A Comparative Evidence of Income Levels Reflecting Gen Z's Digital Payments Intention and Usage

Khwanjira PONSREE[a,b] , Taksin PHONGPAEW[b]
and Phaninee NARHUTARADHOL[a,b1]

[a.] *EXPEDITE / Global Management Consulting Center, Khon Kaen University,*
Thailand
[b.] *International College, Khon Kaen University, Thailand*

Abstract. The study investigating e-payment services intention and use behavior of generation Z – knowing as the digital native cohort. To better understand the effect of financial volatility, the present study has categorized the study groups into low-income and high-income levels in accordance with Thai minimum wages. The UTAUT theory has been adopted to examining Gen Z's intention and behavior toward using e-payment services. The factors comprising of performance expectancy, effort expectancy, social influence expectancy, facilitating conditions affecting behavioral intention and use behavior. Thus, there was five main hypothesizes have developed based on the utilized theory. The findings illustrate the significant differences between the two study groups. The behavior of using e-payment services is significantly distinct by the high-income level of Gen Z would rather using the services than the low-income. For Gen Z who earn a low income, there is one hypothesis that is rejected – effort expectancy affecting behavioral intention. On the other hand, for the higher-income, two hypotheses have not been confirmed which are performance expectancy and social influence expectancy positively influence behavioral intention. Among those supported hypotheses, the effect of intention on use behavior is the strongest path relationship for both low-income ($\beta = 0.761$) and high-income levels ($\beta = 0.576$).

Keywords. E-payment, generation Z, income levels, technology adoption, UTAUT

1. Introduction

Recently, the world is facing the unprecedented time of Covid-19 pandemic causing the economic shock-waves, exacting an enormous human toll, changing the way of living and livelihood, as well as shutting down the world communities, continents, regions, countries, cities, and societies [1]. After the outbreak of the Covid-19, Asian economies and Asian households were affected by various perspectives from the policy interventions of lockdowns, social distancing, as well as the restriction in tourism [2]. Among the observed Asian countries, including Cambodia, Indonesia, the Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam, about three quarters are

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[1]Corresponding author, Phaninee NARHUTARADHOL, Global Entrepreneurship Development Center, Khon Kaen University, 123 Moo 16 Mittraphap Rd., Nai-Muang, Muang District, Khon Kaen, 4002, Thailand; E-mail: Phaninee@kku.ac.th

experiencing the reduction of households income, and almost all households experiencing financial illiquidity and weakness leading to reduce unnecessary consumptions [2]. United Nations Conference on Trade and Development (UNCTAD) argued that even though the Covid-19 crisis has destroyed the worlds' economies, the digital transformation has been accelerated at the same time [3]. Those policies and activities would create a long-term impact for the e-commerce market to have the potential to grow, especially in developing countries [3]. Capgemini Research Institute revealed that after the Covid-19 outbreak, people are preferable to use non-cash transactions instead of physical cash. The increase in non-cash transactions in 2019 rise 14% (worth USD 708.5 billion), the highest growth in the past decade. In 2019, the major growth is in the Asia Pacific, Europe, and North America grew by 25% (USD 243.6 billion) approximately resulting from the adoption of mobile payments and digital wallets widely in the region [4].

As the evidence of growth in e-commerce and e-payment during the Covid-19 pandemic which is contrary to the global economy, we see the intention and behavior of consumers or users are an interesting topic to study, therefore, the unified theory of acceptance and use of technology (UTAUT) has used to examine. Furthermore, generation Z is different from the other generational cohorts in the way of behavior, characteristics, preferences, and attitudes toward technology [5]. With the household financial volatility during an unprecedented time of Covid-19 pandemic [1], the accelerated time of digital transformation [3], and digitally native era [5], this present study see the opportunity to assess the moderating effect of income level in the household's financial volatility situation which caused by the Covid-19 crisis on e-payment intention of generation Z.

2. Literature Review

2.1. Generation Z

Generation Z or Gen Z have been defined as a digitally native generation who are most familiar with the internet and technology when compare with other generational cohorts [5]. Besides, Oxford Economics claimed that Gen Z is the generation who were born around the mid-1990s to 2010 and now are about one-third of the global population which have a high potential to drive the global economies in the near future [5]. Some researchers unveiled the Gen Z that they are independent and different from millennials because they seem to be interested in startup and early-stage companies as their career development paths [6]. Also, when comparing Gen Z with other cohorts, Gen Z at an individual level are most likely to accept the diversities regardless of races, gender, and orientations – the non-binary or third gender are accepted [6].

