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The Effect of Mobile Payment Service Elements on Usage Intention

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Abstract

Background/Objectives: This research will verify the role of economic benefits of the consumer as a mediating variable when deciding to use mobile payment based on the reliability of the mobile payment service.

Methods/Statistical Analysis: Research subjects are consumers who used mobile payment service usage more

than once. Survey consists of 24 questions: 5 on demographic statistics, 13 on mobile payment service elements, 3 on purpose of mobile payment service usage, 3 on mediating variables and economic benefit of mobile payment service, using Likert's 5-point-scale measurement. Positive analysis used SPSS 23.0 for element analysis, reliability analysis, correlation analysis, regression analysis to control for variables.

Findings: The total variance for mobile payment service element measurement categories is 76.973% and the found eigenvalue is all above 1.0, and the factor score is above 0.5, meeting the reliability and validity of research. Regression analysis shows all independent variables, excluding informativeness, effects the dependent variable. Mediating effects of three categories of mobile payment service (excluding informativeness) on economic usage intention of using mobile payment service hold significant. Usefulness, Reliability, Security's R2 values incrementally increased and significance probability was below 0.05. Therefore, we conclude that mobile payment service is important but economic benefits provided to consumers play an important role in consumers using mobile payment service.

Improvements/Applications: As the importance of economic benefits of mobile payment service has been confirmed, it is necessary to study the methodology to expand economic benefits of mobile payment service.

Key Words : Fintech, Mobile Payment Service, Reliability, Security, Economics.

1 Introduction

It has been proven that mobile payment service elements such as informativeness, usefulness, reliability, security effect usage intention. However, if there are no economic benefits provided to users, people will not use mobile payment, and some still continue to use credit cards. However, extant research has not studies the effects of economic benefits for usage intention. Therefore, this research posited the independent variable as mobile payment services consisting of informativeness, usefulness, reliability, security, and used

usage intention as dependent variable, with economic benefits as mediating variables, and tried to verify the important role of economic benefits in mediating the effect of mobile payment service elements on usage intention.

2 Materials and Methods

2.1 Fintech

The word Fintech is a combination of Finance and Technology, and a convergence industry of the changing finance service. Fintech can be categorized into Fintech service and Fintech technology. Fintech service consists of payment services through cards and virtual currency, online loans, online investments, and Fintech technology consists of digitization of finance, big data analysis to fit consumer needs, bio-identification technologies, and information security[1].

2.2 Mobile Payment Service

With the spread of smartphones and development of wireless internet technology, financial transaction through mobile devices has grown active and mobile payment services have also grown and developed. Mobile payment services are all the products and services that allow mobile payment[2].

E. AbuShanab, J.M. Pearson, (2007) defined the purchase of a product or service through mobile devices, both online and offline, as mobile payment service and Xie, Pei Lan (2016) defined it as making payments through mobile devices online and offline[3,4].

2.3 Reliability

Reliability is central in online transaction where the provider receives private information from consumers. Reliability denotes the trust that the other person will act in good will. Morgan (1994) defined it as being able to trust the promise or words of the service provider, and the belief stemming from expected fulfillment of mutual responsibilities. Pruitt (1981) defined it as the other person fulfilling all of one's responsibilities[5,6,7].

2.4 Security

Security is defined as the degree of anxiety one feels about the possibility of one's private information being misused. The mobile environment is ubiquitous and prone to information leakage, and thus also an important source of individual and social problems[8].

2.5 Economic Benefits

In mobile payment, economic benefits denote the lowering of transaction costs of offline payment services, with more reasonable prices and lower commission. These lowered transaction costs become benefits for consumers[9].

2.6 Research Model and Hypothesis

2.6.1 Research model

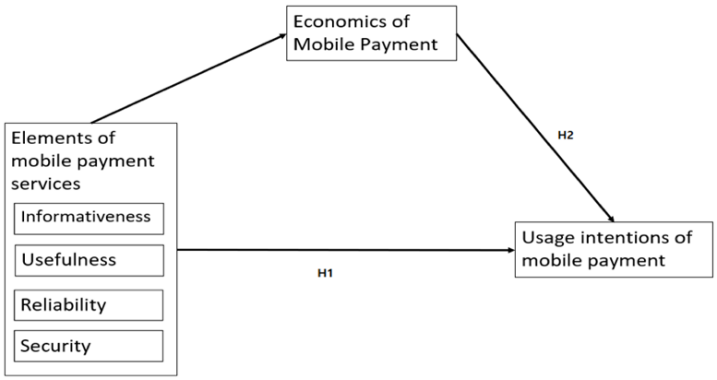

Figure 1: Research Model

As show In Figure1 this research, the independent variable is mobile payment service elements, consisting of informativeness, usefulness, reliability, security, and the dependent variable is usage intention of mobile payment service. The mediating variable is the economic benefits of mobile payment service.

The reason we put economic benefits as the mediating variables is because we see it as important compared to conventional offline payment methods, with no extant literature covering its role. Thus,

our research model is distinguished in its use of economic benefits as a mediating variable for mobile payment service usage.

2.6.2 Hypothesis

Hypothesis 1(H1): Mobile payment service elements have a positive effect on mobile payment service usage intention.

Hypothesis 2(H2): Economic benefits play a mediating role between mobile payment service elements, consisting of informativeness, usefulness, reliability, security, and mobile payment service usage intention.

2.6.3 Research tool and operational definition of variables

There are many ways to do positive analysis, and this research employed the survey method, and for statistical and actual significance of the research we carried out the survey among people who had experience of using mobile payment service. We distributed 400 survey sheets and retrieved 267. From the 267, we excluded unsupportive respondents and date-omitted respondents, with 250 final sheets. Final retrieval rate was 62.5%.

-The articles' measurement variables are mobile payment service elements, economic benefit of mobile payment services, and mobile payment service usage intention. For research tools, we modified or used Kim Hyo-Young et al (2016)'s research tools. Survey consists of 24 questions: 5 on demographic statistics, 13 on mobile payment service elements, 3 on purpose of mobile payment service usage, 3 on mediating variables and economic benefit of mobile payment service, using Likert's 5-point-scale measurement[10].

3 Results and Discussion

3.1 Research of Positive Analysis

Survey questions on demography statistics consist of questions of gender, age, location of residence, education, job. Men were 89 people (35.6%) and women were 161 people (64.4%). Age distribution was 20 30 years (36.4%), 31 40 years (28%), 41 and above (35.6%). Location of residence consisted of Seoul, Kyunggi, Incheon (49.6%),

and the remaining 51.4% in rural areas. For education, 41.6% were college graduates or students, and for job, 236 people (94/4%) were employed.

3.2 Validity and Reliability of Research Tool

We used the SPSS 23.0 program to analyze the validity and reliability of the 19 survey categories (excluding demographic statistics) and the independent variables and their variance was 76.793%. The found eigenvalue is all above 1.0, and the factor score is above 0.5, meeting the reliability and validity of research. In reliability analysis, Cronbach Alpha value was all above 0.7 and so all were used as survey categories.

3.3 Correlation Analysis

As a result of correlation analysis, all correlations (excluding the correlation between service elements and economic benefits with a correlation of 0.232 with significant probability of 0.000) showed a high correlation of above 0.4 and hence hypothesis H1 was properly posited.

3.4 Hypothesis H1 Test

Hypothesis H1 was "Mobile payment service elements have a positive effect on mobile payment service usage intention" and resulted in R=0.591, R2=0.349, and modified R2=0.339. 3 independent variables (excluding informativeness) showed results of Table 1 and thus H1 was partially selected.

Table 1: Verification of Hypothesis H1

Dependent Variable	Independent Variable	Standardized Error	β	t	p
Usage intentions of mobile payment	(Constant)	.296		2.463	.014
	Informativeness	.054	-.048	-.819	.414
	Usefulness	.046	.171	3.133	.000
	Reliability	.045	.507	9.763	.000
	Security	.046	.204	3.663	.000
	$R = .591$, $R^2 = .349$, Modified $R^2 = .0.338$, $F = 32.791$, $P = .000$				

3.5 Hypothesis H2 Test

Hypothesis H2 was "Economic benefits play a mediating role between mobile payment service elements, consisting of informativeness, usefulness, reliability, security, and mobile payment service usage intention" and as Table 2 shows, R2 value increased with P value below 0.05, and so it could be inferred that it plays a partial mediating role. H2 was selected.

Table 1: Verification of Hypothesis H1

Dependent Variable	Independent Variable	Standardized Error	β	t	p
Usage intentions of mobile payment	(Constant)	.296		2.463	.014
	Informativeness	.054	-.048	-.819	.414
	Usefulness	.046	.171	3.133	.000
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	$R = .591$, $R^2 = .349$, Modified $R^2 = .0.338$, $F = 32.791$, $P = .000$				

3.6 Discussion

Hypothesis H1 "Mobile payment service elements have a positive effect on mobile payment service usage intention" was verified with three elements (excluding informativeness). Hypothesis H2 "Economic benefits play a mediating role between mobile payment service elements, consisting of informativeness, usefulness, reliability, security, and mobile payment service usage intention" was proven to show partial mediating effects.

4 Conclusion

4.1 Research result and Significance

Through this article we argued that economic benefits of mobile payment service played an important role in mobile payment service usage intention. Usefulness, reliability, security is no doubt important but in all of these elements economic benefits play an

important mediating role. Consumers perceive reliability and security as basic grounds for serviceability, and to expand on mobile payment service, one must research ways to provide better economic benefit. Future research on consumers' preferred economic benefits is required.

4.2 Improvement

Economic benefits, used as a mediating variable in our research, was defined based on extant literature, and thus it is not an objective representation of mobile service in general. Our survey did not explicitly explain how we define economic benefits, and thus survey respondents might not have had a clear understanding of its meaning. Thus, for future research, one must design tools and models to objectively measure the economic benefits of mobile payment services.

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