

**Taiwanese Public's perception and Willingness to Use Third-Party Payment and Cross-Border Payment Services**

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# **Taiwanese Public's Perception and Willingness to Use Third Party Payment and Cross Border Payment Services**

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## **Abstract**

With globalization and technological advancements, international trade has become increasingly prevalent, and consumer payment methods have grown more diverse. Following the COVID-19 pandemic, consumer habits in Taiwan have gradually shifted toward online payments, with cross-border payments forming part of this trend. Third-party payment systems and cross-border payment solutions have matured over time. Therefore, this study will examine usage patterns among individuals aged 18-65, categorizing them into three groups: "Use both third-party and cross-border payments," "Use third-party payments but not cross-border payments," and "Do not use either third-party or cross-border payments." It will analyze factors influencing the choice of third-party payments among these groups aged 18-65, examining how security concerns and exchange rate stability affect their perceptions and willingness to adopt such services.

Keywords: third-party payment, cross broader payment, public perspective

# 台灣民眾對第三方支付和跨境支付的認知與使用意願

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## 摘要

隨著全球化和科技進步，國際貿易越來越普及且消費者的支付方式逐漸多元。台灣在新冠疫情後消費者的消費習慣逐漸改變轉為線上支付，而跨境支付也是其中一部分，第三方支付和跨境支付逐漸發展成熟。因此本研究將針對 18-65 歲民眾的使用情況，分為三個族群：「有使用第三方支付，也有使用跨境支付」、「有使用第三方支付 但未使用跨境支付」和「未使用第三方支付、未使用跨境支付」且分析影響此三個族群裡 18-65 歲以上民眾選擇第三方支付的因素，並分析安全性、匯率穩定等因素如何影響此三個族群在第三支付的認知與使用意願。

關鍵字：第三方支付、跨境支付、大眾認知

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## INTRODUCTION

### Background

As globalization and the advance of technology, the demand of the cross-border trade is increasing gradually. No matter the oversea shopping, personal remittance or the international trade for the business. On the other hand, there are multi- choices for consumers to pay the bill are. From the most traditional way pay in cash, credit cards even though the invisible cash, e-payment and third-party payment are the awesome choices for the consumers.

According to the Groupe Speciale Mobile Association, ( GSMA ) statistical information.

the global value of mobile payments reached \$1.68 trillion, with 108 billion transactions in 2024.<sup>1</sup> In addition, in Taiwan, according to statistics from the Financial Supervisory Commission, data as of April 2025 indicates that the total number of users of electronic payment accounts in Taiwan was approximately 32.21 million. The actual transaction amount for agency collection and payment services that month was approximately NT\$20.34 billion.<sup>2</sup>

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<sup>1</sup> Ranjan, Aayushya . “GSMA Report: Mobile Money Hits \$1.68 Trillion in Transactions in 2024.” TechAfricaNews, April 8, 2025. <https://techafricanews.com/2025/04/08/gsma-report-mobile-money-hits-1-68-trillion-in-transactions-in-2024/>.

<sup>2</sup> 114 年 4 月份信用卡、現金卡及電子支付機構業務資訊 新聞稿 [Internet]. 金融監督管理委員會. 2025 [cited 2025 Jul 17]. Available from: [https://www.fsc.gov.tw/ch/home.jsp?id=96&parentpath=0,2&mcustomize=news\\_view.jsp&dataserno=202506120007&toolsflag=Y&dtable=News](https://www.fsc.gov.tw/ch/home.jsp?id=96&parentpath=0,2&mcustomize=news_view.jsp&dataserno=202506120007&toolsflag=Y&dtable=News)



Although the Ministry of Digital Affairs did not explicitly state the exact number of users for third-party payment services, the aforementioned data not only reveals the substantial growth in the number of electronic accounts opened and transaction amounts in Taiwan but also underscores the convenience and importance that modern intangible payments—electronic payments and third-party payments—bring to the public.

According to statistics from the Financial Supervisory Commission, As of May 2025, iPass Money remains the most popular choice among the majority of citizens with a user base of 6.94 million, it ranks third in total payments, surpassing 6 million users.<sup>3</sup>

Alipay is widely used across mainland China. These all three platforms have introduced cross-border payment capabilities, facilitating international trade and cross-border transfers. On the other hand, according to the result of the research, cross-border payment contributes to E-commercial growth rapidly but there are rules about third party payment in Taiwan, there is a huge difference and it's not complete compared with the rules in US, China and Japan and so on. Especially in areas such as legal regulation, data security, and anti-money laundering policies, the systems

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<sup>3</sup> 金融監督委員會銀行局. “電子支付帳戶重要業務資訊揭露,” July 10, 2025.

[https://www.banking.gov.tw/ch/home.jsp?id=591&parentpath=0,590&mcustomize=multimessage\\_view.jsp&dataserno=201805300001&dtable=Disclosure](https://www.banking.gov.tw/ch/home.jsp?id=591&parentpath=0,590&mcustomize=multimessage_view.jsp&dataserno=201805300001&dtable=Disclosure).

remain underdeveloped, thereby hindering the efficiency and competitiveness of Taiwanese payment service providers in expanding their cross-border operations.<sup>4</sup>

Additionally, in the research conducted by Tsai Yong-shun, Chang Chun-ping, Hsiao Kun-ming, Zang Shiwei's research reveals that while the overall market size for electronic payments differs significantly between the two sides of the Taiwan Strait, primarily due to geographical and population disparities, consumer demand for electronic payments remains largely consistent. Consumers on both sides exhibit substantial demand for card-based payment tools and cash payments. The key lies in channeling this demand toward electronic payment applications, gradually expanding application scenarios, cultivating consumer usage habits, and meeting consumer expectations for cost-effectiveness, efficiency, security, simplicity, and high market acceptance. Just as the current boom in cross-border payments represents an irreversible trend, multinational payment collaborations have become mainstream. Southeast Asian nations have already rolled out common QR Code payment systems within their borders. Building on this foundation, they are progressively launching cross-border shopping payment partnerships between countries.