2.2. Income Level

The low-income segment has consisted of a group of people who spent daily life about USD 3 to USD 5 a day [7], on the other hand, the United Nations Development Program (UNDP) defined the low-income level as a group living on lower than USD 8 a day [8]. Nevertheless, Many scholars further studied the lower-income consumers – defined as the bottom of the pyramid (BOP) segment, whose living costs are beyond USD 10 a day [9]. In this present study, the income level has been categorized into low- and high-

income levels based on the average minimum wages rate of Thai labor which is THB 321 a day or THB 9,633 a month (THB = Thai Baht) [10]. However, THB 10,000 a month is more general. Therefore, this present study defines the low-income level would be under THB 10,000 a month while the high-income level would be upper THB 10,000 a month.

2.3. The Unified Theory of Acceptance and Use of Technology

The current study has adopted the UTAUT model to examine Gen Z user's e-payment intention and behavior in Thailand. The constructs including; performance expectancy (PE) is the degree to which individual believes that the technology would enhance their job performance to be accomplished efficiently and PE has a positive effect on consumers' behavioral intention; effort expectancy (EE) has defined as the easiness of using technology that would not be complex and difficult and EE had a positively significant effect on behavioral intention; social influence expectancy (SIE) is defined as the individual perception of other people, surrounded people, or their important people expect them to use the new technology or system which has a significant impact on behavioral intention; facilitating conditions (FC) refer to consumers' belief of there are resources and support that exist for them to study and learn the way of using new technology or system and have a direct effect to use behavior; and behavioral intention (BI) of consumers creates a great effect and reflects the technological adoption, and their use behavior (UB) [11]. According to the aforesaid review, the path relationships and hypotheses have been demonstrated in table 1.

3. Methodology

The study focusing on study Gen Z's intention and behavior of using e-payment in Thailand. The participants who age between 18 – 25 years old. The screen question asking about their experience of using e-payment services at least one time to ensure that we access our targeted participants. The duration of data collection is in the first half of the year 2021. During the Covid-19 pandemic, we use an online survey by applying Google Forms as the data collection tool.

The questions within the questionnaire are adapted from the previously published works of literature including three questions for each factor comprised of PE, EE, SIE, and FC [11,12], four questions for BI [11–13], and three questions for UB [11,13]. There are four parts to the questionnaire: (i) demographic information, (ii) background information of using e-payment services, (iii) nineteen questions regarding the factors potentially affect e-payment intention and usage where the respondents are required to rank the score from 1 to 5 based on Five-Point Linker-Scale [14], and (iv) the suggestions.

In this present study, Cochran's sample size determination has been used in case of the population of Gen Z is unknown [15] (there was insufficient data of Gen Z's population in Thailand). With the randomized population's proportion was estimated at 50%, 95% confidential interval, and 5% margin of error, therefore the approximate sample size is 384. The appropriate sample size when applying structural equation modeling (SEM) is about 250 to 500 which helps to eliminate the unexpected issues in the data analysis process [16]. Thus, the data from 500 respondents have been collected for the study and usable samples are 476.

4. Research Findings

The data have been collected from Gen Z who age between 18 – 25 years old and familiar with e-payment services. Females and males are accounted for 61.38% and 32.98% respectively. The main participants are the student (91.60%) following by the minority groups of employees (5.04%) and business owners (2.10%). The lower-income group accounted for 75% and the rest is the high-income group (25%). The t-test result shows a significant difference among the low- and high- income groups toward e-payment usage of Gen Z (t-value = -8.594, critical value = 1.971, d.f. = 217, and p-value < 0.001). More than half of the high-income group has use e-payment services more than 20 times a month. In contrast, around two-third of the low-income group has used e-payment services lower than 10 times a month. Furthermore, we have assessed the normality of the collected data by measure mean, standard deviations, skewness, and kurtosis. The range of mean is between 4.070 (SIE3) to 4.470 (PE3). The standard deviation ranges from 0.727 (PE1) to 0.945 (SIE3). To test the univariate normality for each variable and the symmetry of deviation, skewness, and kurtosis are necessary to measure [17]. To represent normality, the lower skewness value of 2 and kurtosis value of 7 is required [18]. The skewness value is between -1.223 (PE construct) to -0.950 (BI construct) and the kurtosis value is in the range of 0.352 (BI construct) and 1.144 (PE construct). Thus, the data has represented the normality.

