IMF

NOTES

Expanding and Improving Social Safety Nets through Digitalization

Conceptual Framework and Review of Country Experiences

Nicolò Bird and Emine Hanedar

Contents

Expanding and Improving Social Safety Nets through Digitalization

Conceptual Framework and Review of Country Experiences

Nicolò Bird and Emine Hanedar
December 2023

Social safety nets (SSNs) are focal policies that support poor and vulnerable households, most prominently through cash transfers. However, strong discrepancies persist across countries in terms of spending, coverage, and targeting of SSNs, with larger gaps often found in low-income countries. Digital technologies can prove vital in supporting a rapid expansion of SSNs around the world. Governments need to do three things for this: identify, verify, and pay. This note explains how countries can make considerable improvements across these three dimensions despite differences in capacity levels. It examines six case studies of countries—Brazil, Democratic Republic of Congo, India, Pakistan, Togo, and Türkiye—that used and adapted digital technologies in different ways due, in large part, to variations in digital SSN infrastructures in place before the onset of COVID-19. These case studies illustrate how (1) innovative digital technologies can help overcome lack of government capacity to implement SSNs, even in countries with a lack of digital infrastructure or capacity, and (2) countries with stronger digital infrastructure or investments in SSNs before COVID-19 were able to complement existing policies to reach more people and to provide stronger responses than countries without preexisting SSN frameworks.

Digitalization and Social Safety Nets

Emerging and developing economies have significant room to strengthen their social safety nets (SSNs). SSNs are key in addressing current and future poverty.[1] Regional spending on SSNs is the lowest in emerging and developing (ED)-Asia and sub-Saharan Africa, followed by Latin America and the Caribbean; the Middle East, North Africa, Afghanistan, and Pakistan; and the Caucasus and Central Asia (Figure 1). In ED-Europe and advanced economies, average spending on SSNs is the highest at about 2 percent of GDP. However, expenditure varies significantly both across and within regions. For instance, in sub-Saharan Africa, Lesotho spends almost 5½ percent of GDP on SSNs, whereas Cameroon, Guinea-Bissau, and South Sudan spend less than 0.2 percent. Among advanced economies, Canada, Finland, and France spend almost 4 percent of GDP on SSNs, whereas Lithuania, Korea, the Slovak Republic, and the United States spend less than 1 percent (IMF 2022).

Figure 1. Government Spending on Social Safety Nets
(Percent of GDP, by region)
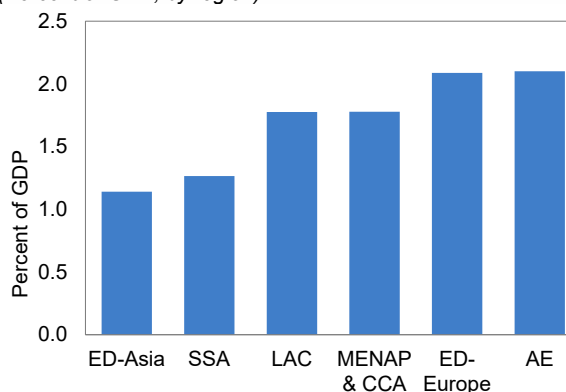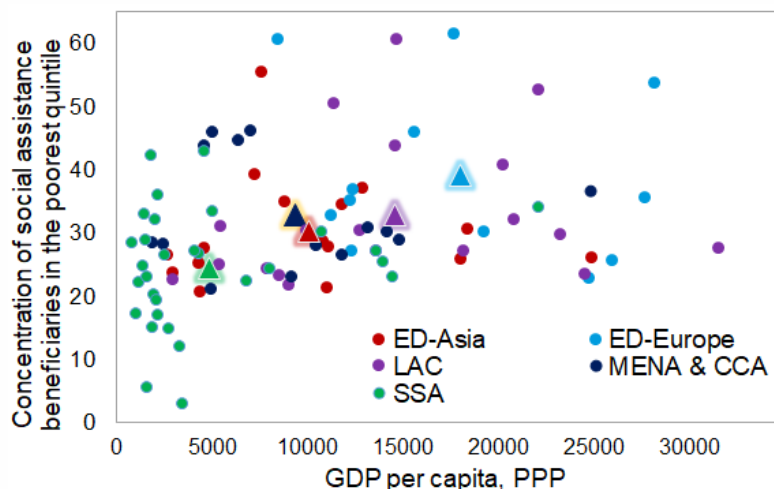

Source: World Bank ASPIRE database.
Note: AE = advanced economies; ED = emerging and developing; CCA = Caucasus and Central Asia; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan; SSA = Sub-Saharan Africa.

SSNs can be assessed according to three dimensions—spending adequacy, spending efficiency, and fiscal sustainability. The first dimension is whether spending levels are adequate or sufficient to successfully achieve governmental objectives toward alleviating poverty and promoting human capital development (IMF 2019; IMF 2022). Spending efficiency is concerned about whether spending is achieving government objectives in a cost-effective manner because low targeting efficiency and leakages to wealthier income groups can undermine poverty reduction efforts. Significant heterogeneity exists in the beneficiary incidence of SSNs across countries and regions, with a greater concentration of beneficiaries in the poorest 20 percent of the population in ED-Europe and a lower concentration across sub-Saharan Africa (Figure 2). The result may partially be by design[2] or due to governments' difficulties in targeting the poorest population. Finally, fiscal sustainability assesses whether SSNs are financed without undermining debt sustainability because social spending pressures may pose sustainability risks if not appropriately financed.

---

[1] SSNs are defined in IMF (2022) as programs—also often referred to as social assistance programs—typically defined as noncontributory transfer programs designed to protect households from poverty and destitution by ensuring some minimum level of economic well-being. Given the focus on digitalization, the focus of this note is on digital and mobile cash transfers.

[2] For instance, life-cycle schemes that do not exclusively focus on poverty alleviation among the poorest populations, including SSNs that promote human capital development for children, temporary employment, or social pensions for elderly or people with disabilities. Given the focus on emerging and developing countries, the main challenges and contingencies highlighted relate to poverty reduction and informality.

Figure 2. Beneficiary Incidence of Social Safety Nets in the Poorest Quintile across Countries
(Share of total beneficiaries)

Sources: World Bank ASPIRE database and World Development Indicators. Values are from the most recent available ASPIRE country data for all social assistance.
Note: Beneficiary incidence is estimated using pretransfer welfare. Triangles indicate regional averages. AE = advanced economies; ED = emerging and developing; CCA = Caucasus and Central Asia; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan; SSA = Sub-Saharan Africa.

Digitalization can help strengthen SSNs through better identification, verification, and payment mechanisms. According to the trifecta of SSNs, governments should be able to achieve three things: identify, verify, and pay (Figure 3). First, the government should be able to accurately identify individuals or households. Second, SSNs with the objective of poverty reduction require socioeconomic information to identify and target poor and vulnerable groups.[3] Finally, a payment delivery infrastructure is needed to deliver government transfers to beneficiaries. Adequacy and coverage issues can be resolved substantially by having an identification (ID) system, socioeconomic data, and a payment system in place. Meanwhile, spending efficiency can be improved through better targeting using socioeconomic data and an ID system, given that leakages often stem from identification and verification problems. For instance, countries with many social programs and weak ID systems face a greater risk of beneficiary duplication or adding nonexistent ("ghost") beneficiaries, which will both increase the total cost of programs and jeopardize their legitimacy. Fraud and misallocations of benefits may also arise when social administrations are unable to fully verify the beneficiaries' eligibility criteria.

Figure 3. Trifecta of Social Safety Nets
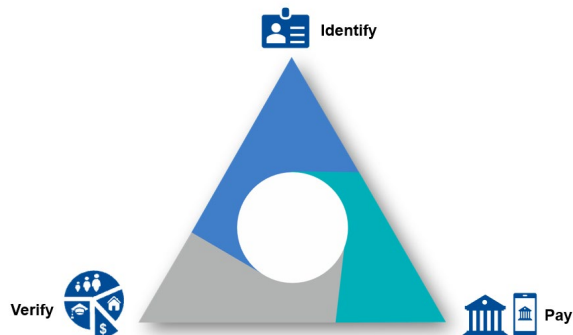
Sources: Leite and others 2017; Davidovic and others 2020; and authors.

---

[3]   If governments choose to provide universal benefits, then verifying socioeconomic information is not needed. However, governments most often choose to incorporate targeting to prevent significant fiscal costs and/or to reduce negative labor market incentives.

