

Structural change in employment of Thai women in digital economy

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ABSTRACT

This paper investigates many facets of Thai women in doing e-commerce. It collects the data from 468 women in Thailand by online survey. It aims at four purposes: First, it figures out who are doing e-commerce. Second, it reveals the factors encouraging women to switch from regular works to do e-commerce. Third, it studies the structural change of income from e-commerce between the present and last year. Last, it investigates whether there is a trade-off between income from e-commerce and regular income. It tackles these objectives by Logit model, Ordinary Least Squares and Tobit model. The results show that women who prefer trading by their habit and can find suitable products to sell online will be the ones who do e-commerce and even switch their jobs from regular works to do e-commerce. Besides, women who perceive the expensive cost of using mobile broadband prevent themselves to do e-commerce. Moreover, women who are appointed to be officials in independent agencies whose salary are high enough with the requirement of high efficiency in regular works do not do e-commerce. The change in income from e-commerce between two years comes from the selection of suitable products to sell online and the cost of mobile broadband. The study finds that the income from e-commerce does not replace income from regular works. They are not substitutes. Therefore, there is no trade-off between income from both sources.

Keywords: e-Commerce, Digital economy, Thai women, Income, Online jobs.
JEL: L86, L96, M21

1. Introduction

As the world progress during this 21st century, communication technology becomes more and more essentials. The most outstanding factor is internet implementation, especially mobile broadband technology. Nowadays, mobile broadband is almost inevitable. Thus, almost every aspects of society haven been changed such as personal lifestyle, commercial and communication.

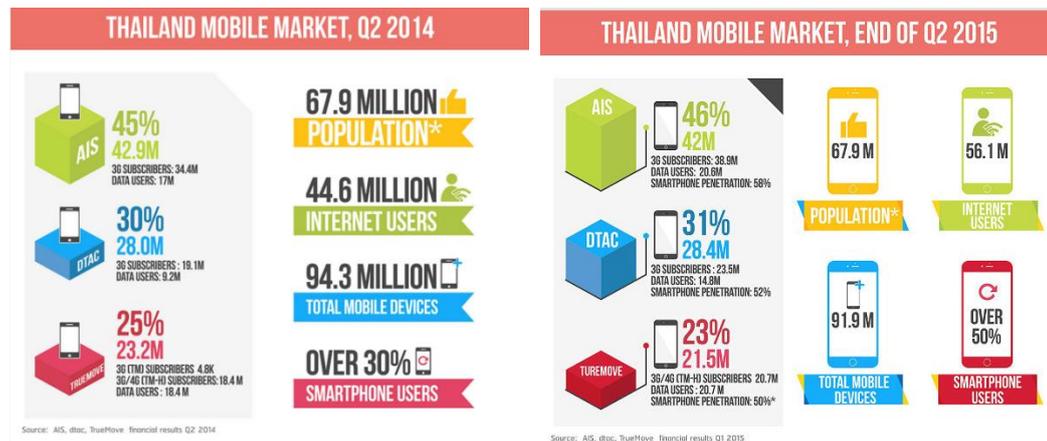


Figure 1. Thailand mobile market

Source: Digital Advertising Association (Thailand) and www.MaketingOops.com

The diagram indicates that a Thai smart phone consumer in 1st quarter of 2015 has increased by 20 percent from 2nd quarter of 2014. The total consumer of internet users in 2015 1st quarter was increased by 11.5 million from 2014 2nd quarter, 82.62 percent of the population.

Another popular technology is fixed broadband, also known as optical high speed internet, which is mainly used in personal computer and laptop. Broadband internet services allow internet access at home. It affects economy by improving life quality, financial transaction, education and e-commerce. The quality of goods and products also increased due to limitless access to information which makes customers more careful in choosing products, thus more competition in the market.

Figure 2 comparison of internet usage by gender 2008-2015. The increase amount is not too different; male 5,269,078 in 2008 to 12,095,479 in 2015 and female 5,694,701 in 2008 to 12,496,820 in 2015.

According to the survey of internet users profile in Thailand in 2015 by Electronic Transactions Development Agency (ETDA), internet is used extensively in everyday activities. The important factor affecting the internet access is the low cost of communications equipment so consumers can easily access. In the survey of the internet access in 2015, most people spend time on the internet 42 – 76.9 hours a week or 7 hours per day. Digital technology is used everywhere, business, education, government,

agriculture, tourism, logistic and industrial. It has been implemented to improve the efficiency and value of product which driving our GDP. Since Knowledge Economy and Creative Economy which aim to increase economic value of goods and services through innovation and creativity, which is called Digital Economy. After that, economy will shift toward real time economy (Tamsak, 2014).