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<sup>4</sup> 林愛真. "我國第三方支付之跨境支付的競爭與發展." 台灣博碩士論文加值系統, April 22, 2016. <https://hdl.handle.net/11296/5s4mh4>.

This supports various types of international transactions, invigorates global commercial activities, and jointly explores overseas cross-border payment opportunities. This represents the most effective approach for extending domestic payment systems into cross-border transactions.<sup>5</sup> Therefore, the aforementioned research data reveals that behind these conveniences lie issues we rarely consider in daily life. Whether these factors influence Taiwanese consumers' choice and willingness to use cross-border third-party payment platforms is a question worth exploring.

### **Motivation**

Numerous academic studies have identified factors influencing consumers' choice of third-party payment services, but no research has yet examined whether these factors affect different age groups in the same way.

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<sup>5</sup> 蔡永順、張俊評、蕭坤明、臧仕維。〈兩岸電子支付比較分析 - 以街口支付與支付寶為例〉。《藝見學刊》第 23 期 ( 2022 ) : 頁 11-28。2025 年 9 月 25 日檢索自華藝線上圖書館。doi:10.6207/ART-VISION.202204\_(23).011-028

### **Research Purpose**

This research will explore whether the reasons affect the different groups by age to choose the cross border payment , the group divided into the youth, young adults, middle aged adults and the seniors. The reasons including the usability, information transparency and the charge, etc. factors.

### **Research Questions**

Question : Is there any different in awareness and perception of third-party payment platforms and cross-border payments among users aged 18-65 ?

Question 2: What Factors Influence the Acceptance of Cross-Border Payments Among Users Aged 18-65 (divided into youth, young adults, middle-aged, and the seniors)? (e.g., Security, Transaction Fees, Exchange Rate Stability, Number of Countries Supported).

Question 3: Does the cross-border payment functionality affect public willingness to use third-party payment tools (e.g., iPass Money, Quanzhifu, Zhifubao, etc.)?

## **Limitations**

First, although this study explored the factors influencing Taiwanese consumers' awareness and perception of third-party payment services, most of the statistical results did not reach significance. This limitation may be attributed to several factors, including the relatively small sample size, uneven distribution among age groups, and the possibility that respondents have similar levels of familiarity with third-party payment systems, leading to low variance in responses.

Second, the quantitative approach adopted in this study, mainly using ANOVA and split file and descript statistics analysis, may not fully capture users' subjective perceptions. Qualitative interviews or mixed-method designs could be applied in future studies to complement the statistical findings and provide richer insights into consumers' motivations.

## **Delimitation**

This study focuses on consumers in Taiwan. Especially the consumer at the age 18-65. Other regions or countries are not included. The purpose is to analyze local perceptiveness and behavioral tendencies toward third-party payment platforms and the cross-border function within the Taiwanese context.

### **Contribution**

Although most of the statistical relationships in this study were not significant, the findings still provide theoretical value by identifying areas where existing assumptions about third-party payment adoption may not hold in the Taiwanese context.

## LITERATURE REVIEW

### The development of the cross-border payment

According to Chen Haoren's research, the emergence of third-party payment services in Taiwan can be traced back to the establishment of three companies—Green World Fintech Service Co., Ltd, Red Sun, and Neweb Information Co Ltd.—between 1996 and 2000. Specifically, Green World was founded in 1996, Red Sun in 1998, and Blue New in 2000.

Grenn World Fintech Service CO., LTD. Red Sunrise Neweb Information Co Ltd. The aforementioned three online payment service providers initially focused on acting as Internet Payment Service Providers (IPSPs) for merchant collection services, solely offering credit card information transmission and online payment services—a B2C payment model. Therefore, IPSP merchant collection services differed from overseas third-party payment providers.<sup>6</sup> However, a turning point arrived in 2007 when the Financial Supervisory Commission (FSC) mandated that acquiring banks could not provide card swiping services to merchants without formal contracts. The suspension of acquiring bank services severely impacted on the Red, Green, and Blue companies.

