase frequency Both satisfaction and confidence are the main reason for consumers to purchase over the Internet. As shown in *Table 2*, 45.1% of consumers

Profile	Category	Number of respondents	Percentage
Gender	Male	57	44.2
	Female	72	55.8
Age	<19 years	3	2.3
	20 – 29 years	39	30.2
	30 – 39 years	57	44.2
	40 – 49 years	12	9.3
	>50 years	18	14.0
Marital status	Single	95	73.6
	Married	34	26.4
Occupation	Civil servants	53	41.1
	Private firms	36	27.9
	Freelance	14	10.9
	Housewife	7	5.4
	Student	12	9.3
	Retirees	3	2.3
	Others	4	3.1
Education level	University/college	99	76.7
	High school	28	21.7
	Primary school	1	0.8
	Others	1	0.8
Household income	<rm1000< td=""><td>11</td><td>8.5</td></rm1000<>	11	8.5
	RM1,001 - RM2,000	26	20.0
	RM2,001 - RM3,000	29	22.3
	RM3,001 - RM4,000	19	14.6
	RM4,001 - RM5,000	16	13.3
	>RM5,001	28	21.5

Table 1. Consumer profile for fresh produce purchase over the Internet (n = 129)

Table 2. Average purchase frequency of fresh agricultural products (%) (n = 129)

Age (years)	Every day	Several times a week	Once a week	Several times a month	Once a month	Total
<19	0	0	0	0.9	1.6	2.5
20 - 29	0	0.8	1.7	12.3	13.9	28.7
30 - 39	0.8	0	5.7	24.6	14.8	45.9
40 – 49	0	0.8	0.8	3.3	4.1	9.0
>50	0	0.8	0.8	4.1	8.2	13.9
Frequency	0.8	2.5	9.0	45.1	42.6	100.0

had purchased goods several times monthly, 42.6% once monthly with 9.0% once weekly. Majority of the respondents (83.6%) were adults, whose age ranged between 20 and 49 years. Those aged between 30 and 39 years were mostly Internet users who bought fresh agriculture produce several times a month. These respondents have a monthly income of between RM2,001 and RM3,000. There is tendency of users to make purchases over the Internet while fulfilling their time while surfing the Internet. Buying goods over the Internet could make life easier for some people, however it still not the daily purchase preference. This is because most consumers still prefer to buy fresh goods at the neighbourhood grocery stores. In addition, the attitude of users who like to hold and feel fresh goods physically is the factor that discourages them from buying these goods over the Internet.

Purchase transaction Table 3 shows that the highest users, more than 22% of the consumers, earned an average household income of RM2,001 to RM3,000 per month. It is estimated that every time a purchase was made, the average cost range between RM50 and RM100. A percentage of 6.7% of the households, earned more than RM3,000 a month, were likely to purchase fresh items totaling RM100 and above. Usually, consumers were willing to buy inexpensive goods and they were also careful about being cheated by sellers. Customers were loyal to the same website if they were satisfied and confident with the services offered. Indirectly, the value of transactions was also increased from low items to expensive items. Repeat customers also helped the success of the e-business.

Table 4 shows Acceptance of users the acceptance scores by gender for the purchase of fresh items over the Internet. Majority of the respondents (96.2%), 41.9% males and 54.3% females were satisfied with their overall purchases over the Internet. The factors comprise specifications, quality, price and service delivery. A few users, especially the male consumers (2.3%) were not satisfied with the products received over online shopping. The most significant user dissatisfaction was the physical condition of the fresh produce, which were wilted and far from fresh. These affected the quality of the produce as a whole. In addition, there were about 1.6% of the users experience late delivery when their orders were delivered over the contract period, which was normally within 3 - 5 working days.

Intention to purchase Almost all respondents agreed to do online purchase in the future depending on the circumstances.