Gender fairness is noticeably improving. There is more employment of woman; some are high ranked in firm. This is because women have access to education as same as men.

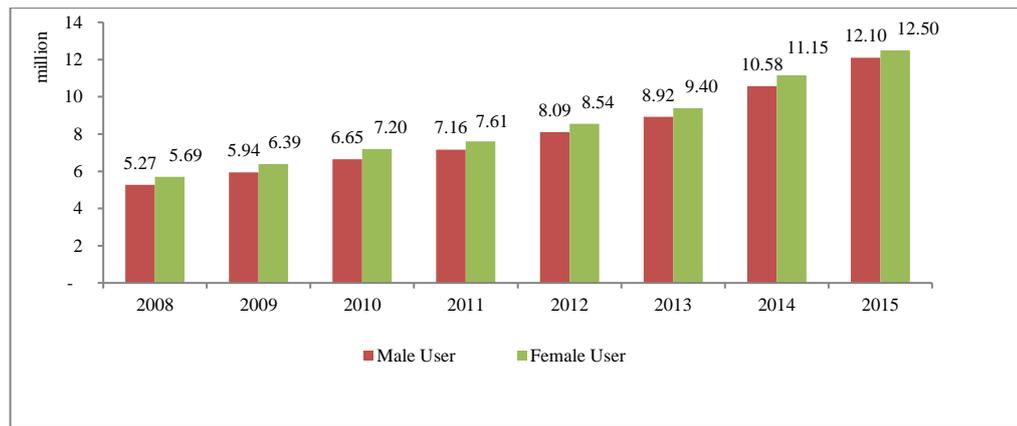


Figure 2. Population aged 6 years and over by internet using, sex: 2008-2015

Source: The information and communication technology survey in household, National Statistical Office, Ministry of Information and Communication Technology

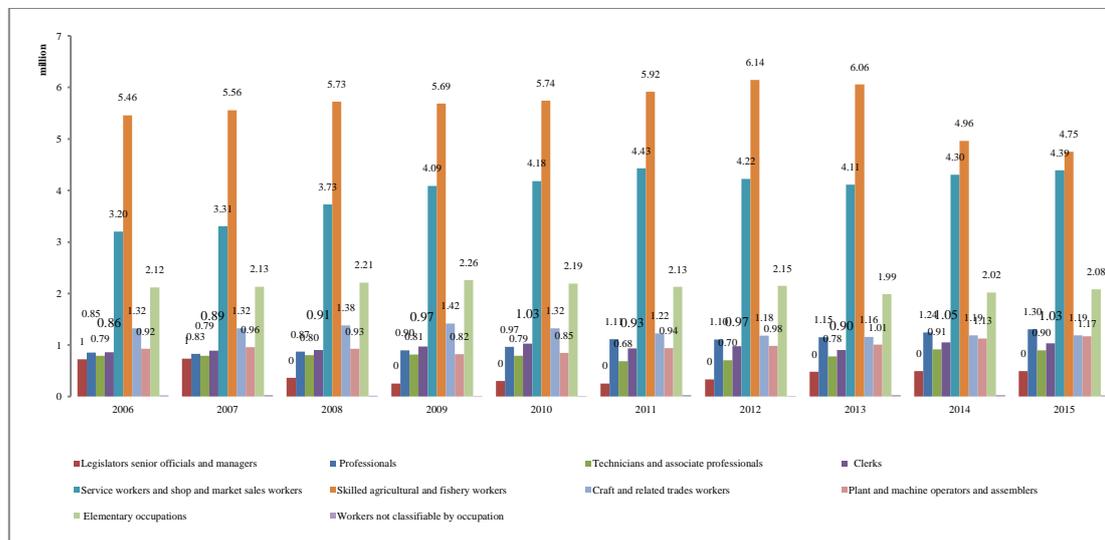


Figure 3. Women employed 15 years and over by occupation, whole kingdom:

2006-2015

Source: The labor force survey, National Statistical Office, Ministry of Information and Communication Technology

The national statistical office of Thailand's labor force survey indicates that women employment has increased over 10 years. Highest employment is skilled agricultural and fishery workers, followed by service workers and shop and market sales workers, and elementary occupation. The numbers are 56,005,644 employment, 39,966,586 employment, and 21,264,229 employments respectively. There shows as number of women's work in Thailand are rise up in every year.

In addition, Integrated Electronics Corporation (Intel) presents nowadays women are more likely than man to use the internet. It shows the current trends which the technologies become more important for women. As the technology leader, Intel complies the main reason why women cannot live without the internet.