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<sup>6</sup> 陳顯仁。〈第三方支付之創新模式與發展概況〉。《臺灣經濟研究月刊》第 38 卷第 5 期 ( 2015 ): 頁 44-54。2025 年 7 月 30 日檢索自華藝線上圖書館。doi:10.29656/TERM.201505.0008

After three years of industry protests, the FSC passed amendments to the “Credit Card Business Institution Management Measures” in 2010 under Article 47 of the Banking Act. According the data from The Bankers Association of the Republic of China, Taiwan released the Debit Card to the international banking stage in 2010 at the same time to establishing a cash flow infrastructure aligned with international standards.<sup>7</sup> Later in 2011, the revised Credit Card Management Measures passed their third reading, establishing the legal basis for “online collection services.” Subsequently, as the international third-party payment industry gradually developed, the government actively relaxed regulations after 2012. Domestic operators could then engage in diverse applications, including cross-border transaction services, acting as agents for cross-border online goods, or handling foreign exchange settlements for actual transaction values. This enabled small merchants to accept credit card payments from buyers. Banks holding third-party payment licenses could also become designated credit card merchants. They could collaborate with information technology or e-commerce companies to operate online shopping platforms and other related services.<sup>8</sup>

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<sup>7</sup> 雷仲達理事長．“臺韓金融合作大突破「TWQR」跨國支付之概況、趨勢及因應。”中華民國銀行商業同業公會全國聯合會, n.d. [https://www.fisc.com.tw/Download/108\\_01.pdf](https://www.fisc.com.tw/Download/108_01.pdf).

<sup>8</sup> 陳顯仁。〈第三方支付之創新模式與發展概況〉。《臺灣經濟研究月刊》第 38 卷第 5 期 ( 2015 ): 頁 44-54。2025 年 7 月 30 日檢索自華藝線上圖書館。doi:10.29656/TERM.201505.0008



In 2015, the Financial Supervisory Commission launched the “Electronic Payment Doubling Plan” and set promotion targets for “mobile payment penetration and non-cash payments,” actively advancing non-cash payment adoption.<sup>9</sup> The plan encompasses multiple digital payment innovations and integration strategies. First, the government and businesses are promoting API-enabled digital payments across diverse platforms, creating interconnected payment ecosystems where citizens can use ATMs, e-Bill platforms, and other channels for payments. Additionally, mobile payment capabilities are being advanced through the development of various mobile apps, such as Line and Visa APP. Third, O2O (online-to-offline, offline-to-online) strategies are extensively applied in digital financial services, integrating online marketplaces with physical stores. Technologies like QR codes and RFID enable real-time connections and digitize transaction processes. Furthermore, the adoption of augmented reality (AR) and RFID technologies has been enhanced. The development of open APIs, mobile applications, e-Bill systems, along with AR and RFID advancements not only increases payment convenience and diversifies payment methods for citizens but also lays the foundation for the future development of non-physical payments.<sup>10</sup>

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<sup>9</sup> 謝碧芬處長 上海商業儲蓄銀行. “全球化時代的金融利器 跨境支付的效益與挑戰.” 財金資訊股份有限公司, n.d. [https://www.fisc.com.tw/Download/108\\_06.pdf](https://www.fisc.com.tw/Download/108_06.pdf).

<sup>10</sup> 林芳儀.響應政府電子支付五年倍增計畫 擴大電子化繳費多元應用.” 財金資訊股份有限公司

In 2017, the service expanded to include cash withdrawals in Hong Kong and Macau. However, the rise of cross-border payments can be attributed to the COVID-19 pandemic, which accelerated changes in people's payment habits. Additionally, the widespread adoption and use of third-party payments was driven by QR codes, which are simple to operate and cost-effective. According to the 2022 Mobile Payment Consumer Survey released by the Market Intelligence & Consulting Institute (MIC) of the Institute for Information Industry, the usage rate of mobile payments has officially surpassed 70%; According to the Financial Supervisory Commission, the proportion of non-cash payments in total private consumption has also grown steadily since 2019, reaching approximately 70%. In November 2023, the World Economic Forum published a list of the top 10 countries by global e-wallet penetration rate, with Taiwan ranking tenth; Furthermore, the FSC subsequently announced a new three-year plan in 2024, setting targets to reach 8 billion non-cash payment transactions and NT\$10 trillion in transaction value by the end of 2026.<sup>11</sup>

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<sup>11</sup> 中華民國銀行商業同業公會全國聯合會雷仲達理事長，臺韓金融合作大突破「TWQR」跨國支付之概況、趨勢及因應 [Internet]. 財金資訊股份有限公司. [cited 2025 Aug 7]. Available from: [https://www.fisc.com.tw/Download/108\\_01.pdf](https://www.fisc.com.tw/Download/108_01.pdf)

## Factors Influencing Consumer Choice

According to research by Zhang Yuan, a student at the University of Macau, consumers' concerns when choosing third-party payment services include liability for operational errors, personal data security, and the transparency of information on third-party platforms.<sup>12</sup>

According to research conducted by National Taiwan University students, an analysis of consumer perspective weighting ratios identified four key factors influencing consumers' choice of third-party payment platforms for transactions. “Proactive refunds without additional fees” ranked first, followed by “transaction privacy and reduced risk of personal data leakage,” “ease of use,” and “high convenience.”<sup>13</sup> According to a study by students at Ming Chi University of Technology, the primary factors influencing college students' willingness to use third-party payment services include perceived usefulness, ease of use, risk perception, and managerial norms.<sup>14</sup> In a 2023 self-directed research report by Lin Liping of the Shilin District Land Administration Office in Taipei City, it was discovered that the reasons for choosing non-cash payments vary across different age groups.

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<sup>12</sup> 張淵. “第三方支付之消費者保護比較研究——以澳門為例.” Macao Polytechnic University, n.d. [https://www.mpu.edu.mo/cntfiles/upload/docs/research/common/1country\\_2systems/2019\\_2/15.pdf](https://www.mpu.edu.mo/cntfiles/upload/docs/research/common/1country_2systems/2019_2/15.pdf).

