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Exploring the Factors Influencing the Customers' Preference for Cashless Transactions: An Empirical Study on Dhaka End Users

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Abstract: This study investigates the determinants of customer preferences for cashless transactions among Dhaka end users, with a focus on "Perceived Usefulness", "Perceived Ease of Use", "Perceived Trust", and "Perceived Risk" as independent variables, and "Preference to Use" as the dependent variable. The research employed a quantitative approach, collecting primary data through questionnaires and supplementing it with secondary data from various sources. The importance of enhancing system functionality and usability was highlighted by key findings indicating "Perceived Usefulness" and "Perceived Ease of Use" strongly influenced customer preferences for cashless transactions. Even though "Perceived Trust" and "Perceived Risk" did not significantly correlate, addressing security issues and fostering trust are still crucial for long-term involvement. Drawing from previous studies, the report recommends strategies to simultaneously improve perceived usefulness and trust, streamline user experience for higher preference, and strengthen trust through visible security measures and user education. This study offers valuable insights for marketers and service providers to optimize cashless transaction systems and cater to the evolving preferences of Dhaka's urban consumers.

1.1 Introduction

The majority of advanced countries are already beginning the transition away from paper checks and other forms of payment and toward electronic ones, which heavily rely on credit and debit cards. (Humphrey, 2004). The worldwide lockdown on the COVID-19 outbreak and ensuing restrictions reduced mobility for practically everyone. The use of digital payments has significantly expanded over the past 2 years as a result of individuals being restricted to their houses. In this way, Bangladesh was not an exception (Kamal, Syed Mohammad, June 18, 2022, Bangladesh moving towards a cashless society: The Daily Star). The reason I'm suggesting this study is that we now use cashless transactions

considerably more frequently than we once did to pay for goods and services of any kind. In the end, it's simpler and more adaptable for us. In Bangladesh, we use MFS (Mobile Financial Service) like Bkash, Nagad, Rocket, and Upay as well as debit and credit cards for cashless purchases. After the pandemic drove a significant shift to digital buying and payments, experts claim Bangladesh's transformation to a cashless economy is gaining momentum. They do, however, think that this most contemporary kind of transaction is nevertheless frequently dependent on cards. In March 2022, there were roughly 400,000 more users of internet banking. Transactions climbed by Taka 25.82 billion in March, according to figures from the central bank. Contrary to urban behavior, rural folks prefer cash transactions in this restriction-free scenario. There were 56.7 million MFS accounts overall in rural areas as of March, a decline of 5.6 million from December 2021(Haroon, Jasim Uddin, May 14, 2022, The Financial Express). To inform them on the usage of cashless transaction systems and to let them know that since we don't need to carry cash around with us all the time and that it can sometimes be lost, using cashless transactions allows us to purchase anything more quickly and safely. Therefore, if it's a cashless transaction, there is low risk because all forms of electronic money transactions use a high-security system.

A paradigm change that redefines shopping ease and security is the era of cashless transactions. The transition to electronic payment systems has altered the way we make purchases, as noted in renowned journals like Journal of Financial Innovation and International Journal of Electronic Commerce. Say goodbye to the heavy load of actual money and welcome a faster, safer method of making purchases. According to specialists at Cyber security Review and Financial Technology Insights, these electronic platforms not only speed up transactions but also strengthen them with cutting-edge security protocols. Enjoy the peace of mind that comes with knowing that your transactions are protected against any threats, removing any concerns about theft or loss. Enjoy the seamless fusion of innovation and security made possible by well-known developments in cashless transactions.

1.2 Problem Statement and Research Gap

In a cashless transaction, there have some options instead of using cash. People have to use mobile banking, and debit cards/credit cards, without this they have no option of using a cashless system. But in Bangladesh, all types of people can’t use card debit/credit/visa cards. So, what they can use? They can use the Mobile Banking system just. Either this, they have no option to use. So here, two types of cashless systems can be used. One is Mobile Banking, and the other is a Card system (Debit/Credit/Visa etc. card). So, in terms of using Mobile Banking, the problem can be found: The popular mobile banking system of Bangladesh are Bkash, Rocket, Nagad, etc. But these systems are also corrupted in our country. Still, now, there are so many incidents can be heard that some corrupt people are doing corruption in this mobile banking system. They are cheating the general people who are not good at using this mobile banking system. And these kinds of incidents are

happening most commonly in rural areas. Here the Mobile banking system should be easier for people. And rural areas people should be trained anyhow by the authority of the Mobile Banking systems. So, there is still some lacking privacy and security. Fewer income people are not aware and don't feel comfortable using this Mobile banking system because of has high transaction charges. Now let's talk about the problems of using a Card system or plastic card. Some amounts of card users claim that they are facing a card security problem. Card pins may be stolen, and fund embezzlement is considered a security problem. Some other users say that financial institutions charge highly for transactions and card maintenance. Then it was also found that the card is not working properly at the time of transactions. It may cause the server down, and internet problems which make the card inconvenient to use. And some financial institutions lack logistic support. Besides, a small number of ATM booths, lack of point of sales machines, etc. are the main form of infrastructure problems. So here security and logistic support problem are the most in the time of using the card. So, the elements that are obstacles to influencing the public's decisions are Security problems, Inconvenient to use (everyone isn't proficient in using a cashless system), Lack of infrastructure, and Lack of a government Mobile Banking system. Beyond the scope of current behavioral research, a more thorough examination of customer perceptions of security and privacy in electronic money systems is required.

