



Financial Inclusion Beyond Bank Accounts: Digital Welfare Access among India's Low-Income Population

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Abstract

This digital welfare delivery and exclusion by analysing financial access, the use of digital payment, receipt of government welfare payments, barriers to trust and administrative barriers for low-income populations. A quantitative secondary data method was used, with data from the Global Findex on account ownership, digital financial participation, receipt of government transfers, mobile and internet access to accounts, and challenges of documentation, cost, distance, insufficient funds and lack of trust. It examined the outcomes for adults in the poorer 40th percentile of households compared with the richer 60th percentile. Patterns of inclusion/exclusion were identified using descriptive statistics, income group comparisons, trend analysis and correlation analysis. The results show that over the period 2011-17, the number of adults with financial accounts rose significantly, even for low-income adults. But there were still significant disparities in the use of digital payments and in access to accounts via mobile and the internet. The lowest 40% remained behind the rest of the population, even with respect to the use of digital financial services. Other factors impacting financial inclusion were also related to lower levels of financial inclusion, such as documentation requirements, service costs, geographical distance, lack of funds, and trust concerns. Participation in accounts seemed to be promoted by government transfers, but this did not remove the structural and administrative problems. The research findings indicate that increasing digital infrastructure and account ownership are not enough to deliver inclusive welfare.

Keywords: digital welfare delivery, digital exclusion, financial inclusion, administrative burden, low-income households

1. Introduction

Digitalisation of welfare administration has revolutionised governments' ability to identify social-protection beneficiaries, transfer payments, validate eligibility and monitor social-protection programmes. Digital platforms, eID, e-money and mobile banking and direct transfers are increasingly seen as tools to enhance the delivery of public services in terms of speed, transparency and efficiency. On the international stage, digital government has developed into a highly intertwined and multifaceted part of wider sustainability, institutional modernisation and inclusive public administration (Department of Economic, 2024). Meanwhile, the proliferation of digital financial services has increased the opportunities for people to access wages, pensions, subsidies and government benefits through formal accounts and electronic payment channels (Demirgüç-Kunt et al., 2022).

Although the delivery of welfare services through digital means has the potential to increase equality, it can also lead to new forms of inequality. Having access to a digital service does not mean that someone can effectively use it. How digital systems are connected, who owns them, how literate they are, how affordable they are, and how confident they are in them can make a difference in whether they are benefiting from or being excluded from them (Lythreath et al., 2022). As the COVID-19 pandemic uncovered, digital inequality has a deep impact on access to information and services, especially for the socially and economically disadvantaged (Beaunoyer et al., 2020; Van Deursen, 2020). The notion of digital capital is therefore valuable as it accounts for the need for meaningful participation to go beyond physical access and requires digital skills, social support, and the ability to make digital resources applicable to concrete activities (Ragnedda et al., 2020; Larsson, 2022). Similarly, many people can still be digitally excluded even if they have the technical means of access to the internet, as access is also dependent on affordability and usability, as well as institutional responsiveness (Ranchordás, 2022).

As digital interfaces have become more important, so too has the shifting of administrative duties away from public officials and towards citizens. Applicants might need to be aware of the eligibility criteria, complete the applications, provide documentation, present proof of identity and troubleshoot technical issues with some support. In this context, digitalisation can benefit some, and hinder others, particularly those with low literacy rates, limited technological experience, and insecure access to devices and connectivity (Larsson, 2022). Automated systems might expand coverage for certain population groups and not for others whose situation is not captured in the standardised processes (Larsson, 2021).

This is especially crucial in India, where Aadhaar authentication and digital identity and direct benefit transfer have emerged as key pillars in the management of welfare. Studies on the Public Distribution System have demonstrated that digital identification can enhance monitoring and mitigate leakages in some cases, while at the same time causing exclusion in others where it fails to provide authentication or the records are incorrect or the beneficiaries might not have the required documents to make transactions on the system (Hundal & Chaudhuri, 2020). Research on the fair price shops also suggests a conflict between efficiency of administration and access, particularly in regions with insufficient infrastructure or support for technological systems (Hundal et al., 2020). The data from digital agricultural welfare schemes also showed that data-driven delivery can create inequalities as marginalised groups are unable to correct data, challenge decisions, and understand digital processes. (Masiero & Buddha, 2021)

Digital welfare exclusion is inextricably linked to broader social protection issues. There has been a strong focus on the need to expand social-protection systems, ensuring that the coverage of social-protection systems does not exclude vulnerable groups due to institutional, financial or technological barriers (Batchabi, 2022; Gama, 2024). The COVID-19 pandemic has also shown the need for effective channels of delivery, data quality and flexibility in their administration (Gentilini, 2022). But mobile delivery is also a constant reminder of gender inequalities: in many places, women are less likely to own a mobile phone on their own or to have access to mobile internet or digital financial services, alone (Shanahan, 2022).