**The trifecta of SSNs can take many forms.** Identification systems should be universal, reliable, and based on the principles of identification for sustainable development (World Bank 2022a). Examples include digital passports, biometric data, Social Security numbers, login credentials, and bank account information. Socioeconomic data should be integrated with information systems and be kept updated to provide eligible household benefits. Examples of relevant socioeconomic information include income, age, household composition, education level, occupation, assets, home ownership, and ownership of durable goods. Meanwhile, delivery mechanisms should be inclusive, safe, and transparent. Inclusive also refers to households' ability to use the payment system. Examples include bank accounts, mobile money, e-wallets, digital vouchers, one-time passports, and smart cards. Investments in digital public infrastructure, which refers to digital platforms that enable the provision of essential society-wide functions and services, is crucial in establishing platforms for identification, authentication, data exchange, and payments (World Bank 2022b).

Unfortunately, information systems used to identify, verify, and pay government benefits are often incomplete, particularly in developing countries. Because of capacity constraints, countries must often rely on alternative databases and tools to identify and verify beneficiary eligibility. During the pandemic, many governments combined unique ID numbers and existing databases to determine eligibility. This made it possible to set up digital service windows and to implement mass registration of beneficiaries. This occurred in countries such as India, Togo, Namibia, South Africa, Thailand, Peru, Fiji, Brazil, and Pakistan (World Bank 2022c). In Thailand, for example, the online application required only national ID numbers. The system then checked 20 digital databases linked by the ID number to confirm eligibility. In the spring of 2020 alone, Thailand approved about 23 million applications from informal sector workers and farmers—more than half of the working-age population.

Sub-Saharan Africa lags behind other regions in terms of national ID, mobile money, and financial account ownership. The number of people over age 15 who have a national ID is high in all regions, except in sub-Saharan Africa. Not only is ID ownership significantly lower in sub-Saharan Africa, but the difference between countries is also much larger than in other regions (Figure 4, panel 1). Mobile money ownership is also lower than averages in other regions, but it remains higher than financial account ownership (Figure 4, panels 2 and 3). The findings underscore the importance of mobile phones in scaling up SSNs, specifically in sub-Saharan Africa.

Figure 4. Coverage of Trifecta of Social Safety Nets, by Region
(Percentage among population aged 15 and over)

1. National ID Coverage

2. Mobile Money Ownership

3. Financial Account Ownership
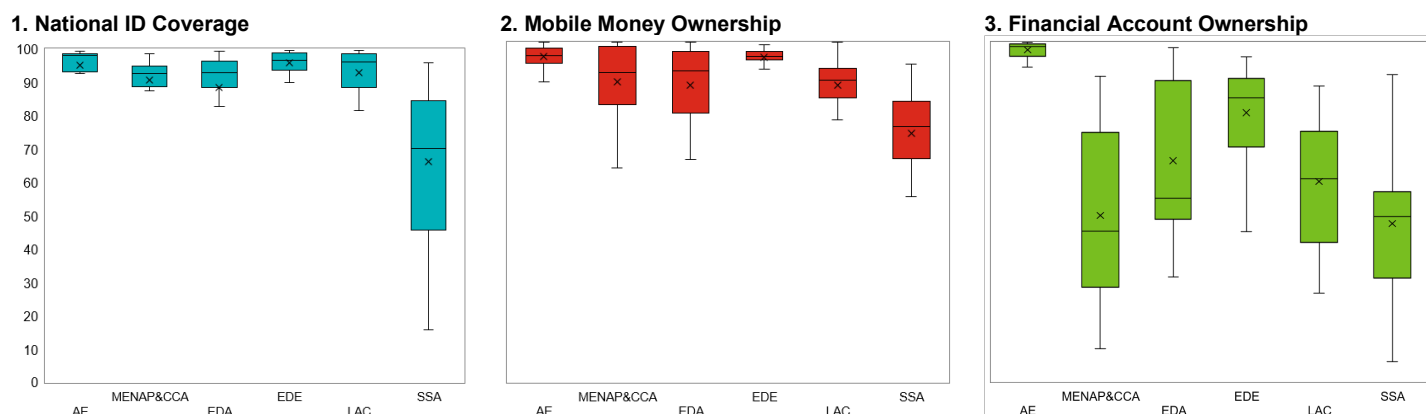
Sources: World Bank 2022c; and IMF staff calculations.
Note: AE = advanced economies; CCA = Caucasus and Central Asia; EDA = emerging and developing Asia; EDE = emerging and developing Europe; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan; SSA = Sub-Saharan Africa.

During COVID-19, many countries used digitalization to scale up SSNs. Countries that were able to use digital databases and trusted data sharing to identify beneficiaries reached on average 51 percent of the population. On the other hand, countries that had to rely on collecting new information from beneficiaries reached on average just 16 percent of the population (World Bank 2022c). Countries that leveraged digital systems for identification, registration, and payment processes—including Brazil, Guatemala, Iran, Namibia, Mauritius, Pakistan, South Africa, Thailand, Togo, and Zimbabwe—reached on average 55 percent of the population. Several countries lacking data to scale up coverage of cash transfer schemes were still able to make digital payments quickly by leveraging recent developments in mobile money markets, especially in sub-Saharan African countries such as Malawi, Nigeria, Ethiopia, Mozambique, Rwanda, Benin, Ghana, Madagascar, Kenya, and Sierra Leone (World Bank 2022c). This was also the case in Haiti and China.

Most countries that used digital payments relied on either bank accounts or a combination of mobile money and bank accounts, except for countries in sub-Saharan Africa, which relied mainly on mobile accounts. Almost 70 percent of countries in sub-Saharan Africa relied on mobile accounts (Figure 5). In contrast, in Latin America and the Caribbean and ED-Asia, more than half of countries relied on bank account payments. In the Middle East, North Africa, Afghanistan, and Pakistan, 60 percent of countries relied on bank and mobile account money. Most countries that used digital methods to deliver COVID19 response payments had already implemented these to some extent before the pandemic. However, multiple countries—for example, Liberia, Angola, and Cameroon—leveraged mobile money accounts and digital SSN payments for the first time, thereby facilitating a long-term shift to a modern and comprehensive SSN framework.

Figure 5. Social Safety Net Payment Mechanisms during COVID-19
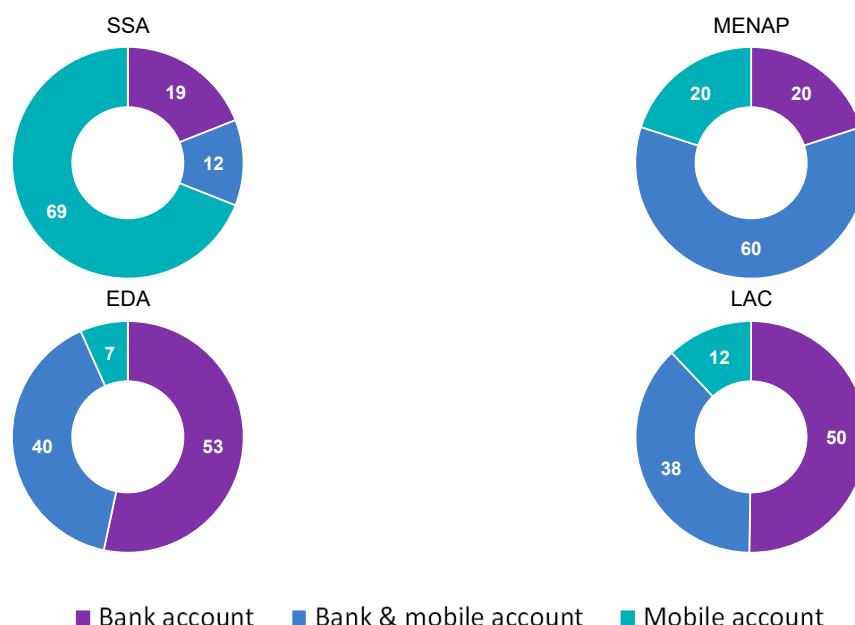
Sources: World Bank 2022c; and IMF staff calculations.
Note: EDA = emerging and developing Europe; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan; SSA = Sub-Saharan Africa.

Digitalization can help reach eligible households, but safeguards should be in place to avoid a digital divide and to ensure data quality, privacy, and security controls. Digital divides can lead to exclusion errors whereby eligible beneficiaries do not receive benefits. Although investments in digital infrastructures are key (for example, internet connectivity and mobile phone penetration), results may not be uniform both across and within countries. For these reasons, digital outreach campaigns are needed to increase coverage, including through complementary efforts to guarantee social inclusion (for example, community or in-person attendance) or additional measures to support digital literacy. Finally, digitalization creates new fraud opportunities. Therefore, governments should take the necessary steps to ensure privacy and security controls. Gains for digitalization are not automatic because outcomes are shaped by institutional and economic conditions and by the objectives underpinning reforms (Gelb, Mukherjee, and Navis 2020).

