

The Brazilian G2P model: digital transformation in times of the COVID-19 pandemic

Thays Cintra Vieira^a, Rosalvo Ermes Streit^b,
Ana Paula Bernardi da Silva^c

^a *thays.vieira@a.ucb.br*

^b *rosalvo@p.ucb.br*

^c *anapaula@p.ucb.br*



Data de submissão: 10/04/2025

Data de aceitação: 02/06/2025

Abstract

Purpose: This study analyzes the digital government-to-person (G2P) model adopted in Brazil during the COVID-19 pandemic, focusing on three key areas: (i) digital transformation strategies implemented, (ii) beneficiary use of digital accounts, and (iii) perceptions of managers at the financial institution responsible for program delivery.

Methodology: The research employed a pragmatic approach, combining document analysis, operational and transaction data collection, and qualitative interviews with managers from the public financial institution executing the program.

Results: Key success factors identified include the institution's prior experience in managing social programs and coordinating with a broad network of partners, the functionality and user-friendliness of the mobile application developed specifically for the transfers, and the implementation of a payment schedule that supported operational organization and risk mitigation.

Practical/managerial implications: The findings provide valuable insights for improving public policies that leverage digital cash transfer models. The results highlight the importance of investing in technological infrastructure, digital governance, and institutional capacity building to support large-scale social payment operations.

Social implications: The adoption of the digital G2P model not only enabled the efficient distribution of emergency funds during the health crisis but also fostered financial inclusion for millions of Brazilians previously excluded from the formal financial system, contributing to a structural shift in how these citizens engage with digital financial services.

Keywords: G2P. Social benefits. Government programs. Digital payment. Digital transformation.

1. Introduction

Governments play a key and catalytic role in digitizing services in an economy, creating, for example, sustainable digital payment ecosystems (Klapper & Singer, 2017). Digital payments made by governments directly to citizens, called Digital G2P (Digitizing Government-to-Person Payments), are used to achieve various objectives, including increasing payment transparency, reducing delivery costs, and enhancing financial inclusion. The scope of G2P includes payments (or transfers) of taxes, refunds, subsidies, social programs, and

emergency assistance. When executed digitally, G2P has the potential to familiarize recipients with digital payments, training users in technological skills that contribute to expanded use beyond government operations.

Faced with the challenges posed by the COVID-19 pandemic, many countries launched unprecedented aid packages to cushion the impact of the pandemic on the population by distributing income through "financial aid" payments. Due to restrictions on social interactions resulting from the pandemic, "digital first" represents a noteworthy option among implemented strategies. This approach allows for

integrating alternatives for populations that lack access to digital systems or are unable to use them (Gelb & Mukherjee, 2020).

Because this aid may be an individual's first step into the financial system, accessibility, among other factors must be taken into consideration before implementation of a government strategy. Upon inclusion the individual can be offered accounts, either traditional bank accounts, payment accounts through a prepaid card, or digital wallets that allow the non-banking person to make payments and manage their savings (Santos, 2014).

In this context, it is important to highlight that recent studies have underscored the importance of financial inclusion initiatives in government aid programs. Berman et al. (2023) point out that the availability of an efficient digital payment system can facilitate the implementation of guaranteed income programs, reduce transaction costs, and expand the reach of social policies, thereby contributing to financial inclusion. Furthermore, research on financial inclusion in Latin America and the Caribbean emphasizes the importance of access, usage, and quality of financial services in improving economic participation and overall well-being (Roa, 2015). Additionally, incorporating a comprehensive approach to measuring financial inclusion, as advocated in recent studies, can enhance the effectiveness of government aid programs, aligning with the goals of promoting economic participation and overall well-being. (Pesqué-Cela et al., 2021).

In addition to the financial inclusion of beneficiaries, other challenges to the digitization of G2P payments pose challenges outlined by Klapper and Singer (2017), including the need for a robust digital payments ecosystem, infrastructure for physical payments, digital financial identification, legal and regulatory frameworks, consumer protection, and political economic issues. Reliable physical infrastructure is emphasized, especially in regions with underdeveloped payment systems and low literacy rates among beneficiaries. Additionally, the lack of formal identification hampers access to digital financial services for over 2 billion people globally. Biometric technology, such as thumbprints or retina scans, can enable individuals without formal identification to access digital payment systems, promoting financial inclusion and overcoming identification and literacy barriers.

As noted by Berman et al. (2023), for example, the implementation of cash transfers within guaranteed income programs presents a range of complex challenges that extend beyond the simple disbursement of funds. One key challenge is the need to integrate cash transfers with existing social policies through vertical collaboration processes led by the federal government. This coordination is essential to ensure that cash transfers complement and enhance other social assistance initiatives, ultimately maximizing their impact on low-income individuals. Additionally, improving data integration across different levels of government is crucial for the efficient and transparent administration of cash transfer programs. By streamlining data collection and sharing processes, policymakers can enhance the targeting of beneficiaries and monitor the effectiveness of cash transfer initiatives. Moreover, finding innovative solutions for financial and political sustainability is a pressing issue in the implementation of cash transfer programs.

The discrepancy between original estimates and actual population served also proved challenging for program implementation in Brazil. While 68 million people received benefits versus the original estimate of 45 million, the viability of fund movement in a critical scenario with sanitary restrictions presented additional challenges. Results were achieved through advances in the digital G2P model adopted by the country, which accelerated the digital transformation process. For the first time, payments to all beneficiaries through the federal government income transfer program were 100% digital, even to individuals who did not yet have a bank account.

According to World Bank data, 39% of G2P transfer recipients in low-income countries received electronic payments in 2017. This includes, for example, government salaries, government transfer payments (such as pensions, social benefits, and unemployment benefits), and tax refunds. However, while an estimated 90% of high-income countries make their G2P payments "mainly electronically," more than half of developing countries make their G2P payments in cash or through paper payments, such as checks (World Bank, 2014). According to Klapper and Singer (2017), this leads to governments, companies, and individuals bearing the potentially high cost of cash payments - costs associated with disbursing and receiving cash.

As stated by Gelb and Mukherjee (2020), information on the functioning of government programs during the pandemic is still limited to a few first lessons on the use of digital technology for G2P transfers related to COVID-19 in a few countries, such as India, Pakistan, South Africa, Namibia, Togo, Brazil, and Colombia. Thus, this study complements the research by Gelb and Mukherjee (2020) by providing detailed information on the program adopted in Brazil, answering the following question: How was the digital G2P payment model implemented in Brazil during the COVID-19 pandemic structured?

The approach adopted in this study involves a thorough analysis of the Brazilian G2P model during the COVID-19 pandemic, examining the strategies implemented and the outcomes achieved. Additionally, experiences from other countries in the context of digital government payments are explored, providing valuable insights to enhance national practices and policies. The literature review highlights the importance of transitioning from cash to digital payments, pointing out challenges such as limited infrastructure, restricted coverage in non-urban areas, and access barriers faced by certain demographic groups. Simultaneously, opportunities and benefits associated with the digitization of government payments are presented.

The structure of this article comprises a detailed analysis of the Brazilian G2P model, followed by a discussion on the financial data of beneficiaries and transactions conducted, looking at the number of accesses to bank applications; use of digital or cash transactions; virtual purchases; and bill payments, among others. With such information, qualitative research was carried out by means of an in-depth interview with eight managers who worked on the front line in bank branches to identify factors to explain the quantitative data.

