An Empirical Study of the Factors Influencing Global Cash and Non-Cash Payment Decisions

Tongxuan GAO[1]

Abstract:

Non-cash payment has led to a profound revolution in modern society. As an emerging service, mobile payment is undergoing global adoption, obliging many countries to reorient their payment systems. The international payment market exhibits regional structural imbalance: non-cash payments are developing rapidly in some countries, while cash transactions remain dominant in most others. This paper investigates the determinants of individuals' choices between cash and non-cash payment methods using the World Bank's 2017 Global Findex Database, which covers more than 140 economies and over 150,000 respondents. Ordinary Least Squares (OLS) regressions are applied to examine how factors such as distance, cost, lack of documentation, trust, religion, insufficient funds, lack of demand, and family account sharing influence the adoption of non-cash payments. Heterogeneity analysis reveals that low- and middle-income countries face stronger barriers. These findings provide important policy implications for promoting inclusive financial systems, highlighting the need for differentiated strategies tailored to countries' income levels and social contexts.

Keywords: Non-cash payment, Cash payment, Mobile payment, OLS regression, Credit card.

1. Introduction

In recent decades, the global payment system has undergone a rapid transformation. Non-cash payment instruments, including debit and credit cards, mobile wallets, and digital applications, have significantly expanded, offering consumers convenient, efficient, and increasingly secure options for transactions. The onset of the COVID-19 pandemic accelerated these trends by pushing individuals and businesses toward contactless solutions to minimize health risks. Despite the growing prevalence of digital finance, cash remains a dominant medium in many parts of the world. The coexistence of cash and digital systems highlights the complexity of payment behaviors and the need to understand the determinants of individuals' choices.

This paper aims to provide a systematic examination of the factors influencing payment method choice across different economies. While several studies have explored financial inclusion at the national or regional level, few have employed large-scale, cross-country microdata to analyze determinants in a consistent framework. This study makes use of the Global Findex Database, one of the most comprehensive datasets on financial behavior, to address this research gap.

[1] Tongxuan GAO, Department of Economics, Universidad de Alcalá, Spain. PHD Candidate.
Email: gaotongxuan@hotmail.com

The contribution of this paper is threefold. First, it identifies both economic and non-economic barriers to digital payment adoption, highlighting the role of religion, cultural norms, and household-level decision-making. Second, it distinguishes heterogeneity across income groups, showing that constraints differ between advanced and developing economies. Third, the study provides policy implications for promoting financial inclusion and designing payment systems that accommodate diverse contexts.

2. Literature Review and Hypotheses

According to the data from EMARKETER (2019), the global non-cash transaction total volume was 538 billion in 2018. It was the highest point in the past 20 years in front of the survey date, and the number had increased by 12% compared with that in 2017. Among the sample counties and regions, the growth speed of non-cash payment business volume in Asia has reached 32%, which represents the top-performing region in the world. The regions following Asia were the Middle East and Africa. For those traditionally developed regions, such as Europe and North America, the growth of the non-cash payment business speed was much slower than that in emerging Asian countries. According to the statistics of the European Central Bank, Northern Europe prefers non-cash payments. In contrast, Southern Europe prefers cash payments, and it is worth noting that consumers over 40 years old choose to use cash (Esselink,2017). Except for Sweden, which has almost achieved a cashless society like China, which is increasingly promoting non-cash payment instruments (IMF,2012), in most other developed countries, the general public still relies heavily on traditional payment methods. At present, in addition to the well-known non-cash payment systems or platforms, such as APPLE PAY(Rysman& Schuh,2017), GOOGLE PAY and ALIPAY, almost all countries or regions have begun establishing or already had increasingly matured non-cash payments operator companies (Sun,2017), such as WeChat Pay in China, PAYTM in India, VIPPS and SWISH in Northern Europe region and Mercado Pago in Latin America region.（Jiang, 2020）Along with the global economic environment integration and the continuous minimization of central banks' function, it is generally accepted that the development of non-cash payment business will be an inevitable and unstoppable trend. In this industry and business, all countries will be expected to move towards cooperation and equilibrium gradually.

In recent years, mobile payment has become the most important growth point among a variety of non-cash payment methods (Bhimasta&Suprapto,2017). Payment initiated through mobile terminals is called mobile payment (Zhao,2017). Many scholars and analysts from all over the world are actively studying and discussing the industry's development. According to Jun Liu (2015), mobile payments (also referred to as m-payments) technologies can establish new channels of payment for customers' goods and services trades and other economic activities and exchanges. Therefore, the mobile payments ecosystem can be related to a lot of distinct stakeholders with high and deep-level customer data exchange and sharing. However, for the developed countries, taking the United States as an example, more than 36% of the retailer transactions in the United States used mobile payment tools in 2018.

