

---

# DYNAMIC SOCIAL REGISTRIES

## for Adaptive Social Protection

---

### Authors

Luis Iñaki Alberro Encinas  
Sebastian Geschwind

January 2025

### Additional inputs from

Aline Coudouel  
Snjezana Plevko  
Sarah Patella  
Juliette Seibold

## SUMMARY

In an era of increasingly frequent and severe interconnected shocks, particularly climate-related, it is paramount to identify the most vulnerable populations in a timely manner. Dynamic social registries play a vital role in the delivery of adaptive social protection programs in environments where household welfare can change dramatically and abruptly due to shocks. This technical paper explores the role of dynamic social registries in shock-prone contexts, including the Sahel. It outlines their operationalization through direct and indirect data collection, a combination of various intake modalities, and modular questionnaires. Additionally, the paper discusses relevant trade-offs involved in the design of dynamic social registries, such as balancing the need for high-quality data, the costs of expanding coverage, and the associated privacy risks. Key recommendations for operationalizing dynamic social registries, include: (i) establishing a permanent client interface between households and the social registry for on-demand data collection; (ii) adopting a modular structure for socioeconomic questionnaires; (iii) ensuring interoperability with other data sources and delivery systems; and (iv) promoting systematic peer-to-peer learning on social registries.

## TABLE OF CONTENTS

|  |           |
|--|-----------|
| <b>LIST OF ABBREVIATIONS .....</b>   | <b>4</b>  |
| <b>1. INTRODUCTION .....</b>   | <b>5</b>  |
| <b>2. SOCIAL REGISTRIES: Roles and challenges in delivering social protection in shock-prone contexts .7</b> | <b>7</b>  |
| 2.2. Role of social registries in the social protection delivery chain .....                                 | 7         |
| 2.3. Data half-life and the challenges of data decay in shock-prone contexts .....                           | 8         |
| <b>3. DYNAMIC INTAKE AND REGISTRATION.....</b>   | <b>10</b> |
| 3.1. Suitability of dynamic social registries for shock-prone contexts .....                                 | 10        |
| 3.2. Direct and indirect data .....  | 12        |
| 3.3. Intake Modalities.....  | 14        |
| 3.3.1. Intake modalities for direct data .....   | 15        |
| 3.3.2. Intake modalities for indirect data.....  | 16        |
| 3.4. Modular questionnaires.....   | 17        |
| <b>4. DATA COLLECTION TRADE-OFFS.....</b>  | <b>22</b> |
| 4.1. Data quality and the accuracy of the needs and conditions assessment .....                              | 22        |
| 4.2. Cost dynamics of data collection for social registries .....  | 23        |
| 4.3. Data protection safeguards for social registries .....  | 26        |
| <b>5. CASE STUDY: Pakistan's transition from a static to a dynamic social registry .....</b>                 | <b>28</b> |
| <b>6. RECOMMENDATIONS AND CONCLUSIONS .....</b>  | <b>31</b> |
| <b>REFERENCES .....</b>  | <b>33</b> |

## LIST OF FIGURES AND TABLES

|   |    |
|---|----|
| <b>Figure 2.1:</b> Social Protection Delivery Chain.....  | 7  |
| <b>Figure 2.2:</b> Social Registries for Multiple Programs .....  | 8  |
| <b>Figure 3.1:</b> Dynamic Social Registries for Vertical and Horizontal Expansion .....                                    | 11 |
| <b>Figure 3.2:</b> Dynamic Data Generation .....  | 12 |
| <b>Figure 3.3:</b> Direct and Indirect Data for Dynamic Social Registries .....   | 14 |
| <b>Figure 3.4:</b> Intake Modalities for Social Registries.....   | 14 |
| <b>Figure 3.5:</b> Benchmark of Socioeconomic Questionnaires .....  | 18 |
| <b>Figure 3.6:</b> Modular Data–Illustrative .....  | 19 |
| <b>Figure 3.7:</b> Mauritania Social Registry Modular Data.....   | 21 |
| <b>Figure 4.1:</b> Ratio of the Unit Cost of a Social Registry Versus the Annual Benefit of the Largest Program Served..... | 24 |
| <br>  |    |
| <b>Table 1:</b> Fixed and Variable Costs of Different Data Intake Modalities (non-exhaustive) .....                         | 19 |

---

*The SASPP Technical Paper series collection comprises documents released expediently to ensure prompt availability within our community of practice, aiming to foster engagement and disseminate knowledge swiftly. Please be mindful that, for this purpose, the material has not undergone extensive proofreading, and minor typos may be present. Your understanding of this expedited release is appreciated.*

## LIST OF ABBREVIATIONS

|                 |  |
|-----------------|--|
| <b>API</b>      | Application Programming Interface                                      |
| <b>ASP</b>      | Adaptive Social Protection   |
| <b>BISP</b>     | Benazir Income Support Programme (Pakistan)                            |
| <b>CAPI</b>     | Computer-Assisted Personal Interviews                                  |
| <b>CDR</b>      | Call Detail Records  |
| <b>CNIC</b>     | Computerized National Identity Card (Pakistan)                         |
| <b>CRAS</b>     | Centros de Referência de Assistência Social (Brazil)                   |
| <b>CUIS</b>     | Cuestionario Único de Información Socioeconómica (Mexico)              |
| <b>dSR</b>      | Dynamic Social Registry  |
| <b>FIBE</b>     | Ficha Básica de Emergencia (Dominican Republic)                        |
| <b>HIES</b>     | Household Integrated Economic Survey (Pakistan)                        |
| <b>HMT</b>      | Hybrid Means Test  |
| <b>ID</b>       | Identification   |
| <b>ISAS</b>     | Integrated Social Assistance System (Turkey)                           |
| <b>IVR</b>      | Interactive Voice Response   |
| <b>LSMS</b>     | Living Standards Measurement Study                                     |
| <b>MIS/BOMS</b> | Management Information System/Beneficiary Operations Management System |
| <b>MT</b>       | Means Test   |
| <b>NADRA</b>    | National Database and Registration Authority (Pakistan)                |
| <b>NSER</b>     | National Socio-Economic Registry (Pakistan)                            |
| <b>PAPI</b>     | Pen-and-Paper Personal Interview                                       |
| <b>PCA</b>      | Principal Component Analysis   |
| <b>PMT</b>      | Proxy Means Test   |
| <b>RNU</b>      | Registre National Unique (Senegal)                                     |
| <b>SISBEN</b>   | Sistema de Identificación de Potenciales Beneficiaries (Colombia)      |
| <b>SMS</b>      | Short Message Service  |
| <b>STEP-KIN</b> | Solidarity through Economic Transfers Against Poverty in Kinshasa      |
| <b>SIUBEN</b>   | Sistema Único de Beneficiarios (Dominican Republic)                    |
| <b>USSD</b>     | Unstructured Supplementary Service Data                                |

## 1. INTRODUCTION

**We are living an era of growing crises, marked by more frequent and severe interconnected shocks, particularly those related to climate change.** These events disproportionately affect the livelihoods of poor and vulnerable households. To effectively respond to shocks and strengthen household resilience, governments require systems that can assess the changing welfare of their population. Social registries, as essential delivery systems, serve this function in low- and middle-income countries. Based on the principles of social protection delivery systems (Lindert et al., 2020), social registries support the intake, registration, assessment of needs and conditions, and determination of potential eligibility for social protection programs. Governments use social registries to systematically collect and process demographic and socioeconomic data, enabling the assessment of a range of welfare indicators including monetary and non-monetary poverty, food insecurity, vulnerability to climate shocks, that apply a lens on gender, disability and other characteristics. By acting as data providers, social registries enable program administrators to make informed decisions regarding the eligibility of households and individuals based on specific criteria for social programs. Social registries have both a social policy role, as inclusion systems, and an operational role as information systems.

**Adaptive social protection (ASP) is a proven approach to enhance the resilience of the poorest and most vulnerable members of society and reduce poverty (Bowen et al. 2020).**

ASP<sup>1</sup> enables governments to deliver timely support to those affected by climate and other shocks, helping households adapt their livelihoods to the impact of these events, and building their resilience and capacity to cope with future crises. The four building blocks of ASP – data and information, programs, institutional arrangements, and financing – have been identified as critical for the sustained delivery of ASP. Data and information systems, of which social registries are a central component, are crucial to deploying social protection programs at scale.

**ASP is uniquely positioned to reach the poorest and most vulnerable at scale, particularly in regions highly exposed to climate-related crises such as the Sahel, the Caribbean, and Southeast Asia.** For their regular operation and in times of shock, ASP programs need to be able to expand both in terms of benefit provision (in value and/or duration) to existing beneficiaries (vertical expansion), and in terms of reaching households not yet covered by programs (horizontal expansion). Furthermore, since an early response has a greater likelihood of mitigating the negative effects of a shock, ASP programs emphasize the timing and speed of intervention delivery. This requires shock-responsive social registries that can capture the dynamic living conditions of households in the data they collect, including household composition, age, gender, disabilities, housing conditions, and asset ownership among others. Thus, making social registries dynamic implies allowing for continuous updates and rapid scaling. Dynamic social registries (*dSRs*) facilitate dynamic inclusion by improving people's access to social protection when in need (Karippacheril et al., 2024). *dSRs* offer an open and

---

<sup>1</sup> The interventions of adaptive social protection programs include, among others, regular safety net programs, shock-response interventions, as well as productive inclusion programs that complement cash transfers with coaching, micro-entrepreneurship training, promotion of saving groups and a productive or lump sum cash grant to promote resilient livelihoods.

continuous intake and registration process, enabling households to update their socioeconomic information at any time, further motivating their suitability for ASP. However, while up-to-date information is necessary, it is not sufficient on its own to enroll beneficiaries into a program. Social protection programs also need to consider budget constraints, policy objectives, targeting criteria, and other factors when making the enrollment decision. Including shock-affected households when they need it – before, during, and after a shock – thus ensuring vulnerable people (men, women, girls and boys) remain at the centre of social protection delivery.