<sup>13</sup> 張翰玟. “使用者選擇第三方支付平台交易之關鍵因素探討.” 台灣博碩士論文知識加值系統, May 25, 2019. <https://hdl.handle.net/11296/6y37nw>.

<sup>14</sup> 簡言修 葉士寬 李勝源 谷自強 邱銘瑞. “探討大學生使用第三方支付服務之意願,” December 27, 2016. <https://bm.mcut.edu.tw/var/file/46/1046/img/1582/128795037.pdf>.

The study also found that residents aged 30-39 in Taipei's Shilin District predominantly use mobile payments, while those aged 60 and above maintain a habit of using the Easy Card.<sup>15</sup> In summary, the willingness of individuals across different age groups and educational backgrounds to use third-party payment and cross-border payment services warrants further observation. Moreover, no existing academic research has examined the willingness to use third-party payment and cross-border payment platforms among different age groups. Therefore, the factors influencing the willingness to use third-party payments across different age groups merit investigation.

### **Comparison of Credit Cards and Cross-Border Electronic Payments**

In 2023, This service integrates information and fund flows between banks and electronic payment institutions, enhancing the overall operational efficiency of the payment market. It enables cross-institutional “interconnection and interoperability,” allowing users to complete cross-institutional transfers, shopping, and bill/tax payments. Merchants need only display a single QR code for simplified payment collection, achieving a win-win outcome for all parties.<sup>16</sup>

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<sup>15</sup> 林莉萍. “非現金支付推廣現況分析 - 以士林所為例.” 臺北市政府全球資訊網, December 2023. <https://www-ws.gov.taipei/001/Upload/305/refile/11455/132171/a66167f7-4f2f-418d-9934-d6bc691c9f71.pdf>.

<sup>16</sup> 翁世吉、林宗達、時薇茜. “全球數位金融浪潮 「跨境電子支付平台」啟航.” 財金資訊股份有限公司, July 2017. <https://www.fisc.com.tw/Upload/a130eef0-20ff-46b5-9bce-15cbf010d0cc/TC/8701.pdf>.

## **The Function of the Cross Boarder Payment System**

Taiwan's cross-border platform functions are categorized into three types: First, cross-border remittance, outbound agency collection and payment services. Second, cross-border remittance inbound agency collection and payment services. Third, cross-border remittance inbound O2O agency collection and payment services. However, this study focuses on the process of the first type—cross-border remittance outbound agency collection and payment services. According to data from the Financial Information Services Co., Ltd., when Taiwanese consumers shop at online stores operated by overseas institutions, the cross-border payment functions available when choosing to pay with financial cards issued by Taiwanese financial institutions (referring to financial cards compliant with FISC II chip specifications, including contactless, mobile payment, and other applications) can be categorized into the following four types: First is the cross-border online transaction outbound connection message reception function, primarily designed to receive payment authorization requests from Taiwanese financial cardholders making purchases at overseas online stores. This function obtains transaction verification through the financial card purchase message relay capability.

Second is the financial card shopping transaction message relay function, which receives cross-border outgoing connection messages for online transactions as described above and forwards them to the issuing financial institution for transaction verification. Third is the interbank account settlement function. This function generates detailed fee statements between financial institutions and the Financial Information Company based on the processing results of each transaction and the fee schedule. It facilitates settlement operations between card issuers and designated payment banks through the interbank clearing mechanism. Finally, the cross-border account file and report generation function: Receives foreign exchange declaration detail files provided by overseas institutions, generates relevant files and reports, forwards them to issuing financial institutions, and transmits account files such as foreign currency exchange rate files and payment/refund result files for processing by overseas institutions.

### **The way the credit card works**

When consumers use credit cards to make transactions at participating merchants, the process proceeds as follows: First, the merchant sends an authorization request to the acquiring bank. The acquiring bank then forwards the transaction information to the clearing center. The clearing center then transmits the message to the issuing bank.

After the issuing bank reviews and approves the authorization, the transaction is considered successfully completed. This process content references relevant materials from the Bank of Taiwan. The following process reference materials originate from the Bank of Taiwan.<sup>17</sup>

### **The Difference Between Credit Card and Cross Boarder Payment**

First is Exchange Rate, the platform uses mid-market rates with no additional markups or fees. For credit cards, the conversion rate varies significantly due to Dynamic Currency Conversion (DCC). According to research by Xie Bifen, Director of Shanghai Commercial Savings Bank, the rising demand for cross-border payments among Chinese citizens stems not only from tourism but also from overseas work and study. Furthermore, the use of smartphones to complete payment transactions has become increasingly widespread.<sup>18</sup>

According to journal data from Financial Information Co., Ltd., compared to QR codes and third-party cross-border payments, credit cards suffer from drawbacks such as inconvenient portability, susceptibility to loss or theft, and higher transaction fees.

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<sup>17</sup> 賴彥江. “【豆漿筆記】信用卡刷卡流程全解析：從發卡、清算到商家收款的金流邏輯.” vocus, March 31, 2025. <https://vocus.cc/article/67e9510efd89780001349911>.

<sup>18</sup> 謝碧芬處長 上海商業儲蓄銀行. “全球化時代的金融利器 跨境支付的效益與挑戰.” 財金資訊股份有限公司, n.d. [https://www.fisc.com.tw/Download/108\\_06.pdf](https://www.fisc.com.tw/Download/108_06.pdf).