The investigation of this process, the choices made by Brazil, and the results presented, offer a great opportunity both for the evolution of G2P models used by policy makers as well as for the enrichment of this theme in academia.

2. Studies on the adoption of digital G2P models

The governments of multiple countries have begun the transition from cash payment models

to electronic payments. A recent study by Davidovic et al. (2020) proposed a comprehensive framework for sustainable monetary solutions supporting social assistance. It presented eight building blocks for a sustainable digital G2P framework that reflects the end-to-end cash flow, as follows: (i) program design with enforceability criteria (Who is eligible?) with mechanisms for identifying the beneficiary (How do they prove their identity?) and with a user experience journey (How do we maximize adoption by beneficiaries?); (ii) digital government, with digital records and controls; (iii) partnership with mobile money operators; (iv) financial institution linked to the treasury for opening accounts; (v) withdrawal network for converting mobile money into cash; (vi) mobile payment acceptance network; (vii) long-term business model; and (viii) structure for digital inclusion. The building blocks for the digital G2P framework can help policymakers to take stock of and assess the emergency measures taken to increase mobile money in a crisis situation and to develop sustainable long-term solutions for digital G2P transfers.

One study by Febriarti (2016) presents the proposal made by the Bank Indonesia to transition from the G2P program to electronic G2P. To minimize cash payments, a sustainable business model was adopted with Digital Financial Services (DFS). This business model consists of four main processes: registration, education, disbursement, and fund withdrawal/transactions with a DFS agent. According to the author, this business model can also be applied using branchless banking services in which G2P recipients who receive the funds in a savings account can withdraw their money or perform transactions through branchless banking agents. The proposal also includes the commitment of government agencies to support and implement the electronic G2P disbursement for each of the related programs. The study identified a lack in regulation for implementation of the new model and argued that such regulation is necessary as a legal umbrella to support electronic G2P disbursement (Febriarti, 2016).

Zimmerman and Baur (2016) focused on particular experiences of vulnerable and low-income recipients of digital social payment programs in 12 emerging markets to identify the most common risks and challenges for customers. Risks identified through the survey include: (i) inability to complete transactions due to

unreliable network or service; (ii) insufficient cashier/ATM liquidity; (iii) complex user interfaces and payment processes; (iv) poor or non-existent resource mechanism, and; (v) fraud that targets the recipient. Drawing on promising practices from governments, development agencies, and providers, the authors recommend that digital G2P programs and their payment service providers consider three core principles - reliability, reporting, and monitoring - to better mitigate these risks.

In studying the opportunities and challenges of digitizing government payments, Klapper and Singer (2017) pointed out that one reason why many countries still make their G2P payments in cash or paper may be the underdevelopment of infrastructure for digital payments or limited coverage in non-urban areas. According to the authors, these challenges include making initial investments in payment system infrastructure, taking steps to ensure a reliable and consistent experience of digital payments, as well as fostering a digital payment ecosystem in order to reap the full benefits of digitizing G2P payments.

According to Kemal's study (2019), which analyzed the case of a government cash transfer program in Pakistan with G2P digital payments to poor women, illiteracy was identified as a main obstacle keeping women from using mobile phones in the program country. Most female beneficiaries were illiterate or semi-literate, lacking the digital and financial capacity necessary to use their cell phones. They couldn't read the local language (Urdu) nor understand symbols, icons, or numbers embedded in text messages on their mobile phones. This illiteracy and lack of skills limited digital G2P deployment in Pakistan. Because women typically sought help from relatives, neighbors, or friends to read the text messages and retrieve the PIN to be presented to the agent, illiteracy proved to restrict women's autonomy in making transactions. Furthermore, the study identified that many women intentionally sold their cell phones to earn extra money, therefore, it was not economically viable to offer replacement devices. Poor signal and network coverage in some regions of Pakistan at times restricted beneficiaries from receiving payments within the notice period. All these factors caused severe anxiety and distress for beneficiaries who encountered delays in receiving payments. The study also highlighted that digital technological

restrictions incorporate certain human, socio-economic, and technological qualities that reduced the financial inclusion of families in the program.

Gelb and Mukherjee (2020) studied cases of digital G2P during the COVID-19 pandemic. Although most of the examples selected took place in middle-income countries, the authors highlighted a few experiences in countries such as Togo and Namibia, as follows: (i) countries with stronger digital infrastructure, including identification, payment, and social registration systems, have generally been able to implement and disburse emergency assistance programs more quickly than those without such infrastructure; (ii) Togo offers an example of an all-digital emergency program in a low-income country; (iii) innovative and flexible digital deployment can help reduce the risk of digital exclusion, for example, the Namibian program recognized that some individuals (or even families) may not have cell phones and allowed up to ten requests for emergency assistance sent via a single mobile phone number with unique identification numbers; and (iv) the ability of local entities and Non-Governmental Organizations (NGOs) to help vulnerable individuals and groups who are out of reach of conventional systems. The authors concluded that digital mechanisms played a central role in the massive expansion of social transfers during the COVID-19 pandemic. Experience to date has exposed the importance of investment in identification systems, mobile networks, financial inclusion, and data systems.

Finally, according to Davidovic et al. (2020), Peru and Ecuador have shown significant commitment to adopting digital models for government-to-citizen resource transfers. In Peru, programs such as the National Program of Direct Support to the Poorest (Juntos) and the Pension 65 Program have been notable examples of initiatives using mobile technologies to reach and directly benefit citizens in vulnerable situations. During the pandemic, Peru implemented a geolocation system to direct beneficiaries to specific locations at designated times, ensuring efficient distribution of resources. In Ecuador, the Bono de Desarrollo Humano program has been a cornerstone in the effective delivery of social assistance to those in need. During the pandemic crisis, the Ecuadorian government doubled the number of access points for withdrawals and established payment dates based

on the last digits of the beneficiary's identification, demonstrating a continued commitment to strengthening its social protection system through digital innovation. These measures have been essential in ensuring accessibility and effectiveness of social assistance programs, directly benefiting citizens in vulnerable situations in both countries.

3. Methodology

This study uses pragmatism as a philosophical perspective to understand and address the research questions. Pragmatism allows for the freedom to choose the methods, techniques, and procedures that best fit the needs and purpose of the study (Creswell, 2021). As for the approach, this is a descriptive study with qualitative character. The authors do not intend to provide in-depth quantitative analysis, but rather seek to identify scenarios for analytical purposes. Methods employed include: (i) bibliographical research; (ii) documentary research; (iii) database survey (data from the Emergency Aid Program); and (iv) in-depth interviews. A summary of research steps, objectives, and expected results is described in Table 1.

Through the database survey, we analyzed the use of digital social accounts and identified numbers correlated to financial operations carried out by the population benefiting from the program. This was done by first analyzing the percentage of digital social accounts with cell

phone access, then verifying where and how fund withdrawals were carried out. Table 2 presents the typology of the research data, the data source, and the period analyzed.

After analyzing the data, we conducted in-depth interviews with managers who worked in the G2P program to deepen understanding of some results. Due to time and resource constraints, beneficiaries' satisfaction with the implemented model was not assessed in this research. The target audience for this study was selected based on accessibility within the allotted research period. Therefore, efforts were focused on gathering insights from bank branch managers closely involved in the implementation of the G2P model. While recognizing the importance of capturing beneficiaries' perspectives for a comprehensive analysis, prioritization of feasible aspects was necessary due to limited resources.