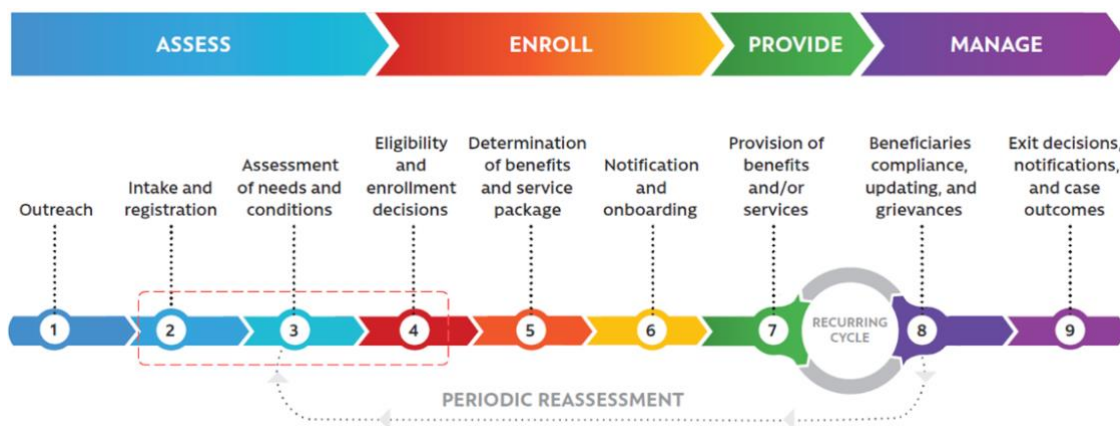
**The purpose of this paper is to contribute to the formalization of the concept of *dSRs* in the context of ASP and to propose pathways for their operationalization.** The paper identifies the role of *dSRs* in shock-prone contexts, including in the Sahel. It outlines their operationalization through direct and indirect data collection, a combination of different intake modalities and modular questionnaires. Additionally, the paper identifies some of the most relevant tradeoffs in the design of *dSRs*, such as balancing the need for high-quality data, the costs of expanding coverage, and the associated privacy risks. The paper presents four key recommendations that can support the operationalization of dynamic social registries: (i) establish a permanent client interface between households and the social registry for on-demand data collection; (ii) adopt a modular structure for socioeconomic questionnaires; (iii) ensure interoperability with other data sources and delivery systems; and (iv) promote systematic peer-to-peer learning on social registries. Section 2 outlines the roles and challenges of social registries in social protection delivery; section 3 focuses on how to establish a dynamic intake and registration for *dSRs*; section 4 presents the main trade-offs in collecting data for social registries; section 5 provides a case study of a social registry that transitioned from static to dynamic; and section 6 discusses key recommendations for operationalizing *dSRs*.

## 2. SOCIAL REGISTRIES: Roles and challenges in delivering social protection in shock-prone contexts

### 2.1. Role of social registries in the social protection delivery chain

**Social registries rely on information systems<sup>2</sup> — enabled by data protection and cybersecurity regulatory frameworks— to serve as gateways to social protection programs.** By collecting and consolidating socioeconomic data on potential beneficiaries, with people’s informed consent, they support the “Assess” and a part of the “Enroll” phases of the Delivery Chain (figure 2.1). The primary functions of social registries include facilitating the processes of intake and registration, assessment of needs and conditions, and determination of potential eligibility based on applicants’ data and program-specific eligibility criteria. Social registries do not typically make eligibility and enrollment decisions, as these are made by program administrators based on policy objectives, budget allocations, and operational priorities. But those decisions are made using, among others, the information contained in the social registry (some programs have further conditions for eligibility, beyond what is contained in the social registry).

*Figure 2.1: Social Protection Delivery Chain*



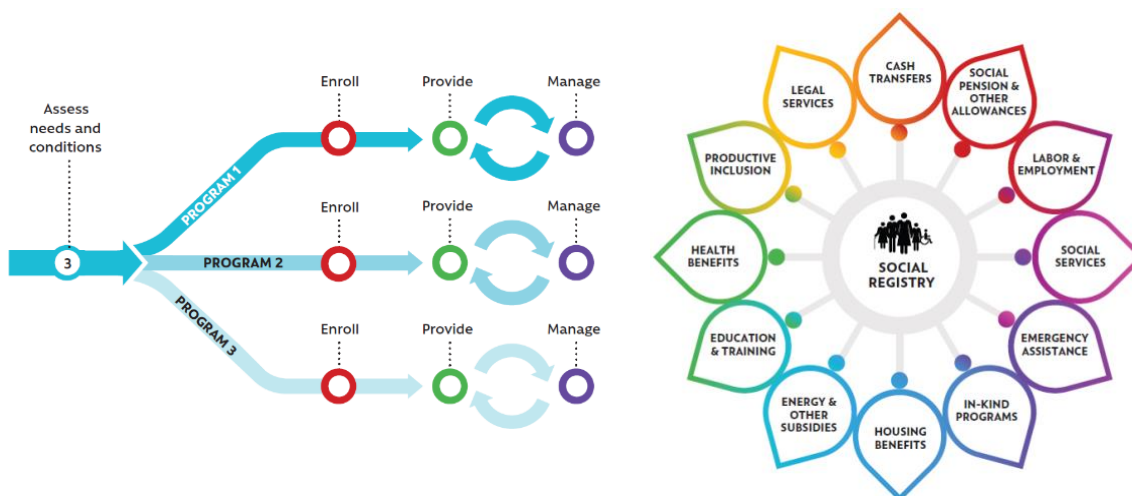
*Source: From Lindert et al. 2020*

**Well-designed social registries help address the inclusion and coordination challenges faced by social protection systems.** Social registries support the efficient delivery of social protection programs, by standardizing data collection and the characterization of poor and vulnerable households to prioritize potentially eligible households according to the relevant eligibility criteria. When social registries serve multiple programs (figure 2.2), they can mitigate some of the coordination

<sup>2</sup> Information systems are understood as interdependent groups of elements –including databases, software and hardware– that function together to accomplish a predefined goal by collecting, storing, processing, creating and distributing information.

challenges arising when multiple actors intervene on the same population groups without sharing information, often due to institutional fragmentation. They can also generate efficiencies for both program administrators and applicants by centralizing and streamlining data collection. When designed to be inclusive and broad in coverage, social registries can overcome some of the barriers and capacity constraints that may exclude certain households and individuals from accessing social protection programs and services.

*Figure 2.2: Social Registries for Multiple Programs*



Source: Lindert et al. 2020

## 2.2. Data half-life and the challenges of data decay in shock-prone contexts

**Adaptive social protection programs require up-to-date data to effectively select households vulnerable to or affected by shocks.** However, due to the dynamic nature of poverty and vulnerability, socioeconomic data in static social registries become outdated over time. The concept of data half-life refers to the rate at which data becomes obsolete. Broad estimates suggest that approximately two percent of records within a database become outdated every month (Fen, Geerts and Wijssen, 2012). This would mean that nearly 50 percent of a static social registry’s data would be obsolete within 2 years, and the entire database within 4.2 years<sup>3</sup>. For instance, simulations for Bangladesh’s National Household Database indicate that 15 percent of households change their composition within the first year of data collection, 36 percent by the end of year three, and 49 percent

<sup>3</sup> This example is only meant for illustrative purposes since using a constant rate of change for all variables in a database is a simplification. Social registries containing rich sets of socioeconomic attributes likely go through a more complex and uneven decay process.



by the end of year five (Gelders, 2021). Additionally, 8 percent of households moved along the welfare distribution within the first year, 15 percent by year three, and 35 percent by year five. Different variables in a social registry likely have varying half-lives. Some variables, such as sex and ethnicity, remain mostly unchanged over time, while others, such as age, change predictably. Variables, such as employment status, income, or address, change unpredictably and at different rates. The half-life of the same variable can also differ between and within countries, as socioeconomic mobility may vary between urban and rural areas. In countries prone to climate shocks, the half-life of social registry data is presumed to be shorter.

**Data decay refers to the loss in predictive accuracy due to outdated data, reducing the targeting accuracy of social protection programs, reducing their impact.** As household conditions change and data becomes outdated, predictive models such as Proxy Means Tests (PMTs) and others, become less effective. According to some estimates, PMT accuracy declines 1.85 percentage points per year due to data decay (Aiken, Blumenstock and Ohlenburg, 2023). This results in higher rates of inclusion and exclusion errors, where nonpoor households may be incorrectly included in a program, and poor households may be incorrectly excluded. Consequently, the intended beneficiaries are not selected to receive the support they need, undermining the program's effectiveness and equity. In shock-prone contexts, where household conditions can change rapidly, the impact of data decay is even more pronounced, complicating the delivery of timely ASP programs.

**Most social registries remain static until the next data collection cycle, which often spans many years.** Based on certain estimates, social registries relying on administrator-driven sweeps are updated every 5 to 8 years (Barca and Hebbbar 2020). This presents a significant challenge, particularly in low-income countries, where household conditions are dynamic and may change frequently due to shocks, such as in the Sahel. For example, in Sub-Saharan Africa, 29.7 percent of the population is estimated to move in and out of transient poverty, while 33.3 percent remain chronically poor between household surveys, which are collected every 5 years on average (Dang and Dabalen 2018). In Colombia, between the 2011 and 2015 survey cycles of its social registry (SISBEN), the wellbeing of 65 percent of households improved sufficiently to be reclassified as non-poor, while 17 percent of households fell into poverty (*República de Colombia* 2016). These findings highlight the imperative for *SRs* capable of continuously intaking data, enabling governments to provide support to promote the resilience and welfare of the poorest and most vulnerable, and to effectively respond to emerging crises. When social registries are dynamic, they mitigate the risks of data decay and support programs in reaching and assisting vulnerable populations, including in rapidly changing contexts.