Countries need to invest in information systems and administrative and institutional capacity to strengthen SSNs. Many countries entered the pandemic with weak SSNs and were nonetheless able to scale up social spending, including using innovative ways to reach newly vulnerable households. These countries can build on these initiatives to increase coverage and strengthen their SSN systems. Such strengthening requires building a clear SSN strategy that sets out clear targeting criteria and plans for delivery mechanisms. Countries should therefore invest in strong information systems as part of the broader Govtech agenda and focus on domestic implementation capacity and institutional arrangements. Support from international partners could help in this regard.

Country Case Studies

The COVID-19 shock increased the adequacy needs of existing SSN beneficiaries and the number of newly vulnerable groups requiring government support. The unprecedented health crisis led to many small businesses and informal workers losing their income, which resulted in a decline in savings or increased personal debt. Governments had to react swiftly to the increase of vulnerable groups. Responses took the form of both vertical and horizontal expansions of SSNs.[4] In addition to the discussion of country experiences in section 1, following are case studies of six emerging and developing countries that, despite differences in initial capacity and digital infrastructures, made use of digitalization to strengthen SSNs in response to COVID-19.[5] As discussed in the previous section, achievements during the pandemic should be embedded in broader macrofiscal, public financial management, and other reforms to ensure sustainability and reduce digital divides.

Brazil

Low growth and rising unemployment and poverty in the years before the pandemic led to increased vulnerability across Brazilian society. Poverty and unemployment rose because of Brazil's economic crisis in 2015–16 and stabilized thereafter until the pandemic. Extreme poverty rose from 3.3 percent in 2014 to 5.4 percent in 2019. Meanwhile, unemployment rose from 6.8 percent in 2014 to 12.1 percent in 2019. Although Brazil already had in place a large social registry before COVID-19, many individuals in the registry were not SSN beneficiaries at the time of the outbreak. Many vulnerable households also lost their livelihoods during lockdown measures. The effects of the pandemic further increased vulnerabilities, with low-income workers experiencing the largest decline in earnings. The shock led to a 9.2 percentage point increase in extreme poverty and a 5 percentage point increase in labor income inequality (Al Masri, Flamini, and Toscani 2021).

The Brazilian response to COVID-19 benefited greatly from existing databases, whereas new measures were introduced to expand coverage. Brazil's response leveraged existing digital infrastructures and mobilized new technologies to increase coverage, notably through newly introduced demand-led application campaigns, and by providing free digital savings accounts to beneficiaries without a personal bank account. The identification process initially relied on the 17 administrative databases that form the National Social Information Registry (Cadastro Nacional de Informações Sociais, or CNIS), which includes all labor-related data, such as salaries, social security contributions, and social security benefits, as well tax identification numbers. Eligibility verification processes became more robust as the program advanced, with other administrative records gradually included, resulting in more than 40 major government databases used to verify eligibility (Brollo and others, forthcoming).

The government's emergency cash transfer, Auxilio Emergencial (AEG), focused first on existing SSN beneficiaries and expanded horizontally to new beneficiaries. AEG leveraged existing social registry information and used digital applications to identify new beneficiaries while relying on comprehensive administrative records to verify eligibility and select beneficiaries. First, beneficiaries from the Bolsa Familia Program (BFP)—Brazil's flagship SSN—were included by AEG when the benefit amount exceeded BFP benefits. Second, individuals in the CNIS who were not BFP beneficiaries were automatically considered applicants to AEG. Third, Caixa Econômica Federal, or CAIXA, a government-

---

[4] Horizontal expansion refers to temporary inclusion of new beneficiaries. Vertical expansion refers to a temporary increase in the benefit level or duration of benefits.

[5] The case studies follow a similar outline discussing (1) the problem analysis, (2) reform efforts, (3) their impact, and (4) the associated risks and challenges regarding the reform efforts. Case studies are presented in alphabetical order by country name.

owned commercial bank, created a website and an app for registration for those who were not included in the CNIS.

Innovations in digital banking and Govtech were key to Brazil's response. The main payment innovation was the introduction of a simplified and free all-digital savings account offered by CAIXA to AEG beneficiaries and operated through an app developed by the bank. To open the account, AEG beneficiaries only needed to input into the CAIXA app their tax identifier and the code they received after finalizing their AEG application. The digital social savings account allows AEG beneficiaries to make purchases (using a virtual debit card and through the CAIXA app) from merchants with a QR code–enabled point-of-sale system. The account also allowed beneficiaries to make payments through Pix, the fast payment system launched by the Central Bank of Brazil in November 2020. Pix allows instant payments among persons, businesses, and government, thus P2P, P2B, B2B, P2G, and B2G. Pix helped mitigate some limitations of the virtual debit card for face-to-face purchases by allowing users of digital social savings accounts to make payments even when their virtual card was not compatible with the machines that retailers use (de Arruda and others 2021; Brollo and others, forthcoming).

Demand-led registration campaigns supported the identification and verification of new beneficiaries, whereas new apps contributed to greater information and transparency. By leveraging information from existing databases and leading a demand-led campaign, the AEG response was able to improve identification and verification of beneficiaries. The mobile CAIXA app and website allowed citizens to apply, check the status of the application, and provide additional information upon request. Online applications required basic information without having to submit supporting documentation. To promote greater inclusion, the government offered assisted registration at post offices for in-app applications.

Digital tools contributed to the expansion of AEG, which reached about 56 percent of the population. Considering both direct and indirect beneficiaries, the program reduced poverty and inequality to prepandemic levels.[6] Of about 68.2 million AEG beneficiaries during the first implementation cycle, 19.5 million were BFP beneficiaries, 10.5 million were already included in the social registry but did not receive BFP, and 38.2 million were online applicants who were not included in the CNIS. Moreover, digital responses helped foster financial inclusion by providing social savings accounts to the roughly 40 percent of AEG beneficiaries without access to a bank account before the pandemic.

New digital infrastructures were developed to complement existing systems to expand coverage. Identification, coverage, and payment mechanisms were improved after AEG, as the response leveraged the robust information systems that were in place before the pandemic while also introducing several improvements and innovations to coverage and delivery. The response relied on a comprehensive database of administrative records, increased interoperability across government databases, and permitted the collection of new information for more than 38 million individuals who were not included in the CNIS.

Emergency responses face challenges in reaching marginalized groups; however, in-person services can support eligibility verification beyond emergency responses. The horizontal expansion of AEG relied on individual applicants owning an individual taxpayer number, the Cadastro de Pessoas Físicas (CPF). Although CPF coverage in Brazil is high, rural and marginalized groups were less likely to have one at the onset of the pandemic. Meanwhile, digital registration raised some barriers for the 21 percent of the Brazilian population without internet access, which resulted in digital exclusion among

---

[6] According to Falcão Silva (2022), the response reduced poverty by 15 percent and extreme poverty by 25 percent.

poorer groups (de Arruda and others 2021). After initial emergency responses, policies were introduced combining digital strategies with in-person service channels for registration and verification of self-declared information and checking eligibility criteria. In-person services also help expand, update, and audit information collected through online applications (Brollo and others, forthcoming).

Despite the impressive scale of the response, the introduction of AEG raised several challenges. Eligibility criteria were considerably loosened during COVID-19 under AEG, reaching middle income families and triggering some discussion on the generosity and overall cost of the program (more than 4 percent of GDP). After the introduction of AEG, the government switched from an individual to a household-level concept, which led to a considerable increase in single-person households and thus in the total number of households. However, the new government has since launched data verification processes to address fraudulent declarations. This highlights the potentially important role of ex-post audits as potential safeguards to the implementation of SSNs.

Democratic Republic of Congo

The Democratic Republic of Congo's (DRC) emergency cash transfer (ECT) in response to lockdown measures shows that digital tools support SSN in countries with limited existing systems. The DRC is characterized by low economic and human development, limited SSN delivery systems, and stringent budget constraints (Bermeo and Bance 2022). Despite the difficult context and lack of preexisting infrastructures, the country introduced an all-digital approach for the Solidarité par Transferts Economiques contre la Pauvreté à Kinshasa (STEP-KIN). STEP-KIN is a mobile ECT designed to support urban households affected by lockdown measures. Capacity was developed through public–private partnerships and research and development with external partners, including GiveDirectly and Ideas42 (Bermeo and Bance 2022).

