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MONEY AND PAYMENTS

IN LOW INCOME BRAZIL

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GLOSSARY

Banco Central do Brasil (BCB)

Central Bank of Brazil

Boleto (meaning ticket)

An official Brazilian push payment regulated by the Federation of Brazilian Banks that comes in the form of either a pdf or a bar code

CPF (Cadastro de Pessoas Físicas or Natural Persons Register)

Brazilian personal tax file number

CNPJ (Cadastro Nacional de Pessoas Jurídicas)

Brazilian corporate tax file number

Loterica

A shop that sells all federal lotteries and provides some services, such as paying bills¹

Programa de Integração Social (PIS)

Social Integration Program, unemployment insurance for people working in private companies

FOREWORD

Emerging digital technologies are transforming currencies and finance, changing the way we save, spend and exchange value. Today's diverse landscape of financial tools is set to become even more versatile in response to evolving social and economic pressures. Sovereign issuers in more than a hundred countries are considering how Central Bank Digital Currencies (CBDCs) could contribute additional choice by providing a resilient, innovative, and public means of payment that is accessible to all - a digital complement to physical banknotes and coins.

Removing barriers to the adoption of new payment technologies promises to broaden access to the digital economy, promote greater financial inclusion and stimulate international trade. However, the features and trade-offs in the design of such technology need to be carefully weighed to meet the needs of a whole ecosystem of stakeholders. Ultimately, the success of any CBDC project rests on public acceptance – it must serve public demand and offer compelling incentives for adoption.

While there is a growing body of research - and some hyperbole - about the potential benefits CBDC could bring to our societies, much of it is written from a top-down or technology first perspective. There is little available investigation into understanding what the public might want, their desires and incentives for a new form of value exchange.



This research begins to address the knowledge gap by asking how a CBDC could complement people's existing financial toolboxes to help them achieve their daily goals. Led by financial anthropology experts, the study uncovers qualitative insights about contextual behaviour and decision making that influences how and why people use different forms of money. It examines the triggers for people's choice in financial tool, challenges with existing means of payment and emerging needs.

Policy and design decisions on digital currencies cannot be separated from circumstantial human, social, and cultural factors, which will ultimately influence uptake. The scope of this research is focused on a single context that provides a rich intersection of demographics, technology use and culture. Brazil's large informal sector and rapidly growing adoption of a variety of digital payments provide a unique lens through which claims about the need for CBDC as a financial inclusion tool can be well considered.

In SICPA's Digital Labs we work on technologies like verifiable credentials, decentralised mobile protocols, secure Internet of Things, privacy-preserving artificial intelligence, safe value exchange – and optimal human experience for all of them. We are developing these to help solve critical trust issues in sovereign states. To do this we depend on a deeper understanding of how such technologies might be used, and the motivations and needs of the people whose lives they will ultimately impact. We are pleased to contribute to this research which uncovers new insights, adds to existing knowledge, and warrants wider discussion on the implications of the introduction of CBDCs. This paper is a call to action for further qualitative research to be undertaken globally and for practical application of the findings in the design and development of the digital infrastructure that will underpin tomorrow's society.

Andrew Slack
Senior Design Strategist
Digital R&D, SICPA



INTRODUCTION

In almost every country in the world central banks and governments are considering the introduction of some kind of digital cash.² This involves many macroeconomic questions including the potential or competition that arises from the development of private (non-governmental) digital money.

Though digital money might foster financial inclusion, few studies explore consumer needs and reactions to it. The Dutch central bank recently observed:

“To the best of our knowledge, there is no empirical research available concerning the adoption of CBDC from a consumer perspective and the factors that influence this adoption.”³

This research aims to better understand consumer behaviour among low income groups in Brazil with regard to changes in forms of money and ways of transacting. It asks whether consumers need or desire a new form of money, what gaps such money could fill, and what contexts and behaviours may shape the answers. In particular, we have looked at how people pay, how and why they choose between different tools like cash, cards and the new Brazilian tool Pix as well as how payments fit into their entire financial toolbox.

Our desk research found that when introducing a new means of payment with the goal of inclusiveness it is important to assure Access, Relevance, Network effect, and Affordability, and so our field research’s aim is to generate insights that inform on how best to introduce a new means of payment, a CBDC more specifically, to the public.

In this report we present our results. First we describe our methods, attendant challenges, and fieldsites. Second we present the insights generated. Third we discuss the broader implications, and finally we wrap up with a brief conclusion.



METHOD

We took a comparative, qualitative approach, carrying out an ethnographic study in an urban location and a rural location in Brazil. We spent considerable time embedded in the research sites, getting to know the localities, watching people as they moved around the city and shopped, talking with vendors and passers-by. Besides watching people, we also experimented with paying for different kinds of purchase in a variety of ways and with different types of vendors. We also implemented a small (non-representative) survey. The bulk of our data came from people with lower incomes; however, we carried out a few interviews with people in the middle income strata to compare attitudes and behaviours.

DESK RESEARCH

Before commencing fieldwork we undertook desk research: this informed the research design, and throughout this report we include references to this report where it helps us to understand our observations. The aim was threefold:

- To support the development of an adequate interview guide
- To choose locations that would be likely to build knowledge about low-income families payments in different contexts in the short timeframe
- To build an understanding of the main framework of the Brazilian financial system, with a particular focus on the offer of payment solutions and the introduction of new solutions.

The desk research falls in two parts:

The first part is a brief overview focused on recent insights into people's choice of payments in everyday finance. We take a particular interest in some of the difficulties that low-income segments might encounter, including unbanked and underbanked groups. We focus on what might drive or hinder the choice of a new type of payment. We relate these findings to overall developments in the financial payments landscape.

In a separate section we take a brief look at the global (but generally nationally-based) initiatives to move from cash to general electronic payment systems. We do not, however, go into a broad discussion of the definition of money or discuss macro-economic perspectives. We identify some of the main consumer-related characteristics and potentials, relating them to the findings in the earlier section.

In the second part we delve into the large, complex and fast-developing financial ecosystem in Brazil. This ecosystem is very much shaped by the large size of the market and by the particularities in the country's history. We look into some of the economic and cultural differences throughout Brazil. We then present an outline of the financial ecosystem to focus particularly on the general knowledge on means of payment and payment behaviour.

OBSERVATIONS

Throughout the entire period of fieldwork we conducted observations and recorded them in the form of field notes. We spent time in public places in several locations in each fieldsite, watching how people made payments, paying particular attention to interactions between vendors and customers, and the extent to which people seemed to feel comfortable handling items like cash, cards and their phone in public.

We also conducted ‘participant observation’, paying for things ourselves using various methods to test processes and, in particular, asking all shops and vendors if they accept Pix (whether we were intending to pay with it or not).

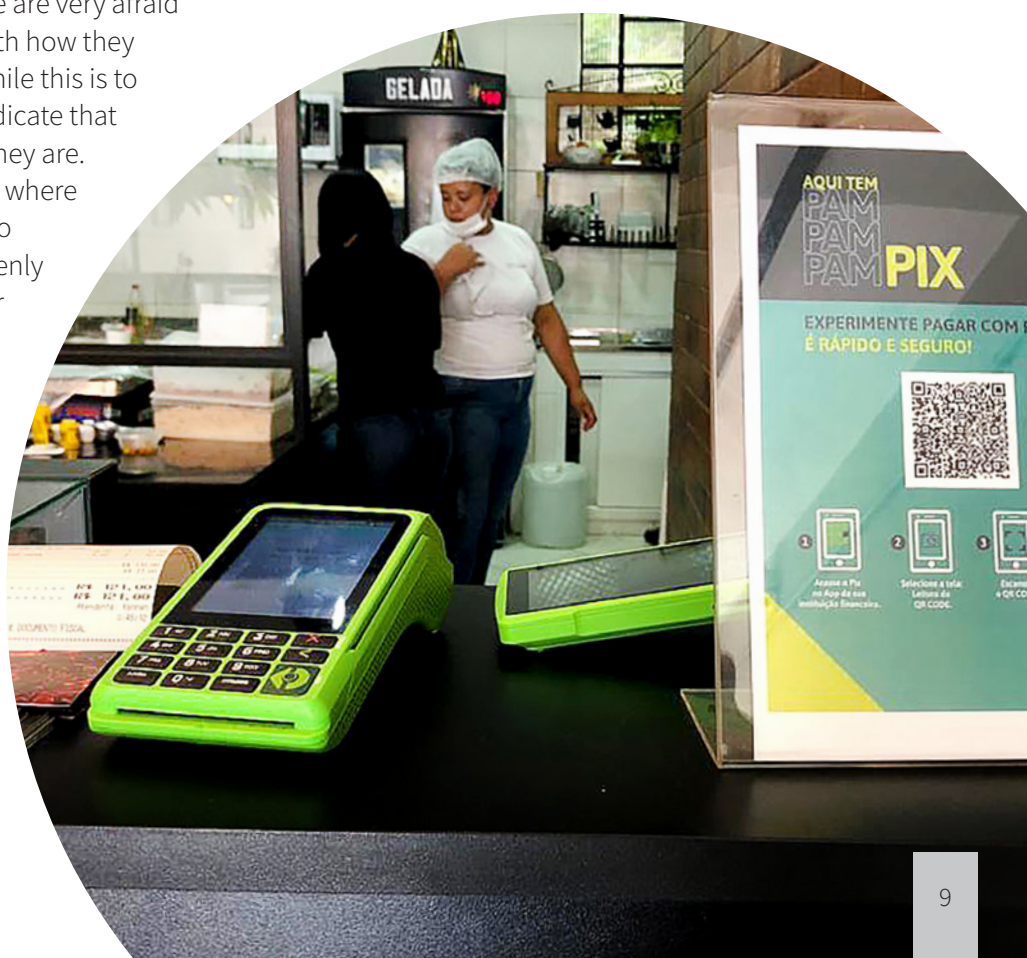
The value of these kinds of observations is not to be underestimated as they serve as a reliable way to cross-check findings from the surveys and interviews. Observations are a core method of ethnographic research. They are an excellent way to discover how people actually use services rather than relying on people to tell us what they do.

For example, when reading the interviews one could be left with the impression that people are very afraid of theft and are exceedingly careful with how they manage valuables in public places. While this is to some extent true, our observations indicate that people are not as careful as they say they are. In Rua 25 de março in particular, a site where people say they must be very careful to avoid theft and fraud, people were openly using their phones, standing with their cards in their hands for long periods, and communicating their CPFs (Brazilian personal tax number). Our analysis of the interview and survey data is tempered, and improved, by our observations.

SHORT SURVEY

We carried out two short surveys consisting of eight questions each: one for shoppers (15 in city, 12 in country) and one for merchants (15 in city, 12 in country). Initially, this survey was not planned. Rather, we decided to carry out the survey at the beginning of our fieldwork as a way of meeting people in public spaces and recruiting them to interview, with the hope that perhaps we would collect some useful information.

In fact, the survey, while short, provided information that was immensely helpful in the early stages of our research. First, it drew our attention to the fact that there was little consistency in how people were choosing to pay (cash, card, or Pix) and which method they felt was safest. Second, it made it clear that the main divide we were observing was not rural/urban, but related more to the kinds of infrastructure and services available and the levels of safety people felt. For example, with respect to the use of Pix we found greater similarities between São Paulo and the countryside than between São Paulo and the larger town within the countryside. Making this discovery early allowed us to explore these questions further in interviews.



INTERVIEWS & PORTABLE KIT STUDY

We conducted 63 open-ended interviews: 33 urban and 30 rural. With 20 of these same participants we used a modified interview method called the ‘Portable Kit Study’ in addition to the standard interview (see Appendix B).⁴ ‘Portable Kit’ refers to the things people carry with them on a daily basis when away from home. We specifically asked participants about the money-related items they use daily: cash, cards, receipts, apps on their phones, and so on.

THE INTERVIEWEES

While we contacted the interviewees through the survey and local connections, we kept track of their general background to achieve as broad a representation as possible. In both the rural and the urban sites the gender representation is almost equal (31-32 male-female). The age distribution is not too different from the national structure, as shown in Table 1, but has an overrepresentation of young people.

To estimate income, we divided the interviewees into groups based on the information in their interviews. About two thirds of the interviewees fall in a low-income group with about 15% very poor and a group of around 20% from middle income and above. These last were included for comparison. It is important to note that many (at least one third) are self-employed or have some kind of small business alongside their day job. This affects their general money management because of tax requirements.

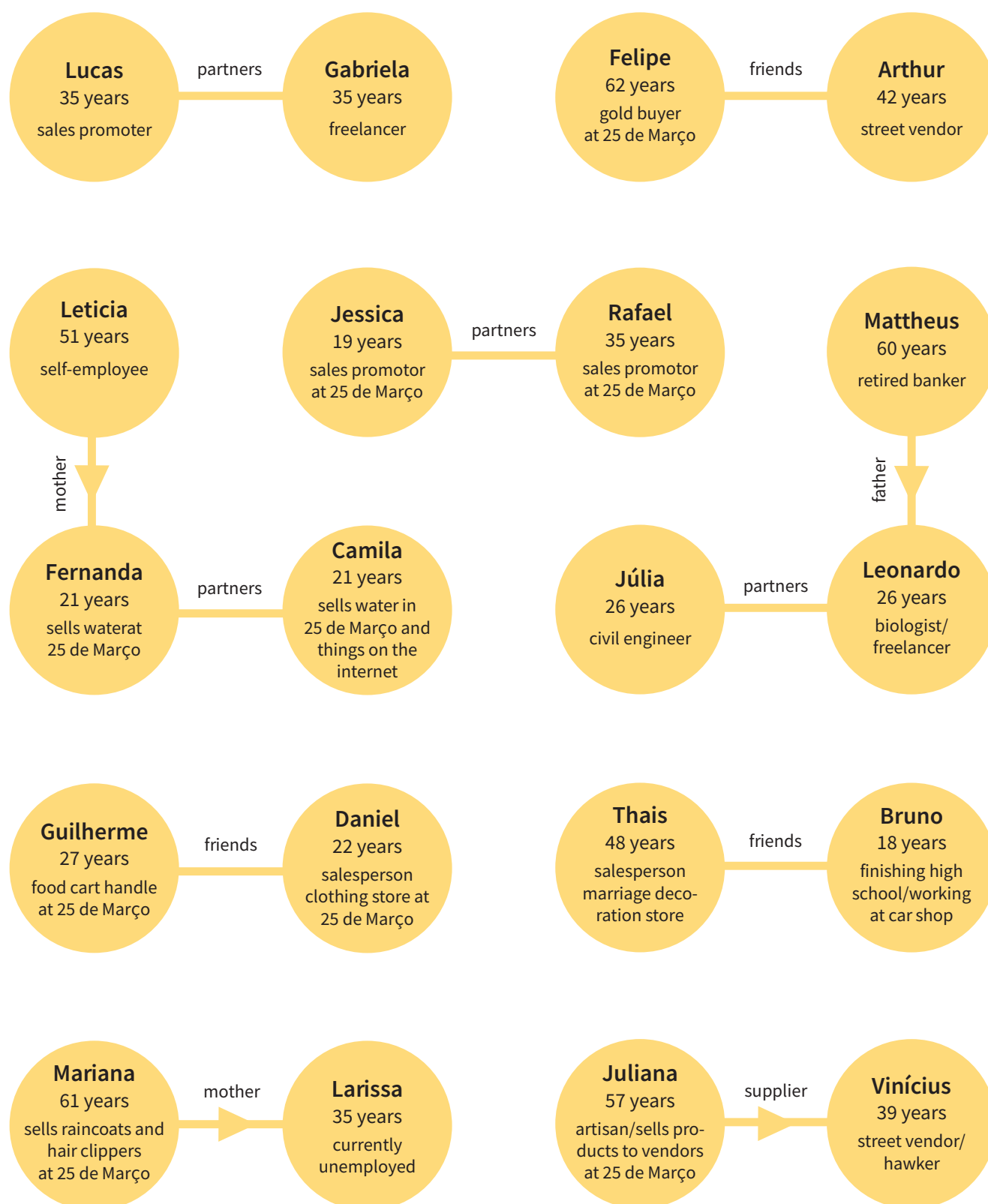
With regard to civil status, about half lived with a spouse or with a partner, while the other half were single, divorced, or widowed. Just over half the interviewees in both locations have children.

Table 1: Interviewee age distribution, %

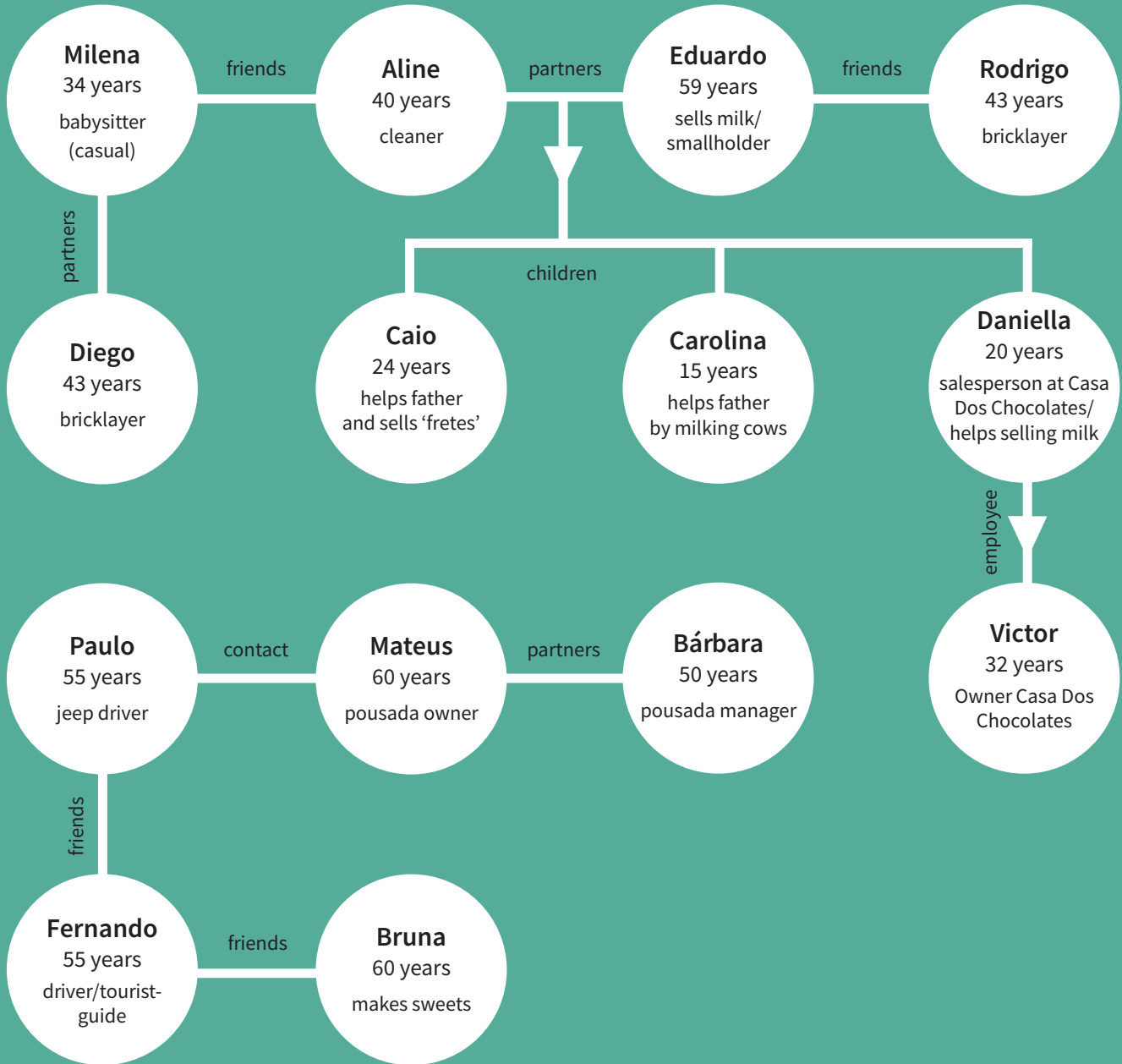
Age group Adults	Urban	Rural	Both locations	Brazil total
<29	42	26	35	25
30-49	36	36	37	40
>50	21	37	29	35
Total	100	100	100	100

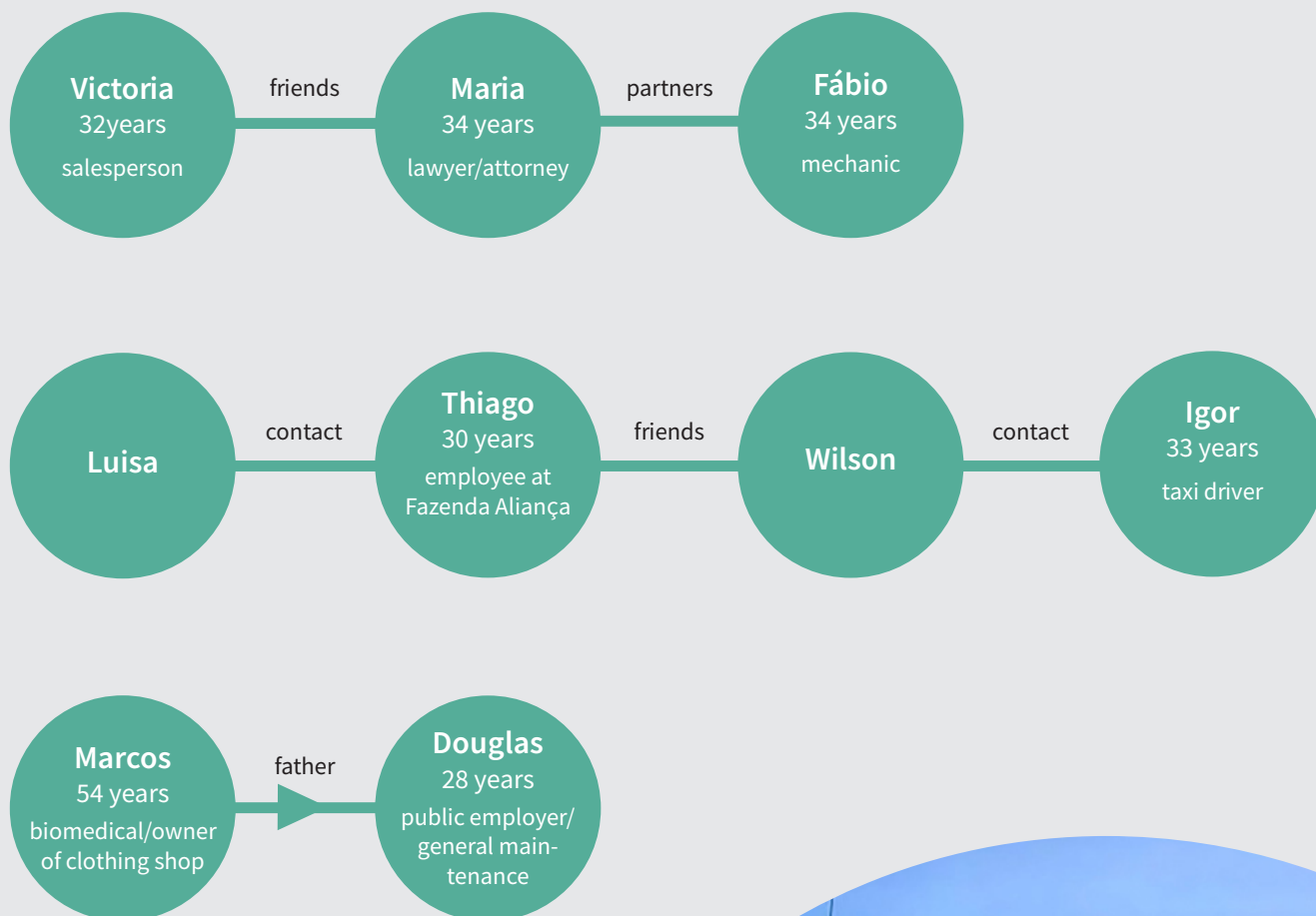
“ABOUT TWO THIRDS OF THE INTERVIEWEES FALL IN A LOW INCOME GROUP, WITH ABOUT 15% VERY POOR AND A GROUP OF AROUND 20% FROM MIDDLE INCOME AND ABOVE.”

Infographic 1. Relations between urban interviewees: SÃO PAULO



Infographic 2. Relations between rural interviewees: IPIABAS and VALENÇA





FIELDSITES

Brazil has a population of 212 million people, with 86.82% living in urban areas. With a GDP of USD 6,796.84 per capita, Brazil is an upper middle-income country that is fast developing its financial and technology sectors.

Hyperinflation in the late 1980s and early 1990s caused economic turmoil at both the national and household level. After several failed attempts to control hyperinflation, especially using price freezing, the unstable economic situation was eventually solved by the introduction of the Plano Real in 1994 and a major state intervention program to restructure the banking sector.⁵

This historical event is important for this research because instability in prices and currencies has significant psychological effects on consumers, undermining their trust in money, the institutions that govern it, and the economy more broadly. This is particularly the case as inflation has once again been increasing during the pandemic, with annual inflation reaching 9.68 in August 2021.⁶ Moreover, hyperinflation prompted the Banco Central do Brasil (BCB), and the industry more generally, to innovate. As a result, the financial sector in Brazil developed online banking and other digital tools before many wealthier countries.⁷

Financial practices differ substantially between the country and the city, largely due to differences in financial infrastructure. Theoretically, reduced ability to use Internet- or mobile-based services should drive people in rural areas towards cash usage. However, ATMs are also scarce, and so in practice people have long depended on providing informal credit to each other. This situation is changing as connectivity increases, allowing both smartphones and POS machines to penetrate the countryside. Moreover, it is possible that cash has never really played a dominant role in everyday transactions. Rather, it is possible that in many rural areas behaviour is shifting from the use of informal credit on a daily basis and cash when necessary to settle accounts, to debit/credit cards and Pix.

Some studies suggest that attitudes to money may differ between rural and urban environments. A study by Moreira (2002) suggests that attitudes to money vary around the country.⁸ In particular, rural areas are less accepting of change and universalism.

In contrast, Sao Paulo may have the most complex attitudes to money.

Money and religion are also often connected, although it is unclear whether this connection differs throughout the country. An article by Sansi Roca argues, contrary to the view of many academics that money and religion only became connected in the Pentecostalist churches, that money has always been a part of religion in Brazil.⁹ While this connection is likely to have little impact on the management of finances in everyday life, it is worth being aware that people's attitudes to money can take on religious tones. For example, people may ask God to bring them income or help them win in a betting game.

Practices also differ within cities, especially in relation to income levels, profession, and access to financial tools. In particular, attitudes to money and credit

can differ depending on people's relations with one another. Anthropologist Marie Kolling has conducted research on digital money and credit among people on the margins of the city and the formal economy.¹⁰ Kolling explains that credit has proliferated in recent years and that the poor have far more access to it. However, maintaining access takes work. When people get a 'dirty name' and are refused credit, they may find someone with a 'clean name' to borrow, such as a family member. She also describes how informal sellers extend credit to their customers, arguing that this is not just good for business, but is also an act of care. **When people sell to people they know, transactions transcend financial considerations and become humanistic ones.**

In sum, there are a vast array of factors that can promote differences in the use of money and attitudes towards it. Moreover, these factors can change rapidly.

“INSTABILITY IN PRICES AND CURRENCIES HAS SIGNIFICANT PSYCHOLOGICAL EFFECTS ON CONSUMERS, UNDERMINING THEIR TRUST IN MONEY, THE INSTITUTIONS THAT GOVERN IT, AND THE ECONOMY MORE BROADLY.”

THE LOCATIONS

The fieldwork was carried out in Brazil in an urban and a rural location in order to compare differences across diverse sites. Methodologically we found some relevant differences:

- People in the rural fieldsite were more suspicious of our intentions and required much more information about the study and the researcher, but when they felt they could trust us they communicated at length and openly.
- In contrast, urban residents were largely very willing to talk, but the information they provided was more specific and included less life context. They were also more likely to cancel interviews.

The result is that whereas the urban interviews contain very detailed answers to the questions, the rural interviews provide more life context.

For the urban location we chose **São Paulo** (pop. 12.33 million) in the state of São Paulo. Within São Paulo we recruited interviewees in four main sites:

- **Rua 25 de março**, a street market in the centre of the city
- **Mercado Municipal**, a covered market in an old building, opened in 1933
- **Feira da Madrugada**, a street market just outside the centre in an area with a large immigrant population
- **Paulista**, a shopping street in a middle-class area with street markets; some vendors from Rua 25 de março and Feira da Madrugada sell here on Sundays.

We chose these markets because they are some of the most important commercial sites in Brazil and excellent places to access interviewees as they are making payments choices. The markets differ substantially in their role in the value chain, the types of consumers who shop there, types of vendors and their points of origins and, to a certain extent, types of payments used.

To ensure we did not concentrate solely on the commercial aspects of payments we also interviewed family members of some interviewees; this allowed us

to ask questions about personal transfers and financial management.

For our rural location we chose to work in **Vale do Paraíba**, also known as the *Zona do Café* (coffee zone), located in the state of Rio de Janeiro. Ipaibas is located in Vale da Paraíba. The main sites we focused on were:

- **Ipaibas**, a small town and municipal district of 4,400 people surrounded by countryside with some tourism; this was the focus of our research.
- **Barra do Piraí**, a town of just over 100,000 people, used largely for comparison
- **Valença**, a nearby town of 76,000 people, where some interviews took place
- **Conservatória**, a historic town catering to tourists with a population of around 1,680 people

Vale do Paraíba is a landform that encompasses the regions: Paraíba Valley Metropolitan Region and Northern Coast, in the state of São Paulo, and Sul-Fluminense Region, in the state of Rio de Janeiro, which is distinct because a large portion of the Brazilian economy is concentrated here. Souza (2019) identified that in this region (part of cluster 1 as per graph above) (Barra do Piraí and surrounding towns) a greater plural-activity, including transformations in the rural space, such as the practice of rural tourism and the creation of new jobs other than associated to agriculture.¹¹ This has contributed to a new relationship between rural-urban spaces, so that the rural area has regained economic value.

The current land structure of the Paraíba Valley is the result of significant changes in the form of land distribution that occurred after the decline in the coffee industry, at which time large farms began to be broken up among families. This process continued through the generations, resulting in a region punctuated by small properties and markedly familiar agricultural production.

Farming is still vital to several municipalities in this region as it is the main source of revenue and taxes in some cities. Vale do Paraíba is the second largest milk producer in the country. Rice is one of the most important agricultural products of the region.

Figure 1. The location of the urban and rural fieldsites in Brazil.



INSIGHTS

We expected to find clear differences in payment habits between the two fieldsites, but found that other factors like age and background play an important role as well. And the ability to overcome difficulties was common for both sites.

We discovered the following marked differences between the urban and rural locations:

- Urban residents have greater access to reliable connectivity (mobile and Internet) for a longer period of time, and as a result have more experience with digital financial tools.
- Urban residents are more likely to have multiple bank accounts or other tools.
- Rural residents have more recently used a range of informal solutions to solve financial issues, such as using local (non-bank) businesses as a makeshift bank, giving/receiving informal credit, etc.
- Older rural residents have less experience with digital finance than older urban residents.

However, we quickly discovered that this division is not fine-grained enough. In the rural site there were also differences depending upon location, age, etc.:

- Rural residents who lived in a town with ATMs were more likely to use cash and less likely to use Pix than either rural (non-town) residents or urban residents.
- Rural residents who had lived in a large city tended to use a wide range of formal financial tools.
- There was considerable variation in the city as to how people use different financial tools, their perceptions of safety and risk, and so on (further detailed below).

Thus, the first result of this study is that, while there are some clear rural/urban differences, they are contingent on many other factors, including available infrastructure, demographic factors (e.g. gender, age, profession), and economic activities (e.g. ways of earning money, shopping spaces, tourist spaces, formal vs informal work).

FACTORS AFFECTING RURAL/URBAN DIFFERENCES

- Infrastructure
- Demographics
(e.g. gender, age, profession)
- Economic activities
(e.g. ways of earning money, shopping spaces, tourist spaces, formal vs informal work).



HOW PEOPLE PAY

SUMMARY

- Most people have access to a bank account or an account with a payments provider. Many people have two, three, or even more accounts.
- Digital banks seem slightly preferred because of simpler interfaces and lower fees
- Digital finance has the advantage of reducing transaction costs such as queueing at banks or ATMs
- Cash is still widely used:
 - For shopping for smaller-ticket items
 - Among people with less technological experience
 - In the informal economy
- (Credit)cards are widely used. People usually hold several cards, used for:
 - Shopping for larger-ticket items
 - Paying in instalments
 - Buying when money is tight
- The newly-introduced Pix (instant free transfers and payments) has been well received, moving from P2P transfers to broader use:
 - Many mention that it replaces cash
 - But it also replaces card payments as POS transaction fees are quite expensive for vendors
 - Despite being 'like cash', people complain that there is no service to correct payments made for the wrong amount or to the wrong user
- People are well aware of prices of both basic goods and bank fees, and will juggle several bank accounts and payment tools to find low-cost solutions
- We saw many examples of payments using a family member's card or Pix
- Even in the rural site, we saw very few examples of barter

Brazilians are still fairly heavy users of cash, using it for around 35% of transactions at POS in 2020, down from 47% in 2019.¹² Demand for cash grew during the pandemic with the public holdings of currency rising from BRL260 in March 2020 to BRL350 in August 2020. This demand prompted the BCB to introduce a new denomination of banknote, the 200 real. In the BCB press release the bank stipulates that the rise is due to a combination of two factors: partly withdrawal of cash to store for emergencies, and partly a slower path to market than expected for the massive income support that the government released during the Covid-19 pandemic.¹³ Public holdings of cash are, however, going down again from BRL310 at the end of 2020 to BRL287 at the end of 2021.¹⁴

The continuing use of cash may be the result of many factors, including uneven access to smartphones and the Internet. Here we clarify the general aspects of access. While ownership of ordinary mobiles is almost universal, smartphone ownership in Brazil was 68% in 2021, and is projected to rise to only 72% in 2025.¹⁵ Mobile Internet penetration is at 75%, projected to increase to 84% by 2026. Access to and usage of digital financial services therefore remains truncated.¹⁶

Among the population with smartphones the phone is becoming more important than the physical wallet. Fifty-six percent overall say it would be worse to lose their smartphone than their wallet; this changes a little by age with 60% of 18-24 year-olds saying it would be worse to lose their smartphone and only 51% of over 55 year-olds. There is a gender difference: 63% of

women say it would be worse to lose their smartphone, compared with 53% of men. This development has grown during the pandemic: 53% say they use a digital wallet more due to the pandemic; 46% use a credit card more, especially for online payments; 35% use direct debit more. Fifty-two percent say they use cash less; 10% say they use cash more.

The most common forms of digital payment at POS in Brazil are cash (34%), credit card (35%) and debit card (20%), with relatively few people using mobile wallets or Brazil's post-pay system, Boleto. In 2020, the average cardholder possessed 3.6 cards and made 157 transactions.¹⁷ Cards increasingly operate in a contactless environment: 85 percent of POS terminals and 17 percent of payment cards are contactless-enabled.¹⁸

Other payment methods commonly used include Adyen, and Facebook also offers a payment service through WhatsApp.¹⁹ Preference for mobile interaction has grown 18 percentage points in two years.²⁰ Brazil also plans to introduce its own CBDC, the Digital Real, potentially as early as 2022.²¹

The table below provides an overview of different payment types used in e-commerce. E-commerce here includes all online purchases of goods and services, covering all product categories, payment methods, and both local and cross-border purchases in both retail, travel, and digital services but not payments facilitated in markets or on social media.

Table 2: E-commerce and type of payments ²²

Means of payment	% of e-commerce 2020	% of e-commerce 2024
International credit cards	10	8
National credit cards	54	55
Debit cards	5	6
Boleto Bancario	10	7
Bank transfers, including Pix	2	12
Other	3	1

Sources: *Whitepaper BoaCompra 2021 and FI-serv 2021*



One reason why national (and primarily merchant-driven) credit cards are so popular is the special credit offered to pay in instalments without interest. (This is what we would today call “Buy-Now-Pay-Later”, or BNPL.) As long as the full amount is paid within the ordinary grace period of a credit card, no interest is charged. Around 55% of credit card purchases are paid in instalments.²³ This kind of lending does not have specific regulation in Brazil, which means that the credit card industry and the retailers have the sole responsibility to establish the values, limits, and other conditions of the agreements offered to consumers. It is argued that the building of instalment debt may lead to higher revolving credit card debt, which has very high interest rates in Brazil.²⁴ Brazil also has credit card services that are paid directly from the payroll.²⁵

Two payment platforms stand out in the online and mobile payment environment: Mercado Pago and PicPay (see description in Appendix C). Mercado Pago is an integrated online payments solution complementing the e-commerce platform MercadoLivre and offers a range of different services

including credit cards and POS machines. PicPay provides a payment platform in the form of a wallet that can be funded both through the transfer of payments and by adding credit cards. The balance can then be used to withdraw cash or make payments or investments.²⁶

In Brazil the means of payment considered most secure are Pix (66%), cash (57%), card with chip in the machine (56%), and barcode (57%). The means of payment considered least secure are cheque (40% not confident) and paying via a link sent to payees via mobile such as through WhatsApp²⁷ (28% not confident, though 21% are confident). Results for paying with NFC are mixed (29% confident, 35% not confident).²⁸

Generally Brazil offers a variety of payment tools. In the following we will describe major types and how they were used in the fieldsites.

BANK ACCOUNTS

We asked people about their bank accounts. They generally have several. About 40% have more than two accounts. For some it is a question of different purposes, like receiving a state benefit or child alimony. Most often the recipient is offered an account with a particular bank chosen by the organisation; the recipient can change to another bank if they wish, but many do not. For some it is a question of keeping an old account used by a previous employer, but perhaps no longer active.

Some of the interviewees were employed more informally and seem to be receiving their pay by Pix or in cash. If by Pix or transfer the amount appears in an account of their own choosing. This could be the account of another family member.

We encountered very few people who did not have a bank account at all. One exception was Carolina, the 15-year-old daughter of a dairy farmer, who plans to open one eventually but is working up the confidence to do so:

“I feel a little suspicious, I’m not very trusting about it. I’m not even going to open a bank account. I’ve heard advice that it’s good. Not for me, I really like the money in my hand, in my pocket I already have high confidence.”

Barbara, the co-owner/manager of a hotel in Ipiabas who comes from a poor background, also talks about how she had an employee who refused to open a bank account. She paid him by cheque, but rather than go to the bank to cash it, he would trade it with someone in town. Other employees open a bank account just to

receive their money and then withdraw it all, limiting their engagement with the bank as much as possible.

Among people who do not have a bank account or use it little, key deterrents are illiteracy and embarrassment. Low literacy levels mean that Barbara’s employees, and some other very poor people we encountered during this study, struggle to complete tasks such as applying for identification or opening a bank account. Even if they do open an account (often with assistance), they feel embarrassed to engage with the bank due to a combination of lack of familiarity with how banks work (services and technology) and feeling intimidated by going into a formal office and talking with professionals. This seems to be particularly the case for people who live in rural areas, although we did find one such person in the city (see section on identification).

Overall though, people found banking easy and especially appreciated the convenience of banking apps. People were especially enthusiastic about the ability to do everything in a banking app and avoid going to a branch. As Natália, a 28-year-old woman who works in a sex shop on Rua 25 de março, explained:

“I have a great tendency towards digital because (with the traditional ones) for example, go to withdraw unemployment insurance at Caixa Econômica, you stay there for years, it seems like you’ll never leave the line, and that stresses me a lot and I have anxiety problems so I prefer to avoid it. If I can stay at home, it is easier for me.”

“...PEOPLE TEND TO PREFER DIGITAL BANKS BECAUSE THEY HAVE SIMPLER INTERFACES THAT DISPLAY FEWER OPTIONS. MANY SEEM TO BE TRYING OUT DIGITAL BANKS IN THE HOPE OF PAYING LOWER FEES. THEY ALSO EXPRESS DISSATISFACTION WITH THE PRICE OF CASH WITHDRAWALS FROM DIGITAL BANKS AND A NEED TO TRANSFER MONEY BETWEEN BANKS TO AVOID FEES WHEN ACCESSING CASH.”

However, as Gabrielle pointed out to us, not everyone feels comfortable with bank apps. In the countryside especially there are elderly people who still go to the bank in person:

“We have only a few banks because we are in the countryside but for example when the day of salary payments arrives, especially retirement, you walk in the centre and you see a line of elderly people. You know you can do it at home, but sometimes you don’t have a grandchild to help. I was talking to my mum these days and I realised that I’m not ignorant on that level. Because young people nowadays don’t want to help their elders. But they have to understand that they lived in a different time and they don’t understand these things. You have to be patient to be able to explain to them. It’s not their fault.”

People leverage their accounts differently depending on what they need them for. Consumers tend to have multiple bank accounts to (a) receive payments from the government or their employer, or (b) to lower transaction fees when transferring money to other accounts. Beatriz explained:

“When I need to transfer money to someone I end up transferring it through Nubank. And I don’t even transfer through Banco Itaú. I transfer the money from my Itaú account to Nubank, and from Nubank to the person.”

Merchants have multiple accounts primarily to avoid transaction fees when receiving money transfers from customers. If the merchant and customer have the same bank, fees are not usually charged.

It is interesting that people seem to make a clear distinction between “traditional banks” (Caixa Econômica, Itaú, etc.) and what they call “digital banks” (Nubank, Neon, etc.). This is the case even if all or most banks provide Internet and mobile banking services. They also tend to identify payment platforms like PicPay and Mercado Pago as digital banks.

Generally speaking, people tend to prefer digital banks because they have simpler interfaces that display fewer options. Many seem to be trying out digital banks

in the hope of paying lower fees. They also express dissatisfaction with the price of cash withdrawals from digital banks and a need to transfer money between banks to avoid fees when accessing cash. Some try out several digital banks because prices and interfaces are different. Victoria, a 32-year-old woman who works in sales and lives in the countryside, believes that it is easier to get a credit card with a digital bank than with a normal bank.

However, people complain that the digital banks’ service can be worse than traditional banks. Natália, the sex shop worker, told us:

“The bad thing is that it doesn’t have a physical, material bank. The good thing is that it has the easiest way for you to transfer money, it doesn’t charge a fee depending on how the transfer is made. It has some benefits.”

By and large people seemed to trust digital banks as much as traditional banks. There were, however, some exceptions such as Fernando, a 55-year-old man who lives in Ipiabas and works as a tourist guide:

“Digital banking does not charge a fee. The physical bank usually has a built-in fee, you are paying for something, but at the same time you have greater security. As you don’t have a lot of money you don’t have to have a gigantic security. In the traditional bank, you have the security of being a financial entity. If you have a lot of money saved, but since I don’t keep money... In other banks where you don’t know where you are, where your money is and how it works, you have no contact.”

Some have had problems completing the digital onboarding process. Additionally, some people find the simpler access to be an issue. Beatriz, a 38-year-old woman who works as a data manager in São Paulo, said she finds the Nubank app simpler and easier to use, but that the lack of a desktop version is a problem.

There were some things people identified as difficult to use. A couple of interviewees told us that they had trouble using biometrics to log in. Gabriela, a 35-year-old unemployed woman in São Paulo, recounted how,

on one occasion, she tried to log into her Santander app using biometrics but it failed and locked her out. She had to go in person to a bank branch to resolve the problem.

Other problems occur due to user error. Amanda, who is 36 years old, accidentally used her wife's Nubank card and it got blocked as she put the wrong password. Matteus, a retired banker, explained that on several occasions he had trouble paying a bill due to a communications blackout between banks, and that his credit card was once cancelled due to attempted fraud.

Many vendors have their own POS machines, even informal/mobile vendors. For example, one coconut seller had a POS machine to accept debit or credit cards and he also accepted cash, but he did not accept Pix because he did not have any data on his phone. POS machines are available at a very low cost; they can be purchased for BRL12 (around EUR2).

Some vendors much prefer to use a POS machine when accepting payments, whereas others strongly prefer not to use their POS machine. João, who is 54 years old and sells phone cases in Rua 25 de Março, is one of those vendors who prefers using a POS machine:

"I use the card more, in the machine I pass the customer's card, it's easier... Everything that came from mobile apps for me just got more difficult."

In contrast, jeep driver Paulo in the countryside complained that he was charged too many fees with a POS machine:

"Because the machine charges me 4.90 reais for every sale I make. This cocada is 5 reais, I will have 10 cents left over. I work with PagSeguro. I had a Santander machine, but Santander started to get hold of me, charging a lot, it was charging me a lot for the machine. An agreement was made... and when I got the POS machine it was an agreement, after I was selling in the POS machine the agreement was different. Let's say, 500 reais, when I went there I had 300 or something. Then I complained 'No, it's because of the machine', I stopped."

While it is not clear whether this was a case of fees being high or another issue, it certainly changed the interviewee's behaviour. An early adopter of Pix, Paulo was quite influential in convincing his customers to use it.

CARDS

As described above, debit and credit cards represent a large part of spending in Brazil, particularly in e-commerce. Credit cards also represent by far the largest part of household debt.²⁹

Paying by card has been part of the movement away from cash. Rafaela, a 26-year-old salesperson, said:

"I don't carry cash here, I carry money on the card only. Or when I don't bring the card, I do Pix... Yes. It's changed a lot. Nowadays it's all easier to pay with Pix or to pay by card than walking around with cash in hand."

The move from cash to cards has come also through changes in customer behaviour for the many small merchants, as described by João, a 54-year-old phone vendor:

"It changed because nowadays most of the people, the clients that I have, work a lot with cards. In the past you had 90% of the cash in your hand and today you have 10% of the cash in your hand, the rest is all cards, pix, these things, all transactions via bank."

Most people still use physical cards, even if some have the virtual card on their phone. This seems to be a question also of virtual card acceptance, as explained by Douglas, a 28-year-old maintenance worker:

"I have the card online, I can pay, although many machines here still don't have this QR Code reading system. Their QR Code is crap, you arrive with your mobile phone to try to pay with the QR Code and you can't. Then I prefer to use the pix a lot."

Typically the interviewees choose to pay by card because it is easy and convenient. They are, however, well aware of the price, particularly of credit, and also

that it is sometimes possible to get a discount by paying cash. Douglas explained:

“Practicality. I hate carrying cash. I am here with the cash that my grandmother asked to buy my grandfather a shoe on my credit card, she gave me the cash here. I get uncomfortable, I like to use cards, I like to use digital things.”

Douglas takes this even further by making sure he knows his rights when sometimes shops do not want him to buy a thing of low value on a credit card:

“They tell us to buy more to use the card, but as I already know the consumer protection code, then I tell them ‘if you don’t let me go through here, I’ll call the Procon [State Department of Consumer Protection and Defence] and you will have to pay a fine of 500 reais. Better you sell me a thing below its value than you have to pay a fine of 500.’ They rethink, don’t they?”

Júlia, a 26-year-old civil engineer, said:

“I like the card. When I pay by phone it is very insecure, you have to open your account on your app. The card you have password security and also against theft you can lock the card. With the cell phone, if you lose it, it is very expensive. With the card, the bank sends you another one, there is no additional cost for that.”

And Beatriz, a 38-year-old data manager, added:

“I prefer to pay almost everything by credit card. Anything I can pay by credit card I pay while I leave the money in the Nubank account. It gives me a feeling that I’m going to earn something, even if it’s two cents.”

In a broader context people tend to use cash for smaller purchases and pay for larger items like furniture or phones by card, sometimes also taking the opportunity to pay in instalments. Mateus, a retired banker, sums up the usage nicely:

“When it is a small amount, up to 30 reais, I prefer to pay in cash. Amounts above I prefer to pay by debit and depending on the date I use a credit card to earn ‘miles’ as well. If I need to pay more expressive values in instalments and they have no interest, instalments without fixed interest, I use a credit card. But in the short term, at most three to four months of instalments.”

Some find that it is easier to control spending when you have to use your card to pay and actually make a decision to spend. Victoria, a 32-year-old salesperson, related this to the responsibility of taking care of a family:

“I think what changes is that I have children who depend on me. I’d rather be putting money in the bank than managing it because I think cash in hand goes much faster. If the money is in the bank, you use the card, and depending on it, there is a fee. So you won’t be using it all the time, paying that amount. So you can control it much better.”

And similarly, Lucas, a 35-year-old sales promoter explained:

“Yes, because with cash you end up spending on anything. You pass someone selling brigadeiro on the street and you buy it. Now if a person says that they do not accept the card, I don’t buy the product.”

On the other hand, credit cards have also led people to overspend such as Gabrielle, who is 20 years old and unemployed:

“When I had money on the card, I spent much more because I would just be swiping the card. Then I got scared when I went to see the statement... With cash we have more control on how much we are spending. On the card, we kind of forget to keep checking the bank app to see the statement. In cash it is also more dangerous because the person can steal you and leave you with nothing. The card is safer in this regard, but we also spend more with the card.”

I THINK WHAT CHANGES IS THAT I HAVE CHILDREN WHO DEPEND ON ME. I'D RATHER BE PUTTING MONEY IN THE BANK THAN MANAGING IT BECAUSE I THINK CASH IN HAND GOES MUCH FASTER. IF THE MONEY IS IN THE BANK, YOU USE THE CARD, AND DEPENDING ON IT, THERE IS A FEE. SO YOU WON'T BE USING IT ALL THE TIME, PAYING THAT AMOUNT. SO YOU CAN CONTROL IT MUCH BETTER.

Victoria, 32 years, salesperson

“...USE OF CASH IS CERTAINLY DECREASING IN FAVOUR OF DIGITAL PAYMENTS. THIS ALIGNS WITH HOUSEHOLD USE OF CASH FALLING BY 5-10 % BETWEEN THE END OF 2020 (THE INTRODUCTION OF PIX) AND THE END OF 2021”

Several people mention similar experiences of having their credit cut and their name “dirtied” because they are unable to repay. When Adriana, who sells paintings, first got a credit card with the bank Itaú, she found herself tempted to use it to buy things like pizza:

“Itaú is the oldest debt I have. When I joined the company, Itaú gave me a limit of 2,500 reais. I would come home, ‘do you want pizza?’ ‘I want!’ I went there and paid with a credit card and in the end I couldn’t pay the bill.”

As described, the Brazil credit cards allow payment in instalments. This is used quite consciously as described by Igor, a 33-year-old taxi driver, Juliana, a 57-year-old artisan, and Rodrigo, a 43-year-old bricklayer:

“There are some things. When I don’t have money in the account, I have to pay the electricity bill in cash, buy gas, and do grocery. It’s half on the card and half in cash.” (Igor)

“Sometimes. Usually the supermarket makes instalments in up to 3 months. We go there and swipe the card.” (Juliana)

“To buy things because sometimes there is a shortage of groceries at home, if you have a credit card at the end of the month you will be able to pay. If you want to buy rice, beans, you go there and buy them and at the end of the month, you go and get it right.” (Rodrigo)

Several people in both locations related experiences of card fraud such as their credit cards being cloned or their accounts being hacked, leading to fraudulent payments and the issue of new cards. This is discussed further under Trust below.

Cards are quite widely used, mostly for buying larger items or for taking advantage of credit card credit or instalments.

CASH

Cash is still used widely in Brazil generally, and we found people using it extensively in both our fieldsites. While a few interviewees believe they do not need to carry cash any more, most still deem it necessary. Most people talk about carrying cash for small daily needs like water, lunch, and transportation. People tend to carry between BRL30 and BRL100 to cover small daily expenses, though a minority will carry up to 500 reais. Brenda, a female student in the countryside, explained:

“When I have cash, I carry from 10 to 20 reais. Not with the intention of spending, but if I’m hungry and don’t have time to go home to eat, if something happens and I need to look for an Uber. It’s just to be safe. At the time of going out, have at least 20 reais if something happens.”

Another major reason for continuing to use cash is that many vendors provide discounts for paying in cash. As Barbara explained:

“We went downtown to buy things and if you buy in cash the difference is huge. For example, a cell phone costs 1000 reais. If you buy it in cash, it’s 800 reais.”

Many of our interviewees told us that they use cash to get a discount on larger ticket items. Indeed, apart from paying for small items, the lure of the discount seems to be the primary motivator for carrying cash.

We encountered very few people who feel the need to withdraw all their money from the bank and store it as cash. One exception was Anna, a 43-year-old teacher

from the countryside:

“My husband usually withdraws it because it looks like if he leaves a penny in the bank the bank will take it... I think older people used to say that one in the hand is better than two in the bush. I think they take this theory to many things in life, including the financial part. Because if it's in my hand, I'm responsible, but if I leave it there, I'm no longer responsible for what's left there. I'd rather not take everything, I'll use it. What I'm not going to use, I leave it there and if I need it I come back and get it.”

Overall we found that use of cash is certainly decreasing in favour of digital payments. This aligns with household use of cash falling by 5-10 % between the end of 2020 (the introduction of Pix) and the end of 2021.³⁰ **Virtually all interviewees said their use of cash has changed over the past few years, especially since the introduction of Pix (see the following section for more on this). Some people have stopped using cash completely, either because they find it inconvenient or are worried about theft.** As Júlia explained, “I have no cash for the thief.” As consumer behaviour changes, vendors are also adapting. João, a 58-year-old male who sells mobile phone cases in Rua 25 de março, said:

“It changed because nowadays most of the people, the clients that I have, work a lot with cards. In the past you had 90% of the cash in your hand and today you have 10% of the cash in your hand, the rest is all cards, Pix, these things, all transactions via bank.”

However, some people who have stopped carrying cash find that not having it creates difficulties, as Beatriz, a 38-year-old data manager from São Paulo, discovered:

“From the moment I had the debit card I simply abolished cash. It really was only when I was in a situation that I already knew in advance that I was going to have to come out with cash that I would go to the ATM and withdraw. Otherwise it's zero cash with me. After the cheque the next thing I abolished was cash. I don't even have a wallet

because I don't carry cash.

I've already had difficulties with needing cash and not having it. For example, going to a place that does not accept the card or having to pay a toll. I often arrive at the toll booth, and I usually rent a car to travel, and sometimes I forget to authorise the tag to pass the toll booth. When I go to see it I'm broke, no cash. My mother told me to let her pay the toll. She gave me a 50 real bill. I paid the toll and that pile of coins came, I didn't even have a place to put them. It must be kept somewhere. I end up collecting the coins and then changing them at the bakery.”

One interesting thing to note in Beatriz's explanation is her statement that she does not even have anywhere to store cash. For her, cash is so removed from her life that she does not have a method to manage it if she receives it. She has simply abolished it, even though she admits this causes her problems.

What is particularly interesting is that the aversion seems to have little to do with fear of theft or even the inconvenience of carrying around coins.³¹ Beatriz and Douglas simply prefer 'digital things': they have grown used to digital living and it seems as if the physicality of cash unnerves them. This is in contrast to previous observations that carrying cash can help people feel more secure (unless they are afraid of being robbed).

Not surprisingly, many people have safety issues related to carrying cash such as Júlia who is careful where he/she withdraws cash from an ATM:

“I don't do it in crowded places. I think it's dangerous to withdraw money and be mugged, in downtown São Paulo I won't withdraw money.”

We found it reasonably common for people to be careful where they withdraw money. However, it is hard to determine how many people make the extra effort to protect themselves because in Brazil most ATMs are located in secure places. They are either inside banks, which are accessible after hours, or they are standalone machines located in shopping centres or outside supermarkets. Choosing a safe ATM is therefore not usually a major problem.

Brazil has quite a serious problem with financial fraud, ranging from counterfeit banknotes to card duplication and phishing scams.³² Gustavo, who lives in São Paulo, described how he fell victim to one of these scams:

“In these money games I was tricked once. I paid a 50 real bill and then I went to see that it was fake. It was fake...but I looked closely and it didn't seem to be fake. At the time the positive on the laser was false. If it was a transfer, this wouldn't have happened...It was even ugly for me, at the time people said that I was trying to pass a fake bill. Good thing I had my card and I said I had just gotten the money from the customer there. I was cheated. The guy tore up the note in front of me.”

In Gustavo's case the fraud affected him doubly: he lost his money and he was suspected of trying to defraud others.

Another inconvenience of cash is having enough change on hand to complete transactions. This is a daily issue for merchants and consumers alike. Consumers waste time trying to change banknotes, and vendors often rely on neighbouring shops to get change for customers. We watched a transaction in which a customer bought a coconut from a vendor situated outside the entrance of a train station. He had a POS machine, but she wanted to pay in cash. He ran

inside the station to ask for change from the hotdog shop, returned, and gave her the change. Igor describes the problem:

“Giving change to people. Sometimes a person pays a 15 real charge with a 100 real bill, and pays a 10 real charge with a 100 real bill. ‘Have you run out of change?’ If I can't change on the street, I have to go home, get my change again, put all the money in, get the change to return.”

Some people also regard cash as easy to lose accidentally, especially now that many people have stopped carrying wallets, like Igor, a 33-year-old taxi driver in the countryside:

“I even lost money because you have to go somewhere to buy a thing at an average of 200, 300 real, you make that banknote tangle there, new people like me don't have much patience for wanting to use a wallet, all cute. I would arrive sometimes, put my hand in my pocket, pull out and lose a 5, 3, 10 real note. You lose money on the street, you don't find it, you don't go on the street and find a 2 real bill, 10 real dropped because nobody uses it anymore.”

Juliana explained that carrying cash helps her to control her money better:

“SOME PEOPLE ALSO REGARD CASH AS EASY TO LOSE ACCIDENTALLY, ESPECIALLY NOW THAT MANY PEOPLE HAVE STOPPED CARRYING WALLETS”

“Cash is good because you know how much you have, you control better when it’s cash. I’m bundled with a credit card, so the limit increases and you use it, when you have the cash, you only use what you have... Also because as I always buy, practically every day I’m buying fabric, to supply it I need a better price, I have a bigger discount if I pay in cash.”

Also in São Paulo, 36-year-old Amanda likewise appreciated the discounts she received by paying in cash:

“I really like to buy things on the street, although nowadays there is no obstacle, if I go to that stall on the other side, the guy will say he accepts Pix. Inside the subway the guys accept Pix. Anyone. Nowadays, the technology they use is through the cell phone, the card machine that is smaller than a cell phone. But I always like to have a little change because of that, I like to buy things on the street and then sometimes in cash they also give me a discount, I like to have a little money. If I go to the city centre or Brás, then I go with cash, there are stores that use the card and there are stores that use cash. It depends a lot on the places. There are places where they don’t want to pay card fees.”

However, we found far more people who felt the opposite. Several people felt that they spent more when they carried cash rather than just a card, like Victoria, a 32-year-old salesperson from the countryside:

“I’d rather be putting money in the bank than managing it because I think cash in hand goes much faster. If the money is in the bank, you use the card, and depending on it, there is a fee. So you won’t be using it all the time, paying that amount. So you can control it much better.”

Interestingly, Thiago, a 30-year-old man who works on a farm in the countryside, likes to carry cash because it gives him a feeling of power, but feels like he does not have control over his cash. If he carries it, he will spend it:

“You show it off when you’re paying, it gives you a feeling that you’re fine. But it’s something I’m stopping to do. Because with the card you start to control better. The app shows how much you are spending and how much is going out of your account. With money in hand, you have no control. Because if you take 50 real, or you go and buy something, you have no control over what you spend. In the app the value spent comes right on time what and you see what was taken out.”



“BASED ON PREVIOUS RESEARCH, WE BELIEVE THAT THE MAIN REASON WHY PEOPLE FEEL THEY SPEND CASH FASTER IS BECAUSE, AS PEOPLE HAVE BECOME ACCUSTOMED TO MANAGING MONEY DIGITALLY, THEIR SENSE OF THE PURPOSE OF CASH HAS SHIFTED. WHEN PEOPLE MANAGE ALL THEIR MONEY IN THEIR BANKING APPS, CASH BECOMES ‘FREE MONEY’, SOMETHING THAT DOES NOT NEED TO BE ACCOUNTED FOR. THIS CONTRADICTS PREVIOUS STUDIES THAT ASSUME THAT THE PHYSICALITY OF CASH INDUCES PEOPLE TO TAKE IT MORE SERIOUSLY.”

It seems that the problem was partly one of temptation. However, based on previous research, we believe that the main reason why people feel they spend cash faster is because, as people have become accustomed to managing money digitally, their sense of the purpose of cash has shifted.³³ When people manage all their money in their banking apps, cash becomes ‘free money’, something that does not need to be accounted for. This contradicts previous studies that assume that the physicality of cash induces people to take it more seriously.

Finally, most of our interviewees believed that cash is disappearing, and several told us that they think it will not exist in the future. As Brenda put it:

“I think it’s practical not to mess with cash, carrying the cash. But if you have money in the account, because if you don’t have it and go to deposit it’s boring. But I think it’s more practical because cash is a thing of the past. We are in an era where everything is going to be digital. At this time...it is very unequal and not everyone has access. But I think that by the time we get everyone to have access, cash will be out of use.”

In summary, while the majority of people carry cash, they tend to believe it is disappearing from use and are carrying less. This is a good example of an instance in which people’s beliefs and practices are aligned. Cash is still quite widely used in Brazil. Interviewees described why cash is convenient for small everyday needs and for broader use, including wages in the informal economy.

PIX

Pix was introduced by the BCB in 2020 as part of the financial inclusion agenda. Pix is an instant payments solution that is free for individuals and entrepreneurs but has a fee for merchants and corporations.³⁴ It helps merchants and consumers make instant payments via telephone based on their phone contacts, the personal tax number CPF, a random keycode or a QR code.

Pix is based on an account, which could be a bank account or an account with a payment service provider

participating in Pix. The account can be a current deposit account, a savings account, or a prepaid payment account. This, of course, means that an account with a bank or a payment provider offering the Pix solution is necessary. However, in 2017 the Global Findex database found that 98% of people in Brazil have access to either one or the other.³⁵

There are around 760 authorised financial institutions offering Pix, including banks, digital wallet services, and retail stores. It has already been used at least once by 110 million Brazilians and about \$89 billion has moved through the network.³⁶ Brazil now registers more instant transfers than the U.S. The BCB publishes monthly statistics on the use of Pix. These show that P2P transactions make up the majority of Pix transactions by the number (close to 75%) whereas the volume of P2P and B2B transactions make up 40% each.³⁷ There are marked regional differences as well as Pix is most widely used in the Southeast.³⁸

BCB is introducing an open banking regime in several phases. At the end of 2021, the first part of the third phase opened, which supports payment initiation services PISPs via Pix, meaning that Pix can be used to initiate a payment in another financial institution (bank) when authorised by the customer, that is, without using the bank’s own banking app.³⁹

Since the end of 2021 it is possible to use Pix to withdraw cash in shops and stores, either as a specific amount, “Pix Troco”, or as the difference between the total transaction and the amount spent in the shop, “Pix Saque”.⁴⁰

The introduction of Pix hasn’t been without its teething problems. In particular, Pix became the target of crime, with robbers forcing people to transfer money to them using Pix. In response, the BCB implemented upper limits on transfers, particularly at night when most robberies take place.⁴¹

One of the issues raised during our fieldwork is that there is no customer service if a Pix transaction goes wrong. The BCB has quite an extensive FAQ service that explains the responsibilities of financial

institutions and the possibilities for individuals and merchants.⁴² They state there is no possibility of seeking recourse from an institutional provider if a payment goes wrong. Instead the app includes facilities to support negotiations between payer and payee:

“You will be able to change the amount to be paid or cancel the transaction only before confirming the payment. After confirmation, the Pix settlement occurs in real time, and the transaction may not be cancelled. However, you will be able to negotiate with the payee the return of the amount paid. The reimbursement is a functionality available on Pix and is always initiated by the payee.”

In this way Pix resembles cash. Unlike with cash, though, transactions are automatically documented with an electronic receipt provided to both payer and payee. Financial providers are required to keep a log of transactions. Our sense is that people appreciate the fact that they can go into their banking app and view their Pix transactions among their other ones. However, few interviewees spoke specifically about this.

The arrival of Pix has already changed the ways in which people both make payments and think about them. As we have already noted, people say that Pix is making cash less necessary. This includes both our interviewees and reports in the Brazilian press.⁴³ While the actual effects of Pix on cash use may still be relatively minor, there has been a clear shift in how people think about cash.

Also, it is clear that Pix eliminates the need to have multiple bank accounts to avoid fees incurred by transferring money from one bank to another (though few interviewees commented on this). As well as being expensive, people do not like the process of transferring money from one bank to another, finding it inconvenient. Adriana, a woman who sells paintings and prints on Rua 25 de Março, and Paulista, complained:

“Transfer was horrible to do. It arrived Friday, if you needed to do it after 4 pm, no money arrived and only Monday, sometimes Tuesday. I think what enchanted me [about Pix] was mainly the practicality, that at any time you need you can have it...My mother-in-law also had a time when sometimes we had to transfer money to her, she saved some money for us, we had to make a transfer to her and it was a very slow process. With Pix, we send it and it arrives on her card at the time.”

Similarly, Daniela appreciates the instantaneous nature of Pix:

“I found [Pix] very interesting because it immediately falls into the person’s account. It’s like you’re paying right there. I found Pix quite interesting. It immediately falls into the person’s account and you are already calmer.”

Like Daniela, Paulo appreciates the value Pix offers to Brazilians:

“I prefer to use the card and this Pix came to help in our lives. I’m even suspicious that they will invent something on top of this Pix. Before it was TED, bank transfer. Then 12 real would be discounted if I paid 100 real. Then it’s not worth it and many people prefer to cancel the deposit in the bank. This was physical and this pandemic thing Pix came in handy. And the credibility is very good, I’ve never had a failure to receive or pay.”

It is interesting to note Paulo’s ‘suspicion’ that more payment products will be developed for the Brazilian market. We encountered one other person, a seller in the Mercado Municipal, who expressed a similar suspicion, asking us if we were doing this research so that ‘they’ could develop even more new payment products. We did not feel people were hostile to this idea. Rather, they tread a boundary between being curious and being wary. However, since this sentiment did not surface often, we cannot conclude it is a common one. More research would need to be done to investigate whether this suspicion is an issue of concern.

“THE ARRIVAL OF PIX HAS ALREADY CHANGED THE WAYS IN WHICH PEOPLE BOTH MAKE PAYMENTS AND THINK ABOUT THEM. AS WE HAVE ALREADY NOTED, PEOPLE SAY THAT PIX IS MAKING CASH LESS NECESSARY. THIS INCLUDES BOTH OUR INTERVIEWEES AND REPORTS IN THE BRAZILIAN PRESS. WHILE THE ACTUAL EFFECTS OF PIX ON CASH USE MAY STILL BE RELATIVELY MINOR, THERE HAS BEEN A CLEAR SHIFT IN HOW PEOPLE THINK ABOUT CASH.”

Indeed, the majority of people we spoke with considered Pix to be generally beneficial to everyone. As Rafael, who works in Rua 25 de marco as a ‘puller’ at a bridal store, explained:

“Pix helped a lot. For example, a credit card must have the card, you don’t have a card, but you have your mobile phone. For example, you forget your card, but you have your mobile phone, you have your digital account and you have the Pix. So the Pix helped a lot in terms of that, of you not carrying cash. Nowadays, Pix makes it much easier, you don’t have to carry cash. The money goes to the other person instantly, it’s not the same...Pix for the seller as for the customer, is good for both. If it’s a credit card, the seller doesn’t receive it immediately, he only receives it later. It got better for everyone. The money is transferred on time, everyone already takes the money on credit on time. In a while there will be no more cash. In a few years, everything will be robot.”

Most of our interviewees had used Pix, and the majority used it regularly. Indeed, they tended to assume that everyone has Pix and uses it frequently. Thais, who runs a store in São Paulo selling wedding decorations, explained:

“Everyone ‘does a Pix.’ ‘I’ll make a Pix.’ ‘Let me transfer it to your Pix.’ It’s necessary, everyone has it and wants to do it by Pix. You want to transfer, you end up doing your Pix. People force you to have it practically.”

But one interviewee, Douglas, a 28-year-old public servant in the countryside, complained that Pix is not yet widely used by merchants:

“The market is sad, they rarely have Pix and when they do they come with a code that looks like binary code for you to do the payment, a huge sequence of numbers. It’s not like a phone. Then you use the card. But, for example, my cards have already been cloned 5 or 6 times already.”

“THERE WAS ADVERTISING PRACTICALLY NIGHT AND DAY ON TV TELLING THAT PIX WOULD BE THE INNOVATION AND SALVATION. YOU WOULD HAVE TO UPDATE, MODERNISE, AND THAT WOULD BE THE TOOL OF THE FUTURE.”

Most interviewees said they started using Pix because other people used it. Their first experience was usually either they had to pay for something, or they had to receive money, and the other person asked if they could use Pix. A few interviewees, especially middle-class respondents, said they followed the development of Pix in the news and were curious so they tried it soon after it was launched. Pix is easy to start using because it is already integrated into the apps of banks and other payments services such as MercadoPay and PicPay. Rafael recalled:

“I don’t know if I saw it on television, I think it was on television. But then when I went to make it a friend of mine taught me. I messed around and managed to make the Pix. I made the Pix myself, he taught me. But I heard about it on television.”

When asked how he learned about Pix, Rodrigo, a 43-year-old bricklayer from the countryside, said:

“I follow Facebook a lot, and the Internet I follow a lot. I am...Many of the things I learned from watching the newspaper, I pay close attention to these things because they teach me a lot.”

Some of our interviewees said they prefer using Pix with some bank/payment apps more than others. There were two reasons for this. First, people prefer the interfaces of some bank apps more than others; Nubank was particularly popular. Several people complained that the Pix interface was not very good in certain bank apps. Second, some interviewees were using a digital bank, such as Nubank, as the account into which they were paid as Nubank’s fees are lower. This means they were more likely to use Pix with Nubank. However, they would transfer money

to another bank to withdraw cash as Nubank charges withdrawal fees.

Victor, a 32-year-old man who owns two chocolate shops in the countryside, highlighted how active the media was in promoting Pix:

“Brazilians, and the media knows that, are highly driven towards what some interest group thinks is best. In relation to Pix, there was advertising practically night and day on TV telling that Pix would be the innovation and salvation. You would have to update, modernise, and that would be the tool of the future. And you massified this idea.”

He was quite critical of the media’s role in presenting only positive stories about Pix in the lead-up to its launch, arguing that people should have been warned of the risks:

“Delegates and people linked to security, they warned of the risks. But in the open media, there was no news that was not in favour of Pix.”

Instead, people learned about the risks once things started going wrong and the media began to report incidents of theft and fraud. Today there is a high level of awareness of the risks of Pix. This does not, however, seem to deter people from using it, which is a classic example of a gap between thoughts and actions. People believe that Pix is risky, but, since it is useful, they continue to use it, with few taking any extra precautions to protect themselves.

Generally, our interviewees found it easy to begin using Pix, especially since it was already integrated into their banking app. Some found it a little confusing at first

but figured it out by themselves. Larissa, a 35-year-old woman who lives in São Paulo and is currently unemployed, explained:

“I felt a slight difficulty on Pix. As I didn’t know the app, it had some information that confused me at first. But then it passed. I think there was a lot of information like transfer, access key, QR code. I got a little confused by this.”

Others reported that they had to learn or teach others how to use it, such as 35-year-old Lucas, who works in a shop in Rua 25 de Março, São Paulo. Lucas had to teach his wife how to use it:

“[I taught] my wife to use the app. She didn’t know what Pix was. I told her. She doesn’t understand the issue of phone registration, e-mail, CPF, she didn’t really know. I showed it to her but she didn’t like it very much because she thought I was rude. But it’s alright. It must have been the way I said, like ‘damn how you don’t know!’”

Anderson, a 51-year-old public servant from the countryside, learned about Pix from TV and news and when his friends started using it. He found Pix difficult at first:

“When I started using Pix, it wasn’t all that easy. This friend of mine luthier who explained to me how he did it because I didn’t know it myself. You asked what my key [the Pix personal identification number] was and I didn’t know. So I was asking. I’m not ashamed to ask. I even try but if the thing is not intuitive, I ask and try to solve it.”

While all our interviewees did not trust it completely, mostly they found it easy to use and particularly valued the fact that the money is transferred instantly and they could see that it had arrived at its destination safely. Many now use Pix as their preferred payment option, even choosing places to shop based on whether they accept Pix. Rafaela, who is 26 years old and lives in São Paulo:

“I pay everything daily. I buy things at a place and ask if they accept Pix. I do it with the Pix.”

Rafaela will pay cash if the shop does not offer Pix.

Some people use Pix to get access to cash like Guilherme, who runs a food cart on Rua 25 de março:

“I avoid withdrawing. I see if my friend has some cash in his hands, then I prefer to make him a Pix and he gives me the cash.”

People find Pix useful for making instant payments to friends, whether to pay them back for a split bill, sharing the cost of a purchase, or lending money. Paulo, a 55-year-old jeep driver working in tourism in the countryside, was among those who had used Pix to facilitate splitting a bill. As Giovanna, a 19-year-old student in the countryside, explained:

“I send money to my friend because of Netflix [she uses her friend’s Netflix account]. I’ve been paying the bills for things I bought over the Internet. I sell candy and I say I accept Pix and they send me money through Pix.”

One important issue we encountered is that people treat Pix like cash, and they seem to think that it will not be taxed. We tried to find out why and were told that, in the lead-up to the launch, the media promoted the idea that Pix is just like cash and promised that people who used it would not be taxed. As a result, most vendors seemed happy to accept Pix rather than cash, presumably under the assumption that they would not have to declare it as earnings. A few people were aware that this was probably not the case like 35-year-old Larissa who remarked:

“Due to the money transfers we are making, how much comes in, how much goes out, I think that in the future they can be used... to see the amount that the person moves per month.”

Similarly, Victor commented:

“Today it’s all electronic, any money movement the system catches. Everything involves CPF, which is the person’s registration. But it was spread that it would not be taxed, tax-free.”

We would not be surprised if there is more media attention on this topic in the near future, especially if the BCB begins to tax people's Pix income.

As we mentioned, not everyone has access to Pix, since it requires having an account with a bank or payments platform. This issue is more likely to affect people living in rural areas. Paulo explained:

“These humbler people who work on the farm, work with brushcutters, with livestock, don't even have a bank account, how are they going to have Pix? You have to go there to receive his payment on that date to get out of there paying the others.”

Another interviewee commented that their biggest barrier to using Pix was the fact that they did not have any money to buy things. Bricklayer Rodrigo:

“For you to have Pix you need to have money... I don't have it yet... But for next year I intend to save some money for my son and a little for me too. So I intend to use it... for making a payment to a person. Sometimes make a payment, sometimes get paid. There are people who sometimes say they would make Pix for me. So I think this way.”

A smaller number of interviewees were ambivalent about Pix, usually due to a lack of confidence in using technology generally. Leticia, a 51-year-old self-employed woman, told us that she has not started using Pix yet. She intends to but does not currently have a mobile phone. She seems ambivalent about her abilities, at first doubting them, but then saying that

once she finally starts trying to learn about Pix it will be easy:

“I'm not really into Pix yet. I still feel like I have to improve. I don't know if it's because I'm without my mobile phone these days but I want to evolve a lot, I am needing this. But apart from Pix, other bank transactions I get along really well, like cards. But the one that is difficult for me is Pix. But if I start moving it'll be easy. It's because I don't have my mobile phone, but I'm going to get it because I'm good with my mobile phone. I think it will be easy.”

A few interviewees expressed concerns about the safety of Pix, the main reason for which is a series of incidents involving fraud and kidnapping. As 51-year-old Leticia explained:

“It's because it was talked about on television and you see a lot of comments on television, these people who got their mobile phones robbed. But I see that nowadays a lot of people like Pix. I already lost a sale because I didn't have Pix at the time and they wanted to pay through Pix. I had to get it from someone else to get the sale. The ‘thing’ of the moment is Pix and anyone who doesn't use it loses money.”

Livia, a 67-year-old craftsperson who makes dolls and uses a POS machine, was determined to never use Pix:

“I don't want this Pix in my life. I may be ignorant on this part but what are they doing? Kidnapping, hurting people because of Pix.”

“THE ARRIVAL OF PIX HAS ALREADY CHANGED THE WAYS IN WHICH PEOPLE BOTH MAKE PAYMENTS AND THINK ABOUT THEM”

Juliana, a 57-year-old artisan who works on Rua 25 de Março, São Paulo, has also become worried about Pix after hearing stories of mobile phone numbers being duplicated:

“Even though I don’t carry a phone, I know that when there’s technology, the bad guys come out ahead and come up with another way to steal your money, using this technology to deceive people. I work in commerce and many times I also don’t like receiving Pix because you have to give your phone number to people, you have to give an email, you use your phone more, but also because I don’t know if the person is buying it using their own money. We hear a lot that they [duplicate] mobile phone numbers and I don’t know if I’ll be receiving the money from the person who has the money or if there’s someone who took it through a stolen phone. I do not feel safe.”

Similarly, 19-year-old Jessica pays by bank app and Pix, but does not consider it safe:

“I believe that cash is going out of circulation because of Pix, but this Pix is doing people a lot of harm. There are a lot of thugs now who are working in the Pix way, they found a way to make money without having to do much, didn’t they? Before they did worse to take money from people.”

Overall, fear of crime seems to be people’s main concern regarding Pix. Some people do not trust the technology (see Trust for more on this). Mariana, a 51-year-old who sells raincoats on Rua 25 de Março, São Paulo, is afraid of using Pix and only accepts cash for her sales:

“No, I don’t use it. I’m afraid to use it and something goes wrong. I don’t have one... Only cash. Sometimes I lose the sale because of people wanting this Pix thing, using a card machine. I don’t have it. People today don’t carry cash, it’s very difficult. Sometimes I even lose sales for it.”

Several interviewees said they had sent money but it had failed to arrive to the intended recipient. Unemployed Larissa was one of them:

“I had to transfer, I buy a lot of things from my aunt, and at the time of transfer I think the [mobile phone] touch was bad and it transferred to another account and went from Pix to Pix, but I ended up transferring wrong. A value of 234 real. I couldn’t solve it, to this day it says it’s under analysis to see if the money was really mine. It’s a bureaucracy.”

Gustavo had a similar experience in São Paulo:

“I already transferred money to the wrong person. Once I went to the ice cream shop, I had taken the money, I had my cell phone, I had my Caixa account because of Auxílio Emergencial. I went to buy the ice cream and the girl passed the Pix, I did the Pix, I said ‘is this one?’ she said ‘yes.’ Transferred. After a while this guy came to me saying ‘it didn’t fall’, I said that I had deposited it, she said ‘you must have typed a wrong number,’ ‘bro, I asked the woman yet,’ I had to go back and transfer another 15 reais. Sad. Expensive ice cream. Angry. Throw away 30 reais.”

In this case the interviewee never got their money back. Some do eventually resolve the issue and get a refund, but they have to arrange this with the mistaken recipient. For example, Anderson, a public servant in the countryside, got his money back eventually, but was left unhappy with the process:

“I already had a problem with Pix. For example, I made a transfer to a supplier via Pix, the system crashed and the bank did not complete it. I logged in again and made the transfer. Within half an hour the other transfer had gone down and was accepted as well. So I paid double. I called the bank and said that the system crashed. I would like to resolve that. He [the bank] said that for Pix they are not responsible. I would have to call the supplier and he would refund it. But only judicially will you get any response from the bank. But there was a bank error, it can’t be that way, they would have to give a return because it was a system error. It can’t be that way. Accepted the double payment. They said they would have to contact the beneficiary.”



Indeed, Anderson viewed this as collusion between the BCB and the banks:

“If you’re in a third-world country, I believe Pix’s main intention was to take away the bank’s responsibility to refund money. Take the responsibility away from the bank. For me, that was the biggest intention. But since you’re in a third-world country where people don’t have that much money, they buy into it with any advertisement that one day a beautiful and happy person is going to use Pix.”

The problem with Pix, interviewees explained, is that nobody takes responsibility: the banks do not consider it their responsibility and there is no Pix service centre to call. This is such an important perception. People seem to connect digital with there being a pathway to seek redress if something goes wrong. Pix is treated like cash exactly in this respect. There is no general agreement about reversal of transactions and so on, as is the case with card infrastructure.

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MANAGING MONEY

SUMMARY

- The choice of payment is quite complex and depends on:
 - Availability
 - Safety
 - Price
 - Feelings of control
- We think we are seeing that no one type of payment is an obvious choice but that they all have pros and cons. This results in substantial variation in how people choose between them.
- Although people generally do not make explicit budgets using spreadsheets or apps, they are generally very clear about what choices they are making and why.
- On managing spending:
 - Digital is becoming the norm as most people have smartphones. Several mention that it is easier to keep track of spending in the app than to keep receipts.
 - Fewer people feel more confident controlling their spending by using cash.
 - Despite access to smartphones and BCB development of open banking we found no-one who used a service to aggregate account information.
- People expect digital financial services to provide subsequent access to transaction records and also for providers to clear up or reverse faulty transactions, such as with card payments. However, in this respect Pix is set up like cash: you need to contact the payee.
- The interviewees generally have very little to save, but are very aware of possibilities including interest rates.
- Credit card debt is by far the most usual type of debt, and many had bad experiences.
- We met some examples of intra-family loans of both short- and long-term duration.

Numerous and repeating studies have been undertaken to describe and understand consumers' use of payments. Most national authorities (central banks) undertake studies asking consumers to describe their payment habits in the form of surveys as well as payment diaries.⁴⁴ These are often quite factual in their description of the choice of tools, and throw light on sociological determinants like transaction type and size, age, gender, income, and education.

Findings generally show that cash is generally used more for small and informal transactions, as well as by older people. Findings are quite consistent, showing that younger, urban, and well-educated males are faster adopters of new technologies and solutions. Such studies are very useful also in following the general development of payments over longer periods of time.

The academic literature on payments, consumer behaviour, and marketing (in finance) covers many further aspects of preferences, ranging from the general awareness of different payment options over the adoption of new means of payments (and new technology) to the choice of payment in given situations (transportation, social events, shopping online or in shop, paying bills, etc.). This can reveal people's motives and help us understand the drivers of choice.

Our research in this sector has shed some light on how people choose specific types of payments in different situations. They may not always be able to explain their precise reasons for these choices as they may be ingrained in everyday practices. We recently interviewed Swiss women about whether they preferred cash, apps, or cards. Even if many women preferred to go out only with their phone, they might in practice prefer using a card when shopping in a store. The reason for this was Internet connectivity and problems with topping up apps, which would not work smoothly enough for them to feel comfortable at the checkout.⁴⁵

It is clear that convenience matters very much. Paying should never get in the way of achieving goals such as fast transportation, easy shopping, or just spending social time with your friends or family.⁴⁶

Also, most people like to feel that they are in control of their finances and their overall spending.⁴⁷ How this is best achieved is quite personal and ranges from organising money in different envelopes or accounts to paying all bills early in the month to be able to "spend" any residual cash. Again, the feeling of being in control is shifting away from cash to digital accounting.

We know that awards and other financial incentives are quite efficient in encouraging people to use a specific credit card or loyalty program (fees, offers, bonuses, credit rates, etc.).⁴⁸ This may be so even if the overall sum of cost and benefits is not positive. It is not money itself that matters, but how confident people are in whether money or a payment tool will achieve their goals.

But generally, few people really care deeply about what type of money or the means of payment they use. They care about convenience and about staying in control. They care about who provides the money or the means of payment (trust), and they care about the price.

Moreover, people creatively combine digital tools to get things done, integrating different kinds of services from different providers.

When it comes to adopting new types of payments there is a general learning curve. People will adopt technology that is familiar to them faster than a completely new technology.⁴⁹

Similarly, changes in financial behaviour can be brought about by financial solutions that help nudge people towards different spending patterns. Something as simple as the introduction of a specific, concrete goal, like saving for a new apartment, can help change spending patterns to move closer towards the goal.

As the Chief Scientist of Dreams noted:

“The human brain isn’t wired to save money. Behavioural economics allows us to talk about money in a way that makes sense to our brains and mirrors our actual behaviour.”⁵⁰

Finally, the adoption of new behaviours is highly social. Most people discuss money or finances with friends and family and listen to peers who they deem most knowledgeable. With many digital solutions there is also a distinct network effect at play: the more people or merchants adopt them, the more likely they are to be a predominant choice. Recently we have also seen growth in Internet-based financial influencers—“finfluencers”—a phenomenon that is not yet well researched.⁵¹

CHOOSING HOW TO PAY

In the previous sections we have provided some insights into people’s preferences in payments. In this section we dig deeper into personal decision-making.

Our fieldwork indicates that people will resolve payments issues in different ways, depending on their personal preferences. Even within one location, such as the market in Rua 25 de março in São Paulo, people use different calculative logics to manage money and feel safe.

For example, some people feel safer using cash because they worry that their credit card might be duplicated, some feel safer using Pix because they would rather not worry about getting robbed of their cash, and some prefer not to use Pix because they do not want to use their smartphone in public. There were considerable differences across the city: in Brás, the cheapest and largest market, people were less likely to use POS machines and more likely to use cash. While broader differences and local cultural practices are important and should be taken into consideration, people will find their own pathways to meet their needs.

The means of payment people choose to use for a given purchase depends upon quite a large range of factors: the item, cost, location of purchase, their

subjective perceptions of risk, their past experiences, ease of use, and more. What we think we are seeing is a situation in which many options are close to parity. All payment options have pros and cons; none provide a complete solution in and of themselves. This results in substantial individual variation in how people make choices.

The first question to tackle is how people choose between cash and non-cash payment options. The previous section on cash makes it clear that people see cash as problematic, and yet still use it. What are the factors that drive people to decide one way or the other? Given the high levels of individuation we observed in decision-making, it is worth diving down into particular cases.

Jéssica, the 19-year-old who works for the bridal store on Rua 25 de Março, states an outright preference for cash:

“I prefer cash, it’s easier, it’s cash in hand, you can pay for everything. Cash is much better for some things, but it’s also very precarious because the money is going out of circulation.”

However, she thinks Pix is more useful these days:

“You can do the Pix without leaving your home, you can send it to someone from another country, from another place. With cash you have to go to the bank and make a deposit. Pix arrives at the same time.”

These days Jéssica prefers Pix over transfers, which incur high transaction costs and usually also economic ones. Although she still values cash highly, she is starting to use Pix more often as in some cases it is more convenient. Plus, like many Brazilians, she is finding that people demand Pix rather than cash. When making decisions about how to pay she therefore has to strike a balance between how she prefers to pay, what is convenient, and what other people want.

What about cards? As we discussed above, people use a credit card particularly when they want to pay for their purchase in instalments, or when they simply

“PEOPLE’S CONSIDERATIONS OF TRANSACTION COSTS ARE A MAJOR FACTOR IN THEIR DECISION-MAKING PROCESSES.”

do not have the money on hand. This is common. For many people it depends on the circumstances. Anderson, a public servant in the countryside, explained:

“It depends on the purchase. As a musician I have to buy some stuff and it’s not usually the cheap stuff. So I prefer to buy on credit card to pay in instalments. Mostly I pay by debit card and use Pix little because I don’t do Pix all the time. I will use Pix as an option. My first option is debit and if I don’t have it I go to Pix.”

However, some people have more creative ways of factoring a credit card into their calculations. In São Paulo, Beatriz has a clear preference to pay by credit card:

“I prefer to pay almost everything by credit card. Anything I can pay by credit card I pay while I leave the money in the Nubank account. It gives me a feeling that I’m going to earn something, even if it’s two cents.”

In other words, she uses a credit card to maintain her liquidity and, to a modest degree, build her wealth. She prefers to store cash in her bank account, even if it only earns a small amount of interest; this makes her feel like she is taking control over her finances and doing something positive. Similarly, 32-year-old Victoria is motivated by the possibility to earn interest and get cashback:

“I was using Caixa Econômica a lot because of Pix. I registered Pix first at Caixa because I find it easier. But what brings me the most benefit today, which I’ve been using for about a month, is PicPay, the digital card part. I’m really enjoying it because the money earns interest in the account. And

there’s the issue of cashback. You use it to make a certain payment and if you have a promotion that day, you can redeem 50% of the payment you made.”

However, for every person who has a clear preference for one payment method over another, we found a person who was undecided and would switch payment methods depending on many factors: the size of the purchase, location of purchase, what payments methods were available, and sometimes just how they felt at the moment of purchase. Vinicius, a 39-year-old who sells goods on the street in the city, explained:

“Sometimes it depends on the location, sometimes you don’t feel comfortable swiping the card, you end up not swiping and decide to pay in cash.”

It is particularly important to note just how complex decision-making can be, often because people’s lives are complicated by problems such as debt, illness in the family, and so on. Family issues should not be underestimated: while we tend to think of individuals as having agency over finances (the lone user⁵²), in reality people’s financial lives are intertwined. When one person loses a job it affects the whole family, people divide financial responsibilities between them, and families support each other in times of need.

Isabela is a good example of a person whose family life has affected her financial choices. Now 60 years old, Isabela grew up in the countryside and began working on a farm at the age of thirteen. She has clear memories of people being enslaved (as do several of our interviewees). Isabela now has a steady job working in a government childcare centre, but life is still hard and she also sells homemade sweets to make ends meet. Recently she started using a banking

“FOR EVERY PERSON WHO HAS A CLEAR PREFERENCE FOR ONE PAYMENT METHOD OVER ANOTHER, WE FOUND A PERSON WHO WAS UNDECIDED AND WOULD SWITCH PAYMENT METHODS DEPENDING ON MANY FACTORS: THE SIZE OF THE PURCHASE, LOCATION OF PURCHASE, WHAT PAYMENTS METHODS WERE AVAILABLE, AND SOMETIMES JUST HOW THEY FELT AT THE MOMENT OF PURCHASE.”



app, Caixa Econômica, because two family members were sick and she had no time to go to the bank. She also has accounts with Santander and Itaú, and her daughter has just helped her to download the apps for those banks as well so she does not need to travel to make payments. She intends to begin using Pix very soon and expects it will make her life easier. For now she asks her daughter to make Pix transfers for her and she deposits the money in her daughter's account.

It is particularly interesting to note just how many people, young and old, are crossing the digital divide. We already saw this in previous sections, with one interviewee who hated cash and preferred digital things. Self-employed Leticia, who is 51 years old and lives in São Paulo, explained:

“The new and modern things are all digital. Nowadays everything you do is digital, through mobile phones, then, everything that is useless is left behind... Everything new is evolving for the better. Digital is better than traditional. Because you go to the bank branch, there is a queue and in the digital you are there and you decide. There was a time when I stood in a queue for half an hour.”

Yet again we come across the notion that digital payment tools lower transaction costs. **Few people would choose to stand in line at the bank when they can complete a task quickly on their phone.** People's considerations of transaction costs are a major factor in their decision-making processes.

How do people with their own businesses make decisions? Many of our interviewees are self-employed and live on their daily sales received in cash, Pix, or by card. Payments are made to their own bank account, or if they do not have one, to the account of a family member. But merchants have less say than consumers: in most cases they have to be flexible to receive payment according to the customer's preference. Fernanda, who sells water and soft drinks in Rua 25 de Março, told us:

“Even for my work I don't use [cash] because you don't see a lot of people with cash. Everyone has a

card or Pix. So we have to fit in with the standards. We are losing the practice of cash and are using cards more.”

Some vendors appreciate the switch to Pix because it resolves previous problems verifying transactions. Barbara, the hotel co-owner and manager in Ipiabas, said that she previously ran into problems if a guest wanted to pay for their room by making a bank transfer on a Saturday. The money wouldn't arrive until Monday, so she would ask them to show proof that they made the transfer. However, in one or two cases a guest showed their proof of payment but the money never arrived. Pix, she explained, resolves this problem.

TRACKING MONEY

Most interviewees have access to financial tools and banks. Many have several accounts used for different purposes (savings, credit, cash withdrawals) depending on user interface and price. As we mentioned earlier, around 40% of interviewees have more than two bank accounts, or accounts in financial institutions such as MercadoPago and PicPay.

Overall, we find that few people have explicit methods to manage their money. The majority of our interviewees know the prices of the basic goods they buy and of bank services, and they will shop around for the ones that charge the lowest fees. Beyond this, though, few make calculations, keep spreadsheets or lists of their expenses, they simply calculate by rule of thumb. This is not surprising, since it is the norm around the world. Managing money with several bank accounts and several different jobs must represent a challenge.

We know that Banco do Brasil is putting an ambitious open banking project in place which already should make it possible for consumers to access account data from different banks through a single interface. There are already Account Information Service Providers active in the Brazil Fintech environment.⁵³ We did not, however, see signs of this happening from our interviews. This could be because the infrastructure is not yet mature and data standardisation is not widely available.

Of those who do track their expenses, the majority still keep paper records. Amanda explained:

“I have a booklet that I write down every month about what I have to pay, because then I have my financial control. My mum didn’t have it because she couldn’t read, but I learned, as I knew how to read, I could do that. I still have this booklet that I write down every month about what I have in expenses, if I’m going to be able to spend anything else.”

Some keep spreadsheets, but they are in the minority. We think this is primarily because most people use phones and perhaps paper notebooks, but do not have laptops. The majority track their money simply by logging into their various apps to check whether a payment has arrived or their current balance. The major factors people consider are time and cost. They are generally aware of upcoming expenses and when they are due. As Leticia explained, she plans one month in advance:

“You have to have your feet on the ground to know what you are owing, receiving, paying and spending.”

When they get paid, they first pay the major bills, then they see how much money they have left before deciding what ‘extras’ they can purchase. As we explain below in the section on cash, people find it easier to manage their money if it is in their bank account compared to having it in cash.

Livia, a 67-year-old resident of Ipiabas who makes and sells dolls (and is quite well-known internationally), remarked that she learned how to use a spreadsheet but does not use it:

“I don’t use a computer. I even took a course to make a spreadsheet. But here there is no need for it because it is not a big deal. Here it could become a big thing because my dolls are well known, but I don’t have the capital to invest... I used to register everything [record sales] but now I’m not registering anymore. After the pandemic you arrive in a reality that nothing matters in

your life but your respect for God. This pandemic cleared my mind more than I already had a clear mind. It made me see a lot.”

While most of our interviewees thought their method of managing money was quite adequate, a few told us that they should be more active, including Gustavo:

“I haven’t been controlling much lately. I have to start controlling more because my money is coming out that sometimes I don’t even see it. Really. Sometimes when I go to see it, I say, ‘damn, I didn’t have the money?’ I don’t have it anymore.”

One young man we interviewed has quite a wide range of financial apps on his phone that he uses to track expenses and other aspects of his financial situation. For example, he has an app, Serasa Consumidor, in which he can check whether he has got a ‘dirty name’ with Serasa.

Some people have downloaded an app from their bank with which they can check their card expenses. This app is only for cards, not to view their savings accounts. Many of our interviewees in the city seem to have apps to track promotions at a variety of items, such as ZigPay, Shopsave, etc. Many also have the Caixa Tem app in which they can see any government benefits they received during the pandemic. Some downloaded the app to check whether they were eligible for these payments.

Leonardo, a young man we interviewed in São Paulo, explained that, apart from his bank apps, he has an app called “mPIS” (Program of Social Integration) in which he can check whether, as an employee, he is eligible for unemployment insurance. In other words, as an employee, he has some rights and this app allows him to see if he has something to receive. He also has an app called Gorilla that he uses to follow and track his investments. He is the son of the retired banker we also interviewed, Matheus, and many of his ways of dealing with money (including the bank accounts he has) come from his father. One interesting thing is that while his father prefers to use the computer to manage his investments and accounts, Leonardo seems to have no problems checking the

app on his phone. He also has a Banco do Brasil app exclusively to follow investments. There are other financial apps downloaded on his phone such as Empiricus, which he didn't mention as an important one.

People also seem to have apps they no longer use anymore, or apps they downloaded just to see what it is like. Leonardo has the Picpay app downloaded on his mobile phone but does not use it. He also has an app called Samsung Pay Mini, which was discontinued in mid-2021.

Guilherme, who sells food from a cart on 25 de março in São Paulo, also has the FGTS app. FGTS is a guarantee fund created to protect workers who are laid off. He has also downloaded Picpay, Mercado Pago, and PagSeguro (which is linked to his POS machine).

Not everyone thinks that financial tools are useful. Fernando, who lives in Ipiabas and works in tourism, argued that the ability to manage money successfully is more dependent on psychology than technology:

“Tools exist for everything, I think we don't manage better because we don't want to.”

We encountered several examples of adult children trying to convince their parents to change their ways of managing their money. Often these interventions were quite successful, and many young people had successfully taught their parents to use banking apps and the like. But it is not always easy. Giovanna, a student, has been trying to convince her father to start using a banking app rather than going to the physical bank:

“My dad says the only card he has is a retirement card. The retirement card is a debit card and can be used in stores. But even so, he prefers to withdraw money from the bank, stand in line for hours, get cash and buy things. I'm trying to get him to change. He was even happy that I had gotten the card. He just doesn't like the card very much because he has to pay an annual fee, he has to pay something monthly because of the card.”

Responsibility for paying the household bills tends to be mixed. In single parent families it is the mother who is responsible, or perhaps a grandparent. In two-parent households it may be one parent or both. We did not find any particular pattern with respect to gender. One interviewee told us that he and his wife manage their own finances separately, and only cooperate on a small number of fixed joint expenses. Often, though, the process is consultative. As Adriana (C24), who sells paintings in 25 de março, and Paulista remarked:

“It's me and her [her wife]. If I want to buy something I ask her, I consult her. I very rarely end up buying something without warning.”

Aline, a 40-year-old woman who works as a cleaner in the countryside, elaborated further on how her family cooperates:

“We all work. Everyone in the family works. Maria Paula has the cows, Camile works in the chocolate, Daniel has the machine. He takes all kinds of jobs and I work too. I am a housekeeper. So we solve each one at our own expense. We put everything together as a family and each one does something. And so we go on, I do the normal things for a mother to take care of the house, buy things for the house. Paulo helps with the bills. We let them save the money to buy cows.”

In other words, each family member has their own money but they cooperate.

Many people save receipts for purchases, but for most people this seems to be out of habit rather than because they are used for accounting. Some people will keep receipts for larger purchases as proof of payment or in case they need to return the item. Surprisingly few people carried receipts with them; they mostly kept them at home. In São Paulo, Leonardo had a receipt from the supermarket, and Arthur also had some in his wallets. Also in the city, Lucas had numerous receipts with him, including for bills like electricity and water, with “pago” (paid) written on them. Lucas also had a receipt from a deposit he made of BRL150 in his Santander account.

We found just one person who is firmly against keeping receipts, in this case because she is afraid of people getting hold of her personal information:

“I don’t keep receipts because I’m terrified of paper. What I can do digitally, I do it and save it on the phone and that’s it. Just the electricity bill that I always have a receipt for. But when a year passes, I burn it.”

Eduardo, a dairy farmer, does not ask for purchase receipts because he/she feels it implies a lack of trust:

“I usually trust their words. Just like others trust mine, I trust others. I don’t really like this paper thing to provide proof. What matters most is our word, the word of the human being, of man.”

Some people struggle with making financial decisions due to lack of knowledge of confidence. For example, Julia a 27-years-old engineer, lamented:

“Before, decisions were made by my parents and now it’s hard to weigh up the pros and cons of a decision, I’m very insecure. A financial decision of great fact, buying a house and financing it, is troubling.”

Some people use financial tools in innovative ways to make money. The simplest way of doing so is by asking customers to pay in cash. In this way vendors of goods and services can avoid paying tax. Another is to keep money in the form of assets. As Eduardo, the dairy farmer, explained:

“The Internal Revenue Service will not count the calf. But money in the account they know.”

Other people have worked out some quite complex tricks to profit from how financial services work. Paulo works with tourists and does some informal mechanical work on cars. He has a Santander credit card with a low fee and BRL10,000 credit limit interest free for 10 days. He pays for things on his credit card and asks his clients to give him cash, adding a surcharge even though he does not actually pay one at his bank. He also uses his credit card to resell parts:

“If I find a cheap tire, I buy it on the spot and pass it on to another citizen at another price, I get the core and don’t pay the interest in the bank.”

By this he means he pays off the amount owing on the credit card before interest is charged. In the meantime he has more cash at hand than he normally would.

Paulo, the jeep driver, has a particularly innovative method to avoid paying interest on his credit cards. When the bill of one card is due he uses the other card to pay money to his business, as though he is a client. Then he transfers those earnings to his credit card. When the next card is due to pay, he again pays himself with the other card. In his words he is “running away from interest”.

Arthur, a vendor who lives in São Paulo, has five bank cards but uses Pix more. He combines card and cash creatively to manage stock:

“This [Pan] one has a credit limit that I can pay in instalments. Sometimes people buy wholesale. Then I do some management. I buy in instalments, the person pays in cash, I use the money to pay the instalments, I use a part to buy more products and so on. This is what I use for inputs and outputs via Pix. I’m going to buy a POS machine.”

Some consumers take advantage of features like cashback to make money. Many stores offer a cash return on purchases after a certain time, say 30 days. Customers simply make their purchase and wait to get their cash. Some take advantage of this feature in creative ways. Victoria explicitly looks for opportunities to use cashback:

“I study it over the mobile phone. I Google it and go looking for a way to make money.”

On one occasion Victoria bought a cookie at a store. There was a promotion and she won BRL50 in the promotion. But to have access to this money she needed to download Picpay. By downloading Picpay she became eligible to receive BRL20 cashback. She could not transfer that money out of Picpay using Pix because it was a promotional balance. She decided to

use the money to pay a bill of BRL55 but she was BRL5 short of the correct amount. She used Pix to transfer the 5 real into the Picpay account so she could pay the bill. But then, because of the cashback feature, she immediately received BRL20 back. She then discovered that she had also won 20% of the value of the bill she paid. In the end Victoria made around BRL31 in profit.

From these stories we can see that managing money and keeping track of spending is handled with great creativity and with regard for convenience and price. Small businesses manage by combining their business finances with their personal needs, and families contribute in order to manage together.

SAVINGS AND DEBTS

Both savings and debt are important parts of money management. Our interviews covered people's experience with both. As payment was the main focus of the desk research, we do not include a broad description of household savings and debts.

A few facts can provide a sense of the issue. A survey on savings conducted by the Brazilian financial data provider (SPC) in 2019 shows that 67% of Brazilians cannot save money.⁵⁴ This corresponds well with figures on reasons for not saving where 40% blamed lack of savings on low income. The survey shows that, among those who save, 42% had to withdraw at least part of these funds in August, mainly to pay day-to-day bills (32%), settle debts (30%), and deal with unforeseen events (26%). The survey also points out that the main destination for the money saved by Brazilians continues to be the savings account, cited by 66% of respondents. Also noteworthy is the fact that 21% keep the amount in their checking account and 18% keep money at home.

As for credits and loans, there are indications that credit card debt is by far the most common credit in households. Data from 2021 show that this is as much as 85% of family debt in Brazil.⁵⁵

Our interviewees tended to see savings as important. They would save for emergencies or to pay for something important like college fees. Few saved to buy large-ticket items; instead, those with credit cards would buy these items on instalment plans. However, people did recognise the importance of savings, especially for emergencies or particular goals. For example, Livia, the woman in Ipiabas who makes dolls, explained why she saves:

"It's for emergencies. For example I got sick these days and I had to spend a lot of money on exams and stuff. I got broken. Now I'm depending more on my mother's help. That's why I think it's important for us to have a guarantee fund because if something happens, go and get it. That won't get in the way of your routine."

Other people saved with a particular goal in mind. Giovanna, a 19-year-old student, had just started to save monthly with the goal of using her savings to travel with her friends to the US to work:

"I want to have a stable financial life but I want to save it monthly. Separate an amount to leave per month and add it."

In this case her savings were an investment: in the US, she believed, she would be able to work and make money. Indeed, while few of our interviewees had much money to invest, investment was nonetheless a topic of interest.

“OUR INTERVIEWEES WERE HIGHLY AWARE OF THE RISKS INVOLVED IN DEBT AND TOOK ACTIVE STEPS TO LIMIT THEIR EXPOSURE”

Leticia, who is 51 years old and lives in São Paulo, remarked:

“You always have to save so you can invest. If you spent it all, how can you invest? You try to save. And look, sometimes I don’t spend it on anything, it’s only when I’m getting [financially] better that I’ll spend it again.”

Doing this alone was not always easy, so people would sometimes turn to others to help them. Bruna, who is 60 years old, lives in Ipiabas, and makes money from selling homemade sweets, used to have an arrangement with her employer to help them save:

“I remember when I started working the first thing I wanted was to have a brick house. I talked a lot with my boss that I really wanted to have a brick house. I started to work, work and one day I told her, ‘I don’t want you to give my father the money anymore,’ because my father used it to drink, ‘I want you to keep my money and when you have about 3 months of payment due, I want to make a down payment on a thousand bricks and I want to build a brick house for my mother and brothers.’ So she did. There she started to give me freedom so that when I finished my work I could do some cleaning, I could iron clothes, then I started ironing clothes in the apartments. I managed to buy a thousand bricks, buy sand and I went after the mayor...and he gave me a truck of stone dust. Then he built our brick house. It was the greatest joy of my life. I already felt more up, we aren’t as poor as we used to be. From there it got better, my mother started working too, my brothers grew up, my mother started working as a cook on a farm, she already pocketed the house, my money also came in. It was so.”

Brenda, the 19-year-old student in the countryside, had learned about investing from a friend who helped her to invest a small amount and also taught her about cryptocurrency:

“When the investment business came up, I left 50 reais there. I understand a lot more about high risk investing and low risk investing. Low risk is

more time consuming. On the day it gained I think, what, 20 cents. It doesn’t pay off over time. I also have friends who are into investment business, Bitcoin charts and stuff.”

Not all investing involves money. People also invest in things that can be resold or used to make a profit. Public servant Douglas, who lives in the countryside, tries to buy things that hold value so they can be resold. If he needs cash he transfers money to his dad and gets cash from him. He tries to shop in stores with Pix. Farmers are also highly conscious of investing in their farms. Daniela, who works in the chocolate shop and helps out on her family’s dairy farm, explained:

“When we buy the cows it gives us milk, and we will sell the milk. Then it gives money for us to buy her food, so we can make her fat and beautiful. The calf is born and we gradually increase, and invest in it.”

However, the vast majority found it very difficult to save because of the precarity of their financial situation. Most were struggling to pay the bills and buy basic goods. Mariana, who sells raincoats on Rua 25 de Março, São Paulo, explained to us that she has never had spare money available to save:

“This talk about not spending a lot...I was never one to spend it because there is never any money left and we have to buy things to eat. If we can buy clothes, we buy them, but we don’t have any money to save, we can’t save them. When we start thinking about saving money to buy something else later, something comes up and we have to give it. So there’s no way to save [money].”

Many interviewees were grappling with this problem. When you are struggling to pay your basic living costs, saving seems like a fantasy. While it makes perfect sense to build up an emergency fund or accumulate savings to invest, most of our interviewees were simply under too much pressure financially, especially due to the disruptions the Covid-19 pandemic wrought on the economy and the current period of high inflation.

Several interviewees told us that their attitudes to savings and debt have changed over time. In particular, they learned about the importance of saving after spending too much.

Similarly, Camila, who sells water and soft drinks along with her girlfriend, Fernanda, learned the hard way, spending too much as a young person and realising as an adult that he/she should be saving more:

“I’ve spent too much money, nowadays I value it more. Things are more difficult these days. We try to save as much as possible...Nowadays I save a lot, saving in a digital account.”

Indeed, despite the prevalence of credit in Brazil, **we found a high level of awareness of the importance of avoiding getting into debt.** As we described earlier, many people were taught by their parents and grandparents that they should avoid debt. While many of these same people subsequently ran into financial trouble, they are revisiting the lessons of their youth as adults. They devise their own strategies for avoiding over-indebtedness, and have different preferences for the kinds of debts they prefer or wish to avoid. Eduardo, a dairy farmer and Daniela’s father, believes that being in debt is dishonourable:

“This is a matter of honour, for the person not to be in debt, I have to buy and pay. If you bought it, asked for it, you pay. ‘Instalment.’ It’s a damned thing. If you can afford it, want to buy it, you have to have the money. Go there and buy it.”

Yet other people simply dislike being in debt as Livia, the doll-maker, explained:

“I am very afraid of being in debt to others, I don’t like it. It’s something that I have and nobody ever taught me because I didn’t study. I think that a housewife, for example, is the best manager ever. She doesn’t even need to study business...The mobile, for example, I bought at the store where I have credit...When I received a payment, I paid off everything so I wouldn’t be in debt. I don’t like debt.”

Anna, a public-school teacher in the countryside, avoids buying with a credit card, although sometimes this is difficult:

“I think that if I have the cash to buy it, I’ll buy it and pay for it. Because sometimes people use credit cards but forget that they don’t have money but they do have a card, so go buy it. Then the bills arrive at the end of the month, and they are tight because they bought too much. Unfortunately, human beings are like that, as much as I am controlled, there may come a time when I want to buy something and I don’t have money, and I would think about using the credit card because sometimes we forget that the card we use, we also have to pay for it. To pay, I prefer to pay in cash.”

She was not alone in being motivated to find ways to avoid debt. Paulo, the jeep driver in Ipiabas, is particularly averse to buying on instalments:

“Sometimes I comment that I have never paid in instalments and there are people who say that they have never paid in instalments either. Now if you pay in instalments, you already have that instalment from the previous month and you spend more this month and then it accumulates and the interest is very high when you pay it off. It is better to take it from one place and put it in another than to delay, to be in debt.”

José, a horse riding instructor in Ipiabase, had also run into problems buying on instalments and had decided not to do it anymore:

“I’ve already wrapped myself up because you’re buying. You buy everything, pay in 10 instalments. But it turns into a snowball.”

Considering how widespread it is in Brazil to pay on instalments and use other kinds of credit, it is interesting that so many of our interviewees spoke out against indebtedness. Overall, our interviewees were highly aware of the risks involved in debt and took active steps to limit their exposure. While we do not

have sufficient evidence to draw conclusions, it seems entirely possible that people's problems with debt have very little to do with a lack of understanding, and far more to do with the acute financial pressures they face in their everyday lives.⁵⁶

Victor, the owner of the chocolate shops in the countryside, believes that the media are partly to blame for encouraging people to get into debt. He claims that the media encourages people to buy on instalments by portraying an idealistic picture of consumption in which everyone has the latest phone and nice clothes. Due to the media's influence, Victor told us, it is common for employees on minimum wages to own an expensive phone.

Not all debt is considered dangerous. **Indeed, there is a long history in Brazil of shops providing credit to their customers. This system was especially important in the countryside where it could be difficult to get hold of cash due to distance from an ATM, and the irregularity of wages for some people.**

In the countryside some older people talk about pre-card solutions giving credit based on a "notebook". Shops would keep a paper notebook for each client, and they would use it to record how much the client owed them. People often also kept their own notebooks of how much they owed to whom.

Marcos, a 54-year-old who is studying biomedicine, described how the system works, as his wife has a shop that uses the notebook system:

"Here we have the notebook, right? The card usually never has money, so the notebook... When I say notebook, it's when people arrive to buy something and want to write it down to pay later. Then we say that they write it down in the notebook. It's kind of a credit given to trusted and known people."

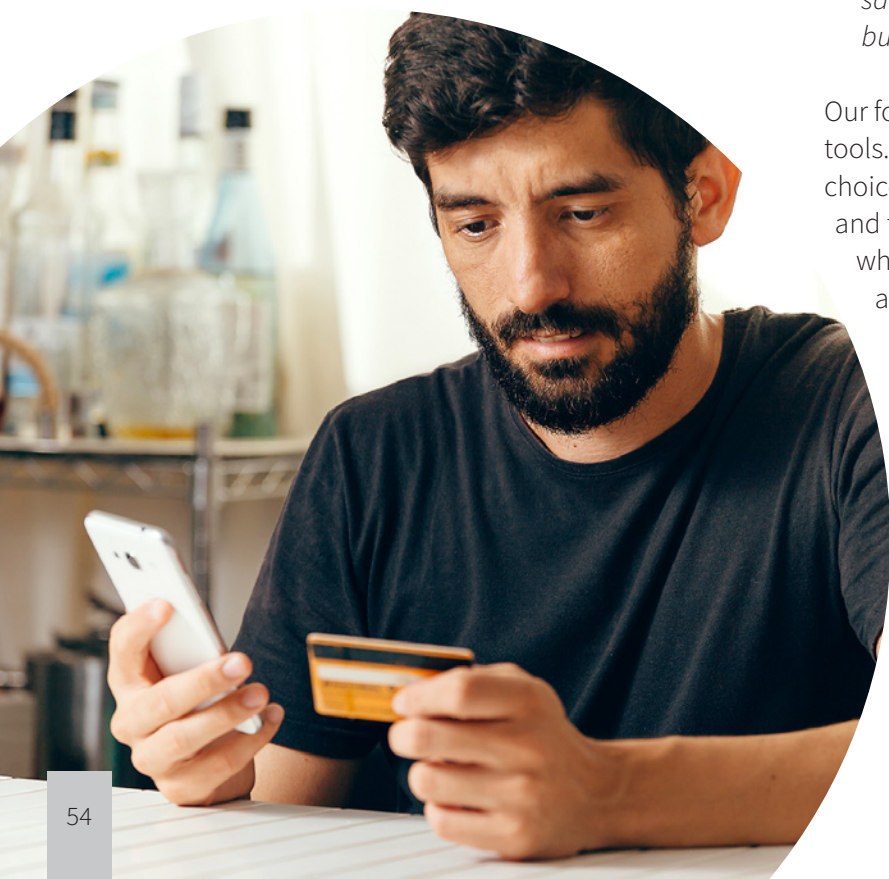
He does, however, also recognise that this type of loan come with a risk, since people he used to trust do not always pay him back:

"But it is precisely these that betray us and we are disappointed."

Very few people mentioned problems with calling in debt from other people. One exception was Rafael, who works for the bridal store in Rua 25 de Março, São Paulo:

"If the person owes me, she says that she will pay me so much on such a day. OK. When the day arrives she gives it to me, if she doesn't give it to me, I call and ask if she will have the money or not. For the people to whom I owe I also do the same thing, on the day I say, 'I don't have it today, but on that day I will have it and I will pay you.'"

Our focus in the study is on payments and payment tools. As described, context is so important for people's choices. We were struck by the weight given to savings and the fear of debt that most people experienced, while some, on the other hand, seemed quite adept at managing different credit cards. In the next section we discuss how people's financial experience also impacts their decision-making.



**I'VE SPENT TOO MUCH MONEY,
NOWADAYS I VALUE IT MORE.
THINGS ARE MORE DIFFICULT THESE
DAYS. WE TRY TO SAVE AS MUCH AS
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SAVING IN A DIGITAL ACCOUNT.**

Camila, 21 years, salesperson

FINANCIAL EXPERIENCE

SUMMARY

- Most interviewees learned about money from their parents or grandparents (both men and women, depending on the family), by listening and watching, or by being instructed.
- Most mention the importance of saving and of keeping spending within their income
- Yet many have had a bad debt (credit card) experience
- Very few are able to save systematically and for the future
- The current inflation is adding to the effects of the pandemic
- Wishes for the future are generally modest—a house, an income to feed the family, a job/business and a better future for the children.

Making sound financial decisions and choosing sensible ways of managing money and payments depend on access, knowledge, and experience. This is very much part of the discussion on financial inclusion. It is well described that lack of access to technology and banking as well as lack of adequate tools can leave low-income groups without solutions, or with expensive or inadequate money management tools.

In the section above we presented findings on the access and use of financial institutions and solutions. In the next two sections we present findings on interviewees' financial experience and their money management experience. In a later section, we will describe the general access to the Internet and ID in both locations as a foundation for managing financial decisions.

The Brazilian government has a general inclusion agenda covering financial inclusion and financial citizenship (financial education, financial inclusion,

and financial protection).⁵⁷ The initiative further relates to broader innovation activities like the introduction of Pix (described elsewhere). A few of these initiatives are described below, mostly to illustrate that, apart from Pix, they do not seem to have penetrated broadly in Brazil.

The education initiatives aim to raise citizen awareness so that everyone can participate in financial markets. Initiatives include educational actions and financial solutions for low-income groups. Such programs have been in place in different ways over the years, as described, for instance, in a paper on how, after currency stabilisation, the Brazilian government attempted to improve access to money through making small denominations available.⁵⁸ Educational activities also include a Money Museum in Brasilia. The latest strategy, National Strategy for Financial Education (ENEF), was created in 2020 in collaboration with the Brazilian Financial Education Forum.

LEARNING ABOUT MONEY

Most people begin to learn about money when they are children by watching their parents. A few of our interviewees told us that their parents and grandparents took an active approach to teaching them about finances. Jéssica, who works at the bridal store, described her mother's influence:

“My mother taught me what money is for, how to earn it. My mother is a former police officer, she always kept us very practical, not to pay anyone anything, if we want, we can win for OURSELVES. From a very early age, since I was 10 years old, I was already making jewellery to earn my own money.”

“FEW INTERVIEWEES TOLD US THAT THEY TAKE AN ACTIVE APPROACH TO LEARNING NEW THINGS ABOUT FINANCE. INSTEAD THEY LEARN THROUGH ACTIVELY ENGAGING WITH PRODUCTS AND SERVICES, ESPECIALLY BY DOWNLOADING AND TESTING THE APPS OF DIFFERENT FINANCIAL SERVICES.”

Eduardo, the dairy farmer, tells a similar story, but particularly emphasises just how important money is; indeed, she says that it is only second to God:

“I learned from my parents. Below God is money that rules. If you don't have...first it's God, God gives health, ideas, gives things to us, but then if you don't have the money here nobody knows you, there's no way. It was with my father that I learned to value, to manage money, to know what money is.”

Quite a few mention that they were taught that saving is important to follow your dreams and build a home. However, the primary lesson that people report learning when they were growing up is to not spend more money than they have. This was an important lesson for them and one that they are grateful for.

Amanda, who lives in São Paulo, explained:

“Although my mother is not literate, I learned from my mother something that I carry with me to this day: you should never spend more than what you have. You earn 'x' salary and spend twice that salary, my mother always taught me that, so we always have to spend it according to what we receive. Never pay the minimum value of the bill, my mother never paid the minimum bill and I wanted to understand, I always paid in full. I picked up the same habit from her.”

Similarly, Julia, a 27-year-old engineer, explained:

“I learned to value money and be aware of the value of the things you buy, be aware of whether it's cheap or expensive. Also a notion of savings, of saving money, of not being irresponsible, spending without thinking about the bills you have to pay.”

In most cases, however, our interviewees were taught very little about money management. When asked how they learned about money, the vast majority recall how their families struggled to make ends meet. Those who were brought up by single mothers particularly note that they do not know how their mothers managed. In several cases our interviewees told us that they were not taught anything, they just heard their parents or grandparents complain about money.

Instead, many had to learn about money management “through life”, meaning they had to learn through necessity because they started working and, in some cases, already had children to feed. Some learned through experiencing a crisis. As Lívia, the doll maker, explained:

“When you lose a mother at 14 you learn a lot in life. Life teaches you.”

Quite a few of our interviewees were forced to learn because they overspent and got into debt. Several interviewees report that they only learned how to manage money once they made mistakes and got into trouble. Amanda says her mother was often angry about money, and she only learned about it as an adult when she gained a ‘dirty name’ with the credit bureau and was not able to borrow subsequently. One woman did not understand that when she bought items on her credit card she would have to pay money off the debt the following month. She got into debt, also got a ‘dirty name’ and regrets that she had to learn this way. And Victoria, a single mother who is fond of Pix, said:

“You practically learn from bad experiences in life. When I went to live alone I had no idea how to make money work. It has to pay for the whole month. So I got paid, when I had a formal contract, the first month I got paid, I spent everything in 1 or 2 days without thinking about it later. So it was 28 days that I was going to run out of money.”

People also learned from the larger financial climate of Brazil. Some of our older interviewees remember the period of hyperinflation and the introduction of the real in 1994. One interviewee, Beatriz, believes that hyperinflation affected the kind of financial education her parents give her:

“At the time when I was a child it was the time of hyperinflation...there was no talk of anything other than savings. And always ‘spend less than you earn’. No one ever talked to me about checking accounts or to control my spending. It really was about saving your money because you will need it in the future, savings are the best investment and never spend more than you earn.”

Another interviewee, João, commented on how inequitable that period was. He explained that wealthier people could capitalise on the situation to make money, but poor people could not:

“The hyperinflation that Brazil had in the 1980s affected everyone, from the poorest to the richest, but at that time there was a thing called overnight, open-market that you invested in...who had money invested...then you earned a better interest. But now the less favoured class couldn’t do that...that’s when a lot of people actually regressed rather than progressing.”

And yet a few poorer people did manage to take advantage of the uncertainty of hyperinflation. One vendor, Juliana, remembers that hyperinflation was instructive because she worked out how to make money from it. People needed to carry more physical cash around and they needed some way to store it. Juliana started selling coin purses to customers:

“I was actually the first person to sell coin purses on the street and then it filled up, but I made money. I thought it was good because a coin was worth a lot, until then there was a coin that wasn’t worth anything. Suddenly you had a coin and it was already money, you could buy sugar, something.”

In the countryside where cash was scarce, memories of hyperinflation are somewhat different. Eduardo, the dairy farmer, compares hyperinflation with the stability of owning livestock:

“In my way of seeing inflation, it was like this: at that time of inflation you had a chicken, it was better to sell the chicken and invest the money in the bank because if it were to buy feed for it, wait for it to lay an egg, it was a loss. After the inflation ended, the opposite was true, it was better to have the chicken, give her the feed, get an egg, hatch, make more chicken. You have to work harder.”

Some people’s memories of the period are quite colourful, literally. Amanda, a 36-year-old, self-employed woman, primarily remembers the change in banknotes and how they became more colourful:

“I was a child, I just remember that I was fascinated with the drawings on the banknotes, the banknotes became more colourful. I remember more of these things, of the coins. I don’t remember much details. The things that I remember that stood out, that stuck in my head, were these issues of the cash being more colourful, the currency being different, of the drawings themselves that changed from the cruzeiro to the real. These were the things that most caught my attention.”

Financial crisis aside, many of our interviewees told us that they really began to learn about money when they started working or running their own business. João explained:

“I was born a seller. I think that since I was a child, when I was 8 years old, my mother used to make sweets, I would sell them, ice cream, these things. I was a salesman and didn’t even know it. I’m in the right branch. In the school itself, even at the time of the 1st grade, we had in school a subject called commercial education, industrial education and domestic education. You learned in the commercial sector, how to maintain a business, industrial, how to use equipment, make a doghouse, for example, and from domestic I learned to make food. American school.”

Similarly, Paolo, a 56-year-old driver, says he learned through running his business:

“In commerce, as I told you, I had a fixed commerce, we have to have control to be able to report to the accountant, do income tax and these things properly. It has to be more noted. Now as I’m a guide and I have my own business, I don’t have to give so much satisfaction, I know what I’m doing because I’m not going to rob myself.”

Today most people tell us they learn about money from family and friends, although few actively ask anyone for advice. A small number of people turn to online platforms such as YouTube, and some also follow certain ‘finfluencers’:

“I used to follow Primo Rico but today I don’t.”

I mostly follow brokerage accounts. From the general macroeconomic scenario, I follow Ricardo Amorim to find out how the economy is in general, inflation and that sort of thing.”

However, few interviewees told us that they take an active approach to learning new things about finance. Instead they learn through actively engaging with products and services, especially by downloading and testing the apps of different financial services. Some expressed a wish to learn about investment and reported having friends who invested in stocks or cryptocurrency. Predominantly, people had a small pool of trusted family and friends to whom they turned for advice and information.

So, generally these groups of people are not well served by government programmes of financial education or inclusion. Most tell the story of learning by watching their parents and/or grandparents. However, most had to learn and find solutions for themselves when they moved out of home, began working, or started to raise a family.

THE SITUATION TODAY

The vast majority of people in both our urban and rural sites told us that their financial situation is worse today than a few years ago. Rather than thriving, people are “just surviving” (Gabriel). This is primarily due to the impact of the pandemic on employment and sales, as well as recent inflation that has driven up prices of everyday goods. In the words of Larissa, an unemployed 35-year-old woman living in São Paulo:

“It got worse and we are also very insecure about how prices are increasing in an absurd way. We get very insecure and there will arrive a moment when we will always have to leave something to pay for, otherwise we won’t be able to support ourselves. It’s actually literally living with the basics. So I feel pretty insecure about that.”

Adriana is also distressed about her family’s financial situation:

“I’m currently in despair. It’s all very expensive. You used to do grocery with 100 reais and could buy at least the basics for one month. Today you

buy enough for three days. It's also a matter of the way our money is devaluing on a daily basis and I often see that no matter how hard I work selling paintings, I can get 100 reais a day, 200, 300, but it all goes at once. I also pay rent, the rent is considerably very cheap, it's all-inclusive, 450 reais. It's quite far away, two hours from here. I have easy access to the subway, there are 24-hour buses, even so it's hard to keep the house... it got worse. Before I lived in Ubatuba and had a steady job there and as I had a salary of 1400 reais I was able to keep rent, keep paying bills, buy everything and still have leisure. Now in my current job I earn 998 reais, excluding taxes. I will receive about 700 reais. If my wife doesn't work, we practically don't pay the bills."

The family would like to move to Canada but the current financial situation makes this impossible. Others are struggling to achieve long-term dreams that were meant to be short-term ones. Brenda, a student, and her family are struggling to complete renovations:

"It got a lot worse. Not just because when you retire you decrease your salary, but also because of the country's economic situation. I remember when I was a kid my mom was never one to give everything, like I want this toy, I want this candy. She didn't give me everything I wanted. But we had a better condition in terms of housing, food, these things. I thought about it a lot. It's all so difficult. We've been wanting to fix our bathroom for so many years, which has been a problem and we can't even save money to do something like that. We can't because nowadays it's getting more and more expensive and difficult to survive."

During the pandemic people found ways to support each other, with groups of friends getting together to help those who have little. Thais, who works at the bridal store, explained:

"I have several friends, even when we were in the worst phase of the epidemic. We couldn't leave the house, each one helped each other. For example, I have a friend who has a grandson, has two daughters, the daughters live in their own houses, we managed to get some food baskets

and if one didn't, we exchanged things. I have a friend who is also a psychologist and she said it was very difficult, she lived in Vila Mariana. One day we called her and I asked if she had already had lunch. And she said 'no'. We made one meal and my friend made another and we took this food to her house, but there was nothing to eat. She studied her entire life to reach this stage. Is very sad. We brought her food and she was very unhappy because it was a very difficult time in her life. She has a grandson who is special. The situation was sad. We stayed strong because we couldn't cry in front of her. We did it from the heart. But we saw many difficult things in people's lives, many people going through a lot of difficulty, especially hunger, not having money to buy food."

Thais also reported that her church had been supportive through actions like giving out food parcels:

"They donate food baskets to us, they often donate. There are more than a thousand people registered to pick up a basic food basket. They also give fruit sometimes, people from Ceasa [State Supply Centre] donate to them and they give it to us too. It helps a lot."

Jéssica's family have also been struggling and occasionally get help from their church:

"Based on my salary, this is very complicated for me since we didn't get the aid [the Auxílio Emergencial]. I didn't, it's very complicated. It is very difficult to buy things for the house. Sometimes I have help from my mother and my husband's father, and sometimes I also get a basic food basket from the church staff. It's very difficult. Water and electricity are absurdly expensive and as I only earn 70 reais now because of Christmas, it is very difficult to buy things at home. Sometimes it has and sometimes it doesn't. So we go on with life, believing in God so that we don't miss anything."

We found that the majority of people feel that the current financial crisis is unnecessary, and they blame the government for bad management. This statement by Anna, a 43-year-old primary school teacher in the

countryside, is similar to several we heard:

“Brazil is totally financially unstructured. Things increase every day and our salary does not. If one thing like this followed the other we would live much better financially. But it is not. Our salary increases once a year and food, medicine increase every day. So what happens? Our salary ends up lagging behind the price of products.”

Other interviewees also point out that the problem is at the national level. Leandro, who is 17 years old and in high school, remarked:

“Brazilian people work to eat what they have, they don't work for a living like in other countries where people work and at the end of the year they can travel or have a vacation for example. But Brazilians have few who can do that. Most Brazilians work and half of their salary money

goes to food, housing and sanitation. I think that going forward will be better, that I can live and not have to kill myself with work so I only have food. It would be to live and not survive.”

A few people, such as Lucas who works on Rua 25 de Março, São Paulo, told us that their situation has improved, but this tends to be either because their situation was quite bad before the pandemic and they managed to find employment, or because, although the pandemic affected them negatively, they now feel that the effects of the pandemic are wearing off generally and so their situation is improving.

These stories of hardship and difficulties are not surprising in a study among low-income groups in a country emerging from a worldwide pandemic. It would be interesting to do this study again in a few years' time to see what differences emerge.



THE FUTURE

Our interviewees hold very modest financial goals. Few aspire to big things, such as wealth or running a large business. The majority simply hope to be able to cover their usual expenses and maybe buy something extra for themselves and their children. Many of our interviewees have learned to live with very little and do not expect more. In the words of jeep driver Paulo:

“I have no ambition. Me paying the bills and living well I’m fancy at last. There’s a wood stove, so I don’t need to buy gas, I have fish, milk.”

For some this recognition has taken on a philosophical angle. Brenda, the 19-year-old student, reflected:

People’s dreams are often related to their feeling of being responsible to their families. As 18-year-old Douglas explained:

“I don’t aspire to be a rich guy, far from it. I just want to have a certain financial stability and be able to form a family, be able to give what is necessary for my children, for my wife. Not that I think she needs to depend on me because there are men who understand that women have to depend on him. No, far from it, but it’s a matter of how I was raised in a house where we have...more conservative, we think a lot about it, that man has to provide, so in a way we absorb it. But it’s even an emotional issue, I feel good doing it for the person.”

“PEOPLE’S DREAMS ARE OFTEN RELATED TO THEIR FEELING OF BEING RESPONSIBLE TO THEIR FAMILIES”

“Today I don’t have any prospects about that, no, about future gains of many values, of getting rich, exploding in one way or another, I never had. Today I have even less. I think we have even less... It’s no use having a lot and not being happy. I think you have to try to make yourself happy, not the happiness of others, but be happy with what you have. Of course, if there’s something I can do to improve my income, my financial growth, I’ll always look for it.”

Similarly, Anderson, the public servant, expressed modest goals:

“I would like to have an income that would allow me to live peacefully, without squeezing and without exaggeration. Normal thing, paying for everything and saving for something.”

Indeed, often their goals are more for their children than for themselves:

“What I think is what I wanted to achieve for my life in terms of material things I already achieved. Thank God we have a life that doesn’t lack anything that is very different from most of Brazil. I think a lot about my daughter’s future and that’s why everything I have to do, everything I have to do in relation to her education, I spend it without complaining because I want her to have a better life than the life me and her father have. May she not go through financial difficulties as we have many times. So I think it’s more about her future.”

Several express a wish to buy a house so they can get out of the rental market. This was particularly the case for urban residents, for whom obtaining land and a house is more difficult.

A few interviewees expressed a desire for the development of their community. This was particularly the case in the rural site, where people saw a need to cooperate to make improvements such as getting an ATM installed in town, improving tourism, and improving farming efficiency. However, they can be quite critical of this process, claiming that wealthy people and government officials tend to monopolise any benefits. Bruna, who makes sweets, explained:

“There are many things we need, forming a real cooperative of the people who work here in Ipiabas, which has a lot of people like me who also work and it’s hidden, it’s anonymous, nobody knows that it exists. Then put it in the rich man’s store, the rich sell it very expensive and pay the person very little. I mean, this is all very unfair.”

Some people’s fear of the future relates to the broader Brazilian economy. Júlia, a 26-year-old civil engineer, stated:

“I would like [the future] to be safe, predictable, that I could have a decent retirement, that it also accompanied inflation, that it did not lose value. I’m afraid to save money today and then have lost its value.”

Some people, however, are quite hopeful like Victor, the chocolate shop owner:

“Financial stability is what we seek and we try to reconcile this financial stability with life outside urban centres. I hope that we will benefit from this trend of people’s search for a more humanised life, a more peaceful, safe place. I’m optimistic.”

It is worth noting that Victor is speaking from a relatively stable position. While his business was impacted by the pandemic, it is now recovering and doing reasonably well.

Several interviewees are taking active steps to improve their situation, especially through education. Several were studying for undergraduate degrees, although some had their studies disrupted by the Covid-19 pandemic. Brenda is studying physical therapy:

“I hope that in about 5 years I will be able to find out why I am doing physical therapy. It is an area that is not rich but not poor either, it manages to sustain itself well. I hope to be able to finish my undergraduation because I want to do a graduation degree, a PhD. I’m already thinking about the PhD and I want to work with it because it’s something I’m going to like a lot because I already like it. I hope to provide a better life for me and my mother.”

Daniela, who works at Victor’s chocolate shop, is also optimistic about her future business prospects and has definitive plans:

“May it be good because I want to increase and grow in life. So for that, I have to save and invest without fear. Of course, some things come up. Like driving school, I’ll have to spend [money on it] whether I want it or not. Investing in the cow is good because it comes with extra money. You will want to invest more and more. I plan to open a bakery. I’m going to take the pastry course first. I’m going to pay for it. But then it will be good. At first, it won’t make a profit but then it will come.”

However, while some people identify clear paths of action, others are content to leave their fate in the hands of God. Rodrigo, a bricklayer who lives in the countryside, explained:

“The future belongs to God. I live as God wants... because my conscience is clear. Whoever has a clear conscience is not afraid of death. Everyone will die.”

Overall, interviewee aspirations for the future were modest, but few could be described as complacent: many were taking active steps in one way or another to try to improve their situation for their own benefit and for the benefit of their families.

TRUST

SUMMARY

- Trust is important when it comes to money management
- Most interviewees trust their family members for money management, spending decisions and for advice
- There is a high awareness of the physical risk of theft. Many have had their phone or wallets stolen and carry items in different places (pockets, bras, bags, etc.).
- There is a high awareness of the risk of virtual theft (the cloning of cards, hacking of accounts, theft of ID, fake websites). People find that they need to use these tools despite the risks involved.
- There is widespread distrust of government and financial institutions with regard to services and data management. The fears are quite general. Some tend to trust traditional banks more than digital providers.

Trust is key to understanding the choice of payments and the probability of a positive response to the introduction of a new means of payments.

General trust is ingrained in national culture and is slow in changing. It is also difficult to measure. In Brazil, general trust in other people is low. Data show that only around 10% of people in Brazil agree that most people can be trusted. This is low compared to parts of Europe and particularly the Nordics where around 60% answer the same question positively.⁵⁹ Interestingly, in the majority of countries bank customers place a high value on trust in relation to banking and generally have high trust in banks. This is also true for Brazil.⁶⁰ In October 2020, a survey carried out in Brazil showed that, out of a selection of actors, banks were the most trusted by their users with regard to the management of their personal data, with 56% of respondents perceiving banks as trustworthy in this regard.

On the other hand, social networks had the highest percentage of respondents (42%) who considered the data handling of these companies suspicious.⁶¹

Similar results can be found in a study from FI-serve 2021.⁶² Between 2019 and 2021 trust in companies grew across the board, but especially in retail and payments. In 2021 respondents had the highest trust in payments companies (44%), followed by traditional banks (37%), then tech (34%) and retail (34%), then financial software and digital banks (31%), with social media companies being the least trusted (15%).

A very recent study by the United Nations illustrates trust in public institutions, as illustrated in Figure 2 below.⁶³ Brazil scores among the lowest.

“PEOPLE TRUST THEIR NEAR RELATIONS, MOST OFTEN FAMILY. THEY WILL TRUST THEM FOR ADVICE IN MONEY MATTERS. THEY WILL ASK FOR HELP LEARNING NEW WAYS OF MANAGING, LIKE OPENING AN ACCOUNT OR LEARNING TO USE PIX. AND, MORE IMPORTANTLY, THEY WILL EVEN SHARE ACCOUNTS, SUCH AS RECEIVING MONEY IN SOMEBODY ELSE’S PIX ACCOUNT.”

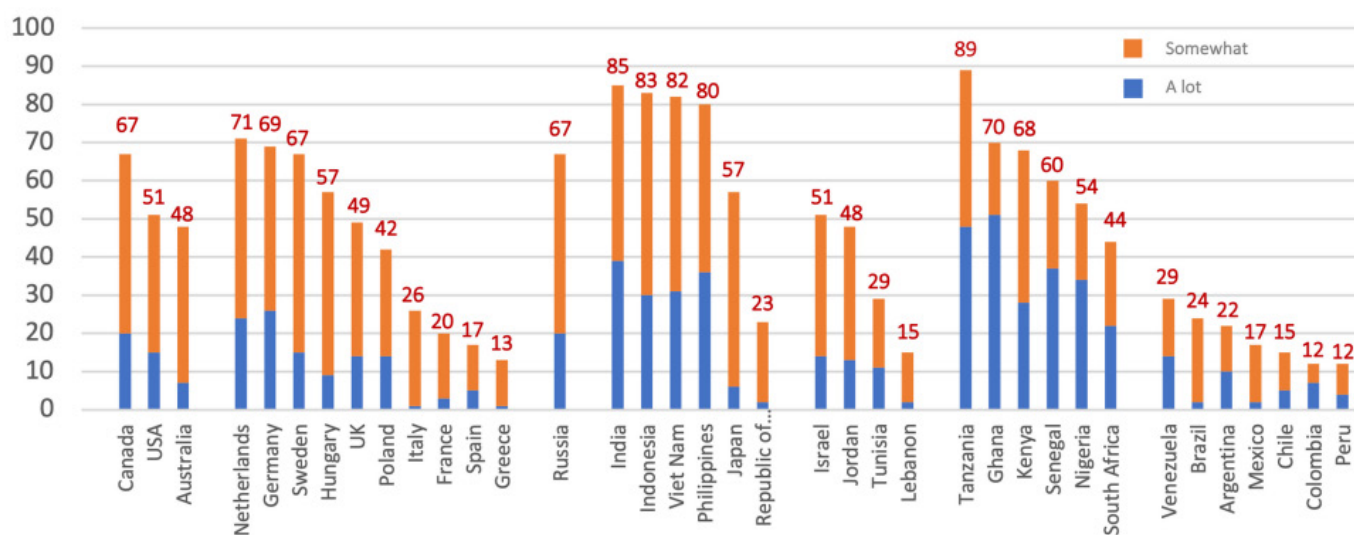


Figure 2: Trust in government (Source Pew Global Research 2017)

ADVICE AND FAMILY TRUST

As described in our introduction to the fieldsites earlier, culture and context are important determinants for people's feelings about money. During the fieldwork we saw many examples of trust and help within families that are important to understand reactions to new money.

People trust their near relations, most often family. They will trust them for advice in money matters. They will ask for help learning new ways of managing, like opening an account or learning to use Pix. And, more importantly, they will even share accounts, such as receiving money in somebody else's Pix account.

First of all, we found, as expected, that many interviewees were living in extended families with parents, grandparents, or siblings. In many cases they all contribute to the family economy. As Aline, a 40-year-old cleaner who is a member of the dairy farmer family in the rural area, explained:

"We all work. Everyone in the family works. Maria Paula has the cows, Camile works in the chocolate, Daniel has the machine. He takes all kinds of jobs and I work too. I am a housekeeper. So we solve each one at our own expense."

She added:

"We put everything together as a family and each one does something. And so we go on, I do the normal things for a mother to take care of the house, buy things for the house. Paulo helps with the bills. We let them save the money to buy cows."

Similarly, Leandro, a 17-year-old student, explained that his family is going through hardship:

"Sometimes I help by lending money to my father to pay for some things, or I go there myself and pay a bill like Internet, electricity, water and things like that. Once I made a purchase with my money."

We saw many examples of trust with money. When shopping in the markets we noticed that some street vendors did not have a mobile phone but only a Pix key

written on a piece of paper. When asked how this was possible, they would say that the Pix key belonged to a family member or partner. This also happened in the rural fieldsite. Leandro explained:

"I have Pix with Mercado Pago. It is on my mother's CPF [ID] because they don't accept minors. So I use it with her permission."

We also found some examples of intra-family lending, like Thiago, a 30-year-old farmer who borrowed from his mother-in-law to buy a car:

"I actually borrowed it [money for the car] and paid it back...the bank charges a lot of fees. I asked my mother-in-law. She didn't charge me interest, the real price of the car came out."

This relates to the experience of asking family members for advice about money and payment technology, seeking out the people with the most knowledge or success. Matheus, who is 60 and a retired banker, explained that he asks his son for advice:

"I look for my son who is a bank manager, he studies the financial market a lot. So when I want to clear any doubts I talk to him."

And Thiago singles out the most successful of his four brothers:

"I have a brother who manages well, he has money left over. He's been like that since he was young, everything is written down just right."

A very general observation that we made a number of times was that young people would help their parents or grandparents get started with digital payments (an observation that connects well to Nubank's strategy of rolling their solutions out to young people first).⁶⁴ Leandro explained:

"My father has a bank on his mobile phone, Banco do Brasil. But normally I'm the one who messes with it because they don't use it much."

Isabela, who is 60 and works as a cleaner, lost her husband, and her children are teaching her to manage paying bills with bank apps. For now she deposits money in her daughter's account and her daughter pays her bills. But as she stated:

“She has the Pix, I deposit it for her, and she does it. I have to have my own apps to be able to make my payments. I prefer to do it myself.”

Isabela continued:

“I’m going to start doing it now because I went to Banco Itaú and I didn’t have the app. But my son has already downloaded all the apps on my cell phone. I believe that next month I will be making my payments through the app. I think it’s even easier because you have an account in Barra do Piraí you don’t have to leave here and travel, spend with a ticket.”

This kind of cooperation would also happen in other relationships, such as in the case of Lucas, a 35-year-old sales promoter, who helped out his wife:

“[I taught] my wife to use the app. She didn’t know what Pix was. I told her. She doesn’t understand the issue of phone registration, e-mail, CPF. She didn’t really know. I showed it to her but she didn’t like it very much because she thought I was rude. But it’s alright. It must have been the way I said, like ‘damn how you don’t know!’”

Overall we found that levels of trust within families are high, and our interviewees preferred to ask family for advice and help above anyone else. Indeed, when it came to personal or even business finances, our interviewees rarely mentioned getting advice or assistance from anyone outside their family.

THEFT AND FRAUD

Fear of theft and fraud were major issues for most of our interviewees. Indeed, as we mentioned earlier, at least eight of our interviewees had been robbed in the few weeks before the interview, especially the poorer ones. People hide their money on their bodies, such as around their waist or in their bra, to avoid theft. Many

had lost their phone or documents in the process and were trying to replace them. Adriana recalls how she and her family were robbed:

“I was making a transfer for my wife. Both of us had our cell phones in our hands and then a young man came to rob us on the street and I saw the barrel of a gun pointed at us. It kind of terrified me to go out. When I go out my phone it’s always hidden, making sure I don’t lose anything, especially my life. The cell phone, I can conquer later. On the day we didn’t have much reaction, I kept my cell phone in my pocket, my wife walked to the side and I walked to the same side and we were kind of ignoring the robber. It’s that thing, we could have been shot that day for nothing.”

Issues of trust also affect the kinds of activities people feel comfortable doing in certain places as Rafaela, who works in Rua 25 de Março, São Paulo, recounted:

“Here in downtown São Paulo I don’t like to do anything, withdraw money, pay the bill at the lottery, so I prefer the app if it’s a necessity.”

As we already noted, people take steps to protect cash. Bricklayer Diego, for example, carries around BRL300 in cash in his front pocket and his wallet in his back pocket. He does not keep cash in his wallet because he prefers not to draw attention when he opens his wallet. Instead he keeps documents in there.

In other cases, people are concerned about more elaborate forms of theft, such as at ATMs. Juliana, who works on Rua 25 de Março, explained:

“The only fear I have is an ATM. Often the bandits used to take that little box and put another one. I’m always looking to see if there isn’t a line, something, I can put my card there and it’s being cloned. The only insecurity I have is just using the ATM.”

Yet other people do not feel safe using apps, as 35-year-old Larissa explained:

“Nowadays it’s already unsafe to use apps, like this Pix issue, of people stealing. It was no longer safe and now it’s just getting worse. Access is much easier because it takes the money and disappears. You don’t have that much control.”

Paying with cards also opens up opportunities for fraud. Felipe works on Rua 25 de Março for a shop that buys gold. His job is to stand on the street with a sign and encourage customers to enter the shop:

“Pix is dangerous because of robbery. But with a debit and credit card you have to look well where you are using it, the machine. The person can put an extra value. I have an acquaintance who went to lunch, paid 34 reais for lunch, it was 1,200 reais in his account. When he went to see...he didn’t take the paper. When he went to see the account was zero, the guy took everything. The person typed in front of him and he didn’t look. You have to look.”

Many trust issues related to technology are actually based on a fear of robbery or fraud, as described above. However, the presence or lack of such fears depends to a certain extent on interviewees’ trust in the technology itself. For example, Anna, a teacher, views technology as fundamentally flawed and therefore not trustworthy:

“I don’t do any transactions on my mobile. I’m one of those people who prefer to go to the bank. I’m so afraid to do this kind of transaction because I think it’s very flawed, the machine is very flawed. So I prefer if I have to make a transfer or something, I go straight to the bank or my sister does it for me.”

Similarly, people were concerned that NFC technology facilitates theft such as Jéssica who explained:

“Today, all you have to do is to approach the POS machine in someone’s pocket, they are doing it here in the centre, put the machine in your bag and it comes automatically by the approach [NFC card system].”

Lucas, who, like Jéssica, lives in São Paulo, was also worried about NFC:

“I use NFC. That’s the question, I think I shouldn’t. I think it would be better. For example, I have a POS machine here, you have your wallet in your pocket. So I put the value I want to transfer in my POS machine, approach it in your pocket and do the transfer without you knowing. So it’s in my wallet, I’m on the train, the guy pulled over, made a little noise, I didn’t see it. On the train, I use my wallet here in front of me so I don’t have this kind of problem. Even in terms of theft, because we don’t know who is who, it’s not written on anyone’s face.”

However, we spoke with several people who prefer to use NFC because they are more worried that their card will not be cloned. Douglas, who lives in the countryside, was one of these people.

Some people felt that, while risk of theft and fraud is indeed an issue, companies are taking reasonable measures to protect consumers. Brenda, who lives in the countryside and makes a little money selling homemade biscuits, told us she has trust in the security features of the apps she uses:

“It’s dangerous for you to put your credit card in any app to buy from the Internet. But I think that nowadays the apps that are recognized have a

“WHEN USING PIX: IF A VENDOR SELLS A HIGH NUMBER OF LOW-COST, IDENTICAL ITEMS, IT MAY WELL BE THE CASE THAT THEY HAVE DIFFICULTY VERIFYING WHETHER A CUSTOMER HAS PAID BEFORE THEY WALK AWAY.”

certain security. Like Mercado Livre, if you buy something and something happens, you can get in touch and they'll sort it out. It is dangerous for you to put your credit card on any website."

Trust in the present is one thing; trust in the future is another. We asked people whether they thought their money would be safe in the future. Some people commented that their confidence in the ability of technology to prevent them from theft and fraud is growing. Adriana said:

"I think technology is advancing towards [being safe]. Cryptocurrency issues, that sort of thing. I remember in Ubatuba I had a lecture about cryptocurrencies and there were older people who said 'but am I going to walk around with a pendrive around my neck? Someone can steal my pendrive,' but no, it's a passkey there. It's that thing, there's a fear because of this issue of change, which way the changes are going, how will inflation continue, if the currency will change or if it's just going to be a complement."

And Lucas had a suggestion for making transactions safer:

"I do not know if you know the credit card, have the security code. It would be good to put a tag in there because in some establishments, even if you swipe your debit card, it will have the number on paper and the person will only need your code to buy something over the Internet. What they need are the card details and the security code number. You don't need anything else, a password, nothing."

Essentially there is no form of payment that is considered to be entirely safe. As a result, many people take precautions. While the majority are comfortable using banking apps on their phone, a small minority prefer to do their banking at home on a laptop. For example, Victor, the chocolate shop owner, does all his banking on his laptop, refusing to use a banking app:

"I do it on the computer at the office or at home. I feel very vulnerable walking down the street with equipment that I can handle with all my money. I feel very vulnerable."

Trust issues between vendors and consumers also arose when using Pix. Some merchants told us that they do not like to receive money via Pix because it can be difficult to verify whether the customer actually sent you the money or not. This seems counter-intuitive because the system is designed to be clear, easy, and instantaneous. However, if a vendor sells a high number of low-cost, identical items, it may well be the case that they have difficulty verifying whether a customer has paid before they walk away.

On the other hand, several vendors are unable to verify receipt of payment under the best of circumstances because they are using the Pix account of a family member. In these cases they usually watch the customer make the payment and, based on their behaviour and what they say, assume that the payment has been completed. When a customer enters a vendor's Pix key their identifying name appears on the screen. Often, or perhaps almost always, the customer will check with the vendor whether this name is correct before finalising the payment. And so, even if the seller cannot see the transaction on their own mobile screen, they have reasonable certainty that the customer has paid.

The risk of theft also affects merchant behaviour. One vendor with whom we spoke in the city said that he goes home several times every day to leave the cash he has earned at home to prevent theft (he lives near to the market where he sells).

Our interviewees were very aware of the risks involved in payments—and with good cause. On the whole there were quite a number of personal experiences: people having their phones stolen, their cards cloned, or who had fraudulent payments on their accounts. **Creating secure solutions would seem an important issue for financial inclusion.**

SERVICES AND PROVIDERS

We found several kinds of issues arising with respect to services and their providers. Mostly these issues are related to trust that technology will work properly, trust in service providers, and concerns about data management. However, this did not deter people from using technology. Instead, it either affected which technology people chose, or the ways in which they used it.

We found trust in financial technology and providers to be mixed. As we described earlier, many interviewees had experienced a technological failure during a transaction, and this instigated a certain level of distrust. People also had varying levels of trust in different providers and institutions. For the most part people seemed to trust their financial service providers, but certainly there was some ambivalence and a few instances of outright mistrust. **One of the most common trust issues people had with providers concerned the question of redress if something went wrong.** As Rafael explained:

“If they stole me and gave me back, that’s fine, the problem is if they don’t pay me. Am I to blame that I was robbed? The bank is theirs, they have to bear the consequences, doesn’t the bank do that? Isn’t that insurance you have there for your money? If someone goes there and steals my money, what do I look like? Does the bank not have to resolve this there?”

As mentioned earlier this seems to be mainly an issue with Pix. As far as we were able to ascertain, there are currently no plans to institute some sort of consumer security for Pix transfers comparable to those that are well developed for credit card transactions, and also no plans to introduce something similar for small businesses.

Marcos, who owns a shop in the countryside, was suspicious of how easy it is to get credit with Nubank:

“I use digital banking for Nubank, which is the largest bank in Latin America. I just think it’s a pyramid, I have my concern with Nubank because

of the ease of releasing credit. I think it’s not that easy. Nothing is that easy. So when things are too easy, you suspect it could be a problem that will happen later on. As it was with Bitcoin, some opportunists ended up making money and stealing from a lot of people. So I like cash in hand. Now I’m using virtual, but I like it by hand, that I can handle.”

However, a few people had a much more positive view on providers. Amanda was not particularly concerned about fraud because she/he felt his/her bank took measures to warn its customers of current risks:

“I’m always receiving emails and SMS warning of frauds and problems that are happening. I always get messages the way Itaú says, ‘Be careful because there are people asking for x and we don’t ask that way. There are people asking for a password, requesting updates for this and that other, it’s not like that...’ I think this is very important and very cool for you to keep the link there. It shows that the bank cares about the customer and I think this is very cool because you get smarter... When I’m looking at my emails I always open them to see what they’re talking about and I always call. That’s why I stopped falling for the scam, those things.”

Apart from issues with transfers, we found a reasonably high level of trust in the providers of Pix. Mostly people seemed to see the provider as being their particular bank or payments provider. Some people were aware that the service was developed by the BCB and their confidence in Pix seemed to be partly due to this connection. However, the majority of people did not mention the BCB or have much awareness of its role.

We encountered one exception who was not an interviewee: a middle-class man told us that he has heard that the BCB is developing a digital currency and he would not use it because it is a ploy to control people’s money. While it is interesting that this attitude exists, we do not feel that it is common based on our interviews, surveys, or conversations with people on the street.



When asked whether they thought their money would be safe in the future, responses were mixed. Those interviewees with low confidence in the government or who remembered the country's history of hyperinflation were concerned such as Barbara, the hotel co-owner in Ipiabas:

"I think we are never totally safe. Unfortunately, our rulers do what they want."

Thiago, who works on a farm not far from Barbara's hotel, feels insecure about the safety of his money because:

"The bank can go bankrupt and you can never see your money anymore."

However, the majority seemed fairly neutral about money retaining its value, taking the stance that the volatility of money is part of everyday life and a risk we all face. As taxi driver Igor commented:

"You run that risk, anyone runs that risk, but I think the biggest risk is keeping it at home. The risk is much greater. We don't know the people who are

watching us, who are on our side, we don't know and there's no way to guess. We see the face, but we don't know the person's heart."

Similarly, Victor took a philosophical attitude to macroeconomic questions:

"I think today everyone is pretty safe about money in the bank. There's no reason to create economic chaos because it won't just affect your country. So today, creating economic chaos is out of the question. Except in very backward economies and countries with war, with a very complicated government, which I think is not the case in Brazil today."

Overall, the experiences we encountered confirm **the general lack of trust in government and financial institutions**. People are, however, aware that they need to use the solutions available and generally feel the risk they run is possible to oversee.

“SEVERAL INTERVIEWEES MENTIONED THAT THEY DID NOT TRUST THE GOVERNMENT WITH THEIR PERSONAL DATA.”

DATA

Our interviewees were more vocal when it came to trust issues related to data—although, as with money and financial technology, the majority of people continued to share their data despite their concerns because they felt they had little choice.

Several interviewees mentioned that they did not trust the government with their personal data. This could be due, to some extent, to the fact they were part of the informal economy and were worried about taxation. We did not, however, examine this directly.

The concern about sharing data could be interpreted as a wish for anonymity. This was, however, not expressed directly. And on a quite different note, a number of interviewees mentioned that they had experienced difficulties with handling payments gone wrong “as no-one seemed to be responsible”.

Some people were unhappy about the fact that the CPF facilitates data-sharing between Brazilian companies and institutions. As Bruna explained:

“The CPF, I don’t trust it. Even the bank, when they call me to offer me a card, they already know everything about me, they say ‘confirm your last CPF number’, I say ‘you already have it, you know everything, why do you want it confirmed?’, I say, ‘No, I will not confirm.’ Sometimes they hang up there or I hang up here. If I want to ask for a card I go to the bank and ask for it. Or I pull up an app on my mobile and ask for it. Now they call me and offer funds and suddenly there are bandits who are there on the other side.”

Igor similarly questions the need to provide the CPF:

“I feel a little insecure because when you ask for a lot, CPF, RG [main ID documents in Brazil], you have to stay more like...‘wait a minute, I don’t think you need that. I’m going to get out of it.”

Some interviewees employ particular strategies to avoid sharing data with unknown companies, such as communicating with their bank. Anna explained:

“Usually don’t share because there’s a lot of fake websites, a lot of things that aren’t true. So I usually don’t share. Bank messages I go directly to the bank to find out what’s going on. Because they [the bank] even say they don’t ask for documentation by phone. I only share when I call the phone company and they usually ask to confirm data in order to solve the problem that we want to solve. When I call the bank to solve something, they also ask. Other than that I don’t share.”

Rodrigo, a bricklayer, is careful about who he/she shares data with and will research the company first:

“First, you have to research the company, if it is a serious company. But of the companies I worked for, only one I was kind of suspicious about. It was one of the first but the others were normal.”

Several people were worried about data issues generally; that is, they were not just worried about data related to their finances, but felt that data everywhere was ‘leaking’ and unsafe. As Mattheus recounted:

“PEOPLE GENERALLY FELT THAT THEY HAD NO CHOICE BUT TO SHARE THEIR DATA.”

“What I worry about is how today all the data is on the network, so it is possible that there is fraud, an attempt to commit crimes using our data. This is really something that worries me, this issue of data circulating freely on the Internet. I still don’t see governments with effective control and holding accountable those who should watch over and who profit a lot from this data. And a counterpart of firmer security, more effective government agencies to prevent it from happening.”

João, who sells phone cases in urban markets, seems to suggest that banks are relatively competent at managing data, but the problem comes from elsewhere, such as Facebook:

“It’s relative because in relation to banks, it’s OK, it’s guaranteed, now our data is being leaked randomly in the market, it’s Facebook that sells databases, all these social networks that accumulate their data and end up selling it later to manage money for themselves. We are not fully preserved.”

However, people generally felt that they had no choice but to share their data. Paulo, a jeep driver, explained:

“We have to provide it because it is a necessity. Now if it is a banking institution that has the name to protect, if you don’t give this information you will be limited to certain things. It’s like the phone asking for location. If you don’t give the location you are restricted to other things. How can you not give the location? You benefit but also the guy is monitoring you.”

Maria feels that consumers have little redress when things go wrong because of corruption in Brazil:

“Brazil is a country where criminals are far beyond the police and the digital fraud investigation sector. So I don’t speak.”

And finally, Brenda considered that she was simply not important enough for it to matter whether her/his data was shared or not:

“I’m going to say I’m pretty naive about it because I put it on. I do not see a problem. They say to be careful with our personal data but I wonder, what are they going to do with it? I am nothing, nobody important. Okay, things can happen, but I don’t know.”

The concerns expressed by our interviewees are in many ways similar to the ones expressed in the section on fraud above. However, with data the risk is more abstract in nature and it is difficult to foresee what can happen to you—or how to avoid it.



INFRASTRUCTURE, TECHNOLOGY AND IDENTIFICATION

SUMMARY

- **Most interviewees said that they had adequate access to both electricity and Internet (mostly mobile). However:**
 - **Many relied on public WiFi**
 - **In the rural areas this access was notably worse than in the city; interviewees probably viewed their access positively because it is much better compared to two years ago.**
- **Almost all interviewees had mobile phones. These were exclusively smartphones; we did not see a single feature phone.**
- **Interviewees confirmed the general statistics that most people in Brazil have access to ID**
- **Access to ATMs and bank branches were a challenge in the rural sites. Many mentioned dissatisfaction with queuing in banks or had a weekly “bank day” when they would go to a nearby town to pay bills and do their shopping.**
- **We were surprised that so many people had bank accounts or financial accounts. Forty percent of interviewees had three or more accounts.**

Brazil is a vast country and general statistics on access to technology will seldom give a true picture of the experience that people have. But generally access to mobile phones and the Internet is well distributed in Brazil. According to Statista, 134 million people or 76% of the population had access to the Internet—predominantly via mobile—in 2021.⁶⁵ More than 80% of the population, or 145 million people, had access to smartphones.⁶⁶

A brief description of the Brazilian financial system can be found in Appendix C. Today around 88% of Brazilians have a bank or fintech account, up from just 60% in 2017.⁶⁷ This is, however, not the same as an 88% use of a financial account, since having an account does not mean that people actually use it frequently. The recent introduction of Pix has increased the number of Brazilians with access to digital financial tools. In 2019, 65% of the population used

a smartphone, with this share forecast to increase to 75% by 2025.⁶⁸ During the field work, we did not find a general issue with bank access. We realised that many people have accounts in several banks. Almost 40% of the interviewees had three or more banks.

According to the Findex Global Database, 98% of adult Brazilians had an ID card in 2017.

There are three main documents accepted as certificates of identity in Brazil:⁶⁹

- The CPF (Cadastro de Individuals, or “Cadastro de Individuais”);
- The RG (Cadastro Geral, or “Cadastro Geral”) and;
- The CNH (National Driver’s Licence).
- The CPF is issued by the Brazilian Federal Revenue Department and is required for many everyday activities like the use of public services and voting.

This identity can be included in other cards and few Brazilians carry the CPF with them (although the CPF is stated on the identity card). It is estimated that 50 million people out of Brazil's 210 million inhabitants do not hold a CPF card.

The RG card is an identity card. It takes many formats and separate databases exist throughout Brazil: every state has their own model. A person may, in principle, hold a card in each state.

Finally, the CHN is a driver's licence issued by local agencies of a federal institution and based on a national database. The card has a photo of the person and will typically include the CPF and RG numbers as well.

A government initiative to launch a biometric-based digital ID in 2022 is also underway as part of the government's digital transformation strategy, "e-Digital".⁷⁰ This will combine the data above with electoral data and is called the National Identification Document (DNI)⁷¹

COMMUNICATIONS AND ELECTRICITY

One of the major differences between the urban and rural sites we studied concerned access to communications and electricity. In São Paulo access to electricity was universal, and in the rural fieldsite access was near-universal. Keeping mobile phone batteries charged therefore did not arise as a major problem in either site.

Communications were a little different. In the city mobile coverage was total, and many people also

had WiFi connections at home. **People did not have any trouble accessing communications, so long as they had the money to pay for it. Even then, people without sufficient funds to buy data would use public WiFi.**

In the rural site, however, mobile phone coverage is uneven and somewhat unreliable. Interestingly, our interviewees and others we spoke with in the countryside were very positive about the state of mobile phone coverage in the region. This puzzled us at first, since clearly service was far worse than in the city. Eventually we realised that people's positivity comes from the fact that coverage has improved immensely over the past two years. While there are still 'dark spots' without access, which prompt people to shift locations to look for a good signal, the situation is much better than it was in the past. As Giovanna explained:

"There's no signal in some places. If you want to call on the phone you have to go up the hill. At home if I have to do something and need to send an SMS I have to go upstairs to wait for the signal to reach me so I can receive the message."

Several people told us that the Internet fails when it rains; indeed, they joked, it fails as soon as a black cloud appears in the sky. But the unreliability of communications infrastructure does not seem to bother people much or inhibit their activities. Brazilians, and especially those in the countryside, are accustomed to finding workarounds to get things done.

"... KEEPING MOBILE PHONE BATTERIES CHARGED THEREFORE DID NOT ARISE AS A MAJOR PROBLEM IN EITHER SITE."

"... IN THE RURAL SITE, HOWEVER, MOBILE PHONE COVERAGE IS UNEVEN AND SOMEWHAT UNRELIABLE."

“IN THE MORE RURAL AREAS, FAR FROM ATMS, PEOPLE CANNOT RELY ON CASH AND HAVE BEEN MORE ACTIVE IN ADOPTING PIX THAN IN RURAL TOWNS.”

BANKS AND ATMS

Access to physical banks and ATMs also varied substantially across the fieldsites. However, the divide was not strictly a rural/urban one. In the city, banks and ATMs are plentiful and access presents no problem. In the country access depends on where you live, and this changes how people make payment choices. All of the region’s banks and ATMs are located in Barra do Piraí, the main town in the area. Residents of this town therefore use banks and ATMs heavily and, as a result, continue to depend on both card and cash, but have a lower uptake of Pix.

In the more rural areas, far from ATMs, people cannot rely on cash and have been more active in adopting Pix than in rural towns. Historically they have had credit systems with local shops and, while these still exist, their use is declining as people adopt Pix. Certain individuals have also acted as informal banks. Barbara’s husband, who was co-owner of the hotel in Ipiabas, used to be the only person in Ipiabas with a POS machine. Local people, such as tourist guides and taxi drivers, would sometimes send people to the hotel to pay using this POS machine. He would pay them the money at the end of the month, minus transaction fees. But this procedure became a source of contention: people could not understand why he would take so long to pay and why he would deduct fees. Eventually he started telling people to get their own POS machines, which they did.

Many people in the rural areas have a ‘bank day’, one day per week when they go to Barra do Piraí to do their banking and run other errands. For people who run a tourist-related business this day is often a Monday as they wish to deposit their cash takings from the weekend as quickly as possible.

DEVICES

Of 63 interviewees, we only found four people who did not own a phone, though everyone has access to one, usually through a family member. We encountered just one feature phone, owned by Mariana, who sells raincoats and other items in the Rua 25 de Março market. Of our four phoneless interviewees, three were not by choice: Fernanda lost her phone, Camila’s phone broke, and Leticia’s phone was stolen (all three live in São Paulo). Just one, dairy farmer Eduardo, had no phone by choice:

“I do not like it. At the same time that it helps you, it also bothers you, you have to be there all the time, you have to be connected, connected to that. There are already a lot of people who understand this. I am against the mobile phone and against progress. I keep the cows on the street because I’m not very involved with progress. I’m calmer.”

Almost everyone used a phone with an Android operating system; we found very few iPhones. Apart from one or two interviewees, people were not in the habit of upgrading their phone for a better model until their current phone broke. They would usually buy their phone on an instalment plan.

Several interviewees reported they had upgraded their devices fairly recently. One interviewee in the countryside was forced to upgrade their phone due to the pandemic. Anna (teacher) reported:

“I don’t have the habit of changing my phone because I’m not a very technology-friendly person. Mobile for me is simply to call and send messages on WhatsApp. But with the pandemic what happened? We started teaching remotely and I had to change my device, to buy a smartphone to

be able to do everything I had to do in my classes because with the other one I had I wouldn't be able to."

Paulo, the jeep driver, owns a desktop computer, laptop and tablet. He had also recently upgraded to a smartphone:

"One of the problems I had with another mobile phone is that it wasn't a smartphone. I was using two batteries. I would carry one, leave it in my bag and by the end of the afternoon the other one was already getting weak. This one lasts all day."

Around 38% of our interviewees had monthly payment plans on their phone; the rest of the interviewees paid for packages of data. Most reported not using much data on their phones, as they would use public WiFi instead. Indeed, most people did not seem to use much data; they reported using WhatsApp and Facebook, but they did not report using the phone heavily to watch videos, TV, and so on.

Unsurprisingly, people considered owning a smartphone to be essential, so much so that it undermines their ability to be a normal, functioning human. Lucas, who lives in São Paulo, explained:

"I can't be without my mobile because it is communication and nowadays it's very strange that you don't have one. It even feels like you are in another world. If you don't have the device you're not connected to, you're lost in the world it seems."

Rafael, who also lives in São Paulo, expressed similar sentiments:

"Money today is the mobile phone. If you have a mobile phone, it's an object of work. Nobody lives without a mobile phone, you can pay your bills, solve problems. So today everything is powered by the mobile phone, the Internet. The Pix [transaction] was done through the phone, wasn't it?"

Many reported that the advent of online banking especially has made their lives easier. Rather than having to go to the bank in person or spend considerable time on the phone to the bank, they can achieve virtually everything they want through the bank app. Attitudes to bank apps were overwhelmingly positive and were seen to have provided a considerable life improvement.

The vast majority of vendors owned a POS machine, even the informal, ambulatory ones. Consumers do not like carrying much cash in case they get robbed, so they generally only pay for very low-ticket items in cash. Any item of a larger amount (say BRL100 or EUR17) is paid for using a card or Pix. This means that vendors need POS machines. In Brazil POS machines are very cheap, costing as little as BRL12 real (EUR2). However, the vendor must have a bank account to use one. In the city almost all the vendors told us (in interviews and also via the survey) they had bank accounts, but in the rural area there were some vendors who did not have a bank account and therefore no POS machine.

A few people also owned laptops and used them for financial matters such as doing their banking or tracking their expenses. One interviewee only did his banking on his laptop as he did not think it was safe on the phone. However, this attitude was not common (as described in the previous section on trust).

Interestingly, we found that many people's 'digital literacy' was quite mixed: they may feel confident in one area, but not in another. This was the case with 34-year-old Milena, who described herself as 'digitally illiterate' yet has a phone with Internet and a digital ID that her sister set up for her. She does not use a bank card, only cash, which she stores in her phone case. It seems her issue is lack of confidence. She is happy to adopt new practices when she has help from someone she trusts, but is reluctant to make changes alone.

IDENTIFICATION

Birth certificates and IDs matter because they are fundamental to receiving non-cash payments. People without these items must find workarounds.

According to our research participants there are many Brazilians who do not have birth certificates (we have been unable to find statistics on this). This tends to be an intergenerational problem: a person may not have a birth certificate because neither their mother nor their grandmother had one. Often on Brazilian birth certificates the mother's name is recorded but not the father's, so this issue has a gendered dimension.

Obtaining a birth certificate is the first step to obtaining an identity card and a CPF (Brazilian personal tax number). Most interviewees reported that although sometimes it can take a while to get an appointment to apply for an ID, the process itself is easy. However, **the process can be difficult for people who are illiterate or feel ashamed entering a formal public building (the same people also find it difficult to open a bank account)**. One woman we interviewed had just obtained her birth certificate and CPF at 46 years of age. She is illiterate and did not feel capable of doing it herself. Her girlfriend helped her. She reported that it was a long and difficult process. She would like to open a bank account as well but she and her girlfriend broke up, so now she has no one to help her. This means that if she wants her customers to pay her using Pix she has to use someone else's bank account. At the time of interview she was still using the account of her ex-girlfriend.

Overall, though, the vast majority of our interviewees had birth certificates, IDs, and CPFs (though some had lost their birth certificates/IDs either by accident or through theft). People do not report needing their IDs very often, yet very few people said they did not bother carrying an ID. Mostly they told us that they need to carry them on the street in case they have an accident or get sick: without an ID the authorities cannot identify them. Amanda, who lives in the city, told us:

“What if something happens to me on the street? If I get a malaise in the street and I'm alone? I will die a pauper. God forbid! It's important for everything, anything that happens, if you need

to, an accident happens, a problem on the street, you have to have an ID for everything, it's your identification.”

Interestingly, several people saw their IDs as being an extension of their person: much like the mobile phone, they struggled to be human without it. In the words of Diego:

“Because every human being has to have a document to show who he is. If he doesn't have a document, he's nobody, there's no way to find him. With no document, I'm in Barra, something happens to me there, they go to my wallet and they'll find my address, document, where I'm from, my residence. If I don't have a document, I'm a nobody, I have nothing.”

Some people reported that they felt they must carry their ID in case they got checked by the police. Pedro told us:

“Sometimes there is a police approach and documents are required. If we don't have it, sometimes they get mad, they get pissed off.”

Vendors especially reported that they needed to carry their ID so they would not get into trouble with the police. According to Jéssica:

“Here in the centre, there are a lot of police and they stop, they are prejudiced against people who work in this way, they want to frame us, men and women, all the time.”

For both vendors and consumers, this was often racialized. Bruno, who is finishing high school and works in a shop selling car accessories in São Paulo, lamented:

“In this world we live in today, the police can stop us and me as a black person, they can mistake me. I always take my identity with me, today was an exception.”

Some worried that the police might shoot them and hide their body if they did not carry their ID. People without identification are thus doubly vulnerable, both

economically and legally.

The situation in the countryside was somewhat different. In the more remote areas, many people did not bother carrying their ID with them because everyone knows them, including the police. However, they would take their ID with them when they went to Barra do Pirai because the police do not know them there.

Brazilians are increasingly adopting digital IDs, and we encountered several people in both the urban and rural sites who only carried their IDs on their phone. For example, Fernando, who works in tourism, keeps his car document, ID, and driver's licence on his phone digitally.

CPFS

CPFs (personal tax file numbers) are critical in Brazil: many daily tasks require having one. For example, you cannot open a bank account (or use Pix) without a CPF. A CPF is generally required to have a mobile phone account. And many everyday shops ask for your CPF as well, including clothing stores, grocery stores, and more. As Aline explained:

“There are kinds of discounts that only people registered at the supermarket system can get. So you have to do your registration, and for that, you

have to give your CPF. Every time you go shopping there, if you want to have a discount, you have to give your CPF number so the system knows you are registered there.”

Usually you have the right to refuse to provide it, but this is not always the case. People generally provide their CPFs verbally: the shop assistant requests it and the customer tells it to them openly. Little effort is made to say it quietly. Some people are afraid that their CPF will be stolen, but this does not seem to affect the behaviour of many people.

The CPF is also relevant to how people use Pix. As noted, a customer's Pix key can be their CPF, email address, mobile phone number, or a randomly generated number. We did not see anyone using the randomly generated number: most people used their CPF or mobile number. Again, people generally communicated this number verbally. Some informal vendors had it written down on a piece of paper that they gave to customers.

Lack of a CPF makes life difficult for foreigners, such as tourists, business people, and migrants. We noted that it was necessary to sign into some free WiFi services (such as the Santander Work Café), rent a bike on the street, buy a ticket from a Brazilian airline, and more.

“OBTAINING A BIRTH CERTIFICATE IS THE FIRST STEP TO OBTAINING AN IDENTITY CARD AND A CPF (BRAZILIAN PERSONAL TAX NUMBER). MOST INTERVIEWEES REPORTED THAT ALTHOUGH SOMETIMES IT CAN TAKE A WHILE TO GET AN APPOINTMENT TO APPLY FOR AN ID, THE PROCESS ITSELF IS EASY. HOWEVER, THE PROCESS CAN BE DIFFICULT FOR PEOPLE WHO ARE ILLITERATE OR FEEL ASHAMED ENTERING A FORMAL PUBLIC BUILDING (THE SAME PEOPLE ALSO FIND IT DIFFICULT TO OPEN A BANK ACCOUNT).”

DISCUSSION & CONCLUSION

The main research question guiding this study was: What are people's needs, desires, and incentives for a digital currency? Which of these are not being met? Is there a real need for digital public money?

This study combines knowledge of existing payment behavioural theory with knowledge about the payment context in Brazil, and, most particularly, with extensive insights into the experiences of low-income people and their money and financial management preferences in both a rural and an urban environment.

The theory on consumer behaviour and payments is not well developed, particularly with regard to the acceptance of new money. As described in the Introduction, there is particularly a lack of explorative qualitative studies. However, previous studies indicate that drivers of adoption can be found in the consumer's background, the transactions to be undertaken, the characteristics of the solution provided, and the norms and interest in the context. An illustrative list is put together below:⁷²

The solution

- Speed
- User friendliness
- Safety
- Price
- Control of spending and budget

The transaction

- Size

The consumer

- Education
- Income
- Age

The context

- Acceptance at the point of sale
- Social norms
- Attitudes and feelings

Our findings support the importance of the characteristics of the solutions provided pointing to convenience, control, and value. The findings also deepen this knowledge in the Brazilian context by showing how individuals take advantage of numerous tools to solve their payments needs.

To help us summarise these, we have introduced six personas that can be seen as potential users of new means of payments (see Appendix A):

- A mother who works in precarious jobs
- A father who works as a vendor in a market
- A student
- An elderly person in the countryside
- A rural entrepreneur
- A rural farmer

The interviewees actively choose to keep fees down by using cash when this gives a price reduction. They pay with Pix or card when this is easier, like Isabela, (Persona 3) who prefers to use debit cards or Pix. They transfer money between their own accounts to avoid withdrawal fees, like Maria and Isabela (Personas 1 and 3), who creatively use their different bank accounts. They use credit cards to pay in instalments for larger purchases, or to stretch funds at the end of the month, like Maria (Persona 1), for instance, who only uses her credit card when her phone breaks or there are pressing family needs.

The findings further support the importance of the context. They show that families play an important role in making ends meet, bringing income and benefits from several people together to pay for necessities. A very clear example is Rodrigo (Persona 6) where the whole family works with different jobs on the farm or elsewhere. Other examples are Anna (Persona 5) who had help in her business from her children, and Isabela (Persona 3) who sometimes contributes to family income.

Families also play a role in the introduction of new technologies and ways of paying with adolescents, helping their parents and grandparents make the transformation to a digital environment such as Mateus and Rodrigo (Personas 4 and 6) who both get help from their children.

Interviewees also display a high awareness of financial fraud and the risks involved in payments, both physical transactions in markets and in ATM, online or mobile transactions. Both Bruno and Mateus (Personas 4 and 6) deal with these risks, despite coming from very different backgrounds. Several interviewees had experienced robbery, credit card cloning, or Pix fraud.

The overall picture that we found of the money flow from income to spending is illustrated in Table 3. On the income side, people (or families) receive payment (income, benefit, sales revenue, etc.) often in different bank accounts and sometimes in cash. As we describe, so many people have their own POS machine to accept different types of payments, and they tend to choose the bank connection that provides the cheapest solution for this instrument.

The spending side similarly illustrates the trends described above, with people choosing between automatic transfers (for recurrent bills), debit and credit cards for larger items and, when money is tight, Pix or cash for daily shopping.

Looking next at the reaction to the introduction of new money, our insights illustrate that new tools that meet people's needs by being **cheap, fast, and accessible** (like Pix) will experience a fast uptake despite introducing new transaction costs, in this case the need for people to learn how to use the technology.

It's important to note that people adapt quickly if they find a new tool that plays a truly useful function in their financial toolbox. **Any new tool must perform a function that is not in the toolbox, or provide a new way to combine different existing tools to perform functions that were previously unavailable or whose costs (price and/or transaction costs) were too high.**

In answer to the overall research question, our first impression is that there is no pressing 'need' for new money. Yet we suspect that the question of 'need' takes the wrong approach. It is rare that any product or service, even a financial one, is introduced because of an existing need or large service gap. Instead, the question is: to what extent will the new service provide a functional use value among the other services people already have in their toolkits?

New money that works better to facilitate everyday payment choices for large groups of people may overtake the positions of existing solutions—something that may happen quite fast. Or looked at from a different angle, a central bank that is considering the introduction of a CBDC, would do well to consider people's complaints and workarounds to help their solution become a success.

Based on the insights, the following are examples of use value that would help overcome the pain points raised by interviewees.

About one third of POS payments in Brazil are still undertaken using cash. But users experience pain points around cash at every stage of the user journey, from getting cash from an ATM, to getting the correct change from a purchase, to storing and carrying money safely and conveniently. This is the case for both consumers and small vendors.

Value could also come from solutions that could potentially reduce financial fraud and robbery, an issue with all existing payment methods in Brazil.

Based on the issues that people experience with digital banking and Pix, the introduction of a functional service layer that overcomes these problems would help with both trust and uptake.

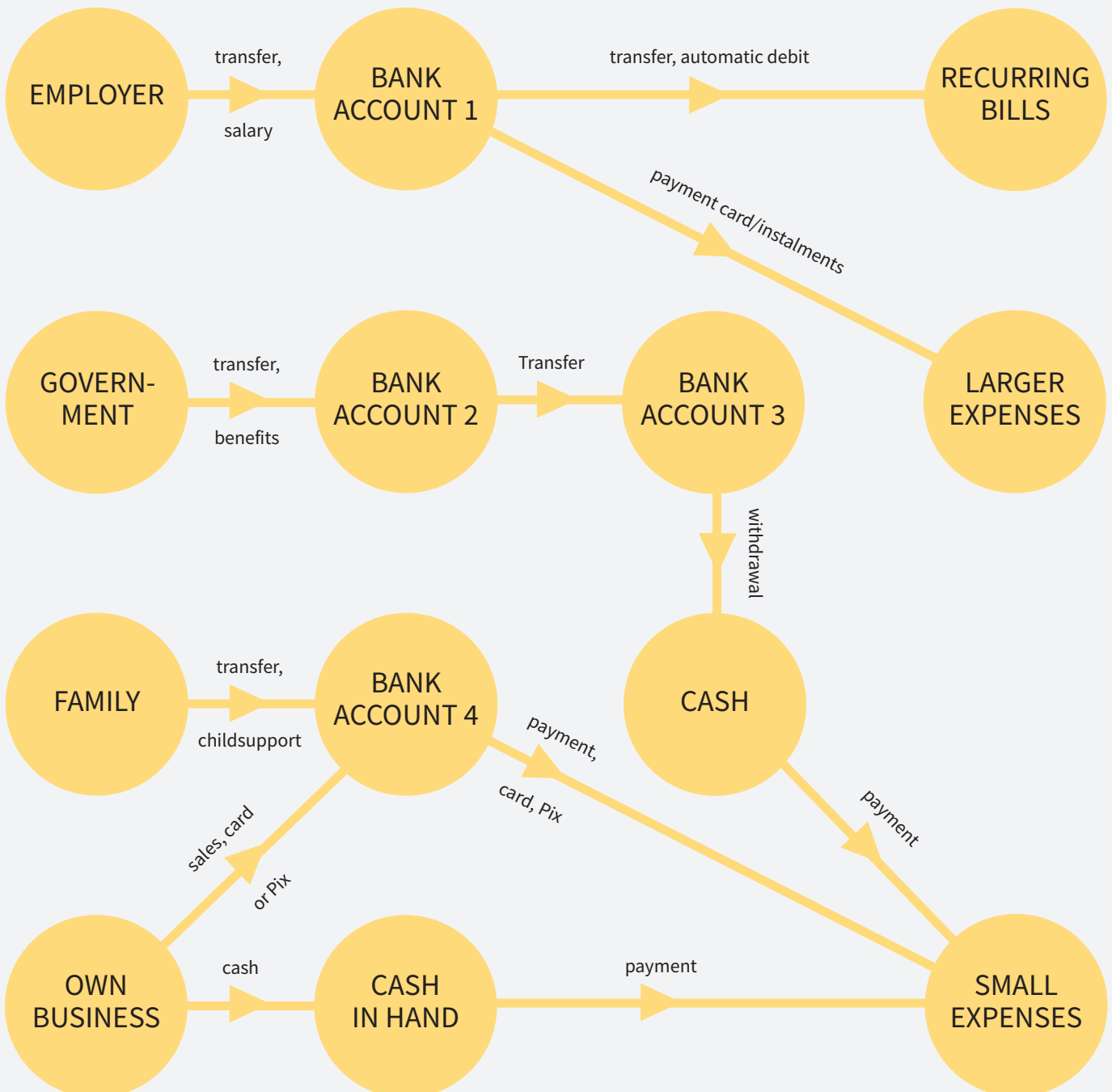
Anonymity is often mentioned as an important use-value in cash and alternatives to cash. Anonymity in payments did not appear as a major concern in our study. Some interviewees did, however, express concerns about sharing personal and transactional data with banks and authorities. A few people expressed fear of potential taxation of earnings that they currently receive in cash or via Pix, though this was not directly part of our study.

The interviewees generally appeared financially-included in the sense of access to cash, financial accounts, savings, and credit. This could be due to the size or location of the study. A new form of money might, however, bring benefits by including various groups who do not have access to Brazil's banking system (including Pix), which includes some Brazilians, migrants, business travellers, and tourists.

Seen from a broader perspective than the current study, there could be value (and lower costs for both financial customers and for financial service providers) in solutions that bring down the number of bank accounts and solutions used by many individuals. And finally, there could be value in the provision of better tools for accessible money management and savings.

Among these insights there is clear scope for further research on several of them. We would like to emphasise the importance of talking with, and observing, people within the contexts of their lives when carrying out such research. Complex life circumstances influence people's behaviour and choices in often subtle ways. The development of policies, programs, and products can benefit greatly from being tailored to these lived contexts.

Table 3: Typical flow of money among interviewees



“NEW MONEY THAT WORKS BETTER TO FACILITATE EVERYDAY PAYMENT CHOICES FOR LARGE GROUPS OF PEOPLE MAY OVERTAKE THE POSITIONS OF EXISTING SOLUTIONS—SOMETHING THAT MAY HAPPEN QUITE FAST.”



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APPENDIX A: PERSONAS

MARIA SILVA

TYPE A mother who works in precarious jobs

DEMOGRAPHICS Location - São Paulo

Gender - Female | Age - 38

Education - High school

Family - Married, 2 children

Job - Salesperson



BACKGROUND Maria was born in the south of São Paulo to a single mother. Her husband works in a shop selling mobile phone cases on the market street Rua 25 de março. Maria works in a clothing store in Brás, another market area in the city. One of her two children is with her husband; the elder child is from a previous partnership. Maria receives a small amount of maintenance for her child from her ex-partner. When Maria first started working she got a credit card and accrued a large debt from buying items on instalments. Now she only uses instalments when necessary, such as when her phone breaks and she needs a new one. Maria and her husband manage their family's money together. Usually he pays the bills and she buys the groceries, but they switch roles when convenient. They would like to save money to buy a house but their financial situation and the current high interest rates in Brazil are making it difficult to save.

ITEMS CARRIED

Financial items:

Wallet
Debit cards
Credit card
Cash
Public transport card

Non-financial items:

Bag
Keys
Phone
Face mask
Moisturiser
Headphones

FINANCIAL NEEDS

Getting paid
Paying/receiving benefits
Shopping for personal needs
Shopping for groceries
Paying bills
Saving

PAIN POINTS

Security fears when carrying cash
Getting change for cash
Lining up at the bank
Transaction errors with banks or Pix
Earning interest
Cost of transactions
Getting into debt with instalments

FINANCIAL CHOICES

Maria has several bank accounts. She has an account with Itaú that she opened to receive her salary from a previous job. She has an account with Caixa Economica where she receives child support from her ex-partner. Maria also has an account with Nubank which she opened because the bank does not charge transfer fees. She gets paid into this account and uses it to pay her rent and other bills. When she needs cash she withdraws it from her Caixa Economica account because Nubank charges withdrawal fees. If she wanted she could change the account her child support goes into to Nubank but she does not because she likes having cheap access to cash. Maria uses cash for very small ticket items, such as a drink or a snack, but she uses her debit card for the majority of payments. She only uses her credit card when she wants to buy something on instalment. She recently started using Pix when a friend asked her to transfer some money.

BRUNO SOUSA

TYPE A father who works as a vendor in a market

DEMOGRAPHICS Location - São Paulo

Gender - Male | Age - 33

Education - Middle school

Family - Married, 3 children

Job - Salesperson



BACKGROUND Bruno works as a street vendor in the market in Rua 25 de março, São Paulo. He is originally from the countryside but moved to the city to live with an uncle when he was eighteen, hoping that the city would offer more opportunities to earn money. He started helping his uncle sell things in the market and saved up to buy his own stock. First he started selling clothes in the market in Brás, but for the past three years he has been selling bags and wallets laid out on a tarpaulin on the street in Rua 25 de março. Bruno lives in the north of the city with his wife, three children and his wife’s mother.

ITEMS CARRIED

Financial items:

- Debit card
- Cash
- POS machine
- Receipts

Non-financial items:

- Keys
- Wallet
- Phone
- Face mask
- Chewing gum
- Deodorant

PAIN POINTS

- Security fears when carrying cash
- Giving change for cash
- Transaction errors with banks or Pix
- Cost of transactions

FINANCIAL NEEDS

- Receiving money for sales (POS, Pix, cash)
- Shopping for personal needs
- Buying larger items like phone or furniture
- Buying stock for business/production
- Saving

FINANCIAL CHOICES

Bruno’s wife and mother-in-law manage the household’s money, paying the bills and groceries. All members of the household work, but have low incomes, so they cooperate closely to ensure all the bills are paid. Bruno and his wife don’t have a joint bank account but they use each other’s cards and know each other’s log-in details. When he sells on the street Bruno prefers to receive money by Pix rather than card and cash. He dislikes carrying cash because of fear of being robbed, and also because it can be difficult to get change to give to customers.

Bruno has a POS machine and so he can receive card payments but feels the transaction fees are too high. Where possible he encourages customers to pay him with Pix, sometimes helping them learn how to use it. However, he has had issues using Pix, such as sending money to the wrong person, and knows other people have too, so he is very careful when he uses it.

ISABELA OLIVEIRA

TYPE A student

DEMOGRAPHICS Location - São Paulo

Gender - Female | Age - 21

Education - Studying at university

Family (married, children, etc) - Single

Job - Part-time sales assistant in a shop



BACKGROUND Isabela is studying civil engineering at a university in São Paulo. She is the eldest of four children, all of whom still live at home with their parents and paternal grandfather. Since her house is so full, Isabela often goes to study with a friend who lives nearby and is studying for the same degree. Besides her studies Isabela works in a café. She gives some of her earnings to her grandfather, who manages the household expenses, spends a little on entertainment, and tries to save the rest.

ITEMS CARRIED

Financial items:

Debit cards
Store loyalty cards
Cash
Receipts

Non-financial items:

Bag
Keys
Phone
Wallet
Headphones
Lipstick
Notepad and pen
Face mask

FINANCIAL NEEDS

Getting paid for work
Shopping for personal needs
Saving
Investing

PAIN POINTS

Being required to pay in cash but not carrying any
Getting service from a digital bank
Digital interface is difficult or cumbersome
Cost of transactions

FINANCIAL CHOICES

Isabela has two bank accounts: an Itaú account and an account at Nubank. She used to receive her salary into her Itaú account but switched to Nubank for two reasons. First, unlike Itaú, it doesn't charge transfer fees. Second, the fact that Nubank charges for cash withdrawals doesn't matter to her because she doesn't use cash any more. Isabela keeps a low denomination bank note tucked into the case in the back of her phone in case of emergencies but says she has not used cash for months. Instead she uses a debit card and Pix. She doesn't have a credit card and has never been in debt. She is thinking of investing a small amount in cryptocurrency as she has friends at university who have done it and recommended it to her.

LETICIA CARVALHO

TYPE An elderly person in the countryside

DEMOGRAPHICS Location - Ipiabas
 Gender - Female | Age - 72
 Education - Primary school
 Family - Widowed, 4 children, 6 grandchildren
 Job - Retired



BACKGROUND Leticia was born in Ipiabas and has lived there all her life. Over the years she has done different kinds of work, including labouring on farms, cleaning buildings, and working in a shop. Her children left home long ago and she now lives alone in a small house in town. She keeps chickens and a goat. Leticia is retired and receives a small government pension. She also does volunteer work with a community organisation.

ITEMS CARRIED

Financial items:

- Debit card
- Store loyalty cards
- Cash
- Receipts
- Notebook and pen for recording store credit

Non-financial items:

- Bag
- Keys
- Wallet
- Face mask

FINANCIAL NEEDS

- Paying/receiving benefits or other
- Shopping for personal needs
- Shopping for groceries
- Paying bills

PAIN POINTS

- Access to cash (distance to ATM/bank)
- Security fears when carrying cash
- Getting change for cash
- Queueing at the bank
- Making bank transfers
- Cost of transactions

FINANCIAL CHOICES

Leticia owns her small home and pays for her living expenses out of her pension. There is not much money left over but she is able to save a little. Last year she saved enough money to buy herself a laptop, which one of her grandchildren taught her to use. Leticia owns a mobile phone but doesn't feel safe using it to manage her money. She would like to begin to do her banking on her laptop because the nearest bank and ATM are 15 kilometres away in Barra do Piraí and she doesn't own a car. Instead, once per week she has a 'Bank Day' when she goes to town to do her banking and shopping. She pays a neighbour a small fee to take her there. Leticia has just one bank account, with Bradesco. She mostly uses cash and her debit card. She has not yet started using Pix but plans to ask her grandson to show her how it works.

ANNA GOMES

TYPE A rural entrepreneur

DEMOGRAPHICS Location - Ipiabas

Gender - Female | Age - 54

Education - Primary school

Family - Partnered, 2 children, 2 grandchildren

Job - Small business owner



BACKGROUND Anna runs a grocery store in the centre of Ipiabas. Anna was able to open the store because she received a small inheritance from an aunt. Her business soon started going well because the other grocery stores in the area are very small; hers has a better range of stock. She said that business dropped a little during the pandemic, but not by much, because people still needed to buy basic goods. Mostly the drop in sales was in more expensive items, such as alcohol and premium dairy products. Her children and grandchildren have all worked in the shop over the years. Now she hires a young local woman to help in the store. Her husband works as a manager on a nearby farm that now offers tourist services such as accommodation and meals.

ITEMS CARRIED

Financial items:

Debit cards
Store credit card
Loyalty cards
Cash

Non-financial items:

Bag
Keys
Phone
Wallet
Face mask
Headscarf
Paracetamol

PAIN POINTS

Access to cash
(distance to ATM/bank)
Carrying cash
Getting change for cash
Lining up at the bank
Cost of transactions

FINANCIAL NEEDS

Receiving money
for sales (POS, Pix, cash)
Paying employees
Paying bills
Shopping for groceries
Shopping for personal needs
Buying larger items
like phone or furniture
Buying stock for
business/production
Saving

FINANCIAL CHOICES

Anna's primary financial concerns involve running her business. She accepts payment in her store via whichever method her customers prefer: cash, card and Pix. She also lets some customers buy groceries on credit, but only if she knows them well and trusts them. Every Monday she rides her scooter to Barra do Pirai to do her banking. She always goes on Mondays because sales are greater over the weekend and she wants to deposit her cash takings as soon as possible. Anna is confident doing her banking online, using both her mobile phone and laptop, but she is unable to stop going to the bank because customers still pay her using cash. Anna and her husband manage the household expenses jointly. Usually she is in charge of the groceries because she runs a shop, and she usually also pays the bills. She is more comfortable using digital banking than her husband.

RODRIGO RIBEIRO

TYPE A rural farmer

DEMOGRAPHICS Location - Ipiabas

Gender - Male | Age - 42

Education - None

Family - Married, four children

Job - Dairy farmer



BACKGROUND Rodrigo lives on his farm near Ipiabas. He, his wife, and three of their four children live together in one house. His parents also live on the farm, but in a separate house. His eldest child is now married and lives in Rio de Janeiro. Together the remaining family manage their small herd of dairy cattle and make cheese to sell both locally and in other cities. Because they do not have a licence to make cheese they stick to selling in informal markets. Rodrigo has deals with some local hotels to deliver them cheese to serve to their guests at breakfast, so that guests can taste local produce. While Rodrigo is dedicated to dairy farming full-time, most of his family members have additional sources of employment. His wife makes and sells crafts to tourists and his two daughters both have part-time work in local shops. His youngest child is not yet old enough to work.

ITEMS CARRIED

Financial items:

- Cash
- Receipts
- Notebook and pen for recording credit given to customers

Non-financial items:

- Wallet
- Phone
- Face mask

PAIN POINTS

- Access to cash (distance to ATM/bank)
- Security fears when carrying cash
- Getting change for cash

FINANCIAL NEEDS

- Receiving money for sales (POS, Pix, cash)
- Paying/receiving benefits or other
- Shopping for personal needs
- Shopping for groceries
- Buying stock for business/production
- Paying bills
- Saving

FINANCIAL CHOICES

Rodrigo only uses cash and informal credit. He does not have an account with a bank or payments provider. His customers either pay him on the spot for delivery of produce, or if he offers them credit he records it in a notebook. He has one notebook for each customer to whom he gives credit, and his customers usually also have a notebook of their own in which they write down how much they owe him. Lately, however, it has been getting more difficult to depend on cash. Rodrigo's daughters have bank accounts and so they are also able to use Pix. Sometimes he will ask one of them to receive a payment for him via Pix and they will give him the cash. On a couple of occasions he has needed to pay for farming inputs digitally, and his daughters also helped him then. Rodrigo has a smartphone and is considering opening a bank account so he can manage the farm's finances

**I DON'T CARRY CASH HERE,
I CARRY MONEY ON THE CARD ONLY.
OR WHEN I DON'T BRING THE CARD, I
DO PIX... YES. IT'S CHANGED A LOT.**

**NOWADAYS IT'S ALL EASIER
TO PAY WITH PIX OR TO PAY BY CARD
THAN WALKING AROUND
WITH CASH IN HAND.**

Rafaela, 26 years, salesperson

APPENDIX B: PORTABLE KIT STUDY

We conducted open-ended interviews with 63 people. With a smaller subset of the same participants we used a modified interview method called the ‘Portable Kit Study’ in addition to the standard interview.⁷³ We have used this method in several other studies.

‘Portable Kit’ refers to the things people carry with them on a daily basis when away from home. When using this method we specifically asked participants about the money-related items they use every day: cash, cards, receipts, apps on their phones, and so on.

This method is valuable because discussing their possessions prompts interviewees to remember things they otherwise forget to mention. Interviewees generally find the process interesting and this motivates them to share more information than they would normally feel comfortable discussing with strangers. The portable kit interviews are recorded using an audio device. We take photographs of the items people carry, anonymising them beforehand by sticking bits of paper over identifying details.

Interviews begin with background questions about the interviewee, their life, and their work. Then they are asked to take all of the objects they carry with them out of their bags, pockets, and wallets, and display them on a flat surface. This includes objects related to consumer finance (currency, cards, receipts) and other items (identity documents, photographs, pens, notebooks, etc.).

Then the interviewees were asked to divide the objects into two piles: one of objects that they must carry with

them every day, and a second pile of objects that could be left at home. The interviewees are asked to explain why some items were more important than others. This step was crucial in identifying what people felt they needed to navigate their everyday lives. As the interviews progressed, the interviewers formulated questions that would tell them how different objects were involved in personal and household finances.

First, we ask about their non-financial objects so that we could get a sense of the person. Interviewees are invited to discuss the objects generally. The interviewers often began by asking about the bag or wallet itself: where it had been purchased, why they chose that particular item, and whether they own other bags that they switch between depending upon their plans for the day. The benefit of this initial step is that it gives participants a chance to relax and provides an opportunity to build rapport.

Second, we ask people to talk to us about all their possessions that relate to financial transactions: cash, debit cards, credit cards, store cards, receipts, and tokens. We then ask people to show us what apps and websites they use on their mobile phones to do financial transactions. Finally, we asked questions about how people feel about the role financial services play in their lives, and are likely to play in the future.

This method has several advantages in consumer finance research:

1. People are usually not accustomed to talking in detail about their use of financial tools and services. Asking people about the financial tools they carry can help the interviewee to open up about their behaviours. It can also help interviewees to stay on topic by providing a point of focus. For example, interviewees may find it easier to show the interviewer the contents of their wallet than to recall all the money-related items they carry.
2. Consumer finance research often requires interviewees to recall details about their financial transactions and the products they use, but much of this information is either never memorized or is difficult to recall. Props such as wallets, credit cards and bank statements help us to recall information recorded on the props themselves or in our memories. For example, asking an interviewee who regularly sends money overseas to show you their receipts will confirm the dates on which they made transactions.
3. The method also provides the researcher with an opportunity to ask about objects that the interviewee has overlooked. Whereas the interviewee may only point out items they associate with financial management, such as cash and credit cards, an interviewer may also wish to know about other kinds of money, such as store cards, or secondary items such as identification documents and receipts.
4. The meaning of interview questions is not always clear to interviewees, and using visual / textual aids can help the interviewee understand exactly what is being asked. For example, when interviewing a person about their use of spreadsheets for budgeting, being able to point directly to a particular item in the

spreadsheet and ask a question about it can save time and confusion. This technique may be especially useful when interviewing children as it can help them to understand what the interviewer is asking them.

5. Props allow for the specific features of an object to be discussed. For example, an interviewer might ask a customer to demonstrate how they use their mobile phone to send money and comment on the steps involved as they are carried out. This gives the interviewee a chance to explain what they do and do not like about the functionality and aesthetics of the object, and to identify any stumbling blocks.

The portable kit study enables researchers to understand how people living in the Netherlands used financial services in their everyday lives. The objects people carried with reflect both this formal financial environment and alerted the researchers to a range of other, less visible financial practices.



APPENDIX C: FINANCIAL SERVICES IN BRAZIL—A SNAPSHOT

The banking system in Brazil is the largest in Latin America. Following the effects of hyperinflation in the 1980s and early 1990s, a structural change process came into effect, led by the Central Bank of Brazil including mergers, the closing down of institutions, and the introduction of new regulation.⁷⁴

The BCB regulates the banking market and is driving a digital agenda including a plan for Open Banking and inclusion. The Open Banking environment is rolled out in four phases: (1) data about financial service providers, (2) customer data, (3) data related to payments and the forwarding of loans including payment initiation, and (4) other data (savings, investments, payrolls and more). Currently the work is entering phase 3. The plan is to provide a platform for potential new solutions (the following items have been mentioned):

Comparison platforms for financial products and services

- Financial advisory
- Financial planning
- Marketplace for credit operations
- More friendly procedures for payment initiations, such as through social media.

As of 2017 there were 175 banks present in Brazil, divided into four groups of which the major is commercial banks with 154 providers. There are also around 1500 non-banks, including over 1,000 credit unions.⁷⁵

The largest five banks in Brazil represent around 80% of

the total market, measured here in terms of supplying credit to individuals.⁷⁶

Customers' satisfaction with their main account is growing: in 2021 46% were 'very satisfied' compared with only 25% in 2019.⁷⁷

As seen across the world there is a movement towards mobile solutions. This is also reflected in the main reasons for choosing a bank or financial institution. The possibility of interaction by cell phone or computer is the main reason for choosing a financial institution (28%), followed by price (18%) and recommendation by family (10%).⁷⁸ Eighty-five percent of customers would accept no in-branch service as long as they can reach a human another way.⁷⁹

A more recent list of top banks includes the following Banco do Brazil, Bradesco, Banco Safra, Banco Santander, Banco Votorantim, Caixa Economica Federal, Itau Unicanco, BTG Pactual and Banrisul.⁸⁰

A particularity in Brazilian finance is that there are just over 100 community banks, of which many issue local paper currencies and 48 support e-dinheiro (electronic money).⁸¹ The community banks are recognized by the Brazilian government and are allowed to work as local innovators and to issue local currency.

Following turbulent times in the second half of the 1900s, Brazil experienced economic hardship and centralization of the banking structures, both of which left large parts of the population in poverty. In 1998 a community in the remote town of Fortaleza in north Brazil formed a community bank, Banco Palmas, with the aim of creating a grassroots community to support and grow the local economy. Banco Palmas supported local income and commerce, and issued local micro-credits as well. In 2000 the Bank started issuing the local currency, Palmas, which was a paper-based bank-issued currency. This took some struggle but was accepted after a lawsuit.

Banco Palmas was also able to systematise and scale the initiative by helping other local communities to build similar initiatives across the country, mainly in poor rural and urban areas. Today, community banks collaborate through the “Brazilian Network of Community Banks” and the Instituto Banco Palmas created in 2005.

The establishment of Banco Mumbuca in 2013 in Marica helped move the local currency to a digital and mobile platform in the form of e-dinhero. Banco Mumbuca was established as part of a communal initiative to share part of an oil revenue in Marica. The e-dinhero is now supported by almost 50 community banks and is available not only to local community members but to all.

A list of social currencies can be found via this link.⁸²

According to Statista, Brazil remains the Latin American country with the highest number of fintechs.⁸³ The most important fintech hub is based in São Paulo with 70% of fintech startups, followed by Rio de Janeiro. The largest clusters appear in payments and financial management with consumer lending a fast follower. Only 30% have international activity.⁸⁴

As of November 2021, Brazil has 32 neobanks and mobile-only banks, including Nubank, Wise, PicPay, and Banco Inter.⁸⁵ In 2020 Forbes rated Nubank (est. 2013) ‘Best Bank in Brazil’.⁸⁶ After being delayed by Covid-19, N26 is set to arrive in Brazil in 2022.⁸⁷ The pandemic saw an upswing in the use of neobanks, with Nubank surpassing 40 million customers in May 2020,

and PicPay reaching 55 million users in September.⁸⁸ However, use of neobanks appears to be declining. From August 2021 to September 2021, seven of the 10 largest neobanks in Brazil saw their active user base fall.⁸⁹

Nubank has been among the most successful neobanks; they have introduced their low-cost solutions with good usability and a strategy to reach large parts of the population through the young.

Two payment platforms stand out in the online and mobile payment environment, Mercado Pago and PicPay. Mercado Pago was launched in 2003 as the integrated online payments solution complementing the e-commerce platform MercadoLibre (originally founded in Argentina but available throughout Latin America).⁹⁰ Today, Mercado Pago offers a range of different services including credit cards and POS machines. MercadoLibre recently enabled the purchase of crypto currencies, though this does not yet extend to using crypto currencies in the market platform.⁹¹

PicPay was founded in Brazil in 2015 and provides a payment platform to their users in the form of a wallet that can be funded both through the transfer of payments and by adding credit cards. The balance can then be used to withdraw cash, make payments, or make investments.⁹²

APPENDIX D: A SHORT INTRODUCTION TO CBDCS FROM A CONSUMER PERSPECTIVE

DIGITAL MONEY, CBDCS AND ACCEPTANCE OF “NEW MONEY”⁹³

The general function of money in the economy is to serve as a means of exchange, a store of value, and a unit of account. To guarantee value and prevent fraud the issue of money has generally been managed by a state authority, but money has taken different forms over time.

Today we are most familiar with the issuance of fiat money by central banks through the banking system. The private banking system is quickly moving to an all-digital world. The use of the direct issue in the form of cash is dwindling and is oddly reduced to a combination of small transactions and increasing demand for high value notes (whitewash).⁹⁴

As in every other industry, new technology is changing the fundamental possibilities of money. Settlement can happen faster and be based on programmed rules (“what if” scenarios), and many countries already offer retail real-time payments. New technologies and the development of cryptocurrencies with decentralized features have already resulted in the development of numerous offers of private money, ranging from bitcoin and stablecoins to Facebook’s original plan for the Libra. Undoubtedly, the global markets of Big Tech put

them in an obvious position to offer convenient money to customers. While convenient, such money does not come with the Central Bank guarantee for stability and redemption. At the same time, these developments have long caused central banks to consider how the issue of cash could be modernized and digitalized.⁹⁵ Today most central banks are researching or actively developing new money in the form of Central Bank Digital Cash (CBDCs).⁹⁶

As part of the Strategic goals of the BCB a study group was established in September 2020 to consider the potential of creating a Brazilian CBDC. The goals are to update the currency, to reduce cost of issuance, to analyse risks and compliance, and to further the strategic goal of the “Financial Citizen”.⁹⁷ The Digital Real could be introduced as early as 2022.⁹⁸ The Central Bank published their guideline for the CBDC in May 2021.⁹⁹ According to the CBDC Tracker,¹⁰⁰ the plan is a retail token-based CBDC built on R3 Corda Technology and expected to be programmable but not interoperable with other digital currencies (private or public). Very recent news suggests that the introduction may be delayed and that the Central Bank of Brazil is working with Lithosphere blockchain.¹⁰¹

DEFINITION AND CHARACTERISTICS

The Bank of International Settlements (BIS) defines Central Bank Digital Cash as:

“Central bank digital currency (CBDC): a digital payment instrument, denominated in the national unit of account, that is a direct liability of the central bank.”¹⁰²

CBDCs can be designed for use either among financial intermediaries only (wholesale CBDC) or in the wider economy (retail CBDC). For end customers this places retail CBDCs in a variety of payment options, as illustrated in Figure 3 below.

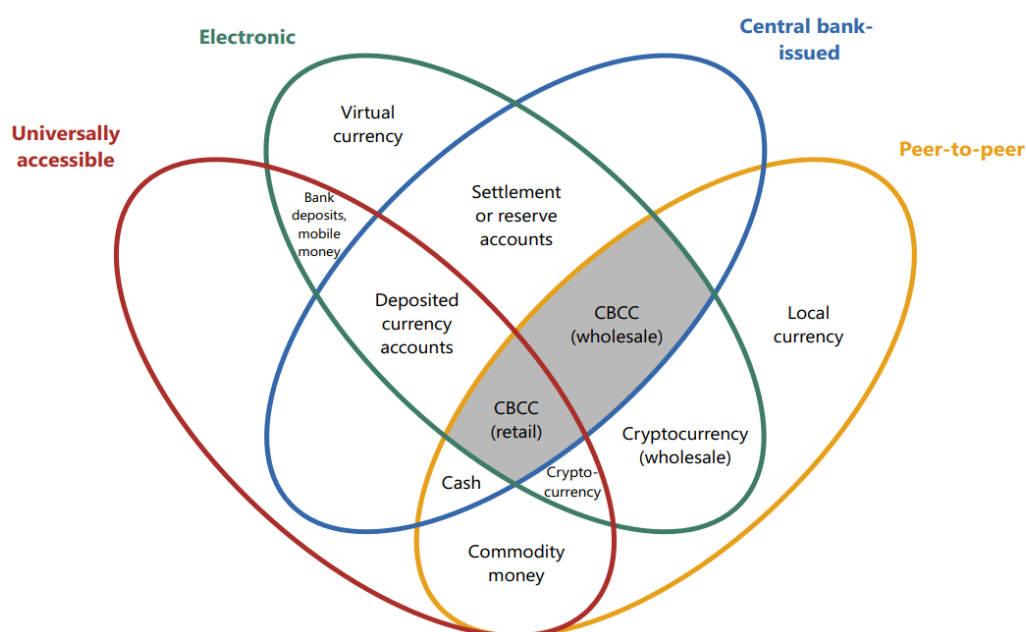
Just as many people set high hopes in the development of fintech for cheaper financial services and inclusion, so are CBDCs often expected to provide cheaper, faster, and more inclusive money as well as to drive down the price of international transfers. There is a clear scope and potential for this. This will, however, very much depend on both the choice of design and how it is received by customers.

Turning here first to design, important questions relate to:

- Type of issue
- How the CBDCs are integrated in the overall financial system
- How well the underlying system of digital identity works
- Who are the partners providing the infrastructure
- The solutions with regard to international payments.

Put simply, CBDCs represent a claim directly on the country’s central bank. This would normally be considered an advantage for the customer as no intermediaries (traditionally the banks) are involved.¹⁰³ In environments with low institutional trust this may, however, not be seen as a plus.

Figure 3. Retail CBDCs in the context of “The Money Flower” (BIS Quarterly Review, September 2017).



CBDCs can be issued in an account-based form where citizens get an account directly with the Central Bank (just like financial institutions today). This type of issue will involve the Central Bank in much operational management such as:

- Creating accounts
- Onboarding customers
- Supporting large numbers of (small) transactions including any issues with non-payment
- Deciding on account remuneration (interest).

An account-based solution will typically be based on access by identification and will also entail that

the Central Bank has access to all information about transactions, unless some kind of privacy solution is put in place.

It is also possible to issue CBDCs as token-based. In this case, customer access will typically be through a private/public key in a wallet, which will allow the customer to remain anonymous. Settlement can be either centralized or decentralized. For full anonymity, “ownership” will reside with whoever has the private/public keys, as is the case today. This may only be a workable solution for smaller amounts and transactions.

Figure 4. Design Choices of CBDCs

CBDC could be either retail issued to the public for retail payments or wholesale issued to financial institutions for exclusively interbank settlement purposes.⁹⁵ Within retail and wholesale CBDCs, there are several design choices available as per the existing CBDC literature.⁹⁶

1.1. In terms of CBDC’s ability to provide anonymity, it could be divided between account-based and token-based. In an account-based CBDC, funds are transferred from account to account,⁹⁷ whereas in a token-based CBDC the transfer occurs via wallets. For an account-based CBDC, the central bank maintains a central ledger for settlement, while settlement in a token-based CBDC could be either centralized or decentralized. For both CBDCs, central banks could verify the users’ identities. Therefore, it is unlikely that CBDC would be fully anonymous like cash, yet some degree of pseudonymity is achievable through token-based CBDCs.

1.2. In terms of access and legal claim, a retail CBDC could be direct, indirect or hybrid.⁹⁸

Direct CBDC	Hybrid CBDC ⁹⁹	Indirect CBDC
<ul style="list-style-type: none"> CBDC is a direct claim on central banks Central Banks handle payments directly 	<ul style="list-style-type: none"> CBDC is a direct claim on central banks Central banks handle retail balances periodically 	<ul style="list-style-type: none"> A CBDC claim belongs to an intermediary Intermediaries handle retail payments and central banks deal with wholesale payments

1.3. Although, to date, none of the central banks are considering interest-bearing CBDC, theoretically, CBDC can be interest-bearing (with attributes similar to deposits) or non-interest-bearing (similar to cash).¹⁰⁰ While an interest-bearing CBDC could trigger bank disintermediation, it could alleviate the macroeconomic shocks arising from the disappearance of cash.¹⁰¹

UNDP-UNCDF-TP-1-2-Digital-Currencies-and-CBDC-Impacts-on-Least-Developed-Countries-LDCs-EN.pdf (Foster, Katherine; Blakstad, Sofie; Gazi, Sangita and Bos, Martijn: “Technical Paper 1.2 “Digital currencies and CBDC impacts on least developed countries (LDCs)” UNDP-UNCDF, Dialogue on Global Digital Finance Governance).

The central bank may not want to undertake the micromanagement of retail payments. While the CBDC claim will be at the Central Bank, other organizations may act as intermediaries and handle the day-to-day management. Alternatively, the intermediary could handle the claims too, leaving the Central Bank with the role it has today as a wholesaler dealing with transfers between intermediaries. Banks would be an obvious choice as intermediaries where a well-functioning financial infrastructure is in place, but other organizations might take their place.

Figure 4 illustrates these design choices.

The underlying infrastructure for CBDCs can be developed in different ways. This is outside the scope of this report, except to mention that one of the possibilities is new blockchain-based infrastructure that can include smart contracts, allowing what is generally known as “programmable money.” As long as transaction scenarios are foreseeable, programmability can support cheap, efficient, and fast transactions. It will also allow the distribution of CBDCs to be tailored to specific groups, thereby supporting inclusion.

A specific issue is the question of cross-border transactions, an area where savings and efficiency has been much sought after. Opening CBDCs to foreign transfers is technically a design decision. But how this would work in practice is more of a political issue in which one clear problem is the national ability to conduct monetary policy being undermined, if currency substitution happens to the CBDCs of other countries or even private solutions.

Though most Central Banks are, to some extent, researching the possibility of issuing CBDCs there are few existing solutions in place, with little systematic research being done to follow up on results and impact. Of interest in this space is the fact that Ecuador actually had a working CBDC in place that based the new money on the USD. In the end, the project was cancelled due to lack of trust in the national money.¹⁰⁴

THE DRIVERS WITH REGARD TO CONSUMERS

A new type of money will only be successful if accepted and used by consumers, and particularly any specific target groups.

Most of the research on the development of CBDCs has been undertaken by Central Banks. Their natural focus is on how digital cash can support their role as issuer, controller, and party responsible for overall stability. Therefore, they have concentrated on macroeconomic and political challenges as well as how to bring technology in play to fulfil the potential of CBDCs. Some studies on consumer acceptance have been conducted, both nationally and internationally, but this has mostly been in the form of surveys asking people what they would think of a CBDC.¹⁰⁵

As for consumer research along the lines described in the section on consumer choice and adoption, a study from April 2021 summarises it like this:

“To the best of our knowledge, there is no empirical research available concerning the adoption of CBDC from a consumer perspective and the factors that influence this adoption.”¹⁰⁶

There is clearly a need for the fieldwork to build a much deeper understanding of consumer reactions in different contexts.

The Dutch report mentioned above finds that roughly half of the public would open a CBDC current account and a CBDC savings account. Intended adoption is positively related to respondents’ knowledge of CBDC, trust in banks and in the central bank as well as price incentives. The intended usage of a CBDC current account is highest among people who find privacy and security important and among consumers with low trust in banks in general.

The BIS has also recently published a study on what drives consumer needs and adoption of CBDCs.¹⁰⁷ The report’s analysis is based on existing experience and knowledge about consumer adaptation of new means of payments like mobile P2P solutions. It also considers market conditions in general. The report not only looks at immediate needs, it also tries to anticipate consumers’ future needs.

The report identifies drivers such as reduced cost of payments and access, including the customer's option not to change their current device and the possibility to conduct offline transactions. The report also points to the importance of network effects. Though CBDCs may be designed to reach non-included groups or target poverty, implementing a CBDC as a broad initiative will

generally also be dependent on a broader use of the currency among other groups of consumers as well as merchants and public institutions.

Figures 5 and 6 below summarise some of the report findings and user stories.

Figure 5. Drivers of CBDC adoption

End-user consultations and research ¹		Table 1
CBDC features		
Safety of funds	In normal and crisis periods, this distinguishing feature of central bank money relative to other forms of money could make a difference for users' adoption. The physical nature of cash helps support the identified difference between central bank and private money.	
Reduced costs	Consumers' utility is affected mostly by the transaction cost of the payment instrument. Although the overall cost of a CBDC system could increase with the complexity of its design, there should be little or no (explicit) cost to the CBDC end user.	
Offline	A CBDC could allow users to maintain the cash-like experience they are familiar with, together with the additional benefit of participating in the digital economy. This feature might be particularly relevant in environments where internet availability is limited or unreliable.	
Security	Several factors affect an end-user's overall perception of security: the reputation of (and trust in) the issuer, intermediaries, and the underlying technology; whether the involved entities are regulated; the level of fraud protection and end-user liability; and the quality of education and marketing campaigns. A CBDC might seek to adhere to a higher security standard to address these concerns.	
Privacy	Protecting an individual's privacy from both commercial providers and governments has the attributes of a basic right (BIS (2021)). CBDC could be designed to offer more privacy to users because the central bank would not have incentives to monetise the data (for more see Group of central banks (2021b)).	
Accessibility	Accessible design is fundamental for both specific user groups (eg people with sensory, motor, and cognitive challenges) and the general population. CBDC end-user devices could be designed to improve on accessible digital interactions.	

¹ This table summarises some reflections from findings of the selected central banks of this group. Not all the jurisdictions in our group have engaged already in end-user consultations.

Source: BIS, https://www.google.com/url?q=https://www.bis.org/publ/othp42_user_needs.pdf&sa=D&source=docs&ust=1639057431354000&usq=A0vVaw374sAKOTz-B80XHicRgRil

Figure 6. CBDC adoption stories

Example of user stories			Table 2
	Persona and pain point	CBDC motivation/need	CBDC design concept to gain the adoption by this type of user
A well-connected consumer	Consumer with bank account and several options for digital payments	Highly interoperable CBDC	Enhanced interoperability and privacy features, offline functionality, new features (eg programmable payments)
User with no/limited internet	Consumer on limited budget who lives in a remote region without reliable internet	Low-cost/free payment method with offline capacity	CBDC universal access device with both online and offline functionality
Unbanked person	Consumer who does not have/desire a bank account	A CBDC to make digital payments without having a bank account	Low-cost, dedicated, universal access device with a variety of easily accessible end-point solutions / a CBDC supported by institutions other than banks
User with accessibility needs	Consumer who is partially sighted	Accessible mean of payment	Single-purpose payment device with large fonts and haptic feedback
User that prioritises privacy	Consumer who does not want commercial banks to know his or her identity or track his or her spending	A CBDC universal access device	Unregistered wallet at a money service business (with limits for compliance)
The small merchant at the PoS	Retailer who wants to accept CBDC payments in store	A way of accepting non-cash payments that is cheaper and more flexible than current solutions	A CBDC designed with low onboarding cost and that does not depend on existing (costly) point-of-sale hardware

Source: BIS, https://www.bis.org/publ/othp42_user_needs.pdf

ENDNOTES

- 1 Among these services are: 1) Games and Bets. It maintains a certain governmental regulation on lottery games (prohibiting the sale to minors, for example). That is, people go to lottery houses to bet on games like the mega sena <<http://loterias.caixa.gov.br/wps/portal/loterias>>; 2) Allows the payment of bills and slips; 3) Allows withdrawals and deposits from Caixa Econômica Federal, and withdrawals from Banco do Brasil accounts; (public banks); 4) Allows you to receive (withdraw) government social benefits; 5) You can charge your mobile phone; 6) You can even open an account with Caixa Econômica Federal from a lottery shop. See the Loterias website: <https://loterias.com.br/servicos/>
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