## 3. DYNAMIC INTAKE AND REGISTRATION

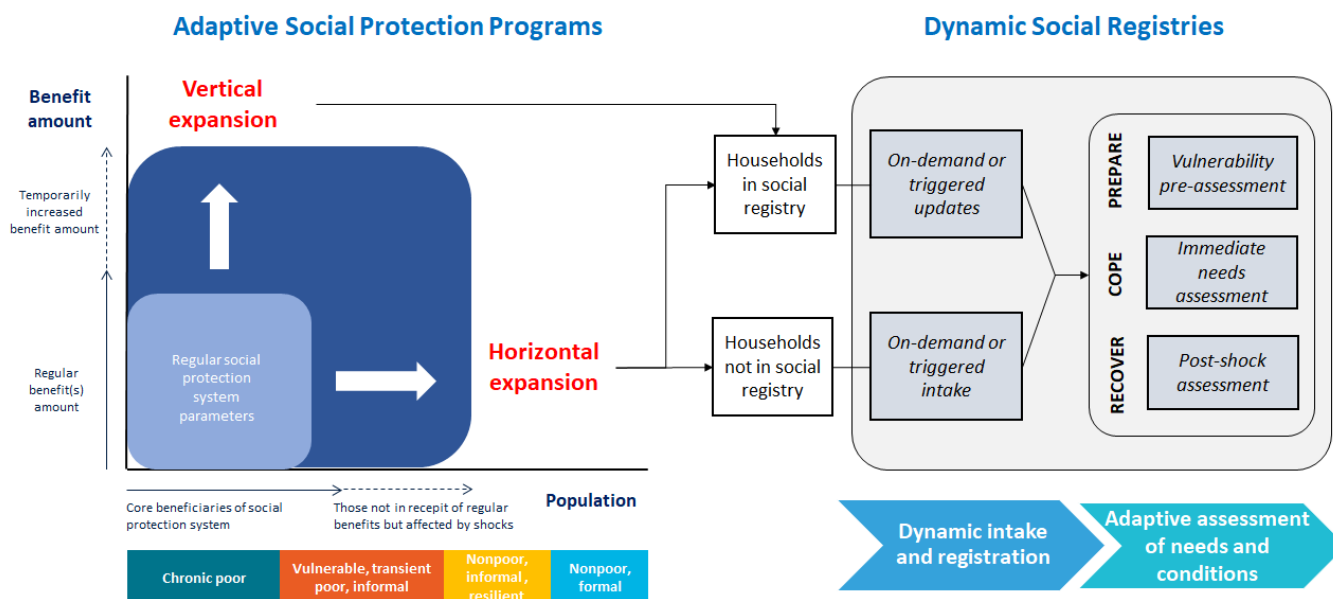
### 3.1. Suitability of dynamic social registries for shock-prone contexts

**Dynamic social registries (dSRs) are an essential delivery system for ASP.** The two key distinctions between static and dynamic social registries are in the latter's design, enabling it to intake new data dynamically by: (a) updating data on existing households and registering new ones on-demand; and (b) combining different types of data, such as self-reported information and administrative records. The key characteristics of dSRs making them suitable for shock-prone contexts include:

1. A unique gateway for households to be considered by one or more social programs.
2. Continuous updates through a permanent interface with households, whether in-person or digital.
3. Intake from multiple data sources, including administrative records, through interoperability.
4. Assessment of household needs and conditions according to the eligibility criteria of programs.
5. Sharing of data on potentially eligible households with ASP programs so they can reach people with regular and shock-response interventions.

**Dynamic social registries enhance ASP programs by enabling them to expand their potential coverage and provide timely assistance during shocks.** For ASP programs to be effective during such times, they must expand both vertically — by increasing support to those already enrolled in the program, and horizontally — by reaching households not previously enrolled (figure 3.1). The rapid expansion of the reach of programs, their 'potential coverage,' requires having relevant and up-to-date data on poor and vulnerable households. dSRs facilitate this by allowing households to report changes in their welfare on-demand, helping to keep the information of already registered households current and relevant for a vertical expansion. ASP programs may expand horizontally by providing support to households already registered in the social registry but not previously enrolled in the program. Additionally, through on-demand intake and triggered registration campaigns during or after a shock, households that have newly fallen into poverty can be included in the registry and be considered during the horizontal expansion of programs. Many of the following considerations are also valid for the regular operation of programs, and not only when they respond to shocks.

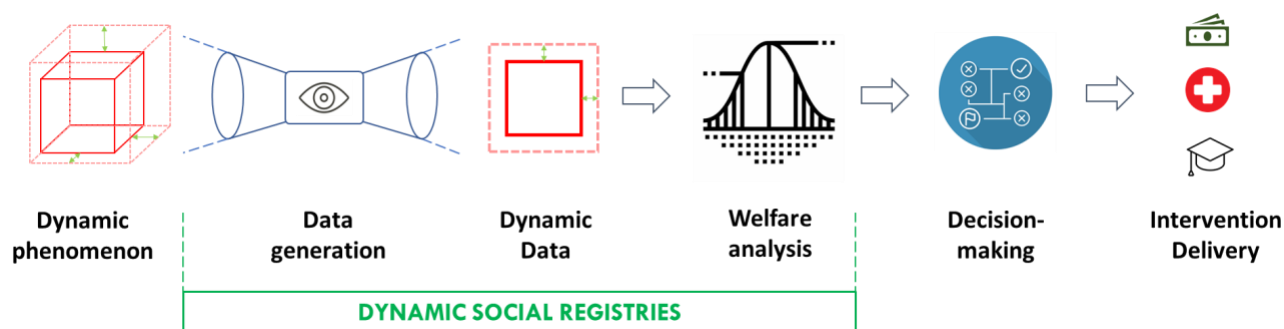
**Figure 3.1: Dynamic Social Registries for Vertical and Horizontal Expansion**



Source: Based on Bowen et al. 2020 and Guven et al. 2020

**dSRs facilitate the dynamic inclusion of poor and vulnerable households through a dynamic intake and registration so that ASP programs can enroll beneficiaries at any time based on updated information.** Figure 3.2 highlights the importance of designing social registries that continuously generate data. Changes in household income, food insecurity, or exposure to climate shocks are captured through a continuous data generation process, producing dynamic data. However, this process simplifies the real-world phenomenon at hand and can also inadvertently introduce bias or distortions depending on how the data is collected, which is a challenge faced by all social registries, whether static or dynamic. Once integrated and pre-processed, the data is ready to be exploited and analyzed to assess the welfare of household members registered in the dSR by gender, age, disability and other characteristics. Based on the welfare analysis and on the programs' eligibility criteria, potential beneficiaries are identified, allowing programs to make enrollment decisions and deliver the associated interventions.

Figure 3.2: Dynamic Data Generation



Source: Adapted from George et al. 2024

As such, to be both updatable and scalable, *dSRs* take advantage of three key design features, as follows: (1) a choice of multiple types of data, direct and indirect; (2) data are collected continuously through the intake modalities best suited for the given context; and (3) data that are integrated into modular data structures. The following subsections of this paper will explore each of these three key design features.

## 3.2. Direct and indirect data

### Direct Data

**Direct data collection relies on self-reported information provided through household and/or individual-level questionnaires administered during the intake and registration of social registries.** The main objective of this process is to purposefully collect data for the social registry. Through direct data collection, the interviewee actively provides self-reported socioeconomic information that will be utilized as part of the process to determine their potential eligibility for social protection benefits. Direct data collection through robust socioeconomic questionnaires can provide detailed information on multiple welfare dimensions and allow for the assessment of eligibility criteria for multiple programs.

**However, two challenges associated with direct data collection include the risk of data bias, as well as its costs and duration.** Relying on self-reported information implies the possibility of misreporting, whether intentional or unintentional. Depending on the incentives set by social protection programs, potential recipients may intentionally bias self-reported information by over- or under-reporting particular aspects of their socioeconomic conditions that cannot be easily observed or verified (such as income, consumption, household size, or ownership of certain assets). Likewise, survey respondents may lack the capacity to recall the information being requested or not understand the questions being asked. Direct data collection can also incur high cost and time investments, for social registries and households, when relying on lengthy questionnaires administered in person and door-to-door over large geographical areas.

## Indirect data

**Indirect data collection requires pulling data held by other entities and systems without interviewing households directly.** For instance, administrative records<sup>4</sup>, Call Detail Records (CDR)<sup>5</sup>, or remotely sensed data such as satellite imagery. These are considered indirect data sources because the data is not initially generated for the purposes of the social registry but as a byproduct of (among others):

- Transactions such as making a purchase through a digital payment mechanism, paying income taxes, or making social insurance contributions.
- Placing a call or sending a message through a mobile phone.
- Previously delivered services such as attending school, visiting a clinic, or receiving social assistance.
- Recorded life events such as a birth, marriage, or death.
- Remote sensing such as satellite imagery.

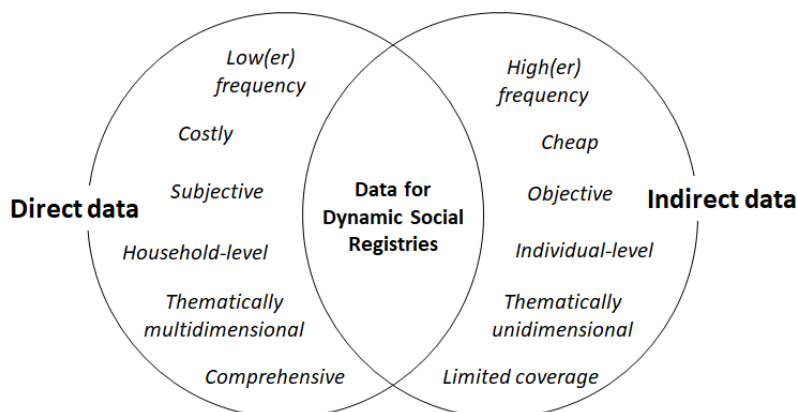
**Indirect data can offer cost-efficiencies for social registries, enabling more frequent and timely updates compared to direct data.** Indirect data is less susceptible to intentional bias as it is not self-reported for eligibility purposes. However, as indirect data is usually generated at the individual level, it may not reflect household composition, presenting a limitation for social registries. Also, it may be limited to one dimension or specific aspect of household wellbeing (e.g., access to health insurance from health administrative records) and must be complemented with other data sources to ensure a comprehensive picture. Furthermore, in low- and middle-income countries the availability of indirect data is often limited (e.g., lack of administrative records on school assistance) or have incomplete coverage for the most vulnerable households, which are the priority of social registries (e.g., a significant percentage of the poor gain their livelihoods in the informal sector, may not pay regular income tax and therefore not be reflected in tax records). Even when available, integrating administrative records requires a unique identification (ID) and the interoperability mechanisms necessary to pull the records from other systems. Therefore, the design of *sSRs* requires context-specific consideration of the advantages and limitations of direct and indirect data, as pictured in figure 3.3.

---

<sup>4</sup> Administrative records refer to data collected and maintained by various entities including tax records, property records, vehicle records, health records, education records, and other government-produced records. For more detailed guidance on the use of administrative records for social protection see *We Have the Data, Let's Use It Better: Pushing the Boundaries of Social Protection Administrative Data Analysis and Use* by GIZ, 2023

<sup>5</sup> CDRs provide metadata about phone use, including date, time and duration of calls, type of call (national, international), call cost, volume of mobile data usage and mobile money transactions, among others.

**Figure 3.3: Direct and Indirect Data for Dynamic Social Registries**

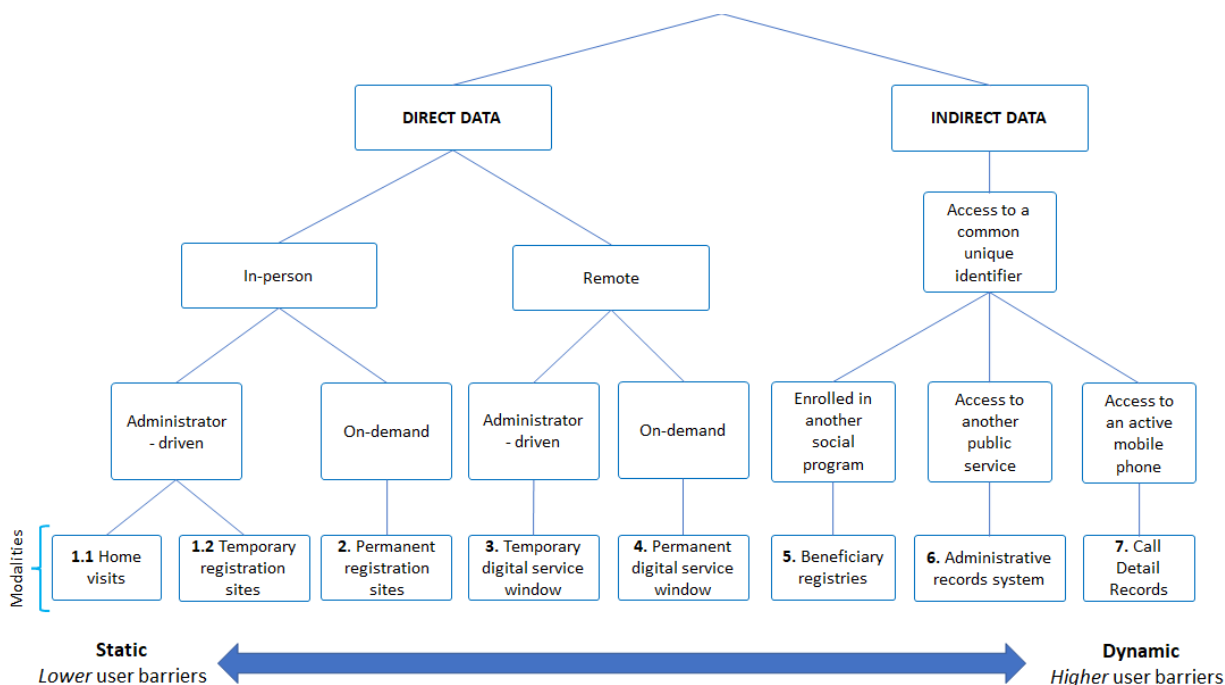


Source: Original figure for this publication

### 3.3. Intake Modalities

Having determined the availability of different types of data for the social registry of a given country, the intake of such data can occur through various modalities as depicted in figure 3.4, each with its own advantages, limitations, and requirements.

**Figure 3.4: Intake Modalities for Social Registries**



Source: Original figure for this publication

### 3.3.1. Intake modalities for direct data

For direct data, as noted in the *Sourcebook on the Foundations of Social Protection Delivery Systems* (2020), there exist two broad types of intake modalities: administrator-driven and on-demand.

#### Administrator-driven modalities

**Administrator-driven intake means that the entity managing the social registry organizes and initiates the data collection within a specific time frame, based on budget availability and operational priorities.** In low-connectivity areas, data collection is conducted in-person through home visits (modality 1.1), or by gathering households at temporary registration sites (modality 1.2), such as the *Registre National Unique* (RNU) in Senegal. In high-connectivity areas, if households have access to a 2G mobile phone or an internet connection (more common in urban settings), data can be collected remotely via a temporary digital service window (modality 3) by leveraging SMS or IVR messages<sup>6</sup> such as the rollout of STEP-KIN in the Democratic Republic of Congo (Mukherjee, et al., 2024). In administrator-driven modalities, social registry administrators determine when and how much data is collected, facilitating planning. However, this method — even if periodic and involving active outreach like the “*busca ativa*” modality of Brazil’s *Cadastro Único*<sup>7</sup> — is not continuous. It does not allow households to provide and update their data as needed, such as after an idiosyncratic shock (e.g., death of a family member or loss of employment) or covariate shock (e.g., a flood or drought). Thus, social registries that rely exclusively on administrator-driven modalities will likely become static and face important data decay challenges.

#### On-demand intake modalities

**In contrast, on-demand intake modalities allow households to provide or update their data whenever their circumstances change, facilitating dynamic inclusion.** This ensures a continuous flow of data into the social registry. An essential requirement for on-demand intake is the establishment of a permanent client interface between households and the social registry, either in-person or digital, so households can initiate data collection at their convenience. For in-person data collection (modality 2), local government offices often serve as the permanent client interface, such as the Social Assistance Reference Centers for Brazil’s *Cadastro Único*<sup>8</sup>, or the municipal offices for Colombia’s SISBEN. When connectivity is widely and consistently available, an open and permanent digital service window (modality 4) allows households to provide their data remotely. For example, Turkey’s ISAS leverages the e-Government portal to initiate the intake and registration process online,

<sup>6</sup> SMS (Short Message Service) allows the sending and receiving of short text messages between mobile devices. IVR (Interactive Voice Response) enables automated interaction with a telephone system through voice commands or keypad inputs.

<sup>7</sup> The “busca ativa” or active search process in Brazil’s *Cadastro Único* proactively identifies and registers extremely poor and vulnerable families through territorial outreach, mobile brigades and home visits and partnerships with local organizations. <https://www.gov.br/mds/pt-br/noticias-e-conteudos/desenvolvimento-social/noticias-desenvolvimento-social/busca-ativa-garante-a-entrada-de-mais-de-3-21-milhoes-de-domicilios-no-bolsa-familia>

<sup>8</sup> The CRAS (*Centros de Referência de Assistência Social*) Social Assistance Reference Centers in Brazil are integral to the *Cadastro Único*. The CRAS centers play a crucial role in registering families into the *Cadastro Único*, keeping their data up to date every two years, and ensuring they receive the necessary social services and benefits such as *Bolsa Família*.

which is later verified through an in-person visit (Ortakaya, et al., 2023). Compared to administrator-driven intake, on-demand intake can better mitigate the risks of data decay and is thus necessary for dynamic social registries. However, in low- and middle-income countries and shock-prone contexts, it requires investing in a permanent client interface that is accessible to households and capable of accommodating their requests for data provision with appropriate staff and resources. Relying solely on a digital service window in a country with low internet or mobile phone penetration would create a high user barrier, most likely affecting vulnerable households in rural areas.

### *3.3.2. Intake modalities for indirect data*

**When indirect data is available, a shared unique identifier (such as foundational ID, functional ID, or other) and enforceable data exchange agreements are crucial to ensure the social registry can interoperate with other information systems containing relevant data.** Key examples include the *Registro Social de Hogares* in Chile, which integrates data from 43 state agencies monthly (including tax records, pensions, and vehicle ownership), as well as ISAS in Turkey and the SIUBEN in Dominican Republic. Periodically integrating data from beneficiary registries (modality 5), other administrative records systems (modality 6), or even from CDR records (modality 7), requires mature information systems and an enabling regulatory environment for data protection, cybersecurity and data exchange protocols across government agencies. In Estonia, X-Road is a well-known example of a whole-of-government data exchange platform that reduces the data-provision burden of citizens according to the ‘only-once’ principle, which has been emulated in several other countries including in Benin, Madagascar, and Namibia. Also, the Digital Convergence Initiative provides open interoperability standards and protocols for data exchange between social protection systems and programs that can be adapted to each country’s needs (<https://spdci.org/>).

**Integrating indirect data from multiple sources can provide a cost-efficient method to enrich social registries, yet no social registry currently relies exclusively on indirect data.** The main applications of indirect data by established social registries are to verify, complement, or update previously self-declared information. However, during the COVID-19 pandemic, many countries experimented with novel data sources to respond to shocks and rapidly reach previously unregistered individuals (Aiken and Ohlenburg, 2023). For instance, Togo, a country which did not have a social registry during the pandemic, deployed a dynamic intake and registration process for the emergency cash transfer *NOVISSI* through a USSD<sup>9</sup>-based mechanism supported by its voter ID database (Lawson et. al 2023). Registrants were assessed through their CDR data, which allowed the program to gain insights into their welfare without having to deploy a time-consuming direct data collection effort during the pandemic. Other non-traditional data sources include spatial data, which can be used as a complementary tool to geographically prioritize data collection efforts. Open-source satellite data on nighttime lights and building footprints, or crowd-sourced data on the location of

---

<sup>9</sup> USSD (Unstructured Supplementary Service Data) is a communication protocol used by mobile networks to enable interactive communication between a user and an application, typically accessed through dialing a short code on a mobile device. It allows for real-time, session-based communication, enabling users to access various services and information directly from their mobile devices without requiring internet connectivity.



schools and hospitals can all assist in the identification of the most deprived areas at low administrative levels, which can then be prioritized by the social registry for direct data collection.

**Social registries can employ a combination of intake modalities and data types to leverage their respective advantages and mitigate limitations.** The choice of intake modalities in a country is influenced by factors such as previous investments in digital literacy, decentralized government infrastructure, mobile phone coverage and digital public infrastructure<sup>10</sup>. Particular attention should be given to how inclusive or exclusive each intake modality can be depending on the local conditions of each country. For instance, home visits may require multiple attempts if key respondents are not present when enumerators visit the household. Permanent and temporary registration sites need to be accessible, safe and convenient for households, including women and children. Digital service windows may exclude the poorest in areas of low literacy and digital skills, or for those who do not own phones. Administrative records may have incomplete coverage for particularly vulnerable groups such as informal workers, the elderly or people with disabilities.