1.3 Scope of the Study

This study provides people's preferences for electronic or digital payment systems in great depth. This research is also beneficial for companies to create payment apps and meet customer needs based on what they are looking for. Around 202 samples were collected from the respondents. To get more reliable statistics, respondents were picked at random rather than sequentially. People's preferences for electronic or digital payment systems will be detailed through this research. This study will help businesses develop payment apps and satisfy client expectations depending on what they are seeking. The responders' samples will total about 202 in number. Respondents will be chosen at random rather than consecutively in order to obtain more accurate statistics.

1.4 Objectives of the Study

Broad

- To find out the customer's preference for cashless transactions and analyze their satisfaction level.

Specific

- To determine the key concerns of consumers of cashless payment systems.
- To identify people's perceived usefulness and trust issues with the cashless transactions systems.
- To identify the various factors influencing the use of cashless transactions.
- To understand how to carry out cashless transactions most effectively

2.0 Literature Review, Conceptual Framework and Hypothesis Development

Rapid technological innovation has drastically changed the world of financial transactions in recent years. The emphasis on cashless payment mechanisms that are possible replacements for conventional cash-based transactions has grown stronger as a result of this shift. Understanding the numerous components that influence consumers' preferences for such cashless techniques becomes crucial for businesses, financial institutions, and regulators alike as societies advance toward digitization. Examining the underlying reasons why customers prefer cashless transactions is the main objective of this literature review. It focuses on how perceived usefulness, perceived ease of use, perceived trust, and perceived risk as independent variables work and how they affect the dependent variable customers' preference for using cashless transactions and how they affect each other.

2.1 Perceived Usefulness

At the heart of technology acceptance models lies the concept of perceived usefulness. This construct revolves around individuals' perception of a technology's potential to enhance their performance and efficiency in various tasks Customers might consider cashless transactions as providing convenience, effectiveness, and time savings, which falls under the concept of perceived usefulness in this regard. The seminal Technology Acceptance Model (TAM) put forth by Davis asserts that perceived usefulness stands as a pivotal determinant that significantly influences users' intentions to embrace and utilize novel technologies (Davis, F. D. (1989). As such, the more customers perceive cashless transactions as efficacious tools for their financial dealings, the more inclined they may be to adopt them. A study by Venkatesh and Davis (2000) emphasized the importance of perceived usefulness in shaping users' attitudes and behaviors towards technology adoption. Their findings indicated that a positive perception of the usefulness of a technology significantly influences users' intentions to adopt it. In the realm of cashless transactions, this suggests that customers who believe digital payment methods can offer convenience, efficiency, and enhanced financial management are more likely to prefer using these methods over traditional cash-based transactions.

To sum up, the literature suggests that perceived usefulness plays a pivotal role in shaping customers preferences for cashless transactions. As individuals increasingly seek convenience, efficiency, and enhanced financial management, the perceived usefulness of digital payment methods becomes a crucial factor in driving their adoption. As such, understanding the factors that influence customers' perceptions of the usefulness of cashless transactions is essential for both researchers and practitioners aiming to promote the adoption of modern payment methods.

H1: The intention to use a system for cashless transactions is highly influenced by its perceived usefulness.

2.2 Perceived Ease of Use

Perceived ease of use is a concept that is closely related to perceived usefulness. The basis for this concept is how users of a certain technology perceive how simple it is to utilize it with minimum cognitive effort. Customers are more likely to accept cashless transactions when provided user-friendly interfaces that don't require a lot of mental work, according to study. The TAM, which contends that perceived ease of use is crucial in determining consumers' attitudes toward using technology, is consistent with this idea (Davis, F. D. (1989)). Customers are therefore more inclined to adopt cashless transactions if they believe that these transactions are easy to understand, easy to use and free from by complexity. The adoption and preference for cashless transactions have gained considerable attention in recent years due to the proliferation of digital payment technologies. "Perceived Ease of Use" comes out as a crucial determinant among the relevant elements influencing consumers' choices to use these approaches. A seminal study by Davis (1989) proposed that both perceived usefulness and perceived ease of use significantly influence users' behavioral intentions towards adopting new technologies. This suggests that customers' perception of the ease with which they can interact with and use digital payment methods plays a vital role in shaping their preference for cashless transactions. When customers find cashless transactions to be intuitive, uncomplicated, and convenient, they are more likely to show a preference for these methods over traditional cash-based transactions.

Considering the empirical evidence, it is evident that perceived ease of use is a pivotal factor influencing customers' preference for cashless transactions. As the usability and user-friendliness of digital payment methods are closely tied to end users' adoption decisions, a deeper understanding of this dimension is crucial for organizations and policymakers seeking to promote the use of modern payment technologies.

H2: The intention for using a cashless transactions system is considerably influenced positively by its perceived ease of use.

2.3 Perceived Trust

In an era marked by the rapid digitization of financial transactions, "perceived trust" has emerged as a crucial factor influencing consumers' preferences for cashless transactions. The growth of cashless payment methods has necessitated an exploration of how individuals perceive the security, reliability, and integrity of these technologies. Perceived trust, in this context, refers to customers' confidence and belief that digital payment systems can safeguard their sensitive financial information and execute transactions securely (McKnight &Chervany, 2001).

Researchers have emphasized the crucial part that perceived trust plays in influencing how users accept and use technology. Venkatesh and Davis (2003) expanded upon the Technology Acceptance Model (TAM) by incorporating perceived trust as an external variable influencing users' attitudes and intentions towards using technology. In the realm of

cashless transactions, this implies that customers who trust the security and privacy measures of digital payment systems are more inclined to adopt and prefer these methods over traditional cash-based transactions.

