Digital Payments and Financial Inclusion: A Correlational Study of Microentrepreneurs from the District of Pueblo Libre, Lima, Peru 2022

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ABSTRACT

The main objective of the research was to establish a correlation between digital payments and financial inclusion. The study also aimed to comprehend how payment systems, digital wallets, and electronic money dimensions affect financial inclusion. The research methodology used a quantitative approach with a descriptive-correlational level and a non-experimental and cross-sectional design. The study population consisted of 164 microentrepreneurs based in the district of Pueblo Libre. Data was collected through Likert-type scale surveys, and the methods of analysis were descriptive and correlational. The results showed a positive and strong correlation (0.858) between digital payments and financial inclusion. Therefore, it can be concluded that digital payments and all its dimensions contribute to financial inclusion.

Keywords: digital payments, financial inclusion, microentrepreneurs.

INTRODUCTION

In the digital era, Information and Communication Technology (ICT) has made significant progress, impacting the growth of economies. The outbreak of COVID-19 has accelerated even more the development of digital transactions due to the encouragement and shift toward online services. This has resulted in increased creativity and digital innovation, including the expansion of digital payments and financial inclusion for microentrepreneurs. This is particularly important for governments as microenterprises have a significant influence on a country’s economy. According to data from the National Institute of Statistics andInformatics (INEI, 2019) there were 2,270,423 microenterprises in Peru, accounting for 94% of the business population up to 2018. Of these, 48.9% are located in Lima and Callao, while other departments with significant representation are Arequipa (5.6%) and La Libertad (5.3%). In Peru, microenterprises are defined as those whose annual sales do not exceed 150 tax units (UIT).

According to INEI, 45.1% of people are involved in commercial activities, 14.5% in services, 10.1% in professional services, 8.0% in activities related to food and beverages, and 7.9% in manufacturing. It has been observed that ICT spending has a positive impact on the labor productivity and profitability of micro and small enterprises (MSEs).

The growth of microenterprises is a result of the expansion of the economy (Banco Mundial, 2022) and the need for secure consumption by other actors in society. Therefore, it is crucial that financial services, banks, finance companies, cooperatives, and other organizations under national regulation offer microentrepreneurs, suppliers, and the general population a safe way...
to use the products offered by microentrepreneurs through digital payments. This will allow them to “safely and affordably store, send, and receive money for everyday needs, plan for emergencies, and make productive investments for the future” (Banco Mundial, 2022, p. 1). It will also serve as a reserve for health, education, business, or other needs.

Digital payments using electronic money are becoming increasingly popular, encouraging online purchases and micropayments. This overcomes the limitations and risks associated with cash payments and promotes the expansion of business opportunities through the use of information and communication technologies in the financial sector (Carballo & Bartolini, 2020).

Digitization has a significant impact on the productivity of microenterprises worldwide. The International Labour Organization, has reported that digitization offers a wide range of opportunities for microenterprises (Organización Internacional del Trabajo, 2021). These opportunities include access to information and communication, entry into the digital market, trading through various platforms, use of financial services, formalization and access to financial products, and digital transformation. Because of these opportunities, microenterprises can look at the world as a market where business opportunities are available to them.

This paper contributes to the ongoing discussion on digital payments and financial inclusion in a middle-class district that has seen significant growth in microenterprises. The article discusses digital payment systems such as digital wallets and electronic money as well as the access, use, and quality of financial inclusion in the district.

The paper provides information on digital payment systems such as credit or debit cards, accumulated balance, and stored value. It also talks about the use of digital wallets and electronic money, both through the web and micropayments. The paper identifies the modality of access to financial inclusion, whether through participation, proximity, or availability. It also investigates the adoption, frequency, and best option for its use. The article provides data related to affordability, convenience, and financial education regarding the quality of financial inclusion.

The research question was as follows: What is the relationship between digital payments and financial inclusion of microentrepreneurs in the district of Pueblo Libre in 2022? The study investigated the experience of digital payments and financial inclusion among microentrepreneurs in the district of Pueblo Libre, Province, and Department of Lima to answer this question.

The results show that a high percentage of the population in this district uses digital payments, digital wallets, and electronic money, given the guarantees of security and trust. However, access to financial inclusion is still slow, although those who are incorporated into the system use it. Customers use both cash and digital payments. The financial system responds promptly to the requirements; however, training on the benefits of financial inclusion is essential for microentrepreneurs to access it. The objective of the research was to determine the relationship between digital payments and the financial inclusion of microentrepreneurs in the district of Pueblo Libre in 2022.

Theoretical Framework

In order to establish a solid theoretical framework, two crucial aspects have been taken into account: digital payments and financial inclusion.

Digital payments is a término amplio que incluye cualquier pago realizado electrónicamente. Incluye pagos iniciados mediante un teléfono móvil o una computadora. En algunas circunstancias, los pagos mediante tarjetas se consideran pagos digitales [broad term that includes any electronic payment, including payments initiated via cell phone or computer. Sometimes even card payments (Unión Postal Universal, 2017, p. 10). Digital payments encompass various modes of transactions that are carried out using a cell phone. As highlighted by the World Economic Forum, digital payments help people access financial services in a way that promotes trade, investment, and ultimately, the sustainability of businesses (Foro Económico Mundial, 2022).

Global experiences demonstrate the widespread use of digital payments worldwide. Carballo and Bartolini (2020) note that pagos son el tejido conectivo de un sistema financiero [payments are the connective tissue of a financial system] (p. 174), linking market participants such as buyers and sellers. In this relationship, payments are a fundamental component that follows a sequence beginning with the client’s savings in a bank or other cooperative, followed by a withdrawal for digital payment. Alternatively, it could also be a bank-provided credit. However, these aspects are subject to existing local regulations.

In turn, financial inclusion refers to the Prestación sostenible de servicios financieros digitales asequibles que permiten el acceso de personas pobres
a la economía formal [sustainable provision of affordable digital financial services that enable poor people to access formal economy] (Unión Postal Universal, 2017, p. 8). It is una herramienta en busca de reducir las disparidades en el acceso a servicios financieros de los excluidos del sistema financiero tradicional, específicamente los más vulnerables [a tool aimed at reducing disparities in access to financial services for those excluded from the traditional financial system, specifically the most vulnerable] (Carballo & Bartolini, 2020, p. 172). By doing so, it helps mitigate banking risks and associated costs, promotes formalization and employment generation, and ensures optimal use of the benefits offered by the financial system.

Digital Payments

Several researchers have analyzed the advantages of digital payments worldwide. For example, Mahfuzur et al. (2020) highlight that the adoption of digital payments has a significant impact on the ease of transactions without the use of cash. In addition, technological security plays an important role in supporting this concept. According to Mahfuzur et al. (2020), the research results show that “hedonic motivation, social influence, and innovativeness are positively related to the adoption of cashless payments” (p.1).

Similarly, Aurazo and Vega (2021) conducted a study in Peru based on data from the National Household Survey (ENAHO, by its Spanish acronym) 2015-2018 on the motivation towards the adoption of the digital payment system. The study suggests that this option is available, in most cases, for people who have bank accounts. Those who are unbanked tend to use cash, but not mobile/internet banking, credit, or debit cards. The study also showed that people between 25 and 40 years old are the most frequent users of this payment system. Educational level, labor formalization, living in urban areas, internet access, as well as proximity to the financial system play an important role in the usage of digital payments. Therefore, to promote financial inclusion, the study recommends encouraging digital payments, progressively reducing cash payments, and above all, promoting dissemination and education in the use of digital payments, especially among people over 40 years old.

In a recent study by Becerra (2022), the author proposed three objectives: i) el desarrollo y lanzamiento de nuevos productos de pagos, ii) facilitar la supervivencia de innovaciones en pagos, y iii) se fomente el uso de medios de pagos digitales en la población [i) develop and launch new payment products, ii) promote the survival of payment innovations, and iii) encourage the use of digital payment methods among the population] (p. 51). At the end of the study, several conclusions were drawn, highlighting the leadership challenges in risk management related to cybersecurity and the need for security and trust among the population. The study also emphasized the importance of technological education, optimization of the path to mobile internet, and efficient interoperability in the financial system (Becerra, 2022).

Promoting the use of digital payments for secure commercial transactions is commendable; however, public policies must also focus on offering citizens credit cards or digital wallets with balances, accessible through the web or micropayments. To ensure security, interoperability, and other issues related to digital payments, the Banco Central de Reserva del Perú (BCRP, 2022) has established rules aimed at improving these services for the benefit of users and citizens in general.

Digital payments have been repeatedly identified as a powerful driver of e-commerce. They allow companies to broaden their market reach through online sales while providing security to consumers. However, digital payments also have another crucial aspect: they facilitate financial inclusion. Many people, due to factors such as informal employment, lack of digital payment training, or absence from the formal financial system, are unable to access its benefits such as savings, establishing local businesses, obtaining credit, and being prepared for financial shocks. According to the World Economic Forum, “being connected to digital payments positively impacts small business resilience and growth” (Foro Económico Mundial, 2022, p. 8). Moreover, businesses that adopt e-commerce can expand their operations to foreign markets.