Certain credit card brands face limitations due to their card networks and international partnerships, resulting in more restrictions and concerns compared to today's QR code solutions.<sup>19</sup> Based on the above information, payment methods for consumers are becoming increasingly diverse. The advantages of cross-border payments include the convenience of using a mobile phone to scan a QR code and make payments through linked accounts, along with a wide selection of currencies. On the other hand, cross-border payments utilize mid-market exchange rates, whereas credit cards employ Dynamic Currency Conversion (DCC), which often results in significant exchange rate discrepancies. With cross-border payments now widespread—and their adoption accelerated by lifestyle changes during COVID-19 lockdowns—it is worth exploring consumer willingness and perceptions regarding third-party and cross-border payment services.

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<sup>19</sup> 謝碧芬。 “跨境支付的效益與挑戰。” 財金資訊股份有限公司, n.d.  
[https://www.fisc.com.tw/Download/108\\_06.pdf](https://www.fisc.com.tw/Download/108_06.pdf).



## **METHODOLOGY**

Due to the limited and imbalanced sample size after data screening, this study adopts a descriptive–exploratory research design. The analysis focuses on describing observed patterns in users’ perceptions and attitudes toward cross-border payment functions, rather than testing hypotheses or making inferential claims about population-level differences.

### **Research Design**

Against the backdrop of globalization and technological advancement, the demand for cross-border transactions has increased, providing consumers with a wider range of payment methods. Previous studies suggest that factors such as security of personal information, transparency, and convenience are important considerations in consumers’ payment choices.

This study adopted a descriptive–exploratory research design to examine perceptions of third-party and cross-border payment services among Taiwanese users. Data were collected through a Google Form survey targeting Taiwanese citizens aged 18 to 65.

The study focused on four key dimensions of cross-border payment services: security, transaction fees, exchange rate stability, and the number of supported countries. These variables were treated as indicators of users’ perceptions and attitudes, rather than as causal predictors. Age was included as background information to provide contextual understanding of the sample.

Due to the limited and imbalanced sample size, the analysis relied exclusively on descriptive statistics, including means, standard deviations, frequencies, and percentage distributions. The study aimed to describe observed patterns within the sample rather than to test hypotheses or make inferential claims about age-based differences in the broader population.

Additionally, we will investigate the reasons why individuals who do not use these payment methods choose not to do so. The survey will be shared via social media for participation by Taiwanese citizens across various age demographics.

### **Research Process**

This study employed a quantitative, descriptive–exploratory approach to examine Taiwanese users’ perceptions of third-party payment services and cross-border payment functions. Data were collected through a Google Form survey administered to Taiwanese respondents aged 18 to 65.

The survey captured respondents’ attitudes toward third-party and cross-border payment usage after the COVID-19 pandemic, a period during which digital payment habits became more widespread. Rather than attempting to establish causal relationships, the study aimed to describe observed patterns of perceptions and usage within the sample.

Four key dimensions were examined in the questionnaire: security, transaction fees, exchange rate stability, and the number of supported countries. These variables were treated as perceptual indicators reflecting respondents’ considerations when choosing different payment applications or deciding not to use third-party payment services.

Age was included as background information to provide contextual insight into the sample, not as a basis for inferential comparison. The analysis relied exclusively on descriptive statistics, including frequencies, percentages, means, and standard deviations, to summarize respondents’ views and reported behaviors.

Participation in the survey was voluntary and anonymous. All respondents provided informed consent before completing the questionnaire, and no personally identifiable information was collected.

### Source of Data and Data Collection

This study employed convenience sampling to collect survey data. The questionnaire was distributed using a Google Form and shared through social media platforms, including Instagram, Facebook community groups, and LINE messages, to invite Taiwanese users to participate.

The survey was open from mid-September and closed on October 10. A total of 144 responses were collected. After data screening, only valid and complete responses were retained for analysis.

The questionnaire was developed based on the literature review, focusing on key dimensions relevant to third-party and cross-border payment services. These dimensions included personal data security, transaction fees, exchange rate stability, and the number of supported countries.

Most perception-related items were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The results were summarized using **descriptive** statistics, including means, standard deviations, frequencies, and percentages, to reflect respondents' perceptions within the sample.

Age information was collected as background and contextual data to describe the composition of the sample, rather than as a primary analytical variable. No inferential statistical testing was conducted due to sample size limitations.

## **DATA ANALYSIS**

### **User Awareness and Perception of Third-Party and Cross-Border Payments**

The author analyzes the perception and the variables affecting the willingness of Taiwanese people to choose the third-party payment. The analysis focuses on the variable: “I know the third-party payment application also has a cross-border payment function.” The target population across four age groups: young 18-23, middle-aged 24-39, mature 40-64, and elderly 65 above. This chapter aims to investigate the differences among various age groups regarding the two variables:

“I know the third-party payment also has the cross-border payment function” and “I know the charge of the cross-border fee.”

A total of 144 questionnaire responses were collected. After data were cleaned and screened to insure the completed and valid data to analyze the perspective of Taiwanese people, a final 42 valid sample questionnaires were obtained. Subsequent analysis was performed using these 42 valid questionnaires, which were categorized into three age groups based on participants' age: 18-23 years old, 24-39 years old, and 40-64 years old. There are sixteen respondents at the age of 18-23, eleven respondents at the age of 24-39, three people at the age of 40-64 and 0 for 65 above in the variable of “I know my application has a cross border payment function”

According to the result, the author could find at the age 18-23 mean= 4.125, standard deviation=0.88506 , 24-39 mean=4.0909, standard deviation=0.70065, 40-64 group mean=5, standard deviation =0.

Due to the severe imbalance in sample sizes across age groups—particularly the very small number of respondents in the 40–64 group and the complete absence of respondents aged 65 and above—inferential statistical analysis is not methodologically appropriate for this variable. In addition, the presence of zero variance in the 40–64 age group violates the assumptions required for ANOVA-based comparisons. As a result, no inferential or comparative claims regarding age-based differences are made.

Accordingly, the findings for this variable are reported descriptively to illustrate general awareness patterns within the sample. Rather than supporting or rejecting age-related hypotheses, these results highlight the methodological limitations of the current dataset and underscore the need for either a more balanced sampling strategy or a purely descriptive analytical framework when examining age-related differences in cross-border payment awareness.

### **Analysis of the “ I Know the Cross-Border Charge” Variable**

There are sixteen respondents at the age of 18-23, eleven respondents at the age of 24-39, three people at the age of 40-64 and 0 for 65 above in the variable of “I know the cross-border charge” According to the result, the author could find at the age 18-23 mean=3.6875, standard Deviation=0.94648 , 24-39 mean=3.6464, standard deviation=1.12006, 40-64 group mean=5, standard deviation =0.

The descriptive results suggest that awareness of cross-border charges is moderate among respondents aged 18–23 and 24–39. However, this result is accompanied by zero variance and an extremely small sample size. As such, this value should be interpreted with caution and cannot be taken as evidence of higher awareness in this age group.

Due to the severe imbalance in sample sizes across age groups, particularly the very small number of respondents in the 40–64 group and the absence of respondents aged 65 and above, inferential statistical analysis is not methodologically appropriate for this variable. In addition, the presence of zero variance violates the assumptions required for ANOVA-based comparisons. Consequently, no age-based inferential claims are made, and the findings are reported descriptively to reflect general patterns within the sample.

## **Reasons for Not Using Cross-Border Payment Functions**

Respondents who reported not using cross-border payment functions were asked to select reasons for non-use. The most frequently cited concerns across all age groups were fraud risk, personal data security, and high transaction charges.

Among respondents aged 18–23, fraud was the most commonly reported concern, followed by high charges and personal data security issues. Respondents aged 24–39 similarly identified fraud and data security as primary concerns, with a notable proportion also indicating a lack of awareness of cross-border functions. Respondents aged 40–64 primarily cited fraud and personal data security, while fewer respondents in this group reported cost-related concerns or lack of awareness.

These descriptive patterns suggest that concerns about risk and security are shared across age groups within the sample. Differences in the ranking of secondary concerns should be interpreted as exploratory observations rather than evidence of systematic age-based differences.

It is important to emphasize that these findings are descriptive and do not establish causal or inferential relationships between age and specific barriers to adoption. Instead, they illustrate how different concerns are distributed across age groups within the current sample. The results suggest that barriers to cross-border payment adoption are multifaceted, encompassing issues of security, cost, and information availability. However, further research using a more balanced and representative sample would be required to assess whether these patterns reflect systematic age-related differences.



## **Determinants of Cross-Border Payment Adoption Across Age Groups**

Respondents were asked to evaluate several factors that may influence their willingness to use cross-border payment services, including transaction fees, exchange rate stability, the number of supported countries, convenience, discounts, and overall user experience. Descriptive statistics indicate that these factors were generally rated as important across the sample.

Mean scores for variables related to cost and functionality—such as lower transaction fees, broader international coverage, and stable exchange rates—were consistently high across age groups. Similarly, convenience and perceived ease of use received positive evaluations from most respondents. Due to limited variability in responses for certain variables and the presence of zero variance in some age groups, these findings are presented descriptively without comparative interpretation.

After data cleaning, 42 valid responses were included in the analysis, distributed across three age groups: 18–23 ( $n = 16$ ), 24–39 ( $n = 11$ ), and 40–64 ( $n = 3$ ). Due to the extremely small size of the oldest group and the lack of variability in several items, age-based inferential comparisons are not methodologically appropriate. Instead, the analysis emphasizes how different determinants are evaluated across the overall sample.

Descriptive statistics indicate that functional and cost-related factors are consistently rated as important across all age groups. Variables such as the ability to use payment services across multiple countries, lower transaction charges, and favorable exchange rates all receive relatively high mean scores, suggesting that these considerations are widely valued regardless of age. Similarly, perceived convenience and overall user experience are also rated positively across the sample, indicating that ease of use remains a central determinant of adoption.

Then the convenient aspect, at the age of 18-23 ( $M=4.4$ ,  $SD= 0.73679$ ), 24-39 ( $M=4.6364$ , standard deviation= $0.50452$ ), at the age of 40-64( $Mean=4.6667$ , standard deviation= $0.57735$ ). And the discount aspect, at the age of 18-23 ( $M=4.3125$ ,  $SD=1.13835$ ), 24-39 ( $M=4.4545$ , standard deviation=  $0.68755$ ) ,at the age of 40-64 ( $Mean=5$ , standard deviation=  $0$ ). And the feeling aspect, 18-23 ( $M=4.1875$ , standard deviation=  $0.83417$ ) , 24-39 ( $M=4.1818$ ,  $SD=0.60302$ ), at the age of 40-64( $Mean=5$ , standard deviation=  $0$ ). Due to the methodological constraints of the dataset—including small and uneven group sizes and zero variance in certain variables—no inferential claims regarding age-based differences are made. The findings are therefore interpreted as indicative of general adoption patterns rather than as evidence of generational divergence. Future research employing a more balanced and representative sample would be required to examine whether age moderates the relative importance of these determinants.