1. Technology is a personal assistant.

Many researches find that women can manage all tasks surprisingly. Having the good digital devices is like having partners who can help you manage disorder passed comfortably. Surely, technology which most women would need is easy using and easy carrying.

2. Technology is connected entertainment to them.

A recent survey of women's organization for using technology (Woman Who Tech) finds 55% of facebook and twitter users around the world are women. Women cannot live without social media because they use it for sharing their activities, i.e. seeking the friend's advice, finding the chill restaurant, and sharing the photo or video to closed friends.

3. Technology is showing the pace of technology.

Women think carefully about investing that must be worth it. When talking about technology, they think of the performance, speed, cost, and design. Specially, the design will present taste and social class.

All of the above information is combined with seminar about women and digital economic - character, lifestyle, and business in May 2015 is subject to share the knowledge, lifestyle to Thai women. Organizers also expect this seminar will be platform for sharing women's opinions to encourage power of women's roles in society again. Moreover, organizers also hope Thai women will learn the modified forum of life to improve concept doing the business and start their own business. Specially, the creative powers of women are expectation in developing countries. The term of "Digital Economy" is new and everyone does not know about this much, especially among women. After internet had become a part of everyday life that makes women do their work and e-commerce increasingly researcher would like to know about the structural change of income from e-commerce between the present and last year.

2. Objectives

2.1) To study factors that encourages women to do e-commerce.

2.2) To study the structural change of income from e-commerce between the present and last year.

2.3) To study trade-off between income from e-commerce and regular income.

3. Methodology

The following table summarizes methodologies to examine each of the objectives in this study.

Purpose of study	Methodology
<p>1. To study factors that encourages women to do e-commerce.</p>	<p>To achieve this purpose of study, there are two models to be analyzed as follows:</p> <p><u>Model 1:</u> The decision to do e-commerce this year. Logit model The model shows that the decision to do e-commerce can be driven from personal characteristics, regular income, habits and appropriateness of products to be sold online.</p> <p><u>Model 2:</u> The change from not doing e-commerce last year to do e-commerce this year Multinomial Logit model This classification can use Multinomial Logit model to estimate factors that significantly classify women into these 4 groups. It can construct the model with 4 choices of the dependent variables:</p> <p style="padding-left: 40px;">Y = 1 if a women not do e-commerce in both years, Y = 2 if a woman starts doing e-commerce only in this year, Y = 3 if a woman stops doing e-commerce this year, Y = 4 if a woman remains doing e-commerce both in this year and last year.</p> <p>The thesis focuses on the categories 2-4 therefore it sets the case of not doing e-commerce in both years as the base case.</p>
<p>2. To study factors affecting the change of income from e-commerce between the present and last year</p>	<p><u>Model 3:</u> The change in income from e-commerce Ordinary Least Squares (OLS) This model emphasizes on the habits of women who earn more from e-commerce this year compared to last year.</p>
<p>3. To study trade-off between income from e-commerce and regular income</p>	<p><u>Model 4:</u> Tobit model of trade-off between income from e-commerce and regular income</p>

Women who do e-commerce	Methodology
To study characters of women who suit to do e-commerce	<u>Model 5</u> : Combination of characteristics and products that make a women suit do to e-commerce Logit model This model clarifies women who are able to do e-commerce.

4. Results

4.1.1 Factors affecting to do e-commerce

According to the observations from 468 Thai women sampling through online survey, using STATA programming, we found the following results.

TABLE 1. Factors affecting to do e-commerce

Affecting factor	Effect / Trend
1. Employee of organization under government administration	Don't do e-commerce
2. Prefer trade	Do e-commerce
3. Owning a suitable product to sale online	Do e-commerce
4. Thought of mobile broadband fee as overcharge	Don't do e-commerce

Source: From the survey

Further finding from observations also found that women in the sample who work in organization under government administration would not doing e-commerce. There are only 5 subjects or 13.88 percent who does, while 31 subjects or 86.11 percent don't do e-commerce. Moreover, thought of mobile broadband fee as overcharge has become one of the factors affecting their decision not to do e-commerce. From the survey, 268 subjects thought that mobile broadband price as overcharge. 59 of them or 22.01 percent do e-commerce while 209 or 77.98 percent don't. There are factors that have influence on women decision in having e-commerce such as prefer trade, and owning a suitable product to sale online. Refer to 328 women who prefer trade while 131 of them or 39.93 percent do e-commerce. On the other hand, there are 5 women or 3.57 percent who don't prefer trade yet still do e-commerce. Meanwhile, 215 women own products suitable to sale online. 130 of them or 60.46 percent do e-commerce while 6 women or 2.37 percent from those who don't own suitable product do e-commerce.