It is therefore necessary to have a more sophisticated understanding of access to digital welfare. Digital inclusion should not just be measured by the presence of a platform it should be defined by the ability to be able to complete transactions successfully and receive benefits and support when something goes wrong (Coles-Kemp et al., 2020). The institutions of international telecommunication institutions also emphasize that connectivity and affordability of services, as well as the digital capability of citizens are key pillars of participation in digital society in an equal way (Canton, 2021).

This study aims to analyze the level of financial access, receipt of government transfers, barriers and procedural obstacles for receiving financial products by the poorest 40% of adults. The study highlights the importance of the relationship between formal account ownership, active digital use and exclusionary barriers in determining a meaningful understanding of the contribution of the expansion of digital welfare infrastructure in terms of inclusion for low-income populations.

Objectives

- To investigate the patterns of ownership of financial accounts and use of digital payments and receipt of government transfers among low-income adults.

- To make comparisons of financial access by adults in the poorest 40% and richest 60% of households.
- To evaluate trust, documentation, distance and cost as barriers to digital and financial inclusion.

2. Methodology

2.1 Research Design

The design of this study is quantitative secondary data research, which aims to investigate the financial exclusion, barriers and procedures of people under the poverty line in relation to digital welfare delivery. The research is descriptive and explanatory since it defines patterns of digital financial access and explores the link between access barriers and exclusion. The data is aggregated, rather than individual household data, and the results are analyzed at the country and population-group level.

2.2 Data Source

This study is based on the World Bank's Global Financial Inclusion Database (Global Findex) (World Bank, 2019). The dataset uploaded comprises indicators for the country-level statistics that are associated with account ownership, digital payments, mobile-money usage, government transfers and financial inclusion barriers. The principal analytical file is available in the file `FINDEXData.csv`; `FINDEXSeries.csv` contains the definitions of indicators, and `FINDEXCountry.csv` contains the information about the countries. This upload includes data for about 181 countries and regional aggregates, 776 indicators and three years of surveys (2011, 2014 and 2017).

2.3 Study Population and Unit of Analysis

The study population are adults 15 years and older, especially adults from lower socio-economic status. Low income is indicated by adult indicators in the poorest 40% of households. The unit of analysis is a country-year-indicator observation, with the result of each observation being the percentage of adults in a country or subgroup who reported having a certain financial-access characteristic. In this context, the study focuses on aggregate patterns, not on the experiences of individual households.

2.4 Selection and Measurement of Variables

The indicators of digital welfare delivery are related to receiving government transfers or pensions, or public-sector payments, via financial accounts or digitally. Digital access is assessed by account ownership, mobile-money ownership, digital-payment usage and by using mobile devices or the internet to access accounts. The indicator indicating lack of confidence in financial institutions as a reason to not have an account is an indicator of trust. Available proxy indicators of administrative burden are: Insufficient documentation, Excessive distance from financial institutions, High service costs and reliance on another household member's account. Digital and financial exclusion is measured by non-use of government payments delivered digitally, non-use of digital payments, and lack of account ownership.

2.5 Data Preparation

The selected files will be imported into statistical software and matched using country and indicator codes. The definitions of indicators will be checked against the series-description file. Where country-level analysis is required, regional aggregates will be removed, and values for each year will be converted to numeric. Not all values will be automatically replaced, and missing values will be noted separately for each analysis. Also, indicators will be re-organized into categories, corresponding to digital access, government-payment delivery, trust, procedural barriers and exclusion. Where suitable, the differences between the poorest 40% and richest 60% will be calculated to measure income-based inequalities.