In summary, the literature suggests that perceived trust is a pivotal determinant of customers' preference for cashless transactions. Customers' level of confidence in the security and dependability of these technologies considerably affects their attitudes and behaviors as they negotiate the complexity of contemporary digital payment systems. Businesses and governments intending to promote the acceptance and usage of these procedures must comprehend the elements that lead to the development of confidence in cashless transactions.

H3: The intention for using cashless transactions systems is greatly influenced positively by perceived trust.

2.4 Perceived Risk

As the world becomes increasingly interconnected through digital technologies, the preference for cashless transactions is on the rise. However, the adoption of these modern payment methods is often influenced by individuals' perceptions of potential risks, making "perceived risk" a central consideration in understanding customer behavior. Perceived risk, within the context of cashless transactions, pertains to customers' apprehensions regarding the security, privacy, and potential negative outcomes associated with using digital payment methods (Bauer, 1960).

Studies exploring technology adoption have consistently demonstrated that perceived risk significantly impacts consumers' willingness to embrace new technologies. In the seminal work of Rogers (1962) on the Diffusion of Innovations theory, it is highlighted that consumers are more likely to adopt innovations when perceived risks are minimized. This principle holds true for cashless transactions, where customers' concerns about potential security breaches, fraud, or unauthorized access to sensitive financial information can inhibit their preference for digital payment methods.

In the face of these complex dynamics, understanding the role of perceived risk in customers' preference for cashless transactions is crucial. Mitigating perceived risk and building trust can positively impact customers' willingness to embrace these methods. As such, it is essential for businesses and policymakers to address these concerns and implement measures that enhance users' confidence in the security and reliability of digital payment systems.

H4: The intention for using a cashless system is strongly influenced by perceived risk.

The theoretical framework explores the factors impacting customers' preferences for cashless transactions. It posits that perceived usefulness, perceived ease of use, perceived trust, and perceived risk are key independent variables influencing customers' preference to use digital payments. When customers perceive cashless transactions as beneficial and easy to use, while also having trust in their security and minimal perceived risk, they are more likely to prefer using them. This framework serves as a foundation for investigating the relationships between these variables and customers' adoption of cashless transactions, which is crucial for businesses and policymakers aiming to promote digital payment adoption.

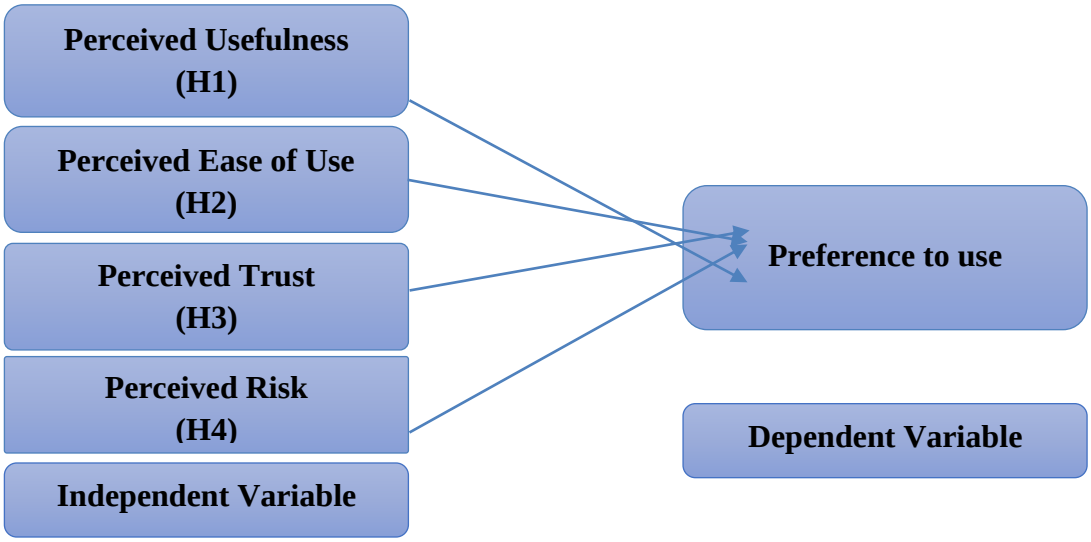

Figure 01: Theoretical Framework

3.0 Research Methodology

3.1 Research Approach

Quantitative research methods are used in this study. It seeks to systematically gather numerical data to analyze and establish relationships between variables. This approach will enable the identification of patterns, correlations, and trends related to the factors affecting customers' preferences for cashless transaction systems.

3.2 Research Purpose

This study aims to objectively analyze the variables influencing end users in Dhaka's preferences for cashless transaction systems. By examining the perceived usefulness, perceived ease of use, perceived trust, and perceived risk, the study aims to provide insights into the decision-making process regarding the adoption of cashless transactions.

3.3 Research Method
The study uses a cross-sectional study design to collect data at a certain moment. The design makes it possible to analyze the relationships between variables and identify patterns throughout the specified period of time.

3.4 Sample Size
The study involves a sample size of around 200 respondents, including consumers aged 18 to 65 years residing in urban areas of Dhaka.

3.5 Sampling Method and Unit
The non-probability sampling technique is used to gather data only, rather than sequentially. Randomly collected responses from those who are connected with the cashless transactions system.

3.6 Data Collection Method
Through the use of questionnaires, primary data was gathered. To examine the factors of perceived usefulness, perceived ease of use, perceived trust, perceived risk, and preference for using cashless transactions, the questionnaire included close-ended questions. The questionnaire is split up into two sections: demographic data on the respondents, and questions using a Likert scale to evaluate dependent and independent variables.