Household income			Average cost	Average cost per transaction		
	<rm50< th=""><th>RM50 – RM100</th><th>RM101 – RM200</th><th>RM201 – RM500</th><th>RM50 - RM100 RM101 - RM200 RM201 - RM500 RM501 - RM1,000 Total</th><th>Total</th></rm50<>	RM50 – RM100	RM101 – RM200	RM201 – RM500	RM50 - RM100 RM101 - RM200 RM201 - RM500 RM501 - RM1,000 Total	Total
<rm1,000< td=""><td>4.2</td><td>0.8</td><td>6.0</td><td>0.8</td><td>6.0</td><td>7.6</td></rm1,000<>	4.2	0.8	6.0	0.8	6.0	7.6
RM1,001 - RM2,000	5.1	10.2	2.5	1.7	0.8	20.3
RM2,001 - RM3,000	7.6	7.6	1.7	0.0	4.2	22.0
RM3,001 - RM4,000	6.9	6.8	0.8	0.8	0.8	16.1
RM4,001 - RM5,000	5.9	5.1	1.7	0.0	0.0	12.7
>RM5,000	6.8	8.5	4.2	1.8	0.0	21.3
%	36.5	39.0	11.8	6.0	6.7	100

Table 3. Average transaction for purchase of fresh items over the Internet (%) (n = 129)

The willingness factor of online shopping is as shown in Figure 6. About 17.7% of the consumers stated price as a major factor in attracting them to shop fresh agriculture produce online. This factor was also depend on the promotions offered (13.8%). In some cases, there were differences in the selling prices either in ordinary shops or the Internet, even though the produce were from the same dealer. However, this factor was not totally significant to change the perception of consumers from the conventional method. If the consumers were concerned about savings fuel cost, time and convenience, purchases via e-commerce were an encouraging alternative.

About 11 - 12% of consumers agreed that delivery time and payment methods were the priority before conducting an online purchase. Practically, fresh produce traders would send their products either in the morning, afternoon or evening, they

Table 4. Acceptance by gender to purchase fresh items on the Internet (%) (n = 129)

	Male		Female	
	Yes	No	Yes	No
Specifications	39.5	4.7	52.7	2.2
Quality	42.6	1.6	54.3	1.6
Price	42.6	1.6	52.7	3.1
Delivery services	43.4	0.8	55.0	0.8
Overall service	41.9	2.3	54.3	1.6

started at ten o'clock in the morning until ten at night. There were some merchants who even begin their trade at eight in the morning. Estimated shipping time was within two hours from the selected time. Furthermore, when conducting an online purchase, it is always concurrent with the Internet banking, credit card or debit card payments. In the international market, the payment method has been extended to payments by PayPal, and not only through credit or debit cards and online banking. It is more convenient for money transaction from one country to another within a private account controlled by its official website. However, this method has not been widely practised commercially in Malaysia. Other factors for acquiring the intention of consumers to buy online were the quality of the product with delivery services and charges (both at 9.2% of respondents). Product design and image, and user testimonials (both make up 7.7%) were also factors to be considered.

A factor that is not in the interest of the respondents, but is noted by the seller is the website which is of interest to users (4.6%). Interesting web pages with simple contents, and are not too laden with graphics and visuals are important to attract the attention of users. This theory also coincides with a study conducted by Akamai, a consulting company on web access and systems (Jupiter 2006). It stated that 75% of

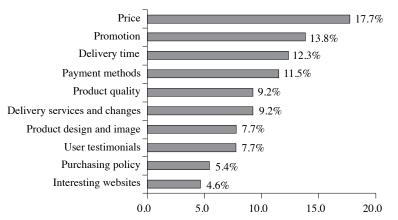


Figure 6. Factors to attract consumers to buy over the Internet

Internet users will not be visiting the same website that takes more than four seconds to download. Therefore, a website should not be filled with heavy graphics and quickly accessible to the site directly. On the other hand, the website should also have complete product information and descriptions. This will help customers to surf easily while saving time.

Conclusion and recommendation

This paper aimed to understand and identify the perception and inclination of consumers pertaining to the e-business of fresh agriculture produce. The study revealed that the trend in online fresh agriculture produce in Malaysia is growing and has a tremendous potential in the future. The perception of users on online purchasing of fresh agriculture produce still remains with the conventional method, where they like to touch, see and feel before making a purchase. Majority of the experienced users are single persons who have a demanding career and a busy lifestyle. These individuals are IT savvy and are more likely to be concerned with the applications of technology. This group comprises adults within 20 to 49 years of age with an average monthly household income of between RM2,001 and RM3,000. These consumers were still in favour of buying inexpensive items, costing between RM50 and RM100 per transaction.