The STEP-KIN program relied largely on mobile phone ownership and information concerning households. Limited digital infrastructure was available in DRC, including no flagship SSN program, a lack of management information systems to identify and verify individuals, and a weak financial ecosystem to make payments (Bance and others 2021). The response relied heavily on mobile phone ownership in urban areas and, more specifically, on information from phone companies about mobile phone ownership across geographical areas.

Identification (eligibility) was determined from geographical targeting and information on mobile phone ownership. Geographical targeting focused first on poor neighborhoods based on available data, such as satellite imagery and flood-prone cartography. All people living in selected areas were deemed eligible. Next, nondisclosure agreements were signed with telecom operators to obtain an anonymized list of mobile phone subscribers living in the targeted areas from cell tower mapping. This whitelist of phone numbers substituted a registry of potential beneficiaries. The whitelist excluded users with smartphones and used mobile phone data as a proxy for poverty status.

Self-registration of beneficiaries was part of a demand-led campaign. An automated system for data collection and self-registration allowed mobile phone users to apply to the program. Once all subscribers from the whitelist had consented to participate and shared their data, the beneficiary registry was prepared. STEP-KIN cross-verified a list of mobile phone users from poor areas (geotargeting) provided by telecom companies with self-registered phone numbers that were part of the whitelist. Successful partnerships with telecom operators proved to be crucial in implementation.

Mobile payments were made quickly to eligible beneficiaries as part of the "all-digital" response. A request was sent to telecom operators to open a mobile money account for all beneficiaries. This was

straightforward because program beneficiaries were already phone subscribers.[7] The operators were instructed to initiate the social transfers to the beneficiaries through digital payments. The response ensured that all beneficiaries could cash out the transfers, in this case, a large network of cash-out points in targeted neighborhoods and dedicated customer services.

Complementary measures supported increased coverage and inclusion in DRC. First, during the self-registration phase, bulk text or audio messages were sent to all whitelisted numbers to promote self-registration, and a radio campaign complemented this outreach for trust building. Second, a grievance mechanism was put in place, in this case, a 24/7 hotline. Third, postdistribution monitoring surveys were implemented to collect information on the use of the transfers, confirm targeting effectiveness ex post, identify compliance issues early, and strengthen accountability (Bance and others 2021). Last, the Central Bank implemented special accounts to deliver payments through either bank deposits or electric money for eligible beneficiaries without access to mobile phones (Gentilini and others 2021).

The digital tools used for STEP-KIN made possible the successful identification, verification, and disbursement of humanitarian ECTs. In three months, STEP-KIN identified, registered, and disbursed transfers to more than 100,000 individuals in 50 poor neighborhoods. The program has since expanded to 250,000 direct recipients, or approximately 1.3 million indirect beneficiaries in 114 poor neighborhoods (Bermeo and Bance 2022). The program was largely cost effective thanks to mobile transfers, with 94 percent of total expenditure allocated to transfers. STEP-KIN payments were used primarily on meeting food needs, health services, and education spending, reinvesting in livelihoods, and rent payments. Positive externalities included greater financial inclusion among the poor, development and greater involvement of the private sector, economic multiplier effects, and the creation of a beneficiary registry.

A key challenge for DRC is to move from an emergency cash transfer to a flagship program. Given the homogeneous population and covariant shock after COVID-19, the response worked well in the present context because inclusion errors matter less than exclusion errors. For a noncrisis system, targeting and identification systems could be further developed. Institutional capacity and government ownership are needed to expand the coverage from emergency responses to flagship programs that cover a greater share of poor and vulnerable households.

India

The Indian government introduced the Direct Benefit Transfer (DBT) strategy to modernize and increase the efficiency of its network of SSNs. India's main SSN programs are characterized by near universal rights–based programs, including numerous social programs, in-kind subsidies, and price subsidies. DBT's objective is to consolidate the delivery of existing SSN schemes based on three pillars that constitute the JAM trinity.[8] First, the Jan Dhan aims for universal access to banking facilities and the promotion of financial inclusion by providing accounts for the direct payment of government benefits. Under the Jan Dhan, 470 million bank accounts were opened in both urban and rural areas.[9] Second, beneficiary identification is conducted through the biometric program Aadhaar.[10] Third, low-cost mobile

---

[7] Depending on the country's financial regulation, this step may require a simplified know-your-customer framework.

[8] The acronym JAM stands for Jan-Dhan financial accounts, the Aadhaar ID system, and mobile communications (Gelb, Mukherjee, and Navis 2020).
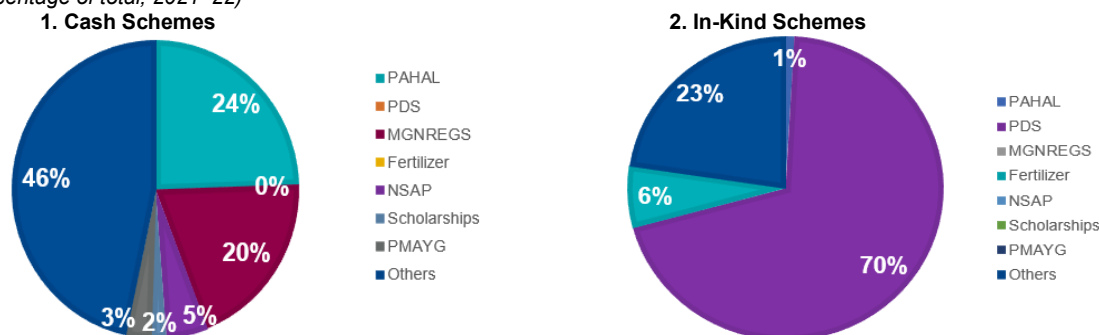
[9] Information from Indian authorities.

[10] The Aadhaar is India's biometric identification system and provides each citizen with a 12-digit unique identification number with demographic and biometric information (fingerprint and iris scan). A total of 1.37 billion Aadhaar numbers have been issued from an estimated population of 1.42 billion in India.

communication is provided to more than 1.17 billion phones in India, serving effectively as an information exchange platform that is especially important for people living in rural areas.

Figure 6. Breakdown of Direct Benefit Transfer Beneficiaries by Program
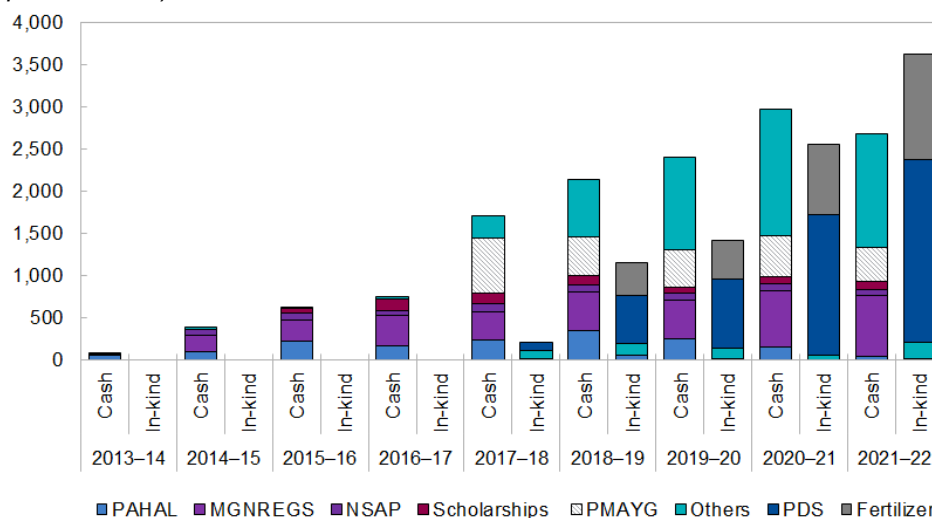*(Percentage of total, 2021–22)*

1. Cash Schemes

PAHAL 24%, PDS 0%, MGNREGS 20%, NSAP 5%, Scholarships 2%, PMAYG 3%, Others 46%

Legend: PAHAL, PDS, MGNREGS, Fertilizer, NSAP, Scholarships, PMAYG, Others

2. In-Kind Schemes

PAHAL 1%, PDS 70%, MGNREGS 23%, Fertilizer 6%

Legend: PAHAL, PDS, MGNREGS, Fertilizer, NSAP, Scholarships, PMAYG, Others

Sources: Direct Benefit Transfer, Government of India website (https://dbtbharat.gov.in/); and IMF staff calculations.
Note: MGNREGS = Mahatma Gandhi National Rural Employment Guarantee Scheme; NSAP = National Social Assistance Programme; PAHAL = Pratyaksh Hanstantrit Labh; PDS = Public Distribution Scheme; PMAYG = Pradhan Mantri Gramin Awas Yojana.