3.6.1 Secondary Data
Secondary data was gathered from various sources such as websites, newspapers, magazines, reports, journals, and news reports. This data was used to complement and validate the primary data collected through the questionnaire. Secondary data helped in establishing the context, trends, and background information related to the research topic.

3.7 Data Analysis and Presentation Tools
In order to conduct the analysis, used a software called Smart pls 4. Techniques used in theanalysis included frequency count, percentages, mean, correlation, and coefficient. These methodswere used to investigate the relationships between variables and draw a meaningful conclusion.To make the findings easier to grasp and visualize, the results were presented as tables and figures.

4.0 Analysis and Findings
4.1 Respondents Profile
The profile and the general description of the respondents studied in the current study have been summarized in Table 02. In the current study six types of demographic information were sought from the respondents that were relevant for the current study. Those were age, gender, level of education, occupation, division of origin and level of income (monthly). In the current study 24% of the respondents are female whereas the 76% respondents are male. Among the age group, most of the respondents are from age group 18-34 yeas having a

percentage of 68% of all the respondents. The majority of people earn less than Tk. 80,000 each month. Regarding the level of education, 63% of the respondents have completed post-graduate and 34% of them have completed graduation. Among all respondents, most of them are service holder. Therefore, the demographic characteristics of the respondents and their frequency of cashless transaction demonstrate the sufficiency of measurement of the observed variables under the current study.

Table 02: Respondents Profile

	Level	Frequency N= 202	Percent
Gender	Male	155	76%
	Female	46	24%
Age	18-34 years	137	68%
	35-49 years	59	30%
	50-64 years	3	1%
	65 years and above	3	1%
Level of Education	Below Bachelor	6	3%
	Bachelor	68	34%
	Master's	128	63%
Division of Origin	Dhaka	103	51%
	Chittagong	42	21%
	Rajshahi	13	7%
	Khulna	19	9%
	Barisal	0	0%
	Rangpur	9	4%
	Sylhet	6	3%
	Mymensingh	10	5%
Level of Income (Monthly)	Below Tk. 20,000	78	38%
	Tk. 20,001-50,000	41	21%
	Tk. 50,001- 80,000	44	22%
	Tk. 80,001- 200,000	33	17%
	Tk. 200,001 & above	6	2%
Occupation	Student	56	28%
	Businessman	33	16%
	Professional & technical	20	10%
	Service holder	87	43%
	Housewife	0	0%
	Retired	0	0%
	Unemployed	6	3%

4.2 Results of PLS-SEM

The PLS-SEM analysis which includes both measurement and structural model are presented here. The results of the measurement model establish the reliability and validity of the measurement of the latent constructs whereas the structural model analyze the hypothetical relationship among them. According to the methodology of this study we have applied disjoint two stage higher order analysis in where we will first determine the reliability and validity of the lower order and then use the latent constructs score to assess the reliability and validity of the higher order construct. The quality of the construct is measured based on the results of our measurement model. The quality evaluation criteria start with the factor loading followed by construct reliability and construct validity.

4.3 Factor loading

Factor loading represents the extent to which each of the items in the correlation matrix correlate with the given principal component. Individual item reliability measures how well latent variable measurements on multiple-item scales represent the latent variables' true scores in relation to their errors. So, loading value is the correlation of the items with their respective latent variable. It can take a value ranging from -1 to 1 with higher loading value indicates higher correlation with the factor. The standardized loadings (or simple correlation) were checked to assess individual item reliability. Considering items with loadings of 0.7 or greater, which indicates that there is more shared variation between the latent variables than error variance, is a general rule of thumb used by many researchers (Carmines & Zeller, 1979). Since loadings are correlations, a loading of 0.7 denotes that the latent variable is responsible for about 70% of the variation in the observable variables (i.e., the square of the loadings). Parsian & Dunning, (2009) recommended reviewing and maybe removing items with low loadings since they would provide little explanatory power to the model and distort estimates of the parameters connecting the latent variables. In general, items with loadings of less than 0.4 (a standard cutoff for factor analysis results) or 0.5 should be eliminated (Hulland, 1999). Chin (2010) suggested a cut-off of 0.707 while Fornell & Larcker (1981) suggested a cut-off of 0.70. A loading of 0.5 may be utilized as a cutoff point when some scales are new scales and some scales are modified from previous settings (Chin, 1998). Barclay et al. (1995) also said that the loadings cutoff point may get lower in situations when the instrument is designed in a given environment and applied to a different setting. In our study the loading value of the all the items is above 0.5 (Table-03) so the test is satisfied and the reliability of the items in measuring their respective latent construct in a reflective model is established. In addition to that the loadings values of all the items are statistically significant.