Moreover, in increasing the willingness factors of buying fresh produce online, consumers were more concerned with product price, quality, image and design, services and delivery charges, time, payment methods, purchasing policies, and on testimonial users. All these factors need to be taken into consideration by Internet vendors in order to attract more online customers. As known, fresh produce is perishable and has short shelf-life; therefore to maintain high quality of fresh produce, it needs proper logistics with air conditioning and a segregation space to guarantee freshness. All the logistic facilities and time delivery are important to ensure that the inevitable damage of goods does not occur before the customers receive them.

According to a study by Bain and IPSOS (2013), Internet businesses, profits is obtain from repeated consumers who purchased the goods with an average of at least four times a year. Thus, it is suggested that traders and businessmen maintain their customers' level of confidence on the website and make transactions within six to twelve months to recover their investments and the stability of their businesses on the Internet. Other than that, marketing campaigns on the Internet will be more exciting from testimonies of other Internet users. News, either good or bad, will simultaneously influence the purchasing decision. A good testimonial will help products succeed in the market, while a bad one can ruin the online business. After all, the Internet is being utilised by users for boundless information on knowledge, products and services.

In conclusion, the purchase of fresh produce through e-business has tremendous potential to be developed in the future. Apart from the changes in ICT technology and lifestyles, consumers buying patterns will change at some point. The probability of a trend change from conventional to purchasing from e-business is not impossible. ICT experts have also predicted that online shopping will probably be like the real world where the existence of such facilities can be actualised through the screen. Users can select items, socialise with other buyers and push a trolley from one aisle to another on the same website. Thus, not to be left behind by technology impairment, it is suggested that Malaysia should take this opportunity as a healthy competition in e-business. Other than being able to improve the economy of the country, e-business can also enhance business opportunities, competitiveness and extend the network beyond geographical limits.

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Abstrak

E-business telah membuka peluang yang besar kepada usahawan dalam perniagaan digital yang memberi manfaat kepada mereka dengan menjimatkan kos operasi seperti kos pentadbiran permulaan, gaji pekerja, pembayaran cukai serta lesen dan sebagainya. Pembelian dalam talian barangan pertanian segar masih baru di kalangan rakyat Malaysia kerana kebanyakan perniagaan ini hanya tertumpu di bandar-bandar besar seperti Lembah Klang, Pulau Pinang dan Johor Bahru. Walau bagaimanapun, e-business dijangka mempunyai potensi yang tinggi dan seterusnya akan menjadi satu fenomena baru pada masa hadapan. Kaedah kajian kuantitatif telah digunakan, melalui survei secara elektronik atau web untuk mengkaji persepsi pengguna dan penerimaan e-business untuk hasil pertanian di Malaysia. Hasil kajian mendapati kebanyakan pembeli ialah wanita dewasa berusia 20 - 49 tahun, dengan pendapatan bulanan isi rumah RM2,001 – RM3,000 sebulan. Walau bagaimanapun, jumlah perbelanjaan masih rendah dengan pembelian RM50 - RM100 bagi setiap transaksi. Sebanyak 45% daripada pembeli membuat pembelian beberapa kali dalam sebulan dan diikuti pembelian sekali sebulan (42.6%). Sebanyak 96% daripada responden, iaitu 41.9% lelaki dan 54.3% wanita berpuas hati dengan pembelian keseluruhan produk segar di Internet. Antara faktor yang mempengaruhi pembelian barangbarang ini termasuklah spesifikasi, kualiti, harga dan perkhidmatan penghantaran yang memenuhi keperluan pembeli. Kesimpulannya, pembelian produk segar melalui e-perniagaan mempunyai potensi untuk dibangunkan pada masa hadapan. Selain perubahan dalam ICT dan gaya hidup pembeli, corak pembelian juga akan berubah secara beransur-ansur pada masa hadapan.