4.1. Confirmatory Factors Analysis

In the CFA process, the model fit of the measurements, convergent validity, and discriminant validity have been measured [19]. To confirm the validity and reliability of the overall measurement model, the model is required to achieve all thresholds including chi-square value or x^2 (p < 0.05), CMIN/df < 3.00, RMR < 0.08, AGFI > 0.80, PGFI > 0.50, IFI > 0.90, TLI > 0.90, CFI > 0.90, and RSMEA < 0.08 [20]. Hence, the result achieved the threshold by chi-square value or x^2 = 360.17 (p < 0.05), CMIN/df = 2.629, RMR = 0.021, AGFI = 0.898, PGFI = 0.668, IFI = 0.971, TLI = 0.964, CFI = 0.971, and RSMEA = 0.059.

The convergent validity has performed by analyzing various measurements including; the test of factor loading to confirms the relation of variables within factor and the value of each item are required to be greater than 0.5 [20] – the values of factor loading within constructs have met the criteria of all items from 0.743 (FC3) to 0.914 (BI2); the average variance extract (AVE) is the examination of construct variance relative to the measurement error variance which the recommended value of AVE is over 0.5 to indicate the usability of the tested model [21] – The AVE value of all constructs are represent the usability including PE = 0.738, EE = 0.703, SIE = 0.776, FC = 0.674, BI = 0.783, and UB = 0.693; and composite reliability (CR) use for testing the internal consistency of the items within the construct, the higher value than 0.7 representing high consistent [20], hence, all constructs have a high internal consistency including PE = 0.894, EE = 0.876, SIE = 0.912, FC = 0.860, BI = 0.935, and UB = 0.871. The values of the factor loading, AVE, and CR achieved the aforesaid threshold, therefore the structural model has achieved convergent validity.

Discriminant validity is a crucial measurement to identify the distinction of one construct from another's constructs whether homogeneous or heterogeneous [22]. With the recommendation from prior studies, a chi-square different test has been used to validate [23,24]. They have suggested comparing the constrained and unconstrained

models of each pair of latent variables. All constructs were paired against one another's, thus there are 15 pairs in total. The correlation of two latent variables is freely correlated for the unconstrained model, on the other hand, fixing the correlation at one for the constrained model. Either chi-square different of higher than 3.84 or the different of degree of freedom of 1 (p-value < 0.05) indicating discriminant validity (p < 0.05) [23,24]. After the examination, the discriminant validity of the latent variables has been confirmed.

4.2. Structural Equation Modeling

Structural equation modeling (SEM) is the second step after validating the model and CFA, which SEM uses for testing the hypothesis [19,25,26]. The present study utilizing Amos version 26 to analyze a crucial effect in which examining on multigroup analysis of income levels. The structural model is fit with the thresholds of all aspects [20] including chi-square value or $x^2 = 675.874$ (p < 0.05), CMIN/df = 2.397, RMR = 0.029, AGFI = 0.829, PGFI = 0.648, IFI = 0.949, TLI = 0.938, CFI = 0.949, and RSMEA = 0.054.

Table 1. Hypothesis testing results of the multigroup analysis.

Low-Income Level					
Hypothesis	Effect	Standardized coefficient (b)	t-value	p-value	Results
H1a	PE → BI	0.445	2.673	0.008**	Supported
H2a	EE → BI	0.143	0.892	0.372	Not supported
H3a	SIE → BI	0.232	5.071	***	Supported
H4a	FC → UB	0.312	5.107	***	Supported
H5a	BI →UB	0.761	12.045	***	Supported
High-Income Level					
Hypothesis	Effect	Standardized coefficient (b)	t-value	p-value	Results
H1b	PE → BI	0.106	0.423	0.672	Not supported
H2b	EE → BI	0.732	2.564	0.010*	Supported
H3b	SIE → BI	-0.147	-0.013	0.883	Not supported
H4b	FC → UB	0.469	4.337	***	Supported
H5b	BI → UB	0.506	5.761	***	Supported

Structural wright: Degree of freedom = 18; CMIN = 60.957; and p-value < 0.001. Denotes that: ***p-value < 0.001, **p-value < 0.01, and *p-value < 0.05.

