ID4D
GLOBAL DATASET 2021
Volume 3 | Trends in Identification for Development

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OTHER TITLES IN THE ID4D GLOBAL DATASET 2021 SERIES:

Volume 1: Global ID Coverage Estimates

Volume 2: Digital Identification Progress and Gaps

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ABSTRACT

This paper accompanies the release of new qualitative indicators as part of the World Bank's Identification for Development (ID4D) Global Dataset, vastly expanding the descriptive data available for each country's identification (ID) system to establish a clearer picture of the global ID landscape. The authors collected new data through a survey of ID authorities and a comprehensive desk review of public materials for 175 countries, available for download at *http://id4d.worldbank.org/global-dataset*. This paper and data are intended to serve as a benchmarking tool, an information repository, and a catalyst of discussion for ID practitioners and the broader ecosystem of stakeholders working on identity and civil registration. While the data are accurate to the best of our ability, significant missingness in some variables highlights the need for improved public information and crowdsourcing to ensure up-to-date information about these critical systems. This paper begins with a discussion of our objectives and methodology, followed by a description of global trends in identification, organized according to major stages of the identity lifecycle: registration, issuance, use, and management. In-depth country examples are provided to illustrate certain patterns and outliers.

This paper is the third in a three-volume series collectively known as the 2021 ID4D Global Dataset. Volume 1 uses new data and modeling to estimate the number of globally who do (and do not) have official proof of identity. Volume 2 presents data on the digital maturity and capabilities of the world's ID systems. This third and final volume enhances that snapshot by exploring many more facets of ID systems across 175 countries. All three volumes and corresponding datasets are available for download at http://id4d.worldbank. org/global-dataset.

ABOUT ID4D

The World Bank Group's Identification for Development (ID4D) Initiative harnesses global and cross-sectoral knowledge, World Bank financing instruments, and partnerships to help countries realize the transformational potential of identification (ID) systems, including civil registration (CR). The aim is to enable all people to exercise their rights and access better services and economic opportunities in line with the Sustainable Development Goals. This is especially important as countries transition to digital economies, digital governments, and digital societies, where inclusive and trusted means of verifying identity are essential to ensure accessibility and data protection.

ID4D operates across the World Bank Group with global practices and units working on digital development, social protection, health, financial inclusion, governance, gender, and data protection, among others. To ensure alignment with international good practices for maximizing development benefits and minimizing risks, ID4D is guided by the 10 *Principles on Identification for Sustainable Development*, which have been jointly developed and endorsed by the World Bank Group and over 30 global and regional organizations (see http://idprinciples.org).

ID4D makes this happen through its three pillars of work:

1. Thought leadership, research, and analytics to generate evidence and fill knowledge gaps

2. Global public goods and convening to develop and amplify good practices, foster collaboration across regional and global stakeholders, and support knowledge exchange

3. Country and regional action through financial and technical assistance to realize inclusive and trusted ID and CR systems

The work of ID4D is made possible through support from the Bill & Melinda Gates Foundation, the UK Government, The French Government, The Norwegian Agency for Development Cooperation (Norad), and the Omidyar Network.

To find out more about ID4D and access our other publications, visit www.id4d.worldbank.org.

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

This paper is the third in a three-volume series. The first volume, *Global ID Coverage Estimates*, uses new data and modeling to estimate the number of globally who do (and do not) have official proof of identity. The second volume, *Digital Identification Progress and Gaps*, presents data on the digital maturity and capabilities of the world's ID systems. This third and final volume enhances that snapshot by exploring many more facets of foundational ID systems across 175 countries.

OVERVIEW

Being able to prove who you are matters for equitable, sustainable development.[1] Access to identification (ID) is a right on its own, and having a trusted, verifiable ID allows a person to participate fully in economic, social, and political life. As services and opportunities increasingly move online, being able to prove your identity remotely is rapidly becoming essential. For this reason, digital identity is a core building block in a country's digital public infrastructure (DPI), along with other systems that can enable digitalization across sectors, such as digital payments and data exchange (Desai et al. 2023).

Designing inclusive and effective digital ID requires a strong understanding of the current ID ecosystem to build on past successes and avoid potential missteps. The purpose of this paper is to take stock of the world's foundational ID systems, diving deep into their policies, technologies, and operations. For ID practitioners, this paper offers a benchmarking tool to place policy decisions in context. For other stakeholders, from civil society organizations to international organizations to donors, it offers a new repository of information that can help guide coordinated efforts to build trusted and inclusive ID systems that provide a strong foundation for development and new forms of digital ID.

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1   As recognized, inter alia, through Sustainable Development Goal (SDG) Target 16.9: "to provide legal identity for all, including birth registration" by 2030. For more, see the ID4D Practitioner's Guide (World Bank 2019).

OBJECTIVES

Our objective

Where to find the results

1. To present a **snapshot** of ID system features at the **country level** — Dataset spreadsheet, available for download at: https://id4d.worldbank.org/global-dataset

2. To identify **patterns and trends** in ID system characteristics at the **global level** — Section 3 of this report, *Global Trends in Identification*

SCOPE

This ID4D Dataset release covers 175 countries[2] that have a foundational system—i.e., a national ID, population register, or similar system—which issues general-purpose identification for adults. Within each system we focus on the most common credential issued to adults. Of the 198 countries included in the broader ID4D Dataset, 23 do not have such a foundational ID system thus are excluded from this data collection and analysis.[3]

METHODS

The data used for this paper was collected between February 2021 and June 2022 in two phases:

1. First, extensive **Desk Research** was conducted to create a profile of each country's ID system. Information was collected from official sources, such as government websites, press releases, and reports from UN agencies and other development partners.

2. Second, an **ID Authority Questionnaire** ("IDAQ") was sent to 126 countries between August 2021 and May 2022, including a follow-up period to clarify and validate responses. The full text of the questionnaire is included in Appendix 2. Responses on ID system characteristics were received from 62 countries.

The data collected—and the analysis presented in this paper—represent a snapshot of the world's foundational ID systems as of mid-2022, and based on the best information available at the time. Changes to the ID systems and credentials that were enacted after July 2022 are outside the scope of this paper and data.

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2 The term country, used interchangeably with economy in this paper, does not imply political independence but instead refers to any territory for which authorities report separate social or economic statistics.

3 See Appendix 1. Excluded Countries for a complete list.

The data has two other limitations: **missingness** and **scope**. Regarding missingness, the Dataset includes high rates of "Unknown" values for some variables due to a lack of publicly available data and/or incomplete questionnaires. This could bias the observed patterns, and we therefore ask readers to *exercise caution when interpreting global patterns* for variables with higher levels of missingness. In terms of scope, there are also many important characteristics of ID systems that were not feasible to capture in this exercise.

Despite validation efforts, there may still be errors or inconsistencies, particularly where it was not possible to confirm information via the IDAQ. The authors therefore welcome updates and corrections to inform future data releases. We hope that this Dataset can serve as a catalyst to improve publicly available information on these essential systems and to crowd-source corrections for future updates.[4] Despite these limitations, however, these data represent a valuable starting point for further data collection and analysis.

GLOBAL TRENDS IN IDENTIFICATION

Data and indicators in this paper are organized according to the major stages of the identity lifecycle: registration, issuance, use, and management (World Bank 2019).

Figure 1. The Identity Lifecycle (Summary)
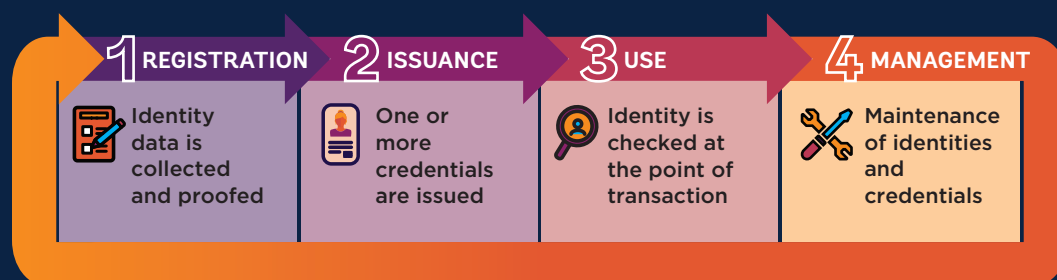
Summaries of some of the original data collected for this Dataset are presented in **Table 1**, with more variables included in the full Dataset. Here and throughout this paper, we report the number of complete observations ("n") out of a possible 175, as well as the number of missing data points or "unknowns." For variables with high levels of missingness, findings are prefaced with "at least" or "that we know of." *When a trend emerges from the data, it should be interpreted with this caveat in mind.*

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4   Please send relevant information to id4d@worldbank.org with the subject line "ID4D Global Dataset—Volume 3."

Table 1. Frequency Table for Main Variables, with Number of Complete Observations

Institutions		
ID authority home institution type (n=172)		**Are ID & CR operated by same authority? (n=153)**
93 Interior/Home Affairs	3 Economy/Finance	78 Yes
19 Security	3 Local Affairs	75 No
15 Justice	3 Immigration/Citizenship	22 Unknown
11 Executive	2 Planning	
8 Electoral	2 Statistics	
7 None (independent authority)	1 Public Service	
5 Digital/ICT	3 Unknown	

Registration		
Registration or credentials are mandatory? (n=158)		**Non-nationals eligible to register? (n=153)**
129 Must register & obtain credential	1 Varies by sex	94 Yes
14 Must register, credential optional	17 Unknown	59 No
14 Registration & credential both optional		22 Unknown

Biometric data collected:		
Face (n=153)	**Fingerprints (n=149)**	**Iris (n=128)**
136 Yes	134 Yes	16 Yes
17 No	15 No	112 No
22 Unknown	26 Unknown	47 Unknown

ID fees:		
First ID issued for free? (n=154)	**Replacement ID issued for free? (n=129)**	**Waivers/subsidies available? (n=70)**
63 Yes	15 Yes	48 Yes
7 Yes, until a certain age	10 Yes, for renewal only	7 No
84 No	1 Yes, until a certain age	15 N/A (no fees)
21 Unknown	103 No	105 Unknown
	46 Unknown	

Table 1. Frequency Table for Main Variables, with Number of Complete Observations *(continued)*

Credentials		
ID Numbers:		
ID number issued by system is permanent? (n=141)	ID number assigned at birth? (n=124)	ID number recorded on birth certificate? (n=104)
135 Yes	86 Yes	58 Yes
6 No	35 No	43 No
34 Unknown	3 N/A (no number issued)	3 N/A (no number issued)
	51 Unknown	71 Unknown
ID Documents:		
Have 1D barcode? (n=148)	Have 2D barcode? (n=149)	Have chip? (n=152)
25 Yes	46 Yes	100 Yes
123 No	103 No	52 No
27 Unknown	26 Unknown	23 Unknown
Use		
Biometrics used for verification/authentication:		
Face (n=67)	Fingerprints (n=82)	Iris (n=119)
31 Yes	54 Yes	6 Yes
19 No	13 No	1 No
17 N/A (not collected)	15 N/A (not collected)	112 N/A (not collected)
86 Use unknown	67 Use unknown	9 Use unknown
22 Collection/use both unknown	26 Collection/use both unknown	47 Collection/use both unknown

Note: Table summarizes a subset of main variables available in ID4D's latest Global Dataset Release. It includes the frequency of various characteristics of the country's foundational ID system, as well as the number of complete and missing observations across 175 countries.

MANAGEMENT

Foundational ID systems are typically owned and managed by a government entity, referred to generically as the "**ID Authority**." In only six countries that we know of, the ID Authority is completely independent. In other cases, the ID Authority is housed within a "home institution" elsewhere in the government. The most common type of home institution is a **Ministry of Interior or Home Affairs**[5] (at least 93 countries). In a least 77 countries, the **ID system and the civil registration (CR) system** are managed by the same authority.

Figure 2. Frequency of ID Authority Home Institution Types

The most common place to find an ID authority housed is a Ministry of Interior or Home Affairs

	Frequency
Interior/Home Affairs	93
Security	20
Justice	15
Executive	10
Electoral	9
None (independent authority)	6
Digital/ICT	5
Local Affairs	3
Immigration/Citizenship	3
Economy/Finance	3
Statistics	2
Planning	2
Public Service	1
Unknown	3

Frequency

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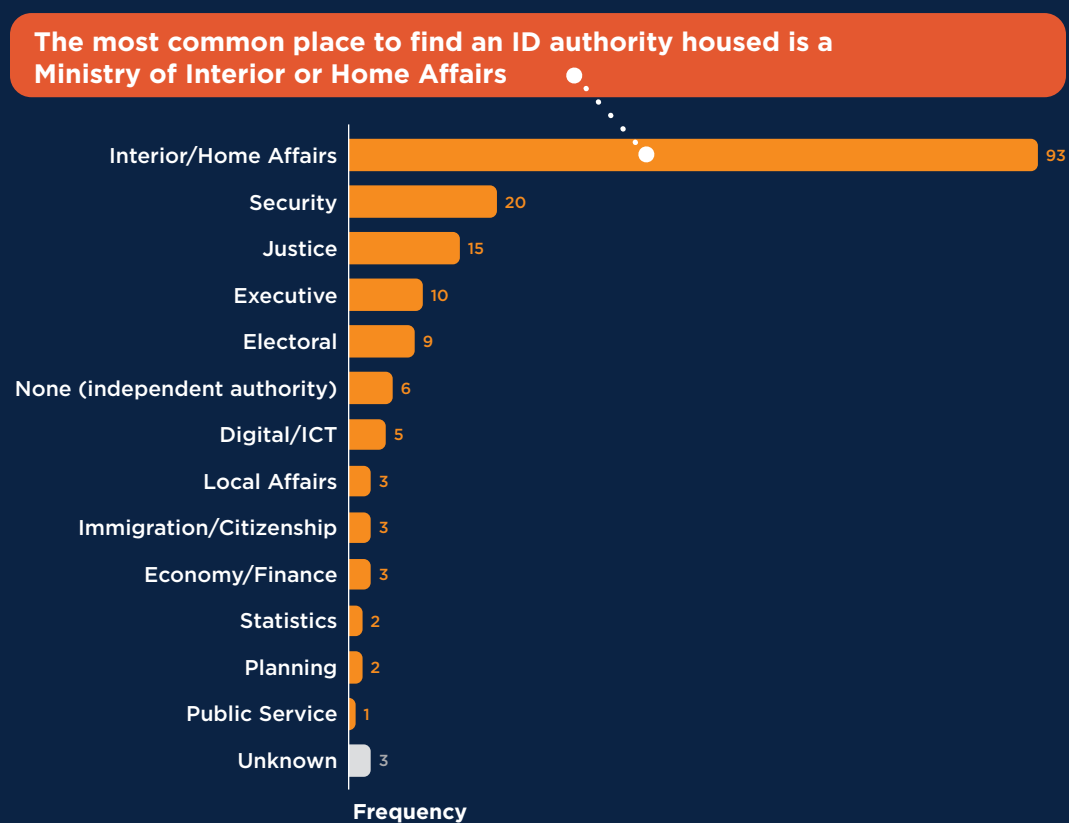
5   Depending on the country and legal tradition, Ministries of Interior and Home Affairs may include both territorial administration and security functions; in other cases, these are the responsibilities of separate ministries (e.g., Ministries of Public Security, or Ministries of Local Administration). On a global level, it is difficult to distinguish these cases without delving into the specific legal traditions and institutions of each country; therefore, these categories are broad and based solely on the name of the home institution. However, the Dataset provides the full name of the ID and CR authorities and home ministries so researchers are free to adjust these contextualize these classifications.

REGISTRATION

Registration and obtaining an ID is mandatory for nationals is mandatory in at least 129 countries. Non-nationals are eligible to register in the foundational ID system in at least 94 countries, or over half of countries globally. The first credential issued is completely free in 63 countries, but replacement IDs are less likely to be free—only 15 countries that we know of issue free replacement credentials in all circumstances. However, at least 48 countries offer some type of waiver or subsidy for ID fees to reduce or eliminate the costs for those in need. Most countries have between 1 and 7 fixed registration sites per 100,000 people, and at least 72 countries also have mobile registration kits available.

To **establish a person's identity** during registration in the ID system, virtually all ID systems collect name, date of birth, and gender or sex (collection of other biographic details varies). In addition to biographic data, most foundational ID systems (at least 152) collect biometrics, and most commonly fingerprints and facial images.

Figure 3. Frequency of Biometric Data Collection, by Modality

at least
16
out of
175 countries collect
IRIS DATA

112 do not
47 unknown

at least
136
out of
175 countries collect
FACE DATA

17 do not
22 unknown

at least
134
out of
175 countries collect
FINGERPRINT DATA

15 do not
26 unknown
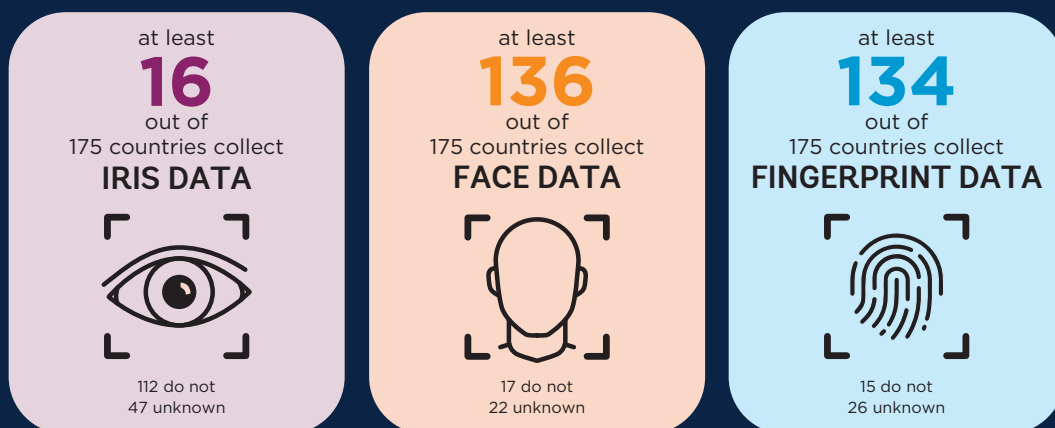
The identity claim stage typically also involves documentation, and **one of the most required documents is a birth certificate**. In at least 90 out of 175 countries, everyone is required to present their birth certificate during registration. In an additional 26 countries a birth certificate is one of multiple accepted documents for establishing identity. However, at least 60 countries offer alternative processes for individuals who do not have the commonly required documents.

Figure 4. Frequency of Select Identity Claim Procedures

At least **90** countries require all registrants to present **birth certificate** during ID registration, which can be a barrier for some.

But at least **60** countries offer an **alternative ID** registration process for individuals who do not have the required document—although awareness and uptake of these programs varies.

ISSUANCE

In any foundational ID system, **identifying numbers** are the most basic type of identifier or credential. Most countries (at least 134 out of 175) issue an ID number that is considered "permanent" (i.e., unchanging throughout a person's lifetime). These numbers range in length from 7 to 20 digits, but most are around 10 to 13 digits.

Only 21 countries that we know of generate completely **random ID numbers**. The most common ID number format, issued by at least 54 countries, is a mix of coded and sequential digits. Common information coded into ID numbers includes date of birth (49+ countries) and sex or gender (42+ countries). At least 86 countries issued their ID number to newborns at birth, and many of these (at least 58) print the newborn's ID number on their birth certificate.

Figure 5. **Frequency of ID Number Formats**

The most common format for ID numbers is a mix of sequential & coded digits

Format	Frequency
Sequential + Coded	56
Fully Coded	23
Fully Random	21
Fully Sequential	13
N/A (no number issued)	3
Unknown	59

Frequency
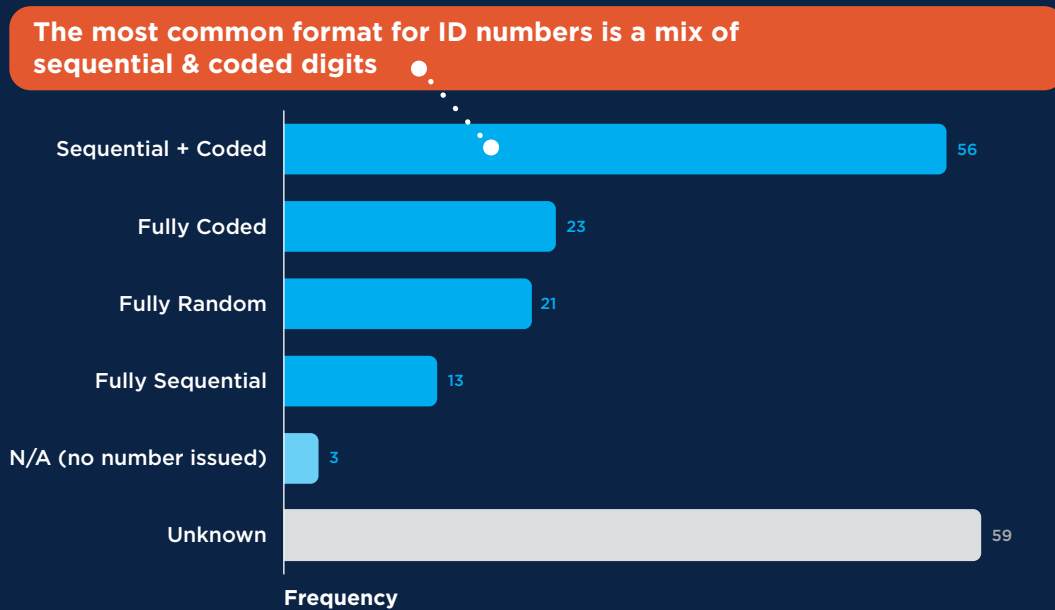
Despite the rapid growth of digital credentials, **physical credentials** still play an important role in ID systems. These often (though not always) consist of an ID card, generally known as a "national ID" or a similar term. The majority of countries issue ID cards made of plastic (at least 125 out of 175), while at least 14 issue paper-based credentials.

Most countries **print a majority of the data that they collect on the ID credential**, with the exception of attributes such as address, marital status, race, and religion, which are less commonly visible. The most common digital data storage feature that these cards have is a chip (seen in at least 100 countries). At least 46 countries' cards have 2D barcodes like QR codes—sometimes in addition to a chip. In roughly half of the cases where biometric data is collected, it is also **stored on the credential** (via a chip, barcode, or both). However, it is difficult to assess whether chips or barcodes are used for digital authentication or verification in practice.

Figure 6. **Frequency of Credential Materials**

125 are made
of **plastic**

14 are made of
paper or **cardboard**

36 are made of
unknown material
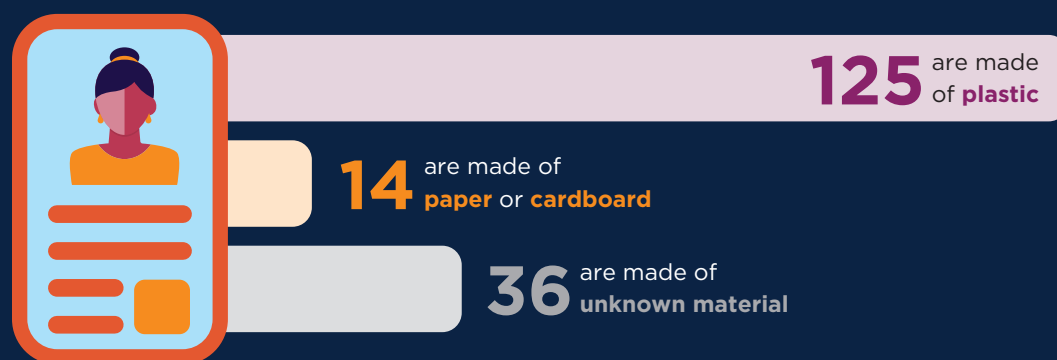
Regarding **credential validity**, most countries—at least 123—issue credentials to adults that expire at regular intervals. This either happens at a set number of years after the credential is issued or is mandated to happen when the holder reaches certain ages. If the former, the most common length of validity is 10 years—at least 71 countries have this policy. Only 6 countries that we know of have adopted the latter strategy of expiration based on age. Validity can also be **adjusted** for certain groups to accommodate their needs: in those countries where credentials do expire, at least 89 accommodate seniors by ending their expiration policy after a certain age. Validity adjustments for children are less common in the data, though at least 33 countries adjust validity for minors.