Figure 7. Direct Benefit Transfer Payments by Program
(Indian rupees, billions)

Legend: PAHAL, MGNREGS, NSAP, Scholarships, PMAYG, Others, PDS, Fertilizer

Sources: Direct Benefit Transfer, Government of India website (https://dbtbharat.gov.in/); and IMF staff calculations.
Note: MGNREGS = Mahatma Gandhi National Rural Employment Guarantee Scheme; NSAP = National Social Assistance Program; PAHAL = Pratyaksh Hanstantrit Labh; PDS = Public Distribution Scheme; PMAYG = Pradhan Mantri Gramin Awas Yojana.

The coverage of the DBT increased significantly and covered 310 schemes under 53 ministries.
The Pratyaksh Hanstantrit Labh (PAHAL), a liquefied petroleum gas fuel subsidy scheme, and (Mahatma Gandhi National Rural Employment Guarantee Scheme) MGNREGS, a large-scale rural and demand-based public works program, have the largest number of beneficiaries among the cash schemes (Figure 6, panel 1).[11] Recipients of the Public Distribution Scheme (PDS)—India's food subsidy system—make up 70 percent of all in-kind program beneficiaries (Figure 6, panel 2) and increased to 750 million

---

[11] The PAHAL program is also known as Pratyaksha Hastaantarit Laabh. MGNREGS is the acronym for the Mahatma Gandhi National Rural Employment Guarantee Scheme. Expenditure on MGNREGS spiked during the pandemic years.

beneficiaries in 2021–22.[12] The benefit amounts for the PAHAL varies with the international oil price. In 2021–22, the largest payments were delivered to MGNREGS and Pradhan Mantri Gramin Awas Yojana (PMAYG), the latter being a program that provides housing support to poor individuals (Figure 7).

The DBT helps reduce leakages, curbs fraud, and provides a tool to effectively reach households. The DBT helps reduce leakages in two ways. First, for many programs, such as the PAHAL, Aadhaar identification numbers are linked to program beneficiaries to prevent duplication and to remove nonexisting ("ghost") beneficiaries (Gelb, Mukherjee, and Navis 2020). Second, leakages were reduced by eliminating middlemen. Instead of providing in-kind goods at below-market prices, the government directly transferred the subsidy value to the Aadhaar-seeded bank accounts, thus avoiding dual pricing mechanisms. As proved during the pandemic, the DBT also has the potential to increase coverage swiftly because only the Aadhaar identification number and Aadhaar seeded bank accounts were needed to provide benefits.

The DBT has led to significant fiscal savings, but it is difficult to disentangle the effect of DBT from other developments. For instance, at the time of the introduction of the JAM trinity and adoption of the DBT to various schemes, broader macroeconomic developments and other concurring policy developments were equally key. The government estimated that about 1.1 percent of GDP was saved until March 2021 due to the DBT and other governance reforms (Table 1). Most of the savings were attributed to the elimination of duplicate and ineligible beneficiaries. The termination of the dual pricing mechanism for the PAHAL eliminated governance issues around the supply chain and led to fiscal savings.

Table 1. Estimated Savings from Direct Benefit Transfer and Related Reforms
(Cumulative up to March 2021)

Ministry or Department	Scheme	Savings (Indian Rupees) billions)	Savings (Percentage of GDP)
Department of Fertilizers	**Fertilizer**	100	0.05
Department of Rural Development	**MGNREGS**	335	0.17
Department of Rural Development	**NSAP**	5	0.00
Ministry of Women and Child Development	**Others**	15	0.01
Ministry of Petroleum and Natural Gas	**PAHAL**	729	0.37
Department of Food and Public Distribution	**PDS**	1,016	0.52
Ministry of Minority Affairs	**Scholarships**	14	0.01
Department of Social Justice and Empowerment	**Scholarships**	3	0.00
Various	**Others**	12	0.01
Total	**–**	**2,230**	**1.14**

Sources: Government of India Direct Benefit Transfer website; and IMF staff calculations.

---

[12] In terms of total expenditures on in-kind schemes, 60 percent was allocated to the PDS, and about 35 percent was allocated to fertilizer subsidies.

Using the DBT platform, the government reached an impressive share of poor households to provide support during the pandemic. The government provided support under the Pradhan Mantri Garib Kalyan Yojana (PMGKY) program. This program was not a new scheme but rather a combination of preexisting cash and food programs that have large outreach and strong delivery mechanisms. In the initial phase of three months, PMGKY delivered cash transfers to 320 million beneficiary bank accounts.[13] Additional food rations were provided to 236 million households enrolled in the PDS database, covering nearly 72 percent of all households. Liquefied petroleum gas subsidies were provided directly through bank accounts to 80 million households. In the first months of the pandemic, about 87 percent of poor households received at least one benefit under the PMGKY (Bhattacharya and Sinha Roy 2021). Overall, 80 percent of all households received at least one benefit under the PMGKY scheme (Table 2). About 74 percent of households received food allocations. About 40 percent of all households received food transfers only, 34 percent received food and cash transfers together, and 6 percent received only cash transfers. Targeting of the poor was better compared to nonpoor (87 percent versus 76 percent receiving at least one benefit, respectively). Targeting was more accurate toward rural households (85 percent versus 70 percent receiving at least one benefit, respectively).

Table 2. Coverage of Households under the PMGKY Scheme
(Share of all households)

	All	Rural	Urban	Poor	Nonpoor
Food only	40	38	43	42	39
Cash only	6	7	4	6	6
Food and cash	34	40	22	40	32
At least one benefit (food or cash)	80	85	69	87	76

Source: Bhattacharya and Sinha Roy 2021.

Tremendous benefits were achieved under the DBT, and future efforts should focus on making SSNs more resilient and adaptable. Despite considerable achievements in reducing poverty rates, many Indians remain vulnerable to climate, economic, and health-related shocks that require investments in SSNs that are adaptable to different situations and needs (Bhattacharya and Sinha Roy 2021).[14] First, the DBT currently does not contain socioeconomic data and is therefore not able to target households. However, Aadhaar identifiers could enable easier socioeconomic data exchange across various schemes. Second, significant room still exists to identify newly vulnerable groups, as studies show that the pandemic response excluded about half of all women (Pande and others 2020). Third, most of India's social programs are targeted toward permanent rural poverty and the agricultural sector, with fewer schemes aimed at urban households. Finally, there is significant room to streamline social schemes and redesign some of them with the aim to increase flexibility and include migrants, informal workers, and the urban poor.

---

[13] Cash was scaled up through the MGNREGS, National Social Assistance Program, , Pradhan Mantri Jan Dhan Yojana, Pradhan Mantri Kisan Samman Nidhi, and support to construction workers through the Building and Construction Workers Welfare Fund. Food rations were provided through the PDS.

[14] Many schemes are based on Socio Economic and Caste Census data, including Pradhan Mantri–Jan Argoya Yojana, and Pradhan Mantri Awas Yojana/Gramin.

It is key to address the system's limits to prevent the exclusion of genuine beneficiaries. Exclusion errors can occur in several ways. First, initial experiences with Aadhaar showed that exclusion errors occurred because of fingerprint recognition problems and limited internet connectivity. It is therefore key to establish appropriate digital networks, such as power, internet and mobile connectivity, and alternative methods of verification (such as passwords) when biometric verification is not possible. In the event of failure of biometric authentication, alternative methods of verification exist in terms of one-time-password-based authentication or QR code scanning offline verification. Second, exclusion errors could also arise when households do not have sufficient access to digital tools or have insufficient digital adaptation. Therefore, it is key to invest in households' digital access, literacy, and skills in using digital tools. Active monitoring of beneficiary experiences is also key to ensuring that poor and vulnerable groups are not excluded by digital divides (Gelb, Mukherjee, and Navis 2020).

Pakistan

Although Pakistan already had a social protection system in place before the pandemic, the country expanded coverage to new vulnerable groups. As part of the policy response to COVID-19, digitalization contributed to the expansion of cash transfers to both existing SSN recipients (vertical expansion) and new beneficiaries (horizontal expansion; Nishtar 2021). Before COVID-19, poverty reduction programs focused on population in the poorest quintile. However, in a context where informal arrangements make up more than 80 percent of total employment, many vulnerable people lost their livelihoods after lockdown measures and reduced economic activities. The expansion to new vulnerable beneficiaries under the Ehsaas Emergency Cash (EEC) program was intended primarily to support temporarily poor and vulnerable households.

