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Financial Inclusion, Financial Technology, and the COVID-19 Pandemic: The Philippine Case

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Abstract

The COVID-19 crisis created conditions for digital finance to accelerate financial inclusion in the Philippines. Anecdotal and survey data suggest that the pandemic has indeed spurred large gains in financial inclusion in the country, with adoption of digital finance as a strong driver. This paper empirically investigates this episode (and conjecture) by focusing on the nexus between financial inclusion, financial technology, and the pandemic. To gain better policy insight, it also chronicles and examines the evolution of the digital finance industry and the corresponding changes in financial supervision and regulation. Probit regressions using pooled Philippine microdata from the World Bank Findex Database for 2017 and 2021 show broad improvement in financial inclusion from pre-pandemic to more current times, whether through traditional or mobile accounts. Findings were generally consistent with earlier studies in that greater education, employment, and income were still associated with greater financial inclusion, though males appear to have caught up with females in formal account ownership and usage, and the poorest with the rest of society, owing to pandemic-time measures. There were exceptional increases in mobile account ownership and usage with COVID-19, however, especially for the younger, more educated, and richer groups, revealing similar distributional issues as observed with other types of accounts. The review of the digital finance landscape indicates a rather healthy interplay between suppliers of digital finance services and regulators and related agencies of government, implying a benign financial intermediation landscape so far despite rapid changes in the industry.

Keywords: COVID-19, digital finance, electronic money, financial inclusion, fintech, mobile money

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Financial Inclusion, Financial Technology, and the COVID-19 Pandemic: The Philippine Case

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1. Introduction

The COVID-19 crisis has created conditions for digital finance to accelerate financial inclusion. Prior to the pandemic, technology-driven financial innovations coupled with the expansion of internet access and smartphone ownership had begun to transform the financial services industry. Digital instruments such as mobile money accounts have fostered financial inclusion by offering convenient means of carrying out transactions as well as by easing the constraints traditionally faced by the unbanked. As intermittent lockdowns and social distancing measures became the norm during the pandemic, people were forced to seek alternatives to cash-based transactions at physical access points. Consumers increasingly turned to digital financial services for contactless or cashless transactions.

Data suggests that the COVID-19 pandemic has indeed spurred large gains in financial inclusion in the Philippines, with the adoption of digital finance being an important driver. For instance, about 4 million digital accounts were reportedly opened remotely in the country from mid-March to end-April 2020, at the height of the lockdowns (Frost, Gambacorta, & Shin, 2021).[1] The Financial Inclusion Survey of the Bangko Sentral ng Pilipinas (BSP 2022a) reveals a near doubling of account ownership among adults, from 29 percent in 2019 to 56 percent in 2021. The same period saw e-money account ownership quadruple from 8 percent to 36 percent of Filipino adults, surpassing bank account ownership, which covered 23 percent of adults in 2021, as the most prevalent form of financial account access.

Given the scarcity of more formal studies, these developments warrant a closer assessment. It would be interesting and instructive to examine how the COVID-19 pandemic influenced the pace of financial inclusion, in terms of both access and usage, and the role digital finance played in this evolution. It is also vital to know the changes in the financial industry, with changing market structure potentially altering the landscape for financial intermediation in the post-pandemic period. This change, in turn, may impact not just the nature of financial inclusion but also financial stability, with possible repercussions on financial supervision and regulation.

Due to the prominence of digital finance during the period, and the focus placed on financial inclusion by Philippine policymakers, investigating how the demand for digital financial services has developed during the COVID-19 pandemic would be an important contribution to the literature. Previous studies had already examined how individual-level demographic characteristics correlate with financial access and usage in the country (Llanto 2015, Llanto and Rosellon 2017, Debuque-Gonzales and Corpus 2021, Debuque-Gonzales and Corpus forthcoming). This study goes further in terms of investigating how these relationships have

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[1] Relatedly, more than 5 million low-income individuals reportedly opened bank accounts in 2021, during the registration for the Philippine Identification System (PhilSys), the country's national ID system (Diop 2021).

altered against a changed financial sector backdrop by adopting a unified statistical framework in making a comparison.

We first briefly summarize the existing literature on financial inclusion, digital finance, and the COVID-19 pandemic (Section 2). We then look at trends in account ownership and usage in the Philippines based on survey, administrative, and market data in the runup to and during the COVID-19 pandemic (Section 3). Stylized facts about financial inclusion and demographic information across periods are drawn based on probit regressions, with a special focus on digital financial services during the pandemic (Section 4). We follow this up with an overview of the digital finance industry, including a summary of regulatory developments (Section 5) and offer some conclusions and recommendations (Section 6).

2. Review of related literature

Studies at the global level provide evidence for increasing financial inclusion and digital finance adoption during the pandemic. Using data from nationally representative surveys in 123 countries, the World Bank's 2021 Global Financial Inclusion Index (Findex) report highlights an overall increase in account ownership and financial service usage from 2017 (Demirgüç-Kunt et al 2022). The report also found a rise in first-time digital transactions among adults as the pandemic prompted greater use of digital payments. Similarly, Dluhopolskyi et al (2023), found that active use of fintech among individuals increased significantly in 2021 through the construction of a digital financial inclusion index using Global Findex data. Both studies, however, find persistent disparities in financial inclusion in terms of gender, income, and education, especially in developing countries. Drawing on a globally representative sample of mobile application downloads, Fu & Mishra (2022) provide evidence that the spread of COVID-19 and related government lockdowns led to upticks in downloads of finance-related applications.

Most country-level articles comprise behavioral studies that utilize surveys and non-random sampling to identify factors affecting personal intentions to use fintech. Alkhwaldi et al (2022) focus on Jordan, Alwi et al (2021) on Turkey, Nathan et al (2022) and Khuong et al (2022) on Vietnam, and Vyas & Jain (2021) on India. Common factors considered as drivers of fintech usage during the pandemic include the following: perceived benefit, perceived ease of use, personal innovativeness, social influence, and notably government support and perceived health. In the Philippines, summary statistics from the 2021 Financial Inclusion Survey by the BSP (2022a) point to overall growth in financial inclusion and fintech adoption compared to 2019. Beyond this, studies offering more in-depth examination of financial inclusion and fintech during the pandemic appear to be non-existent.

There are, however, several related efforts. Yamada et al (2020) use their empirical analysis of the effect of remittances on financial inclusion (supported by household data from 2016 and 2017) to predict the impact that a pandemic-induced downturn and the resulting drop in remittances could have on financial inclusion (for instance, a 2.2- to 4-percent decline in household bank account ownership or usage compared to a no-COVID scenario).

Debuque-Gonzales and Corpus (2021), using pre-pandemic (2017) Findex data for the Philippines, analyze the socio-economic correlates of financial access and usage, including the possession of a mobile money account and use of online payments. Income and level of education were identified as significant determinants for using online payments, but they were not important for mobile money account ownership, indicating that disparities along these

attributes are not as pronounced in the latter. In an update of that study (Debuque-Gonzales & Corpus, forthcoming), however, they noted rapid adoption of fintech (mobile money) during the COVID-19 pandemic, but also a widening gap in ownership and use of fintech across education and income levels, consistent with other studies in the literature.

Finally, Quimba et al (2021), while not a study on financial inclusion, provide a useful summary of the local fintech landscape, including market players, demand drivers, talent pool, and the regulatory environment. They noted that the Philippines has a relatively strong fintech industry, as evidenced by the growing number of fintech firms in the country, particularly in payments and lending. However, support for the ecosystem must be sustained to fully support the country's financial inclusion goals.

3. Trends in financial inclusion during the pandemic

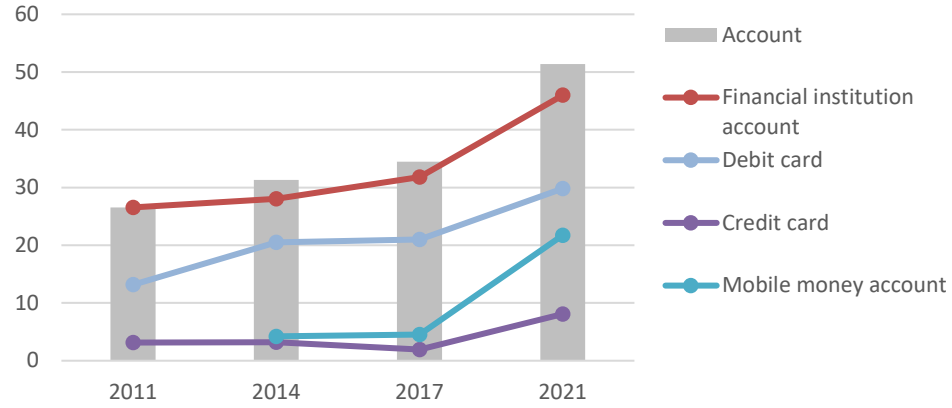
According to the Global Findex, overall account ownership among Filipino adults increased at a faster rate from 2017 to 2021 than from 2011 to 2017 (Figure 1a). As of 2021, about half of Filipino adults owned an account. This covers financial institution accounts (46.0 percent), debit cards (29.8 percent), credit cards (8.1 percent), and mobile money accounts (21.7 percent). While financial institution accounts regularly drove the overall growth, mobile money account ownership grew the fastest from 2017 to 2021. The rate quadrupled from 4.5 percent in 2017.

There was likewise growth in account usage (Figure 1b). About 19.2 percent of Filipino adults saved at a financial institution in the past year, up from 11.9 percent. Around 17.4 percent availed of loans from a financial institution, while 21.0 percent sent or received domestic remittances using an account (up from 10.7% and 10.3%, respectively). As for digital applications (Figure 1c), the number of adults who used digital payments and who used mobile or internet service in making purchases and paying bills rose from 2017 to 2021.

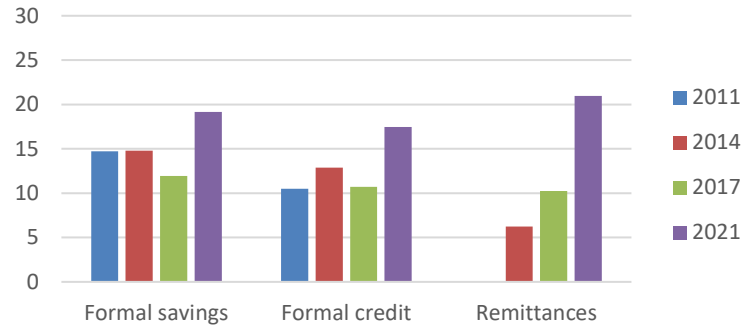
Additionally, 35 percent received government transfers. Of this number, 24 percent received the transfer through an account. Thirty-seven percent, meanwhile, received government payments. 27 percent of which received payments through an account.

Figure 1. Global Findex – Philippines results

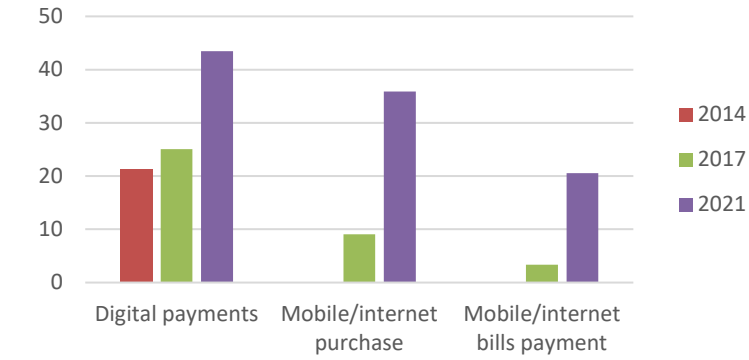
a. Account ownership (percent of population aged 15 and above)



b. Account usage (percent of population aged 15 and above)



c. Digital usage (percent of population aged 15 and above)

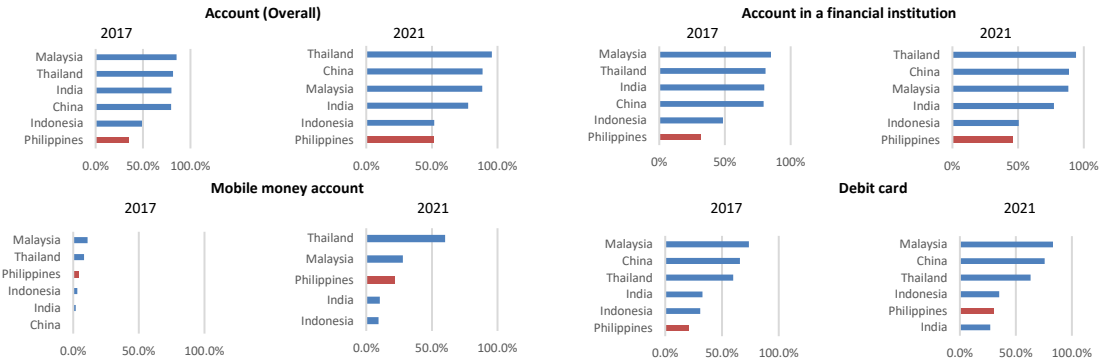


Source: WB (2022)

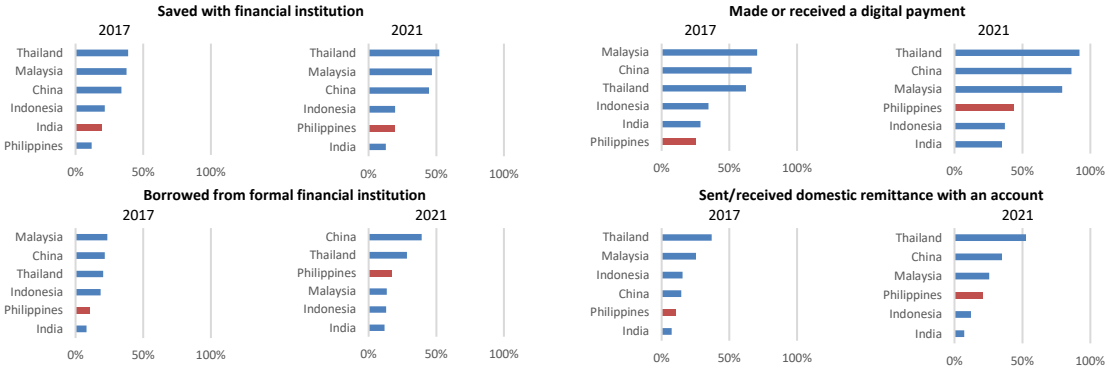
Box 1. Regional perspective on financial inclusion

The Philippines lags compared to ASEAN peers, China, and India when it comes to overall account ownership, with 34.5 percent in 2017 and 51.4 percent in 2021. This statistic appears to depend more heavily on ownership of an account at a financial institution, which is more prevalent in comparative economies.

There is, however, optimism in other subcomponents. There was increased ownership of mobile money across the board. Standing at 21.7 percent in 2021, the Philippines ranked next to Thailand and Malaysia. Only India experienced a drop in debit card ownership among the six. For the Philippines, the figure improved from 21.0 percent in 2017 to almost 30 percent in 2021.



Savings and remittance behavior improved in the Philippines, China, Malaysia, and Thailand but declined in India and Indonesia. Borrowing from formal institutions also exhibited mixed trends. In the Philippines, there was an uptick from 10.7 percent in 2017 to 17.4 percent in 2021. There was growth across the board for digital payments. In the Philippines, this rose from 25.1 percent in 2017 to 43.5 percent in 2021.



Source: WB 2022

Findings of the BSP Financial Inclusion Survey (FIS) similarly show an increase in account ownership, with the rate of change being larger from 2019 to 2021 than from 2017 to 2019 (Figure 2a). A notable difference from the Findex results is the dominance of e-money accounts. Whereas the Findex shows that financial institution accounts and debit cards are more commonly owned, the FIS reports that e-money accounts have become increasingly adopted in 2021.[2]

[2] This difference may be due to the definitions of mobile money and e-money. The World Bank uses mobile money, which is limited to services included in the GSM Association's Mobile Money for the Unbanked (GSMA MMU) database. Meanwhile, BSP uses e-money or electronic money. This is monetary value represented by a claim on its issuer and which complies with five other conditions detailed in the Manual of Regulation of Banks (MORB).

Additionally, the FIS shows an increase in the adoption of formal credit (from 19% in 2019 to 25% in 2021) and investment (from 25% to 36%). However, a decline was observed in the proportion of adults availing insurance, from 23 to 17 percent (Figure 2b). Among accountholders, more are using their accounts for payment and savings purposes (Figure 2c).

Results of the 2021 FIS further characterize the adoption of digital finance during the pandemic. It was reported that six out of ten adults who owned a mobile phone and had internet access made a digital financial transaction (Figure 2d). The primary reason cited for not using the internet for digital financial transactions was lack of awareness and issues with mobile signal. Lack of trust became less of a concern than in 2019 (Figure 2e).

Figure 2. BSP Financial Inclusion Survey (FIS) results

a. Account ownership (percent of adult population)

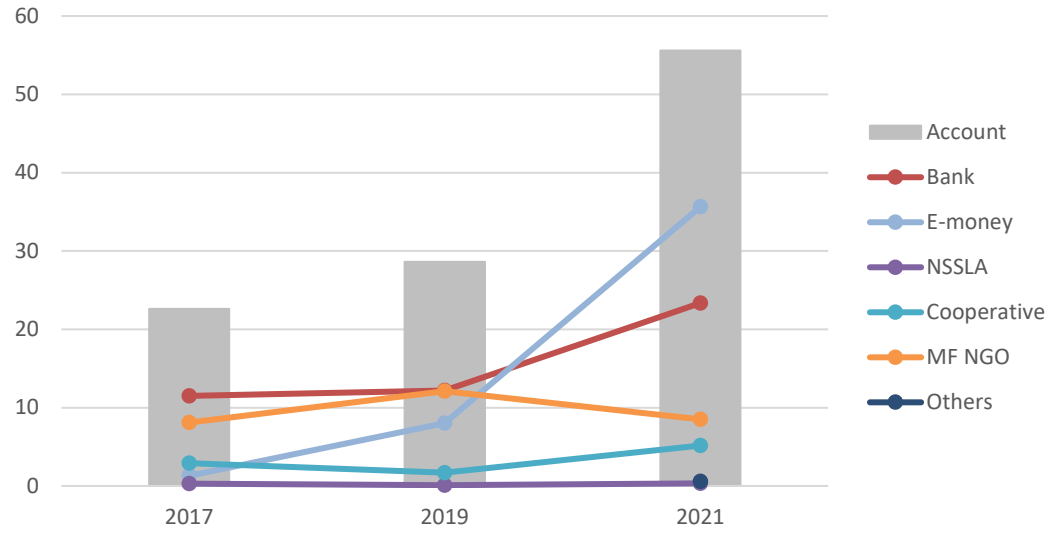
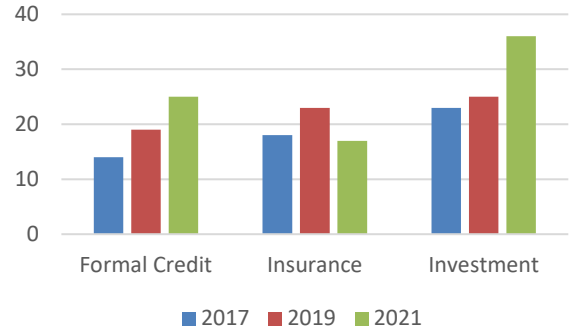
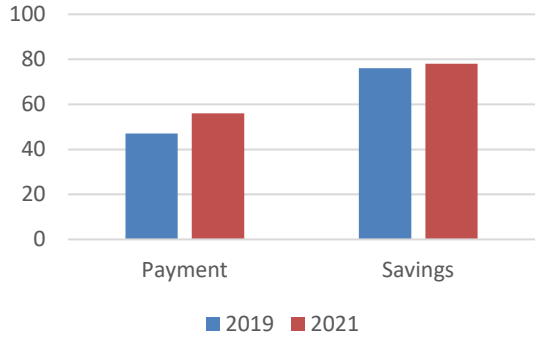


Figure 2. BSP Financial Inclusion Survey (FIS) results - continuation

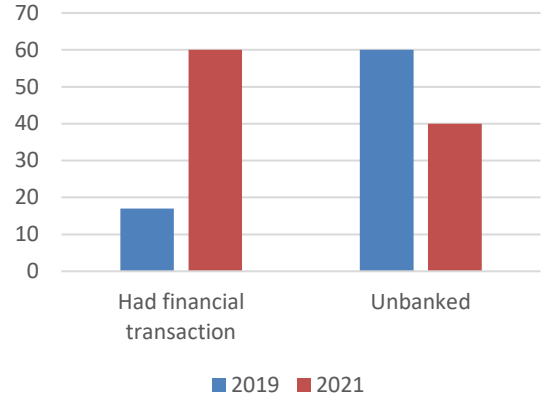
b. Account usage (percent of adult population)



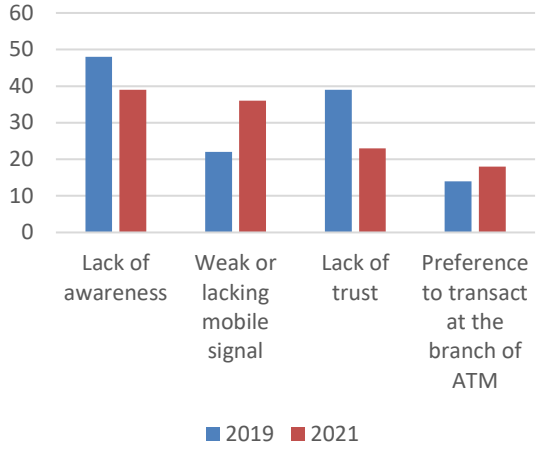
c. Digital usage (percent of accountholders)



d. Digital transactions (percent of adults with mobile phone and Internet)



e. Reasons for not using the Internet for digital financial transactions (percent of adults who did not use the Internet for digital financial transactions)



Source: BSP (2022a)

Based on 2022 data from the BSP Financial Inclusion Dashboard, there was significant growth in the number of e-money accounts from 2019 to 2020 (Table 1). The number of registered e-money accounts more than doubled, from 63 million in 2019 to 138.8 million in 2020. A similar trend can be observed for the number of active e-money accounts. The number of inflow and outflow transactions showed greater growth, at 180.8 percent and 168.8 percent, respectively. There was also an uptick in the amount of inflow and outflow transactions albeit at weaker rates, suggesting that there were more transactions but not in greater amounts.

Table 1. Number and amount of e-money transactions

	2019	2020	Growth
Number of E-Money Accounts (in millions)			
Registered e-money accounts	63.0	138.8	120.1%
Active e-money accounts	17.9	34.7	93.3%
Number of Transactions (in millions)			
Inflow	178	501	180.8%
Outflow	449	1,207	168.6%
Amount of Transactions (in billion pesos)			
Inflow	745.2	1,220.9	63.8%
Outflow	740.1	1,189.5	60.7%

Source: BSP Various years

Meanwhile, the adoption of online payments rose steadily from 2018 to 2020. In 2019, the volume and value of transactions averaged 3,000 and PHP 84 billion per month, respectively. Faster growth was recorded in 2021. The volume and value of transactions in December were 5.25 million and PHP 507 billion, respectively (Figure 3). Aside from the seasonal increase in payments, the spike during this quarter may be attributed to the temporary moratorium on automated clearing house (ACH) fees for person-to-person fund transfers.[3]

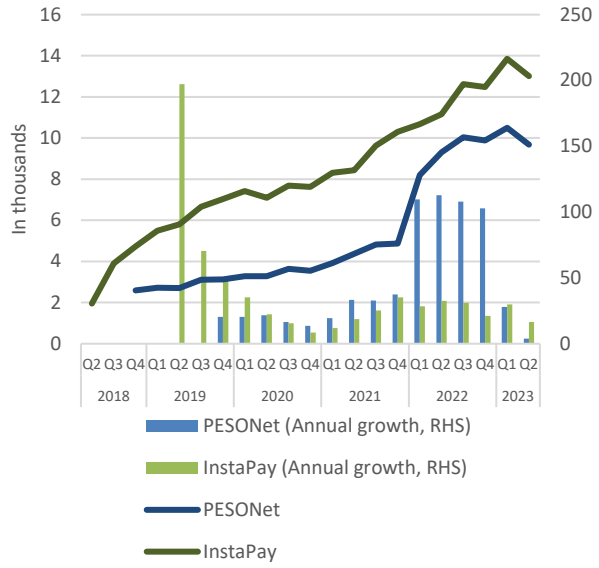
Market data also provides insight on the uptake of digital finance. With roots in the 2000s and linked with telecom giants[4], GCash and Maya are leading fintech services in the Philippines. The average number of users for both providers surged from 2019 and continues to grow into 2022. GCash registered 20 million users in 2019, breaking 60 million in 2022. Maya trails not far behind, with 30 million users in 2020 and 40 million in 2021 (Figure 4). In other metrics, the gross transaction value of GCash surged from PHP 1.2 trillion in 2020 to PHP 3.8 trillion in 2021. The total value of deposit balance for Maya Bank doubled to PHP 10 billion from July to September in 2022 (GMA Network, PLDT via Statista 2022c, h).

[3] PESONet and InstaPay are two ACHs licensed by the central bank. They serve as exchange points for electronic transactions among different financial institutions, such as banks and other e-money issuers (EMIs). They make up part of the payments processed by the PhilPASS^{plus} system.

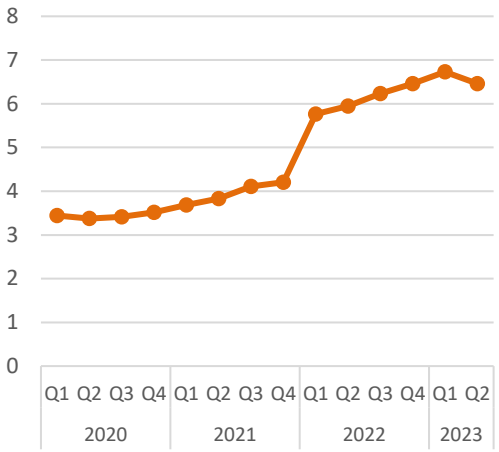
[4] Smart Communications, in partnership with 1st eBank and MasterCard, launched Smart Money in 2000. Globe Telecom meanwhile kicked off GCash in 2004.

Figure 3. PESONet and InstaPay payments

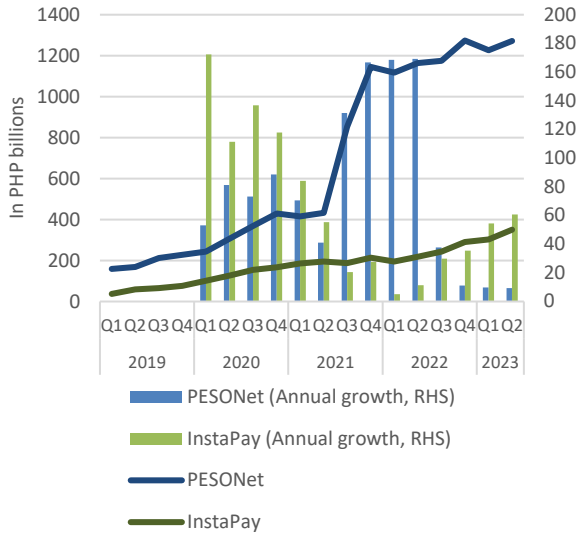
a. Volume of transactions



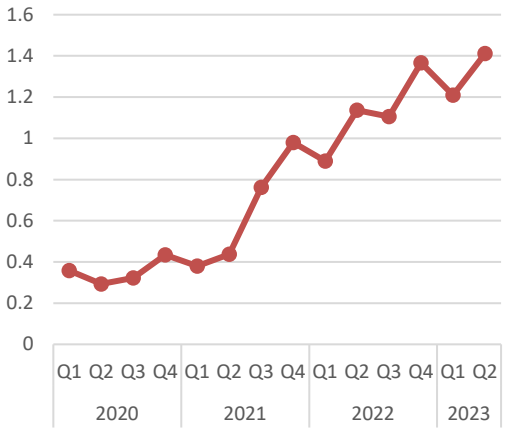
b. Share of payments, by volume



c. Value of transactions

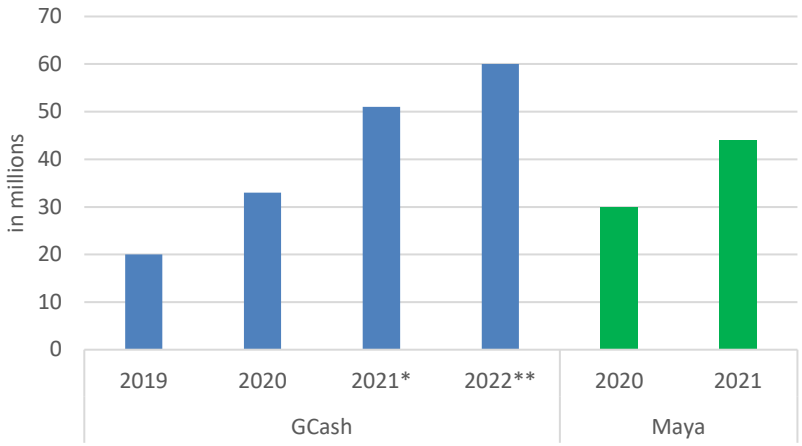


d. Share of payments, by value



Source: BSP via CEIC Data 2023e, authors' computations

Figure 4. Number of GCash and Maya users



Source: Globe Telecom, PLDT via Statista (2022a, b)

Various data sources indicate improvement in financial inclusion in recent years and significantly during the COVID-19 crisis. A notable shift in account ownership was observed between pre-pandemic and pandemic iterations, with the increase in the latter riding on the more widespread adoption of mobile money and e-money accounts. Central bank data displaying a steep growth rate in the number of accounts, as well as market data from GCash showing greater increase from 2020 to 2021 than from 2019 to 2020, further support this trend.

Survey data generally show greater uptake of services such as formal savings, formal credit, remittances, and investment, despite dips in previous periods. There was likewise growth in the volume and value of payments. A closer look however shows that there was already a trajectory established before the pandemic. The question of how much of these positive developments are due to the mobility restrictions then arises.

Insight can be gleaned from questions from the Financial Inclusion Survey pertaining to the more direct impact of the pandemic on financial behavior. For example, 17.1 percent reportedly either used digital payments for the first time or increased their use of it; 10.7 percent used online modes for the first time; while 10.3 percent said they used online modes more. About 37.2 percent started saving more for emergencies, 15.2 percent started to borrow more, while 3.6 percent opened insurance accounts.

4. Determinants of financial inclusion: the role of fintech

This section investigates the links between financial inclusion, financial technology, and the COVID-19 pandemic. Building on previous work of Debuque-Gonzales and Corpus (2021, forthcoming), it empirically examines the determinants of financial inclusion in the Philippines using the 2017 and 2021 rounds[5] of the World Bank's Global Findex survey. As before, we conduct our investigation along two basic dimensions of financial inclusion: namely, account ownership and account usage. In contrast to the earlier research, this study makes use of a pooled dataset with period dummy variables and relevant interaction terms incorporated in the estimations to help gauge the impact of the COVID-19 pandemic. it also pays closer attention to the role of fintech (in mobile and online forms) in financial inclusion in the country.

4.1. Methodology

We employ probit models to analyze the determinants of different indicators of financial inclusion. For account ownership, our specification is as follows:

$$y_{1i}^* = x_i'\beta_1 + \varepsilon_{1i} \qquad (1)$$
$$y_{1i} = \begin{cases} 1 \; if \; y_{1i}^* > 0 \\ 0 \; if \; y_{1i}^* \leq 0 \end{cases}$$

where i represents individuals; y_{1i} is a dummy variable for account ownership; y_{1i}^* is a latent variable; x_{1i} is a vector of individual characteristics; and e_{1i}, is a normally distributed error term with mean 0 and variance 1. Equation (1) is estimated using maximum likelihood.

For y_{1i}, we alternately consider the following: (1) formal account at a financial institution; (2) mobile money account; (3) debit card (assumed to be attached to a financial account); and (4) credit card. Corresponding dummy variables have a value of 1 if an individual holds such an account, and 0 otherwise.

We apply a similar specification for account usage, written as:

$$y_{2i}^* = x_i'\beta_2 + \varepsilon_{2i} \qquad (2)$$
$$y_{2i} = \begin{cases} 1 \; if \; y_{2i}^* > 0 \\ 0 \; if \; y_{2i}^* \leq 0 \end{cases}$$

where the dependent variable y_{2i} is a binary variable for account usage of individual i; y_{2i}^* is a latent variable; x_{2i} is the same vector of individual characteristics; and e_{2i} is a standard normal error term.

For account usage, y_{2i}, we study each of the following: (1) saving in the past year using a formal account; (2) borrowing in the past year using a formal account; (3) domestic remittance in the past year coursed through a financial institution (sent or received); (4) mobile phone and online transactions. Mobile phone transactions include domestic remittances (sent or received) using a mobile phone, while online transactions include online bill payments or purchases made through the internet. Dummy variables take a value of 1 if corresponding behaviors are reported, and 0 otherwise.

[5] Data collection in the Philippines was conducted by World Bank from July to August 2017 and September to November 2021 via mobile telephones.

Since usage of a formal financial or mobile money account requires ownership of the account, we jointly estimate the probit (selection) equation (equation [1]) for account ownership and the probit (decision) model for account usage (equation [2]) using maximum likelihood. This corresponds to a bivariate probit model, which is a joint model for two binary outcomes.

We likewise investigate mobile money usage as reflected by the following: (1) use of the mobile money account (two or more times a month), (2) use of the mobile money account to store money, and (3) use of the mobile money account to borrow money. To examine financial inclusion related to COVID-19, we additionally examine the following usage indicators of account owners: (1) paid digitally for an in-store purchase for the first time after COVID-19, (2) paid online for an online purchase for the first time after COVID-19, and (3) paid a utility bill from an account or mobile phone for the first time after COVID-19. Dummy variables again take a value if 1 if the corresponding behavior holds, and zero otherwise.

Similar explanatory variables as found in Debuque-Gonzales and Corpus (2021) are used in this study, namely: age, sex, education, employment, wages, income, and location (see Table 1). For a nuanced assessment of the impact of the pandemic, we create a dummy variable for year 2021 and include interaction terms between this variable and other variables of interest in the regressions.[6] Lastly, using 2021 data, a COVID-related variable that captures financial worry due to the pandemic is incorporated to capture the relationship between sentiment and mobile money usage.[7]

Table 2. Summary statistics

Variable	Description	Obs	Mean	Std. dev	Min.	Max
Account at a financial institution	Equal to 1 if respondent at a financial institution; 0 otherwise	2,000	0.453	0.498	0	1
Mobile money account	Equal to 1 if respondent has a mobile money account; 0 otherwise	2,000	0.172	0.378	0	1
Debit card	Equal to 1 if respondent has a debit card; 0 otherwise	2,000	0.311	0.463	0	1
Credit card	Equal to 1 if respondent has a credit card; 0 otherwise	1496	0.094	0.291	0	1
Formal savings	Equal to 1 if respondent uses formal account for saving money; 0 otherwise	2,000	0.206	0.405	0	1
Formal borrowing	Equal to 1 if respondent uses formal account to borrow money; 0 otherwise	2,000	0.127	0.332	0	1
Remittances	Equal to 1 if respondent uses an account for domestic remittances; 0 otherwise	2,000	0.215	0.411	0	1

[6] Except for mobile money usage and COVID-related variables, which are available only for the 2021 round.
[7] This also entails use of a dummy variable, where value of 1 indicates the individual said yes to the question asking if the respondent was worried about severe financial hardship as a result of the disruption caused by the coronavirus.

Mobile and online transactions	Equal to 1 if respondent mobile and online transactions; 0 otherwise	2,000	0.351	0.478	0	1
Use of the mobile Account two or more times a month	Equal to 1 if respondent uses a mobile money account two or more times a month; 0 otherwise	267	0.674	0.470	0	1
Use of mobile money account to store money	Equal to 1 if respondent uses a mobile money account to store money; 0 otherwise	267	0.614	0.488	0	1
Use of mobile money account to borrow money	Equal to 1 if respondent uses a mobile money account to borrow money; 0 otherwise	267	0.150	0.358	0	1
Paid digitally for an in-store purchase for the first time after COVID-19	Equal to 1 if respondent made a digital payment for an in-store purchase for the first time after the pandemic started; 0 otherwise	249	0.506	0.501	0	1
Paid online for an online purchase for the first time after COVID-19	Equal to 1 if respondent made an online payment for the first time after the pandemic started; 0 otherwise	463	0.240	0.427	0	1
Paid a utility bill from an account or mobile phone for the first time after COVID-19	Equal to 1 if respondent paid a utility bill from an account for mobile phone for the first time after the pandemic started; 0 otherwise	223	0.444	0.498	0	1
Age	15 to 24 = 1 if respondent is in this first working age group; 0 otherwise (base category) 25 to 34 = 1 if respondent is in this second working age group; 0 otherwise 35 to 44 = 1 if respondent is in this third working age group; 0 otherwise 45 to 54 = 1 if respondent is in this fourth working age group; 0 otherwise 55 to 64 = 1 if respondent is in this fifth working age group; 0 otherwise 65 and over = 1 if respondent is in this sixth working age group; 0 otherwise	2,000	2.720	1.501	1	6
Sex	Equal to 1 if female; 0 otherwise	2,000	0.568	0.496	0	1
Education	Primary level education = 1 if respondent's highest education attained is primary level; 0 otherwise	2,000	1.975	0.644	1	3

	Secondary level education = 1 if respondent's highest education attained is secondary level; 0 otherwise Tertiary level education = 1 if respondent's highest education attained is tertiary level; 0 otherwise (base category)					
Received wages	Equal to one if respondent received wages; 0 otherwise	2,000	0.387	0.487	0	1
Income	Poorest 20% = 1 if respondent is in the first income quintile; 0 otherwise Second 20% = 1 if respondent is in the second income quintile; 0 otherwise Middle 20% = 1 if respondent is in third income quintile; 0 otherwise Fourth 20% = 1 if respondent is in the fourth income quintile; 0 otherwise Richest 20% = 1 if respondent is in the fifth income quintile; 0 otherwise (base category)	2,000	3.243	1.426	1	5
Location	NCR = 1 if respondent is situated in NCR; 0 otherwise (base category) Rest of Luzon = 1 if respondent is in other areas of Luzon outside of Metro Manila; 0 otherwise Visayas = 1 if respondent is in Visayas region; 0 otherwise Mindanao = 1 if respondent I in Mindanao; 0 otherwise	2,000	2.506	1.052	1	4
Financial worry due to COVID-19	Equal to 1 if the respondent was worried about severe financial hardship as a result of the disruption caused by the coronavirus; 0 otherwise.	929	0.675	0.469	0	1

Source: Authors' computations using Findex data

4.2. Results and Discussion

Since the probit model incorporates interaction terms between the regressors and the dummy variable for year 2021, predictive margins (i.e., the predicted probabilities adjusted for relevant controls) are generated to properly interpret and more easily understand the results. The graphs below show these adjusted predictions of financial inclusion as measured by various indicators of account ownership and usage, comparing outcomes for the 2017 and 2021 survey rounds for different subgroups. Figures 5 to 12 illustrate the results, while Tables 3 to 6 provide the numerical counterparts.

4.2.1. Determinants of account ownership

Formal account ownership

Figure 5 summarizes the results for formal account ownership in different subgroups based on the key explanatory variables included in the regressions. For age groups (Figure 5a), there is a significant increase in the predicted probability of having an account at a financial institution for individuals of ages 25 to 34 years (from 28.5% in 2017 to 50.8% in 2021; Table 3, Column 1) and a noticeable decline for those of age 65 years and over (from 45.9% to 40.4% across the same period).

We find a sharp improvement in the likelihood of males having a formal account (Figure 5b), from 27.2 percent in 2017 to 48.1 percent in 2021, when the Philippines was still in the middle of a pandemic, such that the difference between sexes diminishes by the latter period. This contrasts with conditions in 2017, when females were (significantly) more likely to hold such an account (note non-overlapping confidence intervals in Figure 5b).

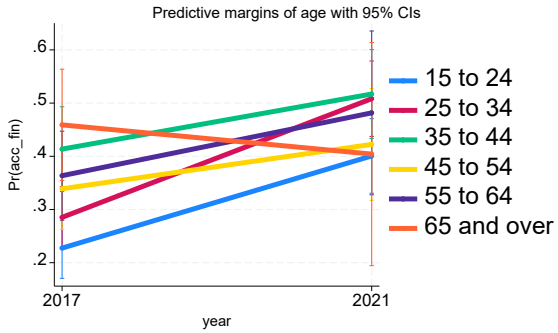
As one would expect, individuals with greater resources and capabilities were more likely to be financially included. Individuals with higher educational attainment were much more likely to have a formal account than those with less education (Figure 5c). However, only the predicted probability of those with primary-level education improved significantly, from 17.9 percent in 2017 to 36.6 percent in 2021, somewhat improving the distribution. Individuals earning wages also had a higher likelihood of having a formal account than those who did not, especially in the earlier period, but again financial inclusion generally improved over time (Figure 5d).

Dividing the sample into quintiles, we find the poorest 20 percent posting a significant improvement between 2017 and 2021 (from 19.4% to 38.9%), at about the same rate (slope) as the richest quintiles (Figure 5e). This is likely due to government efforts during the pandemic to widen financial inclusion and formalize the delivery of social services. Despite some observed improvement in distribution, individuals among the richest 20 percent are still the most likely to own a formal account.

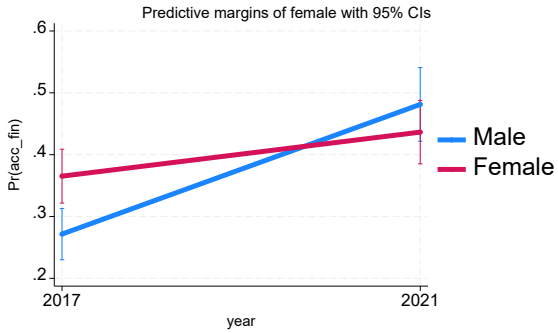
Figure 5f reveals the steepest increase in the adjusted prediction of formal financial inclusion to be in NCR. Individuals living in the nation's capital are now much more likely than before to have a formal account (from 31.9% in 2017 to 55.8% in 2021). Mindanao also saw a significant improvement in its predictive margin for formal financial inclusion (from 34.6% to 49.7% across periods). Although the rest of Luzon still has among the lowest predictive margins for having an account at a financial institution (41.7% in 2021), this is a hefty increase from four years earlier (28.2%). Those in the Visayas, where residents used to be among the most financially included in the country, showed the slowest change in predicted probability of formal account ownership (from 37.2% to 43.4%).

Figure 5. Account ownership at a financial institution, predictive margins

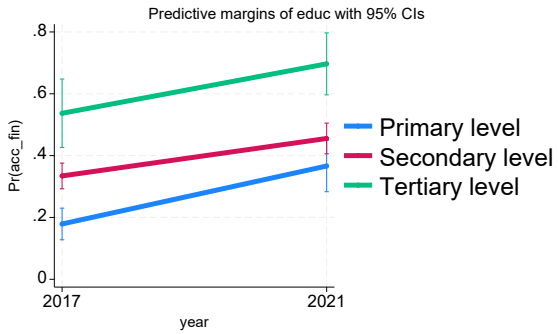
a. Age



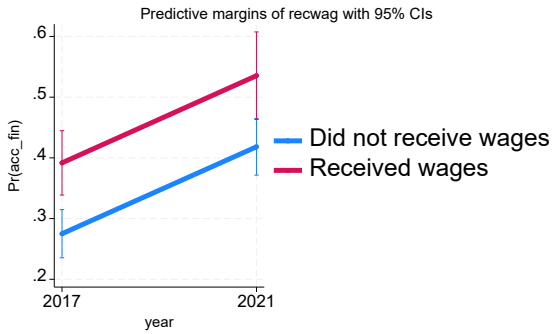
b. Sex



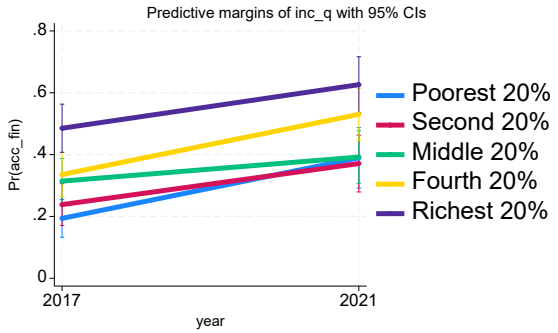
c. Education



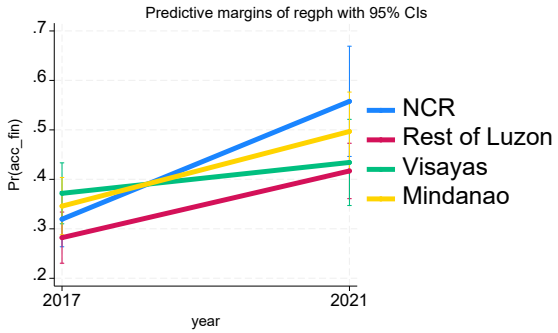
d. Received wage payments



e. Income quintile



f. Location



Source: Authors' computations.

Mobile money account ownership

For mobile account ownership (Figure 6), we find significant increases in predictive margins across time, presumably influenced by the COVID-19 pandemic. We merged some of the age groups for this empirical exercise, as errors were encountered when generating predictive margins.[8] We find a significant increase in the predicted probability of having a mobile account for individuals from most age groups (Figure 6a), except for those 55 years and over, who seem to have been left behind (with the adjusted prediction at only about 6.5%; Table 3, Column 2). The estimate rose sharply across periods for both males and females, and so the gap between them remained insignificant (Figure 6b).

The predictive margin significantly increased mainly for individuals with tertiary-level education (from 7.9% in 2017 to 37.9% in 2021), creating a significant gap—where there was none before—between the most educated and less educated individuals in digital financial inclusion (Figure 6c). Improvement was particularly sharp for individuals who earned wages (from 4.7% to 26.8%; Figure 6d), though the rise in the predicted likelihood of mobile money account ownership was also significant for those who did not (from 5.3% to 19.7%).

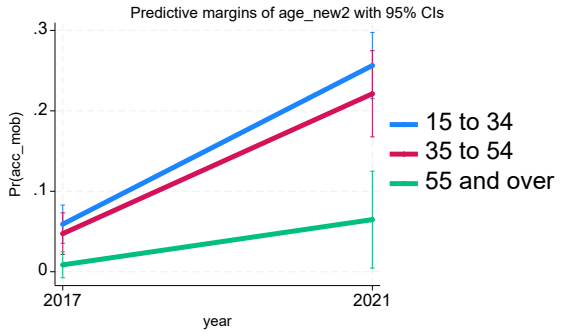
As with age groups, we merge the income quintiles into three categories. These are: (i) the poorest 20 percent and second 20 percent, (ii) middle 20 percent and fourth 20 percent, and (iii) the richest 20 percent. The results still follow intuition in that the richest set had the highest predicted probability of opening a mobile money account and were the most likely to open such accounts to adapt to changed circumstances during the pandemic (Figure 6e). The predicted margin for this group mounted from 8.1 percent in 2017 to 36.3 percent in 2021, implying worsening distribution in mobile account ownership.

As with formal accounts, NCR again experienced the sharpest increase in the predicted probability of owning a mobile money account (from 8.2% to 32.6% across periods; Figure 6f). The region now has the highest predictive margin for mobile money account ownership among the three locations considered in the estimation. Mindanao similarly witnessed a significant increase in the likelihood of digital financial inclusion, with the adjusted prediction rising from 2.5 percent to 22.4 percent. This predictive margin also grew substantially for the rest of Luzon (from 4.8% to 21.7%), but less so for the Visayas (from 5.1% to 16.2%).

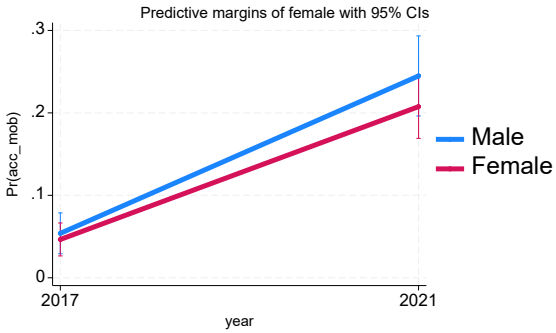
[8] This traces to the limited sample per roup.

Figure 6. Mobile money account, predictive margins

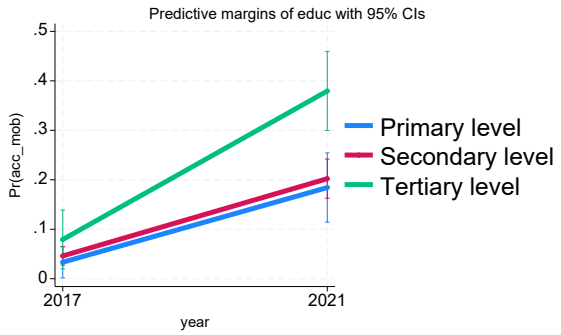
a. Age



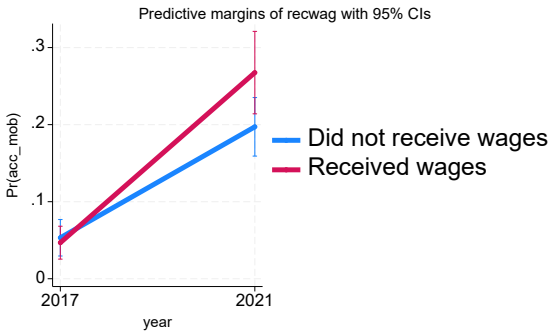
b. Sex



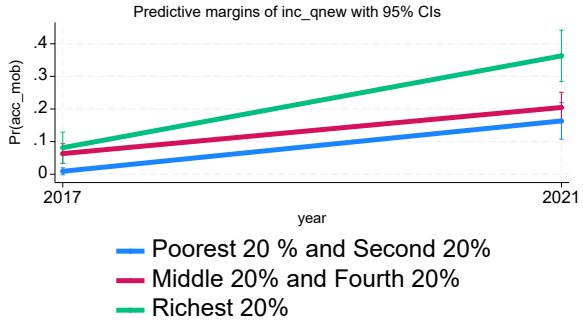
c. Education



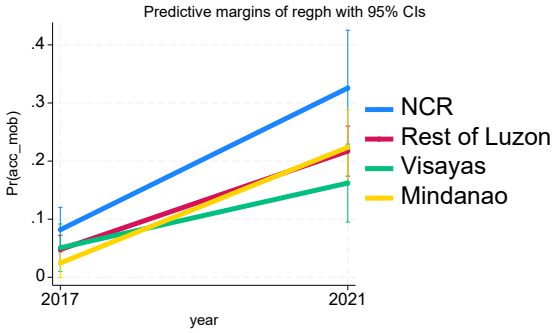
d. Received wage payments



e. Income quintile



f. Location



Source: Authors' computations.

Debit and credit card ownership

Figures 7 and 8 summarize the results for debit and credit card ownership. For brevity, we note only the significant/striking outcomes. Among the age brackets (Figure 7a), we again observe a significant decline in the predicted probability of owning a debit card for those of age 65 years and up (from 42.4% in 2017 to 27.4% in 2021; Table 3, Column 3). Among education groups, we find that the most educated individuals consistently have the highest predicted probability of owning a debit card (Figure 7c).

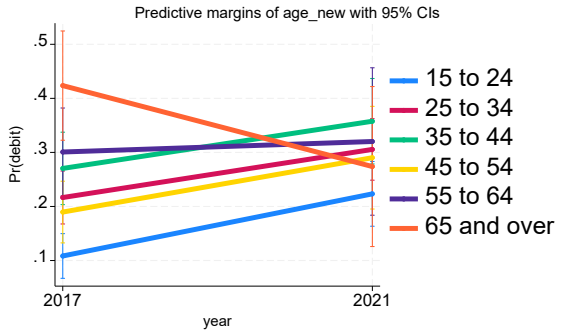
The likelihood of obtaining a debit card significantly increased across periods for those not receiving wages (Figure 7d). This indicates a catch-up phase for the group, with the adjusted prediction rising from 15.2 percent to 26.6 percent. Looking at the income quintiles, only the richest 20 percent showed a significant increase in the likelihood of debit card ownership across periods (Figure 7e), with the predictive margin rising from 32.5 percent in 2017 to 49.4 percent in 2021.

Figure 8 shows a broad increase in predictive margins in diverse categories, including age and gender. Merging the income quintiles into three categories for similar reasons as mentioned above, we find a widening gap between income groups. The adjusted prediction for credit card ownership of the richest 20 percent rose significantly between periods (from 6.1% in 2017 to 28.5% in 2021; Table 3, Column 4). This occurred alongside a smaller increase in the predictive margin of the middle quintiles (1.3% to 13.5%), and more so for the poorest quintiles (0.6% to 6.5%), thus increasing the disparities between them.

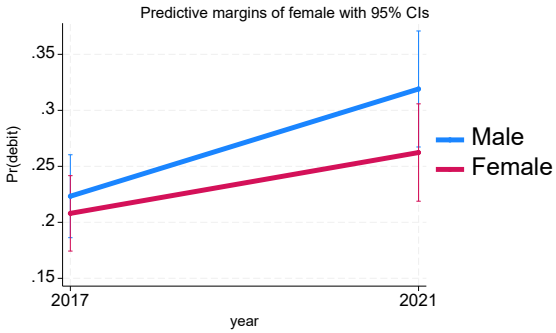
In terms of geographic location, NCR and the rest of Luzon saw significant increases in their predictive margins for credit card ownership (rising from 3.2% to 22% and from 2.2% to 17.8%, respectively, across periods). Improvements were smaller for Mindanao (from 3% in 2017 to 11.4% in 2021) and flat for the Visayas (6.5% to 7.9%).

Figure 7. Debit card, predictive margins

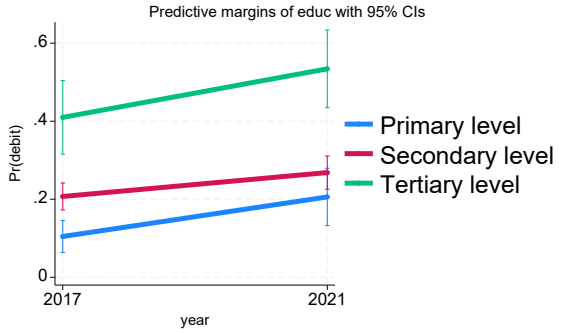
a. Age



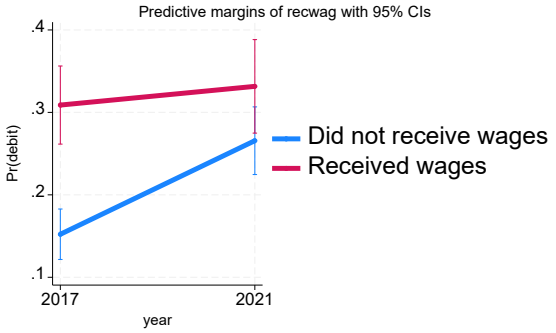
b. Sex



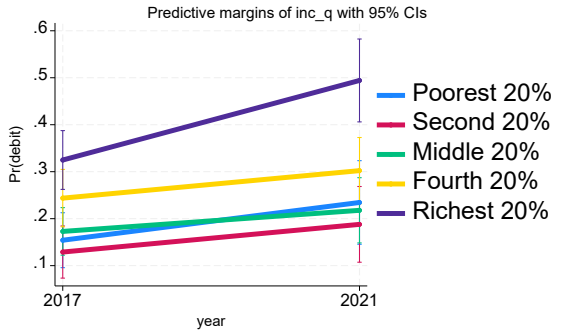
c. Education



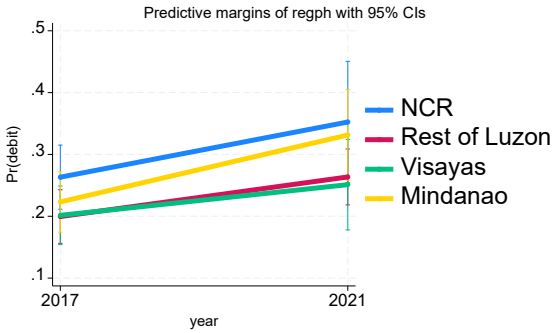
d. Received wage payments



e. Income quintile



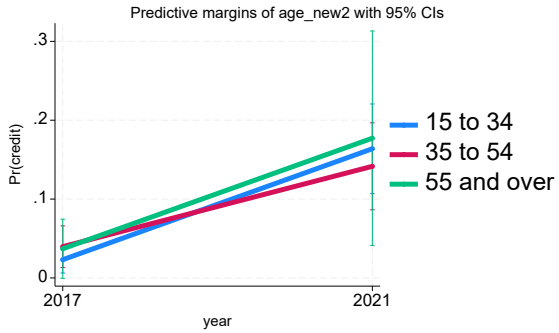
f. Location



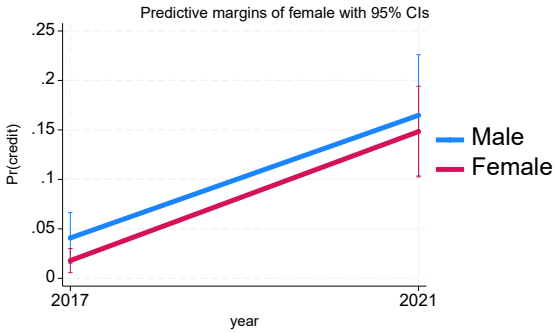
Source: Authors' computations.

Figure 8. Credit card, predictive margins

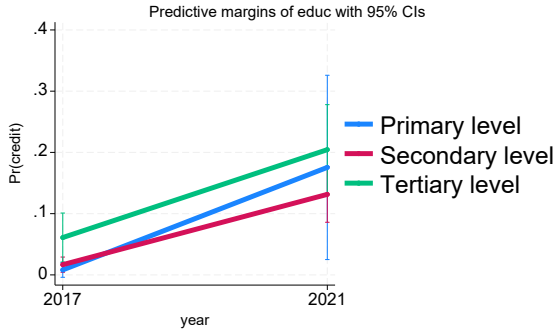
a. Age



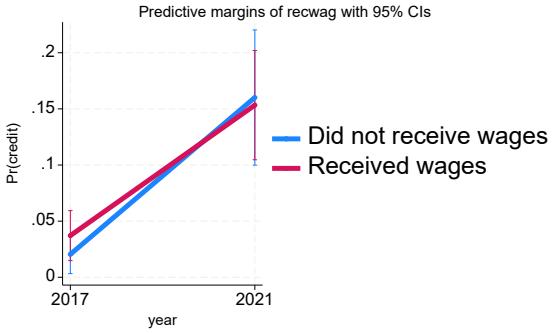
b. Sex



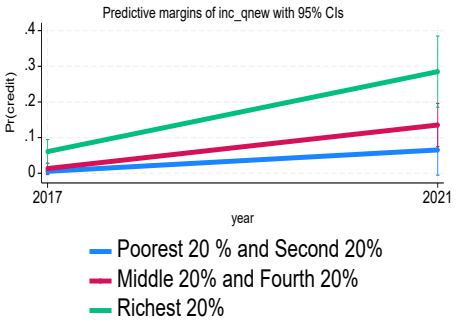
c. Education



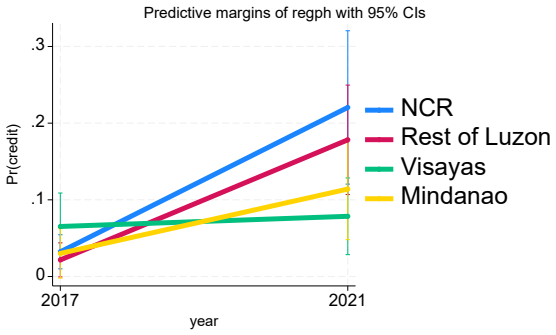
d. Received wage payments



e. Income quintile



f. Location



Source: Authors' computations.

Table 3. Account ownership (predictive margins)

	(1) Account at a financial institution		(2) Mobile money account		(3) Debit card		(4) Credit card	
	2017	2021	2017	2021	2017	2021	2017	2021
Age: 15 to 24	0.227*** (0.029)	0.401*** (0.036)	0.059*** (0.012)	0.256*** (0.021)	0.108*** (0.021)	0.223*** (0.031)	0.023*** (0.009)	0.164*** (0.029)
Age: 25 to 34	0.285*** (0.029)	0.508*** (0.036)			0.217*** (0.025)	0.306*** (0.029)		
Age: 35 to 44	0.414*** (0.041)	0.517*** (0.043)	0.047*** (0.013)	0.221*** (0.027)	0.270*** (0.034)	0.358*** (0.040)	0.040*** (0.013)	0.142*** (0.028)
Age: 45 to 54	0.339*** (0.039)	0.422*** (0.054)			0.190*** (0.029)	0.290*** (0.048)		
Age: 55 to 64	0.364*** (0.043)	0.482*** (0.079)	0.009 (0.008)	0.065** (0.031)	0.301*** (0.042)	0.320*** (0.070)	0.037* (0.019)	0.177** (0.069)
Age: 65 and over	0.459*** (0.053)	0.404*** (0.107)			0.424*** (0.052)	0.274*** (0.075)		
Male	0.272*** (0.021)	0.481*** (0.030)	0.054*** (0.013)	0.245*** (0.025)	0.223*** (0.019)	0.319*** (0.026)	0.041*** (0.013)	0.165*** (0.031)
Female	0.365*** (0.022)	0.436*** (0.026)	0.046*** (0.010)	0.208*** (0.020)	0.208*** (0.017)	0.262*** (0.022)	0.018*** (0.006)	0.148*** (0.023)
Primary level	0.179*** (0.026)	0.366*** (0.042)	0.033** (0.016)	0.184*** (0.036)	0.105*** (0.021)	0.206*** (0.037)	0.008 (0.006)	0.176** (0.077)
Secondary level	0.334*** (0.021)	0.455*** (0.025)	0.046*** (0.009)	0.202*** (0.020)	0.207*** (0.018)	0.268*** (0.022)	0.017*** (0.006)	0.131*** (0.023)
Tertiary level	0.537*** (0.056)	0.697*** (0.051)	0.079*** (0.03)	0.379*** (0.041)	0.410*** (0.048)	0.534*** (0.051)	0.061*** (0.020)	0.204*** (0.038)
Did not receive wages	0.275*** (0.020)	0.418*** (0.024)	0.053*** (0.012)	0.197*** (0.019)	0.152*** (0.016)	0.266*** (0.021)	0.020** (0.009)	0.160*** (0.031)
Received wages	0.392*** (0.027)	0.535*** (0.037)	0.047*** (0.011)	0.268*** (0.027)	0.309*** (0.024)	0.332*** (0.029)	0.037*** (0.011)	0.153*** (0.025)
Poorest 20%	0.194*** (0.031)	0.389*** (0.050)	0.009* (0.005)	0.163*** (0.029)	0.154*** (0.030)	0.234*** (0.045)	0.006 (0.005)	0.065* (0.036)
Second 20%	0.238*** (0.035)	0.371*** (0.047)			0.129*** (0.028)	0.188*** (0.041)		
Middle 20%	0.314*** (0.037)	0.392*** (0.043)	0.063*** (0.015)	0.205*** (0.024)	0.173*** (0.026)	0.218*** (0.035)	0.013* (0.008)	0.135*** (0.031)
Fourth 20%	0.336*** (0.036)	0.530*** (0.043)			0.244*** (0.031)	0.302*** (0.036)		
Richest 20%	0.485*** (0.040)	0.626*** (0.046)	0.081*** (0.024)	0.363*** (0.040)	0.325*** (0.032)	0.494*** (0.045)	0.061*** (0.017)	0.285*** (0.051)
NCR	0.319*** (0.028)	0.558*** (0.057)	0.082*** (0.020)	0.326*** (0.051)	0.263*** (0.026)	0.352*** (0.050)	0.032*** (0.011)	0.220*** (0.051)
Rest of Luzon	0.282*** (0.026)	0.417*** (0.029)	0.048*** (0.012)	0.217*** (0.022)	0.200*** (0.022)	0.264*** (0.023)	0.022* (0.011)	0.178*** (0.036)
Visayas	0.372*** (0.031)	0.434*** (0.044)	0.051** (0.021)	0.162*** (0.034)	0.202*** (0.024)	0.251*** (0.037)	0.065*** (0.022)	0.079*** (0.026)
Mindanao	0.346*** (0.030)	0.497*** (0.041)	0.025* (0.013)	0.224*** (0.033)	0.223*** (0.025)	0.331*** (0.037)	0.030* (0.016)	0.114*** (0.034)

Note:

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The poorest and second income quintiles are merged as well as the middle and fourth income quintiles for mobile money account ownership.

4.2.2. Determinants of account usage

Formal saving

Figure 9 features a steep drop in the predicted probability of formal saving for individuals of age 65 and over, from 22.4 percent in 2017 to 7.7 percent in 2021 (Figure 9a; Table 4 column 1). Another striking result is how the adjusted prediction for males has significantly improved, with the estimated figure rising from 9.8 to 19.8 percent across periods (Figure 9b). While males now have a higher predictive margin than females based on the latest pandemic-era survey, the gender difference remains insignificant. Based as well on the 2021 data, the most educated (tertiary-level) individuals continue to have the highest predictive margin for formal saving among the different education groups (Figure 9c).

With regard to income, we find a significant increase in the likelihood of formal saving only for the richest 20 percent, from 21.3 percent to 38.2 percent across periods (Figure 9e). With regard to location (Figure 9f), significant improvements in predictive margins for formal saving can be observed for Mindanao (from 12.8% to 21.6%) and the rest of Luzon (from 10.5% to 18.6%). There is, in addition, a noticeable decline in the likelihood of formal saving for the Visayas (from 12.8% in 2017 to 11.1% in 2021), though the change is not statistically significant.

Formal borrowing

Figure 10 shows some degree of convergence in the predicted probabilities of formal borrowing of males versus females, and the different income groups (Figures 10a and 10e, respectively). For the income quintiles, we find a slight decline across periods in the likelihood of borrowing from a financial institution for the richest 20 percent in the sample and a significant rise for the poorest 20 percent (decreasing from 12.7% to 10.6% and increasing from 1.9% to 9.8%, respectively).

We also observe a narrowing of differences in predictive margins for formal borrowing across locations tracing to a faint reduction for Mindanao across periods, flat growth for the Visayas, and respectable increases for the NCR and the rest of Luzon (Figure 10f). Meanwhile, tertiary-level individuals now appear much more likely to engage in formal borrowing than the rest, even as the adjusted prediction for individuals with primary level education drew closer to that of individuals with secondary level education during the pandemic.

Domestic remittances

Figure 11 shows the disappearance of the gap between males and females in their predictive margins for domestic remittances. While the adjusted prediction for domestic remittances increased across periods for both sexes, it did so significantly for males (nearly doubling from 9.4% to 18.3%), removing the gender difference (Table 4, Column 3).

As with formal saving and borrowing, the most educated are still more likely than the rest to send or receive domestic remittances. The richest individuals likewise still have the highest predictive margins in the sample, especially after significantly increasing over time (from 17% in 2017 to 31.5% in 2021). Among the locations sampled, Mindanao saw a significant increase in the likelihood of transacting remittances (from 8% to 19.4%), while the Visayas exhibited the smallest change across periods.

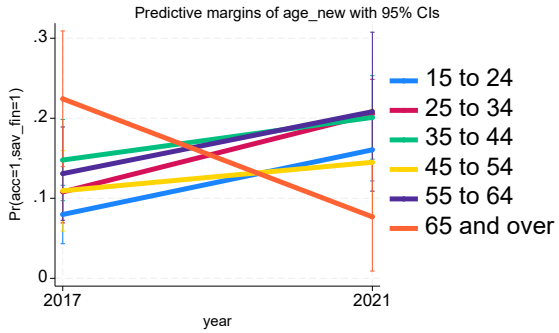
Online and mobile transactions

Figure 12 shows a general increase in the predictive probability of mobile phone and online transactions going into the COVID-19 pandemic. Those in the 25-to-34 age group experienced the sharpest adjustment, with their predictive margin increasing from 10.3 percent in 2017 to 41.8 percent in 2021 (Figure 12a; Table 4, Column 4). Despite significant improvements in all education groups, the gap between them remains wide in favor of tertiary-level individuals, as the latter experienced an even greater increase in the likelihood of transacting digitally (from 21.3% to 56.2%; Figure 12c).

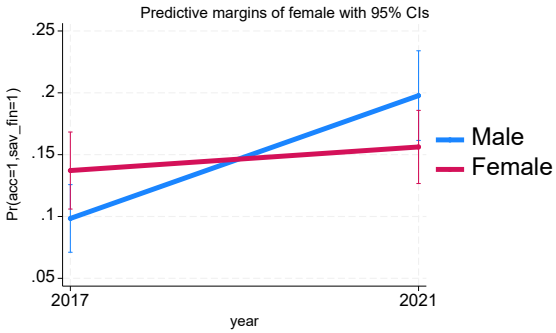
The richest individuals saw the largest increases in predicted probabilities of digital transactions (Figure 12 e), which rose from 15.9 percent and 8.5 percent in 2017 for the richest and second-richest groups, respectively, to 52 percent and 38.3 percent in 2021. Meanwhile, NCR exhibited the quickest advance in online and mobile use, as their adjusted prediction increased considerably from 10.5 percent to 49.4 percent across periods, reflecting urbanization effects (Figure 12f).

Figure 9. Formal saving, predictive margins

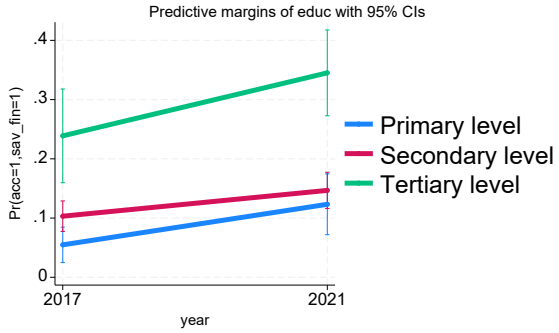
a. Age



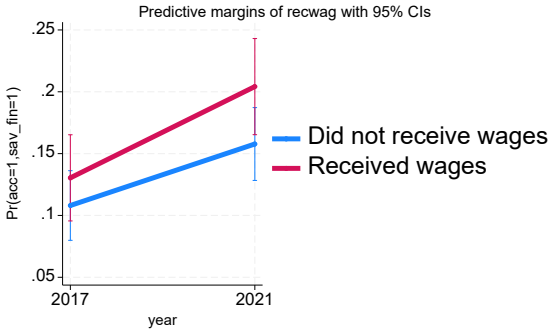
b. Sex



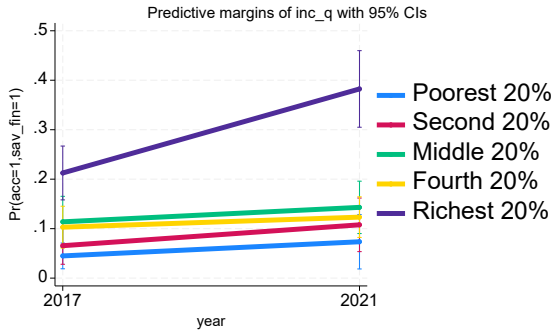
c. Education



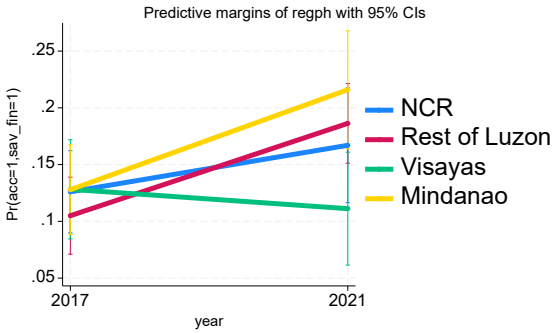
d. Received wage payments



e. Income quintile



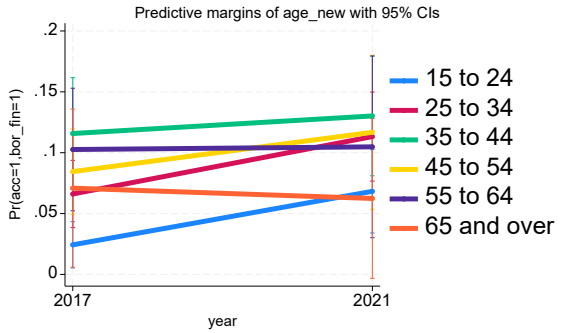
f. Location



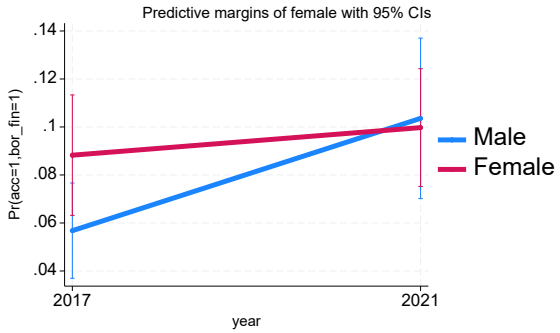
Source: Authors' computations.

Figure 10. Formal borrowing, predictive margins

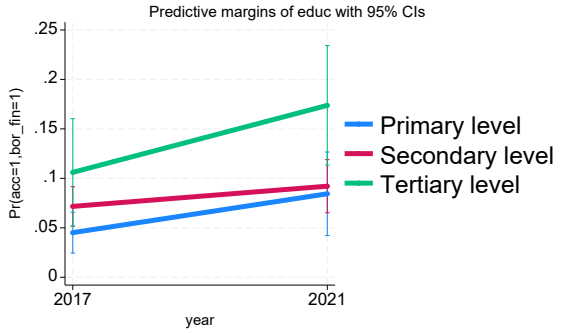
a. Age



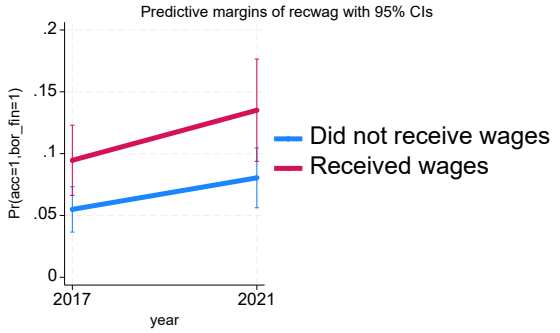
b. Sex



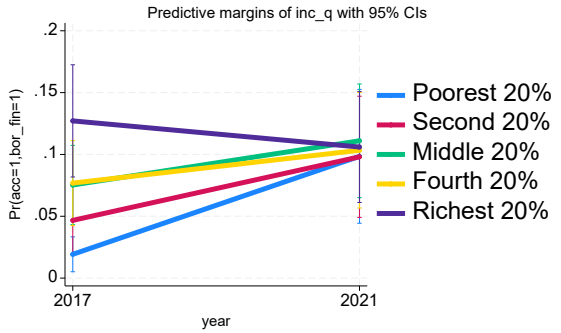
c. Education



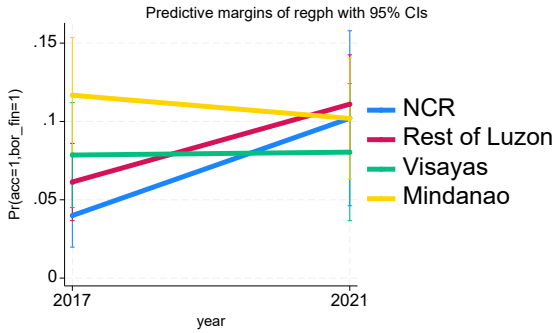
d. Received wage payments



e. Income quintile



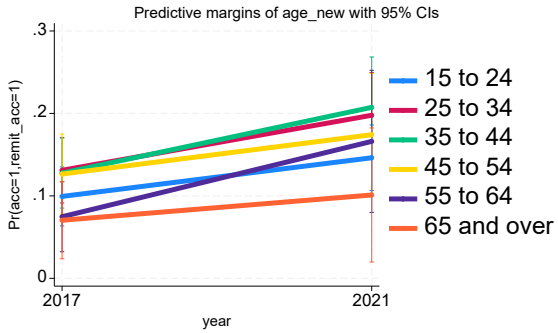
f. Location



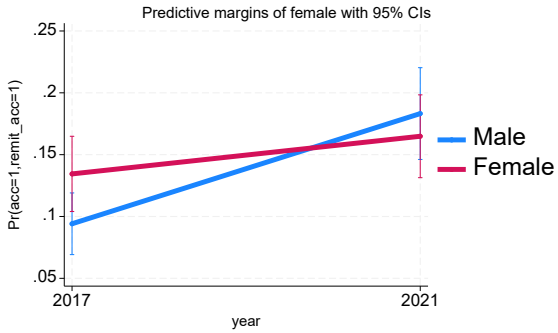
Source: Authors' computations.

Figure 11. Domestic remittances, predictive margins

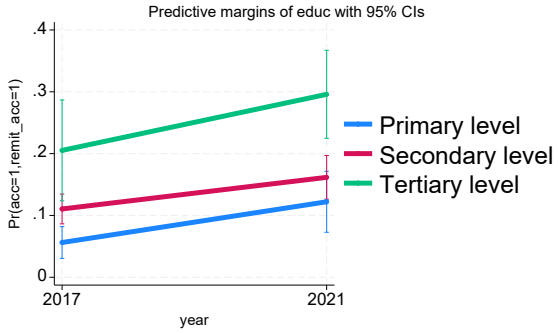
a. Age



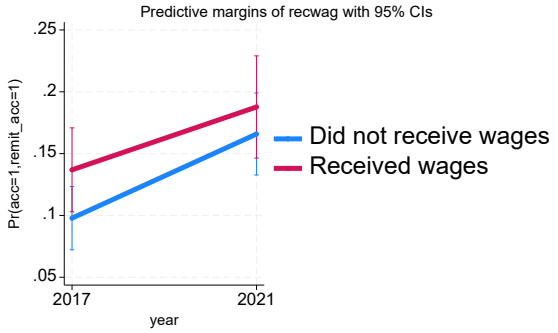
b. Sex



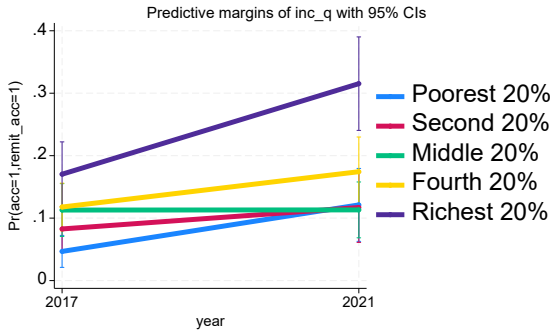
c. Education



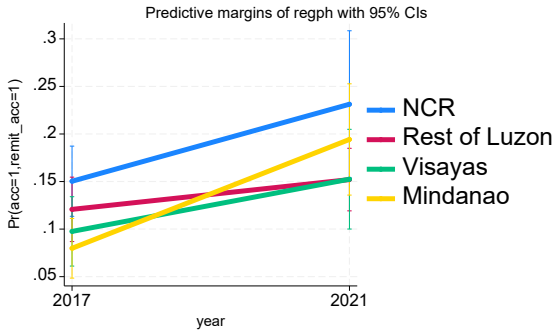
d. Received wage payments



e. Income quintile



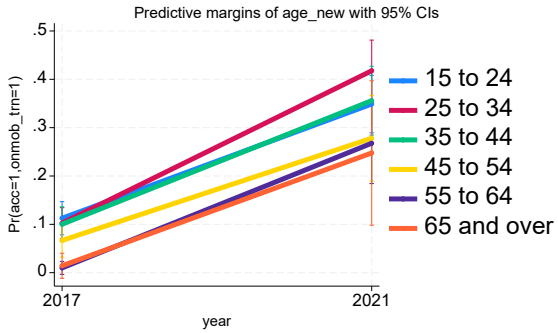
f. Location



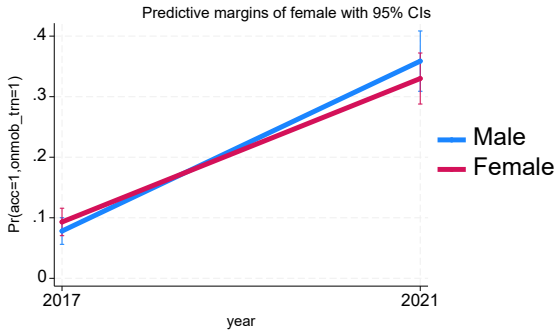
Source: Authors' computations.

Figure 12. Mobile and online transactions, predictive margins

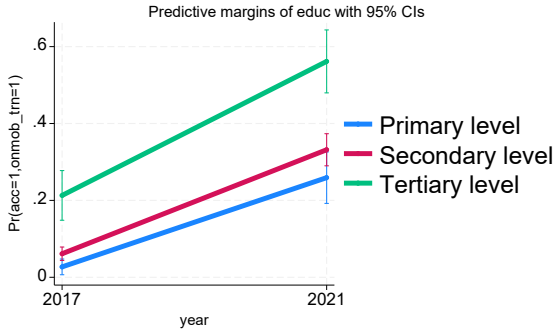
a. Age



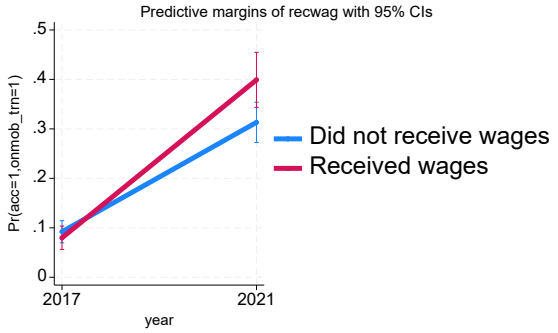
b. Sex



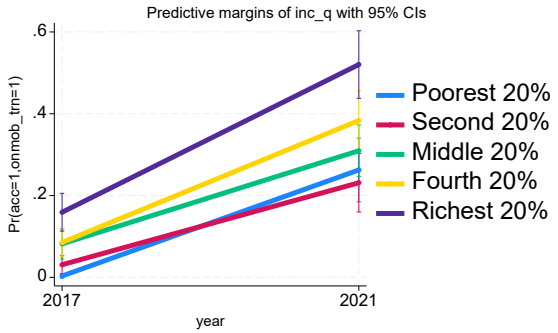
c. Education



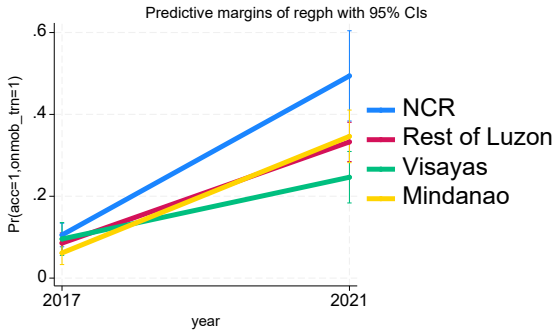
d. Received wage payments



e. Income quintile



f. Location



Source: Authors' computations.

Table 4. Account usage, predictive margins

	(1) Formal savings		(2) Formal borrowing		(3) Domestic remittances		(4) Online and mobile transactions	
	2017	2021	2017	2021	2017	2021	2017	2021
Age: 15 to 24	0.080***	0.161***	0.024**	0.068***	0.099***	0.146***	0.113***	0.349***
	(0.019)	(0.020)	(0.010)	(0.017)	(0.018)	(0.020)	(0.018)	(0.030)
Age: 25 to 34	0.108***	0.205***	0.066***	0.113***	0.131***	0.198***	0.103***	0.418***
	(0.020)	(0.022)	(0.014)	(0.019)	(0.020)	(0.026)	(0.016)	(0.032)
Age: 35 to 44	0.148***	0.201***	0.116***	0.130***	0.128***	0.207***	0.100***	0.356***
	(0.026)	(0.027)	(0.023)	(0.025)	(0.022)	(0.031)	(0.018)	(0.036)
Age: 45 to 54	0.109***	0.145***	0.084***	0.117***	0.126***	0.174***	0.067***	0.278***
	(0.026)	(0.034)	(0.018)	(0.032)	(0.025)	(0.038)	(0.018)	(0.045)
Age: 55 to 64	0.131***	0.208***	0.103***	0.105***	0.075***	0.166***	0.010	0.268***
	(0.030)	(0.051)	(0.026)	(0.038)	(0.022)	(0.044)	(0.007)	(0.043)
Age: 65 and over	0.224***	0.077**	0.071**	0.062*	0.070***	0.101**	0.014	0.248***
	(0.043)	(0.035)	(0.033)	(0.033)	(0.024)	(0.041)	(0.013)	(0.076)
Male	0.098***	0.198***	0.057***	0.104***	0.094***	0.183***	0.078***	0.359***
	(0.014)	(0.018)	(0.010)	(0.017)	(0.013)	(0.019)	(0.011)	(0.025)
Female	0.137***	0.156***	0.088***	0.100***	0.134***	0.165***	0.093***	0.330***
	(0.016)	(0.015)	(0.013)	(0.013)	(0.016)	(0.017)	(0.012)	(0.021)
Primary level	0.055***	0.123***	0.045***	0.084***	0.056***	0.122***	0.027***	0.259***
	(0.015)	(0.026)	(0.011)	(0.022)	(0.013)	(0.025)	(0.01)	(0.034)
Secondary level	0.103***	0.147***	0.072***	0.092***	0.111***	0.162***	0.061***	0.332***
	(0.013)	(0.016)	(0.010)	(0.014)	(0.012)	(0.018)	(0.009)	(0.021)
Tertiary level	0.239***	0.345***	0.106***	0.174***	0.205***	0.296***	0.213***	0.562***
	(0.040)	(0.037)	(0.028)	(0.031)	(0.042)	(0.036)	(0.033)	(0.042)
Did not receive wages	0.108***	0.158***	0.055***	0.080***	0.098***	0.166***	0.092***	0.313***
	(0.014)	(0.015)	(0.009)	(0.012)	(0.013)	(0.017)	(0.011)	(0.021)
Received wages	0.130***	0.204***	0.095***	0.135***	0.137***	0.188***	0.080***	0.399***
	(0.018)	(0.020)	(0.014)	(0.021)	(0.017)	(0.021)	(0.012)	(0.028)
Poorest 20%	0.045***	0.073***	0.019***	0.098***	0.047***	0.121***	0.003	0.263***
	(0.013)	(0.028)	(0.007)	(0.028)	(0.013)	(0.030)	(0.003)	(0.040)
Second 20%	0.066***	0.108***	0.047***	0.098***	0.083***	0.117***	0.031***	0.231***
	(0.019)	(0.028)	(0.014)	(0.025)	(0.018)	(0.029)	(0.011)	(0.036)
Middle 20%	0.114***	0.143***	0.075***	0.111***	0.113***	0.113***	0.082***	0.309***
	(0.026)	(0.027)	(0.016)	(0.023)	(0.022)	(0.023)	(0.019)	(0.032)
Fourth 20%	0.103***	0.123***	0.077***	0.103***	0.118***	0.174***	0.085***	0.383***
	(0.022)	(0.021)	(0.018)	(0.024)	(0.019)	(0.028)	(0.017)	(0.037)
Richest 20%	0.213***	0.382***	0.127***	0.106***	0.170***	0.315***	0.159***	0.520***
	(0.028)	(0.039)	(0.023)	(0.023)	(0.026)	(0.038)	(0.024)	(0.042)
NCR	0.126***	0.167***	0.040***	0.102***	0.150***	0.231***	0.105***	0.494***
	(0.018)	(0.026)	(0.010)	(0.029)	(0.019)	(0.039)	(0.015)	(0.056)
Rest of Luzon	0.105***	0.186***	0.061***	0.111***	0.121***	0.152***	0.086***	0.333***
	(0.017)	(0.018)	(0.013)	(0.016)	(0.017)	(0.017)	(0.013)	(0.024)
Visayas	0.128***	0.111***	0.079***	0.080***	0.098***	0.152***	0.096***	0.246***
	(0.022)	(0.025)	(0.017)	(0.022)	(0.019)	(0.027)	(0.020)	(0.032)
Mindanao	0.128***	0.216***	0.117***	0.102***	0.080***	0.194***	0.062***	0.346***
	(0.020)	(0.027)	(0.019)	(0.020)	(0.016)	(0.030)	(0.014)	(0.033)

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

4.2.3. Determinants of mobile money account usage

Table 5 shows the results of probit estimations of mobile money account usage, which are limited to 2021 data, as they incorporate a variable reflecting "financial worry" of severe economic hardship because of the COVID-19 virus. The three columns, which contain the marginal effects, correspond to the following: (i) use of a mobile money account (two or more times a month), (ii) use of a mobile money account to store money; and (iii) use of a mobile money account to borrow money.

In Column 1, which focuses on the regular use of mobile money, the variables representing sex, education, and employment yield statistically insignificant results. However, being part of the 35-to-44 age group correlates with a higher probability of mobile money account usage, and so too being financially worried about the possible impact of the pandemic. Meanwhile, being in a lower income quintile correlates with having a lower likelihood of using mobile money versus the richer set.

Columns 2 and 3 present the results of regressions that feature the use of mobile money accounts for storing money or availing credit. Results seem consistent for Column 2, as individuals in lower income groups have a smaller likelihood of using their mobile accounts to store money than those in the richest group, while those who did not receive wages also have a lower probability than those who did. In terms of age, individuals in the older set (specifically, those 45 to 54 years old) are less likely than the rest to use their mobile money accounts for storage.

In contrast, Column 3 reveals individuals in the 45-to-54 age group as the most likely to use their mobile accounts to borrow money. Education is a significant determinant for this type of usage, as individuals with primary-level education have lower probability than those with more education. Although the income quintiles are insignificant, individuals who receive wages are more likely to avail themselves of credit from this channel than those who do not.

In terms of location, people in the Visayas and Mindanao are more likely than people in the NCR to use their mobile money accounts for storage, but there are no significant differences in terms of their usage for credit. The dummy variable for financial worry due to the coronavirus is also not a significant determinant for either storing or borrowing money using a mobile account.

4.2.4. Determinants of account usage due to COVID-19

Finally, Table 6 summarizes the results of probit estimations that focus on first-time financial transactions due to the COVID-19 pandemic. These include: (i) digital payment for in-store purchase (Column 1), (ii) online payment for online purchase (Column 2), and (iii) payment of utility bill from an account or mobile phone (Column 3).

The regressions show that lower educational attainment generally correlates with lower probability of these first-time transactions tracing to the pandemic. Moreover, financial worry due to the coronavirus yield statistically insignificant results in these runs.

Additionally, in Column 1, individuals of ages 35 to 44 were most likely to have paid for an in-store purchase for the first time during the pandemic. In Columns 2 and 3, those in the 45-to-54 age group were less likely to have made a first-time purchase online during the pandemic

but were more likely to have made a first-time payment of a utility bill through a financial account or mobile device.

Income again plays a role, as those who did not receive wages or who were in the middle 20-percent income quintile were less likely to have bought something online for the first time during the pandemic than those who did (Column 2). Meanwhile, those in the second 20-percent income quintile were then less likely to have paid a utility bill for the first time from an account or mobile phone (Column 3). Location-wise, people in the Visayas were less likely than elsewhere in the country to have made a first-time payment of their utility bills through such alternative means, again reflecting their relative lack of financial inclusion.

Table 5. Mobile money usage, regressions

	(1) Use of a mobile money account 2 or more times a month	(2) Use mobile money account to store money	(3) Use mobile money account to borrow money
Age group: 25 to 34	0.133	-0.140	-0.018
	(0.092)	(0.086)	(0.068)
Age group: 35 to 44	0.274***	-0.038	0.047
	(0.102)	(0.105)	(0.083)
Age group: 45 to 54	-0.114	-0.254*	0.201*
	(0.133)	(0.136)	(0.119)
Age group: 55 to 64	-0.105	-0.186	-0.065
	(0.207)	(0.253)	(0.109)
Female	-0.063	-0.062	-0.044
	(0.069)	(0.073)	(0.056)
Primary level education	-0.075	0.115	-0.127*
	(0.142)	(0.131)	(0.069)
Secondary level education	-0.039	0.009	0.051
	(0.086)	(0.088)	(0.079)
Received wages	-0.030	0.239***	0.114*
	(0.076)	(0.083)	(0.058)
Poorest 20%	-0.358**	-0.121	0.221
	(0.175)	(0.190)	(0.171)
Second 20%	-0.453***	-0.275*	0.045
	(0.144)	(0.161)	(0.122)
Middle 20%	-0.229*	-0.238**	-0.054
	(0.118)	(0.116)	(0.085)
Fourth 20%	-0.034	-0.212**	-0.086
	(0.097)	(0.105)	(0.059)
Rest of Luzon	-0.040	0.136	0.078
	(0.087)	(0.087)	(0.065)
Visayas	-0.009	0.261**	0.030
	(0.110)	(0.118)	(0.083)
Mindanao	-0.000	0.184*	0.115
	(0.098)	(0.100)	(0.078)
Financial worry due to COVID-19	0.166**	0.055	0.074
	(0.070)	(0.076)	(0.049)
N	233	233	233

Note: Marginal effects for the age group 65 and over did not generate a result due to observations being too few (not estimable). Baseline (age: 15 to 24, sex: male, education: tertiary level, wages: did not receive wages, income: richest 20%, region: NCR, and for financial worry: did not experience financial worry). Marginal effects are reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6. Digital, online, or mobile account usage for the first time after COVID-19, regressions

	(1) Paid digitally for an in-store purchase for the first time after COVID-19	(2) Paid online for an online purchase for the first time after COVID-19	(3) Paid a utility bill from an account or mobile phone for the first time after COVID-19
Age group: 25 to 34	0.121	0.024	0.053
	(0.113)	(0.053)	(0.107)
Age group: 35 to 44	0.276**	0.072	0.039
	(0.132)	(0.071)	(0.112)
Age group: 45 to 54	0.186	-0.097*	0.253*
	(0.160)	(0.058)	(0.147)
Age group: 55 to 64	0.232	-0.010	-0.195
	(0.219)	(0.111)	(0.126)
Age group: 65 and over	-0.142		-0.202
	(0.185)		(0.138)
Female	0.055	0.011	-0.088
	(0.083)	(0.046)	(0.079)
Primary level education	-0.278*	-0.145*	-0.192
	(0.165)	(0.078)	(0.155)
Secondary level education	-0.290***	-0.122**	-0.233**
	(0.096)	(0.056)	(0.099)
Received wages	0.099	0.121**	-0.048
	(0.097)	(0.051)	(0.082)
Poorest 20%	0.203	0.118	0.045
	(0.194)	(0.106)	(0.179)
Second 20%	0.139	-0.104	-0.244**
	(0.171)	(0.096)	(0.122)
Middle 20%	0.111	-0.134*	-0.187
	(0.141)	(0.070)	(0.122)
Fourth 20%	0.101	-0.100	0.016
	(0.114)	(0.062)	(0.127)
Rest of Luzon	0.038	-0.049	-0.003
	(0.101)	(0.062)	(0.092)
Visayas	-0.077	-0.108	-0.208**
	(0.117)	(0.077)	(0.096)
Mindanao	0.044	-0.075	0.137
	(0.127)	(0.079)	(0.121)
Financial worry due to COVID-19	0.026	-0.027	-0.047
	(0.085)	(0.041)	(0.084)
N	214	407	187

Note: Marginal effects for the age group 65 and over for model (2) did not generate an estimation due to observations being too few (not estimable). Baseline (age: 15 to 24, sex: male, education: tertiary level, wages: did not receive wages, income: richest 20%, region: NCR, and for financial worry: did not experience financial worry). Marginal effects are reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5. The digital finance landscape

The digital finance landscape features an active interplay of service providers, consumers, and the government (See Table 7). This has been the case since the beginning. In 2000, SmartMoney was launched, and became a pioneer in global fintech by introducing the first money card linked to a wireless phone. The central bank almost simultaneously issued guidelines on electronic money (Memorandum Circulars No. 240 and 269 issued in May and December of 2000, respectively). With the required technology for digital finance then still in its nascent stages and relatively expensive, public uptake initially faced challenges and was somewhat subdued.

Table 7. Select events in Philippine digital finance

Year	Event
2000	SmartMoney is launched in cooperation with 1st eBank and MasterCard.
	BSP issues regulations and guidelines on electronic money.
2004	GCash is launched by Globe Telecom-owned start-up Mynt.
2012	GCash launches its mobile app version.
	Lazada goes live in the Philippines.
2015	BSP launches the National Retail Payment System (NRPS).
	Shopee begins Philippine operations.
2016	SmartMoney rebrands to PayMaya.
2017	PESONet goes live.
2018	InstaPay goes live.
	Philippine Identification System Act is signed into law.
2019	EGov Pay is launched.
2020	PhilPaSS-plus goes live.
	GCash records 33 million users, PayMaya 28 million.
2021	Mynt achieves double unicorn status.
	PayMaya secures a digital banking license.

Supply (Key Providers and Services)	Demand (Consumer Public)	Government (Regulatory and Support Bodies)	Others

Source: Authors' compilation

The interplay among service suppliers, consumers, and regulators and related government bodies intensified over the years. This occurred because of new developments such as the introduction of the smart phone, the rise of e-commerce, and widening connectivity.

On the supply side, private firms saw gaps as opportunities for innovation and as new avenues for profit. The government issued measures to protect consumers and the industry from potential risks, while also promoting innovation and maximizing opportunities for inclusive finance and greater economic growth. The central bank, in particular, started building the necessary infrastructure to support new technologies. Hence, in the years leading to the pandemic, there was already a working system among digital finance companies and the government.

Enthusiasm about digital finance eventually grew among businesses and offices. However, consumers were not as convinced about shifting away from cash-based transactions due to lack of trust in financial institutions or inaccessibility of financial services. The pandemic and the mobility restrictions that were put in place to prevent the virus from spreading were thus pivotal developments. As illustrated in previous sections, the need for cashless services accelerated during the pandemic, with the digital finance industry seemingly ready to meet the surge in demand.

5.1. Supply of digital financial services

Before the crisis, business leaders already considered the Philippines a fertile ground for technological solutions in finance. For example, the 2014 Global Findex revealed that despite a growing population, where 60 percent were of working age, only 28.1 percent owned an account with a financial institution. Mobile penetration was also quite high, at 65.3 percent.

These findings underscored broad opportunities for fintech firms to launch a diverse array of services, encompassing basic banking, lending, and payments; and for traditional financial institutions to offer online services at a lower cost to consumers, compared to the conventional brick-and-mortar banking model. They provided the setting for a sudden expansion of digital finance through fintech startups and expanded digital operations of traditional banks.

5.1.1. Fintech start-ups

The Financial Stability Board (FSB 2022, p.2) defines fintech as follows: "technology-enabled innovation in financial services that could result in new business models, applications, processes, or products with an associated material effect on the provision of financial services." The growth of the fintech industry in recent years can be illustrated by both the increasing number of players and the value of funding deals. As depicted in Figure 13, the number of companies has consistently risen, moving from 177 players in 2017 to approximately 289 in 2022. Although growth slowed down in 2020, it rebounded in 2021.

Meanwhile, the total funding value of disclosed fintech deals (Figure 14) exhibited fluctuations. Starting at USD 247.64 million in 2018, it dipped to USD 9.85 million in 2019, experienced a tenfold increase at the onset of the pandemic, and ultimately peaked at USD 835.63 million in 2021.[9]

Data extracted from the annual reports of Fintech Alliance and FintechNews.Ph reveals that payments, wallets, lending, and remittances constitute the most substantial categories in terms of the number of firms (refer to Figure 15). This observation aligns with statistics indicating that alternative lending and payments attracted the highest number and total value of fintech deals (refer to Table 8 and 9).

[9] Majority of the funding in 2021 is attributed to Mynt, owner of GCash. Based on 2020 data from Fortumo via Statista (2021), GCash controls the largest share of the market at 49.40 percent.

Figure 13. Number of operating fintech companies (2017-2022)

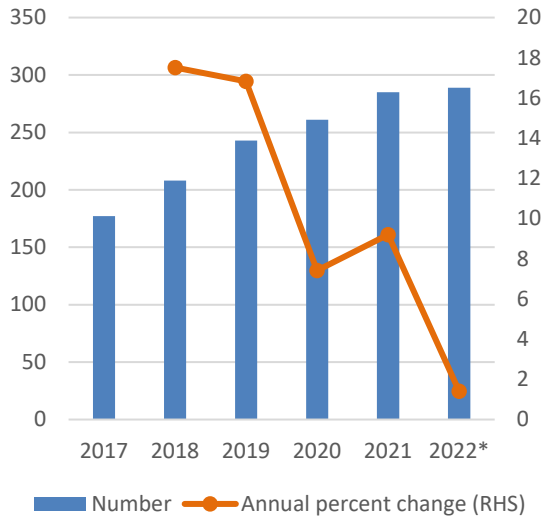
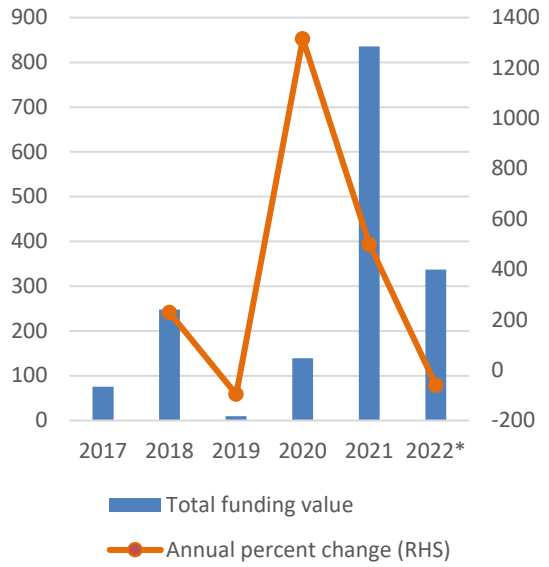


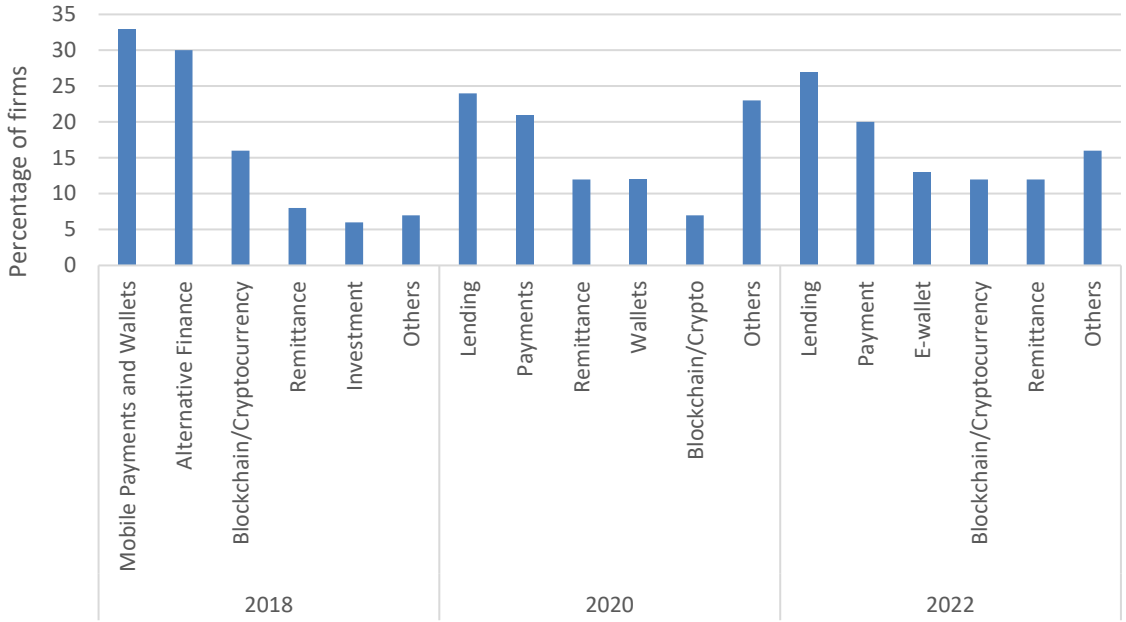
Figure 14. Total funding value of fintech deals (USD mn, 2017-2022)



Source: United Overseas Bank, PwC, Singapore FinTech Association via Statista (2022d, f)

* Data covers period between January to November

Figure 15. Distribution of fintech firms, by primary service



Sources: FinTech Alliance Philippines (2019, 2020) in Quimba et al (2021); Fintech Alliance and FintechNews.Ph (2022); authors' computations

Table 8. Number of fintech funding deals, by category

	Alternative lending	Crypto-currencies	Finance & accounting tech	InsurTech	Payments
2017	6	1	1	2	1
2018	3	0	0	2	4
2019	0	2	2	1	2
2020	2	0	0	0	6
2021	2	1	2	1	7
2022*	2	3	1	0	2

Source: United Overseas Bank; PwC; Singapore FinTech Association via Statista (2022c)

* Data covers period between January to November

Table 9. Total funding value of fintech deals (USD mn)

	Alternative lending	Crypto-currencies	Finance & accounting tech	InsurTech	Payments
2016	1.20	5	1.20	0	0
2017	18.18	5	1.60	0.65	0
2018	28.50	0	0	0.64	218.50
2019	0	0	6	1	2.85
2020	0.75	0	0	0	138.68
2021	4.40	12.50	0	0	818.73
2022*	11.13	80.14	5.10	0	241

Source: United Overseas Bank; PwC; Singapore FinTech Association via Statista (2022g)

* Data covers period between January to November

5.1.2. Digital operations of traditional financial institutions

Traditional financial institutions have ventured into the digital realm by launching their own digital services to complement existing facilities. In 2001, the BSP reported that 31 banks, comprising 24 commercial banks and 7 thrift banks, were offering transactional electronic banking services. By 2003, the number of authorized universal and commercial banks for e-banking operations had risen to 30, with entrenched institutions such as the Bank of the Philippine Islands (BPI), Banco De Oro (BDO), the Land Bank of the Philippines (LBP), and Union Bank of the Philippines (UnionBank) among them. Additionally, six thrift banks were granted similar rights in the same year. Services offered encompassed mobile, non-mobile, and internet accessibility, according to the BSP.

As of 2009, the BSP authorized 43 rural banks to provide e-banking services, all of which utilized cash cards, except for Unity Bank, which employed mobile technology. Subsequently, in 2011, the number of rural banks offering e-banking services increased to 50. These services involved the use of e-money for various transactions, including deposits, microfinance loan payments, and payment of microfinance loans (BSP 2011, as cited in Espenilla and Roman-Tayag, 2011).[10]

[10] Digitalization allows smaller institutions to reach out to more Filipinos. Rural banks, for example, use mobile banking in partnership with third-party entities.

Developments shortly before the COVID-19 crisis are outlined in Table 1.3. The number of financial institutions offering electronic banking facilities stood at 85 in 2019, reflecting an increase from 78 in 2018. The most prevalent services included internet banking and fund transfers through PESONet and InstaPay.

The landscape had evolved significantly by 2022, with 133 banks, encompassing digital banks[11], offering diverse electronic services. The most common among these were ATM cards and facilities, internet banking, and mobile banking, as detailed in Table 1.4. The overall count comprises 42 universal and commercial banks, 31 thrift banks, 54 rural and cooperative banks, and six digital banks.[12].

Table 10. Banks authorized to engage in e-banking operations (2018, 2019)

	No. of FIs with Electronic Banking Facilities	Mobile banking	Phone banking	Internet banking (Proprietary)	Internet banking thru BancNet Online	Mobile financial services thru mobile apps	Bancnet POS cash-out aggregator/ acquirer	ETFPS (BIR)	Electronic Money Issuers (EMIs)
Universal and Commercial Banks	41 (39)	15 (15)	14 (14)	35 (34)	6 (6)	22 (20)	10 (10)	18 (18)	19 (19)
Thrift Banks	28 (25)	8 (7)	6 (4)	11 (10)	7 (7)	7 (6)	7 (6)	2 (2)	8 (8)
Rural and Cooperative Banks	16 (14)	1 (1)	- (-)	1 (1)	2 (2)	- (-)	9 (8)	- (-)	4 (3)
Total	85 (78)	24 (23)	20 (18)	47 (45)	15 (15)	29 (26)	26 (24)	20 (20)	31 (30)
	Lendr program	FinTech – WeChat Pay	Cardless withdrawal	PESONet		Instapay		Blockchain-based digital financial services	Fintech – Alipay
				Send	Receive	Send	Receive		
Universal and Commercial Banks	6 (6)	3 (3)	7 (6)	37 (32)	40 (36)	16 (5)	21 (14)	2 (2)	3 (3)
Thrift Banks	6 (5)	1 (1)	2 (1)	6 (3)	7 (4)	7 (2)	10 (4)	- (-)	1 (1)
Rural and Cooperative Banks	3 (2)	- (-)	-	-	-	1	2 (-)	- (-)	- (-)
Total	15 (13)	5 (4)	9 (7)	43 (35)	47 (40)	25 (7)	36 (18)	2 (2)	6 (4)

Source: BSP (2018, 2019)
*As of end-June 2019. Numbers in parentheses represent end-June 2018 figures.

Table 10. BSP-Supervised Financial Institutions (BSFIs) authorized to provide electronic payment and financial services (EPFS) (2022)

	No. of BSFIs with authority to provide EPFS	**ATM card**	**Credit card**	**EMIs (Prepaid card/ Cash card/ Remittance)**	**E-money (E-wallet)**	**Other payment cards**	**Internet banking - retail**	**Internet banking - corporate**	**Mobile banking**
Universal and Commercial Banks	42	26	16	18	4	5	26	37	27
Thrift Banks	31	29	1	7	-	-	15	8	17

[11] Digital banks were established as a new classification of banks under BSP Circular No. 1105.
[12] It is important to note that this tally does not include other electronic money issuers (EMIs), which encompass fintech services such as e-wallet applications. EMIs are classified into banks, non-bank financial institutions (NBFIs) supervised by the BSP, and non-bank institutions as monetary transfer agents.

Rural and Cooperative Banks	54	24	-	5	2	-	6	1	12
Digital Banks	6	3	-	-	-	-	1	1	4
TOTAL	133	82	17	30	6	5	48	47	60
	Telephone banking	ATM facility	Cash accept machine	Cash recycling machine	Point of sale facility	Payment portal	With VASP services	InstaPay	PESONet
Universal and Commercial Banks	10	27	10	1	17	9	-	23	42
Thrift Banks	4	29	2	1	7	-	-	17	17
Rural and Cooperative Banks	-	26	-	-	5	-	-	14	33
Digital Banks	-	3	1	-	1	-	-	3	3
TOTAL	14	85	13	2	30	9	-	57	95
	QR Ph	Instapay Multi-proxy service	Agency banking	eKYC-online onboarding	E-gov payments	BIR ePayments	Type C EPFS	Online/digital application	Others
Universal and Commercial Banks	14	13	6	16	2	1	-	11	8
Thrift Banks	7	1	4	4	-	-	4	2	-
Rural and Cooperative Banks	4	3	6	4	-	-	19	7	2
Digital Banks	-	3	2	5	-	-	-	2	3
TOTAL	25	20	18	29	2	1	23	22	13

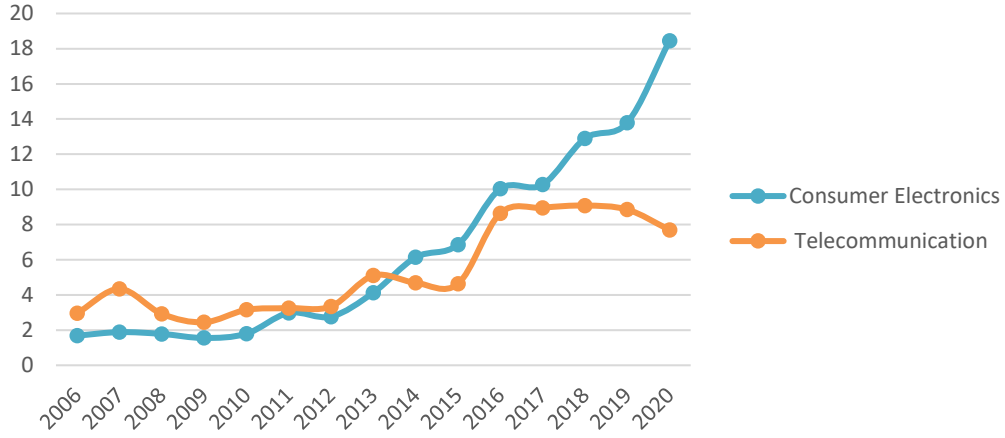
Source: BSP (2022b)

5.1.3. Growth in related industries

Imports of electronic products had significantly increased since the mid-2010s in tandem with growth in fintech and banktech (See Figures 1.4 and 1.5). Consumer electronics and telecommunications contributed about a quarter of this growth (in volume). Moreover, by 2022, 88.5 percent[13] of mobile phones shipped to the Philippines had been smart phones (IDC 2022 via Statista). This growth may be partly attributed to cheaper mobile phones produced by Chinese manufacturers becoming more available in the market.

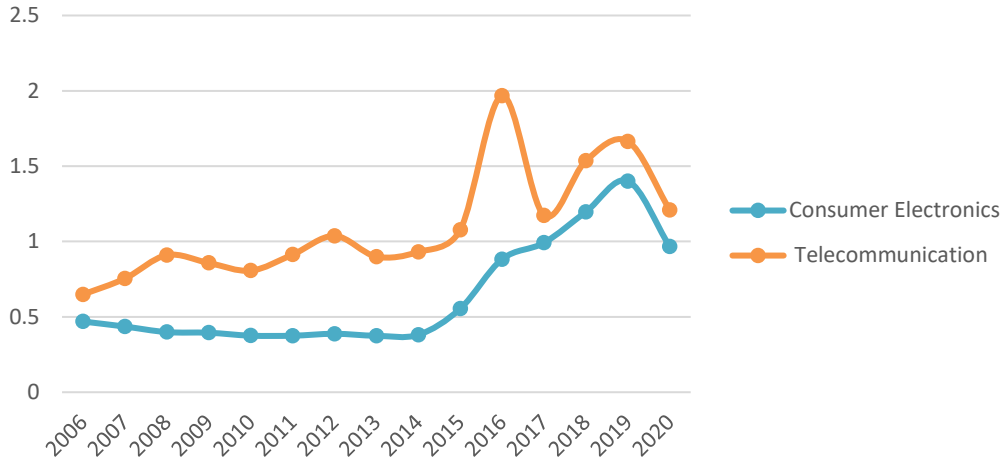
[13] This figure is projected to grow to 90.4 in 2026.

Figure 16. Volume of electronic imports (in kg mn)



Source: PSA via CEIC Data (2022g)

Figure 17. Value of electronic imports (in USD mn)



Source: PSA via CEIC Data (2022f)

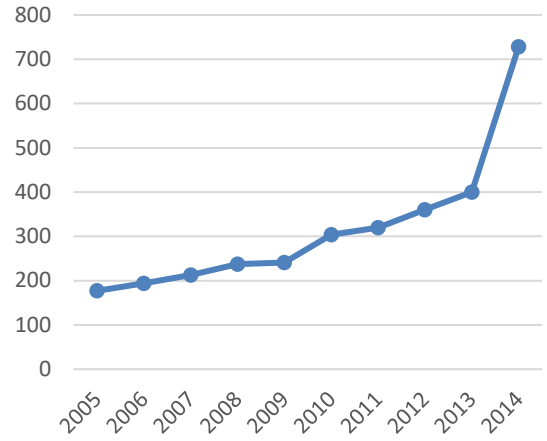
Large e-retail platforms such as Lazada and Shopee made their debut in 2012 and 2015, respectively. Grab went live in 2013, followed by Foodpanda in 2014[14]. The number of internet service providers (ISPs) meanwhile witnessed a steady increase from 2005 to 2014 (Figure 18). As of 2022, the total number of ISPs reached 544 (Figure 20), while the availability of 4G connectivity gradually expanded to serve a greater portion of the population (Figure 19).

Despite the growth, the Philippines still faced challenges in terms of internet speed . It ranked 100th out of 122 for mobile internet and 94th out of 133 for fixed broadband. However, there

[14] Lazada and Shopee are online shopping platforms with presence in Southeast Asia. The businesses connect sellers and buyers of various goods, including food, clothing, and electronics. Grab was initially popular as a ride hailing mobile app. Like Foodpanda, it has a grocery and restaurant delivery and pick-up services. These platforms also facilitate transactions and payments, which can be through cash or digital modes.

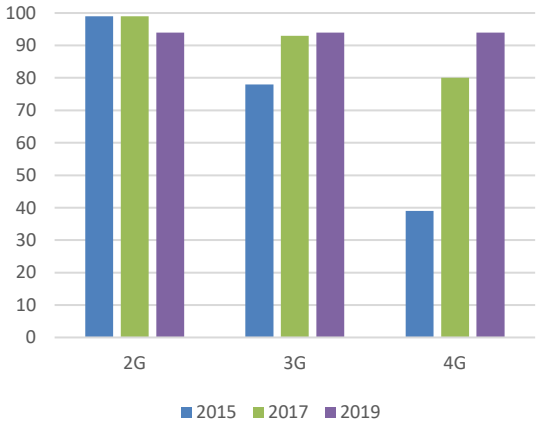
was a strong improvement in 2021, with the country ranking moving up to 75th place globally for mobile internet and 62nd for fixed broadband (Gonzales 2021, Rappler).[15]

Figure 18. Registered Internet service providers (2005-2014)



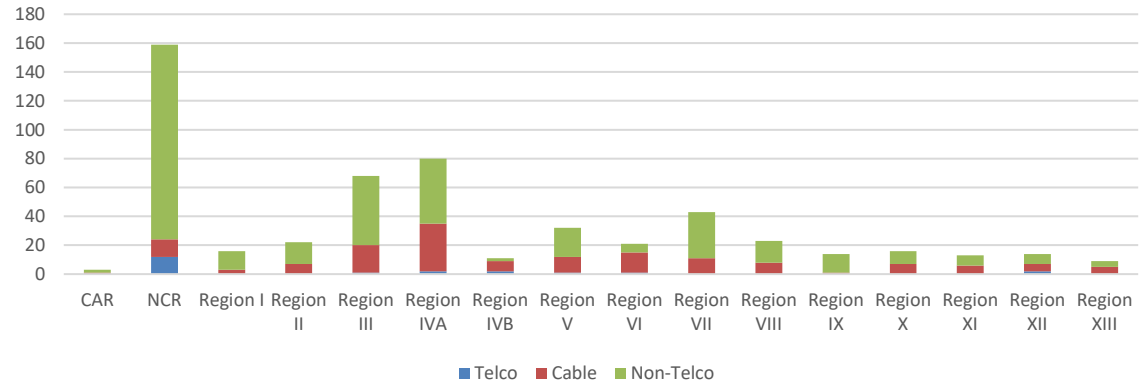
Source: PSA, NTC via Statista (2020)

Figure 19. Population covered by mobile network connection, by speed



Source: UNESCAP via Statista (2022e)

Figure 20. Internet Service Providers (ISPs) with valid certificates from the National Telecommunications Commission



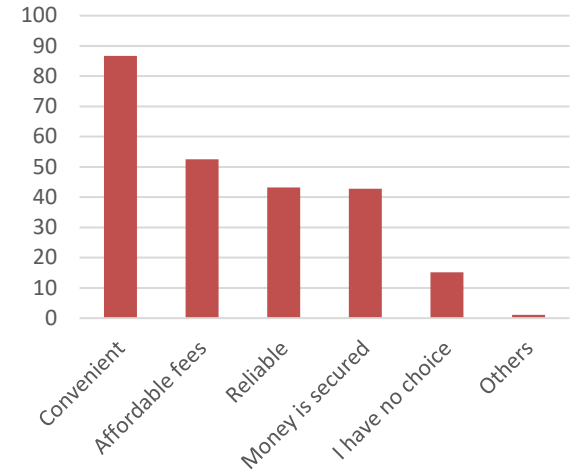
Source: NTC in Serafica and Oren (2022)

5.2. Demand for digital financial services

Convenience has clearly been a pivotal factor for consumers. In the BSP FIS, respondents were asked about their considerations when choosing channels for transferring money in 2021. Over 80 percent identified convenience as a crucial factor in sending money, surpassing other considerations such as affordability, reliability, and security (Figure 22). Similarly, about 80 percent indicated that convenience was a significant factor in choosing the channel for receiving money, ranking higher than other considerations like reliability, affordability, and security (Figure 23).

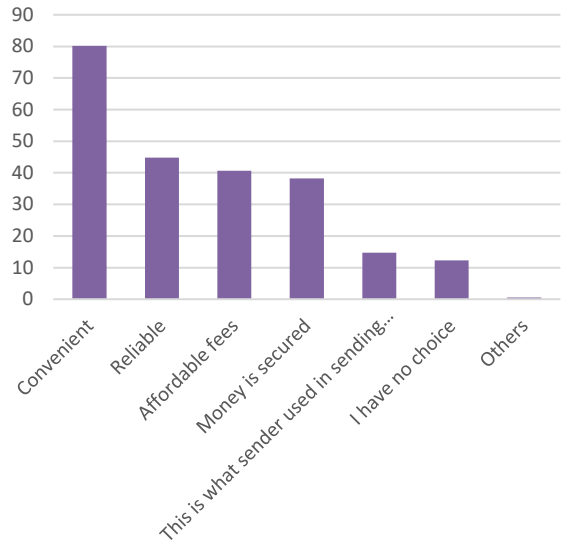
[15] The Department of Information and Communications Technology (DICT) attributes this improvement to concerted efforts of telecommunications companies and the streamlining of requirements for the construction of shared passive telecommunications tower infrastructure (Dela Cruz 2021, PNA).

Figure 21. Considerations in sending money



Source: BSP (2023c)

Figure 22. Considerations in receiving fund transfers



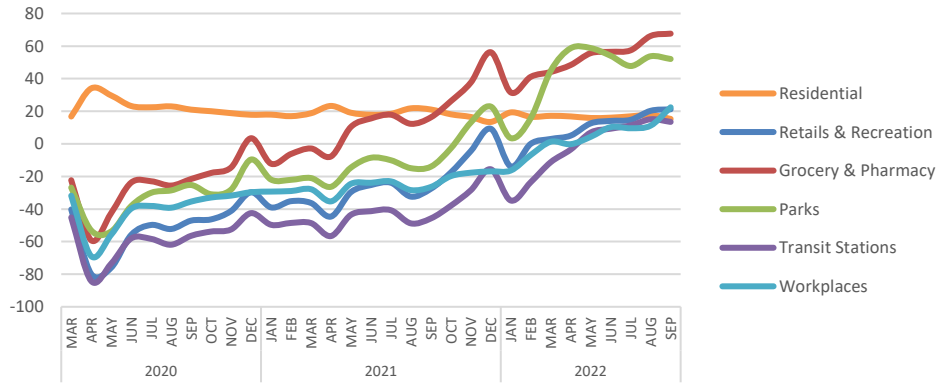
Source: BSP (2023c)

According to the Financial Stability Board (FSB 2022), factors such as reduced physical mobility, the pursuit of convenience, evolving payment habits, and increased household savings contributed to the heightened demand for digital financial services observed during the pandemic. Similarly, in the Philippines, the crisis led to a notable suppression of activity in non-residential locations. Footfall data in the country dropped in March 2020, and it took approximately two years for activity in all locations to return to pre-pandemic levels (Figure 21).

The demand for digital financial services experienced an upswing during the pandemic. Survey findings, as shown earlier (in Section 3), point to a substantial increase in the ownership and usage of mobile money and e-money accounts, reflecting the growing reliance on new financial instruments. This trend was further substantiated by central bank data, which showed a steep growth rate in the number of e-money accounts. It was also corroborated by market data from GCash and by information from PESONet and InstaPay, which exhibited a significant surge in the volume and value of transactions.

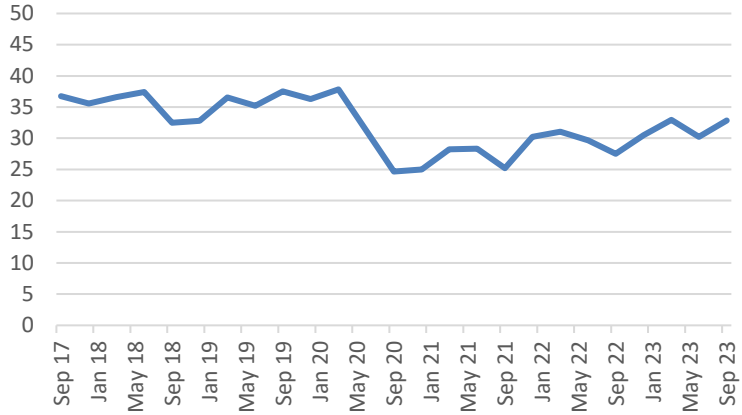
While there was an overall increase in the adoption of mobile money and e-money across subsectors from 2017 to 2021, disparities were discernible among different demographic groups, as seen in Section 4. For example, individuals in younger age groups, those with higher educational attainment, and those belonging to higher income groups exhibited a higher likelihood of owning mobile money accounts. Similarly, advantages were observed for individuals receiving wages and residents of the nation's capital.

Figure 23. Google Mobility



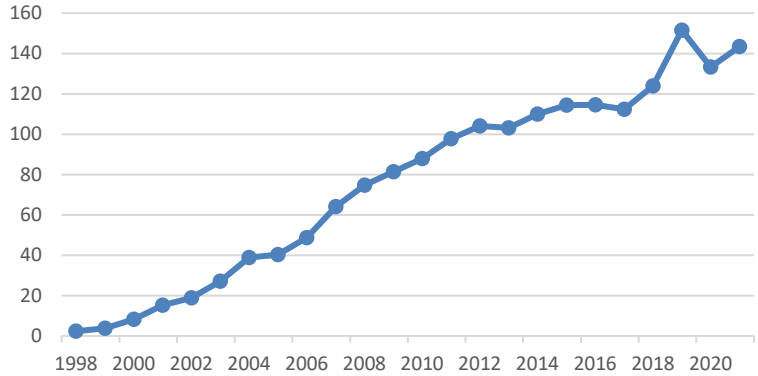
Source: Google Mobility via CEIC Data (2023a)

Figure 24. Households with savings (in percent of total households)



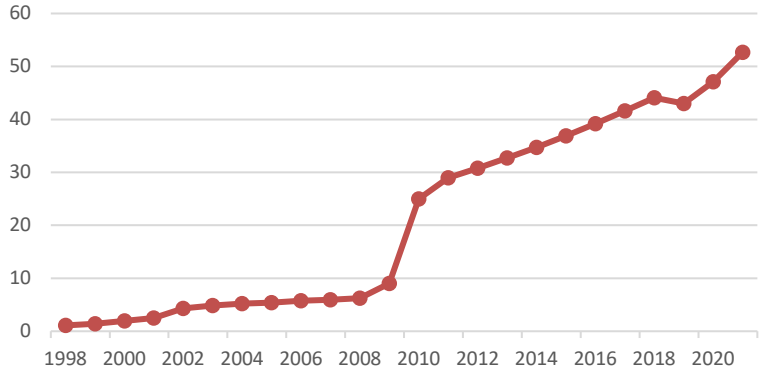
Source: PSA via CEIC Data (2023b)

Figure 25. Mobile cellular subscription (per 100 people)



Source: WB via CEIC Data (2023d)

Figure 26. Internet users (percent of population)



Source: WB via CEIC Data (2023c)

5.3. Government oversight

This sub-section chronicles the steps taken by government to ensure financial stability and protect consumer rights. It also outlines the strategic policy measures that were put in place to actively encourage financial innovation and inclusion, given the potential benefits of digitalization.

5.3.1. Regulatory Framework

Alongside the rapid evolution of the fintech landscape, laws and guidelines were established to address the nuances of digital finance. Authorities faced the challenge of applying traditional legal definitions to new digital terms while also releasing issuances that employed more specific technological jargon.

There are two categories of regulations applying to digital finance (Fintech Alliance (2019):

Regulatory statutes. Tailored to specific industries, these statutes establish entry requirements, standards, and incentives, thus determining the players and shaping the market. Examples include The General Banking Law of 2000 (RA 8791), the Manual of Regulations for Banks (MORB), and the Manual of Regulations for Non-Bank Financial Institutions (MORNBFI).

Compliance laws. These overarching laws apply to all sectors and industries. Examples include the Cybercrime Prevention Act of 2012 (RA 10175) and the Data Privacy Act of 2012 (RA 10173).

The laws designed to foster the growth of the fintech industry in the country include the Philippine Innovation Act of 2018 (RA 11293) and the Innovative Startup Act of 2019 (RA 1133). Due to provisions facilitating technical and financial processes, the following are also noted as beneficial for the startup sector (Teves et al. 2023): Philippine Technology Transfer Act (RA 10055), Ease of Doing Business Law (RA11032), Revised Corporation Code of the Philippines (RA 11232), Corporate Recovery and Tax Incentives for Enterprises Act (RA 11534), and Amendments to the Foreign Investments Act (RA 11647).

Among those responsible for monitoring and regulating the fintech landscape are the BSP, the Securities and Exchange Commission (SEC), the Insurance Commission, the Department of Information and Communications Technology (DICT), the National Privacy Commission (NPC), and the National Communicaionts Commission (NTC). Within the BSP are the following:

Technology Risk and Innovation Supervision Department. This department, which falls under the Policy and Specialized Supervision Sub-sector, focuses on digital finance. Its responsibilities include promoting cybersecurity, engaging and supporting fintech players, and developing a regulatory sandbox.

Financial Inclusion Office. As part of the Financial Inclusion and Consumer Empowerment Sub-sector, this office studies relevant trends in financial inclusion and implements support programs to facilitate inclusion and consumer protection and education (BSP 2023d).

Additional information on regulatory bodies and issuances with applications in digital finance, especially banks, e-wallets, and payments, can be found in the Appendix.

5.3.2. Policy Strategies

In alignment with legal directives and institutional charters, various offices have implemented measures to promote digitalization, financial inclusion, and technological innovation. Notable initiatives include the following:

National Retail Payment System (NRPS). Launched in 2015, the NRPS was designed to modernize the country's retail payment system. Emphasizing operability, it enables multilateral arrangements among different financial institutions, including non-bank e-money issuers. This is achieved through the utilization of ACHs. PESONet and InstaPay, introduced in 2017 and 2018, respectively, are integral components of the NRPS (BSP Digital Transformation Roadmap 2020-2023).

Digital Payments Transformation Roadmap 2020-2023. This strategic roadmap outlines two primary outcomes: first, to strengthen consumer preference for digital payments—aiming for 50 percent of total retail payments to be electronic and ensuring that at least 70 percent of Filipinos will have a transaction account; and second, to offer a broader range of innovative and responsive financial services, maximizing the utilization of existing technologies and digital infrastructure.

The roadmap is built on three pillars. First are payment streams, which pertain to the different links that the central banks aim to strengthen. Table 1.5 enumerates these links, with data on the percentage of all transactions. Second are finance infrastructures, such as maximization of the national ID system, continued development of the payment system, and advancement of open banking. Third are governance standards, which aim to foster responsible use of digital assets.

Table 11. Payment streams

Payer	Payee			
		Government	Business	Persons
	Government 1.31%	0.69% - Transfers from national government to LGUs - Social welfare contributions - Common use item procurements	0.01% - Procurements and supplier payments - Utilities	0.62% - Social welfare contributions - Salaries and wages
	Business 23.7%	0.23% - National and local taxes - National and local fees - Social welfare contributions	21.37% - Supplier payments - Business lending - Interest payments	2.14% - Salaries and wages - Social welfare contributions - Consumer lending
	Persons 75.56%	0.36% - National and local taxes - Government fees levied for services - Social welfare contributions	72.1% - Utilities - Monthly merchant transactions - Interest and loan repayments	3.1% - Domestic remittances - International remittances - P2P lending

Source: BTCA Philippine Country Diagnostic 2019 in BSP Digital Transformation Roadmap 2020-2023

In line with the outlined roadmap, specific measures have been implemented to promote digitalization and financial inclusion, including:

QR PH. This national QR code system, based on the Europay-Mastercard-Visa (EMV) standard, enhances interoperability by allowing persons and merchants to transfer payments despite availing financial services from different banks and EMIs (BSP QR Ph FAQs).

Digitalization of social benefits transfers. Around 10 million transaction accounts were established in disbursing the second tranche of the Social Amelioration Program (SAP) during the pandemic. Large-scale Government-to-Person (G2P) payments were then carried out through six firms. The government also looks to convert the cash cards used under the Pantawid Pamilyang Pilipino Program (4Ps) into full transaction accounts (BSP 2020, Digital Transformation Roadmap 2020-2023).

Automatic Fare Collection System (AFCS). In November 2020, the Department of Transportation (DoTr) required cashless toll collection at all expressways. Plans are also underway to implement cashless fare payment methods for modern jeepneys, buses, and rail lines (BSP 2020; Dela Cruz 2022, PNA).

Wage payment. In 2020, the Department of Labor and Employment (DOLE) issued Advisory No. 26 encouraging the use of transaction accounts for paying private sector workers and employees.

Moratorium on fund transfer fee hikes. The BSP released Memorandum No. M-2021-071 in December 2021. The issuance imposed a moratorium on transfer fee hikes made through PESONet and InstaPay. Effectively, participant institutions could not increase transfer fees and could only lower or waive them.

National Strategy for Financial Inclusion (NSFI). Launched in 2015 and relaunched in 2022 due to the pandemic's impact on the digital financial landscape, NSFI aims to reduce disparities arising from the digital divide. Strategic outcomes include the creation of a conducive regulatory environment, with the purpose of serving the broader population and MSMEs beyond accounts and payments. A dedicated Working Group under NSFI focuses on digital finance (FISC 2022).

Basic Deposit Account and Agent Banking. Introduced in 2018 to promote banking among the financially excluded, basic deposit accounts (BDAs) have minimal know-your-customer (KYC) requirements, an opening amount not exceeding PhP 100, a maximum balance limit of PhP 50,000, and zero-percent reserve requirement, with no charges for maintenance and dormancy (MORB). Tonik, a licensed digital bank, numbers among the banks offering this service. Agent banking, meanwhile, addresses geographic constraints by utilizing digital solutions to enable convenience stores, pharmacies, pawnshops, and other outlets to provide banking services, including account creation, real-time deposits and withdrawals, receipt of loan proceeds, and payment of amortizations and bills (BSP 2020, Digital Transformation Roadmap 2020-2023).

Program Support from the DTI, DOST, and DICT. Teves (2023) provides a comprehensive list of government initiatives geared towards assisting startups at various stages of business development. These programs encompass funding, technical assistance, and network support, as detailed in Table 12.

Table 12. Program support for start-ups

Office	Program
Department of Trade and Industry (DTI)	Incubation Development and Entrepreneurial Assistance (IDEA) Accelerating Development Valuation and Corporate Entrepreneurship (ADVANCE) Global Acceleration Program (GAP) International and Local Exposure Assistance Program (iLEAP) Strategic MSMLE and Startup Link (SMART Link) Startup Venture Fund
Department of Science and Technology (DOST)	Under the Philippine Council for Health and Research Development (PCAARRD) Startup Grant Fund Agri-Aqua Innovation Challenge National Agri-Aqua Technology Business Incubation Under the Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCHRD) Startup Grant Fund Under the Technology and Promotion Institute (PCIEERD) Startup Grant Fund Women-Helping-Women: Innovating Social Enterprise Program Technology business incubation (TBI) programs
Department of Information and Communication Technology (DICT)	Startup Ecosystem Mapping Awareness campaigns and learning sessions Digital Cities Program Startup Grant Fund One Philippine Startup Portal InnovNation Network

Source: Teves et al (2023)

6. Conclusion

This paper aimed to investigate how the COVID-19 pandemic has influenced the pace of financial inclusion and the role digital finance played in this evolution. The different results suggest that financial inclusion has mostly improved since pre-pandemic times with more people in the country owning and using accounts in various platforms, whether in traditional banking, or through digital/ online channels.

Consistent with the findings of previous studies, higher educational attainment, employment, and income continue to determine higher probabilities of being financially included, whether by account ownership or usage. However, males appear to have caught up with females in formal account ownership and usage, both in saving and borrowing, while the poorest similarly drew closer to the rest of society, likely due to government efforts to widen financial inclusion and formalize the delivery of social services to low-income households during the pandemic.

With COVID-19, we detect a dramatic rise in mobile money account ownership and usage, though this primarily occurred for the younger, more educated, and richer groups, revealing similar distributional issues as observed with other accounts. In terms of location, much of the increase in mobile money accounts had been in the nation's capital, reflecting possible urbanization effects but also a likely response to the intermittent lockdowns in the area.

Nevertheless, fintech clearly helped power the rise in financial inclusion during the pandemic. In this study's review of the digital finance landscape, we find a healthy interplay between providers of digital financial services and their regulators and related agencies of government, which have all strived to keep up with the industry, indicating a still benign financial intermediation landscape despite rapid changes.

There will likely be more changes in the landscape as the digital finance industry further develops. There are both potential benefits and risks to these changes. Potential benefits include greater efficiency and lower cost, as digital technology helps overcome known market failures (such as information asymmetry and high transaction costs) and greater convenience and diversity of financial services offered, while potential risks are largely operational (e.g., cyber risks, fraud-related risks, and technical disruptions) and regulatory in nature, the latter due to the complexity and opacity of new actors offering novel services that are yet to be regulated (FSB 2022).

The concerns noted in the existing literature revolve around the impact of fintech players on incumbent banks, which may take greater risks to recover profits or eventually fail altogether, and the vulnerability of the fintech players themselves, with possible harmful effects on financial stability (Debuque-Gonzales 2023). This study's review of the industry reveals robust activity among fintech startups as well as among traditional financial institutions as they strengthen their digital operations. It also shows a more balanced distribution of firms in terms of primary services offered. This supports the view that fintech players are unlikely to replace the incumbents any time soon but may coexist and cooperate with them and evolve together (Bollaert et al. 2021, Navaretti 2018).

One valid concern in this area though is the potential systemic importance of aggregators in finance, which may become the default solution for accessing banks, when applying for new accounts and loans (FSB 2017). These now instantly link to digital banks or neo banks, which do not have brick-and-mortar facilities, and not just to online channels of traditional banks.

While this arrangement may widen financial inclusion, it may also create new risks, as loans and deposits become more sensitive to financial and real shocks (Gambacorta 2023), possibly increasing financial fragility.

The policy goal ultimately is to balance financial inclusion and financial stability. There is still much value in pursuing financial inclusion through digital finance, which holds the most promise, as findings of this study suggest. To this end, we make the following recommendations, which we cull from the best views/practice in the field:

- Employ "smart policy" on innovation (Frost et al. 2021).
    - Build inclusive infrastructure (such as digital IDs, fast low/zero-cost retail payment systems).
    - Introduce common standards, considered a critical public good (e.g., bolster competition by allowing "interoperability" of providers, let users carry their data across different platforms).
    - Update competition policies (e.g., identify new barriers to entry, note monopoly behavior through capture of data).
    - Strengthen data privacy (by giving users more control and agency over their data).
    - Get different policymakers to cooperate (central banks and other regulators hand in hand with competition and data privacy/protection authorities, domestic and foreign authorities).
- Continue to capitalize on digital finance to broaden financial inclusion, but with policies that recognize the obstacles to excluded/disadvantaged groups.
- Pursue policies that aim to close the digital divide (such as the open internet access bill).
- Devote effort/resources to raising financial and digital/tech literacy especially through improvement of basic math skills (and thus basic education).
- Improve collection of data on fintech and other new providers, to have better grasp of the scope and nature of their activities, as survey data may not be enough to monitor the sector.
- Lastly, continue to conduct research on the nexus between/among digital finance, financial inclusion, financial stability, and growth/development, to keep the sector and society future-ready.

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8. Appendix

Table 13. Government offices with regulatory functions in digital finance

Regulator	Functions
BSP	Supervises bank and non-bank e-money institutions (EMIs), virtual asset services providers (VASPs), remittance agents, remittance platform providers, payment systems operators, and banks including digital banks
SEC	Oversees and regulates activities among lending and financing companies; regulates securities offering and sale and investment activities
IC	Oversees and regulates insurance firms, health maintenance organizations (HMOs) and pre-need companies in the Philippines
DICT	Formulates, recommends, and implements policy and program frameworks for the rapid development and improved global competitiveness of the ICT industry, and ensure efficient and effective ICT infrastructure and information systems
NPC	Matters involving data privacy
NTC	Regulation of value-added services (including mobile applications and online platforms used for the delivery of financial services)
AMLC	Compliance with the AML, and matters concerning financing of terrorism (CFT)

Note: AMLC – Anti-Money Laundering Council, BSP – Bangko Sentral ng Pilipinas, SEC – Securities and Exchange Commission, IC – Insurance Commission, DICT – Department of Information and Communications Technology, NPC – National Privacy Commission, NTC – National Communications Commission
Source: Quimba et al (2021) and authors' research

Table 14. Issuances with impact on the digital finance landscape

Pre-pandemic	
Year	**Issuance**
	1993 – RA 7653: The New Central Bank Act
	2000 – RA 8791: The General Banking Law
	2000 – RA 8792: Electronic Commerce Act
	2007 – RA 9474: Lending Company Regulation Act
	2008 – RA 9510: Credit Information Act
	2009 – BSP Memorandum Circular (MC) No. 649: Guidelines governing the issuance of electronic money and the operations of e-money issuers (EMI) in the Philippines
	2009 – RA 10641: The Philippine Deposit Insurance Corporation (PDIC) Act, Section 53 on the establishment of a National Strategy of Financial Inclusion (NSFI)
	2010 – RA 10055: Philippine Technology Transfer Act
	2012 – RA 10173: Data Privacy Act
	2012 – RA 10175: Cybercrime Prevention Act
	2013 – BSP MC No. 808: Guidelines on Information Technology Risk Management for All Banks and Other BSP Supervised Institutions
	2014 – BSP MC No. 859: Europay, MasterCard and Visa (EMV) Implementation Guidelines
	2016 – RA 10929: Free Internet Access in Public Places Act
2017	RA 1105: Philippine Identification System Act (PhilSys)
	BSP MC No. 940: Guidelines on Deposit and Cash Servicing Outside of Bank Premises
	BSP MC No. 942: Amendment to Section 4511N of the Manual of Regulations for Non-Bank Financial Institutions
	BSP MC No. 944: Guidelines for Virtual Currency (VC) Exchanges
	BSP MC No. 980: National Retail Payment System (NRPS) Framework
	BSP MC No. 982: Enhanced Guidelines on Information Security Management
	BSP MC No. 1019: Technology and Cyber-Risk Reporting and Notification Requirements
2018	RA 11032: Ease of Doing Business Act
	RA 11127: National Payment Systems Act
	RA 11293: Philippine Innovation Act
	RA 11232: Revised Corporation Code of the Philippines
	BSP MC No. 992: Framework for Basic Deposit Accounts
	BSP Manual of Regulations for Banks

	BSP Manual of Regulations for Non-Bank Financial Institutions
2019	RA 11337: Innovative Startup Act BSP MC No. 1019: Technology and Cyber-Risk Reporting and Notification Requirements BSP MC No. 1033: Amendments to Regulations on Electronic Banking Services and Other Electronic Operations BSP MC No. 1049: Rules and Regulations on the Registration of Operators of Payment Systems BSP MC No. 1055: Adoption of a National Quick Response (QR) Code Standard
	During COVID-19 and thereafter
Year	**Issuance**
2020	BSP MC No. 1089: Payment System Oversight Framework BSP MC No. 1105: Guidelines on the Establishment of Digital Banks BSP M No. M – 2020 – 030: Availability of Digital Financial Services During the Enhanced Community Quarantine (ECQ) Period BSP M No. M – 2020 – 037: Implementation of the Next-Generation ISO 20022-compliant PhilPaSS^{plus} by Year 2021
2021	RA 11534: Corporate Recovery and Tax Incentives for Enterprises Act RA 11765: Financial Products and Services Consumer Protection Act BSP MC No. 1108: Guidelines for Virtual Asset Service Providers (VASP)
2022	RA 11647: Amendments to the Foreign Investment Act RA 11765: Financial Products and Services Consumer Protection Act RA 11934: SIM Registration Act BSP MC No. 1153: Regulatory Sandbox Framework EO 170: Adoption of Digital Payments for Government Disbursements and Collections CIC No. 2022 - 05: Notice on Coverage of Republic Act No. 9510 or Credit Information System Act
2023	BSP MC No. 1170: Amendments to MORB and MORNBFI on Customer Due Diligence, including Guidelines on Electronic Know-Your-Customer BSP Memorandum No. M-2023-005: Implementation of BSP Circular No. 1055 on the Adoption of a National Quick Response (QR) Code Standard SEC MC No. 5: SEC Rules and Regulations of the Financial Products and Services Consumer Protection Act of 2022
Pipeline	Bank Deposits Secrecy Bill, Financial Accounts Regulation Act, Digital Payments Bill (BusinessWorld), Warehouse Receipts Law, Financial Consumer Protection Act

Sources: Quimba et al 2021, Teves et al 2023, Fintech Alliance 2019