2.6 Data Analysis

Analysis will start with descriptive statistics such as means, medians, standard deviation, ranges and country ranking. The poorest 40% and richest 60%, women and men, rural and total populations and lower- and higher-education groups will be compared. There will be correlation analysis (Pearson or Spearman) conducted on the relationships between digital access, government-transfer receipt, trust, documentation barriers, distance, cost and exclusion. The use of multiple linear regression will be used to estimate the relationship of procedural barriers to reduced access to digital financial services among low-income adults when sufficient observations are available.

2.7 Reliability, Validity and Ethical Considerations

Global Findex uses standardised survey instruments and internationally comparable definitions, thus guaranteeing the reliability of the data. Construct validity will be enhanced by using only indicators that are directly related to the concepts of digital access, government payments, barriers and exclusion related to trust. The administrative-burden measures will be used as proxies, as they do not directly measure waiting time,

repeated visits, biometric failures, stress or grievance procedures.

3. Results

3.1 Growth in Financial Account Ownership

The results show that there has been significant growth in financial account ownership in India from 2011 to 2017. As shown in Table 1, account ownership among all adults increased from 35.23% in 2011 to 53.14% in 2014 and reached 79.88% in 2017. This was especially sharp for adults living in the poorest 40% of households, who saw the proportion of people owning an account in their home grow from 26.97% to 77.08% over the same period.

Table 1. Account ownership in India by income group, 2011–2017

Population group	2011 (%)	2014 (%)	2017 (%)	Change, 2011–2017
All adults	35.23	53.14	79.88	44.64
Poorest 40%	26.97	43.61	77.08	50.11
Richest 60%	40.73	59.48	81.74	41.01

There was a decrease in the difference in income over time in account possession. There was a 13.76 percentage point difference between the richest 60% and the poorest 40% in account ownership in 2011. The difference was reduced to around 4.65 percentage points by 2017. This trend, as shown in Figure 1, indicates that formal financial access had a large positive impact on low-income adults, but not the perfect level of equality.

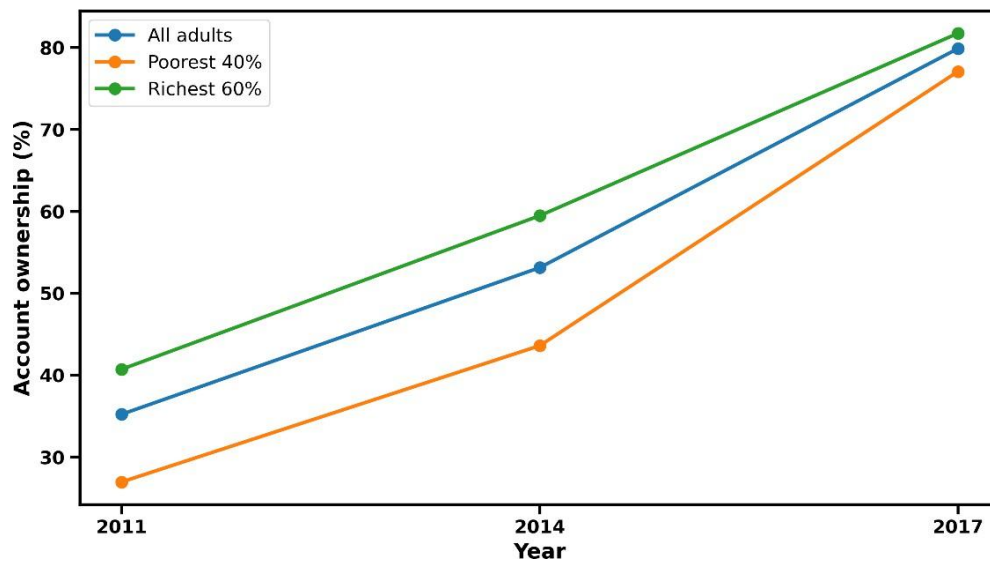


Figure 1. Account ownership in India, 2011–2017

3.2 Income-Based Differences in Digital Financial Access

Income disparities in the use of basic accounts were small in 2017, though there were still wider gaps in the use of digital financial services. Table 2 shows that, in terms of adults, 77.08% of those in the poorest 40% had an account, while 81.74% of adults in the richest 60% had an account. Just 19.79% of adults in the poorest 40% had made or received a digital payment; however, this percentage rose to 34.63% in the richest 60%.

Table 2. Digital financial access by income group in India, 2017

Indicator	Poorest 40% (%)	Richest 60% (%)	Income gap
Financial-institution account	77.08	81.68	4.59
Any financial or mobile-money account	77.08	81.74	4.65
Made or received digital payments	19.79	34.63	14.84
Used a mobile phone or the internet to access an account	3.00	6.83	3.83

The largest gap was seen in the use of digital payment, with an income gap of 14.84 percentage points. There

were relatively low rates of mobile or internet account access for both groups, with the richest 60% more than twice as likely to have access. Figure 2 thus shows that among low-income adults; the quick growth of account ownership did not result in a commensurate increase in digital use.

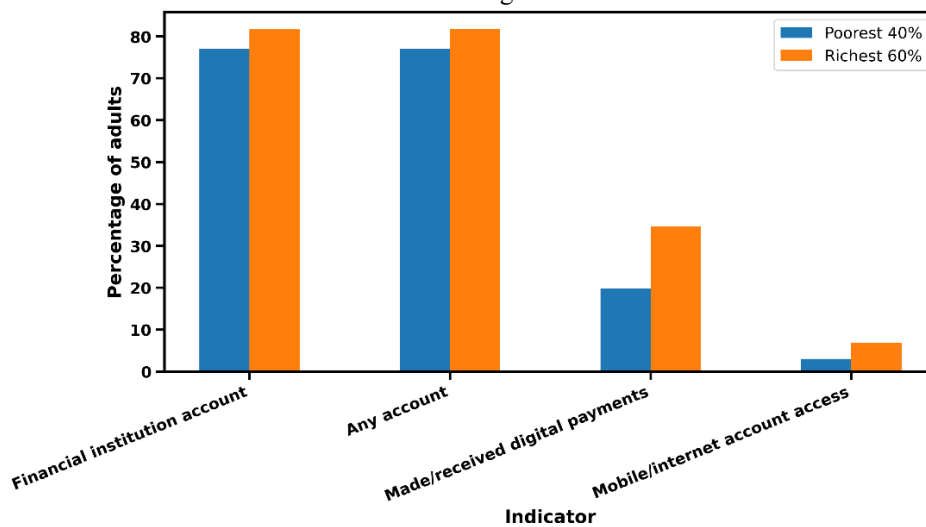


Figure 2. Income-based differences in digital financial access in India, 2017

The results are not the same as formal inclusion and effective digital inclusion. While most low-income adults were using the formal account system by 2017, a much lower share were using digital payment channels, or accessing accounts via mobile phones and the internet.

3.3 Trust and Procedural Barriers

The Global Findex indicators show some of the challenges to staying out of the formal financial system. Table 3 shows that Insufficient funds were the top-reported barrier, with 11.39% of adults reporting insufficient funds. Another 10.93% said they didn't have an account due to another family member having one.

Table 3. Reported barriers to financial inclusion in India, 2017

Reported barrier	Adults reporting barrier (%)
Insufficient funds	11.39
Another family member has an account	10.93
Financial services are too expensive	5.68
The financial institution is too far away	4.96
Lack of necessary documentation	4.61
Lack of trust in financial institutions	4.29

The procedural barriers specifically related to administrative burden reported by adults were cost (5.68%), distance (4.96%) and lack of necessary documentation (4.61%). 4.29% adults reported that they did not trust financial institutions. These barriers are shown as a comparison in Figure 3.

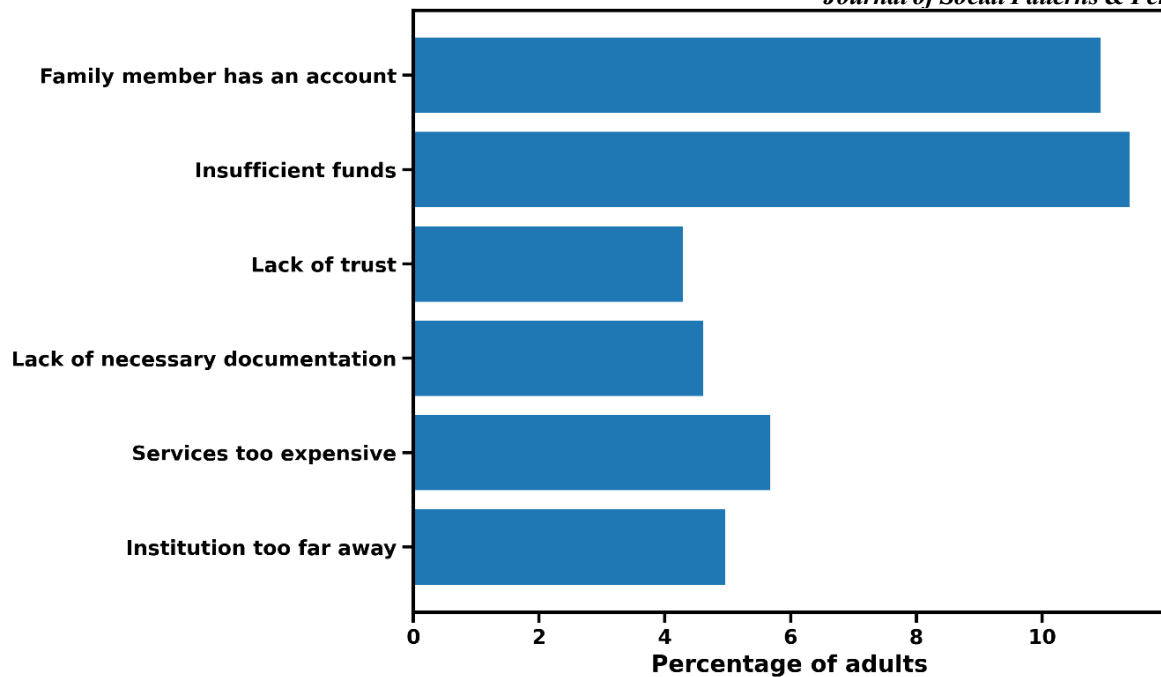


Figure 3. Reported barriers to financial inclusion in India, 2017

The findings suggest that there was no single barrier to cause financial exclusion. Exclusion due to the economic constraints, the dependence of households, the cost of services, geographic barriers, paperwork and lack of trust. These measures are, however, only indirect measures of administrative burden as they do not measure waiting time, repeated office visits, failures of the biometric or psychological costs.

3.4 Receipt of Government Transfers

Among adults in India, 8.20% received government transfers in 2017. As shown in Table 4, receipt was slightly higher for women than men, and more likely to be received by the poorest 40% and rural adults compared to the richest 60%.

Table 4. Receipt of government transfers by population group in India, 2017

Population group	Received government transfers (%)
All adults	8.20
Male	7.97
Female	8.45
Poorest 40%	8.82
Richest 60%	7.79
Rural adults	8.84

The gap between the poorest 40% and richest 60% of adults in terms of government transfer receipt rate was 1.03 percentage points (-8.82% and -7.79%, respectively). There were significant differences between the rarest of the three categories (8.84% for rural adults, 7.97% for males). These are the subgroup patterns shown in Figure 4.

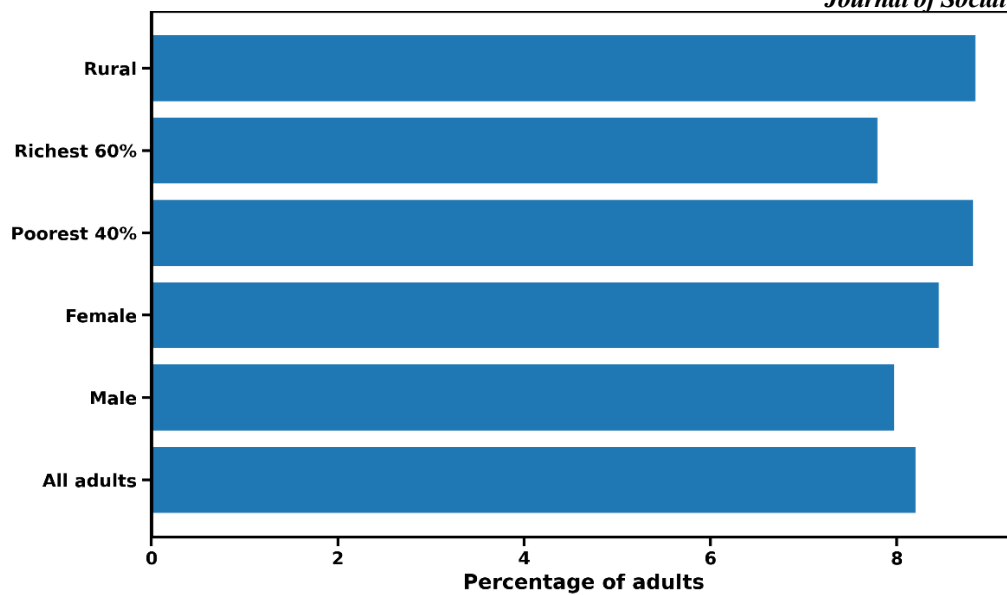


Figure 4. Receipt of government transfers by population group in India, 2017

The results indicate that government transfers were moderately targeted towards economically disadvantaged and rural populations. However, the data uploaded is not valid for India for the mode of receipt of these transfers.

3.5 Cross-Country Association between Access, Transfers and Barriers

The supplementary cross-country Spearman correlation was run on the countries that had observations in 2017. The analysis focused on the relationship between access among the poorest 40% and receipt of government transfers and the report of financial-access barriers.

Table 5. Spearman correlations between low-income access, government transfers and procedural barriers

Low-income access indicator	Government transfers	Distance	Cost	Documentation	Lack of trust
Account ownership, poorest 40%	0.791	-0.679	-0.614	-0.698	-0.476
Digital-payment use, poorest 40%	0.785	-0.618	-0.504	-0.621	-0.349
Mobile/internet account access, poorest 40%	0.601	-0.199	-0.217	-0.239	-0.185

Increased government-transfer receipt was positively correlated with all three indicators of financial access to low-income groups. Account ownership was correlated with the poorest 40% ($r_s=0.791$), and digital-payment use was correlated with the poorest 40% ($r_s=0.785$), the strongest relationships. The strong positive relationship between government-transfer receipt and financial and digital inclusion suggests that countries with a larger share of low-income adults receiving government transfers had greater financial and digital inclusion. Access was negatively associated with the distance, cost, documentation and lack of trust. Documentation showed a particularly strong negative association with account ownership ($r_s=-0.698$) and digital-payment use ($r_s=-0.621$). The distance was also negatively correlated and strongly with account ownership ($r_s=-0.679$). Trust did not show a strong, but still negative, relationship with account ownership and digital-payment use. The relationships do not necessarily imply causality.

3.6 Summary of Main Findings

The empirical findings produce four main results. First, the number of financial accounts in India grew rapidly from 2011 to 2017, especially among the poorest 40% of adults. Secondly, the closeness of the account-ownership gap did not bring about a commensurate reduction in disparities in activity in digital payment, as low-income adults remained significantly less likely to make or receive digital payments. Third, financial exclusion was linked to a lack of funds, household dependency, cost, distance, documentation and lack of trust. Fourth, for poor and rural adults, the level of government-transfer receipt was slightly higher and financial access was weak and was positively related to low-income financial access in the cross-country analysis. The results overall indicate that the spread of formal accounts had a positive effect on the potential infrastructure for digital welfare delivery, but that just owning an account was not enough to guarantee any level of digital inclusion.

4. Discussion

The results of this study reveal that the digital welfare infrastructure has grown significantly, and it is especially the financial account ownership by low-income groups that has increased. The findings show that in 2011 and 2017, the poorest 40 per cent of adults had far fewer accounts than any of the other groups and that there has been a significant improvement in financial inclusion. This trend is in line with the Global Findex 2021 report, which notes that governments have increasingly implemented measures to expand financial services and digital payment systems in developing economies in the context of financial-sector reforms (Demirgüç-Kunt et al., 2022). The increase in financial access is also a reflection of the wider international approach to bolster inclusive social-protection systems through the inclusion of digital financial services in welfare delivery systems (Gama, 2024). The results indicate that the institutional framework to provide welfare benefits more efficiently has been reinforced by the process of digitalisation.

But the study also shows that higher account ownership does not necessarily equate to meaningful digital inclusion. The poorest 40% had much less access to accounts than the richest 60%, but there were still substantial differences in the use of digital payments and access to mobile and Internet accounts. Digital systems can enhance the efficiency of administration and, at the same time, introduce new inequalities for citizens who are not technologically skilled, do not have access to reliable communication and lack confidence in using digital systems (Larsson, 2021). Similarly, the growing use of digital self-service could place administrative tasks more in the hands of the individual and thus make the process of accessing these services more challenging for socially and economically less well-off populations (Larsson, 2022).

The analysis also highlights the importance of procedural barriers as an important driver of digital and financial exclusion. Documentation requirements, service costs, geographical distance and lack of trust were all associated with lower levels of financial inclusion. The results reinforce the growing literature on administrative burden, showing that people often face costs of compliance, learning, and psychological costs in their interactions with digital public services (Peeters, 2023). The relationships observed in the Global Findex data suggest that administrative burden remains a significant barrier to efficient uptake of digital welfare services, although this data only covers some aspects of administrative burden. This reading is confirmed by a recent review, which showed that administrative burden continues to be an important issue affecting citizens' uptake of government programmes, especially vulnerable groups (Halling & Baekgaard, 2024).

The findings also indicate that trust-related barriers remain a factor in financial system participation, though to a lesser extent than economic and documentation barriers. A key element is also that consumers might not use digital financial services if they feel institutions are unreliable or if they do not feel at ease with them. Past studies have demonstrated how emotional reactions to bureaucratic practices, such as uncertainty, frustration and anxiety, may deter citizens from utilizing public services, despite having formal eligibility (Hatke et al., 2020). Likewise, fewer compliance burdens have been demonstrated to be a positive for programme beneficiaries' health and to increase the use of public services (Baekgaard et al., 2021).

Another key finding is that there are not just single barriers that are dominant, but multiple barriers. Financial exclusion was driven by a lack of funds, reliance on another household member's financial account, costs, documentation and geographical distance. This multidimensional pattern is aligned with the latest findings that administrative burden should be conceptualized as a multi-faceted issue of institutional, technological and socioeconomic constraints, and not as a one-off procedural issue (Benish et al., 2024). Moreover, digital intermediaries can have a significant influence in bridging the gaps faced by vulnerable citizens, as they can offer technical assistance, support for filling out online applications, and guidance on administrative procedures (Alshallaqi & Al-Mamary, 2024).

The study also makes larger policy points regarding the role of digital government in social protection. In fact, according to international experience, the digitalization of welfare systems has facilitated the speed and transparency of benefits delivery, even in times of crisis like the Covid-19 pandemic, when Governments have heavily depended on electronic payment systems to provide emergency welfare assistance (Gentilini, 2022). Concurrently, the importance of technological innovation being inclusive and equitable, while prioritising a citizen-centred approach, is highlighted in global digital-government strategies, to ensure that new forms of exclusion are not created (Department of Economic, 2024). The same is true for recent scholarship that suggests an “interface-first” welfare state can have an adverse and unintended effect on those with low digital literacy or those needing individual administrative assistance (Bennett & Meers, 2025).

Overall, results indicate that while digital welfare delivery has had a major impact on financial inclusion for low-income populations, it has not yet broken the cycle of digital exclusion. While the number of formal account holders has increased significantly, it has leapt to achieve meaningful participation, which relies on the capacity to navigate documentation requirements, cost, geography and trust issues. These procedural obstacles are not being removed, suggesting that the implementation of effective digital welfare systems is not just about technology but also involves addressing specific barriers. (Demirgüç-Kunt et al., 2022; Gama, 2024).

5. Conclusion

A study compared the distribution and lack of access to digital welfare services and looked into the financial-access situation, the use of digital-payments, the receipt of government-transfers, trust in barriers and the lack

of procedural barriers among low-income adults. The results indicate that the share of financial account ownership increased significantly from 2011 to 2017, especially for adults in the least affluent 40% of households. It implies that the capacity of welfare delivery systems has been enhanced through digital financial infrastructure. The findings also show that formal account ownership does not guarantee effective digital inclusion, however. Low-income adults were less likely to make or receive digital payments, or use mobile phones and online to access accounts, than higher-income groups. Documentation requirements, service prices, distances, and lack of trust and funds also reduced participation in formal financial systems. These impediments show that digital welfare exclusion is related to both technological disparities and administrative needs. The study thus ends by asserting that doing welfare in a digital way is not something that is achieved by increasing bank balances or by increasing their digital platforms. Governments need to streamline documentation processes, make them more accessible, more connected, and more affordable, and offer assisted digital services and maintain non-digital options. Ongoing transparency in the processes, responsive grievance processes and reliable services can also support the building of trust.

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