Pakistan benefited from advanced digital infrastructures and large mobile coverage among the population. Pakistan's social registry, the National Socio-Economic Registry (NSER), was set up in 2011, although it had not been updated since the time of the EEC rollout (Nishtar 2021). Mobile registration campaigns benefited from widespread mobile phone ownership and the Computerized National Identity Card (CNIC), a national biometric ID in place since 2000 issued by the National Database and Registration Authority (NADRA). Before the pandemic, digitalization measures—including a biometric payment system, a demand-led SMS campaign for potential beneficiaries, and a wealth-profiling big data analytics mechanism—were rolled out to develop an umbrella social protection system to streamline 140 different social protection programs and services across the country.

The EEC leveraged the digital infrastructure already in place and followed a hybrid targeting approach to identify beneficiaries. After the "known poor" in the NSER were covered in a first round, the government advanced a demand-led promotional campaign inviting all individuals nationwide requesting emergency relief to send a text message to a short code service. Poverty scores using proxy-means testing (PMT) techniques and CNIC numbers were used to determine eligibility status in a second round and drew from NADRA's database, which brings together information from different administrative sources.[15]

New forms of digitalization were adopted to improve targeting, identification, verification, and payment delivery. Demand-led identification and verification were conducted using mobile phones and CNIC numbers to cross-check information from the NSER, property registries, travel logs, tax returns, and other information accessible through the NADRA to determine eligibility (Malik and Gelb 2020). Payments

---

[15] Wealth criteria used for PMT eligibility included international travel, car ownership, income thresholds, telephone bill data, possessing expensive IDs, land ownership, and government employment (Hammad and others 2021).

were biometrically verified, and citizens could check their eligibility status through a web portal (Nishtar 2021).

The government introduced various complementary measures to support greater coverage and inclusion. Some of these measures included (1) free text messaging, (2) allowing people with an expired CNIC to apply, (3) extending payment deadlines for those having issues with biometric verification, (4) increased availability of more than 17,000 pay points (retail shops, biometric ATMs, and designated bank branches; Malik and Gelb 2020), and (5) replacing ID verification with previously provided information from SIM card registration to enable mobile money account opening (Hammad and others 2021).

Digital technologies were key to the SSN expansion during the pandemic. The reforms were key to the implementation of the EEC program, the government's main SSN response to COVID-19. The program reached 110 million direct and indirect beneficiaries, roughly half of the population. In total, $1.2 billion was disbursed (Nishtar 2021). Digital technologies introduced both before and after the COVID-19 response have improved the shock responsiveness of the system and reach both existing beneficiaries and new beneficiaries. The EEC accelerated the adoption of digital initiatives that enabled new ways of coordinating across multiple stakeholders and deploying a whole-of-government approach.

Complementary policies to promote gender inclusion and digital payments can strengthen emergency responses and make the social protection system more resilient. Access to mobile phones tended to be limited for women because many phones are registered in the name of male household members. Evidence shows that women were less likely to receive government support than men (25 percent versus 63 percent), which indicates significant difficulties faced by women who apply independently for emergency grants (UN Women 2020). Although digital technologies were important in identifying and verifying eligible beneficiaries, EEC recipients mainly accessed payments through physical cash. Digital payments could be explored in the future, especially given the existing digital infrastructures in place (Malik and Gelb 2020).

Togo

Before the pandemic, SSN coverage in Togo was low and largely financed by international development institutions. Nationally administered social protection schemes in Togo are small and generally consist of contributory schemes (social insurance) for public administration officials and formally hired private sector workers (approximately 8 percent of the population). Meanwhile, cash transfer programs tend to be small, fragmented, and financed by international development institutions. Many households were therefore uncovered by SSNs during the COVID-19 outbreak, which led to large losses in livelihoods given widespread informality.

Togo introduced an effective mobile ECT targeted at informal workers despite limited preexisting SSNs. The Novissi cash transfer quickly expanded the coverage of SSNs using mobile payments to informal workers—mostly women—who were most affected by lockdowns restrictions. The ECT mobilized existing government IDs and introduced two new digital platforms: a phone-based platform to allow for open registration and a mobile money platform to encourage beneficiaries to conduct electronic transactions and avoid cashing out the benefits. Digital platforms enabled payment traceability and real-time analytics to improve the monitoring and evaluation of the program. Although previous cash transfer experiences tended to be small, lessons learned from these initiatives and partnerships with international donors supported the effective rollout of Novissi.

Before COVID-19, Togo had little digital infrastructure, and no SSN registries existed. When the last census was conducted in 2011, a biometrically deduplicated voter ID was developed and available to the

government before COVID-19. The database included information on occupational status, which was eventually used for the targeting criteria (Palacios 2020). Despite limited digital infrastructures, mobile subscriptions had risen substantially in the years before COVID-19, from 2.6 million in 2010 to 6.1 million in 2018. This was key for registration and mobile payments (Kazeem 2020). Approximately 90 percent of households had access to at least one mobile phone (Blumenstock 2021).

Novissi used available socioeconomic data, rolled out a new platform for citizens to apply, and mobilized different stakeholders to support the response. Novissi was implemented through cooperation between the Government of Togo; a research team at University of California, Berkeley; and GiveDirectly. In total, CFAF 13.3 billion (US$ 23 million) was disbursed as part of the program (almost 0.3 percent of GDP), which covered nearly 820,000 beneficiaries, or 9.5 percent of the population. The research team from University of California, Berkeley, used high-resolution satellite imagery and nationally representative household consumption to select the poorest villages and neighborhoods. The poorest individuals within those villages and neighborhoods were then prioritized through machine learning algorithms using mobile phone metadata and phone surveys.[16] The response next cross-referenced data from SMS applicants with information from a recently collected voter ID database, which included data such as individuals' occupation and place of residence, criteria that were used to determine eligibility. The program used an unstructured supplementary service data (USSD) platform for on-demand registration that was developed in less than 10 days. Using their mobile phones, beneficiaries entered their basic information into the USSD menu and were then immediately sent mobile money upon approval (Blumenstock 2021). Overall, digital tools were key to establishing and managing emergency cash transfers for informal workers.

Several complementary measures were introduced to support greater coverage and inclusion. Collaboration between government social protection and IT agencies was key to the Togolese response (Hammad and others 2021). Helplines and telephone registration were introduced to complement digital registration, and a new website was created with information on eligibility, benefit amounts, and registration procedures (Novissi 2023). Local actors or social workers were mobilized for in-person registration (Blumenstock 2021; Hammad and others 2021). To make the program more inclusive, systems included screen-reader compatible features and included sign language options.

Novissi provides an example of an "all-digital" ECT in a low-income country that was implemented swiftly. The response was rolled out in three phases: in the first phase, the program directly benefitted 567,000 individuals from the Great Lomé and Tchaoudjo areas (roughly 12 percent of Togo's population), while the second and third phases respectively targeted the poorer Soudou and Savanes regions (Novissi 2023).[17] Coverage expanded very quickly thanks to improved beneficiary identification and cross-verification. The overall response was swift, as only five days separated the announcement of the program and the first mobile transfer disbursements (Hammad and others 2021). Although Novissi was originally developed in response to COVID-19, it has postcrisis implications for the country's social protection system as it continues to be expanded in a noncrisis setting (Raftree and Kondakhchyan 2021).

Moving forward, key challenges will be to build a permanent safety net system from the emergency response and to improve access among excluded populations. Novissi exemplifies how

---

[16] The machine learning method resulted in better targeting than a counterfactual scenario that targeted mobile phone subscribers with the lowest mobile phone expenditures over the preceding months. However, exclusion errors were larger compared to a hypothetical beneficiary registry. Aiken and others (2022) provide a detailed summary of methodology and findings.

[17] The second and third phases reached 5,850 and 244,302 beneficiaries, respectively.

a large-scale ECT can be introduced rapidly while taking advantage of limited—yet available—government data. However, the program remains an initial response because more digital tools and infrastructures are needed to develop more dynamic and better targeted SSNs (Kazeem 2020). Policymakers will need to explore alternatives to Togo's voter database and to find ways to ensure that those without IDs are eligible to guarantee inclusivity. Moreover, despite widespread mobile phone coverage, households without access to SIM cards were not eligible to receive Novissi. Because households without mobile phones are more likely to be poor, low-cost mobile phones with pay-as-you-go subsidies are being explored as a potential solution to overcome exclusion (Blumenstock 2021).

Türkiye

SSN coverage in Türkiye is lower than the averages for both emerging market economies and countries in emerging and developing Europe. However, extreme poverty remains below the average in EMEs and, to a lesser extent, below the average of ED-Europe. Although the Turkish SSN system focused on the poorest 2.1 million households before the pandemic, a horizontal expansion was introduced to cover newly vulnerable groups that were previously uncovered by social programs.