**Typically, administrator-driven modalities are used for initial data collection during the first deployment phases of social registries, while on-demand modalities are preferred for keeping data up to date.** In low-income countries and data-poor contexts, such as the Sahel, social registries have predominantly relied on in-person home visits and temporary registration sites to administer self-reported questionnaires. The use of remote data collection and the integration of administrative records remain limited in such contexts since it requires greater digital readiness, among other factors. However, some countries in the Sahel and West Africa, such as Mauritania, Senegal and Benin, are currently considering investments in in-person permanent interfaces by leveraging local public infrastructure to dynamize their social registries through an on-demand intake and registration process. In middle-income countries and data-rich contexts, countries such as Chile, Brazil, Turkey and Pakistan have advanced their social registries by allowing for continuous updates through a permanent interface and systematically integrating administrative records to complement and cross-check self-reported information.

### 3.4. Modular questionnaires

**From a system design perspective, it is important to consider how data is organized and structured within the social registry.** When multiple programs independently handle the intake and assessment of needs and conditions, they often use different socioeconomic questionnaires of varying lengths. Each questionnaire includes the necessary variables to assess the eligibility of potential beneficiaries for the associated program. This results in multiple data sets that are rarely fully compatible with each other but often overlap and share some commonalities, leading to significant data management redundancies. When social registries are introduced as whole-of-government platforms to serve multiple programs simultaneously, they aim to consolidate the intake and assessment of needs and conditions to facilitate coordination and reduce fragmentation. This

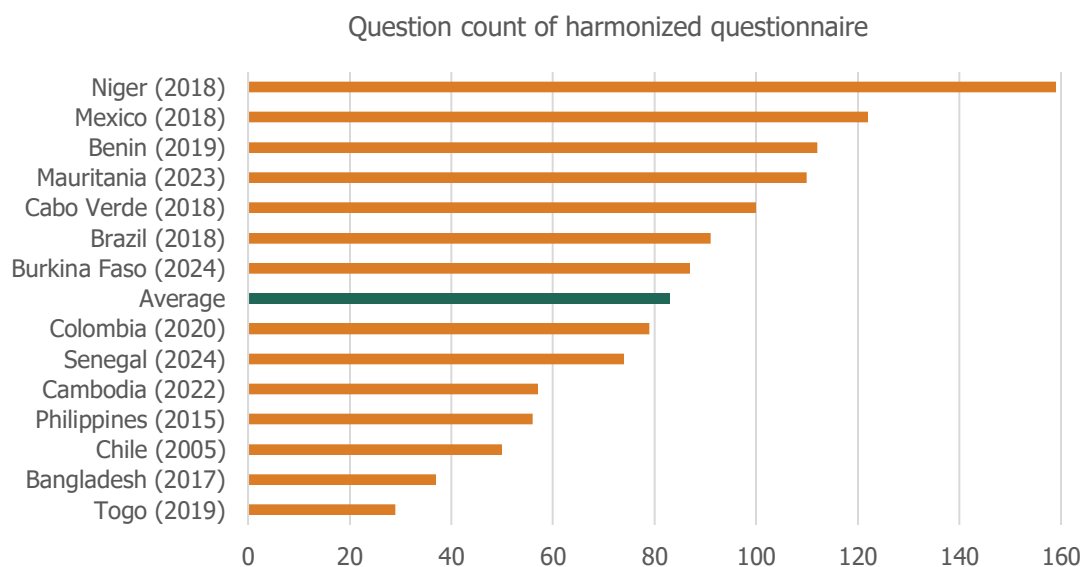
---

<sup>10</sup> Digital Public Infrastructure (DPI) refers to the digital platforms, including the institutional and legal frameworks around them, that enable the provision of essential society-wide functions and services. This typically includes systems for identification and authentication, data exchange, and payments.

creates the need to harmonize the various socioeconomic questionnaires that were previously used separately.

**Consolidating multiple socioeconomic questionnaires into a single harmonized questionnaire can offer efficiencies for households, programs, and the social registry administrator.** In line with the principle of collecting data 'only once,' harmonized questionnaires reduce the burden on households, as they only need to complete one questionnaire to be considered for multiple programs. Additionally, a unified questionnaire can encourage more programs to use the social registry through standardization. For the social registry administrator, a single questionnaire simplifies data management. The resulting harmonized questionnaire is often comprehensive, capturing multiple welfare dimensions, but lengthy, as it serves the needs of many programs with different objectives and eligibility criteria. In Mexico, for example, 17 distinct questionnaires were consolidated into the *Cuestionario Único de Información Socioeconómica* (CUIS), resulting in a monolithic questionnaire with over 120 variables that took 80 to 120 minutes to complete, depending on household composition (SEDESOL, 2011). Many other countries have similar harmonized questionnaires as shown in figure 3.5.

**Figure 3.5: Benchmark of Socioeconomic Questionnaires**



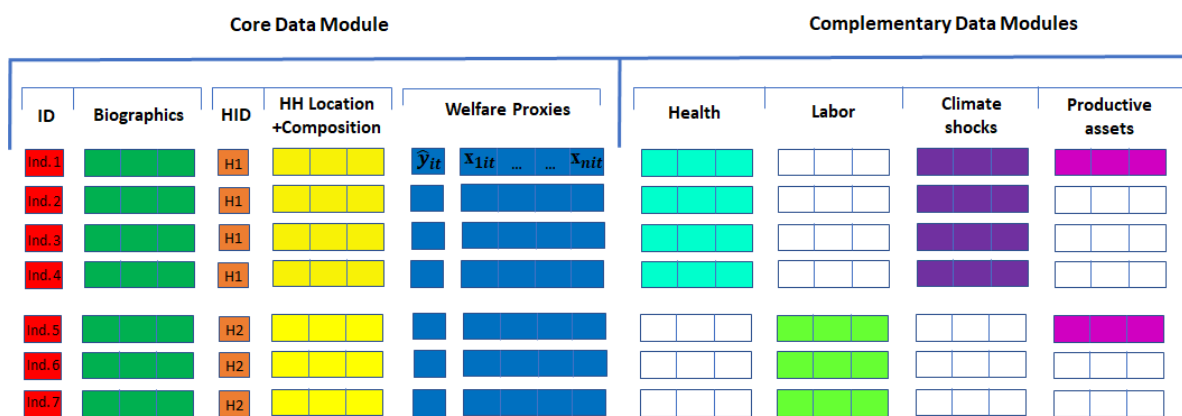
*Source:* Original figure for this publication

**However, the length of the harmonized questionnaire can impact the cost of administering it to large numbers of households.** The costs and logistics of conducting massive door-to-door sweeps or setting up temporary registration points in local communities mean that lengthy questionnaires are not easy to update frequently, especially in data-poor countries data collection capacity may be limited and costly. Large social registries that rely heavily on administrator-driven intake have only been updated every four or six years, for instance the SISBEN in Colombia

(before the introduction of SISBEN IV in 2020) was updated through census-sweeps in 2005, 2011, and 2017, and Listahanan in the Philippines was updated in 2011, 2015 and 2019. Lengthy and monolithic questionnaires are not compatible with social registries that require frequent and dynamic updates. To help address this issue, lengthy socioeconomic questionnaires can be shortened and broken into multiple modules, allowing *dSRs* to collect as much data as needed and when needed for each program, thereby improving data management.

**Modular questionnaires can be divided into *core* modules populated for all registrants due to their high re-usability across programs, and *complementary* modules populated as needed based on the specific requirements of each program.** For instance, temporary shock-response programs typically require only a restricted set of variables, thereby obviating the need to update all variables in the event of a shock. The SIUBEN in Dominican Republic uses a specific questionnaire, the *Ficha Básica de Emergencia* (FIBE)<sup>11</sup>, to assess damages after natural disasters. While modular, these questionnaires and ensuing datasets must remain harmonized and compatible by design, ensuring they are drawn from a common data dictionary. The *Cadastro Único* in Brazil and the *Registre Social* in Mauritania use a modular approach by employing core and complementary questionnaires. Figure 3.6 provides an illustrative example of a modular data framework for a dynamic social registry:

*Figure 3.6: Modular Data– Illustrative*



Source: Adapted from Karippacheril et al. 2024

Below is a list of variables and attributes that can be considered for core and complementary data modules:

- **Core data module:** populated for all households
  - Individual ID and biographics (names, sex and date of birth) of individuals.
  - Household ID, household composition and location. The household ID groups multiple individuals into households according to the prevailing definition of a household in each country.

<sup>11</sup> <https://www.superate.gob.do/wp-content/uploads/2024/02/Guia-Tecnica-Bono-de-Emergencia-6.pdf>

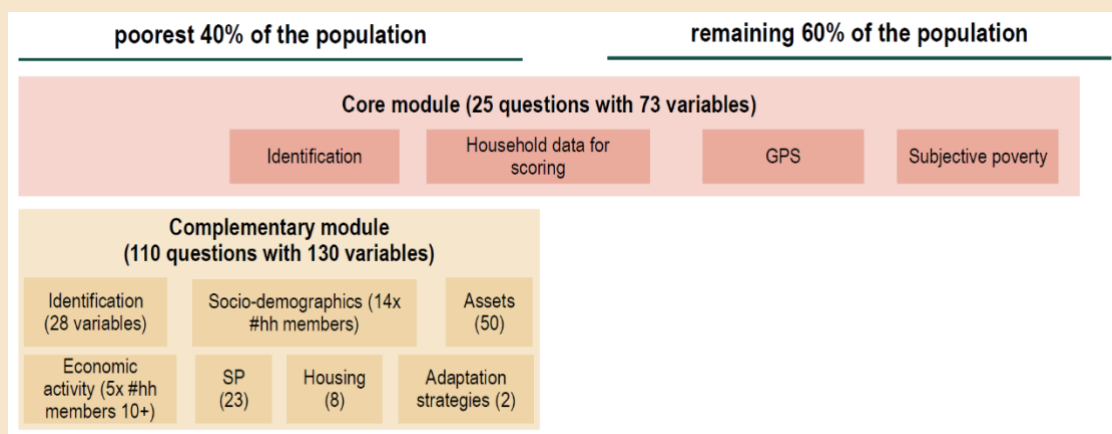
- Welfare proxies, these are the minimum set of attributes required for a basic welfare assessment relevant for the policy objectives of most programs, such as household consumption or expenditures.
- **Complementary data modules:** contain detailed variables relating to access to services such as health or education, labor market situation, disabilities, exposure to climate shocks or conflict, productive assets, and other household or individual attributes that may be relevant for specific programs according to their eligibility criteria, but not for others. Complementary data modules can be collected or updated on an as-needed basis depending on program requirements, e.g., only in certain geographic areas, in certain circumstances or only for certain population groups (see the example of Mauritania in box 1).

**Box 1: Modular Data Collection in Mauritania**

In 2023, Mauritania commenced an update and expansion of its social registry by optimizing and resequencing the intake and registration process. To do so, the social registry employed a modular data collection approach that involves two key stages. The first stage is the initial data collection with a core questionnaire. This short questionnaire contains 25 questions and is administered to all households in a commune, ensuring universal coverage. The data collected allows for the calculation of a Principal Component Analysis<sup>12</sup> (PCA) score, which reflects a household's wealth based on factors such as housing conditions, assets, and livestock possession. These PCA scores are then used to create a commune-level ranking of households, enabling a distribution of quotas based on actual poverty levels within the commune according to the latest LSMS survey and poverty maps available.

The second stage involves collecting a complementary questionnaire only for the poorest and most vulnerable households. The bottom 40 percent of households at the national level, based on the commune-level PCA score rankings, are preselected for complementary data collection. These preselected households are presented to the community for validation, where the community can add or substitute households and validate the final list through a collaborative process. A comprehensive questionnaire with 110 questions is then administered to the final list of preselected households, gathering detailed socio-demographic, asset, economic activity, and housing information (figure 3.7).

*Figure 3.7: Mauritania Social Registry Modular Data*



This modular approach increases inclusiveness by ensuring universal coverage initially and focusing on the poorest households later. It is cost-effective as it reduces the overall cost and time required for data collection by only administering the complementary questionnaire to a subset of households. The PCA score and community validation process allow for more accurate targeting of social protection programs, ensuring that resources reach those most in need. Additionally, the modular approach provides flexibility, allowing for continuous updates and adjustments to the registry based on changing needs and priorities. This method has proven to be more efficient and effective than previous methods, enabling Mauritania to achieve a more inclusive and responsive social protection system.

*Source:* Geschwind, Forthcoming.

## 4. DATA COLLECTION TRADE-OFFS

**When policymakers and practitioners make design choices for social registries, they must consider important trade-offs regarding the quality, coverage, timeliness and privacy risks of data collection.** The main output of dSRs is the accurate assessment of the needs and conditions of poor and vulnerable households at any given time. However, governments often face limited funds and time to collect and update the necessary data. These budget and time constraints require balancing the quality, coverage, timeliness and privacy risks of the data collected. The following subsection discusses key factors to consider for balancing these trade-offs, including data quality criteria, the cost dynamics of different intake modalities, and data protection safeguards for social registries.

### 4.1. Data quality and the accuracy of the needs and conditions assessment

The accuracy of a needs and conditions assessment refers to how well the targeted population of a program is identified according to the relevant eligibility criteria. For a predetermined policy objective, such as reducing chronic poverty or increasing food security, accuracy depends on two main factors:

- i. **The quality of the data used**, avoiding the “garbage in, garbage out” issue; and
- ii. **The performance of the assessment method** or mix of methods (e.g., categorical, Means Test (MT), Hybrid Means Test (HMT), PMT, multidimensional index, community-based, poverty scorecard, etc.).

The quality of the underlying data of social registries can be evaluated using the following criteria (adapted from Bowen et al., 2020, and from the Data Management Association DAMA data quality framework):

- **Data completeness:** Measures how much of the intended population can be covered by the data. Some intake modalities have higher access barriers than others. For instance, self-reported data can potentially be collected for all households in a country through door-to-door surveys, while indirect data like Call Detail Records (CDRs) or income tax records may only be gathered for mobile phone users or formal workers, respectively. This may exclude important groups such as women heading households who work in the informal sector, or who do not own or use mobile phones.
- **Data relevance:** Refers to how well the data captures the necessary variables and welfare dimensions for the needs and conditions assessment. For instance, a multidimensional poverty assessment requires a robust socioeconomic survey, while a purely monetary poverty assessment can use a reduced PMT questionnaire. A categorical assessment for a universal social pension may only need age data drawn from the civil registry.

---

<sup>12</sup> Principal Component Analysis is statistical technique to reduce data dimensionality while retaining most of the variance.

- **Data accuracy:** Refers to the degree to which data correctly describes the “real-world” attribute it represents, minimizing potential biases. Self-reported data can be biased if households intentionally or unintentionally misreport information. Households close to the monetary poverty line may underreport incomes to qualify for benefits, while other households may overreport to avoid stigma. Households might unintentionally misreport variables that are hard to measure or recall, or they might not understand the questions asked due to language barriers. Also, enumerators may involuntarily make data entry errors. Understanding these biases is crucial when using self-reported data directly collected for the registry.
- **Data currency:** Refers to how up to date is the data. As previously mentioned, the speed at which data becomes outdated varies depending on its half-life. Data decay can lead to an increase in inclusion and exclusion errors, reducing the targeting performance of social protection programs.
- **Data uniqueness:** Refers to the degree to which data is free from duplicate records. Ensuring uniqueness is crucial to avoid duplicate benefits, and to correctly identify individuals and households that may be eligible to social protection programs. Ensuring dynamic social registries interoperate with unique ID platforms is key to improve the uniqueness of the data.

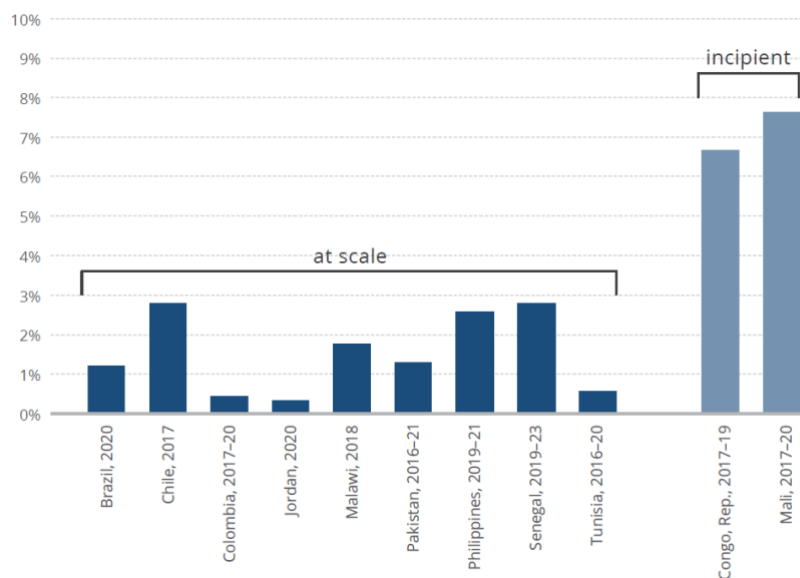
Beyond the quality of the underlying data, the performance of the assessment method that uses such data also impacts the overall accuracy of the social registry’s needs and conditions assessment. This topic is not covered in this paper, as there already exists an extensive literature on it (see for instance Grosh et al., 2022).

## 4.2. Cost dynamics of data collection for social registries

**Data is a key throughput of social registries, collected, processed, and transformed to produce accurate needs and conditions assessments for a given policy objective.**

Understanding the cost dynamics of different intake modalities is essential for the financial sustainability and efficiency of social registries within budget constraints. The overall data collection costs of social registries are small when compared to the benefit amounts delivered through their user programs (see figure 4.1). For large-scale social registries, the cost of a single survey is less than 3 percent of the annual benefits delivered by the largest program served. For more nascent registries, this cost is below 8 percent. Due to the non-rivalrous nature of data (World Bank, 2021), as more programs use social registries the data collection costs decrease in relation to the delivered benefits, effectively saving costs by avoiding duplicate data collections.

**Figure 4.1:** Ratio of the Unit Cost of a Social Registry Versus the Annual Benefit of the Largest Program Served



Source: Grosh et al. 2022

**Different intake modalities have different cost drivers.** To discuss data collection costs, it is useful to define what constitutes a basic data unit. For direct data, it is a single self-reported household questionnaire. For indirect data, it is a predefined data structure or set of harmonized variables pulled from existing administrative records. Cost drivers of data collection can be divided into fixed and variable costs depending on the intake modality (see Table 1). Fixed costs remain relatively constant regardless of the number of data units produced, while variable costs change proportionally to the number of data units produced. Classifying data collection costs is not always straightforward as some costs are also mixed, having both fixed and variables components. Some intake modalities are more intensive in variable costs, such as home visits, which rely heavily on enumerator wages and transportation (vehicles and fuel). Others are more intensive in fixed costs, like digital service windows, which depend on setting up and maintaining a website, mobile app, or call center. Exchanging administrative records mostly involves fixed costs for establishing interoperability platforms and automated data exchange protocols between the social registry and other administrative record systems.



**Table 1: Fixed and Variable Costs of Different Intake Modalities (non-exhaustive)**

| Intake Modality                           | Fixed Costs  | Variable Costs   |
|---|--|--|
| <b>Home visits</b>                        | Enumerator training, outreach campaign, equipment (tablets), data processing                 | Enumerator and supervisor wages, car rental and fuel costs, communication and data transfer fees |
| <b>Permanent registration sites</b>       | Construction costs, salaries of permanent staff, utilities                                   | Supplies and consumables, ongoing training   |
| <b>Digital service window</b>             | Software development, servers, call centers set-up costs                                     | Operator fees per call/SMS/USSD/IVR, internet services   |
| <b>Exchange of administrative records</b> | Software development of interoperability platform, servers, networking and storage equipment | Expansion costs when connecting additional agencies or increased data volumes                    |

*Source:* Original figure for this publication

**The cost structures of different intake modalities determine the extent to which they can benefit from economies of scale.** For certain modalities, the marginal costs of an additional data unit are lower than for others, which is particularly important for a dSR. The unit cost (total data production cost / data units) of an intake modality depends on: (i) the price level of the required inputs, and (ii) the ratio of fixed to variable costs. Intake modalities with higher fixed costs relative to variable costs (e.g. local government offices, exchange of administrative records) can lower the unit cost as data collection scales up. In contrast, for intake modalities with higher variable costs, such as home visits, the unit cost will remain mostly constant with smaller economies of scale. This suggests that a dynamic intake and registration process, particularly in regions prone to shocks where household welfare changes often, is more financially sustainable over the long-term if it relies on intake modalities that are fixed-cost intensive with low variable costs, such as permanent digital or physical interfaces and interoperability with other administrative databases.

**The number of variables gathered, along with their half-lives, can also influence data collection costs.** For home visits, a longer questionnaire will result in enumerators spending more time per household and thus being able to conduct fewer surveys per day, which will increase the unit cost. Furthermore, each additional variable entails an additional cost not only during its initial collection but also for its subsequent updating. Some options for optimizing questionnaire length include: (i) focusing on the actual data needs of social registry user programs; (ii) using modular data structures as discussed earlier; and (iii) employing more data-efficient predictive models to reduce the number of covariates required to estimate consumption, or other welfare metrics<sup>13</sup>. Finally, the half-life of variables also affects data collection costs over time. Fast-changing variables such as consumption

<sup>13</sup> For instance, the truncated early stopping approach halts data collection once sufficient information is gathered for accurate predictions, optimizing the point at which additional data no longer improves accuracy (Ohlenburg et al., 2022). Another approach is the Survey of Wellbeing via Instant and Frequent Tracking (SWIFT) methodology which estimates household consumption by significantly reducing the number of predictors needed and avoiding model overfitting (Yoshida et al, 2022).

patterns or employment status, may require more frequent updates compared to slower-changing variables such as housing conditions, making them more costly to maintain current.

### 4.3. Data protection safeguards for social registries

**To safely utilize direct and indirect data, social registries require robust data protection safeguards that ensure the privacy and security of individuals' information.** These measures are essential to prevent unauthorized access, misuse, and breaches of personal data. While social registries should follow the laws and regulations enforced in each country, the following general data protection criteria can be considered by practitioners designing and operating such systems (adapted from Implementation Guide – Good Practices for Ensuring Data Protection and Privacy in Social Protection Systems by SPIAC-B, 2024):

- **Purpose Specification:** Clearly define and communicate the specific purposes for which personal data is collected and processed by the social registry and its users. Personal data should not be used for any other purposes without obtaining the data subject's consent.
- **Informed Consent:** Obtain the data subject's agreement to collect and use their personal data. Consent should be contextualized and elicited freely.
- **Data Minimization:** Collect only the personal data that is necessary, adequate, and not excessive for the established purposes. This helps reduce the impact associated with potential data breaches.
- **Storage Limitation:** Retain personal data only for as long as necessary to fulfill the purposes for which it was collected. Implement policies for the secure deletion or anonymization of data no longer needed.
- **Transparency:** Provide clear and accessible information to data subjects about data usage, the purposes of data processing, retention periods, and any third parties with whom the data may be shared.
- **Security:** Implement appropriate physical, technological and organizational measures to protect personal data from unauthorized access, use, disclosure, alteration, or destruction.

**Administrators of social registries must carefully evaluate the risks associated with collecting, using and sharing large amounts of personal data, particularly in low income and fragile contexts.** A primary risk is unauthorized access and data breaches, which can lead to identity theft, fraud, and other malicious activities. These breaches can occur due to weak security protocols, lack of encryption, or insider threats. In low-income countries, the risk is heightened due to limited resources for implementing advanced security measures and the potential for corruption. Another significant risk is the misuse of data for unintended purposes such as commercial exploitation. Social registry data can also be misused for political ends, such as targeting propaganda during elections or excluding certain groups from benefits. Ensuring that social registries are visibly disconnected from political activities is crucial to maintain public trust. The absence of clear legal frameworks and oversight mechanisms in low-income countries can exacerbate these risks.

**To mitigate these risks, it is essential to establish comprehensive legal and regulatory data protection frameworks.** These frameworks should define the rights of individuals and the obligations of data controllers and processors. Social registries should develop clear operational guidelines and manuals for data collection, storage, processing, and sharing to ensure compliance with international standards. Technical safeguards such as strong encryption protocols and secure authentication mechanisms should be used to control access to the data and ensure that only authorized personnel can access sensitive information. Ongoing capacity building and training are crucial for ensuring that staff involved in data collection and management understand and adhere to data protection principles. Regular audits and monitoring are essential for identifying and addressing potential vulnerabilities. By implementing these measures, social registries can ensure the privacy and security of personal data, thereby maintaining public trust and compliance with legal and ethical standards.

## 5. CASE STUDY: Pakistan's transition from a static to a dynamic social registry

**Pakistan's National Socio-Economic Registry (NSER), established by the Benazir Income Support Programme (BISP), has undergone a remarkable evolution from a static to a dynamic social registry** (Guyen, Majoka and Jamy 2024; Grainge, 2023; and Akbar 2023). In 2010, a nationwide door-to-door survey registered 27 million households (87 percent of the population), using a 23-variable questionnaire covering household and individual characteristics, ownership of durable goods, housing details, and ownership of productive assets. To ensure data quality, spot checks were conducted on a sample of 67,000 households. This static system, which relied on administrator-driven Pen-and-Paper Personal Interviews (PAPI), was both costly and time-consuming, for the government and households, due to Pakistan's vast size and diverse geography. Approximately 25,000 enumerators were deployed for over a year before the surveys were provided to the National Database and Registration Authority (NADRA) for data entry, verification, and PMT score calculation.

**By 2015, the government considered the PMT scores were outdated for targeting since the PMT model had been trained with the 2007-2008 Household Integrated Economic Survey (HIES).** To address these challenges, BISP initiated an update of the NSER by updating the PMT model with the 2013-2014 HIES and by experimenting with various intake modalities. These intake modalities included: (1) a traditional door-to-door census approach; (2) a pilot temporary desk approach; and (3) a hybrid model combining approaches (1) and (2). In districts with heightened insecurity, BISP trained and supervised government schoolteachers to collect data. In 2016, a second national door-to-door survey was launched, integrating technology such as Computer-Assisted Personal Interviews (CAPI), which significantly reduced data processing time. However, challenges persisted, particularly in densely populated urban and remote rural areas, leading to prolonged data collection times.

**The temporary desk pilot was launched in mid-2016 in collaboration with NADRA, the entity hosting the NSER databases.** This approach required an average travel time of 20 minutes to registration centers and an interview time of 15 minutes (plus wait time), with each registration center operating for five months. Following the temporary desk pilot in 15 districts, and while the national door-to-door survey was still being rolled out, one or two counters of the desk-based approach remained functional per *tehsil*<sup>14</sup> for one year. These desk-based centers registered households missed in the door-to-door survey, updated household composition, and resolved discrepancies such as missing Computerized National Identity Cards (CNIC). Valuable lessons learned during this phase included:

- Ensure sufficient resources for outreach and monitoring, including tailored communication materials for low literacy levels.

---

<sup>14</sup> A tehsil in Pakistan is an administrative division that is typically a sub-division of a district. It is similar to a county or a borough in other countries.

- Improve coordination with local government and survey teams, ensuring timely delivery of materials.
- Implement strategies to reduce wait times at the registration centers.
- Enhance accessibility of registration centers for individuals living in remote areas and those facing significant mobility constraints, particularly the poorest of the poor.

**The COVID-19 pandemic and subsequent floods in 2022 highlighted the limitations of administrator-driven intake and served as a catalyst to transform the NSER into a dynamic social registry.** During the initial wave of the pandemic in May 2020, the government recognized the urgent need to provide financial aid to the poorest. However, the door-to-door NSER update, started in 2016, was still incomplete. To include all vulnerable populations in the registry for an effective emergency response, the government rapidly scaled up its desk-based data collection effort, initially only allowing new registrations. The large-scale floods in 2022 pushed many previously financially stable households into poverty, posing significant challenges for BISP in swiftly identifying and providing rapid financial support to the newly vulnerable. To enhance accessibility for those affected by shocks, additional temporary desks were set up. A mass communication campaign on BISP emergency cash transfers led to an influx of potential new beneficiaries at registration centers, necessitating the recruitment of additional ushers, enumerators and supervisors.

**Recognizing that crises were likely to recur in flood-prone regions and the country at large, BISP initiated a process to transition to an on-demand registration system through a permanent client interface for the NSER.** This system is capable of continuously registering and updating household data, enabling the government to respond to changing household welfare and facilitating a rapid shock response. Building upon the door-to-door survey completed in 2021, households now have access to 647 permanent registration desks, at least one in each *tehsil*, offering a range of services, including:

- **New registrations:** Households overlooked during the door-to-door survey can register.
- **Update information after appeal:** Households qualifying for an appeal can update their data.
- **Roster updates:** Beneficiary households can update births, deaths, disability, or marital status.
- **Post-shock updates:** Households update their information after a shock, such as recording losses.
- **Socioeconomic updates for non-beneficiaries:** Those not benefiting from the program can update their socioeconomic data every two years, starting with the lower PMT brackets.
- **Mandatory Recertification for beneficiaries:** Existing beneficiaries are required to update their information every three years to get re-certified.
- **Assistance for women registrants:** Women work at the BISP registration centers to help women and underprivileged people register.

**Through this approach the entire NSER database will be updated every four years without a large-scale door-to-door survey.** PMT scores are periodically recalculated when non-beneficiary households update their data, and through the re-certification of existing BISP beneficiaries. Notably,

centers are also staffed with BISP beneficiaries who verify the CNIC national identity cards, issue appointment tokens, and guiding registrants. These staffed beneficiaries provide valuable insights into the situation of women registering and help spread awareness about the registry within their community. Additionally, the NSER offers a permanent digital service window for households to update their roster information or resolve discrepancies using their mobile phones. Random door-to-door audits cross-verify the accuracy of data collected at desks, deterring misreporting.

**The evolution of the NSER from a static social registry to a dSR marks a significant change, poised to mitigate inclusion and exclusion errors while increasing timeliness and resource efficiency.** Furthermore, the integration of an application-programming interface (API)-based system, facilitating secure data exchange across digitized databases, has improved the interoperability of the NSER with other social protection programs. This evolution, spurred by crises, strong political will, and BISP's readiness to learn and embrace technology, has positioned the NSER as a leading digital social protection delivery system.

## 6. RECOMMENDATIONS AND CONCLUSIONS

The following recommendations can support the design and operationalization of dynamic social registries in shock-prone contexts, including in the Sahel:

- 1. Establish a permanent client interface between households and the social registry for on-demand data collection.** To ensure a dynamic intake and registration process, it is crucial to establish a permanent client interface that is accessible to the most vulnerable of households (such as female-headed, with low or no literacy, etc.). This permanent interface can be either in-person or digital, but it should be tailored to the conditions of each country and might entail different intake modalities in different areas (urban/rural) or for different groups. For the Sahel, an in-person interface may be more appropriate in the short-term, while in the medium-term developing a digital interface will 'future-proof' dynamic social registries. The permanent interface should enable households to initiate data collection and updates on-demand, at their convenience. This approach ensures that data remains current and relevant, thereby enhancing the registry's ability to reflect changes in welfare and mitigating the effects of data decay on the accuracy of the assessment of needs and conditions.
- 2. Adopt a modular structure for socioeconomic questionnaires.** Implementing a modular structure for socioeconomic questionnaires can enhance the efficiency of data collection and management. This approach involves defining core and complementary modules based on the re-usability of the variables collected, the requirements of social protection programs served by social registry, and other context-specific factors (Karippacheril et al. 2024). By optimizing the questionnaire to the minimum variables required by programs, the process becomes more cost-efficient and logistically manageable. This modularity allows for the collection of core data for all households while enabling the addition of complementary data modules as needed. By optimizing the questionnaire to the minimum variables required by programs, the process becomes more cost-efficient and logistically manageable. This modularity allows for the collection of core data for all households while enabling the addition of complementary data modules as needed.
- 3. Ensure interoperability with other data sources and ASP delivery systems.** It is important for dynamic social registries to be interoperable with other data sources and government systems, when available, including unique IDs, program Management Information System/Beneficiary Operations Management System (MIS/BOMS), grievance redress mechanisms, payment systems and early warning systems. Interoperability ensures a seamless data exchange with dynamic social registries, allowing them to verify, complement and update self-reported information. This interconnectedness allows for better coordination and alignment of support among various government systems and actors.
- 4. Promote systematic peer-to-peer learning on social registries:** Establishing and scaling dynamic social registries in the Sahel can be accelerated through systematic cross-

country learning and cooperation. Robust peer-to-peer technical exchanges can enhance national capacity to design and implement dynamic social registries. Strengthening knowledge exchange platforms through regular South-South fora - within the region as well as with countries outside the region - will be crucial to identifying workable solutions to strategic and operational challenges for dynamic social registries, regardless of their level of development.

**Making social registries dynamic is a crucial step towards building adaptive social protection systems and ensuring that support is provided to those who need it most when they need it most.** By establishing a permanent interface, integrating both direct and indirect data and adopting a modular data structure, *dSRs* can capture quickly changing household welfare conditions and facilitate rapid vertical or horizontal expansion in shock-prone environments. However, their design and implementation require careful consideration of important trade-offs, such as balancing the need for high-quality data, the costs of expanding coverage and the associated privacy risks. Future work can explore alternative and complementary needs assessment methods and metrics for *dSRs* beyond consumption, as well as estimating the return on investment of social registries through a cost-benefit analysis against forgone investments in human capital.



## REFERENCES

- Ahmed, S, R Chirchir, and B Gelders. 2021. "Enhancing the Effectiveness of Social Protection Spending through Improved Social Registry-Based Targeting." Policy Research Institute (PRI) of Bangladesh. 2021.
- Aiken, Emily, Tim Ohlenburg, and Joshua Blumenstock. 2023. "Moving targets: When does a poverty prediction model need to be updated?" *ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS '23)*.
- Aiken, Emily, and Tim Ohlenburg. 2023. "Novel Digital Data Sources for Social Protection: Opportunities and Challenges." GIZ.
- 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 (March): 864–70.
- Akbar, N. 2023. "Digital Solutions for a More Resilient Future: Pakistan's Journey and Innovations towards Adaptive Social Protection: Case Study of Pakistan." World Bank.
- Barca, V, and M Hebbar. 2020. "On-Demand and Up-To-Date? Dynamic Inclusion and Data Updating for Social Assistance." *Social Protection*. GIZ.
- Barca, V., Hebbar, M., Knox-Vydmanov, C., & Brzezinska, I. (2023). We Have the Data, Let's Use it Better: Pushing the boundaries of social protection administrative data analysis and use. GIZ
- Bowen, Thomas, Carlo Del Ninno, Colin Andrews, Sarah Coll-Black, Ugo Gentilini, Kelly Johnson, Yasuhiro Kawasoe, Adea Kryeziu, Barry Maher, and Asha Williams. 2020. "Adaptive Social Protection: Building Resilience to Shocks." World Bank.
- Consejo Nacional De Política Económica Y Social. 2016. "Declaración de Importancia Estratégica Del Sistema de Identificación de Potenciales Beneficiarios (SISBEN IV)." República De Colombia. 2016.
- DAMA NL. 2020. Dimensions of Data Quality (DDQ) Research Paper, version 1.2.
- Dang, Hai-Anh H., and Andrew L. Dabalen. 2018. "Is Poverty in Africa Mostly Chronic or Transient? Evidence from Synthetic Panel Data." *The Journal of Development Studies* 55 (7): 1527–47.
- Fan, Wenfei, Floris Geerts, and Jef Wijsen. 2012. "Determining the Currency of Data." *ACM Transactions on Database Systems* 37 (4): 1–46.
- Geschwind, Sebastian. Forthcoming. "Balancing Inclusiveness, Quality, and Costs: The Innovative Modular Intake and Registration Strategy of Mauritania's Social Registry." Washington, DC: World Bank.
- Grainger, Corrine. 2023. "Pakistan's Transition to a Dynamic Social Protection Registry – Healthy DEvelopments." Healthy DEvelopments. Federal Ministry of Economic Cooperation and Development (BMZ). June 26, 2023. <https://health.bmz.de/stories/pakistans-transition-to-a-dynamic-social-protection-registry/>.

- Grosh, Margaret, Matthew Wai-Poi, and Tesliuc Emil. 2022. "Revisiting Targeting in Social Assistance: A New Look at Old Dilemmas. Human Development Perspectives." Washington, DC: World Bank.
- Guven, Melis, Himanshi Jain, and Clement Joubert. 2021. "Social Protection for the Informal Economy: Operational Lessons for Developing Countries in Africa and Beyond." Washington DC: World Bank.
- Guven, Melis, Zaineb Majoka, and Gul Jamy. 2024. "Leveraging Digital Technology for Adaptive Social Protection in Pakistan." Washington DC: World Bank.
- Guven, Melis, Fnu Zaineb, and Gul Najam Jamy. 2024. "The Evolution of Benazir Income Support Programme's Delivery Systems: Leveraging Digital Technology for Adaptive Social Protection in Pakistan." World Bank. March 1, 2024.
- Hoogeveen, Johannes, and Utz Pape, eds. 2020. "Data Collection in Fragile States: Innovations from Africa and Beyond."
- Karippacheril, Tina George, Luis Inaki Alberro Encinas, Ana Lucia Cardenas, Martinez, Conrad Daly, and Satyajit Suri. 2024. "Playbook on Digital Social Protection Delivery Systems: Towards Dynamic Inclusion and Interoperability." World Bank.
- Koren, David, Vojko Kilar, and Katarina Rus. 2017. "Proposal for Holistic Assessment of Urban System Resilience to Natural Disasters." *IOP Conference Series: Materials Science and Engineering* 245 (October): 062011. <https://doi.org/10.1088/1757-899x/245/6/062011>.
- Lindert, Kathy, Tina Karippacheril, Inés Rodriguez Caillava, and Kenichi Nishikawa Chavez. n.d. 2020 "Sourcebook on the Foundations of Social Protection Delivery Systems." World Bank. <http://hdl.handle.net/10986/34044>.
- Lawson, C., Koudeka, M., Cárdenas, A., Alberro, L., George, T. 2023. "Novissi Togo: Harnessing Artificial Intelligence to Deliver Shock-Responsive Social Protection." Social Protection and Jobs Discussion Papers; 2306. World Bank, Washington, DC. <http://hdl.handle.net/10986/40405>
- Mukherjee, Anit Nath, Laura Ximena Bermeo Rojas, Yuko Okamura, Jimmy Vulembera Muhindo, and Paul G. A. Bance. 2023. *Digital-first Approach to Emergency Cash Transfers: STEP-KIN in the Democratic Republic of Congo*. Washington, D.C.: World Bank Group.
- Ohlenburg, Tim, Juul Pinxten, Daniel Fricke, and Fabio Caccioli. 2022. "Fewer Questions, More Answers: Truncated Early Stopping for Proxy Means Testing." World Bank.
- Ortakaya, Ahmet Fatih, Oya Pinar Ardic Alper, Minita Mary Varghese, and Chrissy Martin Meier. 2023. *Turkey Case Study: Deep Dive into the Ecosystem for the Delivery of Social Assistance Payments*. Washington, D.C.: World Bank Group.
- Pople, Ashley, Ruth Hill, Stefan Dercon, and Ben Brunckhorst. 2021. "Anticipatory Cash Transfers in Climate Disaster Response." *CSAE Working Paper Series*. <https://ideas.repec.org/p/csa/wpaper/2021-07.html>.

SEDESOL. 2011. "Dirección General de Geoestadística Y Padrones de Beneficiarios." *Cuestionario Único de Información Socioeconómica (CUIS)*.

Skoufias, Emmanuel, Katja Vinha, and Berhe Mekonnen Beyene. 2021. *Quantifying Vulnerability to Poverty in the Drought-Prone Lowlands of Ethiopia*. World Bank Policy Research Working Paper.

World Bank. 2021. World Development Report 2021: Data for Better Lives. Washington, DC: World Bank.

World Bank. 2022. The Concept and Empirical Evidence of SWIFT Methodology. Equitable Growth, Finance and Institutions Insight - Poverty and Equity. Washington, DC: World Bank.

© 2024 International Bank for Reconstruction and Development / The World Bank  
1818 H Street NW  
Washington DC 20433  
Telephone: 202-473-1000  
Internet: [www.worldbank.org](http://www.worldbank.org)

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy, completeness, or currency of the data included in this work and does not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of The World Bank, all of which are specifically reserved.

### Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for non-commercial purposes as long as full attribution to this work is given.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: [pubrights@worldbank.org](mailto:pubrights@worldbank.org).

### Acknowledgements

The [SASPP](#) is a multi-donor trust fund managed by the World Bank that supports the strengthening of adaptive social protection systems in the Sahel (Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal) to enhance the resilience of poor and vulnerable households and communities to the impacts of climate change. The program is supported by Denmark, France, Germany, and the United Kingdom.