To summarize, digital payments can be classified into three categories: digital payment systems, digital wallets, and electronic money. Digital payment systems facilitate online transactions and are significant for microenterprises. A digital wallet is a tool that collects data from credit cards and other sources, making payment declarations easier on purchase websites. Electronic money refers to stored currency on electronic devices that can be used to make payments to parties other than the issuer (Laudon & Laudon, 2008).

Digital payments are strongly related to digital wallets, which are applications that allow for online payments. Digital wallets contain virtual versions of debit or credit cards, which enable online purchases and payments without the need to manually enter card information every time. This not only allows for
Another benefit of digital payments is the creation of electronic money, which is a valor o producto prepago, donde el registro de los fondos o valor disponible al consumidor (que se puede utilizar para pagos) está almacenado en dispositivos electrónicos, tales como los monederos electrónicos (tarjetas prepago [prepaid value or product. The funds or value available to the consumer are stored in electronic devices such as electronic wallets (prepaid cards)] (Vega, 2013, p. 16), cell phones, and other internet-linked equipment. This method of payment aids in financial inclusion in both urban and rural areas.

Financial Inclusion

Microenterprises play a crucial role in creating employment, driving economic activity and promoting territorial development. These are important factors because they lead to greater inclusion, especially in terms of financial inclusion. Pérez and Titelman (2018) define this as a policy aimed at productive insertion, which uses the financial system as a tool to expand people’s ability to save and spend, while also improving access to investment opportunities for entrepreneurial talent. Thus, financial inclusion enables the financial system to meet the diverse financing needs of individuals and businesses at different stages of their productive and technological processes.

The National Strategy for Financial Inclusion (ENIF, by its Spanish acronym) was implemented as a state policy instrument in Peru, thanks to the inter-institutional coordination of the Ministry of Economy and Finance (MEF), Ministry of Inclusion and Social Development (MIDIS), Superintendency of Banking, Insurance and AFP (SBS), BCRP, and Banco de la Nación (BN). ENIF develops the concept of financial inclusion, which is defined as el acceso a y uso de servicios financieros de calidad por parte de todos los segmentos de la población [access to and use of quality financial services by all segments of the population] (Sotomayor et al., 2018, p. 3). This definition takes into account the elements described by international organizations and the context of each country.

Financial inclusion is also defined as “the provision of, and access to, financial services for all members of the population” (Ozili, 2020, p. 3). There are many theories such as the beneficiary theory, the financing theory, and the theory of the implementation of financial inclusion. According to these theories, people and companies have the right to access formal, useful, and affordable financial services that meet their needs in a responsible and sustainable manner (Ozili, 2020).

According to the Global Findex, millions of adults worldwide are now opening accounts with financial institutions through mobile money providers, indicating global growth in 2021. This has increased global account ownership from 51% in 2011 to 76% in 2021 (Demirgüç et al., 2021). However, this measure alone does not show the complete picture of financial access; it is important to look at other metrics such as participation, closeness, and availability (AFI, 2019).

Despite the apparent progress, microenterprises still face significant challenges. It is not just about increasing the geographic reach or diversity of financial service channels. The primary challenge is to increase the frequency of use. The lack of access to formal credit forces microenterprises to finance their activities in very short-term informal markets at high costs or rely on their own resources, limiting their opportunities for growth and consolidation (Morfín, 2018).

Usage refers to the daily use of financial products and services that facilitate people’s transactions. According to AFI (2019) “determining usage requires gathering details about the regularity, frequency, and duration of use over time” (p. 4). Therefore, this dimension refers to the frequency of use itself and includes indicators such as adoption, acceptance, and frequency.

Initially, local efforts to measure the state of financial inclusion in countries like Mexico, Peru, Colombia, and Brazil focused on recording geographic coverage, density of points of contact with residents, account ownership, and use of financial services. Most indicators concentrated on expanding financial inclusion by developing low-cost savings instruments and payment methods to amplify the range of people and businesses connected to formal financial institutions (Morfín, 2018).

Ensuring quality financial products and services for microentrepreneurs involves tailoring them to their specific needs. This means assessing how financial services meet their needs in terms of affordability, convenience, fair treatment, choice, financial education, and other relevant areas (AFI, 2019).

The pandemic not only caused a drop in microenterprises, but it also posed a challenge of adaptation to new conditions such as social distancing and quarantine measures. This led to an acceleration of
the entry of technological and digital components into the financial industry.

METHODOLOGY

This is a quantitative research study with a non-experimental design and correlational level. The unit of analysis was each formal and informal microentrepreneur in the district of Pueblo Libre, located in the province of Metropolitan Lima. The sample size was 164 microentrepreneurs, selected from a population of 283 in 2022 according to INEI (2022). To collect the primary data, a questionnaire was designed to measure both variables. The instrument was reviewed by three specialists for expert judgment, and Cronbach’s alpha indicator was used to determine its reliability. The indicator values were .835 for digital payments and .887 for financial inclusion. The questionnaire consisted of 17 items that addressed the dimensions of the first variable, “digital payments”, including “digital payment systems”, “digital wallet”, and “electronic money”. The second variable, “financial inclusion”, was measured using 18 items designed to measure its three dimensions: access, use, and quality. A 5-point Likert scale was used to measure respondents’ views.

RESULTS

The descriptive results are presented below. First, the main variable, digital payments, is divided into three dimensions: digital payment system, digital wallet, and electronic money. Secondly, a comparative graph is presented to show the relationship between digital payments and financial inclusion.

Figure 1 illustrates the percentage distribution of responses received for the first dimension, digital payment system. The survey results show that 94.5% of microentrepreneurs “always” use digital payment systems, while only 5.5% “sometimes” use them. Interestingly, there were no respondents who reported “never” or “rarely” using this system.

Figure 2 illustrates the percentage distribution of responses received for the second dimension, digital wallet, regarding the use of information, management, and storage of customer data. The survey results show that 81.1% of microentrepreneurs “always” use their digital wallets, while 14.6% “almost always” do so. Only 4.3% of respondents “sometimes” use their digital wallets, and no respondent indicated “never” or “rarely” using this system.

Figure 3 illustrates the percentage distribution of responses received for the electronic money dimension. The survey results show that 81.1% of respondents “always” use it, while 18.9% stated that they have used it “almost always”. None of the respondents reported that they have “never” used it, “rarely” used it, or only used it “sometimes”.

Figure 4 displays the percentage distributions of the two main variables: digital payments and financial inclusion. According to the survey, 79.9% of microentrepreneurs “always” use digital payments, 15.9% “almost always” use them, and 4.3% only use them “sometimes”. In contrast, only 10.4% of respondents “always” feel they are part of financial inclusion, while 69.5% “almost always” do, and 20.1% only “sometimes” feel they are included.

**Figure 1.** Percentage Distribution of Digital Payment System Usage.
Source: Prepared by the authors based on a survey conducted on microentrepreneurs in the district of Pueblo Libre, Lima, Peru, 2022.
**Figure 2.** Percentage Distribution of Digital Wallet Management.
Source: Prepared by the authors based on a survey conducted on microentrepreneurs in the district of Pueblo Libre, Lima, Peru, 2022.

**Figure 3.** Percentage Distribution of the Use of Electronic Money.
Source: Prepared by the authors based on a survey conducted on microentrepreneurs in the district of Pueblo Libre, Lima, Peru, 2022.

**Figure 4.** Percentage Distribution of Digital Payments and Financial Inclusion.
Source: Prepared by the authors based on a survey conducted on microentrepreneurs in the district of Pueblo Libre, Lima, Peru, 2022.
Hypothesis Testing

The results of the test conducted on the main hypothesis between digital payments and financial inclusion variables are as follows:

\( H_0 \). There is no relationship between digital payments and the financial inclusion of microentrepreneurs in Pueblo Libre in 2022.

\( H_1 \). There is a relationship between digital payments and the financial inclusion of microentrepreneurs in Pueblo Libre in 2022.

The results shown in Table 1 indicate a strong and positive correlation between the two variables with a correlation coefficient of 0.858 and a significance level of 0.05. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, indicating a relationship between both variables.

Table 1. Spearman’s Rho Values for Digital Payments and Financial Inclusion.

<table>
<thead>
<tr>
<th>Value</th>
<th>Correlation Coefficient</th>
<th>N</th>
<th>Sig. (2-tailed)</th>
</tr>
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<tbody>
<tr>
<td>Correlation Coefficient</td>
<td>0.858</td>
<td>164</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the questionnaire applied to the sample, obtained using SPSS V25.

Specific Hypothesis 1

\( H_0 \). There is no relationship between payment systems and the financial inclusion of microentrepreneurs in Pueblo Libre in 2022.

\( H_1 \). There is a relationship between payment systems and the financial inclusion of microentrepreneurs in Pueblo Libre in 2022.

The results shown in Table 2 indicate a strong positive correlation between the digital payment system and financial inclusion, with a correlation coefficient of 0.702 and a significance level of 0.05. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, indicating that there is indeed a relationship between digital payment systems and financial inclusion.

Table 2. Spearman’s Rho Values for Digital Payment Systems and Financial Inclusion.

<table>
<thead>
<tr>
<th>Value</th>
<th>Correlation Coefficient</th>
<th>N</th>
<th>Sig. (2-tailed)</th>
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<tbody>
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<td>0.702</td>
<td>164</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the questionnaire applied to the sample, obtained using SPSS V25.

Specific Hypothesis 2

The results shown in Table 3 indicate a strong and positive correlation between the digital wallet dimension and financial inclusion variable, with a correlation coefficient of 0.716 and a significance level of 0.05. The two-tailed significance value of less than 0.001 provides further evidence to reject the null hypothesis and accept the alternative hypothesis. This confirms that there is a relationship between digital wallets and financial inclusion.

Table 3. Spearman’s Rho Values for Digital Wallet and Financial Inclusion.

<table>
<thead>
<tr>
<th>Value</th>
<th>Correlation Coefficient</th>
<th>N</th>
<th>Sig. (2-tailed)</th>
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<td>&lt;.001</td>
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</tbody>
</table>

Source: Prepared by the authors based on the questionnaire applied to the sample, obtained using SPSS V25.

Specific Hypothesis 3

The results shown in Table 4 indicate a strong and positive correlation between the electronic money dimension and financial inclusion, with a correlation coefficient of 0.736 and a significance level of 0.05. The two-tailed significance value of less than 0.001 provides further evidence to reject the null hypothesis and accept the alternative hypothesis. This confirms that there is a relationship between electronic money and financial inclusion.

Table 4. Spearman’s Rho Values for Electronic Money and Financial Inclusion.

<table>
<thead>
<tr>
<th>Value</th>
<th>Correlation Coefficient</th>
<th>N</th>
<th>Sig. (2-tailed)</th>
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<tbody>
<tr>
<td>Correlation Coefficient</td>
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<td>164</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the questionnaire applied to the sample, obtained using SPSS V25.

DISCUSSION

The study shows a significant correlation between digital payments and financial inclusion, which is consistent with the findings of Carballo and Bartolini (2020). They suggested that using digital payments leads to the adoption of different financial services. The descriptive analysis reveals that nearly 80% of microentrepreneurs surveyed “always” use digital payments, while 16% “almost always” use them, and the remaining respondents use digital payments “sometimes”. This indicates
that digital payments are widely used in the daily commerce of the group studied. However, the results highlight a gap between digital payments and digital inclusion. Only 20% of respondents "always" participate in digital inclusion, while 70% "almost always" participate. This gap is of interest to stakeholders.

Regarding the first specific objective, the study found that there is a strong correlation between the use of digital payment systems and financial inclusion. This has been made possible by the introduction of innovative and cost-effective systems such as credit cards, debit cards, QR codes, and payment applications, which are being used by micro-entrepreneurs. Demirgüç et al. (2018) also confirm this. Another study by López and Palomino (2021) found that the use of mobile technology is driven by practicality and usability factors and that the COVID-19 pandemic has further increased the need for mobile technology.

Regarding the second specific objective, a strong correlation was found between digital wallets and financial inclusion. Technological and business advancements in payment innovations have played a significant role in driving financial inclusion. These advancements have enabled entrepreneurs to reach larger markets and expand their businesses (Leinonen, 2008).

Finally, regarding the third specific objective, a positive correlation was found between electronic money and financial inclusion. The micro-entrepreneurs examined in the sample showed a high level of electronic money penetration, which is thought to be related to the pandemic’s effects, as noted by Jiliet et al. (2022). This finding provides evidence that digital payment systems and adequate financial inclusion can help economic activity withstand unfavorable shocks.

CONCLUSIONS

It was concluded in this research study that there is a strong positive correlation between digital payments and financial inclusion of micro and small enterprises in Pueblo Libre district in 2022. The study found that microentrepreneurs often use digital payment methods to charge for their products and services. This requires them to have a bank account to receive payments, thus promoting financial inclusion.

The use of digital wallets and electronic money systems was found to have a strong positive correlation with financial inclusion of micro and small businesses in the district. These systems are cost-effective and essential components of financial inclusion. By providing multiple payment options, microentrepreneurs can increase sales, achieve business growth, and contribute to financial inclusion.

Despite the direct relationship between digital payments and financial inclusion, the study found significant differences between them. Whereas 79.9% of respondents reported “always” using digital payments, only 10.4% considered it a part of financial inclusion. Further research is needed to identify the possible causes of this discrepancy and to deepen our understanding of financial inclusion in micro and small enterprises.

REFERENCES