Investments in digital infrastructure for social policy from previous decades were key to Türkiye's COVID-19 response. Türkiye harnessed its existing 28 government databases to temporarily increase the number of eligible recipients covered from 4 million existing beneficiaries to 12 million households. No additional data had to be collected because the government expanded its existing integrated social registry, the Integrated Social Assistance System (ISAS), which covered at least 50 social protection programs (Palacios 2020).

An electronic integrated system was developed that consolidated beneficiary information across social programs along with payment delivery. In 2010, the government began developing the ISAS with the aim of integrating (1) the social registry (supporting intake, registration, and assessment of needs and conditions), (2) beneficiary registries for numerous social programs, and (3) an integrated system for payments and beneficiary monitoring (World Bank 2022d). Through ISAS, the government standardized, integrated, and converted its previously paper-based SSN procedures to an electronic system (Ministry of Family and Social Policy 2015). ISAS applicants only needed to visit a local office to register, as more than 10 million ISAS applications were processed annually before the onset of COVID-19.

Türkiye mobilized the ISAS and existing capacities to inform its SSN response. The 28 government databases—including land, auto, income tax, and social insurance registries—were cross-checked and used to determine eligibility for COVID-19 ECTs (Palacios 2020). Key system and information databases beyond the ISAS include (1) the unique ID system; (2) the national address system, which links the ID number to the home address; (3) Social Assistance and Solidarity Foundations (SASFs), which provide localized decision-making and are responsible for intake and registration, grievances, and both needs and eligibility assessments; and (4) the Treasury Single Account (TSA), which facilitates electronic fund transfers from the Central Bank to the banking system, and in turn to recipients (World Bank 2022d).[18]

The Government's Economic Stabilization Support Program included several measures— including ECTs—to counter the negative impacts from lockdowns. Initially, one-time payments worth approximately $150 were made to approximately 4 million existing SSN beneficiaries over two phases. Subsequently, ECTs were expanded horizontally to cover households adversely affected by the COVID-19 outbreak. For the horizontal expansion, applicants were required to provide their information through

---

[18] Before the pandemic, the PTT Bank network was widely used to make SSN payments at a low cost. The network already had widespread coverage throughout the country thanks to ATMs and PTT Bank branches (World Bank 2022d).

the e-Government portal. Applicants were then informed about their application result by text message. Public sector employees, formally registered or retired workers, and beneficiaries of certain social insurance schemes were automatically excluded from the list of eligible beneficiaries. Payments were made through relevant delivery channels, including Postal and Telegraph Corporation (PTT) Bank prepaid cards, bank accounts, and home delivery. To reduce in-person interactions, digital payments were promoted, and recipients increasingly shopped online or made bill payments digitally (World Bank 2022d).

Preexisting digital infrastructures were crucial in identifying and verifying beneficiaries, and existing delivery mechanisms helped the disbursement of ECTs. Digital resources—such as ISAS, the national ID system, and SASFs—helped rapidly identify and verify eligible beneficiaries, with the centralized and interoperable information processing of ISAS as key for determining eligibility and reducing leakages, including across programs, to identify those in most need of assistance (World Bank 2022d). Payment delivery relied on systems already in place, such as the TSA and PTT Bank. To promote inclusion, SASFs helped by building transparency and local (community-level) buy-in. Meanwhile, almost 50,000 households benefited from at-home payment delivery services (World Bank 2022b).

Management information systems (MISs) that are integrated require strong governance and investments in capacity. Beyond digital infrastructures, ISAS's success has depended on high-level decision-making and political will, information security, continuity in staff, and security of information (Ministry of Family and Social Policy 2015). Although the Turkish government has taken steps to address these issues, each one of these aspects remains critical for the functioning of digital systems. Moreover, for further efficiencies using digital infrastructures, the national payment system could be used to route funds directly from the TSA into recipient accounts instead of relying on separate accounts for each program (World Bank 2022d).

Gender gaps in financial access remain a challenge to inclusive social policies. As of 2017, Türkiye has a significant gender gap in financial inclusion, with only 54 percent of women reporting having a financial account compared with 83 percent for men. To increase digital access, financial inclusion should prioritize women as well as rural and other marginalized groups that are more likely to be affected by digital divides.

Taking Stock of Country Experiences

Despite similar challenges posed by lockdown measures and economic vulnerabilities, experiences from the case studies vary significantly in scale and scope. Table 3 provides a summary of the SSN experiences across the selected case countries. In countries with existing SSNs and MISs, both horizontal and vertical expansions were introduced to support new and existing beneficiaries in the context of COVID-19. In contrast, countries without an existing flagship SSN—such as Togo and the DRC—introduced new schemes for beneficiaries. The number of new beneficiaries covered ranged from 250,000 direct beneficiaries in DRC (0.3 percent of the population) to almost 50 million new beneficiaries in Brazil (23.2 percent).

Table 3. Social Safety Net Responses to COVID-19 across Selected Case Studies

Country	Intervention	Type of Expansion	Targeted Population	Existing Beneficiaries	New Beneficiaries
Brazil	Auxilio Emergencial/Bolsa Familia	Horizontal and vertical	Chronic and temporary poor outside the formal economy	19.5 million direct	49.7 million
Democratic Republic of the Congo	Social Transfers in Kinshasa (STEP-KIN)	Horizontal	Urban poor determined by geographical and mobile phone data	None	250,000 direct
India	Direct Benefit Transfer (DBT)	Horizontal and vertical	Chronic and temporary poor, with schemes targeted to women	38 million direct in FY19/20	17 million direct in FY20/21
Pakistan	Ehsaas Emergency Cash (EEC) Program	Horizontal and vertical	Chronic and temporary poor based on PMT and social registry data	4.5 million households	7.5 million households
Togo	Novissi cash transfer	Horizontal	Informal workers determined by occupation and place of residence	None	567,000 direct
Türkiye	Emergency cash transfers (ECTs)	Horizontal and vertical	Chronic and temporary informal poor based on social registry data	4 million direct	8 million direct

Sources: IMF staff based on information compiled from the case studies.

Countries with existing digital infrastructures and MISs were able to increase coverage at a larger scale than countries without strong digital infrastructures and MISs already in place. Countries with existing social registries, integrated government databases, and stronger MISs were able to expand SSNs more rapidly, cover more people, and broadly support shock-responsive SSNs (Table 4). The mobilization of existing programs and social registries was important in reaching vulnerable persons through both vertical and horizontal expansions. For all countries, national IDs and other public registries—such as tax databases, property registries, and mobile data—were used to identify beneficiaries and determine eligibility. Countries that introduced active monitoring of beneficiary experiences and introduced complementary measures to support and reach poor, vulnerable, and marginalized groups, such as at the local government level, were better equipped to limit the exclusionary impacts of digital divides.

Emergency digital responses were possible even for countries with limited existing digital infrastructures and MISs. Despite limited SSNs and MISs, emergency responses can be leveraged relatively quickly, as exemplified in the cases of the DRC and Togo (Table 4). In countries with limited government capacity, mobile phone penetration was key for implementing both demand-led application and registration campaigns and mobile money transfers. However, the adoption of digital tools for horizontal expansions was a key part of emergency responses in countries with preexisting social registries, as seen in in Brazil and Pakistan. This shows that although strong MISs can greatly support emergency SSNs, new digital technological adoption can equally strengthen expansions to vulnerable people in countries with greater capacity.

Table 4. Characteristics of Digital Social Safety Net Responses to COVID-19

Country	Social Registry	Digital Registry and Enrollment	Screening Using National ID	Payment Mechanism
Brazil	Yes	Yes	Yes	New bank accounts and existing channels
Democratic Republic of the Congo	No	Yes	No	Mobile money
India	No	No	Yes	Bank accounts (almost all)
Pakistan	Yes	Yes	Yes	Multipurpose (cash mainly)
Togo	No	Yes	Yes (voter ID)	Mobile money
Türkiye	Yes	Yes	Yes	Multiple

Source: IMF staff based on information compiled from the case studies.

References

Aiken, Emily, Suzanne Bellue, Dean Karlan, Chris Udry, and Joshua E. Blumenstock. 2022. "Machine Learning and Phone Data Can Improve Targeting of Humanitarian Aid." *Nature* 603, 864–70. https://doi.org/10.1038/s41586-022-04484-9.