As illustrated in table 1, based on structural weight measurement, the value of CMIN is 60.957 with a degree of freedom of 18 (p-value < 0.001) indicates a significant difference among the two study groups. On the other hand, there are some similar and different results of path relationships. For Gen Z who earn a low income, there was the confirmation that PE reflected their BI (H1a; β = 0.445, t-value = 2.673, p < 0.01), contrary, the result of high-income Gen Z is rejected (H1b; β = 0.106, t-value = 0.423, p = 0.672). EE has not influenced BI of Gen Z who earn low income (H2a; β = 0.143, t-value = 2.892, p = 0.372) but it influences the BI of high-income (H2b; β = 0.732, t-value = 2.564, p < 0.05). To discuss at this point, since Gen Z are the digitally native cohort, they have most familiar with electronic devices and online activities by using the internet [5]. The ease of using e-payment had no significant effect on their intention, especially for the low-income group. In contrast, the higher-income group which most of them are heavy users would tend to prefer the easy method of using e-payment services because they have used the service repeatedly.

In other perspectives, there was a confirmation of SIE impacted Gen Z's BI who earn low-income (H3a; β = 0.232, t-value = 5.071, p < 0.001), contrary, the high-income

level was rejected (H3b; β = -0.013, t-value = -0.147, p = 0.883). The higher-class individual made more choices that make them stand out from others, on the contrary, the choices of lower-class individuals were likely to rely more on the other's [27]. Moreover, the lower-class group has a high tendency of social engagement in which more likely to follow the social norms rather than the upper-class group [28].

In the same vein, FC directly reflect UB for both Gen Z who has a low-income (H4a; β = 0.312, t-value = 5.107, p < 0.001) and high-income level (H4b; β = 0.469, t-value = 4.337, p < 0.001), similarly, BI affecting the UB of both low-income (H5a; β = 0.761, t-value = 12.045, p < 0.001) and high-income group (H5b; β = 0.506, t-value = 5.761, p < 0.001). This finding consequences with some authors which supported the UB of low-income people in India affected by FC [29]. Lastly, there was a strong confirmation of BI reflecting UB and this result is in the same direction as the prior studies [29–31].

5. Implications

The policymakers, online transaction facility providers, as well as commercial banks are necessary to understand their targeted consumers to maintain their competitive advantages. Specifically, Gen Z is the most important group of consumers in which potentially drive future economies [5], hence, the aforesaid parties need to communicate the right message to them. The marketing communications for a low-income group should include friends, relatives, or important persons in the communication tools because their intention was affected by SIE. Besides, the key messages in the communication are important to show the benefits, advantages, and usefulness of payments and systems in which reflect the low-income group intention. On the other hand, EE is only a factor reflecting higher-income group intention, thus, the illustration of methods for using payments and systems are crucial to include in the communication as guidance. Moreover, user-friendly applications, systems, or services are essential to be established to eliminate any difficulties and misunderstanding when using. FC is the common factor that determined both low- and high-income group's behavior, therefore, the availability of necessary resources via online platforms would enhance their preferences. Also, user support could be available when the consumers facing any difficulties regarding payments, applications, or systems usage. Once those implications have been met, the targeted consumers would be satisfied and further influenced their peers or friends to use it.

6. Conclusion

The current study adopting the UTAUT model to examine the e-payment intention and usage of Gen Z during the time of the Covid-19 pandemic. To better understand the current situation, the income levels have been categorized into the low-income and high-income levels as the study groups. The significant result shows the high-income group is likely to use e-payment services more than the lower-income group following their income level. Moreover, based on the original UTAUT, performance expectancy and social influence have a significant reflection on Gen Z's intention who earn a low income. Also, facilitating conditions and intentions have a direct effect on the use behavior of the lower-income group. Conversely, we found that effort expectancy has not predicted their intention. In the view of Gen Z who earn a higher income, performance expectancy and

social influence expectancy have no significant prediction on the intention, contrary, effort expectancy is the only factor that has a significant effect on their intention. Besides, there was strong evidence of facilitating conditions and intention directly influence their use behavior. Finally, there are some limitations in this research paper. The sample group of this study is limited to generation Z in Thailand. A cross-generational cohorts' study is suggested. Narrowing the scope of the study in another's form of e-payment services, for instance, m-banking, m-payment, mobile wallets, etc. would show the significant difference in results. Besides, the other demographic moderators e.g., gender have been ignored which might be causing unidentified hidden moderators. Lastly, there might be other factors that affect the intention and usage during the Covid-19 crisis which are excluded in the research framework. Therefore, future research might further study the cross-generation cohorts, cross-e-payment systems, as well as extending the UTAUT model to capture the world's most recent issues and situations.

Acknowledgment

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