Our target audience for the interviews was defined through intentional sampling, with a focus on people who somehow participated in digitizing government payments through digital social accounts. We therefore chose operating financial institution managers who were responsible for attending beneficiaries of the government program as our target audience.

Criteria for the selection of interview participants was the inclusion of a branch manager for each of the following municipal population sizes: (i) Up to 50,000; (ii) between 50 and 100 thousand; (iii) between 100 thousand and 300

Table 1: Research steps, objectives and expected results.

	Research step	Objective	Expected results
1	Bibliographic Research	Understand the G2P models used in the world.	Identify characteristics listed in the literature on G2P payments and strategies applied to carry out payments made by governments to minimize the effects of the pandemic.
2	Documentary Research	Understand the regulatory basis and federal public strategy related to the program. In addition, show the organization and the strategy used by the financial institution responsible for paying the Emergency Aid.	The G2P model structured and implemented by Brazil to respond to the demands of the COVID-19 pandemic.
3	Database Survey	Identify some results that may signal the effectiveness of the digital G2P payment model implemented in Brazil.	List of information on the volume of digital social accounts used and the transactions carried out by the beneficiary population.
4	In-Depth Interview	Understand, from the perspective of the managers of the operating institution, the results arising from step 3 of this research, and the critical factors related to the G2P model applied in Brazil during the COVID-19 pandemic.	Model analysis, critical success factors and reflection points.

Source: the authors.

Table 2: Quantitative database survey.

Types of information researched	Source	Period
Digital social accounts accessed via cell phone.	Public	April/20 to December/20
Cash Withdrawal	Operating financial institution	April/20 to June/21
Transfers		
Bill payments		
Virtual card purchases		
QR code purchases		
Cash withdrawal via service channel		
Credit via deposit, transfer or PIX		
PIX transfer		
Withdrawal channels		

Source: the authors.

Table 3. Summary of categories and themes.

Categories	Description	Themes
Access to digital G2P	Comprises the survey of factors that encourage or limit access to the cell phone application by beneficiaries of government payments.	Factors that enabled mass access to the application. Factors that limited beneficiary access.
Acceptance of digital G2P	This category consists of two themes that group the main ways of using the application for digital G2P.	The use of digital transactions.
Consolidation of digital G2P	Contemplates the stabilization and evolution of digital G2P in Brazil based on interviewee reflections.	Perspectives for incorporating the application into the daily lives of government beneficiaries as an application to meet their banking needs; and measures to evolve digital G2P in Brazil.

Source: prepared by the authors based on research data.

thousand; (iv) between 300 thousand and 500 thousand; and (v) over 500 thousand inhabitants.

In addition to the participation of a branch manager for each size of municipality in the interviews, three executive superintendents responsible for a set of branches in several municipalities were also selected, as follows: (i) a superintendent of branches in municipalities with up to 100,000 inhabitants; and (ii) two superintendents of branches located in municipalities with more than 500 thousand inhabitants. Thus, a total of 8 semi-structured remote interviews were carried out in July 2021, lasting between 30 and 50 minutes each.

The interview script was developed based on the results obtained from the data analysis and aimed to investigate the experiences of managers and superintendents concerning the digitization process of government payments during the pandemic. Given the qualitative approach of this study, we used *content analysis* to assess the data collected in the interviews; the

process and the purpose of this analysis were based on Bardin (2009). The analysis resulted, deductively, in three categories made up of themes that showed a theoretical affinity with each. The categories were developed based on the theoretical framework adopted; the objectives of this study; and the questions from the data collection tool. The categories and their respective themes are summarized in Table 3.

4. Results and discussion

4.1 Characteristics of the digital G2P adopted in Brazil

Since 2010, the Brazilian government has been exploring the concept of disbursing social benefits via mobile phones (Veja, 2010; Cernev, 2015a). This idea was part of a project developed by the Ministry of Social Development as an innovative approach within the Bolsa Família program, which provides financial assistance to families in need. The proposed system was designed to use mobile phones as a means for

beneficiaries to receive and manage their funds, intending to simplify the process and increase accessibility. This method would have enabled transactions without the need for physical bank branches, significantly aiding those in remote or underserved areas.

Despite its potential to modernize and streamline the process of distributing social benefits and enhance financial inclusion for the program's recipients, the project was not implemented, but it inspired other initiatives in the country. One such initiative was the E-Dinheiro service, conceived by the Banco Palmas Institute, which combined mobile payments and mobile money elements with the digitalization of a local social currency (Cernev, 2015b).

The health and economic crisis of the COVID-19 pandemic, coupled with the need for isolation, created an opportunity for digital transformation through the digitization of social benefits payments, leading to the adoption of a 100% digital payment model (Barros, 2020; Falletti, 2021). Just over a year after the start of the Emergency Aid, there was a significant increase in the banking of the Brazilian population, particularly among the low-income sector.

Initially, the Brazilian government created Emergency Aid, an income transfer program targeting informal workers, individual micro entrepreneurs (MEI), self-employed, and unemployed individuals to mitigate the economic effects of health measures during the COVID-19 pandemic, from April 2020 to January 2021. To meet implementation challenges, the federal government passed Law 13,982 (Lei n. 13.982, 2020), regulated by Decree 10,316 (Decreto n. 10.316, 2020), which enabled digital platforms to disburse government benefits during the pandemic. Therefore, for each beneficiary who met the program eligibility criteria, a digital account was opened for free for the operation of benefit payments.

The account opened for beneficiaries is a single bank account with transaction limitations (up to R\$ 5,000 per account), no restrictions on regular banking services, and free financial services. This favors financial inclusion since, according to Kemal (2019), restrictions within accounts for receiving benefits can negatively impact financial inclusion.

Payments were staggered according to the beneficiary's month of birth in account credit, digital use, and cash withdrawal cycles. That is, for each payment cycle, payment schedules for

digital use and schedules for cash withdrawals were defined for all beneficiaries. Thus, in the calendar for digital use, on the accounts crediting date the beneficiary could use resources through the digital social account to make payments, and make debit purchases, among others. On the calendar withdrawal date, if the beneficiary had not used their resources digitally, they could then withdraw the amounts in cash or make transfers to other bank accounts (Portaria n. 627, 2021).

Supporting regulations that serve as a legal umbrella for electronic G2P disbursement, for example, the amendment of regulations to allow for bulk and simplified registration and the regulation to allow for digital disbursement by all branches of government, states, and municipalities, is an important step towards the implementation of digital G2P (Febriarti, 2016).

A cell phone application called "CAIXA Tem" was created to meet the need for access and management of the digital social account, enabling users to have their questions answered, as well as make transfers and payments for various services such as water, electricity, phone bills, etc. "CAIXA Tem" was created to be the lightest application on the financial market - about fifteen times smaller than other banking application - and to work on any smartphone. Another differential is its usability inspired by social networks (WhatsApp), with interactions in the form of conversations making it easy to use and more popular with the intended audience. Lastly, the application also provides guided conversations with audio support to facilitate access by citizens with reading and writing limitations on mobile devices (Caixa Econômica Federal, 2021).

By the end of the same month in which the regulation was created, April 2020, more than 50 million people had already received the first parcel of the benefit (Brazil, 2020b). This was made possible by launching the Emergency Aid application after the enactment of Law number 13,982, 2020 (Lei n. 13.982, 2020), as well as through the use of the digital platform, "CAIXA Tem", to operate the accounts created for benefit payments. Furthermore, by the close of 2020, the program had provided assistance to 68 million Brazilians and paid more than R\$ 250 billion (Brazil, 2020a).

Based on the database survey, it can be observed that before the pandemic, around 35 million Brazilians regularly received social

benefits through CAIXA, using various withdrawal strategies, either at branches and lottery retailers or through account credit, and began to receive funds through the digital social account.

Despite the adopted payment model being successful, at the beginning of the program, there were crowds of people at bank branches seeking information and to withdraw benefits, as well as at Brazilian Federal Revenue units for CPF registration and regularization, a document necessary to receive financial aid. In various locations across Brazil, there were gatherings of people, presenting an additional challenge to maintaining health amidst the pandemic. This situation was recorded and strongly criticized by local media (Lázaro, 2020; Coutinho & Santos, 2020; Wendel, 2020).

Furthermore, at the start of the payments, many beneficiaries were slow to receive help due to digital exclusion. Those who lacked quality internet access or a cell phone, often the most in need, faced difficulties. This was a criticism leveled by the media at the 100% digital model adopted. A report by FGV, published in *Galileu* magazine, showed that the lack of access to a cell phone was a reason that affected almost three times more users from classes D and E compared to the total number of people who could not receive the aid (7% vs. 20%). Internet access limitations, affecting 9% of all applicants, were reported by 22% among users from classes D and E (Agência Bori, 2021).

Until the maturation of the adopted model, another problem faced by the Brazilian population was the various failures in the system provided by CAIXA and also in the registration site offered by the government (CNN Brasil, 2020). In addition, there was much dissatisfaction regarding the delay in analyzing registrations to determine eligibility for aid. Gradually, the involved parties evolved and improved the systems.

4.2 Results achieved by digital G2P

In this section, the achieved results are categorized into three sections based on the application of the *content analysis* technique (Table 3). Furthermore, a comparative analysis of Brazil's G2P approach with other countries will be presented at the end.

4.2.1 Access to Digital G2P

This category comprises a survey of factors that encourage or limit access to the cell phone application by beneficiaries of government payments. Thus, it includes two themes: (i) factors that made mass access to the application possible (enabling factors); and (ii) factors that limited access by beneficiaries. Mass adoption of the cell phone application by government payment beneficiaries was driven by factors such as application ease of use, assistance from CAIXA employees, widespread program dissemination, and high cell phone ownership rates among the population. However, about 30% of beneficiaries opted to withdraw funds at a CAIXA branch due to limitations such as lack of access to devices or user resistance to technology. Despite these challenges, the widespread presence of cell phones in Brazil minimized the technological gap, reducing the need for government investment.

Factors that enabled mass access to the application

According to the data survey results, by December 2020, CAIXA had opened 105 million digital social accounts. Of the total number of accounts that received credit benefits from the government, 70% were accessed via the “CAIXA Tem” cell phone application. For additional context, a Febraban survey of eight banks revealed that the number of accounts opened through both digital and physical channels reached 16.4 million in 2020 (Febraban, 2021). This marked a substantial increase of 67% compared to the figures in 2019 (90% growth in accounts opened through digital channels and 52% growth in accounts opened through physical channels).

According to the interviewee reports, the user-friendly quality of the application along with the assistance available from trained agents were the main motivating factors for the majority of people to have accessed the benefit through the application. In addition, the mobile network release strategy, the mass dissemination of the program, and the use of cell phones by a large percentage of the population were other points reported by the interviewees as success factors for access to the adopted digital G2P.

The support of CAIXA branch employees in teaching how to access the application, acting as digital educators and dissemination agents,

is one of the factors cited by interviewees as having the greatest impact on the extent of access to the digital solution, as cited:

Interviewee 3: *I believe our support in promoting usage, through explanations, diverse marketing efforts, queue management, and instructional guidance, has been pivotal. Initially, there was a surge in agency visits due to the first payments. However, as people became proficient with the application, visits decreased significantly. Therefore, access has improved because of these efforts.*

Interviewee 4: *Many visitors to the agency initially struggled with accessing the services. Demand was low in April but increased over time, with more people using the application alongside branch visits. While we provided guidance during the initial phase, subsequent users required less assistance.*

Also, mass dissemination and the support of friends and family with application registration helped enable the high volume of access. In the words of one of the interviewees:

Interviewee 6: *I believe mass publicity, including media and partners, was the main influencing factor. Support and clarification from fellow cashiers also contributed significantly to widespread dissemination.*

Factors that limited beneficiary access to the application

Although the majority of beneficiaries accessed the application to transfer their funds, the data survey showed that 30% withdrew funds without using it - through cash withdrawals at a CAIXA branch.

The interviews clarified and presented some reflections on this result, such as, for example, beneficiaries who did not have access to a device (cell phone) capable of opening the developed application or users who were resistant to handling the proposed digital solution, either due to lack of knowledge or fear of fraud. Some reports on the theme are highlighted below:

Interviewee 2: *One problem arose as some beneficiaries couldn't afford a cell phone. Many individuals waiting in line expressed this concern.*

Interviewee 3: *Some individuals, particularly the elderly unaccustomed to digital tools, remain resistant. Despite being capable, many still prefer visiting a physical branch for convenience.*

Interviewee 5: *Initially, there was a surge in fraud cases, which led to widespread fear among the population. However, it's likely that*

only a small portion of the population receiving the aid was affected.

4.2.2 Acceptance of Digital G2P

The use of digital money

According to the data collected, most transactions made by 70% of beneficiaries who used the application were digital. Of the total withdrawal transactions, more than 80% were digital in the form of payments, purchases, and transfers-without using cash.

As described in the interviews, a main factor influencing the program's outcomes was the government's structured calendar for benefit distribution. This schedule involved two key stages: initially, funds were deposited into beneficiaries' social accounts, followed by a period, typically one month later, when these funds were made available for withdrawal and transfer. During the interval between deposit and withdrawal availability, the funds remained locked for cash transactions. However, beneficiaries could actively use the deposited money for various digital transactions, such as paying bills, engaging in online applications, and accessing a range of services provided through the program's dedicated application. Most of the interviewees attributed the successful use of money in digital transactions to this fact, as highlighted in the following interview excerpt:

Interviewee 3: *When setting the withdrawal schedule, typically allowing a thirty-day window, approximately 70% of the population was already using the application for transactions, eliminating the need to wait until the withdrawal date.*

According to information obtained from the database, movement of funds benefited to digital social accounts through the application could be done through withdrawals, bank transfers, debit or QR code purchases, and payment of slips and bills, as shown in Table 4.

Table 4. Distribution of fund movements in digital social accounts.

Fund movements	Distribution
Withdrawals	17%
Bank transfers	20%
Debit or QR code purchases	29%
Payment of slips and bills	34%

Source: prepared by the authors based on research data.

Of digital withdrawal transactions, 34% were via Shopping, 75% were online, with a virtual debit card, and 25% were at physical establishments, such as supermarkets, via QR Code through the application. Additionally, as indicated in Table 4, 17% of the transactions were cash withdrawals, made with the generation of a token for withdrawing the funds. The various ways of using these withdrawal transactions, including this method, are detailed in Table 5.