4.1.2 Factors affecting the change from not doing e-commerce last year to do e-commerce this year

Furthermore, online survey found that Thai women who are government officer are less likely to start e-commerce this year. From 92 of those, there 3 person or 3.26

percent who change to start doing e-commerce this year. Thai women who work in organization under government also not change to start e-commerce this year. From 36 of those, there is only 1 person or 2.77 percent who change to start doing e-commerce this year. For women who don't have a product to sell won't start doing e-commerce. There are 61 or 27.35 of them started doing e-commerce this year. There are 268 people who thought of mobile broadband fee as overcharge while 25 of them or 9.32 percent start doing e-commerce this year.

4.1.2.1 The group of change to do e-commerce in this year.

Positive affecting factors are owning a suitable product to sale online (X_{10}). There are 215 women who have product suitable to sale online. 60 people from those or 27.9 percent doing e-commerce this year.

TABLE 2. Factors affecting to start doing e-commerce this year (2016)

Affecting factor	Effect / Trend
1. Government officer	Not start to do e-commerce this year
2. Employee of organization under government administration	Not start to do e-commerce this year
3. Have a product to sell	Not start to do e-commerce this year
4. Owning a suitable product to sale online	Start to do e-commerce this year
5. Thought of mobile broadband fee as overcharge	Not start to do e-commerce this year

Source: From the survey

4.1.2.2 The group of stops doing e-commerce this year.

From the survey, there are 13 women or 6.84 percent who lived in Chiang Mai and did e-commerce last year but stop in this year. There are 15 or 6.72 of women who don't have a product to sell stop doing e-commerce this year.

A positive affecting factor is owning a suitable product to sale online. From 215 of those, there are 23 women or 10.69 percent who stop doing e-commerce this year.

TABLE 3. Factors affecting to stop doing e-commerce this year (2016)

Affecting factor	Effect / Trend
1. Current resident	Not stop doing e-commerce this year
2. Have a product to sell	Stop doing e-commerce this year
3. Owning a suitable product to sale online	Stop doing e-commerce this year

Source: From the survey

4.1.2.3 The group of do e-commerce in both years

From the survey, young Thai women tend to remain doing e-commerce this year. There are 54 women or 16.87 who remain doing e-commerce this year. For women who have a product to sell will remain to doing e-commerce in this year. There are 223 women to have product to sell. 68 of them or 30.49 percent do e-commerce in this year and last year. There are 215 women who have product suitable to sale online. 70 people from those or 32.55 percent do e-commerce in both years. And the last one, women who have unlimited time to use internet in everyday remain doing e-commerce this year. There are 308 women who have unlimited time to use internet in everyday. There are 58 women or 18.83 percent who remain doing e-commerce this year.

TABLE 4. Factors affecting remain doing e-commerce this year (2016)

Affecting factor	Effect / Trend
1. Age	Not remain doing e-commerce this year
2. Have a product to sell	Remain doing e-commerce this year
3. Owning a suitable product to sale online	Remain doing e-commerce this year
4. Unlimited time to use internet in everyday	Remain doing e-commerce this year

Source: From the survey

4.1.3 Structural change of income from e-commerce between the present and last year

Additionally, Thai women who have product suitable to sold online tend to have income changed from previous year through e-commerce more than other with 82 women or 38.13 percent. Whereas, there are 25 persons or 9.32 percent of them who thought of mobile broadband fee as overcharge who gain higher income compare to their previous year.

TABLE 5. Factors affecting the change of income from e-commerce between the present and last year

Affecting factor	Effect / Trend
1. Owning a suitable product to sale online	Has change of income from e-commerce
2. Thought of mobile broadband fee as overcharge	Has no change of income from e-commerce

Source: From the survey

4.1.4 Trade-off between income from e-commerce and regular income.

On the report of observations, Thai women, which own business or commerce, would be able to gain highest income from routine work when compare to others and capable of generate income from e-commerce in the same time. In addition, another job that allows women to generate income from e-commerce together with regular income is freelancer, with no trade off between incomes from e-commerce and regular income. In terms of income, women who already gain high level of income could earn high value of money from e-commerce (within the same person and own business). So, there is no trade off between incomes from e-commerce and regular income of person who already gain high level of income.

TABLE 6. Trade-off between income from e-commerce and regular income in the present

Affecting factor	Effect / Trend
1. Organization owner	No trade-off between regular income and e-commerce income
2. Freelancer	No trade-off between regular income and e-commerce income
3. Current resident	Trade-off between regular income and e-commerce income
4. Regular income	No trade-off between regular income and e-commerce income

Source: From the survey

Over and above that, current resident of respondent also play an important role in e-commerce. Findings illustrate that women who live in another province besides Chiang Mai could earn more income from e-commerce and gain regular income from routine work and e-commerce at the same time. Further findings suggest that there is trade off between incomes from e-commerce and regular income.