USE

Once an individual is registered in the system and issued a credential, they can engage in transactions or interactions using this credential and/or other services provided by the ID system. In some cases, government or private sector service providers may require the ID; in others, it may be accepted by not required. The data indicate that it is more common for service providers to accept their country's national ID as **one of multiple options for proof of identity**, rather than to mandate that the national ID specifically must be used. The service in our study with the highest rate of requiring the national ID is bank account opening: to open an account at a bank or financial institution, 65 countries (out of 73 for which we have data) *require* the national ID, while another 10 accept it as one of multiple ID options.

Figure 7. **Frequency of Biometric Use for Verification/Authentication, by Modality**

Of **134** countries that we know collect
FINGERPRINT DATA

at least
54
(40%)
use it for verification and/or authentication

Of **16** countries that we know collect
IRIS DATA

at least
6
(38%)
use it for verification and/or authentication

Of **136** countries that we know collect
FACE DATA

at least
30
(24%)
use it for verification and/or authentication
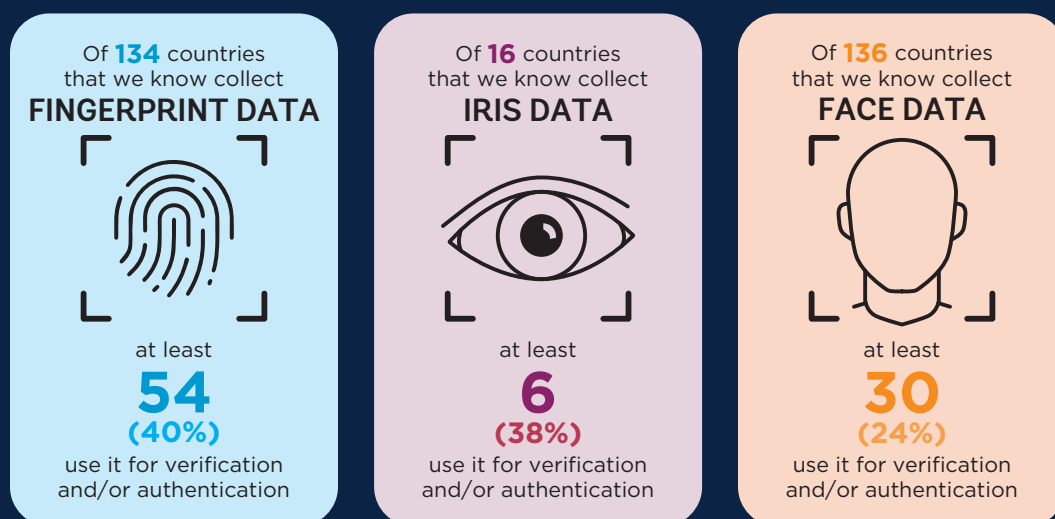
Most ID systems offer some level of digital verification and/or authentication mechanisms beyond presenting a credential for visual inspection. When it comes to biometrics, the data suggests that **fingerprints are the most common modality** used for digital authentication. Of the 134 countries that we know collect fingerprint data, 54 reporting using it for verification and/or authentication (while 13 out of the 134 countries specifically do not).[6] Around the same number of countries (136) collect facial images, but only 31 use it for digital authentication (while 19 out of 136 specifically do not).[7] Iris data are only collected in 16 countries, and only 6 of these use it for digital authentication.

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6   This information is unknown for the other 67 out of 134 countries.

7   This information is unknown for the other 86 out of 136 countries.

ID
TRENDS

INTRODUCTION

1.1 MOTIVATION

Being able to prove who you are matters for equitable, sustainable development.[8] Access to identification (ID) is a right, and having a trusted, verifiable ID ensures that a person can participate fully in economic, social, and political life. This is increasingly true in the digital age. While ID has long been required to access services face-to-face—from opening a bank account to registering for a government program—it now plays an analogous role in remote service delivery. As sectors from finance to social protection move to digital platforms and online service delivery, the ability to securely, conveniently, and remotely verify your identity is rapidly becoming essential. For this reason, digital identity is a core building block in a country's digital public infrastructure (DPI), along with other

As digitalization accelerates, the world has a chance to define what ID will mean in the digital age— but it will be difficult to make smart decisions about the future direction of legal and digital identity without a baseline understanding of where ID systems are today.

systems that can enable digitalization across sectors, such as digital payments and data exchange (Desai et al. 2023).

Designing inclusive and effective digital ID requires a strong understanding of the current ID ecosystem to build on past successes and avoid potential missteps. Digitalization has the potential to transform how people and businesses around the world access services and economic opportunities and how governments can meet the needs of their constituents. As digitalization accelerates, the world has a chance to define what ID will mean in the digital age—but it

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8   As recognized, inter alia, through Sustainable Development Goal (SDG) Target 16.9: "to provide legal identity for all, including birth registration" by 2030. For more, see the ID4D Practitioner's Guide (World Bank 2019).

will be difficult to make smart decisions about the future direction of legal and digital identity without a baseline understanding of where ID systems are today. The purpose of this paper and data collection is therefore to take stock of the world's ID systems and provide deep qualitative information on their policies, technologies, and operations.

1.2 OBJECTIVES

This paper is a descriptive exercise intended to serve multiple purposes. For ID practitioners, it provides a benchmark to help place policy decisions and ID system trends in context. For other stakeholders invested in ID—including public and private entities, civil society, researchers, and development partners—it provides a repository of information that can help guide coordinated efforts to build more trusted and inclusive ID systems that provide a strong foundation for development and new forms of digital ID.

This paper is the culmination of a comprehensive update to the ID4D Global Dataset, undertaken between 2021 and 2023. The first volume in the series, *Global ID Coverage Estimates*, uses new data and modeling to estimate the number of people globally who do (and do not) have government-issued proof of identification. The second volume, *The Digital Identification Gap,* presents a snapshot of the digital maturity and capabilities of the world's ID systems. This third and final volume extends that snapshot by exploring ID system characteristics in depth. Together these papers and data releases provide a wide angle view of ID today.

The objectives of this paper are twofold:

1. Presenting a snapshot of ID system characteristics at the country level, and

2. Identifying patterns and trends in ID system at the global level.

The data that accompanies this paper covers foundational ID systems in 175 countries.[9] There are 23 countries in the broader ID4D Dataset without a foundational ID system that are excluded here. The accompanying Codebook gives context on the contents of each column's variables and how they were coded. Readers are encouraged to download the Dataset and use it for their own exploration and analysis.

Download the dataset at id4d.worldbank.org/global-dataset for extensive ID system data from 175 countries

1.3 SCOPE

This Dataset covers foundational ID systems and credentials, as these are typically the primary ID systems people use to establish and prove their identity for a variety of services and transactions across the public and private sector (see **Box 1**). For each of 175 countries with foundational ID systems, data was collected on the default credential issued to adults. This does not include optional "upgraded credentials" or those primarily issued to children or non-nationals. These and other credentials are outside of the scope of this analysis, although further research—particularly into the features of credentials issued exclusively to minors or foreign residents—would be valuable. Although there are some indicators related to civil registration (CR), extensive data collection on CR systems is also beyond the scope of this paper and data collection (see **Box 2**).

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9   The term country, used interchangeably with economy in this paper, does not imply political independence but instead refers to any territory for which authorities report separate social or economic statistics.

A **foundational ID system** provides identification to the general population for a wide variety of purposes or transactions. These systems have different names depending on the country, but typically include national ID systems, population registers, CR systems, etc. Foundational ID systems typically issue one or more types of credentials for this purpose—often a certificate, ID number, and/or card (World Bank 2019).

In addition to foundational systems, most countries have multiple **functional ID systems** to manage identification and authentication for specific sectors or use cases—voter IDs for voting, passports for travel, and tax identification numbers for internal revenue are all common examples (World Bank 2019). While functional IDs may be used as proof of identity in many situations—particularly in the 23 countries without a foundational system[10]—they fall outside the scope of this paper.

This paper aims to provide a snapshot as of mid-2022 based on the best information available at the time. As described in Section 2 in more detail, the data used for this paper was collected between February 2021 and June 2022. Changes to the ID systems and credentials featured that were enacted after June 2022 are therefore outside the scope of this paper. Even with that caveat, collecting nuanced data about evolving systems at a global scale is a formidable undertaking, and we recognize that there will always be room for improvement. Updates and corrections to include in the next release of data can be submitted at **id4d@worldbank.org** with the subject line "ID4D Global Dataset—Volume 3."

Finally, the results presented in this section of the paper are descriptive in nature and not intended to endorse any specific features or approaches. The indicators measured in this Dataset and paper are intended to provide a broad overview of key characteristics of foundational ID systems across the globe. This analysis does not imply that such characteristics are good practices—or that only variables not covered in this analysis are unimportant. However, we hope that future researchers inside and outside the World Bank can use this data to explore, for example, the degree to which existing ID systems adhere to some of the *Principles on Identification for Sustainable Development* related to the inclusivity, design, and governance of ID systems.[11]

Box 2. Civil Registration Indicators

Civil registration (CR) systems are also an important part of the identity ecosystem in each country. While ID is the focus of this paper, the ID4D Dataset therefore also includes some CR-related indicators, such as birth registration and certification logistics and the joint or separate administration of ID and CR. Over time we hope to add more details, including indicators about death registration logistics and technical interoperability.

For a full discussion on the relationship between ID and CR systems, see the ID4D Practitioner's Guide (World Bank 2019).

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10 See Appendix 1 for a list of the countries with no foundational ID system

11 For more on the *Principles*, see www.idprinciples.org.

1.4 ROAD MAP

Section 2 of this paper describes the methodology used to select ID systems and credential for analysis, the data collection procedures and sources used, and the methodology used for analysis. Section 3 then summarizes country-level results to identify global patterns and highlight interesting outliers. More detailed examples from countries are incorporated at various points to illustrate the trends that emerge in the data. Indicators are organized according to the major stages of the identity lifecycle: registration, issuance, use, and management (World Bank 2019).

METHODOLOGY

This update to the ID4D Global Dataset is the latest in an ongoing effort by ID4D to generate quantitative and qualitative evidence on the coverage and characteristics of ID systems around the world. ID4D published the first estimate of global ID coverage in 2016. These figures were updated in 2017 and 2018, with some qualitative variables added in each iteration. This paper and data release represents a major update to the nature and volume of qualitative variables collected for each country's ID system.

2.1 SELECTING SYSTEMS AND CREDENTIALS

To select ID systems and credentials for analysis in the 2021-2023 update, we used the *2018 ID4D Global Dataset* as a starting point to create a list of countries'

foundational ID systems (if any). This list was validated to reflect changes in foundational ID systems and improvements in publicly available information about system and credential names. This validation also identified 23 countries—out of the 198 included in the ID4D Dataset—that do not have foundational ID systems. These countries were excluded from data collection.[12] Country authorities were also able to correct any errors in the names of their foundational ID system and credentials as part of the ID Authority Questionnaire, described in detail below.

For countries that issue more than one type or version of a credential, we selected one for our analysis using the criteria in **Table 2.** Focusing on the default credentials issues to adult nationals allows us to compare, with relative uniformity, the most widely held credential type or version for each country. However, each of the "excluded" credential types— those for children, credentials for non-nationals, and credentials with upgraded features—would be valuable areas for future data collection.

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12 For Volume 1: Global Coverage Estimates and Volume 2: Digital Identification Gaps proxy indicators are used for countries without a foundational ID so that these countries can be included in global estimates of the number of people without proof of identity (Volume 1) and the number of people with digital identity of various kinds (Volume 2). Since Volume 3 concerns ID system features and does not produce any global estimates, we have omitted these cases to avoid comparing unlike systems (i.e. "apples to oranges"). However, future data collection exercises could extend many of the indicators described in this paper to the most commonly used functional ID systems in these 23 countries. See Appendix 1 for a list of the excluded countries.

Table 2. Selection Criteria for Countries with Multiple Foundational Credentials

Inclusion Criteria	Excluded Credentials
Issued to adults	Versions of the credential issued only to children.
Issued to nationals	Versions of the credential issued only to non-nationals (for example, there may be different types of cards issued for permanent residents, asylum seekers, or others).
Issued by default	"Upgraded" versions of the credential with added features, such as a chip, that are available to adults for an additional fee.

2.2 DATA SOURCES

The data presented in this paper was collected in two phases:

1. **Desk Research** was undertaken to create a profile of each country's ID system. Information was collected only from official sources, including government websites, press releases, reports from UN agencies, and other development partners.

2. **An ID Authority Questionnaire ("IDAQ")** was sent to ID authorities in 126 countries. This was part of the broader data collection exercise that also informed Volume 1 and Volume 2 of the ID4D Global Dataset update. The questionnaire was pre-populated with results from the desk research and requested respondents to confirm or correct this information, and provide missing information. These questionnaires were fielded by the ID4D team and World Bank country offices between August 2021 and May 2022, including a follow-up period to clarify and validate responses. The full text of the questionnaire is included in Appendix 2. ID Authority Questionnaire. Responses were received from 62 countries, a response rate of approximately 50 percent.

The data collected in both phases was validated to the extent possible by the ID4D team and country experts. Data collection for this paper ended in June

2022; changes to the ID systems and credentials featured that were enacted after June 2022 are thus outside the scope of this analysis. Systems are rapidly evolving, and this analysis provides only a snapshot. As noted above, the authors welcome submissions and corrections for future updates to this Dataset.

2.3 ANALYSIS AND LIMITATIONS

To identify the patterns showcased in this paper, we look at the frequency of different characteristics and, in some cases, other summary statistics. A few areas of discussion in this paper also draw on data from the 2021 ID4D-Findex Survey,[13] which is discussed in more detail in Volume 1: Global Coverage Estimates.

For some variables that are not comparable across countries due to different population sizes, we draw on population data from the United Nations Department of Economic and Social Affairs (UNDESA) World Population Prospects 2022 (UNDESA 2022) to express the information as per capita ratios rather than absolute values.

The data and analysis presented here are subject to two primary limitations. The first is that the Dataset includes high rates of missingness (recorded as "Unknown" values) for some variables due to a lack of publicly available data and/or incomplete

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13 The World Bank's Global Findex is a nationally representative survey conducted by Gallup, Inc. that measures access to financial services and other core indicators covering 91 percent of the world's population. For more information see https://www.worldbank.org/en/publication/globalfindex

questionnaires. To the extent that missingness correlates with any of the indictors measured in this Dataset, this could bias the average results and patterns we have highlighted. Despite this, we have chosen to share some variables with significant missing data as a starting point for further evidence gathering. For this reason, statistical findings in this paper are often prefaced with "at least" or "that we know of" because most variables include some degree of missingness due to a lack of publicly available data. *When a trend emerges from the data, it should be interpreted with this caveat in mind.*

A second limitation is that there are a number of important variables related to ID system policies, technology, and operations that were not feasible to collect during this update. We make note throughout this paper of several such variables. We hope that maintenance of this Dataset can eventually transition to a collaborative effort fueled by online contributions. This expansion of inputs would enable a wider Dataset.

Despite these limitations, this ID4D Dataset release provides rich and novel data that we hope is a valuable starting point for further data collection and analysis.

3

GLOBAL TRENDS IN IDENTIFICATION

This section synthesizes country-level data to illustrate notable patterns on a global scale using charts, infographics, and summary statistics, in addition to country examples. As noted above, these results are entirely descriptive and not intended to endorse any specific features or approaches to identification.

Many findings are prefaced with the total number of observations ("n") available for each variable to account for missing responses and questions that only apply to a subset of the 175 countries included. When interpreting summary statistics, it is important to keep this missingness in mind—countries with missing data may exhibit a similar pattern, or they may not.

The analysis in this section is grouped according to the major stages of the identity lifecycle: registration, issuance, use, and management of ID systems. We begin with the latter category—including indicators related to institutional arrangements and the home of the ID systems.

Figure 8. The Identity Lifecycle

1 REGISTRATION — Identity data is collected and proofed

Identity claim
A person claims their identity by providing personal data and supporting documents or other evidence.

Proofing
Validation: Determining the validity, authenticity, accuracy, and/or veracity of identity data and evidence.
Deduplication: 1:N matching to ensure uniqueness (e.g., via biometric recognition or demographic deduplication).
Verification: Confirmation that the person is the true owner of the identity.

Identity registered and stored

2 ISSUANCE — One or more credentials are issued

Credentialing
Credentials and authentication factors are issued and bound to the person

3 USE — Identity is checked at the point of transaction

Authentication
Tests of asserted credentials/factors to establish confidence that the person is who they claim to be.

Verification
Verifying attributes (e.g., name, age, address, etc.) specific to the purpose of the transaction.

Service or transaction

4 MANAGEMENT — Maintenance of identities and credentials

Maintenance
Updating, revoking, reactivating, retiring, etc. identities and credentials.

Grievance redressal
Responding to and correcting errors and other issues.

Engagement
Communication and consultation with people and other users (i.e., relying parties).

Source: Adapted from the ID4D Practitioner's Guide (World Bank 2019).

Table 3. Country Information Variable Details

See ID4D Global Dataset: Volume 3 for the following **Country Information** variables:	
Variable	**Observations**
Country name	175 / 175
Country code	175 / 175
Region	175 / 175
Income level	175 / 175
ID System name	175 / 175
ID Credential name	175 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

The variables summarized in this paper are also available in detail at the country level in the accompanying ID4D Global Dataset: Volume 3 release. Each subsection will include a box in this style, for the reader's reference, that details these variables.

3.1 MANAGEMENT

The management of the identity lifecycle concerns the basic processes that must happen continuously for an identity system to fulfill its mandate. The system must maintain the accuracy and security of identity data and credentials by updating attributes that change over time—such as address or name—and updating, renewing, revoking, or deactivating credentials. Identity records may need to be retired if it is discovered that they were fraudulently created, after security breaches, or following an individual's death. Identity providers must also work to address grievances and continuously engage with the public and relying parties.

The entity responsible for managing these processes is typically the "ID authority"—in the case of foundational ID systems, generally a government department or agency.** For this iteration of the ID4D Global Dataset, data collection around the management of ID systems focused on such institutional arrangements and the home of the ID system. In the future we hope to complement this foundational information with more details related to the ongoing management and operations.

Of the 172 countries with data on home institution, 93 have ID authorities housed within a Ministry of Interior/Home Affairs.[14] The distant second-most common home institution type is a Ministry of Security or a national police body—at least 20 countries house their ID Authorities here. There are at least six countries with independent ID Authorities that do not have a broader home institution.

Box 3. Institutional Arrangement Terminology

Institutional arrangements for an ID system vary significantly between countries. To allow for analysis and comparison across countries, the Dataset uses the following terminology:

- An **ID Authority** is the entity directly responsible for "owning" and implementing the ID system. The Dataset includes the names of each country's foundational ID Authority. In the future it would be useful to collect additional data on the capacity and functioning of these entities, including size, organization, and resources, along with further details on key identity management processes, such as updating data and credentials, grievance redress, and public communication and engagement.

- The **Home Institution** is the organization in which the ID Authority is based, if applicable. In most cases, the ID Authority reports to and receives at least some of its funding from the Home Institution, which is usually a government ministry. In some cases, the ID Authority is independent—reporting to the cabinet or a board of directors—and there is no broader Home Institution.

Similarly, the Dataset captures the **CR Authority**, or the entity responsible for implementing civil registration systems, as well as the **CR Home Institution**.

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14 Depending on the country and legal tradition, Ministries of Interior and Home Affairs may include both territorial administration and security functions; in other cases, these are the responsibilities of separate ministries (such as Ministries of Public Security, or Ministries of Local Administration). On a global level, it is difficult to distinguish these cases without delving into the specific legal traditions and institutions of each country; therefore, these categories are broad and based solely on the name of the home institution. However, the Dataset provides the full name of the ID and CR authorities and home ministries for country-specific interpretation.