Table 5. Percentage distribution of cash withdrawal transactions.

Cash withdrawal types	Distribution
ATMs - Automated Teller Machines	52%
Affiliated networks	40%
Bank agencies	8%

Source: prepared by the authors based on research data.

One of the factors to which interviewees attributed the high volume of purchases was the advertisements created by large retailers and shown on high-audience television that highlighted the possibility of using resources in online purchases for e-commerce.

Interviewee 3: *During this period, there was significant growth among retailers, particularly those selling through platforms like Magazine Luiza. Various items experienced increased sales, including those in local markets. It's clear that many people utilized this resource for making purchases.*

Another observation reported in the interviews was the fact that the application's Purchase options allowed for resources to be transferred to digital wallets and, thus, to be withdrawn from partner institutions even during the exclusively digital resource period. This strategy was mentioned in the interviews and summarized by one interviewee:

Interviewee 4: *We observed that many people attempted to withdraw cash by paying bills through digital platforms like PicPay or market applications, enabling them to later withdraw the money from another bank. This self-payment method was common in many cases.*

The application's QR Code, created specifically for the digital use of amounts credited by the government in face-to-face establishments, was not the most used for purchases but was accepted by beneficiaries, making up 25% of these transactions, as illustrated in Table 6 (database survey).

Table 6. Methods of purchase usage in digital social accounts.

Method	Distribution
Debit	75%
QR code purchases	25%

Source: prepared by the authors based on research data.

The main factor that enabled the effective use of the QR Code by beneficiaries and acceptance of the payment method by shopkeepers was the advertisement of the new payment method by the network of local retailers itself. Respondents cited this factor, as exemplified in the following excerpts:

Interviewee 1: *Given the extended availability of funds exclusively for this type of transaction, individuals and shopkeepers actively pursued access. The shopkeepers encouraged customers to make purchases by highlighting the convenience of having "CAIXA Tem". With the economy struggling, businesses sought opportunities to boost sales, making this initiative particularly appealing.*

Interviewee 6: *I think the term in this context is "competition" as it prompted some to adopt its use. As other businesses noticed a decline in sales, they learned about the process and began implementing it themselves. Competition, reflected in decreased sales and the potential for increased revenue, motivated everyone to embrace QR code technology.*

The learning process of individuals, spread by word-of-mouth, and the work of CAIXA employees in guiding their business clients and city governments, were success factors reported by some interviewees regarding the effectiveness of the new means of payment:

Interviewee 2: *We enlisted the support of our Superintendence to instruct the supermarket on utilizing the QR Code for market benefits.*

Interviewee 7: *We observed a significant shift in branch attendance over time. Initially, there was a high volume of people, but as awareness of the application increased and its effectiveness became known, the number of people seeking assistance at the agency drastically decreased.*

All interviewees expressed that use of the "CAIXA Tem" application was decisive in the success of the entire operation. It also boosted financial inclusion and enabled fast and secure access to information, even with some difficulty for customers when it was initially launched. As noted in the interview excerpt below:

Interviewee 1: *Initially, we considered utilizing existing bank cards for transactions and maintaining credits in pre-existing accounts. However, consolidating everything into a single application emerged as a crucial success factor. The uniformity provided by a shared calendar, along with the ability to block and release funds for everyone simultaneously, highlighted the advantages of this approach. It also facilitated digital adoption among individuals who had never envisioned using a cell phone for banking transactions.*

4.2.3 Consolidation of Digital G2P

This category comprises the perspective of stabilization and evolution of the digital G2P in Brazil based on the interviewee reports. This category encompasses two themes: (i) prospects for incorporating the application into the daily lives of government beneficiaries as an application to meet their banking needs; and (ii) measures to evolve digital G2P in Brazil.

The incorporation of digital social accounts in the daily lives of beneficiaries

a) Differential that enabled the consolidation of the digital G2P during the pandemic

The public operating bank - CAIXA - and its employees were listed unanimously by interviewees as the main factor that led to the success of the G2P in Brazil. In addition to CAIXA's accumulated expertise over decades, the service's geographical capillarity and technological capacity proved to be decisive throughout the process, opening around 100 million digital accounts in record time, according to interviews:

Interviewee 1: *The experience that CAIXA has already had with the public, with this type of benefit payment, I believe was decisive.*

Interviewee 2: *Throughout Brazil, our network is widely accessible, reaching every corner and municipality through outlets such as Caixa Econômica branches, lottery retailers, and CCAs¹, making our presence vital.*

b) The digital social account is for bank transactions

Through the wide media advertisement and communication with CAIXA branch employees, customers began to understand that the receipt account was a digital bank account.

According to the reports cited below, the linking of other government benefits to the digital social account has also proved to be an important factor for the financial inclusion of the population, boosting the use of these accounts. The creation of PIX, an instant payment method developed by the Central Bank of Brazil, along with the digital G2P payment period, enabled the consolidation of its use.

Interviewee 3: *We observe a cultural shift as many individuals have embraced the use of CAIXA's digital platform, "CAIXA Tem", effectively transitioning to digital banking. Through this initiative by the Federal Government and CAIXA, approximately thirty million people previously without bank accounts have been onboarded. These individuals have begun utilizing their accounts for various transactions, signifying a significant achievement in terms of financial inclusion and bank penetration.*

Evolution necessary to expand the use of digital G2P

When interviewees spoke on suggestions for improving, expanding, and evolving digital tools (the "CAIXA Tem" application, institutional website, among others) and the model adopted by Brazil for the transfer of benefits, the answers were varied. The suggestions ranged from sophisticated aspects related to security innovations (iris recognition) to simple changes in the application's messages.

Interviewee 2: *Publicity, right? Now that we are in a more relaxed moment, it's not like before. We didn't need to advertise it; people were already chasing after it. But now, the disclosure that these accounts remain open helps people understand they have a digital bank in their hands.*

Interviewee 8: *To enhance trust in the application, it should offer stronger security features while maintaining simplicity and agility.*

4.2.4 Comparative analysis of Brazil's G2P approach with other countries

The implementation of Brazil's digital G2P income transfer program during the COVID-19 pandemic reveals both similarities to and differences from strategies adopted by other countries, as cited in the literature. For instance, while Brazil chose a payment schedule based on beneficiaries' birth months, with

¹ CCA - Correspondente Caixa Aqui: it is a commercial establishment that offers basic banking services on behalf of Caixa Econômica Federal, such as withdrawals, deposits, and bill payments. It is a convenient alternative for accessing banking services in locations without traditional Caixa branches.

separate cycles for digital account credits and cash withdrawals, Ecuador and Peru took different approaches. According to Davidovic et al. (2020), Ecuador increased access points for withdrawals during the crisis and set payment dates based on beneficiaries' identification numbers. Conversely, Peru utilized geolocation systems to direct beneficiaries to specific locations at designated times.

Many governments have also introduced initiatives to enhance digital and financial literacy, which could be coordinated to include branch employees who assist beneficiaries. Our findings, in line with observations by Davidovic et al. (2020), highlight the importance of trained personnel in promoting the sustainability of the digital G2P model. Beneficiaries can interact with well-trained employees who are informed about the program, undergo regular audits, and provide quality customer service.

About 30% of beneficiaries opted to withdraw funds at CAIXA branches instead of using the mobile application, citing financial difficulties, technology resistance, especially among the elderly, and fraud concerns. However, Brazil's technological gap, while not unique, was somewhat mitigated by the widespread ownership of mobile phones, facilitating beneficiary adoption of the application. Innovative and flexible digital implementation, as advocated by Gelb and Mukherjee (2020), can reduce the risk of digital exclusion. For instance, Namibia allowed up to ten emergency requests per device to address limited mobile access. Similarly, besides digital G2P payments, initiatives such as the introduction of PIX in Brazil further consolidated the use of digital accounts, enhancing financial inclusion and access to government benefits.

Previous studies have highlighted the importance of public policies that promote equitable access to information and communication technologies and address digital literacy disparities to reduce Brazil's digital divide. The study by Nishijima et al. (2017) showed that although the digital divide among Brazilians is narrowing over time, a lack of digital literacy, assessed by the lack of education, is one of the main determinants of the digital divide in the country, especially among the elderly. Inequalities in access to information and communication technology goods, such as the internet and mobile phones, are related to factors such as income, employment, and the number of household members. Technological convergence and the

reduction in the prices of technological goods have contributed to improving access among the poorest individuals in the Brazilian population over time.

In terms of usability, a few points brought up by interviewees stand out, such as the application's simplicity and ease of handling. In previous G2P program launches the fact that some governments did not pay enough attention to user experience led to mixed results and in some cases a lack of improvement in financial inclusion (Baur-Yazbeck et al., 2019). These examples illustrate the importance of addressing barriers to digital access and usage to ensure inclusivity in digital payment systems.

Establishing a calendar allocating an exclusive period for digital benefit use underscores the importance of strategies to encourage digital transaction usage, as highlighted in interviews. This approach mirrors Gelb and Mukherjee's (2020) findings, where similar trends were observed in Rwanda and Kenya. Both countries experienced significant increases in digital transactions following policy interventions aimed at reducing transaction fees and promoting digital payment systems, demonstrating the effectiveness of such measures during crises like COVID-19. Gelb and Mukherjee (2020) point out that Rwanda implemented a radical cut in digital payment fees, requiring zero charges on a wide range of transactions and tripling limits on mobile wallet transfers. In a short time, digital transactions increased to 450% of previous values. Kenya also saw an increase in digital payments after lowering rates on mobile money transactions, growing from 44% to 61% of financial transactions in the first two months of the crisis.

Efforts to promote digital money usage, including retailer advertisements and resources for digital wallet transfers, were pivotal in driving online purchases. Additionally, the widespread acceptance of QR codes for in-person transactions and the support provided by CAIXA employees significantly influenced the adoption of the new payment method, in line with Davidovic et al.'s (2020) emphasis on public-private collaboration to reduce cash usage. The authors highlighted the potential for a large network of merchants, as well as other public and private actors, to further encourage beneficiaries to adopt mobile payments, when possible, thus decreasing withdrawals. In other words, companies must be engaged in designing

the program to limit cash outflows from G2P payments.

Moreover, in Zimbabwe, partnerships between the central bank, mobile network operators, and financial institutions played a crucial role in reducing cash dependence and promoting mobile payments. To address the cash shortage, in 2018 the central bank of Zimbabwe partnered with the country's leading mobile operator, Econet Wireless, and Mastercard to enable merchants to accept Ecocash mobile money at stores already equipped with card readers, empowering over 3,800 merchants to receive payments in mobile money. This public-private partnership is critical for reducing the reliance on cash (Davidovic et al., 2020).

The "CAIXA Tem" application played a decisive role in the program's success, fostering financial inclusion and providing rapid, secure access to information despite initial implementation challenges. In this regard, Mexico serves as an illustrative example, as highlighted by Santos (2014), where there is evidence that accounts opened through social transfer programs led to an increase in the frequency of formal payments received. Thus, the use of digital social accounts for benefit payments facilitates the process of financial inclusion. These findings stand in contrast to the observations made by Davidovic et al. (2020) in Niger, where beneficiaries receiving cash had to travel approximately 2 km (one way), or about 30 minutes, to receive the transfer, whereas the commute for the group receiving mobile money transfers was less than 0.5 km (less than 10 minutes). This underscores the importance of tailoring digital payment solutions to address the unique needs and challenges of different populations and regions.

Additionally, the research underscores the vital role of digital social accounts in facilitating government payments during the pandemic. CAIXA swiftly opened over 100 million digital accounts, promoting client understanding and linking other government benefits to these accounts. This finding aligns with the theory advocated by Santos (2014) that emphasizes the importance of encouraging financial inclusion and sensitizing governments and institutions to adopt an electronic payment system for basic services. Such services include paying energy bills, receiving monetary assistance, and accessing other benefits, which collectively contribute to the development of an infrastructure

of e-finance services accessible to the world's low-income population.

Finally, the interviews reveal several suggestions for improving digital tools and the government benefits transfer model in Brazil, ranging from security innovations to simple interface adjustments. These suggestions reflect a concern for balancing security, accessibility, and usability. According to Davidovic et al. (2020), as countries increase their level of digitization and begin to integrate emerging technologies into their ecosystem, government assistance programs have the potential to become more efficient and effective. For instance, China is actively working to establish nationwide connectivity and digitize social security systems using blockchain technology, artificial intelligence, big data, and 5G networking.

5. Conclusion

This study consolidated, analyzed, and contextualized the main components of Brazil's digital G2P model. By examining data on digital social account usage through database surveys and conducting interviews with managers who assist government beneficiaries at financial institution branches, we gained deeper insights into the results.

Our analysis also involved a comparative study between the Brazilian model described in this article and models proposed in existing studies. This comparison underscores the importance of digitizing social benefit payments to promote financial inclusion and ensure swift and secure access to resources. While Brazil's approach involved the creation of digital social accounts and the use of a dedicated application, broader guidelines for sustainable digital solutions in global social assistance programs have been proposed in the studies. Brazil's experience in implementing digital payments during the COVID-19 pandemic highlights the significance of partnering with experienced financial institutions like CAIXA and integrating innovative technologies such as the "CAIXA Tem" application to facilitate beneficiary access. These initiatives, along with structured payment calendars and secure digital transaction options, contribute to the advancement of digital income transfer models worldwide.

Four critical success factors of Brazil's G2P model were identified: (i) the operation of the program by a financial institution with

expertise in government benefits payments; (ii) the launch of a user friendly mobile application for managing fund movements in social accounts by beneficiaries; (iii) the implementation of payment calendars based on birth month with an exclusive digital transaction period; and (iv) the integration of the “CAIXA Tem” application with wide physical service infrastructure for withdrawals and other banking transactions.

The financial institution that manages the Brazilian G2P, CAIXA, has experience acting as an operating agent of the federal government's income transfer programs. According to the findings of this study, the selection of this financial institution to operationalize the digital payment of social benefits during the COVID-19 pandemic was one of the success factors to implement the digital G2P in Brazil. According to Davidovic et al (2020), choosing a financial institution to receive funds directly from the government and deposit them in a mobile money account for recipients is one of the eight factors that, according to the authors, enable a sustainable digital G2P structure.

The “CAIXA Tem” application was developed to permit access to and movement of funds in the digital social account, with functions to carry out consultations, transfers, and various payments (water, electricity, telephone, bank slips, etc).