The average score for participants aged 18–23 was 4.56 with a standard deviation of 0.73, those aged 24–39 had an average of 4.73 with a standard deviation of 0.47, and participants aged 40–64 had an average score of 5.00 with no variation (standard deviation = 0). According to the multi-testing result of the more cross countries, 18-23 ( $M=4.25$ ,  $SD= 1$ ), 24-39 ( $M=4.6364$ , standard deviation=  $0.50452$ ) and at the age of 40-64( $Mean=5$ , standard deviation=  $0$ ).

On the variable of “ cross fraud” , 18-23 (M=3.533, SD= 1.0601). The 24-39 (M=3.5455, standard deviation=1.03573). At the age of 40-64 (Mean=4, standard deviation= 1). And the convenient aspect, 18-23(M=4.4, SD= 0.73679), 24-39 (M=4.6364, standard deviation=0.50452) and at the age of 40-64(Mean=4.6667, standard deviation= 0.57735) . On the discount aspect, 18-23 (M=4.3125, SD=1.13835), 24-39 (M=4.4545, standard deviation= 0.68755) and at the age of 40-64 (Mean=5, standard deviation= 0).

and the feeling aspect, 18-23 (M=4.1875, standard deviation= 0.83417), 24-39 (M=4.1818,SD=0.60302) and the age of 40-64(Mean=5, standard deviation= 0)

## **Cross-Border Payment Functionality and User Willingness to use Third Party Payment**

The questionnaire employed a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to measure respondents' agreement with the statement: "*I believe cross-border functionality is a significant advantage of third-party payment services.*" Respondents were grouped according to the third-party payment application they primarily used (e.g., Apple Pay, Line Pay, Alipay, Quanzhifu, iPASS Money, Taiwan Pay, and PayPal). Descriptive statistics were calculated for each group.

The results show that perceptions of cross-border functionality were generally positive across platforms, with most group means close to or above 4. Apple Pay users ( $n = 1$ ) reported the highest perceived importance ( $M = 5.00$ ,  $SD = 0$ ), although the result is not generalizable due to the single observation. Users of Alipay ( $n = 7$ ,  $M = 4.29$ ,  $SD = 0.49$ ), Quanzhifu ( $n = 11$ ,  $M = 4.36$ ,  $SD = 0.67$ ), and PayPal ( $n = 2$ ,  $M = 4.50$ ,  $SD = 0.71$ ) also demonstrated relatively high and consistent evaluations of cross-border functionality.

In contrast, users of domestically oriented platforms such as Line Pay ( $n = 7$ ,  $M = 3.71$ ,  $SD = 1.25$ ), iPASS Money ( $n = 2$ ,  $M = 3.50$ ,  $SD = 2.12$ ), and Taiwan Pay ( $n = 1$ ,  $M = 3.00$ ,  $SD = 0$ ) reported lower average scores and, in some cases, greater variability in perceptions. This suggests that while cross-border payment is available on some domestic platforms, it may not be perceived as a core or mature feature.

Overall, the findings indicate that users of internationally oriented platforms tend to place greater importance on cross-border payment functionality. This difference appears to be driven not by the mere existence of cross-border services, but by the extent of coverage, usability, and international visibility of each platform. Platforms with broader geographic acceptance and stronger international positioning are more likely to have their cross-border functionality perceived as a competitive advantage.

However, it should be noted that the sample size for each platform group is relatively small, which limits the representativeness of the results and restricts the ability to conduct robust inferential statistical tests. Therefore, the findings should be interpreted as indicative trends rather than definitive conclusions.

## CONCLUSION

This study provided a descriptive–exploratory overview of Taiwanese consumers’ perceptions and usage patterns related to third-party payment services with cross-border functionality. Three research questions guided the analysis: (1) users’ awareness of cross-border payment functions and related charges, (2) factors associated with users’ willingness to use cross-border payment services, and (3) whether users of different payment applications perceive cross-border functionality as an advantage.

Regarding user awareness, the descriptive results indicate that respondents within the sample generally recognized the existence of cross-border payment functions, while awareness of associated charges appeared more varied. Differences in average responses were observed across age groups; however, these patterns should be interpreted as sample-based observations rather than evidence of systematic age-related differences, given the limited and imbalanced sample.

In terms of barriers to adoption, concerns related to fraud risk and personal data security were consistently reported across respondents. These concerns emerged as common themes within the sample, suggesting that issues of trust and security remain central considerations when users evaluate cross-border payment services, regardless of demographic background.

With respect to factors influencing willingness to use cross-border payments, descriptive findings show that functional and cost-related aspects—such as international coverage, transaction charges, and exchange rate stability—were generally perceived as important by respondents. The similarity in response patterns across age groups suggests that these factors may represent shared practical considerations rather than age-specific preferences within the sample.

Finally, when examining perceptions across different payment platforms, users of internationally oriented services tended to express stronger recognition of cross-border functionality as a valuable feature, whereas users of more domestically focused platforms expressed more moderate evaluations. These patterns suggest that the perceived importance of cross-border payment functions is associated with the international orientation and functional maturity of the platform, rather than the mere availability of the service.

Overall, the findings of this study should be understood as exploratory and descriptive in nature. Due to limitations in sample size, group imbalance, and response variability, the results cannot be generalized beyond the surveyed respondents. Nevertheless, this study contributes an initial overview of how Taiwanese users perceive cross-border payment functionality and highlights common concerns and considerations relevant to the adoption of third-party payment services. Future research could build on these findings by employing larger and more balanced samples to further explore these issues.

## APPEDIX

### QUESTIONNAIRES

#### 跨境第三方支付의 認知與使用意願問卷調查

填答說明：親愛的填答者：感謝您撥空填寫此問卷，我是文藻外語大學國際事務系的學生，目前正在做關於第三方支付和跨境支付的相關論文研究。此表單所有資料僅作為研究使用，表單不記名，所有資料將絕對保密並僅用於研究目的。您的寶貴意見和經驗將對本研究有很大的幫助，感謝您的協助，祝您一切順利。

研究員：文藻外語大學 國際事務系高詒婷同學

指導教授：文藻外語大學 國際事務系 謝仁和系主任

#### I. 第一部分：基本資料 Demographic Information

##### 1. Age / 年齡

☐ 18-23 ☐ 24-39 ☐ 40-64 ☐ 65 above

##### 2. Education Level/教育程度

☐ 高中職 High school/vocational high school ☐ 五專 junior college ☐ 大學 bachelor's degree ☐ 碩士 master's degree ☐ 博士 doctoral program ☐ others

##### 3. 哪個敘述比較符合您的使用情況 Which description matches to your usage?



- 未使用第三方支付，也未使用跨境支付
- 有使用第三方支付，但未使用跨境支付
- 有使用第三方支付，有使用跨境支付

4. 每年出國頻率 Annual frequency of overseas travel:

☐ 未曾出國 ☐ 1 次 ☐ 2 次 ☐ 3 次 ☐ 4 次 ☐ 5 次 ☐ 其他

## II 第二部分：使用情況 Usage

符合「有」使用第三方支付，但「未」使用跨境支付，請填寫以下問題

1. 您使用的第三方支付（可複選）

☐ PayPal ☐ iPass money ☐ 全支付 ☐ 台灣 pay ☐ line pay ☐ 支付寶 ☐ 其他

2. 您申辦第三方支付的原因為何？（可複選）

☐ 轉帳給親友 ☐ 商業用途 ☐ 旅遊 ☐ 海外購物或平台付款 ☐ 想享有更多優惠/匯率回饋

☐ 海外工作/結案收入收款 ☐ 海外讀書/留學 ☐ 其他

3. 您使用第三方支付主要用於哪些情境？（可複選）

☐ 國內實體通路消費 ☐ 國內線上購物 ☐ 海外線上購物（如 Amazon、淘寶）

☐ 海外旅遊支付 ☐ 國際匯款 / 收款 ☐ 訂房 / 訂票 ☐ 其他

4. 您「不」、「未」使用跨境支付的原因（可複選）

☐ 避免詐騙 ☐ 手續費高昂 ☐ 個資外洩安全 ☐ 不知道有跨境支付功能 ☐ 其他

符合「有」使用第三方支付，也「有」使用跨境支付，請填寫以下為問題。

1. 您申辦第三方支付的原因為何？（可複選）

☐ 轉帳給親友 ☐ 商業用途 ☐ 旅遊 ☐ 海外購物或平台付款 ☐ 想享有更多優惠/匯率回

饋 ☐ 海外工作/結案收入收款 ☐ 海外讀書/留學 ☐ 其他 others

2. 我清楚知道我使用的第三方支付可跨境使用

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

3 我認為第三方支付具備跨境功能是一項重要優勢

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

4.手續費越低，我更有意願使用跨境支付

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

5. 跨境支付國家數量越多，我更有意願使用

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

6.匯率越穩定，我更有意願使用跨境支付

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

7. 越多國家可以使用該支付工具，我越有興趣使用跨境支付

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

8. 跨境付款功能會提升我對第三方支付的好感度

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

9. 我認為跨境交易存在較高的詐騙風險

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

10. 我認為使用跨境支付能讓付款更快速方便

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

11.第三方支付提供的優惠吸引我使用 ( 如：回饋、折扣 )

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

12. 我覺得第三方支付工具的操作方式非常簡單

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

符合「未」使用第三方支付，「未」使用跨境支付，請填寫以下問題

1. 您「不」、「未」使用跨境支付的原因

☐避免詐騙☐手續費高昂☐個資外洩問題 ☐頁面和功能不好操作☐其他

### III 第三部分：跨境支付的使用感受

1. 您使用的跨境支付

☐全支付 ☐支付寶 ☐iPass money ☐ PayPal ☐其他

2. 使用這個支付工具的流程我覺得非常流暢

☐是 ☐否

3. 介面設計清楚明瞭，操作容易上手

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

4. 在跨境交易中，我幾乎不會遇到錯誤或延遲

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

5. 我對使用過程感到愉快

非常不同意 / 不同意 / 普通 / 同意 / 非常同意

1-5 分對應各個選項

6. 請分享您在使用第三方支付進行跨境付款時，有沒有遇到過好的經驗或困擾的地方？（可答可不答）



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