Table 03: Factor loading

Variables	Indicators	Loading Value	Standard deviation	T statistics	P values
Perceived Ease of Use	PEU1	0.836	0.021	39.898	0.000
	PEU2	0.868	0.021	42.293	0.000
	PEU3	0.771	0.043	17.780	0.000
	PEU4	0.914	0.014	64.580	0.000
	PEU5	0.755	0.032	23.807	0.000
Perceived Risk	PR2	0.779	0.026	30.197	0.000
	PR3	-0.647	0.042	15.381	0.000
	PR4	0.765	0.032	23.830	0.000
	PR5	0.825	0.025	33.582	0.000
Perceived Trust	PT1	0.887	0.020	43.580	0.000
	PT2	0.796	0.029	27.465	0.000
	PT3	0.749	0.031	23.871	0.000
	PT4	0.802	0.031	25.887	0.000
	PT5	0.882	0.017	51.362	0.000
Preference to use	PTU1	0.903	0.012	77.531	0.000
	PTU2	0.826	0.022	37.336	0.000
	PTU3	0.775	0.043	17.964	0.000
	PTU4	0.693	0.058	11.987	0.000
	PTU5	0.720	0.063	11.425	0.000
Perceived Usefulness	PU1	0.718	0.042	17.203	0.000
	PU2	0.674	0.077	8.745	0.000
	PU3	0.822	0.030	27.498	0.000
	PU4	0.707	0.034	20.788	0.000
	PU5	0.651	0.051	12.747	0.000

4.2.2 Construct Reliability and Validity

According to Hulland (1999), when many items are employed to measure a single latent variable, the researcher should be concerned not only with the validity of the individual measurement items but also with how much convergent validity the measures exhibit. The internal consistency is measured by convergent validity. It is estimated to make sure the items expected to measure each latent variable really measure that variable and not another variable. To assess the convergent validity of the constructs in PLS, two tests can be applied.

1. Construct Reliability
2. Convergent Validity

1.Construct Reliability

- **Cronbach's Alpha:** This metric assesses the internal consistency of each construct. Generally, a Cronbach's Alpha value above 0.5 is considered acceptable. The constructs PEU (0.887), PT (0.882), PTU (0.845) and PU (0.764) show good internal consistency.
- **Composite Reliability (CR):** CR values above 0.5 are deemed acceptable and indicate that the constructs are reliable. Constructs PEU (0.893), PR (0.763), PT (0.888), PTU (0.868) and PU (0.766) all meet this criterion, suggesting good composite reliability.

2. Convergent Validity

- **Average Variance Extracted (AVE):** AVE values greater than 0.5 indicate that the construct explains more than half of the variance of its indicators, which is a sign of good convergent validity.

  Constructs PEU (0.690), PR (0.573), PT (0.681), PTU (0.620) and PU (0.514) exceed this threshold, suggesting adequate convergent validity.

Table 04: Construct reliability and validity

Constructs	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
PEU	0.887	0.893	0.690
PR	0.319	0.763	0.573
PT	0.882	0.888	0.681
PTU	0.845	0.868	0.620
PU	0.764	0.766	0.514

4.3 Discriminant Validity

The measurement's discriminant validity was examined following analyses of the measurement model's convergent validity and individual item reliability. The degree to which a certain latent variable differs from other latent variables in the model is indicated by its discriminant validity. Three tests were carried out to evaluate the discriminant validity.

1) Analysis of cross-loadings
2) Analysis of squire root of AVE
3) Heterotrait-Monotrait ratio of correlations (HTMT).

4.3.1 Analysis of cross-loadings

The analysis of cross-loading was carried out following the guideline that items should have a stronger correlation with the latent variable they are intended to measure than with any other latent variable in the model. We produced cross loading scores (table-05) where all the Pearson correlation coefficient of all of our items is captured against our Four latent

variable scores. The highlighted correlation coefficients in table-05 represents that every item had a higher loading on the latent variable that they were intended to measure than on any other latent variable in the model. According to this analysis all the 37 items are consistently loaded on the seven variables under study, proving the discriminant validity of the latent variables.

Table 05: Cross Loading

	PEU	PR	PT	PTU	PU
PEU1	**0.836**	0.545	0.633	0.666	0.754
PEU2	**0.868**	0.503	0.505	0.632	0.705
PEU3	**0.771**	0.415	0.418	0.487	0.557
PEU4	**0.914**	0.481	0.505	0.638	0.738
PEU5	**0.755**	0.668	0.615	0.664	0.623
PR2	0.539	**0.779**	0.749	0.769	0.615
PR3	-0.540	**-0.647**	-0.576	-0.569	-0.501
PR4	0.390	**0.765**	0.589	0.524	0.522
PR5	0.439	**0.825**	0.570	0.634	0.491
PT1	0.628	0.699	**0.887**	0.740	0.775
PT2	0.503	0.666	**0.796**	0.559	0.747
PT3	0.376	0.657	**0.749**	0.643	0.496
PT4	0.682	0.656	**0.802**	0.662	0.634
PT5	0.491	0.753	**0.882**	0.696	0.640
PTU1	0.729	0.838	0.785	**0.903**	0.744
PTU2	0.696	0.705	0.585	**0.826**	0.586
PTU3	0.397	0.563	0.633	**0.775**	0.392
PTU4	0.543	0.483	0.375	**0.693**	0.397
PTU5	0.540	0.653	0.730	**0.720**	0.665
PU1	0.621	0.473	0.539	0.490	**0.718**
PU2	0.420	0.409	0.463	0.340	**0.674**
PU3	0.624	0.563	0.635	0.534	**0.822**
PU4	0.575	0.447	0.625	0.556	**0.707**
PU5	0.631	0.600	0.549	0.605	**0.651**

4.3.2 Analysis of squire root of AVE

Analyzing the square root of AVE using PLS is also helpful for determining whether discriminant validity is sufficient. A latent variable must share more variance with its measurements than it does with other latent variables in the mode. The square root of AVE of a latent component should, in accordance with Fornell and Larker (1981), be larger than the variance shared between the latent factor and other latent factors (that is the squared between two latent factor). This shows that the latent factor and its measurement items

share more variation than a distinct latent variable reflecting various sets of measurement items. Similar criterion also recommended by another research. This rule is depicted in the correlation matrix for the latent components in this study (Table -06). The diagonal of the matrix in the table is equal to the square root of the AVE, and for acceptable discriminant validity, the diagonal elements in the relevant rows and columns should be greater than the off-diagonal elements (Fornell and Larker, 1981). Based on the Fornell-Larcker criterion analysis: Constructs PEU, PT, PTU and PU demonstrate good discriminant validity, with the square root of their AVE values being higher than their correlations with other constructs. Constructs PR show some potential issues with discriminant validity, particularly with PT and PTU respectively.

Overall, most constructs meet the Fornell-Larcker criterion, indicating that they are distinct from one another. However, continuous validation is recommended to ensure the robustness of these constructs.

Table 06: Correlations among the constructs (Fornell-Larcker criterion)

	PEU	**PR**	**PT**	**PTU**	**PU**
PEU	0.831				
PR	0.637	0.757			
PT	0.653	0.832	0.825		
PTU	0.752	0.842	0.805	0.787	
PU	0.820	0.710	0.797	0.728	0.717

4.3.3 Heterotrait-Monotrait ratio of correlations (HTMT)

Another measurement for assessing the discriminant validity of the variables is heterotrait-monotrait ratio (HTMT) (Henseler et al., 2015). The assessment requires the cut-off value to be below 0.85 as recommended by the research (Hair et al., 2019; Kline 2015). However, in some cases, the threshold value is suggested to be 0.90 (Gold et al., 2001; Hair et al., 2019). The variable's discriminant validity is quite satisfactory since the HTMT ratio of the variables (Table 5.6) complies with the strict cut-off of 0.85. Therefore, based on convergent reliability and discriminant validity the variables are reliably measured and are available for structural model analysis.

Table 07: Heterotrait-monotrait ratio (HTMT) - Matrix

	PEU	**PR**	**PT**	**PTU**	**PU**
PEU					
PR	0.766				
PT	0.727	1.011			
PTU	0.846	1.016	0.912		
PU	0.966	0.912	0.958	0.851	

4.4 Structural model

Based on the findings, the measurement model has strong discriminant, convergent, and individual item reliability both for lower and higher order constructs. The latent variables' error levels are acceptable. As a result, the measurement model exhibits the necessary robustness to evaluate the correlation between the latent variables and the dependent variable. The structural model is then evaluated to ascertain the explanatory power of the model and to test the research hypotheses whether the measurement model has a suitable level of robustness. After having the insights about the estimated paths through structural model, bootstrapping analysis can be used to examine the hypothesized model based on statistical significance. 202 sampling has been considered in the current study to find the statistical significance through bootstrapping.

4.4.1 Multicollinearity Test

The structural model investigates the causal connections between a model's latent constructs. Researchers must first solve the collinearity problem in order to prevent any biases in regression results, and SEM researchers suggested utilizing Variance Inflation Factor (VIF) to analyze the collinearity. Additionally, if all VIFs from a thorough collinearity test are equal to or lower than 5.0, the model can be said to be free of common method bias. For each latent component in our analysis, VIF values were given that were under 5.0. So, the study confirms that there is no collinearity issue in our model and the model is free from common method bias and the model is available for running our structural analysis.

Table 08: Indicators Multicollinearity (Common Method Variances)

Items	VIF	Items	VIF
PEU1	2.360	**PTU1**	3.800
PEU2	2.983	**PTU2**	2.967
PEU3	1.892	**PTU3**	2.036
PEU4	4.088	**PTU4**	1.670
PEU5	1.615	**PTU5**	1.565
PR2	1.446	**PU1**	1.805
PR3	1.293	**PU2**	1.533
PR4	3.587	**PU3**	2.146
PR5	3.883	**PU4**	1.374
PT1	3.044	**PU5**	1.209
PT2	2.054		
PT3	1.620		
PT4	1.949		
PT5	2.862		

4.5 Explanatory power of the model

R-square and Adjusted R-square are metrics used to evaluate the proportion of variance in the dependent variable that can be explained by the independent variables in a regression model. The Adjusted R-square adjusts for the number of predictors in the model and provides a more accurate measure in the context of multiple regression. Below is an analysis of the R-square and Adjusted R-square values for the constructs provided. The R-square score, often called the coefficient of determination, is evaluated to identify whether the exogenous constructs have sufficient explanatory power on the endogenous construct in our model. Table-09 presents the results of the explanatory power of our model. The R-squared value of 0.804 indicates that 80.4% of the variance in the preference to use variable can be explained by the independent variables in the model. The adjusted R-squared value of 0.800 takes into account the number of independent variables in the model and is slightly lower than the R-squared value. This suggests that the independent variables in the model are moderately effective in predicting the preference to use variable.

Table 09: R-square

Variables	R-square	R-square adjusted
Preference to use	0.804	0.800

4.6 Path analysis of the model

The results of the direct path analysis provide insights into the direct relationships between the constructs in the model. The table includes path coefficients, standard deviations, T statistics, P values, and the outcome of each hypothesis.

4.6.1 Supported Hypotheses:

- H2: There is a positive relationship between Preference to Use (PEU) and Perceived Usefulness (PTU), with a path coefficient of 0.396 and a significant p-value.
- H4: Perceived Relevance (PR) positively influences Perceived Usefulness (PTU), as indicated by a path coefficient of 0.460 and a significant p-value.
- H3: Perceived Trust (PT) has a positive effect on Perceived Usefulness (PTU), supported by a path coefficient of 0.281 and a significant p-value.
- H1: However, there's a negative relationship between Perceived Usefulness (PU) and Perceived Usefulness (PTU), as evidenced by a path coefficient of -0.148 and a significant p-value.

Table 10: Results of Direct Path

Hypothesis	Relationship	Path Coefficient	Standard deviation	T statistics	P values	Outcome
H2	PEU ->PTU	0.396	0.051	7.710	0.000	Supported
H4	PR -> PTU	0.460	0.062	7.477	0.000	Supported
H3	PT -> PTU	0.281	0.072	3.897	0.000	Supported

H1	PU -> PTU	-0.148	0.066	2.255	0.024	Supported

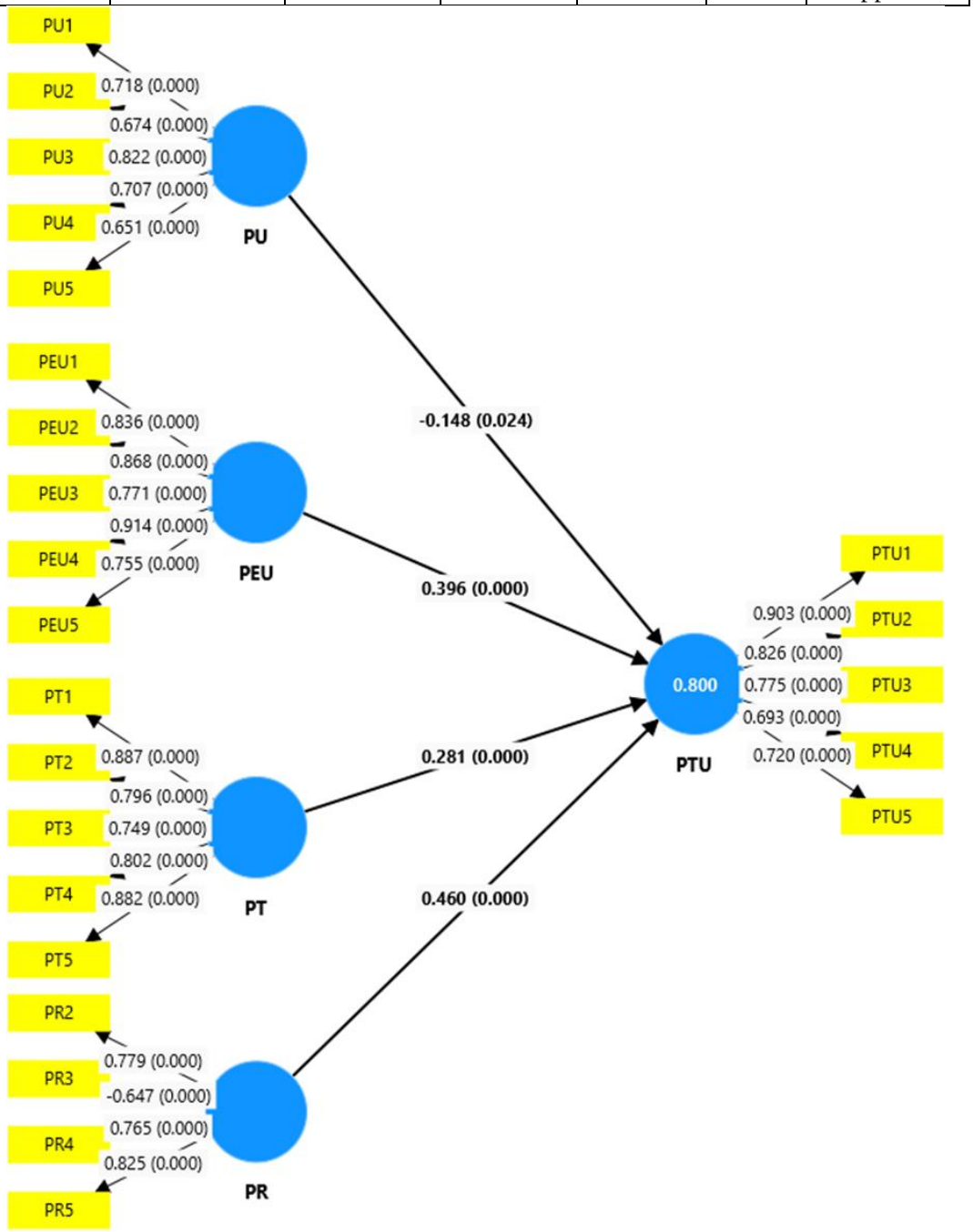

Figure 02: Results PLS Bootstrapping with p-value

5.0 Discussion

5.1 Cashless transactions effect on Customers' preference

The results of the hypothesis testing show that Cashless transactions has a statistically significant impact on Customers' preference. These results confirm what previous research has highlighted regarding the existence of significant effects of Cashless transactions on Customers' preference.

5.2 The Impact of Perceived Usefulness in Preference to Use

This hypothesis proposes a negative relationship between Perceived Usefulness and Preference to Use. The negative path coefficient of -0.148 suggests that as Perceived Usefulness increases, Preference to Use decreases. It explained by various factors, such as the complexity of the system or competing alternatives. It could reflect a nuanced relationship between perceived usefulness and preference, which warrants further investigation.

5.3 The Impact of Perceived Ease to Use in Preference to Use

This hypothesis suggests that there's a positive influence of Perceived Ease to Use on Preference to Use. The positive path coefficient of 0.396 suggests that an increase in PEU corresponds to an increase in PTU. It implies that when individuals perceive a system or technology as easy to use, they are more likely to prefer using it. This aligns with the concept of the Technology Acceptance Model (TAM), which posits that perceived ease of use positively influences users' attitudes and intentions towards technology adoption. A system that is perceived as easy to use is more likely to be preferred by users, leading to higher levels of acceptance and adoption.

5.4 The Impact of Perceived Trust in Preference to Use

This hypothesis suggests a positive effect of Perceived Trust on Preference to Use. The path coefficient of 0.281 suggests that as PT increases, PTU also increases. We find that hen individuals perceive a system or technology as trustworthy, they are more likely to prefer using it. Trust plays a crucial role in users' decision-making processes, as they are more inclined to engage with technologies they perceive as reliable, secure, and dependable. Higher levels of trust foster a positive attitude towards the system, leading to increased preference for its use.

5.5 The Impact of Perceived Risk in Preference to Use

This hypothesis suggests that Perceived Risk positively influences Preference to Use. The path coefficient of 0.460 indicates that an increase in Perceived Risk leads to a corresponding increase in Preference to Use. This suggest that individuals' perception of risk associated with using a system or technology positively influences their preference to use it. While it may seem unexpected, the concept is that moderate levels of perceived risk can actually encourage curiosity and interest in trying out new technologies. Moreover,

seeing some risk might suggest that there are potential benefits or rewards linked to using the system, thereby boosting people's inclination to use it.

6.0 Limitations

The significant limitation of this study is data collection method. The study may have focused on a specific demographic within Dhaka, the findings may not accurately reflect the preferences and behaviors of the entire population. All the data were collected from working people of Bangladesh, no data were collected from unemployed people or working from home. The study likely relied on self-reported data on user perceptions. Actual behavior might not always align with reported preferences. While the study explored factors like ease of use and trust, there might be other relevant factors not considered, such as social influence or lack of access to smartphones for certain demographics. The study might not have accounted for external factors influencing cashless transactions, such as government policies, merchant infrastructure, or internet connectivity issues. Customer preferences for cashless transactions are dynamic and subject to change over time due to various external factors such as technological advancements, changes in consumer behavior, and economic trends.

7.0 Future Research Directions

Conduct in-depth interviews and focus groups to understand the social and cultural factors influencing cashless transaction adoption. Explore how factors like trust in institutions, religious beliefs, and perceptions of security shape user preferences. Compare Dhaka user preferences with other developing economies to identify unique cultural influences on cashless adoption in Bangladesh.

Analyze how government policies promoting cashless transactions or regulations affecting traditional banking systems influence user behavior in Dhaka. Study the impact of merchant infrastructure on cashless adoption. Explore how point-of-sale system availability, user-friendliness, and internet connectivity at shops influence user preference for cashless transactions.

Expand on existing user adoption models like TAM to incorporate social, cultural, and infrastructural factors specific to developing economies like Bangladesh. This can create a more comprehensive framework for understanding cashless transaction adoption. Research factors influencing merchant adoption of cashless payment systems in Dhaka. Explore challenges faced by merchants and develop strategies to encourage them to accept cashless payments. Identify user worries and develop solutions that enhance trust and security within the cashless ecosystem. Explore ways to integrate unbanked populations into the cashless ecosystem through innovative solutions like mobile wallets or microfinance initiatives.

8.0 Recommendations

If we look at the age range of the respondents, 68% of the 202 respondents are between the ages of 18-34. So, it is clear that young generation especially students prefer to use cashless transactions system most. So, to enhance the adoption of cashless transactions system the focus should primarily be on tailoring cashless transaction systems to cater to the preferences and needs of this demographic. Initiatives such as educational campaigns, student-friendly features, and targeted incentives can effectively engage and familiarize this group with the benefits and ease of cashless transactions.

Based on the findings of the descriptive analysis, several key recommendations can be formulated to enhance the preference for cashless transaction systems among Dhaka end users. These factors positively influence users' preference for cashless transactions. It is recommended that service providers continue to highlight and enhance the efficient and useful features of cashless transactions, emphasizing the time-saving benefits and convenience they offer to Dhaka end users. Building upon the existing user-friendly interface, service providers should continue to prioritize the simplification of the cashless transaction process. To strengthen users' trust, service providers should continually invest in robust security measures, transparent data protection practices, and secure communication channels. Regularly communicating these measures to users and ensuring compliance with relevant security standards will contribute to building and maintaining trust. Addressing users' concerns related to risk is crucial. Service providers should proactively address and communicate their risk mitigation strategies, fraud prevention measures, and mechanisms for resolving any unauthorized access issues. Clear communication about the steps taken to ensure secure transactions can alleviate users' concerns and encourage adoption. Promotional campaigns and user education could further emphasize the value of these aspects in attracting users to cashless transactions.

9.0 Conclusion

The key tenacity of this research was to discover the factors affecting the customers' preference for Cashless transactions system of Dhaka end users. By analyzing various literature related to cashless transactions system we found the following factors. These are, "Perceived Usefulness", "Perceived Ease of Use", "Perceived Risk" and "Perceived Trust". All these factors mostly impact on customers' preference towards cashless transactions system to Dhaka end users which is supported by various factor. However, it is essential to acknowledge the limitations encountered during the data collection process. The majority of users of cashless transactions system are satisfied with it. Cashless transaction systems are widely accepted and used in the region, as evidenced by the overall satisfaction of customers with services. For the future research we should focus on examining the dynamics of "Perceived Usefulness" and "Perceived Ease of Use" in the context of advancing technologies and consumer behaviors. In order to encourage the widespread adoption of cashless transactions in Dhaka and elsewhere, it could also consider how to lower "Perceived Risk" and raise "Perceived Trust."

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