This study also demonstrates that shortly after “CAIXA Tem” was launched the application was adjusted to include new functions for electronic use of money through the digital social account. Considering the need to avoid crowds, adhere to best practices, protect the health of the population, and thus minimize the risk of spreading COVID-19, in addition to the development of the “CAIXA Tem” application, CAIXA made available the use of the QR Code and the Virtual Card so that financial transactions could be carried out without the customer having to leave home. This function provided an alternative for the use of resources by beneficiaries, allowing the payment of purchases through POS systems in physical establishments using the QR Code, in addition to the payment of purchases in electronic retail through virtual debit.

Additionally, to encourage the use of digital strategies in the face of recommendations to social distance and avoid crowds to prevent the spread of COVID-19, the Government passed ordinances by means of the *Ministério da*

Cidadania to define payment schedules with a period in which the resources were only available for digital transactions. During this period beneficiaries could pay bills, slips and making purchases using a virtual debit card or QR Code. After this period of exclusively digital use the funds could be used as cash and were authorized for withdrawal or to be transferred to any bank account free of charge.

The digital social accounts, in addition to the “CAIXA Tem” application, have the entire service infrastructure of the Operating Financial Institution, which has coverage in 99% of the Brazilian territory. Beneficiaries living in municipalities where there are no physical CAIXA branches can manage their accounts at the *Unidades Lotéricas*, Brazilian lottery retailers where customers are attended exclusively and can make withdrawals, deposits, and payments, among other services. There are also municipalities in which the population has access through a commercial establishment accredited by the Institution, *Correspondente CAIXA AQUI*, usually a market or bakery, where withdrawals and deposits, among other services, are available. As explained by Davidovic et al. (2020) even with mobile payment, G2P beneficiaries are likely to go to the bank or ATMs to exchange their government-issued mobile money for cash, thus cash-in/cash-out networks (CICO) play a key role in digital G2P money transfer programs for enabling beneficiaries to securely exchange mobile money for physical money. Studies have shown that most beneficiaries withdraw 100% of their payment immediately (Zimmerman and Baur, 2016).

Looking ahead, given ongoing advancements in financial technology and the evolving landscape of government-led innovations, future research could explore the potential integration of the Central Bank of Brazil's digital currency, Drex (a central bank digital currency), into the country's G2P model. CBDCs offer governments a unique opportunity to directly provide financial services to unbanked populations, bypassing traditional financial institutions and fintech companies. By leveraging CBDCs, the Brazilian government could expand its outreach efforts to underserved communities, ensuring broader and more resilient financial inclusion. Consequently, future research could delve into the feasibility and implications of integrating CBDCs into Brazil's G2P programs, examining how such initiatives could optimize the delivery of

government benefits and economically empower marginalized populations. Future studies also investigate how integration with digital social accounts influences not only the initial adoption of the program but also its ongoing utilization by beneficiaries over time.

Lastly, limitations of this study include the fact that beneficiaries were not surveyed

regarding their satisfaction with the implemented model; thus, we suggest a complementary study to identify the opinions of digital social account beneficiaries. Another item to be addressed is the effectiveness of financial inclusion in Brazil after the implementation of the digital G2P during the COVID-19 pandemic.

References

- Agência Bori. (2021). *Exclusão digital afetou acesso ao auxílio emergencial das classes D e E*. Galileu. <https://revistagalileu.globo.com/Sociedade/noticia/2021/05/exclusao-digital-afetou-acesso-ao-auxilio-emergencial-das-classes-d-e-e.html>
- Bardin, L. (2009). *Análise de Conteúdo*. Edições 70.
- Barros, R. (2020). "Não precisam ir às agências, temos app para todos os serviços" diz Superintendente da CEF. *Jornal Fato*.com.br. <https://www.jornalfato.com.br/saude/-nao-precisam-ir-as-agencias-temos-app-para-todos-os-servicos-diz-superintendente-da-cef,360408.jhtml>
- Baur-Yazbeck, S., Chen, G., & Roest, J. (2019). *The Future of G2P Payments: Expanding Customer Choice*. CGAP. https://www.cgap.org/sites/default/files/publications/2019_09_FocusNote_Future_G2P_Payments_2.pdf
- Berman, E., Gonzalez, L., Diniz, E. H., & Alves, M. A. (2023). Public Management Frontiers in Guaranteed Income Programs: Advancing Implementation. *Public Administration Review*, 1-11. <https://doi.org/10.1111/puar.13771>
- Brazil. (2020a). *Programa já pagou R\$ 250 bilhões a 68 milhões de brasileiros*. Ministério da Cidadania. <https://www.gov.br/pt-br/noticias/assistencia-social/2020/11/programa-ja-pagou-r-250-bilhoes-a-68-milhoes-de-brasileiros#:~:text=O%20Aux%C3%ADlio%20Emergencial%20j%C3%A1%20ultrapassou,da%20metade%20da%20popula%C3%A7%C3%A3o%20brasileira>
- Brazil. (2020b). *Mais de 50 milhões de brasileiros já receberam auxílio emergencial do Governo Federal*. <https://www.gov.br/pt-br/noticias/financas-impostos-e-gestao-publica/2020/04/mais-de-50-milhoes-de-brasileiros-ja-receberam-auxilio-emergencial-do-governo-federal#:~:text=O%20aux%C3%ADlio%20emergencial%20de%20tr%C3%AAs,com%20a%20Caixa%20Econ%C3%B4mica%20Federal>
- Caixa Econômica Federal. (2021). *CAIXA Tem disponibiliza serviços em conta gratuita para mais de 105 milhões de brasileiros*. Caixa Notícias. <https://caixanoticias.caixa.gov.br/noticia/24511/caixa-tem-disponibiliza-servicos-em-conta-gratuita-para-mais-de-105-milhoes-de-brasileiros>
- Caixa Econômica Federal. (n.d.). *Benefício emergencial de manutenção do emprego e da renda - BEm 2021*. <https://www.caixa.gov.br/beneficios-trabalhador/beneficio-emergencial/Paginas/default.aspx>
- Cernev, A. K. (2015a). *Como pagar os benefícios do Bolsa Família pelo celular*. Fundação Getúlio Vargas. <https://pesquisa-eaesf.fgv.br/publicacoes/gvp/como-pagar-os-beneficios-do-bolsa-familia-pelo-celular>
- Cernev, A. (2015b). *Innovations in conditional cash transfer programmes in the digital age: the payment of Bolsa Family Program via mobile phone (Inovações em programas de transferência condicionada de renda na era digital: viabilidade do pagamento do Programa Bolsa Família via celular)*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2924759
- CNN Brasil. (2020). *Auxílio emergencial: usuários enfrentam problemas com aplicativo da Caixa*. <https://www.cnnbrasil.com.br/economia/caixa-tem-nao-funciona-usuarios-reclamam-de-aplicativo-do-auxilio-emergencial/>
- Coutinho, R. & Santos, A. P. (2020). *Pessoas se aglomeram em filas de agências da Caixa no primeiro dia do saque do auxílio emergencial no RJ*. G1. <https://g1.globo.com/rj/rio-de-janeiro/noticia/2020/04/27/pessoas-dormem-na-fila-da-caixa-no-primeiro-dia-do-saque-do-auxilio-emergencial-no-rj.ghtml>
- Creswell, J. W. (2021). *Projeto de pesquisa: Métodos qualitativo, quantitativo e misto* (5ª edição). Artmed.
- Davidovic, S., Nunhuck, S., Prady, D., & Tourpe, H. (2020). *Beyond the COVID-19 crisis: A framework for sustainable government-to-person mobile money transfers* (IMF Working Paper - WP/20/198). <https://www.imf.org/-/media/Files/Publications/WP/2020/English/wp2020198-print-pdf.aspx>
- Decreto n. 10.316, de 7 de abril de 2020 (2020). Regulamenta a Lei nº 13.982, de 2 de abril de 2020, que estabelece medidas excepcionais de proteção social a serem adotadas durante o período de enfrentamento da emergência de saúde pública de importância internacional decorrente do coronavírus (covid-19). <https://www.in.gov.br/en/web/dou/-/decreto-n-10.316-de-7-de-abril-de-2020-251562799>
- Falleti, F. (2021). *Pandemia acelera bancarização e transforma setor de meios de pagamento*. Febraban Tech. <https://febrabantech.febraban.org.br/temas/meios-de-pagamento/pandemia-acelera-bancarizacao-e-transforma-setor-de-meios-de-pagamento>

- Febraban. (2021). Pesquisa FEBRABAN de Tecnologia Bancária 2021 (ano-base 2020). Febraban - Federação Brasileira de Bancos. <https://cmsarquivos.febraban.org.br/Arquivos/documentos/PDF/pesquisa-febraban-relatorio.pdf>
- Febriarti, P. (2016). *Electronic G2P to Increase Financial Inclusion in Indonesia*. The Fletcher School: Leadership Program for Financial Inclusion, Policy Memoranda, 68-76. https://sites.tufts.edu/flpfi/files/2017/08/FLPFI_PolicyMemoranda_2016.pdf
- Gelb, A., & Mukherjee, A. (2020). *Digital technology in social assistance transfers for COVID-19 relief: Lessons from selected cases* (CGD Policy Paper 181). <https://www.cgdev.org/sites/default/files/digital-technology-social-assistance-transfers-covid-19-relief-lessons-selected-cases.pdf>
- Kemal, A. A. (2019). Mobile banking in the government-to-person payment sector for financial inclusion in Pakistan. *Information Technology for Development*, 25(3), 475-502. <https://doi.org/10.1080/02681102.2017.1422105>
- Klapper, L., & Singer, D. (2017). The opportunities and challenges of digitizing government-to-person payments. *The World Bank Research Observer*, 32(2), 211-226. <https://doi.org/10.1093/wbro/lkx003>
- Lázaro, N. (2020). *R\$ 600: trabalhadores fazem fila na Receita para regularizar CPF*. Metrôpoles. <https://www.metropoles.com/brasil/r-600-trabalhadores-fazem-fila-na-receita-para-regularizar-cpf>
- Lei n. 13.982, de 2 de abril de 2020 (2020). Altera a Lei nº 8.742, de 7 de dezembro de 1993, para dispor sobre parâmetros adicionais de caracterização da situação de vulnerabilidade social para fins de elegibilidade ao benefício de prestação continuada (BPC), e estabelece medidas excepcionais de proteção social a serem adotadas durante o período de enfrentamento da emergência de saúde pública de importância internacional decorrente do coronavírus (Covid-19) responsável pelo surto de 2019, a que se refere a Lei nº 13.979, de 6 de fevereiro de 2020. <https://www.in.gov.br/en/web/dou/-/lei-n-13.982-de-2-de-abril-de-2020-250915958>
- Lei n. 14.075, de 22 de outubro de 2020 (2020). Dispõe sobre a conta do tipo poupança social digital; e altera as Leis nºs 13.982, de 2 de abril de 2020, e 14.058, de 17 de setembro de 2020. <https://www.in.gov.br/en/web/dou/-/lei-n-14.075-de-22-de-outubro-de-2020-284690181>
- Nishijima, M., Ivanauskas, T. M., & Sarti, F. M. (2017). Evolution and determinants of digital divide in Brazil (2005-2013). *Telecommunications Policy*, 41(1), 12-24. <http://dx.doi.org/10.1016/j.telpol.2016.10.004>
- Pesqué-Cela, V., Tian, L., Luo, D., Tobin, D., & Kling, G. (2021). Defining and measuring financial inclusion: A systematic review and confirmatory factor analysis. *Journal of International Development*, 33(2), 316-341. <https://doi.org/10.1002/jid.3524>
- Portaria n. 627, de 15 de abril de 2021 (2021). Dispõe sobre o calendário de pagamentos e saques do auxílio emergencial 2021, instituído pela Medida Provisória nº 1.039, de 18 de março de 2021. <https://www.in.gov.br/en/web/dou/-/portaria-mc-n-627-de-15-de-abril-de-2021-314599157>
- Roa, M. J. (2015). Financial inclusion in Latin America and the Caribbean: Access, usage and quality. Center for Latin American Monetary Studies (CEMLA). <https://www.cemla.org/PDF/investigacion/inv-2015-04-19.pdf>
- Santos, E. L. dos. (2014). *Do escambo à inclusão financeira: A evolução dos meios de pagamento*. Linotipo Digital.
- Veja. (2010). *Pagamento do Bolsa Família será feito através do celular*. Grupo Abril. <https://veja.abril.com.br/politica/pagamento-do-bolsa-familia-sera-feito-atraves-do-celular/>
- Wendel, B. (2020). *Caixa anuncia medidas para organizar filas e barrar aglomeração durante a pandemia*. Correio. <https://www.correio24horas.com.br/coronavirus/caixa-anuncia-medidas-para-organizar-filas-e-barrar-aglomeracao-durante-a-pandemia-0520>
- World Bank. (2014). *Relatório anual - 2014*. https://openknowledge.worldbank.org/bitstream/handle/10986/20093/WB%20Annual%20Report%202014_PT.pdf?sequence=19
- Zimmerman, J. M., & Baur, S. (2016). *Understanding how consumer risks in digital social payments can erode their financial inclusion potential* (CGAP Brief, World Bank). <http://hdl.handle.net/10986/24568>

About the authors

Thays Cintra Vieira

Master's degree in Governance, Technology, and Innovation from the Catholic University of Brasília. Bachelor's degree in Business Administration from the University of Brasília. <https://orcid.org/0009-0004-5558-096X>

Rosalvo Ermes Streit

Ph.D. in Business Administration from the Federal University of Rio Grande do Sul, with a concentration in Information Systems and Decision Support. Master of Science (M.Sc.) in Computer Science from the Federal University of Rio Grande do Sul, with a concentration in Information Systems. Specialist Certificate in Strategic Administration of Information Systems from FGV/EBAP/DF. Bachelor of Science (B.S.) in Electrical Engineering (with an emphasis in Electronics) from the Pontifical Catholic University of Rio Grande do Sul. Since 2010, he has served as a professor and researcher in the Master's program in Governance, Technology, and Innovation (MGTI) at the Catholic University of Brasília. <https://orcid.org/0000-0003-4479-7966>

Ana Paula Bernardi Da silva

Bachelor of Science (B.S.) in Mathematics from the Federal University of Rio Grande (1995), Master of Science (M.Sc.) in Computational Applied Mathematics from the Federal University of Rio Grande do Sul (1998), and Ph.D. in Electrical Engineering from the University of Brasília (2015). Since 2000, she has served as a professor at the Catholic University of Brasília, where she works in the Master's program in Governance, Technology, and Innovation (MGTI).

<https://orcid.org/0000-0002-9963-282X>