Figure 9. Frequency of ID authority Home Institution Types

Institution Type	Frequency
Interior/Home Affairs	93
Security	20
Justice	15
Executive	10
Electoral	9
None (independent authority)	6
Digital/ICT	5
Local Affairs	3
Immigration/Citizenship	3
Economy/Finance	3
Statistics	2
Planning	2
Public Service	1
Unknown	3

Frequency

The most common place to find an ID authority housed is a Ministry of Interior or Home Affairs
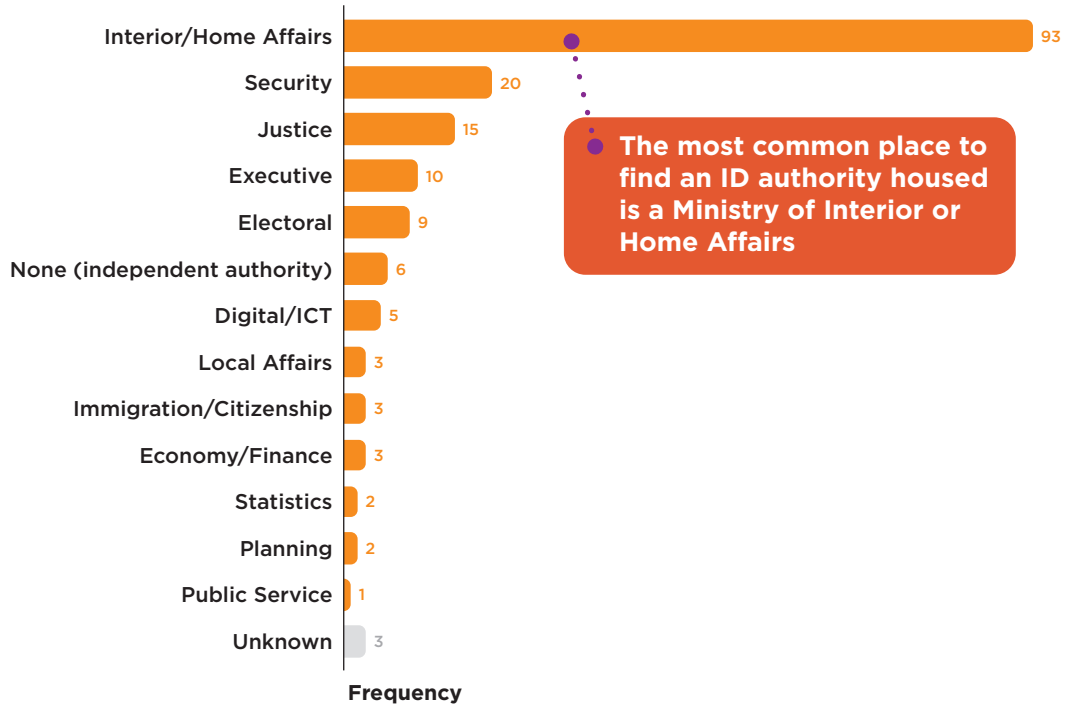
Figure 10. Frequency of CR Authority Home Institution Types

Institution Type	Frequency
Interior/Home Affairs	55
Justice	41
Local Affairs	13
Health	7
Electoral	6
None (independent authority)	5
Security	5
Economy/Finance	4
Executive	4
Immigration/Citizenship	2
Planning	2
Statistics	2
Digital/ICT	1
Education	1
Public Service	1
Tax	1
Unknown	25

Frequency

CR authorities are commonly housed in Ministries of Interior, Home Affairs, or Justice
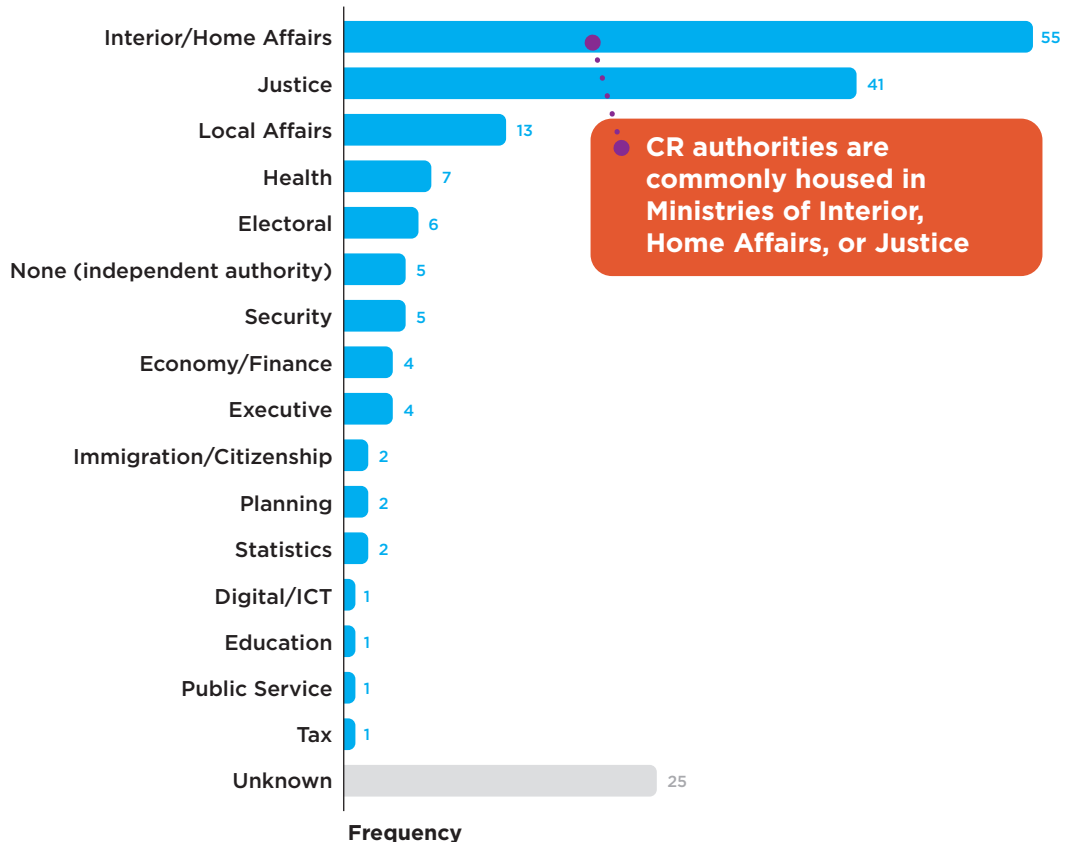
Figure 11. Frequency of ID & CR Systems Managed by the Same Authority

Unknown 23

Yes 77

No 75

ID & CR being managed by the same authority, or separate ones, are both common
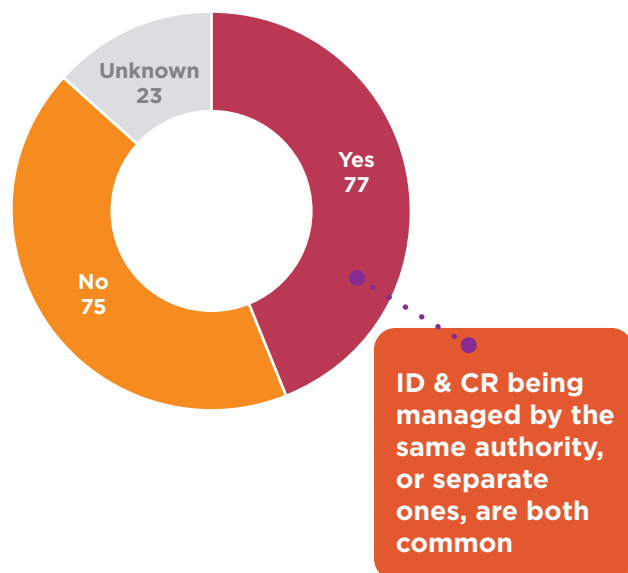
Similarly, of the 152 countries with data on the Home Institution for CR, 55 countries are housed within a Ministry of Interior/Home Affairs. The next-most common Home Institution type is a Ministry of Justice–at least 41 countries house their CR Authorities here—while at least 13 countries house CR in a Ministry of Local Affairs or Territorial Administration.

Finally, for around half of countries globally—77 out of 153 countries with data—ID and CR are managed

by the same authority. Examples of combined ID and CR authorities include the Department of National ID and Civil Registration (DONIDCR) in **Nepal** (housed within the Ministry of Home Affairs) and the *Direção Geral dos Registros e Notariado* ("General Directorate of Records and Notary") in **São Tomé and Principe** (housed within the Ministry of Justice). In a comparable number of countries (at least 75), there are separate ID and CR authorities. **Figure 11** concerns ID & CR Authorities (as defined in **Box 3**), not Home Institutions. For combined ID & CR Authorities, the Home Institution type is necessarily the same. It is also possible for a country to have different ID and CR authorities, but for these separate entities to be housed within the same Home Institution.

Even when ID and CR are housed in separate institutions, though, it is possible for those institutions to create formal linkages in operations to coordinate ID and CR. In **Vietnam**, for example, the ID system is run by the Ministry of Public Security and CR is run by the Ministry of Justice, but these ministries have partnered to ensure than each time a birth certificate is issued, a unique identifier from the ID system is generated and added to the certificate (World Bank 2023). Such linkages were outside the scope of this data collection but would be a useful topic for a future study.

Table 4. Institutional Arrangement Variable Details

See ID4D Global Dataset: Volume 3 for the following **Institutional Arrangement** variables:	
Variable	**Observations**
ID Authority name	173 / 175
ID Authority home institution name	172 / 175
ID Authority home institution type	172 / 175
ID and CR managed by same entity (Y/N)	152 / 175
CR Authority name	152 / 175
CR Authority home institution name	150 / 175
CR Authority home institution type	150 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

3.2 REGISTRATION

The registration phase is where an individual enters the identity lifecycle process. Registration involves an identity claim (when applicants provide their information) and identity proofing (when the ID Authority verifies this information and typically the uniqueness of the identity claim). This section also considers logistical aspects of registration such as eligibility, compulsoriness, fees, and service locations.

Registration procedures have important implications for inclusion, as they may facilitate easy registration or make it difficult. The 2021 ID4D-Findex survey showed that nearly 40 percent of adults without an ID reported that they lacked the necessary documents to apply (World Bank 2022a). In addition, obtaining the ID remains too expensive for approximately 36 percent of adults without one, either due to direct and/or indirect costs (World Bank 2022a). Volume 1: Global Coverage Estimates explores this demand-side survey data in more detail, including by analyzing how barriers vary by region and income level. In this paper, the focus is on supply-side variables related to eligibility requirements and registration procedures.

3.2.1 Registration Eligibility and Compulsoriness

Determining who is eligible to register in the ID system is a key decision with implications for **inclusion, data collection and validation processes, and how the ID is used.** Common parameters that define eligibility include age, nationality, and residence status. In addition to eligibility criteria, ID systems also vary on whether registration is mandatory for those who are eligible, and if so, whether obtaining a credential is also mandatory. Such eligibility criteria and compulsoriness were a core focus of this data collection, and the results are summarized below. One exception, however, is the question of residence status—these data do not cover whether nationals of a country *living abroad* are eligible to register in the ID system of their country of nationality. This would be an interesting addition to future editions of the Dataset.

Compulsoriness

In a majority of countries, registration and obtaining a credential is mandatory for nationals. As **Figure 12** shows, out of 158 countries with data, both registering and obtaining the credential are mandatory in 129. In at least 14 countries, registration in the ID system is mandatory but obtaining the credential is optional. Notably, in at least four countries it is mandatory to obtain an official identity document from a list of several, including but not limited to the ID credential included in this Dataset. For example, in **Germany** nationals must obtain *either* the *Personalausweis* ("Identity Card") *or* a passport. In at least one case (**Oman**), registering and obtaining a credential are mandatory for males but optional for females. Such cases are coded as "credential is mandatory."

Figure 12. Frequency of Compulsory Registration and Credentials
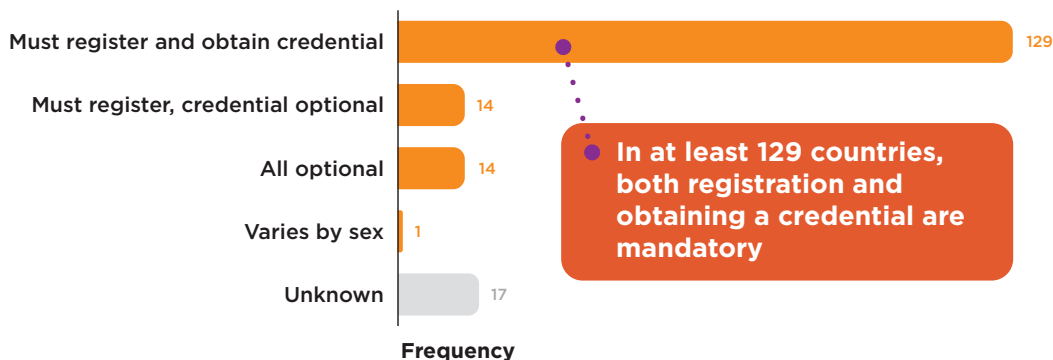
In at least 129 countries, both registration and obtaining a credential are mandatory

Age Requirements

Data on age requirements was available for most countries, revealing the following trends:

- The **mean age of eligibility for registration is 6 years old** (150 observations), however the modal policy in at least 87 countries is to allow registration in the foundational ID system from birth.

- The **mean age when registration becomes mandatory is higher at 10 years old** (130 observations; countries without compulsory registration excluded), with a median of 15 years. However, for at least 45 countries, registration is mandatory from birth.

- The **mean age of eligibility to obtain a credential is 9 years old** (159 observations), but registration is possible from birth in at least 63 countries. The median is 12 years.

- The **mean age when obtaining a credential becomes mandatory is also higher at 15 years old** (127 observations; countries without compulsory credentials excluded). However, the most common mandatory age is 18 years old (39 countries).

Figure 13 visualizes these various age requirements. **Figure 14** focuses in on the specific relationship between registration eligibility and ID eligibility. In most cases these ages are the same, but bubbles in the upper-left corner of each region's box indicate countries where ID eligibility follows several years after registration eligibility.

Non-National Eligibility

In addition to age, nationality is a second common factor for eligibility of registration into many ID systems. This Dataset includes both overall eligibility (are *any* non-nationals eligible?), and eligibility for three categories of non-nationals: asylum seekers, refugees, and permanent residents. The breakdown of eligibilities for these groups is shown in **Table 5**.

Importantly, the issue of whether and how ID systems incorporate non-nationals goes beyond registration to granting credentials. Systems may allow non-nationals to register but not issue them any credentials, or may issue them a different type of credential than it does to nationals. Furthermore, in countries where non-nationals are *not* included in the main foundational ID system (such as a national ID), they may in fact be provided with legal forms of identification through parallel systems that are not captured in this data. These differences are noted in the Dataset when known; however, the findings were not robust enough to summarize here. This is an important area of extension for future work.

In the majority of countries–94 out of 153 complete observations–non-nationals are eligible to register in the ID system. Table 5 shows that of the groups examined, permanent residents are the most common non-nationals included in the ID system—they are eligible for registration in 81 of the 94 countries known to extend eligibility to non-nationals. In at least six of these countries, however some conditions apply. For example, in **Grenada**, **Guyana**, **St. Lucia**, and **St. Vincent and the Grenadines**, registration is only

Figure 13. Age Requirements for Registration and Credentials
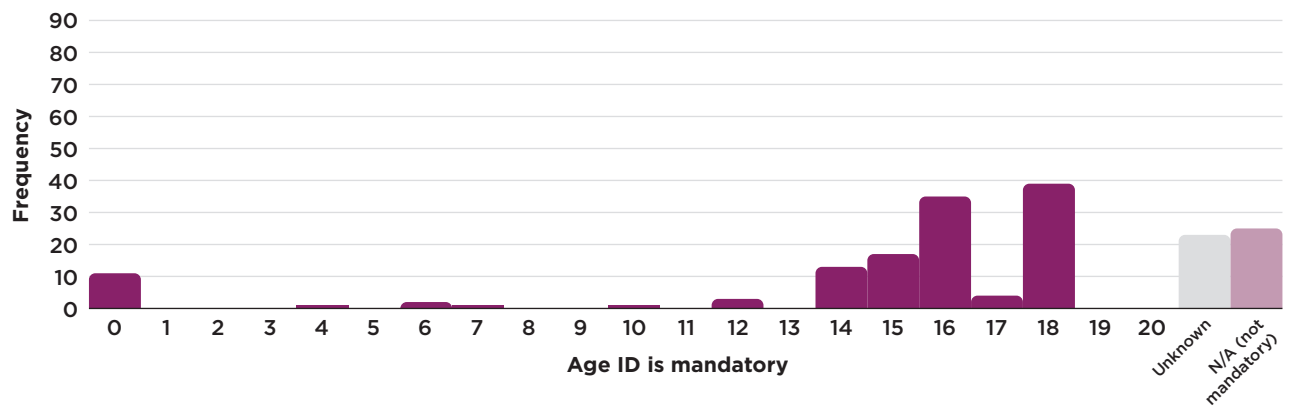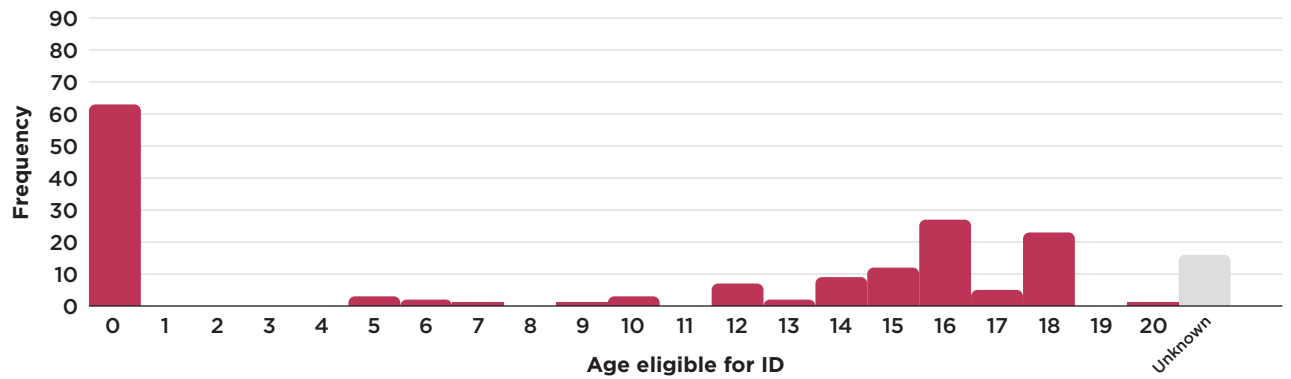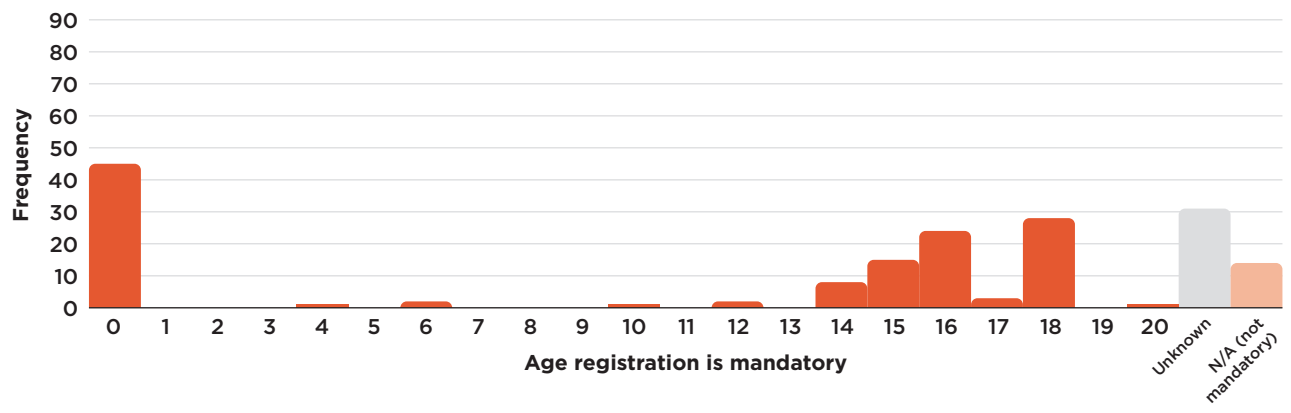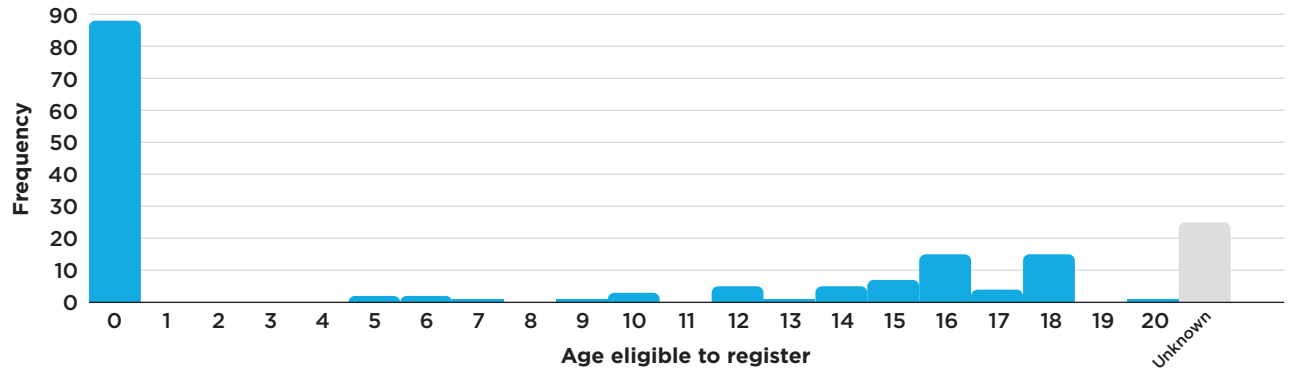
Figure 14. Relationship Between Age of Eligibility for Registration and for ID Credentials, by Region

Age eligible for ID (y-axis)

Age eligible to register (x-axis)

Panels: EAST ASIA & PACIFIC, EUROPE & CENTRAL ASIA, LATIN AMERICA & CARIBBEAN, MIDDLE EAST & NORTH AFRICA, SOUTH ASIA, SUB-SAHARAN AFRICA
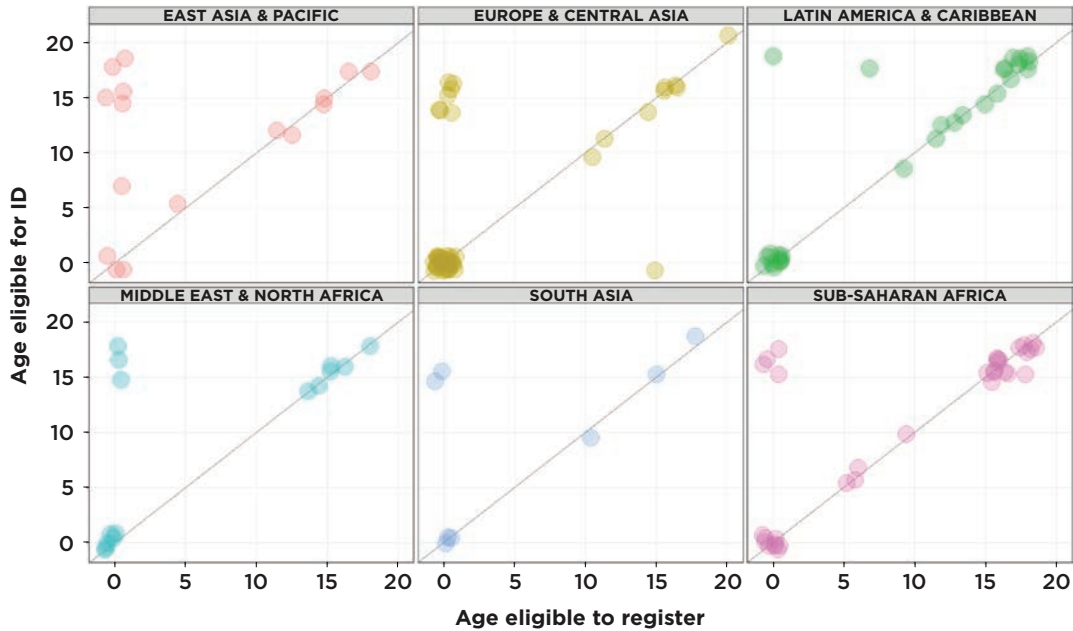
open to permanent residents who are nationals of other British Commonwealth countries. In **Portugal**, registration is only open to permanent residents who are Brazilian nationals. There are likely conditions in some of the remaining 75 countries as well, requiring further data collection.

Figure 15. Frequency of Non-National Eligibility for Registration

Unknown 22

Yes 94

No 59

Non-nationals are eligible to register in at least 94 countries' ID systems
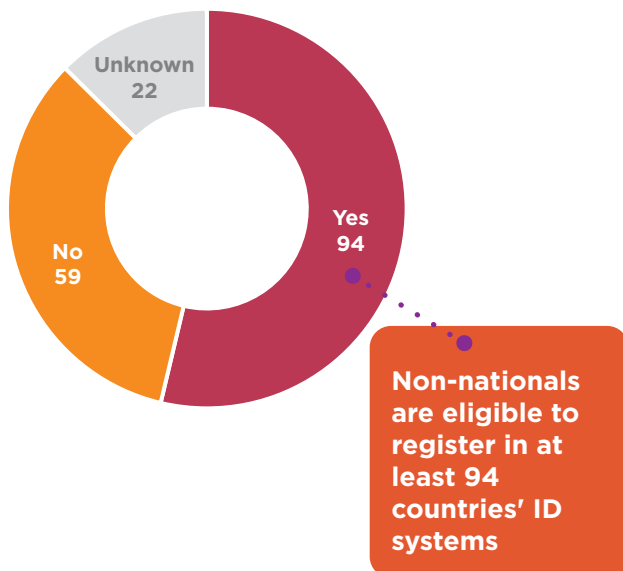
3.2.2 Identity Information

Registration begins with capturing and recording attributes the attributes of a person, such as biographic data (such as name, date of birth, gender), contact information (address, phone number, and/or email) and/or biometric features (such as fingerprints, photos, and iris scans). During this process, people also typically provide supporting documentation or evidence to substantiate their claimed identity or—in the absence of such evidence—they may have their data vouched for by a trusted person, such as a local government official or village chief. ID systems vary widely in terms of what attributes and evidence are captured and the methods and standards used to capture them. Each of these decisions have implications for inclusion, user experience, program cost, data protection and privacy, and system security and utility. Here, the data focus on data collection and documentation requirements.

Biographic Data Collection

Virtually all ID systems collect name, date of birth, and gender or sex. Given that existing identity-related

Table 5. Details of Non-National Eligibility

Non-National Category	Eligibility to Register in Foundational ID System			
	Yes	No	Unknown	Total (= known countries where some non-nationals are eligible to register)
Permanent residents	81	0	13	94
Refugees	34	23	37	94
Asylum seekers	30	29	35	94

Table 6. Registration Eligibility and Compulsoriness Variable Details

See ID4D Global Dataset: Volume 3 for the following **Registration Eligibility and Compulsoriness** variables:	
Variable	Observations
Age eligible to register	150 / 175
Age eligible to obtain credential	159 / 175
Compulsory to register (Y/N)	154 / 175
→ *(If yes)* Age mandatory to register	144 / 175
Compulsory to obtain credential (Y/N)	156 / 175
→ *(If yes)* Age mandatory to obtain credential	152 / 175
Compulsoriness of registration and/or obtaining credential (combined categorical variable)	158 / 175
Non-nationals eligible to register (Y/N)	153 / 175
→ *(If yes)* Asylum seekers eligible to register (Y/N)	118 / 175
→ *(If yes)* Refugees eligible to register (Y/N)	116 / 175
→ *(If yes)* Permanent residents eligible to register (Y/N)	140 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

Figure 16. Frequency of Collection of Select Biographic Attributes
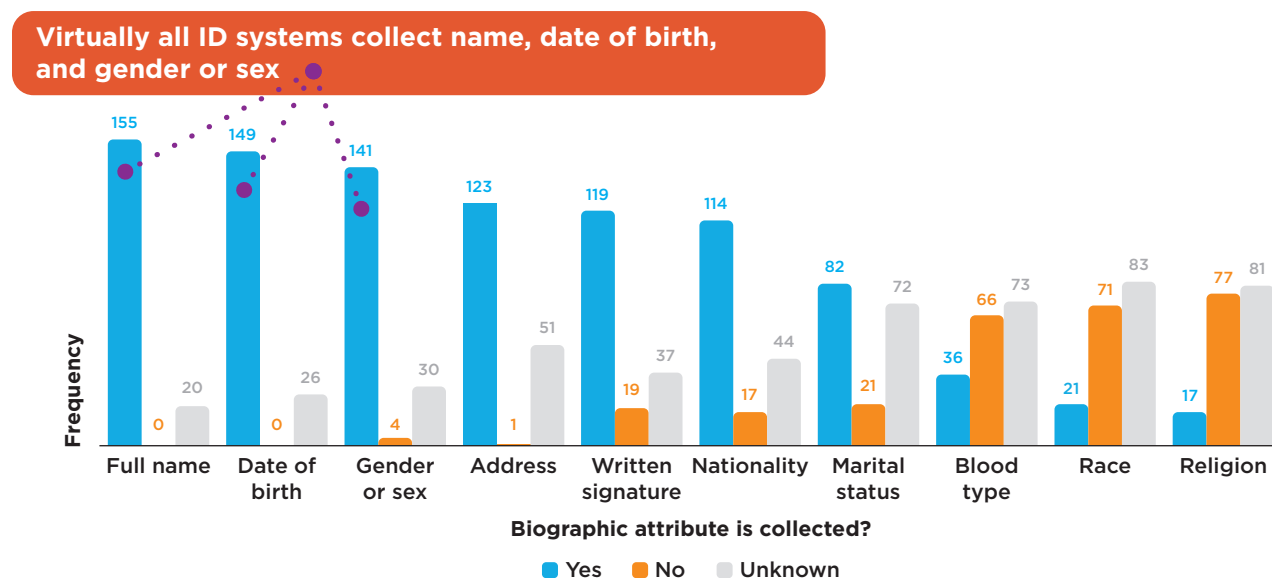
standards require name and date of birth,[15] it is likely that collection of these two variables is universal, despite some missing data on these variables. There is slightly more variation in whether and how sex or gender are collected—see **Box 5** for details. Other data that are commonly collected include current address (collected in 123 countries out of 124 observations), a written signature (119 countries out of 138 observations), nationality or immigration status (114 countries out of 131 observations), and marital or civil status (82 out of 103 observations).[16] While some countries still collect highly sensitive data such as blood group, race or ethnicity, and religion, these are much less prevalent.[17]

Biometric Data Collection

In addition to biographic data, many ID systems collect fingerprints, iris scans, facial images, and/or other biometric characteristics to use for biometric recognition.[18] Biometric recognition can be used both during registration as part of the deduplication process (see 3.2.3 Identity Proofing for more on this) and/or for authentication of individuals during services or transactions (see 3.4 Use).

Figure 17 shows that a large majority of countries—152 out of 159 with observations—collect at least one type of biometric data. Biometric recognition has rapidly proliferated in modern ID systems in part because it is currently the most accurate technology for preventing duplicate registrations, particularly in the absence of strong documentary evidence of identity. It can also provide a relatively high level of assurance during authentication.

However, biometrics are not required or appropriate in all contexts. The collection and use of biometric data presents some particular data protection and exclusion risks and can significantly add to the cost of the ID system and add operational complexity. Thus, while biometrics have become relatively ubiquitous in modern ID systems, the use of this technology and the amount of biometric data collected still requires careful analysis and deliberation (World Bank 2019, World Bank 2022b).

Out of 158 observations, 116 countries collect more than one type of biometric data.[19] Of these, most countries—103—collect fingerprints and a facial image. A further 16 countries collect iris images as well; iris tends to be collected *in addition to,* rather than instead of, other characteristics.

Collecting multiple biometric characteristics can have benefits: more data points offer greater accuracy for statistical uniqueness in large populations, and may mitigate some failure-to-enroll risks by ensuring that more applicants are able to provide some biometrics. However, it also increases the amount of sensitive personal information collected, with implications for data protection as well as system costs (World Bank 2019; World Bank 2022b).

The number of fingerprints collected (from 1 to 10) has implications for the accuracy, resiliency, and scalability of biometric recognition as well as the volume of sensitive personal data that must be protected. **Of those countries known to collect fingerprints, most appear to collect either all 10 prints (at least 54 countries) or only two (at least**

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15 For example, the eIDAS Mandatory Attributes for Natural Persons (Bremmers 2023) and ICAO Machine Readable Travel Document standards (ICAO 2023).

16 For marital or civil status, the "Yes" category includes one country (**Republic of the Congo**) where this data is only collected from females, and 81 countries in which it is collected from everyone.

17 For race or ethnicity, the "Yes" category includes countries that directly report recording racial, ethnic, or tribal group, as well as countries that collect information that related to these categories in a given context, like "color of skin," "Indigenous community or clan," and "tribal affiliations." In 20 of the 21 countries coded as "Yes," the information is required; in **Bolivia** providing data on "Cultural Identity" is optional.

For blood group**,** the information is optional in five of the countries where it is collected (**Afghanistan, Armenia, Russian Federation, Slovak Republic,** and **Tunisia**) and required in the other 31.

18 Biometric recognition is the "automatic recognition of individuals based on their biological or behavioral characteristics" (ISO/IEC 2382-37:2022). https://www.iso.org/standard/66693.html

19 Data collection focused on those biometric characteristics (fingerprints, face, and iris) that are the most commonly used for ID systems. However, exploring any emergent use of any other modalities in national ID systems would be an interesting extension for future research.

Box 5. Collecting Sex and Gender Data

Further systematic data collection on how gender and sex are recorded and used in ID systems—particularly as these norms change—is an important topic for future research.

Sex vs. Gender

"Sex" refers to a person's biological status as male, female, or intersex, whereas "gender" refers to social, behavioral, and cultural attributes, expectations, and norms associated with being male or female and is not necessarily tied to biological indicators.

Trends in Gender Data Collection and Coding

While an ID system can, by design, collect either of these data, there is an increasing trend to collect gender—rather than sex—as more countries move toward recognition of the right to a gender identity, separate from sex, and incorporate this into official systems and documents.

Furthermore, although a majority of ID systems still treat sex or gender as binary (M/F), it is becoming more common to allow include third options (X, T, or O), which may denote "nonbinary" or "undeclared/undisclosed gender." This approach is reflected in the ICAO standards on machine readable travel documents.

Given the limitations in the data we were able to collect, the scope of our research is limited to whether or not gender *or* sex attributes are collected; we were not able to assess the coding (binary or nonbinary). However, from prior research we do know of at least 15 countries that offer flexibility in gender disclosure for identification documents.

Argentina and **Malta,** for example, include "X" as a gender option for identity documents. In **India**, the Aadhaar system includes "Transgender" as a gender option, and gender change in system records is self-asserted (no documentation is required).

Source: ID Systems and SOGI Inclusive Design (World Bank 2020).

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31 countries),[20] although the number of fingerprints collected is unknown in 37 countries.

Documentation

Birth certificates are one of the most required documents when registering in a foundational ID system. In at least 90 countries (out of 153 observations) all registrants are required to present their birth certificate during registration, and in at least 26 countries a birth certificate is one of the options on a list of required documents from which a registrant must present one or more.

In a handful of countries, birth certificates are only required from certain registrants. For example, in **Nigeria** a birth certificate is only required from applicants aged 15 or younger, and in **Cyprus** a birth certificate is only required from naturalized citizens.

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20 **Barbados** is coded as collecting 10 fingerprints, however individuals in Barbados have a choice as to how many fingerprints are collected—anywhere from zero to ten.

Figure 17. Frequency of (Any) Biometric Data Collection

Unknown 16
No 7
Yes 152

The vast majority of ID systems collect biometric data
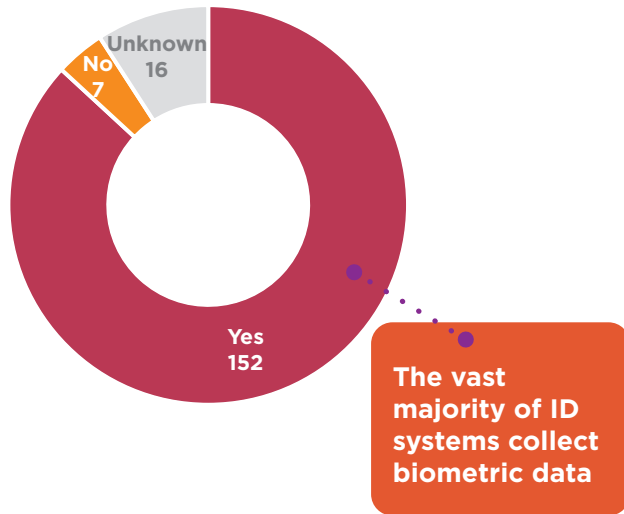
In some cases, while a physical birth certificate is a not required, during the ID registration process an agent will use birth registration data stored in a database—meaning that in practice, the applicant's birth must be registered to complete ID registration.

Other documents commonly required for registration include**:**

• **Proof of nationality—as shown in Figure 16, 114 countries collect data on the nationality of ID applicants.** However, whether—and how— applicants are required to provide proof of nationality varies by country and based on various

factors, including whether nationality is an eligibility requirement, the legal frameworks for obtaining or substantiating nationality, whether the ID credentials are considered proof of nationality, and so on. We attempt to unpack this through questions on eligibility (see earlier discussion) and including a question in the IDAQ on whether a document serving as "proof of nationality" is required. This appears to be the case for at least 56 countries who responded "yes," for some or all applicants. However, there are a significant number of missing values, and in several countries, it was not possible to determine with certainty whether nationality was being assessed through other means, such as a birth certificate (if collected) or verification in a population register. A more in-depth analysis and data collection on this specific issue—whether and how nationality and proof thereof is linked to ID systems—requires deeper researcher than was possible through this exercise.

• **Marriage certificates—which are required in some capacity by 49 countries out of 150 observations, though the purpose they serve within the process varies.** The IDAQ asked simply whether a marriage certificate is or is not required, but many of the responses received included more nuance. In some countries (e.g., India and Zambia), it was noted that a marriage certificate is simply one in a list of many documents accepted to establish proof of identity. In others, a marriage

Figure 18. Frequency of Various Combinations of Biometric Data Collection

Category	Frequency
Fingerprints + Face	103
Face only	17
Fingerprints + Face + Irises	16
Fingerprints only	15
None	7
Unknown	17

Frequency

The most common combination of biometric data collected is fingerprints + face
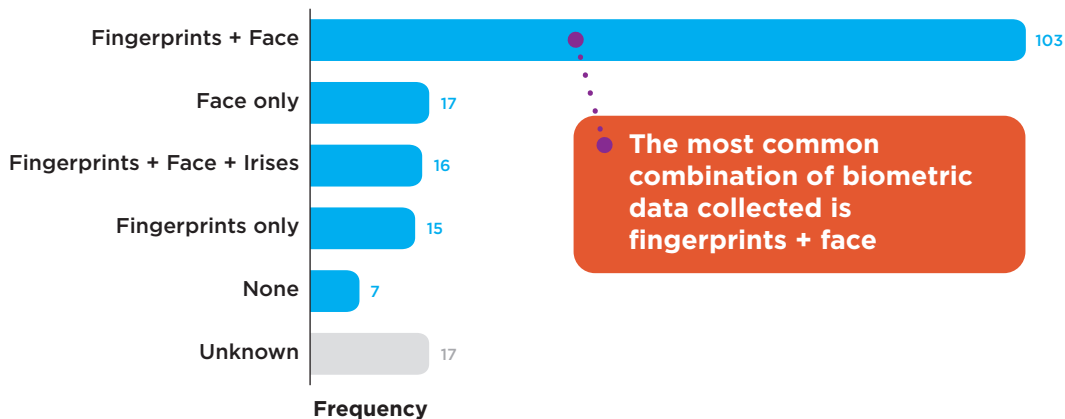
Figure 19. Number of Fingerprints Collected

For the **134** countries that collect fingerprint data,
HOW MANY PRINTS DO THEY COLLECT?

1 2 3 4 5 6 7 8 9 10 ?

9 countries

31 countries

2 countries

1 country

54 countries

37 countries
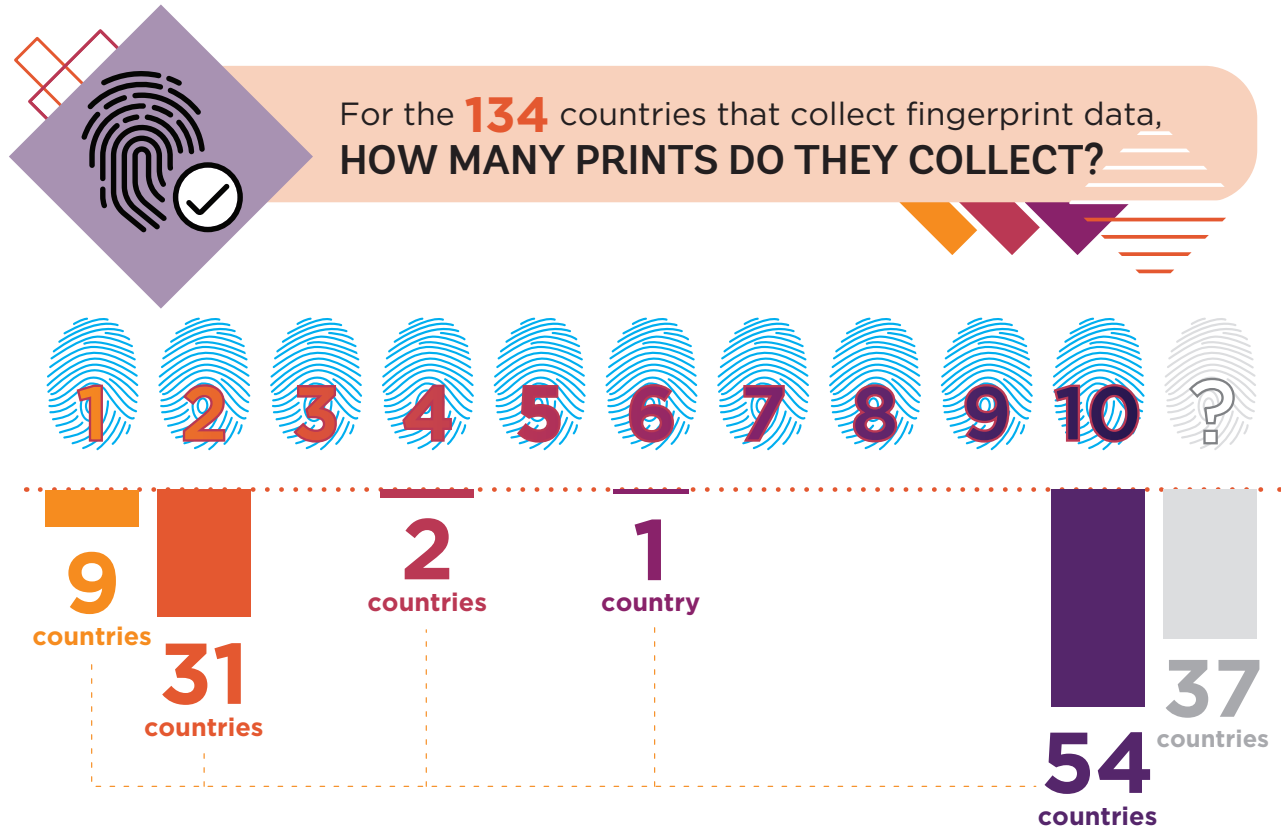
certificate is required only if the applicant is updating their information due to a marriage-related name change, or only required from certain types of applicants. For example, in **Kuwait** a marriage certificate is required from non-nationals if it was issued in Kuwait or if the applicant's wife has the Kuwaiti nationality. In such cases, the marriage certificate may be a means of establishing nationality or eligibility for the system.

It would be valuable in future research to capture more nuance on documentation requirements, especially the rationale for each one. This level of detail may be beyond what a standardized questionnaire can capture, however. Another important area of future focus is the gendered dimensions of documentation requirements (as introduced in Dahan & Hanmer, 2015). The data suggest that marriage certificates are often required only of women. The reasons for (naming conventions or other) and impacts of this policy should be further analyzed.

Of the 88 countries with data on the topic, 60 offer alternative processes for registrants who are unable to provide the required documents. This question was asked directly in the IDAQ, but was often difficult to answer via desk research, contributing to a high degree of missing values. Countries coded as "No" have specifically indicated—via the IDAQ or another official source—that there is no alternative available.

Figure 23 gives examples of a common alternative offered: witness testimony. Witness testimony, in which a witness vouches for the identity of an applicant who cannot produce documentation, can be an effective tool for inclusion if well implemented. Other alternatives evident in the data include judicial processes and "in-house" solutions. For example, in **Gabon** a court tribunal hears applicants' cases and awards supplementary judgements for late birth certificates, and **El Salvador** has a process called 'Subsidiary Birth Establishment' which can be carried

Figure 20. Examples of Biometric Data Collection

Photo by Ezra Acayan (2021) for ID4D.

Facial image collection in the **Philippines**

Fingerprint collection in **Ethiopia**

Photo by Midas Touch Communications (2022) for ID4D.

Photo by Claire Casher (2023) for ID4D.
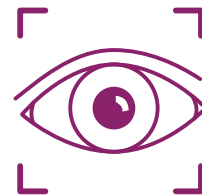
Iris collection in **Indonesia**

Figure 21. Frequency of Requiring Birth Certificate for Registration

Yes — 90
Partially (other documents also accepted) — 26
No — 21
No, but birth registration is verified — 11
Partially (certain applicants only) — 5
Unknown — 22

Frequency

> **A Birth Certificate is required for registration in at least 90 countries**
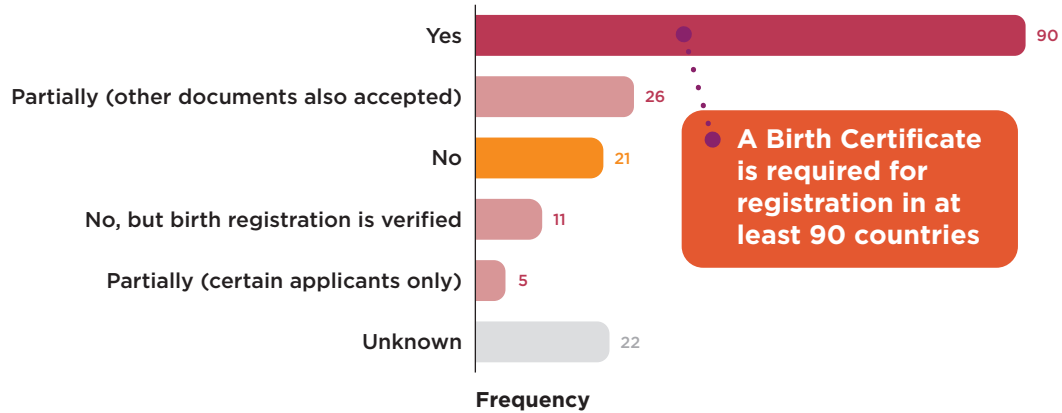
out through a notary or a court. An example of an "in-house" solutions is **North Macedonia,** where the Ministry of Interior coordinates with other institutions to collect the required documents if an applicant is missing them. It should be noted that this data collection only covered whether or not alternatives are offered; **Figure 22 and Figure 23 do not reflect the extent to which individuals *know about* or *make use of*** these alternatives.

3.2.3 Identity Proofing

Once a person has claimed an identity, the data they provide is then validated. This involves checking the validity, authenticity, and accuracy of the supporting documents or evidence provided and confirming that the identity data is valid, current, and related to the person presenting the documents. Identity proofing also commonly involves a deduplication process to ensure the uniqueness of each resident based on biographic data and/or biometric recognition.

Identity proofing process varies widely, and many aspects are difficult to quantify or evaluate through desk research and a questionnaire. Therefore, this data collection effort focused primarily on the use of biometric recognition for deduplication. As discussed below, however, a high level of uncertainty and missingness on this variable remains. Future

Figure 22. Frequency of Alternatives to Document Requirements

Yes 60
No 28
Unknown 87

> **At least 60 countries offer an alternative for those who cannot provide documents**
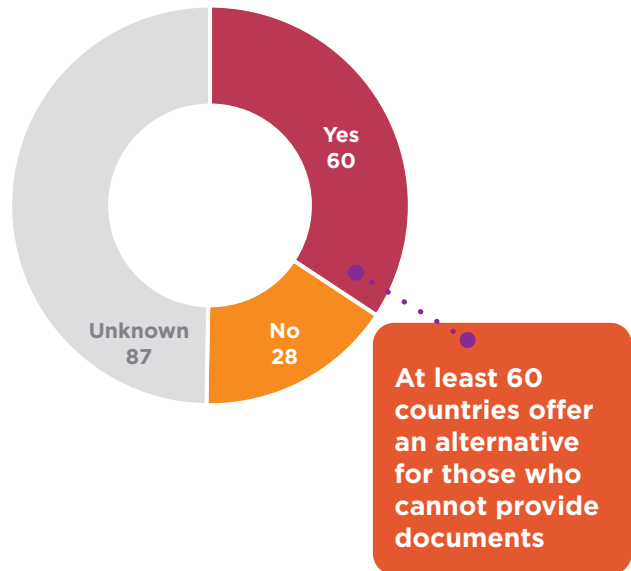
research can hopefully strengthen this data and assess other aspects of identity proofing.

Deduplication

Information on biometric deduplication practices was relatively hard to find or verify. The IDAQ asked if fingerprints, iris images, and/or facial images are used for deduplication,[21] which yielded Yes/No

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21 The IDAQ question text included the following definition of deduplication: "using biometric identification (1:N matching) for of each new enrollee via ABIS or AFIS to establish their uniqueness in the system."

Figure 23. Examples of Alternative Processes

In **35** of the countries that we have data for, applicants can **have a witness vouch for their identity** in lieu of providing documentation.

Witness testimony as an alternative process for identity claim

Bolivia and **Chile** accept testimony from 2 witnesses aged 18+ who have national ID cards.

Turkey accepts verbal declaration from a family member for children or statements from various relatives for applicants aged 15+.

India accepts testimony from a certified 'Introducer', and also allows Heads of Family* to enroll their family members.

Malawi's "Proof of Citizenship Scoring System"* includes non-document items like testimony from a relative, community member, or the Village Head.

*Head of Family and family members as stated on a Family Entitlement Document

answers. This data could also be verified through desk research in some cases. **Figure 24** shows an amalgamation of these questions—countries are coded as "Yes" if they answered "Yes" for *one or more* modalities. This type of process information was rarely available in public materials, however, leading to the high number of missing values.

If we consider only the 152 countries that we know *do* collect biometric data: at least 60 use it for deduplication, 2 confirmed that they do not, and for 90 we do not know whether or not they use biometrics for deduplication. The 106 "unknown" values in **Figure 24** include these 90 as well as 16 additional countries where we do not know whether biometric data is collected.

Out of the 60 countries *confirmed* as using biometrics for deduplication, 57 use fingerprints, 25 use facial images, and 5 use irises (these options are not mutually exclusive).

3.2.4 Registration Logistics

The logistics of registering for an ID have important implications for administration and costs, but also people's experience and the barriers they may face in obtaining proof of identity. This data collection focused on two specific logistical considerations that were feasible to measure through this data collection: fees and service locations. Fees covered here include the fee charged for a first credential, as well as the fee charged for any subsequent credentials, such as renewals in case of expiration or replacements in case of loss, damage, or theft. For location, data was collected on the type of locations used to provide ID services and the number of locations available throughout the territory.

Both fees and locations are context specific. The optimal fee amount and service format must balance what is practical for individual registrants and avoids exclusion due to cost barriers against what is

Table 7. Identity Claim Variable Details

See ID4D Global Dataset: Volume 3 for the following **Identity Claim** variables:	
Variable	**Observations**
Biographic data:	
Full name collected (Y/N)	155 / 175
Date of birth collected (Y/N)	149 / 175
Sex or gender collected (Y/N)	145 / 175
Current address collected (Y/N)	124 / 175
Nationality or immigration status (Y/N)	131 / 175
Marital/civil status collected (Y/N)	103 / 175
Race or ethnicity collected (Y/N)	92 / 175
Religion collected (Y/N)	94 / 175
Blood group collected (Y/N)	102 / 175
Written signature collected (Y/N)	138 / 175
Biometric data:	
Any biometric data collected (Y/N)	159 / 175
Fingerprints collected (Y/N)	149 / 175
→ (If yes) Total number of fingerprints collected	112 / 175
Iris scans collected (Y/N)	128 / 175
Facial image collected (Y/N)	153 / 175
Documentation:	
Birth certificate required (Y/N)	153 / 175
Marriage certificate required (Y/N)	150 / 175
Alternative to documentation available (Y/N)	88 / 175
→ (If yes) Details of alternative process	88 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

Figure 24. Frequency of Use of Biometric Recognition for Deduplication

At least 60 countries use biometrics to deduplicate ID registrants; however, many more are unknown.

Yes — 60
N/A (biometrics not collected) — 7
No — 2
Unknown — 106

Frequency
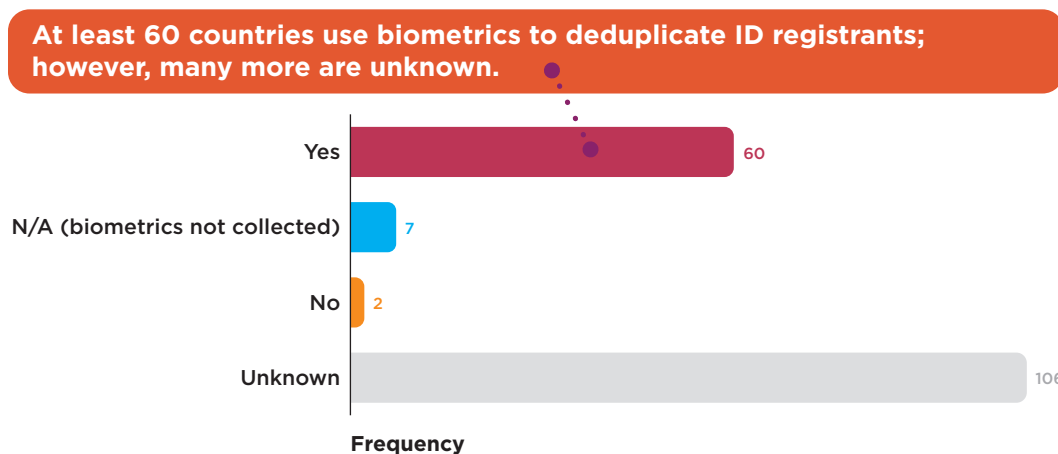
Table 8. Identity Proofing Variable Details

See ID4D Global Dataset: Volume 3 for the following **Identity Proofing** variables:	
Variable	**Observations**
Any biometric deduplication done (Y/N)	69 / 175
Fingerprints used for deduplication (Y/N)	91 / 175
Iris scans used for deduplication (Y/N)	119 / 175
Facial images used for deduplication (Y/N)	72 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

Figure 25. Frequency of Providing a First ID for Free

Fees for a first ID are common, but at least 70 countries provide it cost-free (though sometimes with age limits)

Not free	84
Free	63
Free until a certain age	7
Unknown	21
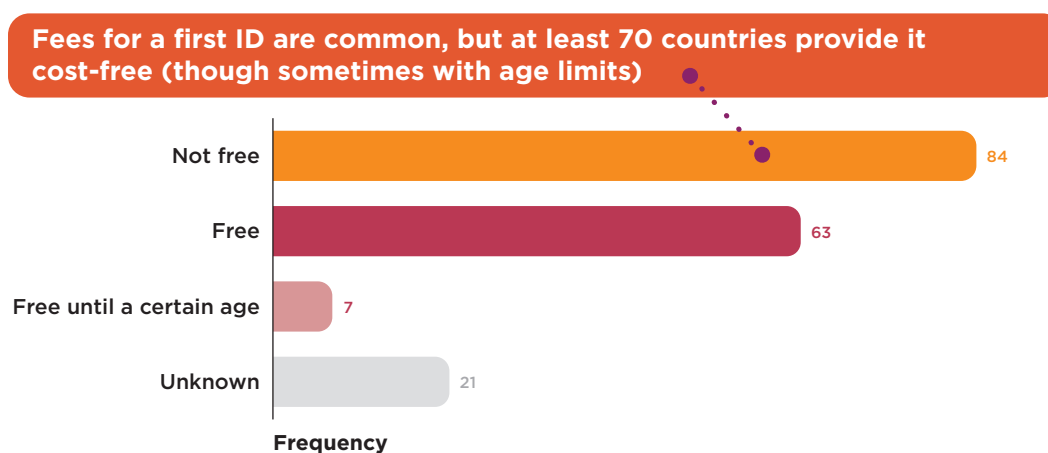
Frequency

Figure 26. Frequency of Providing a Replacement ID for Free

Replacement IDs are less likely to be cost-free than first IDs

Not free	103
Free	15
Free renewal*	10
Free until a certain age	1
Unknown	46
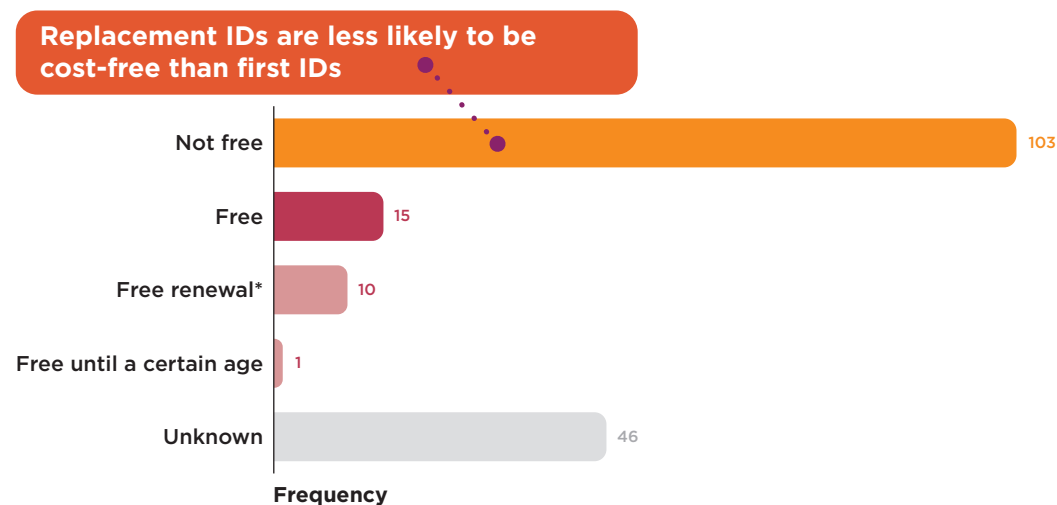
Frequency

Not free if lost/stolen/damaged.

Figure 27. Frequency of Subsidies or Waivers for ID Fees

> Subsidies and waivers were difficult to verify, but are offered in at least 48 of the countries that charge fees

	Frequency
Yes	48
N/A (no fees)	15
No	7
Unknown	105

Frequency
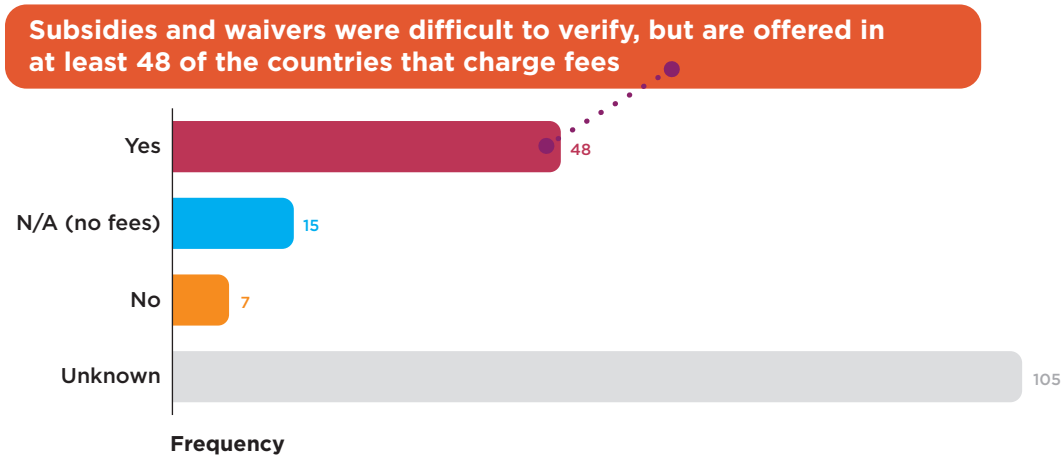
sustainable for the system to maintain itself.[22] The location and density of ID service centers also depends significantly on a country's population size and density, geographic considerations, and the nature of the ID Authority (e.g., local municipalities vs. a centralized, independent agency). Digitalization of the registration process also present new possibilities for remote onboarding that may shift the balance of physical registration centers over time.

Fees

The first credential issued is free in 63 countries (out of 154 observations),[23] while at least 84 countries charge a fee for the first credential issued. For 7 additional countries, the first credential is offered free until a certain age (ranging from 1 to 19 years old in our sample), perhaps to incentivize registering early in life. The amounts of these fees in local currency (at the time of data collection) are included in the Dataset.

In our sample, replacement IDs are less likely to be free of cost, compared to the first IDs issued.

An ID holder may apply for a new ID because their existing ID has expired ("renewal"), or because their existing ID has been lost, stolen, or damaged. Out of 129 observations, only 15 countries issue free replacement IDs in any circumstance. In 10 countries, replacement IDs are free of cost at scheduled renewal dates, but a fee is charged is case of lost, theft, or damage.[24] In one country that we know of—**Croatia**— fees are only charged for ID holders above a certain age (aged 18 years and above). Fee amounts for replacement IDs in local currencies are included in the Dataset.

Out of 70 observations for this variable, 48 countries offer some type(s) of waiver or subsidy for some or all their ID fees. In 15 countries, this is not applicable since both first and subsequent IDs are always free. There is a high level of missingness for this variable because information about such policies is often kept internal or only relayed locally, and therefore difficult to find in online sources. Therefore, most observations derive from an IDAQ question. **Figure 28** illustrates the recipients most targeted to benefit from waiver and subsidy programs and provides examples for each category.

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22 The *Principles on Identification*, for example, note that ". . . [c]osts to the individual must never be a barrier to obtain identity credentials required to fulfill rights or access basic services or entitlements." See www.idprinciples.org for more.

23 **Brazil** is coded as "Free" for the first credential, however, this is true only if the registrant applies online; a 7 BRL registration fee is charged for applying in-person [*Cadastro de Pessoas Físicas* (CPF) system].

24 **Malaysia** is coded as "Not Free," however a replacement IDs are free if the original ID was damaged and it is within 12 months of issuance. If damaged after 12 months, or if lost or stolen, a fee is charged for replacement. **Spain** is coded as "Not Free," however replacements are free if the ID holder simply needs to update their information. A fee is charged in all other cases.

Figure 28. Examples of ID Fee Waiver and Subsidy Programs

LOW-INCOME HOUSEHOLDS

In **Benin**, fees are subsidized for Programme d'Assurance pour le Renforcement du Capital Humain (ARCH) recipients

In **Romania**, fees are waived for applicants who receive social protection/assistance*

In **Uruguay**, fees are waived for low-income applicants*

In **China**, fees are waived for urban residents receiving minimum living allowances *

YOUTH†

In **Bulgaria**, fees are waived for applicants aged 14–16*

In **Cabo Verde**, fees are waived for applicants aged 4–7*

In **Estonia**, fees are subsidized for applicants under age 15*

In **Guinea-Bissau**, fees are subsidized 50% for applicants aged 0–20

VETERANS

In **Georgia**, fees are waived for applicants who were WWII participants and/or are veterans with disabilities*

In **Kazakhstan**, fees are waived for veteran applicants and their families*

In **Malaysia**, fees are waived for applicants who are retired police or military personnel

In **Moldova**, fees are waived for applicants who are veterans*

DISASTER VICTIMS

In **Bolivia**, **Colombia**, and **Romania**, fees are waived for applicants affected by natural disasters*

In **St Lucia** replacement fees are waived if a card was lost or damaged as a result of fire, natural disaster, or theft*

Fee subsidy/ waiver programs tend to be directed towards certain groups

In **Azerbaijan**, fees are waived for applicants who are IDPs, refugees, or stateless persons*

In **Estonia**, fees are subsidized for applicants who are asylum seekers*

In **Peru**, fees are waived for undocumented applicants*

SENIORS

In **Cabo Verde**, fees are waived for applicants age 60+ with no revenues or whose pensions do not exceed the national minimum salary*

In **Guatemala**, **South Africa**, and the **Slovak Republic***, fees are waived for applicants aged 60+

In **Kosovo**, fees are subsidized 50% for retired applicants*

In **Peru**, fees are waived for applicants aged 66+*

DISPLACED INDIVIDUALS

STATE INSTITUTION RESIDENTS

In **Kyrgyz Republic**, fees are waived for applicants living in state institutions (orphans, veterans, and others)*

In **Moldova**, fees are waived for applicants in state care*

In **Lithuania**, fees are waived for child applicants in foster care and applicants living in state institutions*

PERSONS WITH DISABILITIES

In **Bulgaria***, **Estonia***, and **Latvia***, fees are subsidized for applicants with disabilities

In **Angola**, fees are waived if the applicant has a physical or psychological disability as a result of war*

In **Ecuador**, **Moldova***, **Peru***, and **Romania***, fees are waived for applicants with disabilities

*An (*) indicates that the waiver/subsidy listed is one of multiple waivers/subsidies that the country provides
†Age of eligibility for youth waivers/subsidies depends on the age of eligibility for registration

Locations

Fixed Registration Sites

The number of permanent centers offering ID registration services in each country varies widely based on geography and population size. Figure 29 shows the distribution of the variable *Number of registration sites per 100,000 people*. These values are rounded to the nearest whole number, which is less than 1 in the case of 28 countries. Most countries have between one and seven fixed registration sites per 100,000 people, but a few outliers have significantly more—as detailed in the callout boxes below.

The type of fixed ID service centers generally fall into one of the six categories illustrated with examples in Figure 30. This includes centers dedicated to ID services; centers that offer both ID and CR services; centers that offer many government services, including ID; police stations; electoral offices; and private sector agents that have been incorporated into an "ecosystem" of ID service providers. The type of locations offered is closely linked to the institutional home and governance of the ID and CR

systems. For example, if the foundational ID system is operated by an electoral body, it is likely registration will be possible at election offices. The options are also not mutually exclusive; many countries offer registration through more than one type of location.

The distribution of these categories across countries is difficult to synthesize given a high level of missingness and variation among countries. Therefore, we have not included statistics for each category in this paper. However, **Figure 30** includes examples and details from a number of countries, and the specific names provided for registration locations in the IDAQ is included in the Dataset.

Many countries complement their fixed registration sites with mobile registration kits that are deployed regularly or sporadically to reach remote areas and/or conduct systematic travelling "registration campaigns." Data on the number of mobile kits were less available than fixed location details, but our results show that at least 72 countries have mobile kits, while 2 countries confirmed that they do not. Of the 72 countries known to have mobile kits, the number of kits that is available for 31 countries, and ranges from 1 to

Figure 29. **Frequency of Number of Fixed Registration Sites per 100,000 People (Rounded)**

Most countries with known data have between 1 and 7 fixed registration sites per 100,000 people

52 sites PER 100K
St. Vincent and the Grenadines has 54 registration sites for its population of 104,332

32 sites PER 100K
The Maldives has 167 registration sites for its population of 521,457

25 sites PER 100K
Ethiopia's kebele IDs have 30,000 registration sites for its population of 120,000,000

16 sites PER 100K
Luxembourg has 105 registration sites for its population of 639,321, and **Mongolia** has 538 registration sites for its population of 3,347,783

Box 6. Registration Limitations

Measuring the ratio of fixed registration locations to the population is a good starting point for assessing people's access registration services, but it is not the full story. Geographical distribution also matters. Geospatial analysis is outside the scope of this report, however ID4D is separately collecting data on ID and CR office locations to calculate average time and distance to registration centers for the population and different regions.

Beyond physical proximity, there may also be policy limitations on which site(s) people can access registration services from. During data collection we learned that there are at least 18 countries—and likely many more—that have some type of constraint on where people can register. Examples include:

- In **China** administrative procedures can be done at any branch, but for some applicants (those with poor credit history, dramatic changes to facial features, no previous fingerprints on file, an ID-related criminal record, or who are otherwise difficult to identify) the application or renewal must be done in the city of their *hukou* (household registration).

- In the **Republic of the Congo, Croatia, Greece**, and **Myanmar**, among many other examples, people must register in the locality of their official residence (that is, they cannot complete registration in any district or municipality); in many others, such as **Syria**, people must apply at the local civil registry office where their family records are kept.

- In **Germany**, people can register anywhere, however an extra fee of 13 EUR is added for applications made at an office not associated with the applicant's registered address.

Figure 30. Types of Fixed Registration Locations

COMBINED ID & CR OFFICE
Papua New Guinea: Papua New Guinea Civil & Identity Registry (PNGCIR) Provincial & District Offices

SUBNATIONAL GOVERNMENT OFFICE/SERVICE CENTER
South Korea: Community Service Centers (aka Eup/Myeon/Dong Centers)
Nepal: Enrollment Workstations at District & Area Administration Offices
Italy: MunicipalityOffices

POLICE STATION
Burkina Faso: Centres de Collectes des Données (CCD) located within police stations
Morocco: Centres d'Enregistrement des Titres Identitaires (CEDI) located within police stations Serbia: Police Administration Units
Finland: Police Stations

"ECOSYSTEM MODEL"
India: Aadhaar Seva Kendra (ASK) centres + partner institutions (banks, post offices, BSNL telecommunications, and state authorities that offer Aadhaar services)
Nigeria: NIMC (ID authority) Enrollment Offices + Front-End Partner Offices

Where do people go to obtain ID?

ID AUTHORITY OFFICE
Pakistan: NADA Registration Centers (NRCs)
North Macedonia: ID Card Service Points
Malta: Identity Management Offices
Nicaragua: Oficinas de Cédulas
Philippines: PhilSys Registration Centers
Sri Lanka: Department for Registration of Persons Branch offices

ELECTORAL OFFICE
Bangladesh: Upozila & Thana level Election Offices
Costa Rica: Sedesdel Tribunal Supremo de Elecciones
St. Kitts and Nevis: Electoral Offices

31,500. The rounded values of *mobile registration kits per 100,000 people* for these 31 countries all fall between <1 and 10, except one outlier: **Kenya** has a reported 31,500 kits for its population of 53,000,000—59 kits for every 100,000 people. However, we do not have data on the degree to which kits in these countries are operational and/ or regularly deployed.

Figure 31. Examples of Fixed Registrations Sites

Photo by Jonathan Marskell for ID4D.

Subnational office, ID & CR combined:
Directorate of Population and Civil Registration (Dukcapil) in **Indonesia**

Government service center:
ASAN (Azerbaijan Service and Assessment Network) Service Center in **Azerbaijan**

Image from https://asan.gov.az/en/media/ press-releases/kuerdemir-asan-xidmet- merkezi-fealiyyete-baslayib

Image from https://www.laprensagrafica.com/ elsalvador/Salvadorenos-realizan-tramites-en-el-DUI- -en-el-ultimo-dia-para-realizar-cambio-de-domicilio- previo-a-elecciones-2024-20230404-0018.html

ID Authority office:
DUICentro in **El Salvador**

Photo by Marie Eichholtzer for ID4D.

Police station: Commissariat in **Cameroon**

Table 9. Registration Logistics Variable Details

See ID4D Global Dataset: Volume 3 for the following **Registration Logistics** variables:	
Variable	**Observations**
First credential is free (Y/N)	154 / 175
→ *(If no)* Details of first credential fee	154 / 175
Replacement credential is free (Y/N)	129 / 175
→ *(If no)* Details of replacement credential fee	129 / 175
Fee waivers/subsidies available (Y/N)	70 / 175
→ *(If yes)* Details of waivers/subsidies	46 / 175
Birth registration is free (Y/N)	95 / 175
→ *(If no)* Details of birth registration fee	95 / 175
First birth certificate is free (Y/N)	94 / 175
→ *(If no)* Details of first birth certificate fee	94 / 175
Replacement birth certificate is free (Y/N)	74 / 175
→ *(If no)* Details of replacement birth certificate fee	74 / 175
Total number of fixed registration sites	120 / 175
Details of fixed registration sites	120 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

3.3 CREDENTIALS

Once an individual's identity has been verified and recorded in the system, they are typically issued a credential. A credential can be defined as any document, object, or data structure that vouches for the identity of a person through some method of trust and authentication. Simply put, a credential is the thing that a person presents—in person or remotely—to say: "this is who I am" (World Bank 2019).

The types of credentials issued by an ID system vary along multiple dimensions, including whether or not they are physical (that is, they must be physically carried by a person in order to use them), and whether or not they are digital (that is, they are machine readable and/or used in a digital environment). **Figure 32** shows a range of common types of credentials and authenticators. Our research in this section focuses on two common credential types: ID Numbers and physical ID Documents.

Figure 32. Credential Types

PHYSICAL DOCUMENTS
Present identity information non-digitally

DIGITAL CREDENTIALS
Attest to a person's identity in a digital environment (i.e., used for digital authentication)

ADDITIONAL FACTORS
Confirm a person is associated with a digital credential

Documents with no machine readability | Digitized & smart cards and documents | Mobile ID | Digital certificate | User name | ID number | Biometric feature | PIN | Password | OTP | Token | Question | Etc.

Source: ID4D Practitioner's Guide (World Bank 2019).

As shown in **Figure 32**, the authentication process may involve presenting the credential along with additional factors (known as "authenticators") that bind the person to the credential, offering assurance that the person in possession of the credential is its rightful owner. Authentication is discussed briefly in the Section 3.4. The previous paper in this series, Volume 2: Digital Identification Gaps, discusses authentication in more depth.

3.3.1 ID Numbers

In any ID system, identifying numbers—including unique ID numbers (UINs), also sometimes known as national ID numbers (NINs)—are the most basic type of identifier. These numbers can vary along a few dimensions, including their structure; whether they are "permanent" for a person's lifetime or expected

to change over time; and how they are issued. Each of these characteristics can have important implications for how the ID number is used, and risks related to data protection and privacy.

The majority of countries (135, out of 141 observations) issue an ID number that is intended to be "permanent"—in other words, an individual is assigned one consistent number for their lifetime. The six countries coded as "No" include three ID systems that generate new numbers for each card that is issued to an individual, without a per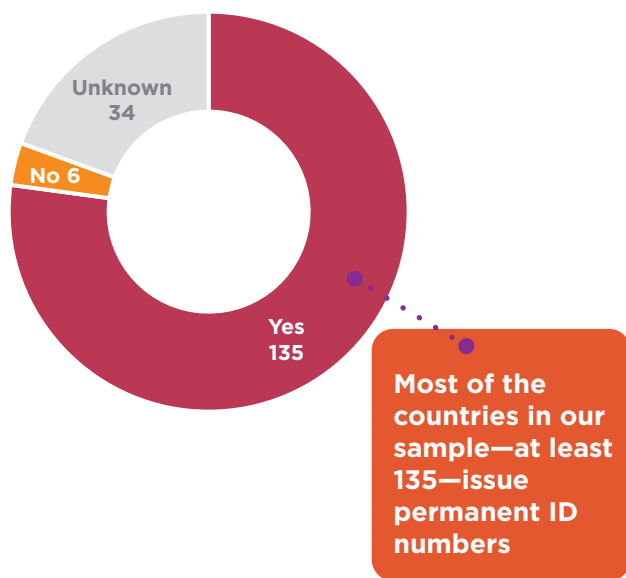manent number linking these cards to the same individual over time, and three that do not issue any kind of national ID number. In practice, issuing new numbers for each card issued is not mutually exclusive with issuing a permanent ID number to an individual; systems that use tokenization[25] to reduce the proliferation of a UIN across systems may do both. For the countries coded as "No" we have confirmed that this is not the case.

ID Number Structure

Of the 118 countries where we have data on the length of ID numbers, a large majority contain 10–13 digits.[26] On the low end of the range, the **Maldives'** ID number has only 7 digits. On the high end of the range, the ID numbers in **Paraguay** and **Tanzania** each have 20 digits.

Figure 33. Frequency of ID Systems Issuing Permanent ID Numbers

Unknown
34

No 6

Yes
135

Most of the countries in our sample—at least 135—issue permanent ID numbers

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25 Tokenization substitutes a sensitive identifier (such as a UIN or other personally identifiable information) with a non-sensitive equivalent (or "token") that has no extrinsic or exploitable meaning or value. These tokens are used in place of identifiers when printed on cards (as done with credit cards, for example) or to represent the user in a database or during transactions such as authentication. For more, see the "Tokenization" section of the ID4D Practitioner's Guide (World Bank 2019).

26 The optimal number of digits for an ID number is related to population size, among other factors. The number of digits selected should allow for more than enough numeric combinations to provide new (that is, not recycled), unique numbers to all newborns and new arrivals expected in the foreseeable lifetime of the ID system. For example, an 8-digit number using numerals 0–9 provides 100 million unique numbers, while 10 digits provides 10 billion unique numbers (World Bank 2019).

Figure 34. Frequency of ID Number Digit Lengths

For those countries with data, ID Numbers range in length from 7 to 20 digits
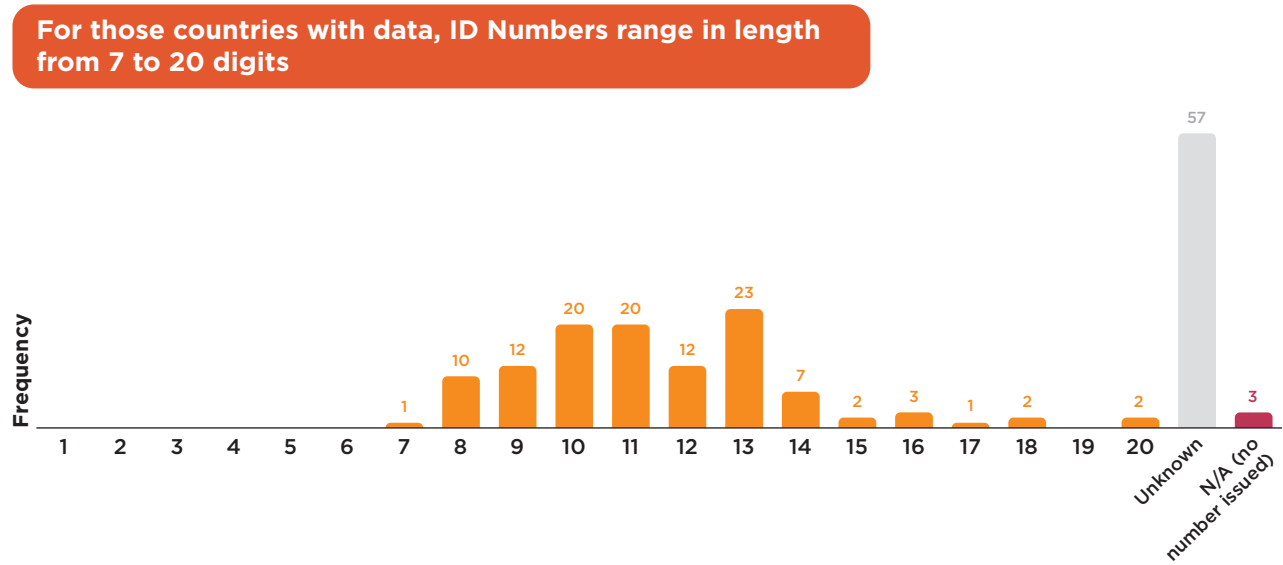
Box 7. ID Number Formats

In any system, ID numbers can take one of three formats:

* *Random:* A random number (technically a "pseudo" random number) is generated using mathematical algorithms and contains no information about the person.

* *Serial or sequential:* A serial number is assigned based on the order of entry into the system, with the highest number assigned to the most recent enrollee.

* *Coded:* A number that contains information about the person, with certain digits coded based on attributes such as birth year, gender, nationality, and location of application.

ID numbers often include multiple segments, allowing for any combination of these formats—although to be a true random number the entire numeric sequence must be random.

Source: ID4D Practitioner's Guide (World Bank 2019).

Of the 116 countries with data, the combination of sequential and coded segments has been the most common format. Only 21 known countries generate completely random ID numbers, although this number is increasing over time. For countries in this sample with fully or partially coded ID Numbers, date of birth is the most coded information (at least 50 countries), followed by sex or gender[27] information (at least 42 countries). Other information coded in the ID numbers includes nationality or citizenship status, place of birth, and location information (that is, the place and/or date of ID registration and/or issuance).

27 See the **Box 5:** Collecting Sex and Gender Data for more context on this data point.

Figure 35. Frequency of ID Number Formats

> The most common format for ID numbers is a mix of sequential & coded digits

Sequential + Coded	56
Fully Coded	23
Fully Random	21
Fully Sequential	13
N/A (no number issued)	3
Unknown	59

Frequency
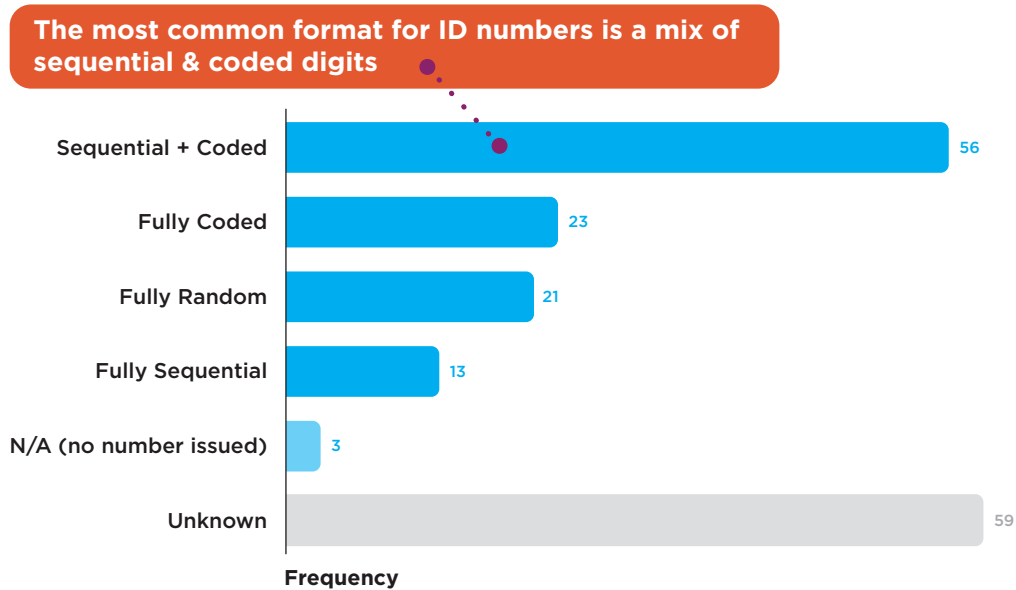
ID Number Issuance

The majority of countries with data (86 out of 124 observations) issue an ID number at birth, and many of those (58 out of 104 observations) print the newborn's ID number on their birth certificate. Intuitively, we expect this to be more common in countries that operate ID and CR through the same entity, and indeed all but 8 of those countries with more closely linked ID and CR issue numbers at birth. However, **Table 10** also shows that ID number assignments at birth occur in 29 countries where ID and CR are management by separate authorities, suggesting stronger cross-institutional linkages between ID and CR systems in these countries.

Figure 36. Frequency of Countries Issuing ID Number at Birth

> At least 86 of the countries that issue ID numbers do so at the time of birth

Yes	86
No	35
N/A (no number issued)	3
Unknown	51
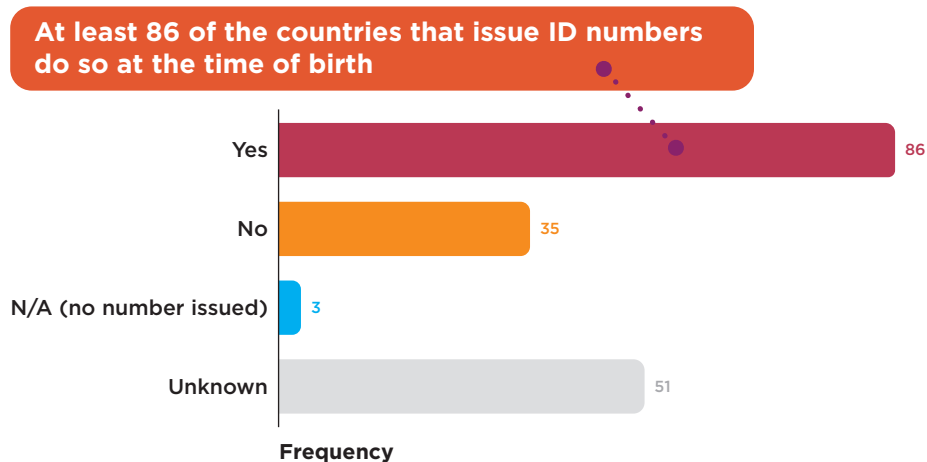
Frequency

Figure 37. Frequency of Printing ID Number on the Birth Certificate

At least 58 of the countries that issue ID numbers at birth print them on the birth certificate

Category	Frequency
Yes	58
No	43
N/A (no number issued)	3
Unknown	71

Frequency
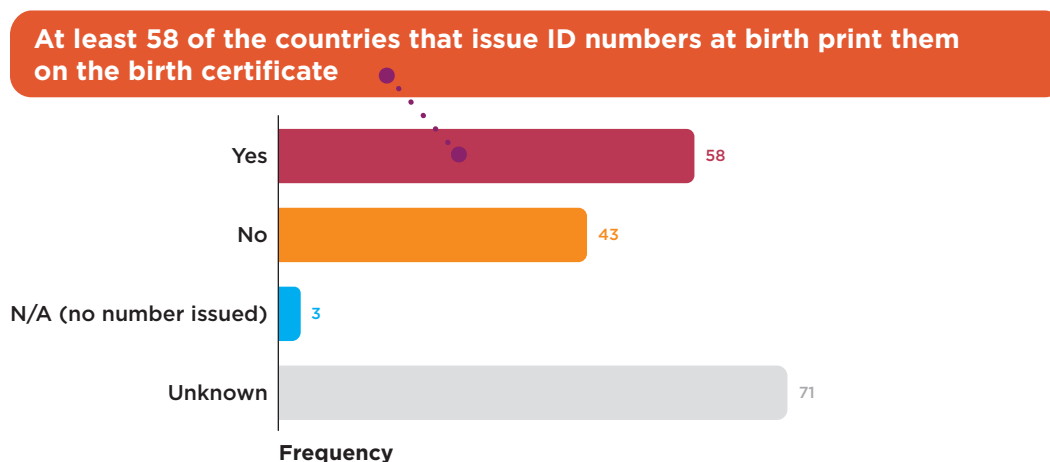
Table 10. Matrix of ID/CR Authority Relationship and ID Number Assignment at Birth

		ID & CR implemented by same authority?			
		No	Yes	Unknown	Total
ID number assigned at birth?	**No**	25	8	2	35
	Yes	29	46	11	86
	Unknown	18	24	9	51
	N/A (no number issued)	3	0	0	3
	Total	75	78	22	175

Table 11. ID Number Variable Details

See ID4D Global Dataset: Volume 3 for the following **ID Number** variables:	
Variable	**Observations**
Name of ID Number	175 / 175
ID Number is permanent (Y/N)	141 / 175
Total digits in ID Number	118 / 175
ID Number digits are random (Y/N)	114 / 175
ID Number includes sequential digits (Y/N)	105 / 175
ID Number includes coded digits (Y/N)	115 / 175
→ *(If yes)* Coded digits signify date of birth (Y/N)	113 / 175
→ *(If yes)* Coded digits signify gender or sex (Y/N)	113 / 175
→ *(If yes)* Coded digits signify nationality or citizenship status (Y/N)	113 / 175
→ *(If yes)* Coded digits signify place of birth (Y/N)	113 / 175
→ *(If yes)* Coded digits signify date of place of residence (Y/N)	113 / 175
→ *(If yes)* Coded digits signify place and/or date of registration and/or issuance (Y/N)	113 / 175
→ *(If yes)* Other info coded, if any	113 / 175
ID Number is assigned at birth (Y/N)	124 / 175
ID Number is printed on birth certificate (Y/N)	104 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

3.3.2 Physical Credentials

Despite the rapid growth of digital credentials and remote transaction possibilities, physical credentials still play an important role in ID systems. These often (though not always) take the form of an ID card. This section discusses the design of these physical credentials. As fully digital credentials become more common, this data will be collected in future iterations of the Dataset.

Physical Credential Format

The majority of countries issue plastic ID cards (125 out of 139 observations) as the primary credential. When possible to determine the type of plastic material, polycarbonate was the most common (used in 47 countries). Materials such as Teslin appear to be rarer; however, data on material

type is unknown for 36 countries. There are still at least 14 countries globally that issue ID documents in paper or cardboard formats. Many of these documents are akin to letters, receipts, or certificates, rather than wallet-sized ID cards. For example, **Nigeria** issues a "National Identification Number (NIN) Slip"; **Mexico** issues a "CURP letter" (CURP stands for *Clave Única de Registro de Población*, or Unique Population Registry Code); and **India** issues an "Aadhaar Letter." The paper document may or may not have embedded security features and mechanisms for digitaly verifying their authenticity or the holder's identity information, such as a QR code containing a digital signature.

In some cases, the paper document is simply a means of issuing the ID number that is used in combination with other factors for identification and authentication (e.g., in the case of **India**). Alternately, the paper document may later be supplemented by a

Figure 38. Distribution of ID Credential Material Types

Of **139** countries with data on material…

125 are made of **plastic**

1 PET	4 PVC

| 47 Polycarbonate | 7 Teslin | 66 Type unknown |

14 are made of **paper** or **cardboard**

36 are made of **unknown material**
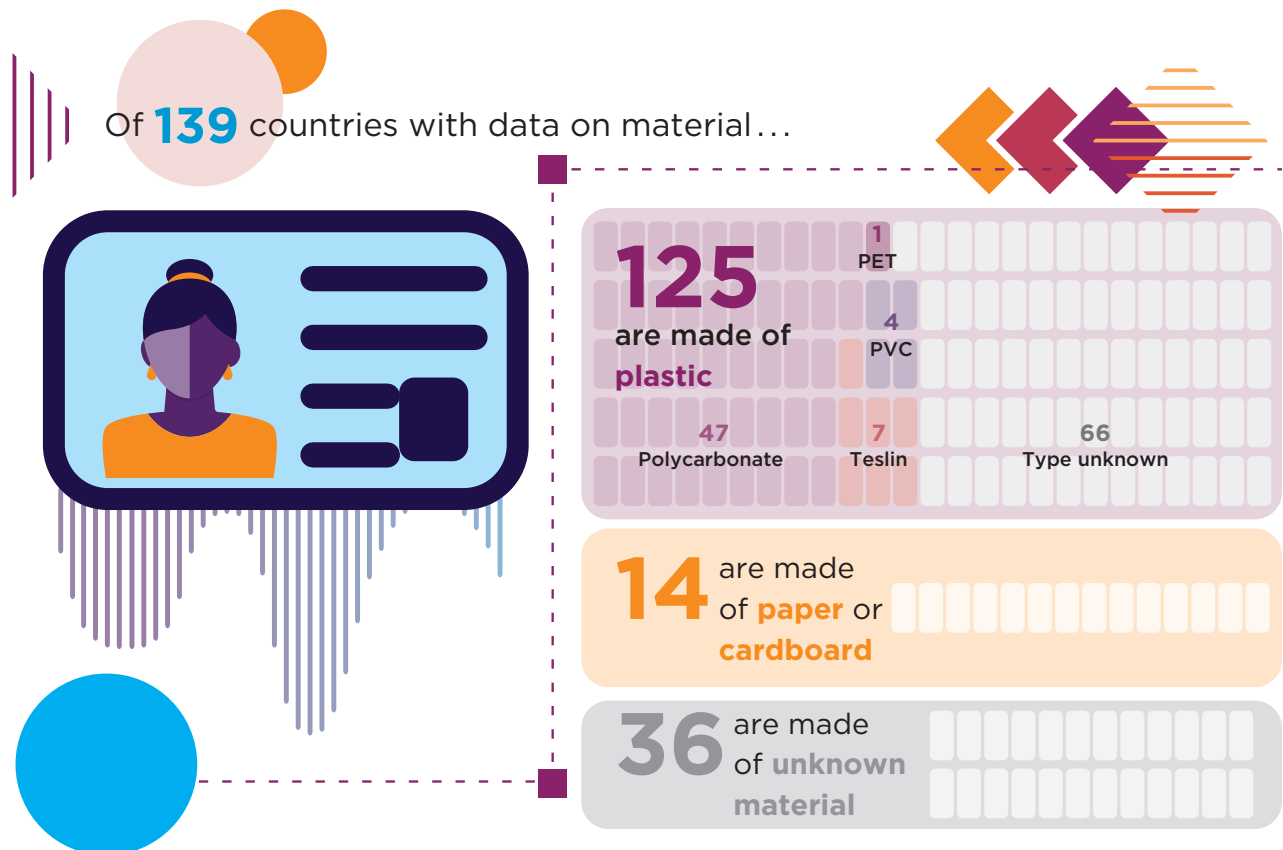
Figure 39. ID Credential Data Storage Features

YES **25**
Unknown 27
123 No

1D BARCODE

46 YES
Unknown 26
103 No

2D BARCODE
(including QR)

100 YES*
23 Unknown
52 No

CHIP

*Chip is optional in 2 countries. In **Serbia** applicants can choose a card with or without a chip. In **Switzerland** card has a chip by default but applicants can request one without.
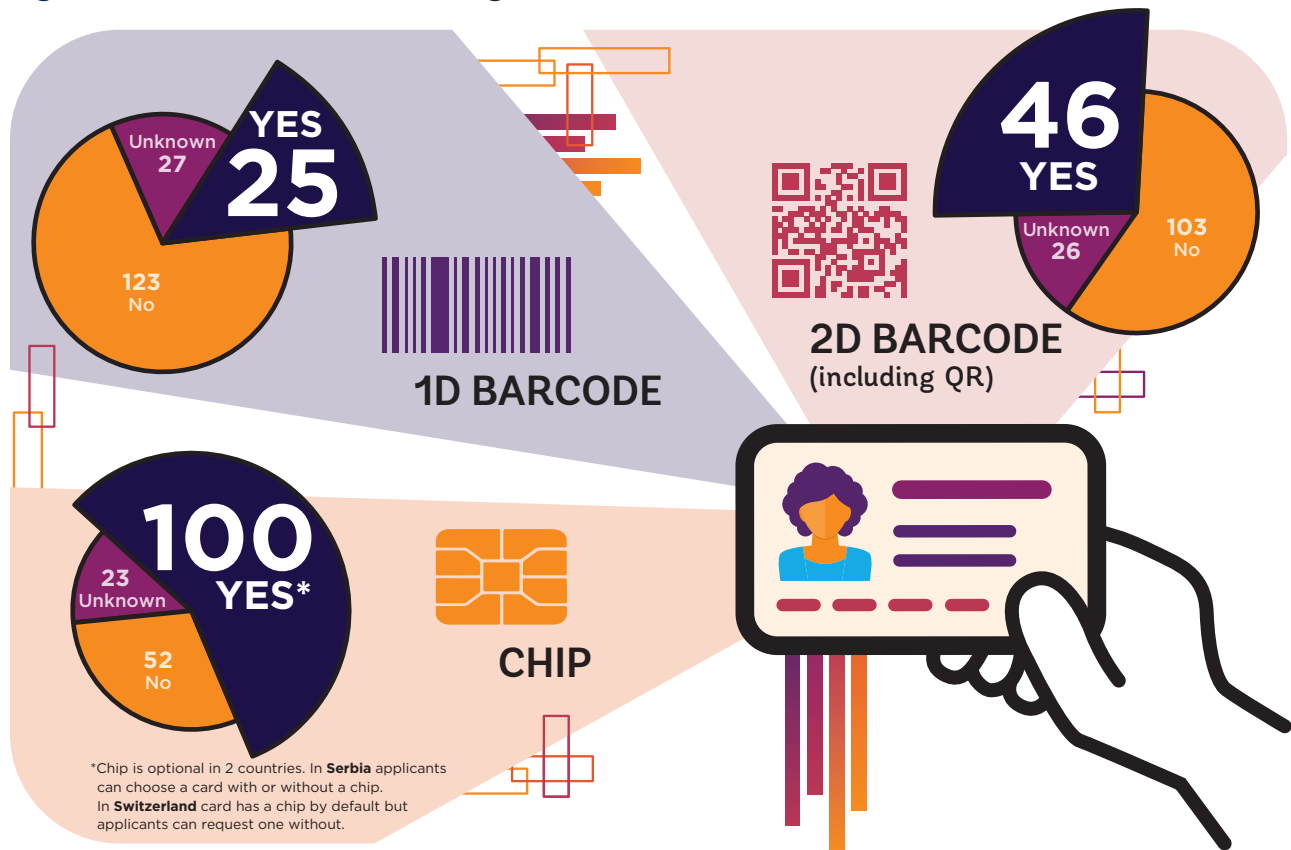
physical card or other digital forms of identification. Another emerging trend is for countries to digitally issue documents digitally via a PDF that can be printed by the person if desired. This option is offered in addition to physical ID documents in several countries, such as the **Philippines'** ePhilID, which is available for download before the physical PhilID card has been printed and delivered, and can be used as an alternate form of ID (Philippine Statistics Authority 2023). Since this Dataset focuses on the main credential issued to adults, data on alternative PDF options was not systematically collected. However, as the prevalence of the option grows it will be important to track this in future iterations of the Dataset.

Of all the features that can be added to a physical ID credential to store data, chips are the most common—out of 152 observations, 100 countries issue cards that have one. In 46 countries, physical ID credentials have 2D barcodes (usually QR codes).

The data in **Figure 39** is not mutually exclusive—many countries' credentials have more than one of these features. Chips and barcodes store data that offer the possibility—with various degrees of security and authentication assurance—of digital verification or authentication, as discussed in more detail in Volume 2.

Biographic Data Visible on Credential

Which data is printed on the card has implications for how it is used, the frequency with which updated are needed in case information changes, and for data protection and privacy, including the visibility of sensitive or personal information that might expose the holder to various risks.

Most countries choose to print a majority of the data that they collect during registration on the ID

Figure 40. Frequency of Printing Select Biographic Attributes on the ID

Most countries that collect name, birth date, and gender or sex print this information on the ID. Printing of other attributes varies.

Biographic attribute is printed on ID?
(sum of stacked bar is total countries that are known to collect this attribute)

■ Printed on ID   ■ Collected, not printed on ID   ■ Collected, printing unknown
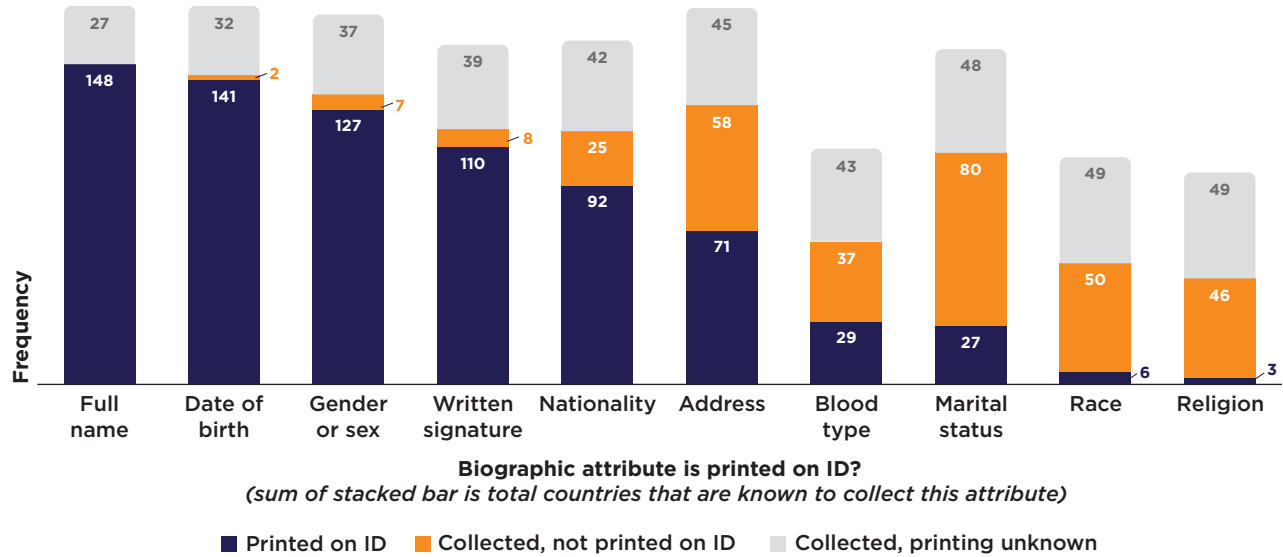
credential, with the exception of address, marital status, race, and religion, which are less commonly visible. In **Figure 40** the sum of each stacked bar is the total number of countries known to collect each data point, as discussed previously in Section 3.2. Within each bar, the purple segments show how many of those countries are known to print or display that information visibly on their credential,

the orange segments shown countries known to *not* print/display the information, and grey segments indicate missing values.

Biometric Data Stored in Credential

In roughly half of the cases where biometric data is known to be collected, it is also stored in a

Figure 41. Frequency of Storing Select Biometric Attributes on the ID

The storeage of biometric attributes on credentials is difficult to verify, but appears to be common for countries that collect this data.

Biometric attribute is stored on ID?
(sum of stacked bars is total countries that are known to collect this attribute and whose ID has a chip or barcode for storage)

■ Stored on ID   ■ Collected, not stored on ID   ■ Collected, storage unknown
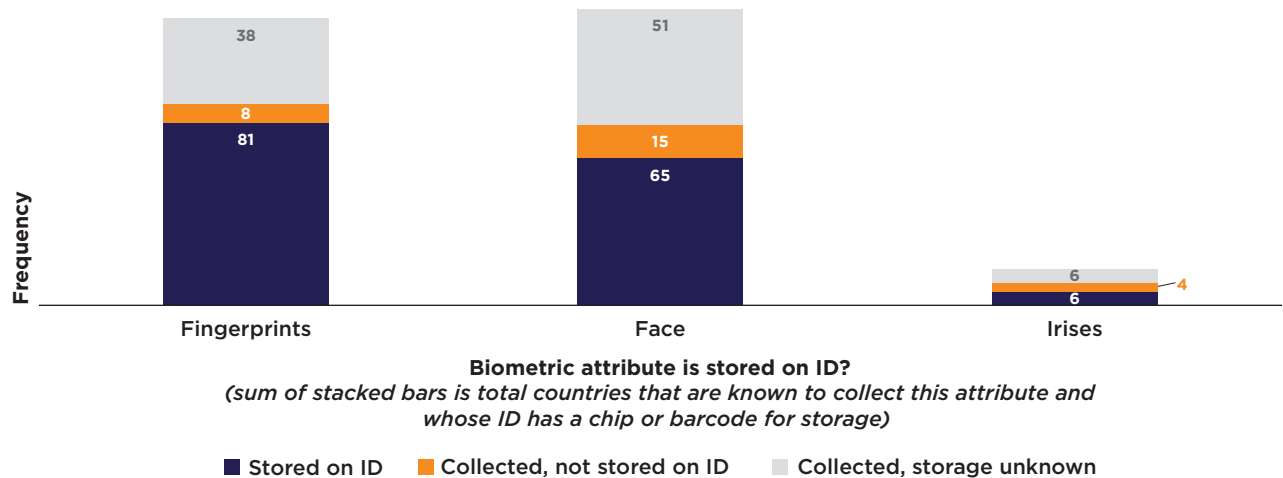
Table 12. Physical ID Credential Variable Details

See ID4D Global Dataset: Volume 3 for the following **ID Card** variables:	
Variable	**Observations**
Credential material	139 / 175
Credential has 1D barcode (Y/N)	148 / 175
Credential has 2D barcode (Y/N)	149 / 175
Credential has a chip (Y/N)	152 / 175
Data printed/visible on credential:	
Full name printed/visible on credential (Y/N)	148 / 175
Date of birth printed/visible on credential (Y/N)	143 / 175
Gender or sex printed/visible on credential (Y/N)	138 / 175
Current address printed/visible on credential (Y/N)	130 / 175
Nationality or immigration status printed/visible on credential (Y/N)	133 / 175
Marital/civil status printed/visible on credential (Y/N)	127 / 175
Race or ethnicity printed/visible on credential (Y/N)	126 / 175
Religion printed/visible on credential (Y/N)	126 / 175
Blood group printed/visible on credential (Y/N)	132 / 175
Written signature printed/visible on credential (Y/N)	136 / 175
ID Number printed/visible on credential (Y/N)	139 / 175
Expiration date printed/visible on credential (Y/N)	127 / 175
Data stored electronically on credential:	
Fingerprints stored in ID (Y/N)	111 / 175
Irises stored in ID (Y/N)	123 / 175
Face stored in ID (Y/N)	103 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

credential. **Figure 41** shows that of the 134 countries known to collect fingerprints, 81 store fingerprint data electronically in a chip or barcode. Of the 136 countries known to collect face data, at least 65 store them electronically on the credential. At least 16 collect iris data but only 6 of these that we know of store them electronically. In reality, however, the difference between collection and storage may be smaller due to missing values.

3.3.3 Credential Validity

Out of 136 countries with data, the credentials issued to adults expire at regular intervals in 123. Expiration of credentials either happens at a set number of years after the credential issued—such as

Figure 42. Frequency of ID Credentials with Expiration Dates

Unknown 39

No 13

Yes 123

The IDs issued in at least 123 countries expire after a designated period of time
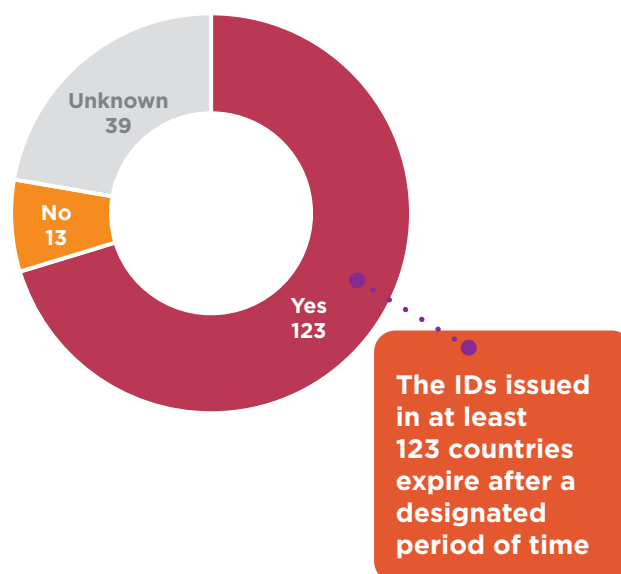
Figure 43. Frequency of ID Validity Periods, in Years

For countries whose IDs do expire, the most common validity length is 10 years

Validity of ID (years)	Count
5	19
6	2
7	2
8	3
10	71
15	3
20	2
Must replace at set ages	6
ID expires, years unknown	15
N/A (ID does not expire)	13
Unknown whether ID expires	39

in **Cameroon**, where credentials must be renewed every 10 years—or is mandated to happen when the holder reaches certain ages—such as in **Vietnam**, where individuals must renew their credentials at ages 25, 40, and 60. Only 13 countries are known to issue credentials for adults that have no expiration dates, although expiration dates are unknown for

39 countries so this number may be higher. Some countries with adult credentials that do expire also have different policies for children and seniors, and cut-off ages for these categories vary by country.

Of the 123 countries with data whose adult credentials do expire, most (71) are valid for

Figure 44. Credential Validity Adjustments for Seniors and Children

VALIDITY ADJUSTED FOR **SENIORS?**

Yes
89
countries

No
20
countries

Unknown
14
countries

N/A, no expiration
13
countries

VALIDITY ADJUSTED FOR **CHILDREN?**

No
76
countries

Unknown
14
countries

Yes
33
countries
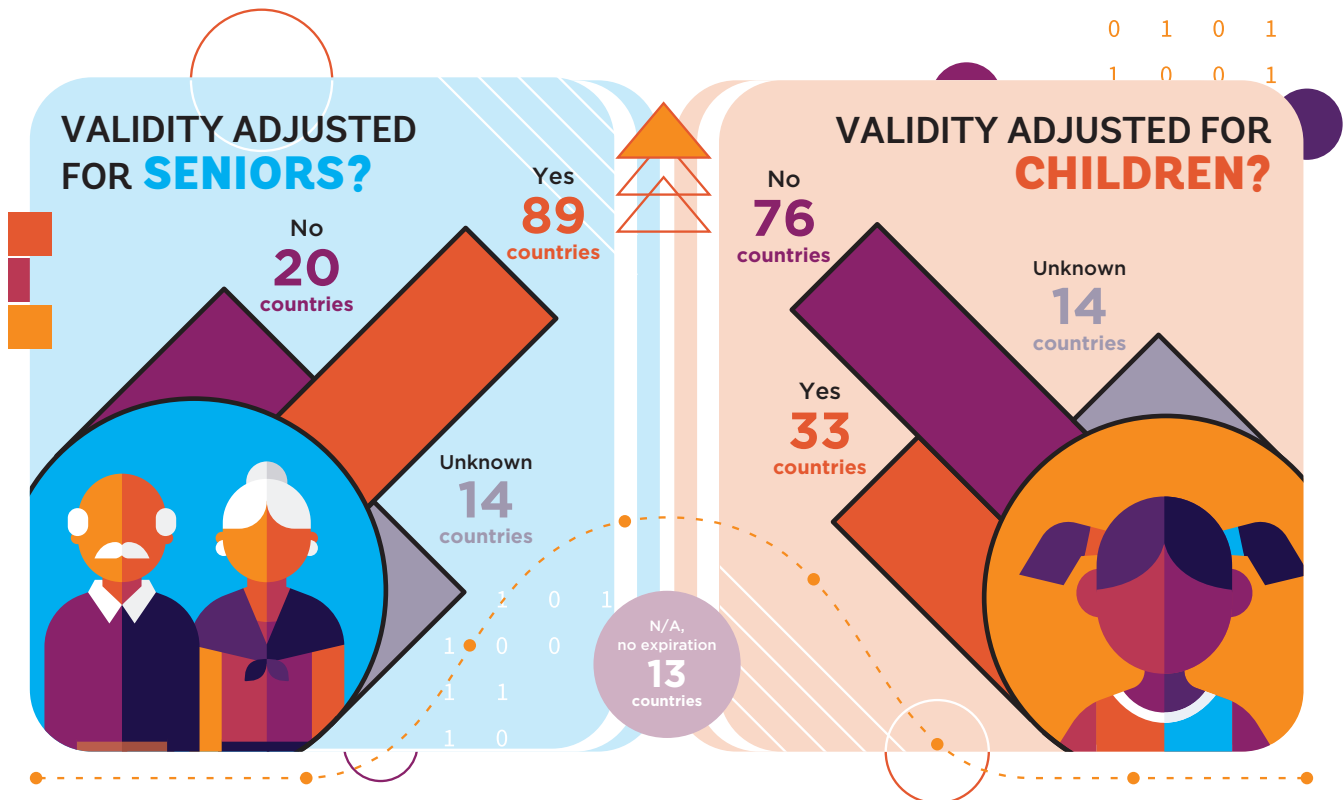
Table 13. Credential Validity Variable Details

See ID4D Global Dataset: Volume 3 for the following **Credential Validity** variables:	
Variable	**Observations**
Credential expires (Y/N)	136 / 175
Number of years credential is valid for, for age of majority	121 / 175
Different credential validity for seniors (Y/N)	122 / 175
Different credential validity for minors (Y/N)	122 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

10 years. Next most common validity period in our sample is a 5 years (19 countries). There are at least 6 countries that have adopted the strategy of requiring renewal at certain age.

The data suggest that in the 123 countries where credentials are confirmed to expire, a majority (89) accommodate seniors by ending their expiration policy after a certain age. The "senior" cutoff age varies from 46 (in **China**) to 75 (in **Argentina**), among those countries with data. Some countries have an official "no expiration" policy after the cutoff age, while others set the expiration date longer than the average human lifespan, which amounts to "no expiration" in practice. For example, in **Croatia** credentials are valid for 40 years after a person reaches 70 years old. Such policies are coded as no expiration for seniors.

Validity adjustments for children are less common. Of the 123 known countries whose credentials do expire, only 33 adjust validity for children. The adjustment policies for minors vary more widely than those for seniors, so we have taken a broad approach to coding the "Yes" category in the analysis shown in **Figure 44**. Some examples of policies coded as adjusting validity for children include:

- **Austria:** Credentials are valid for **2 years** (ages 0–1), **5 years** (ages 2–11), or **10 years** (ages 12+).

- **Azerbaijan:** Credentials issued to children expire at **age 5** and **age 15,** adult credentials are valid for **10 years** (ages 15–54); credentials issued to seniors **do not expire** (ages 55+).

- **Spain:** Credentials are valid for **2 years** (ages 0–4), **5 years** (ages 5–29), or **10 years** (ages 30–70); credentials issued to seniors (ages 71+) or people with extreme disabilities (ages 30+) **do not expire**.

3.4 USE

Once an individual is registered in the system and issued a credential, they can use it to assert their identity. Public and private service providers can use the ID credential or system as a means of identity authentication (confirming a person is who they claim to be) and/or verification (confirming attributes specific to the transaction, like age or address). ID systems vary in the types of authentication mechanisms that they offer, and the levels of assurance that they provide.

This section presents some select trends in authentication mechanisms and use cases for foundational ID systems. A full portrait of each country's use of authentication/verification services is beyond the scope of this paper. However, digital authentication/verification capabilities are the subject of Volume 2: Digital Identification Gaps and discussed there in more depth. In summary, that paper finds that ID systems—foundational or other—in at least 132 countries support digital identity verification or authentication for in-person transactions and 81 offer fully remote authentication for online transactions. While this prevalence is promising, our indicators do not yet track how widely used these mechanisms are in the countries where they are offered. Another caveat

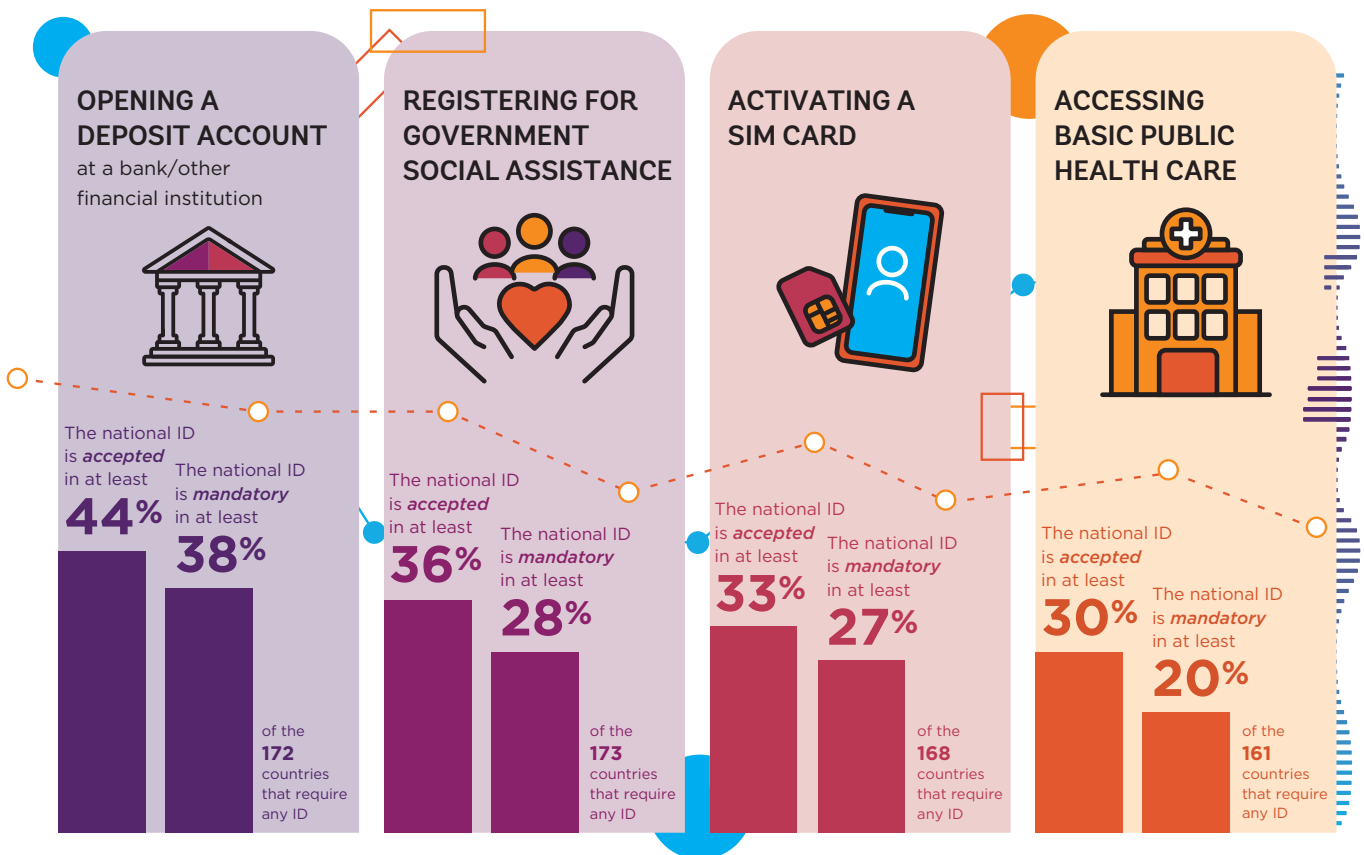**Figure 45. Example of Manual Identity Verification Using ID Card in Rwanda**

to note is that digital verification and authentication offerings are concentrated in high-income and upper-middle income countries, but these capabilities are absent in at least a third of low- and lower-income countries (and potentially up to half, considering countries with missing data).

Another essential aspect of ID use is an individual's ability to view and manage their own data. New technologies for digital authentication have enabled services through which individuals can view their records, update biographic information, and receive requests or alerts when other parties (such as government service providers or private businesses) access their data. While this was difficult to track quantitatively for this round of the Dataset, we know through various ID4D engagements that this approach is becoming increasingly common, and that countries and stakeholders globally recognize its importance for user-centricity and data protection.

3.4.1 ID Use Cases

Overall, the data suggest that it is more common for service providers to *accept* their country's national ID as one of multiple options for proof of identity than to *mandate* that the national ID specifically must be used. Figure 46 shows

Figure 46. ID Acceptance and Requirement for Common Use Cases

OPENING A DEPOSIT ACCOUNT at a bank/other financial institution

The national ID is *accepted* in at least **44%**

The national ID is *mandatory* in at least **38%**

of the **172** countries that require any ID

REGISTERING FOR GOVERNMENT SOCIAL ASSISTANCE

The national ID is *accepted* in at least **36%**

The national ID is *mandatory* in at least **28%**

of the **173** countries that require any ID

ACTIVATING A SIM CARD

The national ID is *accepted* in at least **33%**

The national ID is *mandatory* in at least **27%**

of the **168** countries that require any ID

ACCESSING BASIC PUBLIC HEALTH CARE

The national ID is *accepted* in at least **30%**

The national ID is *mandatory* in at least **20%**

of the **161** countries that require any ID

Table 14. Detailed Data on ID Acceptance and Compulsoriness for Common Use Cases

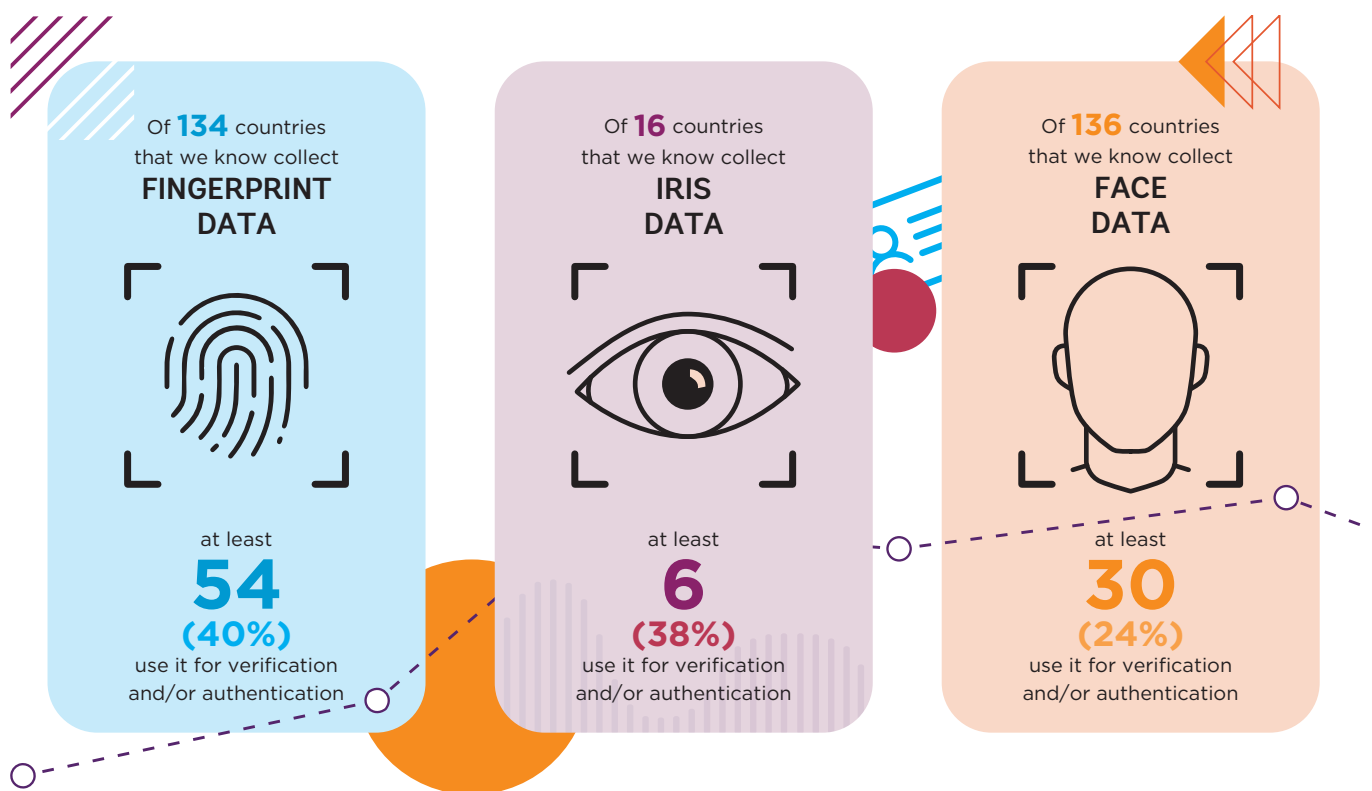| Is the national ID accepted for . . . ?	Financial Account Opening	Social Assistance Registration	SIM Card Activation	Basic Public Health Care Access
Yes	75	62	55	48
No	0	2	2	7
N/A (no ID required)	3	2	7	14
Unknown	97	109	111	106
Total	175	175	175	175
Is the national ID *mandatory* for . . . ?	Financial Account Opening	Social Assistance Registration	SIM Card Activation	Basic Public Health Care Access
Yes	65	48	46	32
No	5	11	8	17
N/A (no ID required)	3	2	7	14
Unknown	102	114	114	112
Total	175	175	175	175

this general trend, and **Table 14** details the data behind the illustration. Data collection focused on four common use cases: financial account opening, social assistance registration, SIM card activation, and public health care access. There are substantial missing values because this information was difficult to determine with certainty through desk research, and therefore relied mostly on the IDAQ. Due to these limitations in scope and data completeness, this information should be interpreted as a general indication of prominent trends rather than definitive statistics.

Figure 47. Frequency of Biometric Use for Verification/Authentication (by Modality)

Of **134** countries that we know collect
FINGERPRINT DATA
at least
54
(40%)
use it for verification and/or authentication

Of **16** countries that we know collect
IRIS DATA
at least
6
(38%)
use it for verification and/or authentication

Of **136** countries that we know collect
FACE DATA
at least
30
(24%)
use it for verification and/or authentication

3.4.2 Biometrics for Verification/Authentication

Fingerprints are currently the most commonly used biometric for verification and/or authentication during a transaction. This is done via a 1:1 match of against biometric data stored either locally in the credential (via a barcode, chip, or mobile device), or remotely in a database. For more detailed information on authentication mechanisms, see the ID4D Practitioner's Guide (World Bank 2019). Since countries vary in what biometric data they collect, the use of biometrics in relative terms (how often it

Figure 48. Example of Biometric Identity Verification in India

Image source: ID4D

is used *if collected*, rather than how often it is used overall). The results are summarized in **Figure 47** and **Table 15**.

Table 15. Frequency of Biometric Use for Authentication/Verification, by Modality

Are . . . used for biometric authentication and/or verification?	Fingerprints	Face	Iris
Yes (collected & used)	54	31	6
No (collected but not used)	13	19	1
Collected, use **unknown**	67	86	9
Total (collected)	*134*	*136*	*16*
N/A (not collected)	15	17	112
Collection & use both **unknown**	26	22	47
Overall Total	*175*	*175*	*175*

3.4.3 Use of ID Numbers

Of the 168 countries that issue permanent ID Numbers, at least 86 use those numbers across multiple government databases to link records to individuals. A further 8 countries indicated that they do not do this, and for the remaining 74 this information was not available.

Figure 49. Frequency of Use of Permanent ID Number in Government Databases to Link Records

At least 86 countries use permanent ID numbers to link individuals' records across multiple government databases

	Frequency
Yes	86
No	8
N/A (no permanent number)	7
Unknown	74
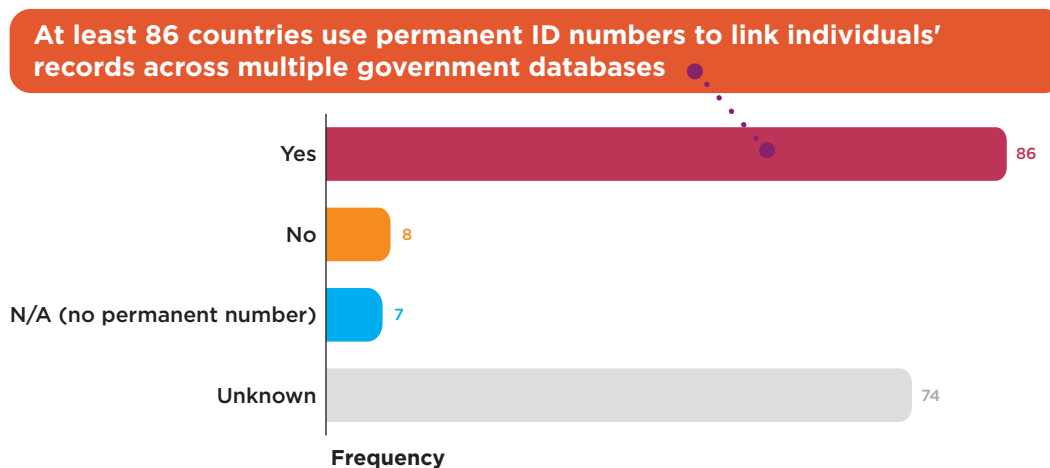
Table 16. ID Use Variable Details

See ID4D Global Dataset: Volume 3 for the following **ID Use** variables:	
Variable	**Observations**
ID number used across multiple govt databases to link records to an individual (Y/N)	101 / 175
Use of Biometric verification/authentication:	
Fingerprints used for verification/authentication (Y/N)	82 / 175
Irises used for verification/authentication (Y/N)	119 / 175
Face used for verification/authentication (Y/N)	67 / 175
Credential acceptance across sectors:	
Credential accepted to open a deposit account (Y/N)	78 / 175
Credential accepted to activate a SIM card (Y/N)	64 / 175
Credential accepted to register for social assistance (Y/N)	66 / 175
Credential accepted to access public health care (Y/N)	69 / 175
Credential required across sectors:	
Credential mandatory to open a deposit account (Y/N)	73 / 175
Credential mandatory to activate a SIM card (Y/N)	61 / 175
Credential mandatory to register for social assistance (Y/N)	61 / 175
Credential mandatory to access public health care (Y/N)	63 / 175
For more information about these variables see Codebook (id4d.worldbank.org/global-dataset)	

CONCLUSION

Improved identification—including as part of a country's DPI—has the potential to transform how people and businesses around the world access services and economic opportunities and how governments can meet the needs of their constituents. But advances towards digital ID must be grounded in a strong understanding of the current identity landscape. We hope that this new data adds to this understanding, including by:

1. **Providing a benchmarking tool** for policymakers to place policy decisions in context, and

2. **Establishing an information repository** for identity stakeholders—including governments, civil society, the private sector, researchers, and development partners—working to build inclusive ID systems that can support development goals and provide a trusted foundation for new forms of digital identity.

The authors welcome feedback to improve future data releases. Please email id4d@worldbank.org with the subject line "ID4D Global Dataset" with any suggestions, additions, or questions regarding the ID4D Global Dataset series or this paper specifically. We look forward to working together to improve the quality and availability of data around global ID systems and their use.

ACCESS THE FULL ID4D GLOBAL DATASET

Download the dataset and codebook at
id4d.worldbank.org/global-dataset
for extensive ID system data from 175 countries, and explore
other ID4D Dataset releases, including on the coverage and
digital capabilities of the World's ID systems.

REFERENCES

Bremmers, B. 2023. "2.1 - Identity and Record Matching - Q1 2023." *OOTS Technical Design Documents.* https://ec.europa.eu/digital-building-blocks/wikis/display/TDD/2.1+-+Identity+and+Record+Matching+-+Q1+2023 (accessed 2 July 2023).

Consulat Général de France à Sydney. 2021. Carte Nationale d'Identité Électronique. https://au.ambafrance.org/Carte-Nationale-d-Identite-Electronique (accessed 13 February 2024).

Dahan, M. & Hanmer, L. 2015. *The identification for development (ID4D) agenda : its potential for empowering women and girls - background paper (English).* Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/859071468190776482/The-identification-for-development-ID4D-agenda-its-potential-for-empowering-women-and-girls-background-paper.

Desai, V. T., Marskell, J., Marin, G., and Varghese, M. 2023. "How digital public infrastructure supports empowerment, inclusion, and resilience." *World Bank Blogs.* https://blogs.worldbank.org/digital-development/how-digital-public-infrastructure-supports-empowerment-inclusion-and-resilience (accessed 2 July 2023).

Embassy of the Republic of Uganda. 2024. National ID. https://washington.mofa.go.ug/visa/national-id (accessed 13 February 2024)

George, T., Mittal, A., Anandan, V., and Rodriguez Caillava, M. 2019. Open Source for Global Public Goods (English). Identification for Development. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/672901582561140400/Open-Source-for-Global-Public-Goods

International Civil Aviation Organization (ICAO). 2021. *Doc 9303: Machine Readable Travel Documents; Eighth Edition, 2021; Part 4: Specifications for Machine Readable Passports (MRPs) and other TD3 size MRTDs.* https://www.icao.int/publications/documents/9303_p4_cons_en.pdf

Philippine Statistics Authority. 2023. Introducing the ePhilID. Philippine Identification System. https://philsys.gov.ph/ephilid/ (accessed 2 July 2023).

UNDESA. 2022. World Population Prospects 2022, Online Edition. United Nations, Department of Economic and Social Affairs, Population Division. https://population.un.org/wpp/Download/Standard/Population/ (accessed 23 August 2022).

World Bank. 2018a. ID4D Global Dataset. Available at: https://datacatalog.worldbank.org/int/search/dataset/0040787,

World Bank. 2018b. Technology Landscape for Digital Identification (English). Identification for Development. Washington, D.C.: World Bank Group. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/199411519691370495/technology-landscape-for-digital-identification

World Bank. 2019. ID4D Practitioner's Guide. Identification for Development. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/248371559325561562/ID4D-Practitioner-s-Guide.

World Bank. 2020. Creating Disability Inclusive ID Systems (English). Identification for Development Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/967741605683569399/Creating-Disability-Inclusive-ID-Systems

World Bank. 2022a. ID4D Global Dataset - Volume 1 2021: Global ID Coverage Estimates. Identification for Development Washington, D.C.: World Bank Group. www.id4d.worldbank.org./global-dataset.

World Bank 2022b. *A Primer on Biometrics for ID Systems.* https://id4d.worldbank.org/id-biometrics-primer.

World Bank. 2022c. *Principles on Identification for Sustainable Development.* http://idprinciples.org.

World Bank. 2023. *Integrated Social Protection Information System in Vietnam.* Internal World Bank report: unpublished.

World Bank 2024. ID4D Global Dataset - Volume 2: Digital Progress and Gaps. Identification for Development Washington, D.C.: World Bank Group. www.id4d.worldbank.org./global-dataset.

APPENDIX 1.
EXCLUDED COUNTRIES

Of the 198 countries included in the ID4D Global Dataset, there are 23 countries that do not have a foundational ID system. Dataset releases Volume 1: Global Coverage Estimates (which aimed to produce global estimates of ID ownership) and Volume 2: Digital Identification Gaps (which aimed to assess the digital capabilities of ID systems), included these countries by analyzing their prominent functional ID systems. However, because the goal of this paper and the Volume 3 Dataset is to describe trends in foundational ID systems themselves, these countries have been excluded.

Countries without a foundational ID system, excluded from this paper:
Andorra
Antigua and Barbuda
Australia
The Bahamas
Belize
Canada
Democratic Republic of the Congo
Dominica
Fiji
Ireland
Jamaica
Kiribati
Marshall Islands
Federated States of Micronesia
Nauru
New Zealand
Palau
Samoa
Solomon Islands
Somalia
Tuvalu
United Kingdom
United States

APPENDIX 2.
ID AUTHORITY QUESTIONNAIRE (IDAQ)

As part of the 2021 ID4D Global Dataset, a questionnaire was sent to ID agencies responsible for the primary foundational ID system to collect and validate key information about these systems. These questionnaires were fielded by the ID4D team and World Bank country offices between August 2021 and May 2022, including a follow-up period to clarify and validate responses.[28] The questionnaires were prepared in English and translated to one of the other World Bank Group official languages (Arabic, Chinese, French, Portuguese, Russian, and Spanish) and other languages, on demand, when appropriate for the country context.

————————————————————

QUESTIONNAIRE

Please answer the Questionnaire about the **[SYSTEM NAME] (henceforth "ID system")** and **[CREDENTIAL NAME] (henceforth "ID")**, which we understand to be the primary ID system and government-issued credential for adults in [COUNTRY]. If this is incorrect, or there are other related systems or identity credentials managed by your agency or department, please provide this information below:

A. COVERAGE

The questions in this section are intended to understand the coverage of the **[SYSTEM NAME]** across **[COUNTRY]'s** existing resident population. If possible, **please provide figures that include only unique, living persons currently residing in the territory**, excluding (a) deceased persons and/or (b) those who currently reside outside of the territory. If this is unknown, or these figures include deceased persons or non-residents, please note this information under the "2021 Update" column.

QUESTIONS	PREVIOUS INFORMATION Provided in 2019 or Earlier	2021 UPDATE Please provide Updated Figures
A1. **What is the total number of people currently registered in the system?** *Please also note the date (e.g., July 31, 2021) as of which this data is correct*	[Previous figure included here, if known]	
A2. **What is the total number of people registered by gender?**		
Female	[Previous figure included here, if known]	
Male	[Previous figure included here, if known]	
Other	[Previous figure included here, if known]	
A3. **What is the total number of people registered by age group?**		
Less than 5 years old (0–4)	Unknown	
5–17	Unknown	
18–25	Unknown	
26–65	Unknown	
Over 65	Unknown	
A4. **Of those registered, how many have been issued with a/n [CREDENTIAL NAME]?**	[Previous figure included here, if known]	

B. APPLYING FOR AN ID

The following questions are intended to understand the eligibility criteria and procedures for obtaining the **[CREDENTIAL NAME]**, referred to as 'ID' below.

QUESTIONS	PREVIOUS INFORMATION From previous questionnaire and/or desk research	2021 UPDATE Please confirm or correct previous information or provide details if 'Unknown'
B1. Is the process to apply for the **[CREDENTIAL NAME]** different from the process to register in the system? *If yes, please describe.*	[Previous data included here, if known]	
B2. Is it mandatory for nationals to obtain the ID?	[Previous data included here, if known]	
→ **B3.** *If yes*, at what age is obtaining the ID mandatory?	[Previous data included here, if known]	
B4. What is the minimum age when people are eligible to obtain the ID?	[Previous data included here, if known]	
B5. Are non-nationals eligible to obtain the ID?	[Previous data included here, if known]	
→ **B6.** *If yes*, are people in the following groups able to obtain the ID?		
i. Asylum seekers	[Previous data included here, if known]	
ii. Refugees	[Previous data included here, if known]	
iii. Permanent residents	[Previous data included here, if known]	
B7. Where do people apply for the ID? *Please indicate the <u>number</u> and <u>type</u> of <u>fixed locations</u> (e.g., 25 ID offices, 12 service centers) and <u>mobile units</u>, including any enrollment locations <u>abroad</u>.*	[Previous data included here, if known]	
B8. What is the fee for obtaining the first **[CREDENTIAL NAME]**? *(standard request)* *Please specify local currency and note if fees are waived or subsidized for any groups (e.g., low income, elderly, etc.).*	[Previous data included here, if known]	
B9. Are any of the following documents <u>required</u> to apply for an ID?		
i. Birth certificate	[Previous data included here, if known]	
ii. Proof of nationality (in addition to/ if different from birth certificate)	[Previous data included here, if known]	
iii. Marriage certificate (for married applicants)	[Previous data included here, if known]	
B10. Is there an alternative procedure for people to apply for an ID if they do not have the required documents? *If yes, please describe (e.g., testimony from witnesses or community leaders or obtaining court declarations).*	[Previous data included here, if known]	

C. SYSTEM AND CREDENTIALS

The following questions are intended to understand the technology used for the ID system and credential.

QUESTIONS	PREVIOUS INFORMATION From previous questionnaire and/or desk research	2021 UPDATE Please confirm or correct previous information or provide details if 'Unknown'
C1. Is identity data stored electronically in a database? *If an electronic database was introduced recently and most records are still stored in paper format, please note.*	[Previous data included here, if known]	
C2. Does the system issue a permanent identity number? *(i.e., a number that does not change for a person's lifetime, often referred to as a "unique identity number" or "national identity number".)*	[Previous data included here, if known]	
→ **C3. *If yes*, is the permanent number issued at birth?**	[Previous data included here, if known]	
→ **C4. *If yes*, is the permanent number printed on the birth certificate?**	[Previous data included here, if known]	
C5. What is the structure of the ID number? *Please indicate the number of digits and whether these are sequential, random, or determined based on location, gender, nationality, etc.*	[Previous data included here, if known]	
C6. Is the ID number used across multiple government databases (e.g., health, tax, social protection) to link records to an individual?	[Previous data included here, if known]	
→ **C7. *If yes*, do the following databases include the ID number?**		
i. Social registry/social assistance program(s)	[Previous data included here, if known]	
ii. Tax registry	[Previous data included here, if known]	
iii. Property/land registry	[Previous data included here, if known]	
C8. What is the current format of the ID? *(e.g., plastic card with barcode, card with chip, paper booklet, mobile app). If there are multiple versions being issued, please indicate this.*	[Previous data included here, if known]	
C9. Is the [CREDENTIAL NAME] recognized as a proof of nationality according to [COUNTRY]'s laws or regulations?	[Previous data included here, if known]	

D. ID SERVICES AND USE

For the following questions, we are interested in understanding how the ID system and credential are used by people in their daily lives, and to provide digital identity verification and authentication services to third parties, including government agencies and private entities (e.g., banks). In addition, we would like to know if these same systems and credentials provide "digital ID", enabling people to remotely log-in to web-based services (e.g., an e-government portal), or if there are other ID credentials or systems in the country that provide this capability.

D1. In the table below, please indicate whether any government-issued ID, and the [CREDENTIAL NAME] specifically is <u>accepted or legally required (mandatory)</u> for a person to complete each service or activity. Mark "Yes", "No" or "N/A".

Service/Activity	Is a government-issued ID required for this purpose?	*If yes*, is the [CREDENTIAL NAME] *accepted*?	*If yes*, is the [CREDENTIAL NAME] *legally required* (mandatory)?
Opening a deposit account at a bank or other financial institution			
Activating a SIM card			
Registering for government social assistance program(s)			
Accessing basic public health care			
COVID vaccine registration (if planned)			

D2. Does the system provide digital identity verification and/or authentication services? *(e.g., via APIs, web services, digitally-enabled credentials, etc.). Mark "YES" (if true) or "NO" (if false).*

	YES → continue to next question
	NO → skip to Section E.

D3. Which of the following digital identity verification or authentication services are <u>currently provided</u>? Mark "Yes" or "No". Please feel free to provide further clarification where this may be helpful.

Type of identity verification/authentication service	Response/comments
Checking the validity of the ID number or [CREDENTIAL NAME]	
Sharing identity attributes *(e.g., sharing or displaying name and birth date after entering ID number)*	
Verifying that a specified identity attribute is correct, i.e., giving a "Yes/No" response to a query	
Biometric verification (1:1 match) against database	
Biometric verification (1:1 match) using the ID *(e.g., using a chip or barcode)*	
ID number + password or OTP	
Other (please describe)	

D4. Which of the following organizations or services, if any, currently use identity verification and/or authentication services?
Mark "Yes" or "No". Please feel free to provide further clarification where this may be helpful.

Service/entity	Response/comments
Banks or other financial institutions	
Mobile network operators	
Social protection agency or programs	
Public security/law enforcement	
Entities in other countries *(e.g., service providers/authorities of another country)*	
Others *(please describe)*	

D5. In total, how many organizations or entities currently use the identity verification and/or authentication services provided?

Please provide number here

D6. Is the [CREDENTIAL NAME] currently used to log in to an e-government portal or to access other online services?
Mark "YES" or "NO".

	YES
	NO

D7. Does the [ID SYSTEM] issue other credentials to facilitate access to online services? *Mark "YES" or "NO".*

	YES → continue to next question
	NO → skip to question D9

D8. If yes, please briefly describe these credentials:

D9. Apart from the [ID SYSTEM], please list any other systems operating in your country that provide government-recognized digital IDs: *(i.e., credentials used to access services online),* **if applicable:**

E. DATA

In this section, we hope to understand how biographic and biometric data are being used as part of the system and any options for individuals to access to their own data.

E1. For the following table of attributes, please indicate if these are (a) collected during registration and (b) visibly printed on the [CREDENTIAL NAME]. *For each attribute and column, mark "<u>YES</u>" (if true), "<u>NO</u>" (if false), or "<u>N/A</u>".*

Attribute	Collected during registration	Printed or visible on ID
ID number		
Expiry date		
Full name		
Date of birth		
Gender or sex		
Current address		
Nationality or immigration status		
Marital/civil status		
Race or ethnicity		
Religion		
Blood group		
Written signature		
Other: specify or add rows _____		

E2. Is biometric data collected? *Mark "<u>YES</u>" or "<u>NO</u>":*

	YES → continue to next question
	NO → continue to E4.

E3. In the following table, please provide information about the biometrics collected and their use. *Mark "<u>YES</u>" (if true), "<u>NO</u>" (if false), or "<u>N/A</u>" (if not applicable).*

Biometric	i. Is this biometric collected? *If yes, indicate how many*	ii. Is the biometric stored on the ID? *(e.g., in chip or barcode)*	iii. Is the biometric used for deduplication?[1]	iv. Is the biometric used for verification/ authentication?[2]
Fingerprints (ink)				
Fingerprints (digital)				
Iris scans				
Digital facial image				
Other *(specify)*				

Notes:
[1] <u>Deduplication</u> = using biometric identification (1:N matching) for of each new enrollee via ABIS or AFIS to establish their uniqueness in the system.
[2] <u>Authentication</u> = using biometric verification (1:1 matching) of a person presenting their ID against a stored biometric to confirm they are the same.

E4. Is there a service that allows individuals to view the data that is held about them and how it has been accessed

*(e.g., a web portal, SMS or USSD system, or other application)***?**

YES → continue to next question
NO → end questionnaire

E5. If yes, please describe these services. If there is an online portal, please provide a URL:

- END –

Thank you very much for your assistance

ID4D
IDENTIFICATION FOR DEVELOPMENT

2021

WORLD BANK GROUP