4.1.5 Characters of women who suit to do e-commerce

For Thai women who are organization owner have character that suit to do e-commerce. There are 32 person do e-commerce (in this year, last year, and both year). 29 of them or 90.62 percent prefer trade and have product to sell, 31 of them or 96.87 percent owning a suitable product to sale online, and 30 of them or 93.75 percent have ability to use internet. In term of characters, women who have unlimited time to use internet in everyday have characters that suit to do e-commerce. There are 136 persons do e-commerce (in this year, last year, and both year). From those, 132 of them or 97.05 percent prefer trade, 120 of them or 88.23 percent have product to sell, 127 of them 93.38 percent owning a suitable product to sale online, and 133 of them or 97.79 percent have ability to use internet. For women who are good human relation there are 155 persons do e-commerce (in this year, last year, and both year). From those, 150 of

them or 96.77 percent prefer trade, 133 of them or 85.81 percent have product to sell, 142 of them or 91.61 percent owning a suitable product to sale online, and 147 of them or 94.83 percent have ability to use internet. Women who are high tolerance (containing calmness, patience, and ability to deal with different kind of customers) tends to suit for do e-commerce than those who don't. There are 149 persons do e-commerce (in this year, last year, and both year). From those, 144 of them or 96.64 percent prefer trade, 134 of them or 89.93 percent have product to sell, 141 of them or 94.63 percent owning a suitable product to sale online, and 142 of them or 95.30 percent have ability to use internet. Another important factor is willing to service 24 hours. The survey found that women who are willing to service 24 hours will have character that suit to do e-commerce more than other. There 117 persons do e-commerce (in this year, last year, and both year). From those, 114 of them or 97.43 percent prefer trade, 104 of them or 88.88 percent have product to sell, 111 of them or 94.87 percent owning a suitable product to sale online, and 109 of them or 93.16 percent have ability to use internet.

There are 27 students do e-commerce (in this year, last year, and both year). From those, 27 of them or 100 percent prefer trade, 22 of them or 81.48 percent have product to sell, 25 of them or 92.59 percent owning a suitable product to sale online, and 26 of them or 96.29 percent have ability to use internet. The survey found that women who lived in Chiang Mai don't have character that suit to do e-commerce more than women who lived in other provinces. There are 72 persons do e-commerce (in this year, last year, and both year). From those, 67 of them or 93.05 percent prefer trade and owning suitable to sale online, 62 of them or 86.11 percent have product to sell, and 68 of them or 94.44 percent have ability to use internet. Another point worth mentioning is that women who thought that mobile broadband fee as overcharge tend to don't have character that suit to do e-commerce. There are 71 persons do e-commerce (in this year, last year, and both year). From those, 67 of them or 94.36 percent prefer trade, 58 of them or 81.69 percent have product to sell, 66 of them or 92.95 percent owning a suitable product to sale online, and 68 of them or 95.77 percent have ability to use internet. Furthermore, duty responsibility to send product at the post office also factor affect women to don't have character that suit to do e-commerce. There are 26 persons do e-commerce (in this year, last year, and both year). From those, 22 of them or 84.61 prefer trade, owning a suitable product to sale online, and have ability to use internet. 20 of them or 76.92 percent have product to sell.

5. Recommendations

5.1 Suggestion for research in the future

1) The problem found while doing research is that the data analyzed from survey is not good indication when presented in descriptive statistics due to lack of data quality in diversity aspect. Therefore, distribution between respondents should be more balanced in occupation, age and residential area.

2) There are a lot of women with low income while there are not many women without regular income participated the survey. Thus, it is not possible to find out whether e-commerce can help the latter group about income. Therefore, it is suggested that the ratio of respondent should be more distributed to this group which is relevant to the first problem stated above.

5.2 Suggestions for mobile broadband service provider in Thailand

According to sample, 57.26 percent of Thai women stated that mobile broadband service is overcharged. It is required to consider about the fee, worthiness, and quality for boosting up number of female user which will be benefit for both service provider and user in generating their income.

5.3 Suggestions for Thai women

The findings suggest that women should be aware of their ability to generate high level of income through routine work and e-commerce. It is essential to be acknowledge about their attitude about social status and being independence women (if they wanted to raise their children while gain income from e-commerce, they can). Moreover, women can be empowered in developing country in the future.

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