However, the mainstream payment systems in the US are still dominated by cash and bank card transactions. From the perspective of total payment volume, the cash payment transactions took around 26%, the bank card (including debit card, credit card) payment transactions took around 70%, check payment transactions took around 3%, and only about 1% of the market share was taken by mobile payments or digital wallets transactions.

However，about 1.7 billion adults globally remain unbanked, primarily in developing countries. Key barriers include long distances to financial institutions, high service costs, lack of documentation, distrust in financial systems, religious restrictions, insufficient funds, lack of need for financial services, and family reasons. Based on literature and data, this study proposes eight hypotheses:

H1: No account because financial institutions are too far away.

H2: No account because financial services are too expensive.

H3: No account because of a lack of necessary documentation.

H4: No account because of lack of trust in financial institutions.

H5: No account because of religious reasons.

H6: No account because of insufficient money.

H7: No account because of no need for financial services.

H8: No account because someone in the family has an account.

3. Data and Methodology

The empirical analysis draws upon the 2017 Global Findex Database, which provides nationally representative data on financial inclusion. The survey includes over 150,000 adults across 144 economies, covering questions on account ownership, use of financial services, savings behavior, and obstacles to participation.

The dependent variable Y is the proportion of adults using non-cash payments. The main explanatory variables capture eight constraints x_1–x_8 to financial participation: (1) distance to financial institutions; (2) service costs; (3) lack of documentation; (4) lack of trust in institutions; (5) religious beliefs; (6) insufficient funds; (7) lack of demand for financial services; and (8) family account sharing. Control variables include gender, age, education level, income quintile, and employment status.

Ordinary Least Squares (OLS) regression is used for baseline analysis, with robust standard errors. Although binary outcomes are typically estimated using Probit or Logit models, OLS offers an intuitive interpretation of coefficients. Robustness checks are performed using Probit models. To assess heterogeneity, the sample is split into high-income and low/middle-income groups, following World Bank classifications.

4. Results

4.1 Descriptive Statistics and Correlation

Across 166 economies, the average proportion of adults using non-cash payments is 61.9%. Among the

constraints, insufficient funds (x_6) are the primary barrier, reaching 75%. Geographical distance, cost, and lack of documentation are also important factors. Trust, religion, lack of demand, and family factors all account for less than 40% each. Correlation analysis shows that, except for the family factor, all other restrictive factors are significantly negatively correlated with the proportion of adults using non-cash payments. The correlation coefficient for funds (x_6) is the highest at -0.853.

Table 1 Correlation analysis

		Distance	Cost	Certificates	Trust	Religion	Money	Demand	Family	Std.Dev.
	1									0.26
Distance	-0.67***	1								0.09
Cost	-0.59***	0.77***	1							0.11
Certificates	-0.71***	0.78***	0.67***	1						0.09
Trust	-0.49***	0.59***	0.82***	0.52***	1					0.07
religion	-0.62***	0.60***	0.53***	0.57***	0.50***	1				0.04
Money	-0.85***	0.76***	0.66***	0.75***	0.47***	0.58***	1			0.19
Demand	-0.18*	-0.25***	-0.21**	-0.19**	-0.07	-0.11	-0.06	1		0.02
Family	0.02	-0.04	0.14	-0.04	0.15	0.06	-0.21**	0.13	1	0.05

*** p<0.01, ** p<0.05, * p<0.1

4.2 Model Tests

The Variance Inflation Factor (VIF) for all variables is below 10, indicating no multicollinearity. The heteroscedasticity test p-value is 0.1594, failing to reject the null hypothesis of homoscedasticity.

Table 2 Heteroscedasticity test

White's test for Ho: homoscedasticity against Ha: unrestricted heteroscedasticity		
chi2(44)=53.28 Prob > chi2 =0.1594		
Source	chi2	p
Heteroscedasticity	53.28	0.1594
Skewness	4.36	0.8234
Kurtosis	6.89	0.0087
Total	64.52	0.1333

4.3 Regression Results

Stepwise regression shows the model's goodness-of-fit (R-squared) increases from 0.452 to 0.833. In the final model (Column 8), lack of documentation (x_3), religion (x_5), insufficient funds (x_6), lack of demand (x_7), and family (x_8) have significant adverse effects on the non-cash payment proportion:

Table 3 OLS Results

VARIABLES	Y (Proportion of adults using non-cash payments)							
Distance	-1.504***	-1.213***	-0.531**	-0.550**	-0.340	0.168	-0.0398	-0.0524
	(0.150)	(0.235)	(0.264)	(0.266)	(0.261)	(0.205)	(0.180)	(0.177)
Cost		-0.312	-0.181	-0.0442	-0.0877	0.261	0.0577	0.168
		(0.194)	(0.182)	(0.256)	(0.245)	(0.189)	(0.167)	(0.172)
Certificates			-1.003***	-1.002***	-0.867***	-0.324*	-0.403***	-0.376**
			(0.221)	(0.221)	(0.214)	(0.173)	(0.150)	(0.148)
Trust				-0.244	-0.0488	-0.433*	-0.156	-0.198
				(0.321)	(0.311)	(0.240)	(0.211)	(0.209)
Religion					-1.509***	-0.879***	-0.920***	-0.815***
					(0.428)	(0.331)	(0.286)	(0.286)
Money						-0.795***	-0.671***	-0.744***
						(0.0849)	(0.0759)	(0.0823)
Demand							-2.663***	-2.438***
							(0.418)	(0.426)
Family								-0.417**
								(0.197)
Constant	0.708***	0.726***	0.753***	0.757***	0.760***	0.868***	0.916***	0.963***
	(0.0234)	(0.0259)	(0.0247)	(0.0254)	(0.0243)	(0.0217)	(0.0202)	(0.0301)
Observations	123	123	123	123	123	123	123	123
R-squared	0.452	0.464	0.543	0.546	0.589	0.766	0.827	0.833

Robust standard errors in parentheses,*** p<0.01, ** p<0.05, * p<0.1

4.4 Robustness Check and Heterogeneity Analysis

In order to verify the robustness of the estimation results above, this paper adopts the form of changing the model estimation method. In this paper, the explained variables are grouped according to the sample mean; countries with a sample mean higher than 0.619 are regarded as the high proportion group, and countries with a sample mean lower than 0.619 are regarded as the low proportion group. Then, the Probit model is used to estimate the model again. It can be seen from the estimation results that, except for religion (X5), the significance and direction of action of the other variables are highly consistent and consistent with the previous paper, which means that the estimation results in the previous paper are robust.

5. Conclusion

The COVID-19 pandemic accelerated lifestyle changes, increasing demand for non-cash payments like online shopping and contactless methods. The factors influencing non-cash payment development vary across countries and regions. The key factors are lack of documentation, religious beliefs, insufficient funds, lack of demand, and family account sharing. Providing consumers with diverse payment options to reduce transaction costs and improve efficiency is crucial for societal progress. First, governments should invest in digital identity systems and streamline documentation requirements,

particularly in low-income countries where administrative barriers are binding. Second, culturally sensitive financial products and education campaigns are necessary to address religious and social barriers. Third, in high-income countries, policymakers and financial institutions should pay greater attention to intra-household financial dynamics, privacy, and consumer protection in the digital age.

References

Bhimasta, R. A., & Suprapto, B. (2017). Exploring consumer decision-making processes regarding the adoption of mobile payments. Journal of Management and Marketing Review, 2(3), 109-111.
Chen, R. X., Yamaka, W., & Osathanunkul, R. (2019). Determinants of non-cash payments in Asian countries. Journal of Physics: Conference Series.
Esselink, H., & Hernández, L. (2017). The use of cash by households in the euro area. ECB Occasional Paper Series, 201.
Hampshire, C. (2020). A mixed-methods empirical exploration of UK consumer perceptions of trust, risk, and usefulness of mobile payments. Journal of Retailing and Consumer Services, 35(3), 358-364.
Kim, C., Kim, S., Im, S., & Shin, C. (2003). The effect of attitude and perception on consumer complaint intentions. Journal of Consumer Marketing, 20(4), 352-371.
Li, Y. (2017). China's payment system. Beijing: China Finance Publishing House.
Mallat, N. (2007). Exploring consumer adoption of mobile payments. Sprouts: Working Papers on Information Systems, 7(70).
Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing research in a digital world. MIS Quarterly, 41(1), 223–238.
Talwar, S., Dhir, A., Khalil, A., Mohan, G., & Islam, A. (2020). Point of adoption and beyond: Initial trust and mobile-payment adoption. Journal of Retailing and Consumer Services, 55, 102086.
World Bank. (2017). The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution. Washington, DC: World Bank.
Zargar, S. M. (2016). Revisiting Islamic financial contracts: A critical analysis. Arab Law Quarterly, 30(1), 1-34.