Al Masri, Diala, Valentina Flamini, and Frederik Toscani. 2021. "The Short-Term Impact of COVID-19 on Labor Markets, Poverty and Inequality in Brazil." IMF Working Paper 21/066, International Monetary Fund, Washington, DC. https://www.imf.org/en/Publications/WP/Issues/2021/03/05/The-Short-Term-Impact-of-COVID-19-on-Labor-Markets-Poverty-and-Inequality-in-Brazil-50124.

de Arruda, Pedro Lara, Marina Lazarotto de Andrade, Tiago Falcão, Diana Teixeira Barbosa, and Matteo Morgandi. 2021. "Auxílio Emergencial: Lessons from the Brazilian Experience Responding to COVID-19." World Bank Latin American and Caribbean Studies. Summary Note, World Bank, Washington, DC. https://documents1.worldbank.org/curated/en/099255012142121495/pdf/P1748361b302ee5718913146b11956610692e4faf5bc.pdf.

Bance, Paul, Laura Bermeo, and François Kabemba. 2021. "Cash and the City: Digital COVID-19 Social Response in Kinshasa." Brookings Future Development Blog, September 8. https://www.brookings.edu/blog/future-development/2021/09/08/cash-and-the-city-digital-covid-19-social-response-in-kinshasa/.

Bermeo, Laura, and Paul Bance. 2022. "Emergency Social Safety Nets: 'Digital-First' in Kinshasa." IMF Fiscal Affairs Department GovTech Seminar Presentation, September 27, Washington, DC: World Bank.

Bhattacharya, Shrayana, and Sutirtha Sinha Roy. 2021. "Intent to Implementation: Tracking India's Social Protection Response to COVID-19." Social Protection and Jobs Discussion Paper, 2107, Washington, DC: World Bank. http://hdl.handle.net/10986/35746.

Blumenstock, Joshua. 2021. "Using Mobile Phone and Satellite Data to Target Emergency Cash Transfers." *Medium,* January 11. https://medium.com/center-for-effective-global-action/using-mobile-phone-and-satellite-data-to-target-emergency-cash-transfers-f0651b2c1f3f.

Brollo, Fernanda, Gabriel Lara Ibarra, and Ricardo Campante Vale. Forthcoming. "Strengthening Income Stabilization through Social Protection in Emerging and Developing Economies: The Case of Brazil." IMF Working Paper, International Monetary Fund, Washington, DC.

Davidovic, Sonja, Soheib Nunhuck, Delphine Prady and Herve Tourpe, 2020. "Beyond the COVID-19 Crisis: A Framework for Sustainable Government-To-Person Mobile Money Transfers." IMF Working Paper 20/198, International Monetary Fund, Washington, DC. https://www.imf.org/en/Publications/WP/Issues/2020/09/25/Beyond-the-COVID-19-Crisis-A-Framework-for-Sustainable-Government-To-Person-Mobile-Money-49767.

Falcão Silva, Tiago. 2022. "From Bolsa Familia to Auxílio Brasil: The Brazilian CCT Experience." Presentation for World Bank Group, September 20–21. https://www.imf.org/-/media/Files/News/Seminars/2022/high-level-policy-dialogue-on-inequality/Presentations/English/from-bolsa-familia-to-auxilio-brasil-the-braziliam-cct-experience.ashx.

Gelb, Alan, Anit Mukherjee, and Kyle Navis. 2020. "Citizens and States: How Can Government IDs and Payments Improve State Capacity and Effectiveness?" Washington, DC: Center for Global Development. https://www.cgdev.org/publication/citizens-and-states-how-can-digital-id-and-payments-improve-state-capacity.

Gentilini, Ugo, Khosla Saksham, and Mohamed Almenfi. 2021. "Cash in the City: Emerging Lessons from Implementing Cash Transfers in Urban Africa." Social Protection and Labor Discussion Paper 2101, Washington, DC: World Bank. https://doi.org/10.1596/35003.

Hammad, Maya, Fabianna Bacil, and Fabio Veras Soares. 2021. "Next Practices—Innovations in the COVID-19 Social Protection Responses and Beyond." Research Report 60, UN Development Programme and International Policy Centre for Inclusive Growth, New York and Brazil. https://ideas.repec.org/p/ipc/cstudy/59.html.

International Monetary Fund (IMF). 2019. "A Strategy for IMF Engagement on Social Spending." IMF Policy Paper 2019/016, International Monetary Fund, Washington, DC. https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/06/10/A-Strategy-for-IMF-Engagement-on-Social-Spending-46975.

International Monetary Fund (IMF). 2022. "Engagement on Social Safety Net Issues in Surveillance and Program Work." IMF Technical Notes and Manuals 2022/007, International Monetary Fund, Washington DC. https://www.imf.org/en/Publications/TNM/Issues/2022/10/03/IMF-Engagement-on-Social-Safety-Net-Issues-in-Surveillance-and-Program-Work-524087.

Kazeem, Yomi. 2020. "One of Africa's Smallest Economies Is Plugging Social Welfare Gaps with Digital Cash Transfers." *Quartz,* June 11. https://qz.com/africa/1867044/togo-digitizes-social-welfare-with-mobile-cash-transfer-program.

Leite, Philippe, Tina George Karippacheril, Changqing Sun, Theresa Jones, and Kathy Lindert. 2017. "Social Registries for Social Assistance and Beyond: A Guidance Note & Assessment Tool." Discussion Paper 1704, Washington, DC: World Bank.

Malik, Tariq, and Alan Gelb. 2020. "Is COVID-19 Pakistan's Black Swan Event for Digital Payments?" Center for Global Development Blog Post, May 1. https://www.cgdev.org/blog/covid-19-pakistans-black-swan-event-digital-payments.

Ministry of Family and Social Policy (Republic of Türkiye). 2015. "Turkey's Integrated Social Assistance System." Ankara. https://www.aile.gov.tr/SYGM/PDF/Turkeys_integrated_social_assistance_system.pdf.

Nishtar, Sania. 2021. "Tackling Poverty amidst COVID-19: How Pakistan's Emergency Cash Programme Averted an Economic Catastrophe." *Policy in Focus* 18 (1): 37–9. https://ipcig.org/sites/default/files/pub/en/PIF47_What_s_next_for_social_protection_in_light_of_COVID_19.pdf.

Novissi. 2023. "Home." Novissi–Programme de Revenu Universel de Solidarité. https://novissi.gouv.tg/en/home-new-en/.

Palacios, Robert. 2020. *Scaling Up Social Assistance Payments as Part of the COVID-19 Pandemic Response.* Washington, DC: World Bank. https://thedocs.worldbank.org/en/doc/655201595885830480-

0090022020/original/WBG2PxScalingupSocialAssistancePaymentsasPartoftheCovid19PandemicResponse.pdf

Pande, Rohini, Simone Schaner, Charity Troyer Moore, and Elena Stacy. 2020. "A Majority of India's Poor Women May Miss COVID-19 PMJDY Cash Transfers." Policy Brief, Yale Economic Growth Center, New Haven, CT. https://egc.yale.edu/reaching-indias-poorest-women-covid-19-relief.

Raftree, Linda, and Anna Kondakhchyan. 2021. "Case Study: Data Responsibility and Digital Remote Targeting during COVID-19." CALP Network, March 10. https://www.calpnetwork.org/publication/case-study-data-responsibility-and-digital-remote-targeting-during-covid-19/.

UN Women. 2020. "Surveys Show That COVID-19 Has Gendered Effects in Asia and the Pacific." April 29. https://data.unwomen.org/resources/surveys-show-covid-19-has-gendered-effects-asia-and-pacific.

World Bank. 2022a. "Principles on Identification for Sustainable Development: Toward the Digital Age." Washington, DC. https://documents1.worldbank.org/curated/en/213581486378184357/pdf/Principles-on-Identification-for-Sustainable-Development-Toward-the-Digital-Age.pdf.

World Bank. 2022b. "ID4D and G2Px Annual Report." Washington, DC. https://documents1.worldbank.org/curated/en/099437402012317995/pdf/IDU00fd54093061a70475b0a3b50dd7e6cdfe147.pdf.

World Bank. 2022c. "The Role of Digital in the COVID-19 Social Assistance Response." Washington, DC. http://hdl.handle.net/10986/38104.

World Bank. 2022d. "Deep Dive into the Ecosystem for the Delivery of Social Assistance Payments: Türkiye Case Study." G2PX Initiative, Washington, DC. https://documents1.worldbank.org/curated/en/099010011072245762/pdf/P17316601c8b0401b0ab340214079f623b6.pdf.

World Bank. 2023. "ASPIRE: The Atlas of Social Protection Indicators of Resilience and Equity." Washington, DC. https://www.worldbank.org/en/data/datatopics/aspire.

World Development Indicators (WDI). 2023. "GDP per capita, PPP (current international $)." Washington, DC. https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD.