



ID4D

Country Diagnostic: Mexico

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About ID4D

The World Bank Group's Identification for Development (ID4D) initiative uses global knowledge and expertise across sectors to help countries realize the transformational potential of digital identification systems to achieve the Sustainable Development Goals. It operates across the World Bank Group with global practices and units working on digital development, social protection, health, financial inclusion, governance, gender, and legal, among others.

The mission of ID4D is to enable all people to access services and exercise their rights, by increasing the number of people who have an official form of identification. ID4D makes this happen through its three pillars of work: thought leadership and analytics to generate evidence and fill knowledge gaps; global platforms and convening to amplify good practices, collaborate, and raise awareness; and country and regional engagement to provide financial and technical assistance for the implementation of robust, inclusive, and responsible digital identification systems that are integrated with civil registration.

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To find out more about ID4D, visit worldbank.org/id4d.

Acknowledgments

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Abbreviations

BANSEFI	National Savings and Financial Services Bank (Banco del Ahorro Nacional y Servicios Financieros)
BDNCURP	National Database for the Unique Population Registry Number (Base de Datos Nacional de la Clave Única de Registro de Población)
CON SAR	National Commission for the Retirement Savings System (Comisión Nacional del Sistema de Ahorro para el Retiro)
CURP	Unique Population Registry Number (Clave Única de Registro de Población)
GPL	General Population Law (Ley General de Población)
ID4D	Identification for Development
IFAI	Federal Institute of Access to Information and Data Protection (Instituto Federal de Acceso a la Información y Protección de Datos)
IMSS	Mexican Institute of Social Security (Instituto Mexicano del Seguro Social)
INE	National Electoral Institute (Instituto Nacional Electoral)
ISA	Identification System Analysis
ISSFAM	Institute of Social Security for the Mexican Armed Forces (Instituto de Seguridad Social para las Fuerzas Armadas Mexicanas)
ISSSTE	Institute of Social Security and Services for Government Workers (Instituto de Seguro y Servicios Sociales de los Trabajadores del Estado)
KYC	Know Your Customer
MOU	Memorandum of Understanding
OCR	Optical Character Recognition
PAL	Food Program (Programa Alimentario)
PEMEX	Mexican Petroleum (Petroleros Mexicanos)
POS	Point of Sale Machine
PPAM	Pension for Older People Program (Programa Pensión al Adulto Mayor)
PROCESAR	Company Operating the National Database of the Tax Administration System (Empresa Operadora de la Base de Datos Nacional del Sistema de Administración Tributaria)
PROSPERA	PROSPERA Social Inclusion Program (PROSPERA Programa de Inclusión Social)
RENAPO	National Population Registry (Registro Nacional de Población)
SEDESOL	Ministry of Social Development (Secretaría de Desarrollo Local)
SEGOB	Ministry of the Interior (Secretaría de Gobernación)

SEP	Ministry of Public Education (Secretaría de Educación Pública)
SINOS	Nominal Health System (Sistema Nominal en Salud)
SP	Popular Health Insurance (Seguro Popular)
SRE	Ministry of Foreign Affairs (Secretaría de Relaciones Exteriores)
UNICEF	The United Nations Children’s Fund
WSQ	Wavelet Scalar Quantization

Executive summary

This report documents the most important types of identification that are currently being used in Mexico and the legal and institutional context in which they exist. The overall identity ecosystem is fragmented with different government agencies using their own form of identification. The result is duplication of systems, ‘identity silos’ that cost tens of millions of dollars for each agency. Much of this spending is unnecessary and wasteful. Worse, the parallel systems do not talk to each other. This prevents the government from implementing policies to prevent double dipping and effective targeting.

This is due to the fact that the unique identification number known as the CURP is not in fact unique; an individual can have multiple CURPs issued by the system. In the meantime, the voter identification database does provide a reasonable degree of uniqueness through biometric deduplication. This uniqueness along with the card or credential issued by INE has made it the preferred form of legal identity for a variety of transactions besides voting, including the ‘know your customer’ proof required for banking transactions. The use of the INE as a general form of national identification is recognized legally as an interim arrangement. However, the interim period has now stretched for almost a quarter of a century.

The responsibility for providing a national identity number lies with the National Population Registry, RENAPO. In addition to this mandate, RENAPO is also the central repository of birth and death certification as well as the regulating body for all civil registration activities. Although the state governments are responsible for the actual registration of vital events and issuing birth certificates, the system introduced in 2015 now centralizes the records of these events, and a standardized birth certificate is now issued with a CURP assigned as a lifetime identifier. This is recognized internationally as good practice and is a major improvement to the previous decentralized system. When universal birth registration is achieved (there are still significant pockets of under-registration in some parts of the country), the CURP-linked birth certificate can serve as the foundation for the entire Mexican identification system.

This can happen only if the two weaknesses of the CURP—its inability to ensure uniqueness and its deficiencies as a tool for authentication—are remedied. The most attractive option is biometric deduplication of the CURP database on an ongoing basis and the addition of a strong two-factor authentication infrastructure. This could be done with or without the issuance of a national ID card and both options have different advantages. Another option would be for the major social programs that interact with the vast majority of Mexicans to converge onto common standards and create a shared platform for both deduplication and authentication services. This may be possible now that one of the relevant agencies has procured the necessary infrastructure to provide biometric deduplication.

The initial and recurrent costs of either of these options are a small fraction of the total budgets allocated to these programs, and a reduction in the costs of existing silo identification systems could be expected. This suggests that with an improvement of less than one percent in fraud control or improved targeting of programs, the investment would have a positive return within a few years. As the distinction between formal and informal sector workers becomes more important in determining patterns and levels of social spending and revenues, the payoff to being able to track individuals effectively will only increase.

Introduction

Mexico's system of identification is at a crossroads. In addition to important legislative initiatives, a major step toward implementing a robust foundational¹ ID was taken in 2015 when a modernized birth registration system was launched. This new system links the birth certification process across the country for the first time and, importantly, links it with the national ID number. The plan to address the flaws of the NID and ensure uniqueness using biometrics would transform the identification landscape in Mexico. Harnessed properly, the improved identification ecosystem could generate fiscal savings, reduce fraud, and facilitate new and more targeted policies not possible in the absence of a robust ID with national coverage.

It is important to recognize there are 'identity assets' already available in Mexico. These include the various functional IDs which are used by government programs to identify the people that they interact with ranging from social insurance agencies to social assistance programs. However, only one of these functional IDs, the voter ID, ensures uniqueness. As a result, in the absence of an alternative, it has become the most widely used form of identification for authentication, especially in the financial sector. However, for the reasons described below, its utility is limited by nature of its restricted purpose. The remaining silos of identification, with their different databases and credentials issued by programs, have been only partially successful and, in some cases, have been expensive failures. None have been able to provide the key benefits of good identification—elimination of duplication, authentication at the point of a transaction, and the ability to link databases.

This report documents the most important foundational and functional IDs and the legal and institutional context in which they exist. The Identification System Analysis (ISA) approach also includes a review of the ID system's performance in three dimensions—inclusiveness or accessibility, robustness, and integration. (These concepts are defined in the ISA guidance note in Annex 1). The report argues that despite high levels of coverage, the lack of a robust foundational ID imposes important costs on society.

The next section reviews the legal and institutional context for the Mexican identification systems. Section III uses the responses to the ISA questionnaire and the interviews conducted with government entities in Mexico to describe the ID ecosystem followed by the assessment based on the standardized criteria described in Annex 1. The final section reviews options for addressing existing challenges.



¹ Foundational IDs are national in scope and are not program specific while functional IDs are used for specific programs or activities. This terminology, developed by Gelb and Clark (2013) and adopted as part of the ISA tool, is used throughout this report.

Legal and institutional context

Mexico's civil registry dates back to the mid-19th century, yet as discussed below, efforts to create a National ID are much more recent. Both elements of the system for civil and legal identity are still evolving. On June 17, 2014, Article 4 of the Mexican Constitution² was amended to include the right to an identity as a fundamental right of all people in Mexico. The amendment stipulates the following:

“Every person has a right to an identity and to be registered immediately after birth. The State will guarantee the fulfillment of this right. The competent authority will emit the first certified copy of the birth registry free of any charge.”³

This section of the report presents a brief overview of the relevant laws pertaining to the foundational and functional ID systems in Mexico, including personal data protection. It will also describe the key institutions and the scope of their mandates.

The “Ley General de Poblacion” and the role of RENAPO

The law that regulates the foundational identification in Mexico is the General Population Law (GPL),⁴ published on January 7, 1974, and last revised on May 19, 2014. According to Article 85 of this law, the Ministry of the Interior⁵ (SEGOB) is responsible for registering and certifying the identity of all residents in the country as well as all nationals living abroad.

Within the SEGOB, this responsibility falls under the office of the National Population Registry⁶ (RENAPO). RENAPO was created August 20, 1980,⁷ through a Presidential Decree,⁸ with the specific mandate of implementing the National Registry System as well as developing a personal national identification number. Presently, Article 86 of the General Population Law stipulates that RENAPO's mandate is to register each individual that forms part of the country's population, along with all the necessary information to reliably certify the person's identity.

RENAPO's legal attributions and responsibilities are stated in Article 22 of the Ministry of the Interior's bylaws that can be summarized as follows:

- Organize and operate the National Population Registry.
- Assign a unique population registry number to all the Mexicans living within the country or abroad.
- Manage the registry of all Mexicans living abroad.
- Certify and register the identity of all residents living within the country or abroad and emit the citizen identity card as well as the personal identity card for people under the age of 18.

2 Constitución Política de los Estados Unidos Mexicanos.

3 Chapter I, Article 4 of the Political Constitution of the United Mexican States.

4 Ley General de Población D.O.F. 7 de Enero de 1974.

5 Secretaría de Gobernación.

6 Registro Nacional de Población.

7 Originally named General Directorate for National Population Registry and Personal Identification.

8 Diario Oficial de la Federación August 20th 1980.

In regards to Civil Registration Offices,⁹ RENAPO establishes the guidelines for assigning and using the Unique Population Registry Number (CURP) in birth and other vital registration documents. Additionally, it designs and implements the interconnecting systems between the civil registries and the National Population Registry.

- RENAPO establishes the norms, methods, and technical protocols of the National Population Registry as well as coordinating the registry and identification methods of all agencies and institutions within the federal structure.
- It acts as the regulating and sanctioning body for all civil registration activities.

With regard to the National Population Registry, Article 87 stipulates that three main sub-registries integrate this database. These are:

1. National Citizen Registry: for people 18 and older
2. Underage Registry: for people under 18 years of age.
3. The Catalogue of Foreign Nationals Residing in Mexico: for foreign nationals living in the country.

Concerning the unique identifier, Article 91¹⁰ of the General Population Law states that every individual incorporated into the National Population Registry will be assigned a Unique Population Registry Number (CURP). This number will be the central means to register and identify each individual separately. The CURP was officially introduced on October 1996 through a presidential agreement authorizing federal public institutions to implement it as the official means to identify individuals.¹¹

With regard to civil registration, in accordance to the distribution of competencies in the federal republic established in the national constitution, this is an attribution that falls under the direct competence of state governments. Each state has its own civil registration laws and is responsible for registering the vital events of its own population.

One of RENAPO's key mandates is to establish the norms, methods, and technical protocols of the National Population Registry as well as coordinating the registry and identification methods of all agencies and institutions within the federal structure. For this reason, in October 2004, the Inter-secretarial Commission for the Instrumentation of the National Registry Program¹² was established as a permanent body to conduct this coordination.¹³

On December 8, 2005, the Inter-Secretarial Commission instructed RENAPO to develop and publish the technical protocol for registering and sharing information. It was published on September 21, 2006, and updated November 11, 2009. The 2009 Protocol for Registering and Sharing of Information is the basis for current institutional arrangements between Mexico's foundational and functional IDs. The protocol and its implementation are based on Articles 92 and 94 of the General Population Law. The first refers to the SEGOB's responsibility of establishing the norms, methods, and technical protocols for the integration of the National Population Registry as well for the identification and registry of individuals in federal institutions. The latter refers to the responsibility of the public sector (federal, state, and municipal) to contribute to the consolidation of a National Population Registry.

9 This is an attribution of the State Governments.

10 Enacted July 22, 1992 through an amendment of the General Population Law.

11 Diario Oficial de la Federación, 23 Octubre 1996, Acuerdo para la adopción y uso por la Administración Pública Federal de la Clave Única de Registro de Población.

12 Comisión Intersecretarial para la Instrumentación del Programa de Integración del Registro Nacional de Población.

13 Diario Oficial de la Federación, 8 Octubre 2004, Acuerdo por el que se crea con carácter permanente la Comisión Intersecretarial para la Instrumentación del Programa de Integración del Registro Nacional de Población.

Table 1. Identity Documents

Military Service Card
Passport
Professional Certificate
Certificate of Studies with Photograph
IMSS Card
ISSSTE Card
INE Card
Residency Certification by the local Authority
Testimonial by the indigenous and municipal authority (in accordance to Article 60 of GPL)

Concerning the registry, the protocol has three main parts:

- 1. Establishing Legal Identity:** the protocol mandates that institutions must establish legal identity by requiring the individual to present two documents:
 - a. Certifying document, which is the birth certificate for those born in Mexico; migratory documents for legal residents; naturalization letter or certificate of Mexican nationality for foreign-born Mexicans.
 - b. Identity Document. With the objective of verifying the person's identity, institutions must request any of the documents described in Table 1.
- 2. Registry Procedures:** the second part refers to the information, the input requirements, and validations necessary so that the information complies with this protocol and can be interoperational.
- 3. Capturing, management, and storage of digital information.** This part provides the specific guidelines regarding biometric information, photographs, signature scans, and supporting document digitization.

Regarding the procedure to share personal ID information the protocol has two main parts:

- 1. Procedure to create or update information in the National Population Registry:** This consists of the formats, minimum information required, sending, and feedback process.
- 2. Services to functional ID providers.** There are three main services offered by RENAPO for functional ID providers through a Web-Service.
 - a. Registry Removal: this applies for deceased individuals
 - b. CURP data request: institutions may request RENAPO to provide the information associated to a particular CURP or group of CURPs.
 - c. Requesting the CURP, or validation of the CURP using demographic data of an individual or group.

These guidelines have been recently updated but have not been presented to the inter-secretarial committee for their approval and subsequent publication.¹⁴

14 RENAPO expressed interest in receiving technical support in regards to developing the new biometric standards and may be an area of future technical assistance for the World Bank.

Statutory context of functional IDs

As presented in the following sections, there are several functional IDs currently being used in Mexico, each of which is regulated internally by the emitting authority and in some cases, as in the INE card and passport, the guidelines must be published in the federation's official journal to come into effect.

Amongst the functional IDs currently used, the National Election Institute's (INE) card¹⁵ has become a de facto foundational ID mainly due to coverage, reliability, and legal recognition. This recognition is stated in Article 4 of the transitory laws established in the 1992 reform of the General Population Law, which states:

"In the meantime, while the citizen identity card is not emitted, this card (INE) can function as a mean of personal identification for administrative transactions, in accordance to the agreements that the electoral authority subscribes to this effect."

Based on this article, the National Electoral Commission has taken upon itself to create an ID mechanism that not only serves as an electoral authentication mean, but also as an official ID for Mexican citizens in the absence of a national citizenship card.¹⁶



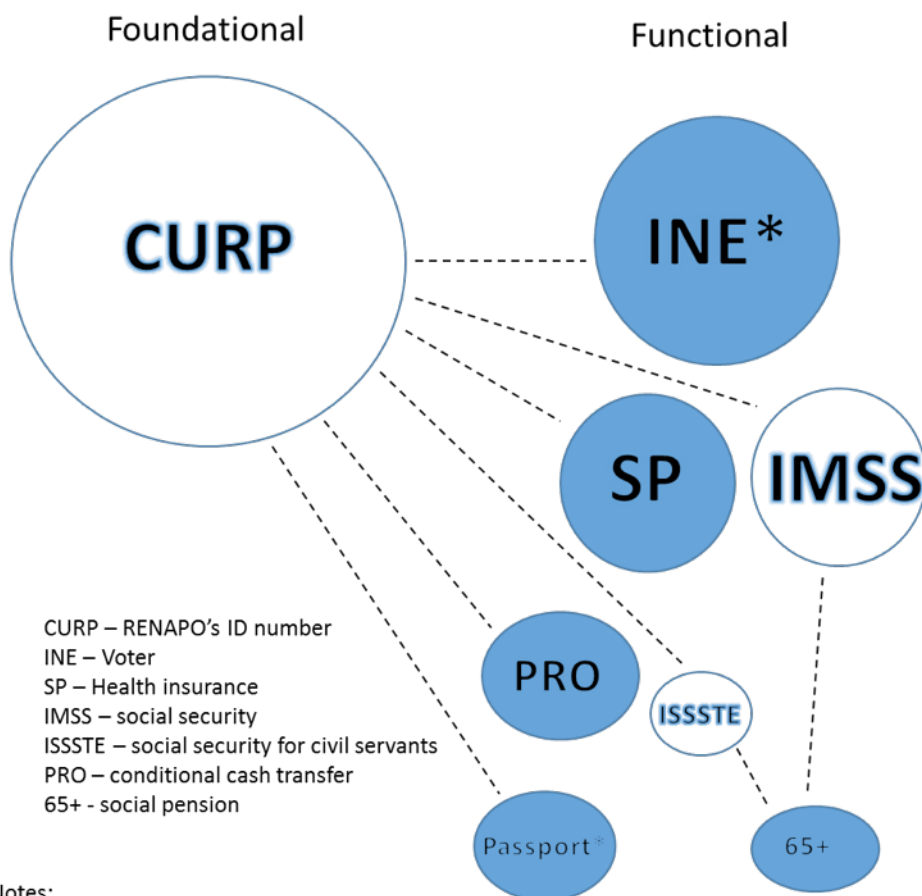
15 Formally Instituto Federal Electoral (IFE).

16 See Íñigo Rángel, (2015).

Description of the ID ecosystem in Mexico

This section of the report describes the ID ecosystem in Mexico. Using the terminology laid out in Gelb and Clark (2013), Figure 1 shows the foundational ID, the CURP on the left-hand side and the major functional IDs on the right-hand side of the figure. The size of the circles are meant to be roughly proportional to the actual population currently covered, although as discussed below, the number of unique CURP holders is not known. The dotted lines connecting the CURP with individual functional IDs represents the fact that each of these functional databases is periodically checked against the CURP database either to ensure that the CURP that was entered at the functional level was correct or to know if someone has died and should be removed. The incorporation of the CURP into these functional databases is a fairly recent phenomenon and, as described below, is not yet universal. It is also worth mentioning that in some cases, there are cross-checks between functional registries as in the case of Pension for Older People Program (PPAM) which compares their beneficiaries with pensioners in Mexican Institute of Social Security (IMSS) and Institute of Social Security and Services for Government Workers (ISSSTE).

Figure 1: Foundational and Major Functional IDs in Mexico



Notes:

- 1) * = deduplicated
- 2) White = manual or no credential; Blue = electronic credential

The next section describes CURP followed by a description of the major functional IDs.

Foundational ID in Mexico—Clave Unica de Registro de Poblacion (CURP)

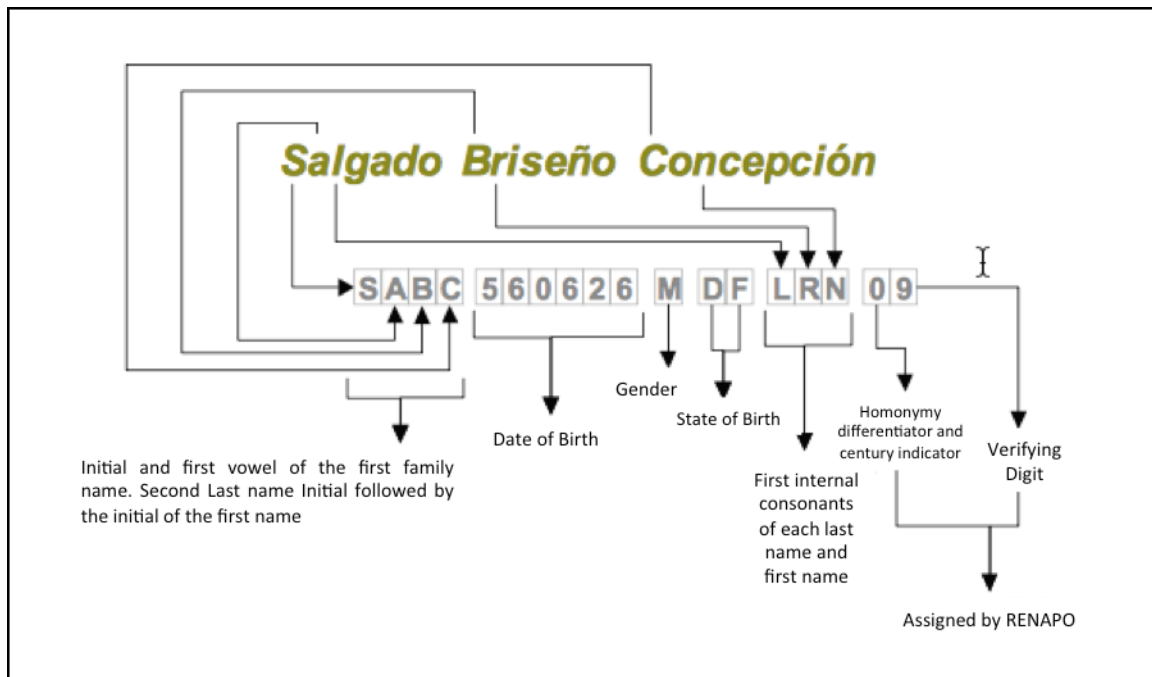
The Unique Population Registry Number (CURP) was originally introduced in October 1996 and implemented from 1997. The CURP is an 18 digit alphanumeric code, which is bi-univocal (that is, it identifies just one person, and one person is identified by just one code), verifiable, and universal. It is generated using four basic individual data components: complete name, gender, date of birth, and place of birth.

To illustrate how the CURP is generated, Figure 2 provides an example of the construction of a CURP for a hypothetical person with the following personal information:

- Name: Concepción Salgado Briseño
- Gender: Female
- Date of Birth: June 26, 1956
- Place of Birth: Distrito Federal, Mexico.

The history of the implementation can be divided into three phases. The first phase, from 1997 to 2003 was the period during which the database was built. A number of institutions of the federal government were authorized to request the CURP for individuals with whom they interacted for different reasons. Due to the decentralized nature of these enrollments and the absence of any deduplication process, a significant number of duplicate CURPs were generated. Presently, RENAPO has a stock of 180 million CURPs, from which approximately 50 million are thought to be duplicates. The second phase, from 2004 to 2007, was characterized by the implementation of an online web-based system and with it, a strategy of cleaning up the database through what RENAPO calls a certification process. During this period, CURP generation

Figure 2: Criteria to Construct a CURP



Source: Instructivo Normativo para la Asignación de la Clave Única de Registro de Población, Secretaría de Gobernación, 2006.

modules continue to operate through several government institutions using the web-based system as the main interface. The certification process implemented refers to the activity of linking the CURP with a birth certificate.

The third, and current phase began with the negotiations with state governments to digitize paper birth certificates and to incorporate the CURP in each birth certificate issued by state level civil registry offices. According to RENAPO officials, as of 2015, all 32 states in Mexico are providing birth certificates with CURPs and are reporting 7 vital events online (including deaths). Additionally, RENAPO provides interconnectivity between the 32 states so the users in one state can request a birth certificate from another, serving as a clearinghouse for national civil registration.

During this period, the certification process has continued and has linked 131 million CURPs with the respective birth certificate. For the remaining 50 million CURPs (uncertified) a second filtering method is applied. This “activity identification process”¹⁷ consists in detecting which CURPs have been used in the different government processes in the last 10 years. The assumption is that those CURPs that have never been used during this period are unlikely to be active and may be duplicates.

A fourth phase is still in the planning stage. The goal is to ensure unique identity and to provide verification services. Central to this strategy is the linkage between birth registry, CURP, and biometric data. One of the long-term goals is to phase out the CURP generating modules, and have the CURP generated in the civil registration offices at the moment of birth.

RENAPO currently employs a management information system called the National Database for the Unique Population Registry Number (BDNCURP for its initials in Spanish) to create, modify, eliminate, query, and print the CURP. The BDNCURP is centrally managed by RENAPO with an online service entitled “e-CURP” and a RENAPO-Agent model to provide this service to the public. RENAPO-Agents are authorized government bodies, from any of the three levels of government that operate one or several modules under the supervision of RENAPO, which must comply with established technical and capacity criteria.¹⁸ Presently, there are 2,017 modules with 3,093 operators authorized across the country providing this service to the public.¹⁹ The e-CURP service is an online software application developed in Java that allows RENAPO-Agents to interact with the BDNCURP to create, modify, eliminate, inquire, and print CURPs.

To register a CURP, the individual must attend an authorized module with an official ID card and a supporting document (original and copy). There are four supporting documents accepted depending on the migratory situation of the requesting individual:

1. Birth Certificate for all those born in Mexico.
2. Migratory Document produced by the National Migration Institute for all foreigners legally living in Mexico.
3. Naturalization Letter, produced by the Ministry of Foreign Relations (SRE) for foreign-born Mexicans.
4. Mexican Nationality Certificate, produced by the Ministry of Foreign Relations (SRE) for all cases that fall under Articles 16 and 17 of the Nationality Law.

The module operator receives the photocopy of the supporting document and inputs the supporting document’s information into the e-CURP system. RENAPO then processes the information and updates the BDNCURP and produces the PDF file of the CURP certificate. The module operator prints and provides the requesting individual the CURP certificate (see Figure 3).

The CURP certificate is a simple document that can be printed in black and white containing four main components: CURP, name, registry date, and supporting document information (see Figure 4).

17 Identificación de vivencias.

18 For example, RENAPO dictates that a module must have a minimum capacity of 100 clients a day in order to be authorized.

19 RENAPO 2015.

Figure 3: Business Processes for CURP Registration

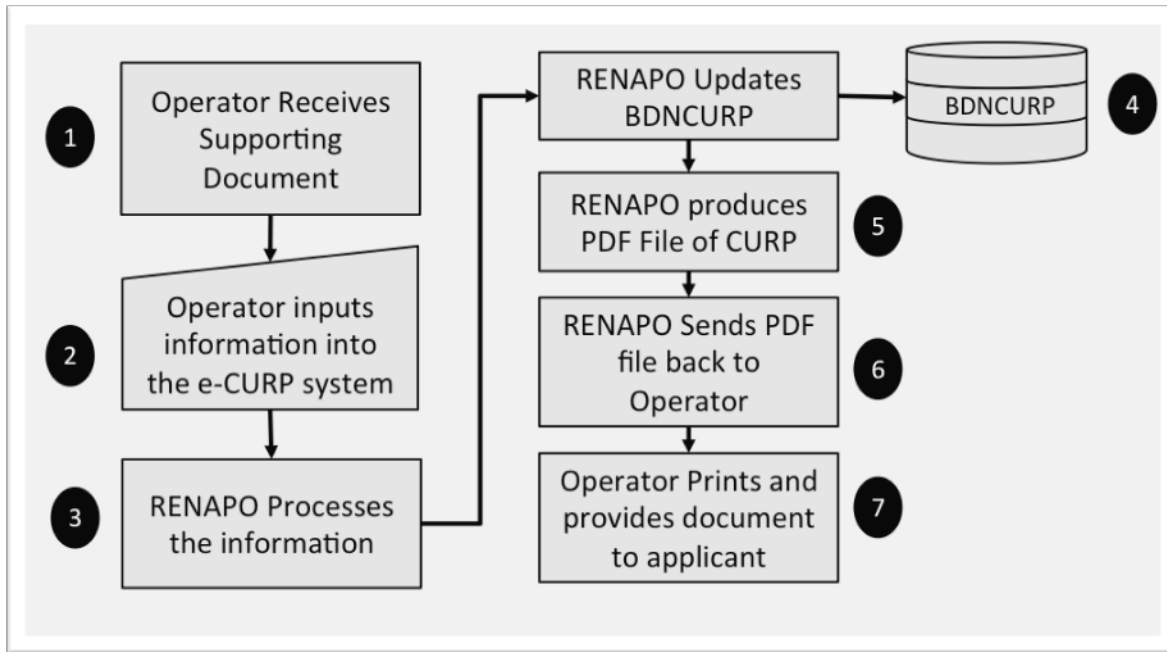
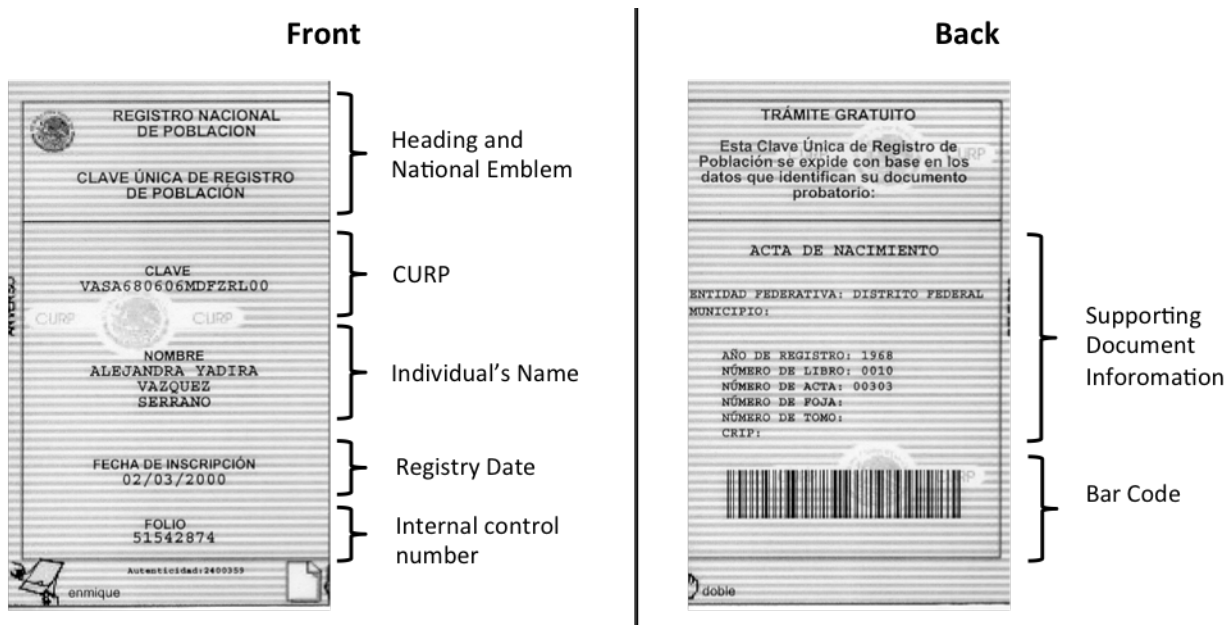


Figure 4: Description of the CURP Certificate



Source: Instructivo Normativo para la Asignación de la Clave Única de Registro de Población, Secretaría de Gobernación, 2006.

The INE voter ID

The voter card provided by the National Electoral Institution (INE) is currently the most widely used credential for identification in Mexico. Although the INE card is a functional ID, the coverage, security measures and authentication services it provides has made it a de facto foundational ID in some ways.

The INE card was implemented in 1992 and was the first national electoral card with a photograph. As mentioned above, since its inception, this card has been legally recognized as an official personal identification. Currently, INE has 83.5 million people registered as voters and has a stock of 200 million registrations accumulated since 1992. Beginning in 2008, INE (at that time IFE) was obligated to incorporate the CURP in their card and in their register. Currently 93 percent of the total registry has the CURP integrated. INE started comparing databases with RENAPO in November 2008 for validation purposes and is currently developing the strategy to identify deceased users through RENAPO's interconnection with the civil registry offices. The card has a validity of 10 years and users must personally update the credential to renew it.



The INE has 900 to 1,000 registration modules across the country and implements several portable modules that visit and register users in small rural localities. It also has the strongest enrollment campaigns of all IDs available as it is provided with resources to promote citizen registration or renewal via television and radio.

In terms of biometrics, INE began capturing citizen's index fingerprints in 2001 (both index fingers). Since July 2012, INE captures the 10 fingers and had reached 30 million people with this new biometric capture by 2015. This is used for deduplication. INE currently uses three features that provide information in terms of the uniqueness of the ID:

- *The Voter Code:* This is a unique permanent 18 digit alphanumeric code, constructed similarly to the CURP using the complete name (utilizes the first two consonants of the paternal last name, maternal last name and first given name in that order) data of birth (year/month/day), state of birth (official geo-statistical code composed of two digits), and gender (M for female and H for male).

Example:

Name: **RAMIREZ ALVAREZ, SONIA IVONNE**

Date of Birth: **1977/07/31**

State of Birth: Chihuahua (Geo-statistical code **08**)

Gender: Female (**M**)

Voter Code Results in: **RMALSN77073108M200²⁰**

Note: the last three numbers are composed as follows: one digit is the verifying code and two digits for the homonymy code.

20 For the purpose of comparison, this same individual's CURP is RAAS770731MCHMLN01.

Table 2. Functional IDs in Mexico

ID	Purpose	Institution	Potential Coverage	Actual Coverage
Passport	Travel document that certifies Mexican Nationality	Ministry of Foreign Relations (SRE)	All population	21 Million
Military Service Card	Certifies requirement completion in terms of military service	Ministry of National Defense (SEDENA)	Male population 18 years and older	19 Million
INAPAM Card	Certifies Senior Citizenship	National Institute for Older People (INAPAM)	All population 60 years and older	1 Million
School Credential	Certifies School Enrollment	Ministry of Public Education (SEP)***	People enrolled in formal education	28 million**
Professional Certificate	Certifies achievement of bachelors degree	Ministry of Public Education (SEP)	Population graduated with a bachelors degree	5 Million
Consular ID Card	Certifies Mexican Nationality outside Mexico	Ministry of Foreign Relations (SRE)	Mexican Nationals living outside of Mexico	950,000
IMSS	Identify Beneficiaries	IMSS	Formal private sector workers and their families	56 Million
ISSSTE	Identify Beneficiaries	ISSSTE	Public sector workers and their families	2.8 Million
PEMEX	Identify Beneficiaries	PEMEX	PEMEX workers	85,000*
ISSFAM	Identify Beneficiaries	Ministry of National Defense	Members of the Armed Forces	55,000*
State Government Pensions for Public Employees	Identify Beneficiaries	State Governments	State and Municipal Government workers	120,000*
Seguro Popular	Identify Beneficiaries	Ministry of Health (SSA) & State Governments	Population without a public health insurance benefit	57 Million
PROSPERA	Identify Beneficiaries	Ministry of Social Development (SEDESOL)	Families living under the poverty line	29 Million
PPAM	Identify Beneficiaries	Ministry of Social Development (SEDESOL)	Population over 65	5 Million

Sources: Instituto Nacional de Estadística y Geografía, Secretaría de Desarrollo Social, Secretaría de Relaciones Exteriores, Instituto de los Mexicanos en el Exterior and World Bank.

* Includes only pensioners.

** Estimation based on population attending formal education system INEGI 2010.

*** The competent authority issues this ID. This may be federal, state, or even private, depending on the type of school. Its issuance is mandated and regulated by the Federal Ministry of Education.

- Optical Character Recognition (OCR): The OCR is a 13-digit code for each card issued. However, this number is unique to the physical credential or token and changes every time the individual renews the card. It is composed of two main parts: the first 4 digits represent the voter district or section, and the following 9 digits represent the national sequential card-issuance number.
- Quick Response Code (QR): This is a new feature in the latest version of the INE voter ID card. The QR code is an individualized feature provided to the users as a means of simplifying inquiries through smartphone applications. Presently, the QR is used in combination with a smartphone app to find the address and map to find each voter's voting booth.

To add to the reliability of the voter ID, particularly in terms of the existence (referring to the authenticity of the document) and validity (referring to expiration) of the physical card, the National Electoral Institute has created an online verification system (see Figure 5). This system can be used to prove the existence and validity of any of the 4 models of INE voter ID cards still being used. Depending on the model, the system only requires different information to conduct the validation. For example, the previous 3 models (A, B and C in Figure 5) require the input of the voter code plus the OCR.

Figure 5: INE Online Verifying System

Source: INE.

Other functional IDs in Mexico

There are several functional IDs currently being used in Mexico issued mainly by the Federal Government (only the State Government Pensions for Public Employees ID is issued by the state governments). Here is a list of fourteen IDs that are important to highlight, because of their respective coverage or relevance in terms of social protection (or both), six of which are among the valid identity documents authorized by RENAPO and enlisted above in Table 1.

As described in the table below, each of the IDs here listed has a particular purpose and coverage. In terms of purpose, this group of functional IDs can be subdivided in two main groups, those IDs used to identify beneficiaries of social protection programs: IMSS, ISSSTE, PEMEX, ISSFAM, State Pensions, Seguro Popular, Prospera and PPAM;²¹ and those IDs used for the purpose of certifying to a third party that the individual complies with certain characteristics, which can be demographic, a specific achievement, or entitlements (Passport, Military Service Card, INAPAM card, School Credential, Professional Certificate, and Consular ID Card).

Using a set of characteristics selected in terms to assess the IDs validity, robustness, and universality, Table 3 compares these IDs with the CURP and INE Voter ID.

Table 3. Characteristics of Functional IDs Compared to the Foundational ID

Credential ID Characteristics	CURP	INE	Passport	Military Service	INAPAM	School Credential	Professional Certificate	Consular ID Card	IMSS	ISSSTE	PEMEX	ISSFAM	Seguro Popular	PROSPERA	PPAM
Uses own unique identifier	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Unique identifier does not change	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Universal in terms of age	✓		✓					✓					✓		
Validates register with RENAPO	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓
Uses the CURP to register	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Provides authentication system	✓	✓					✓								
Physical token	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Token contains photograph		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Captures user's biometrics		✓	✓					✓					✓	✓	✓
Database is centralized	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓

²¹ The social assistance here included are the largest in terms of population coverage and budget. Other social assistance programs include, Food Program (PAL) with 3.7 million beneficiaries; Priority Zone Development Program (PDZP) with 297 thousand; Daycare for Working Mothers Program (PEI) with 278 thousand; 3X1 with 27 thousand; Temporary Employment Program (PET) with 599 thousand; Migrant Farm Worker Program (PAJA) with 85 thousand; Productive Options Program (POP) with 22 thousand; Public Kitchens (Comedores) with 433 thousand and FONART with 8 thousand.

As shown on this table, all IDs use a unique identifier independently of whether or not they have integrated the CURP into their database.

In terms of the permanence of the unique identifier, only the passport and to a certain degree the school credential change at some point in time. For the passport the number changes each time this document is renewed, and the school credential is specific for the school and period the student is attending (see Figure 6).

Concerning the process of validating their respective databases with RENAPO, all social protection program IDs, the passport, and consular ID make use of RENAPO’s web services to cross-check and validate periodically (monthly or bimonthly) their respective database (aligned with the second phase of the CURP implementation history mentioned above). This process is conducted for two main purposes:

- When information is complete (personal, demographic, and CURP), assure the reliability of the person’s information by cross-checking with BDNCURP to make sure it has this CURP and it is linked to the same name and demographic information.
- When information is incomplete (meaning CURP not obtained by the functional ID), retrieve from BDNCURP the existing CURP, or when there is no CURP associated with the person and the functional ID provides a copy of the certificate of birth, generate the new CURP.

Certifying the uniqueness of the person is fundamental specifically for social protection programs as significant budgets are based on benefit pegged to specific individuals. The certification of beneficiary registry has provided different levels of reliability to each of these functional IDs. For example, 80 percent of PROSPERA’s beneficiaries have a reliable CURP, 94 percent in the case of Seguro Popular, and in the case of the IMSS it is 85 percent.

ISSSTE has taken this process of cross-checking databases with BDNCURP a step further by using RENAPOs connectivity to civil registries to eliminate deceased beneficiaries from its registry, thereby eliminating the “proof of life” that beneficiaries have to do twice a year.

Seguro Popular, in July 2015, will be implementing an online validation system with RENAPO to certify in real time the CURP at the moment of registration. Popular Health Insurance (SP) will continue using monthly validation through RENAPOs web service as not all the registry modules are online.

In terms of biometrics and authentication, currently only PROSPERA and PPAM capture biometric information and use it to authenticate at the transaction point (in both cases, only capturing 2 fingerprints per individual). In the case of PPAM, this is not generalized as only 20% of the total beneficiaries have their

Figure 6: Example of Change in Unique ID Number after Passport Renewal



fingerprints captured. In PROSPERA’s case, only one person per family (the main program beneficiary) has his fingerprints captured.

During the last federal administration, IMSS developed a smart card named ADIMSS, where they captured the beneficiaries’ biometrics with the objective of authenticating individuals at the moment of service provision, reaching a total of 24 million beneficiaries before discontinuing the project in 2012. The biometric system created by this significant investment is now effectively defunct.

The SRE, for both the passport and the consular ID card, has been capturing 10 fingerprints during the registration or renewal process. Early in 2015, the SRE announced a new model of electronic passport which will register the 10 fingerprints, facial recognition, iris, and electronic signature. This new database will be used throughout the SRE structure across the world to authenticate individuals.

Concerning biometric information, Seguro Popular, through the individualized nominal health system project entitled SINOS, in 2009 began capturing 10 fingerprints of each beneficiary over 10 years of age. The population of the national database has been very heterogeneous as the capturing process has been carried out by state governments and depends on each state’s capacity. The objective is to authenticate individual beneficiaries during every transaction including annual renewal process and health service provision, but this part is yet to materialize.

In terms of using the CURP as a requirement to register for any of these functional IDs or programs, in all cases except the professional certificate, the CURP is not mandatory. Figure 7 shows the requirements to obtain the professional certificate, and encased in the red box, the last sentence reads: “It is important to establish, that this document (CURP) is indispensable to carry out this process, if it is not presented, the application will not be accepted.”

In the case of the contributory pensions and Seguro Popular, the CURP has been integrated as a non-mandatory requirement. This means that even though an applicant is not required to present it, it is listed in the documents necessary to register as “preferable.” In these cases, there are internal procedures for module operators to carry out to obtain the CURP with the information being presented by the applicant, mainly using e-CURP.

Figure 7: Professional Certificate Requirements: Stating CURP Is Mandatory



Figure 8: Online Authentication System for the Professional Certificate

CRITERIOS DE BÚSQUEDA

* Nombre(s):
 * Primer apellido:
 Segundo apellido:
 Género:
 Año de expedición: -
 Institución:

Acepto

* Los campos señalados con asterisco son obligatorios

[Búsqueda por Cédula](#)

DETALLE DEL REGISTRO

Número de Cédula:
 Nombre:
 Género:
 Profesión:
 Año de expedición:
 Institución:
 Tipo:

Los datos que se reflejan son preliminares, en caso de requerir un documento, dirigirse a la Dirección General de Profesiones.

* Glosario de Nomenclaturas

AE: Autorización de Especialidad

AECM: Autorización de Especialidad por Consejo de Especialidades

RESULTADOS DE LA BÚSQUEDA

Cédula	Nombre	Primer apellido	Segundo apellido

In terms of the physical card or credential, all of the functional IDs here mentioned have a token with a particular format. With the exception of PROSPERA, PPAM, and Seguro Popular, all the functional IDs have a credential ID with a photograph, personal information, unique ID number, and different degrees of security measures.

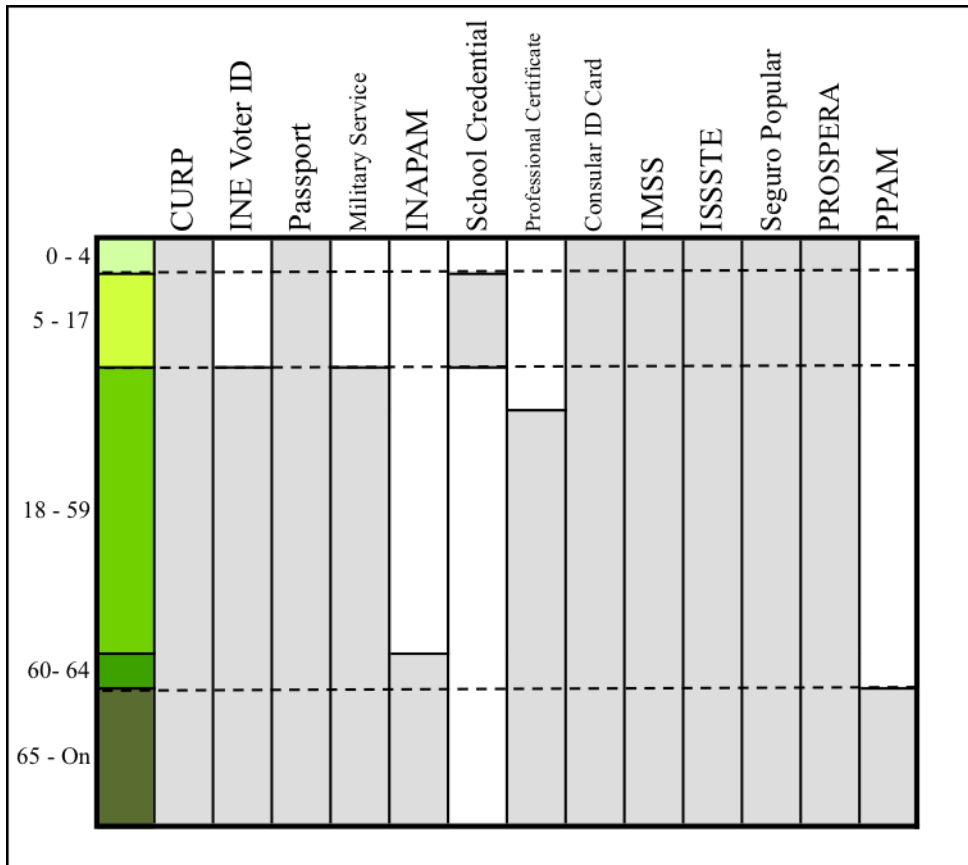
In PROSPERA and PPAM's case, this token is the payment instrument (neither of which contains the individual's photograph). In PROSPERA this is the individualized smart card that each household receives, and in the case of PPAM this is either the individualized vouchers or commercial bank's debit card.

On the other hand, Seguro Popular has been using two types of tokens. In some states, every beneficiary over 10 years of age receives a personalized card with a photograph; and in other states, the beneficiaries use the affiliation document (known as "Poliza") to conduct all the transactions.

Concerning provision of an online authenticating system, as INE and RENAPO provide for the INE voting card and the CURP respectively, both IMSS and the professional certificate (SEP) are the only functional IDs that can authenticate an ID online (see Figure 8).

Finally, in terms of coverage or universality of the functional ID supply, each ID has a specific coverage based on its specific purpose. Adapting the life cycle analysis toward identification coverage, Figure 9 presents a graphic description of the functional ID vis-à-vis the CURP and INE voter ID.

Figure 9: Life Cycle Analysis of the ID Coverage in Mexico



The functional IDs which are universal in terms of the life cycle are on the one hand those which provide benefits at the household level as IMSS, ISSSTE, PROSPERA, Seguro Popular, and on the other the international IDs: passport and consular ID card. Only two of the functional IDs are life cycle-based and in both cases targeted toward older people. That is INAPAM is for 60 years of age and older, PPAM is for 65 and older.

Furthermore, there is only one ID directed specifically toward the underage population, that is the student credential, and finally two certifying IDs which mainly target the adult population: military service card and the professional certificate.

Assessment based on ISA criteria

Annex 1 provides the rationale and a detailed description of the criteria for assessing the foundational and functional ID systems. The information presented here is based on answers provided to the ISA questionnaire and direct interviews with staff at the relevant agencies, as well as publically available information and data. Information from secondary sources includes references and are tentative subject to review by government officials in Mexico.

Accessibility

Birth registration

The latest figures on birth registration from Inter-American Development Bank (2010) suggest that more than 93 percent of children under age five in Mexico are registered. The figures are substantially higher for urban than for rural children. Moreover, registration rates vary substantially across Mexico’s 32 states and more than 2,400 municipalities. As in other countries, the variation reflects the different socioeconomic conditions across states as well as the variation in procedures and human resource capacity. A study in 2009, by the nonprofit organization “Be,” found that registration rates were lowest in the poorer states. It found that in several states registration of children under age one was less than 75 percent and in two states, Chiapas and Guerrero, this figure was below 50 percent.

The procedures and costs of registration vary across states. Sixteen states do not charge for registration while the fees vary across the rest of the states. In addition, the transaction costs will vary in terms of how much time parents have to spend, and transport and other costs related to the process. While birth



certificates are mandatory within six months of birth, these costs impede many families from registering within the legally required period. After that, late fees must be paid. According to one report:

“In Oaxaca, for example, parents who report the birth of the child after six years must pay the municipal registry office US\$53 for untimely birth registration, US\$9 for a five-year search, and US\$5 for a “nonexistent registration certificate”—a paper that documents the child’s nonexistence (lack of registration) as a precondition to receiving a birth certificate.”

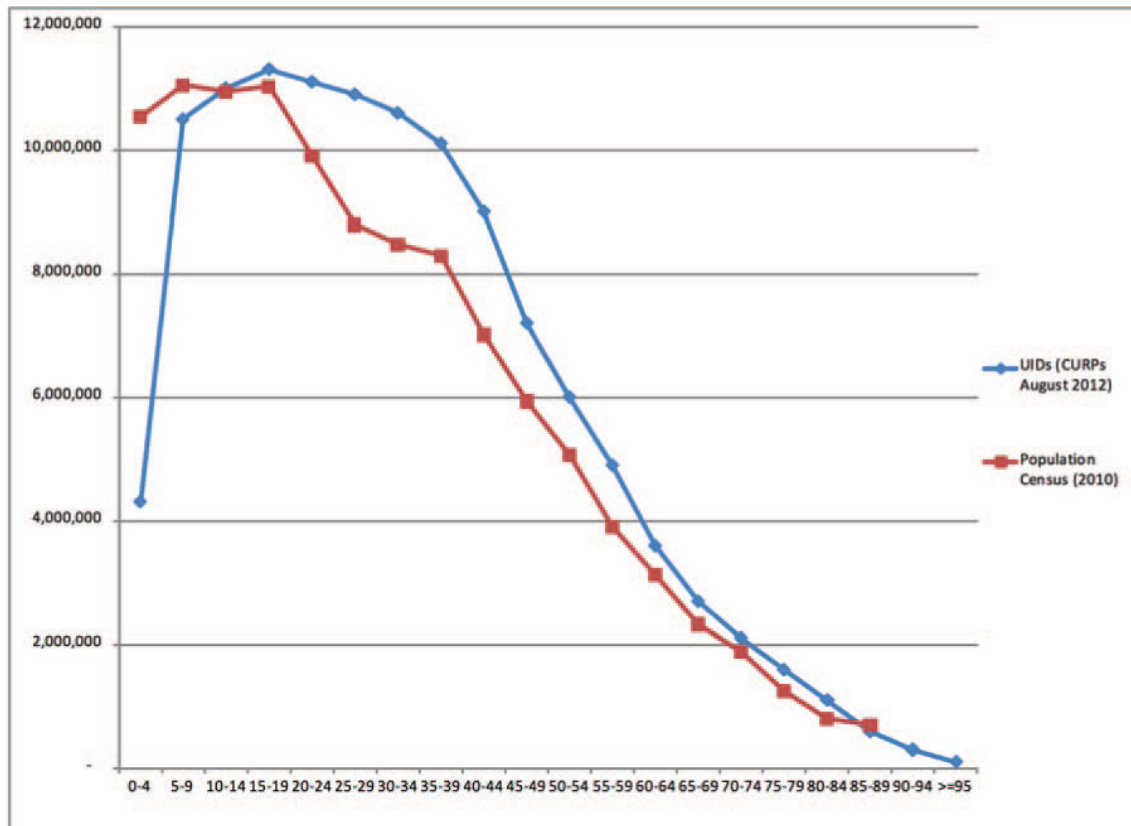
Not surprisingly, the lack of birth registration among the poor has affected the ability of program administrators for targeted programs such as PROSPERA and led them in some cases to provide direct assistance to poor families to obtain these documents.

Population registry—The Clave Unica de Registro de Poblacion (CURP)

As mentioned above, RENAPO is in charge of issuing the CURP for the entire population. The number of CURPS, even after applying the process of certification and activity monitoring to eliminate inactive numbers, is greater than the total number of people in Mexico. Unlike birth certification, there are no surveys that systematically look at whether individuals have CURPs. Since CURPS are not deduplicated (as discussed in the next section), it is impossible to know how many people have never been issued a CURP. Given the link to birth certification however, similar variation and correlation with socioeconomic status across the states are likely.

It is useful to look at the accessibility of the CURP in terms of stocks and flows. Figure 10 compares the number of CURPs issued by five-year age cohorts. Clearly, there is a large gap of close to 60 percent for

Figure 10: Age Distribution of Stock of CURPS vs. Population in 2012



children aged 0–4 years, which is below the school age, as well as significant excess CURPS (in some age groups more than 20 percent) throughout the age distribution.

In terms of flows, the new process of issuing CURPs along with the birth certificate is a major change that should increase the coverage of this number going forward. Of course, this applies only to those children for whom birth certificates are issued, with the caveats mentioned above.

State governments are responsible for civil registration in Mexico’s federal system. Historically, states used different processes and documents, including for the issuance of birth certificates. This created variation in the quality of certificates. Also, the decentralized nature of the system meant that it was possible to issue multiple birth certificates to the same individual in different states.

This situation changed in 2015 as the new inter-statal network system was launched. The automated process begins with an application at the local registry office which is entered and transmitted electronically through the network to RENAPO’s central information system. A CURP is generated along with a digital stamp and these are sent back to the local office which then prints the birth certificate and maintains the information in the local database, which mirrors what is contained in the central database.²² The digital stamp appears in the bottom right-hand corner of the certificate as shown above in Figure 11.

This change represents a major improvement in terms of the quality and uniformity of the documentation as well as the link between the CURP being issued and the birth certificate. It also means that the accessibility of the CURP is inextricably linked to the same factors that limit access to the birth certificate.

Figure 11: The New Standardized Birth Certificate



22 In 2015 this new system has expanded its functionalities to serve Mexican migrants in the US through the Mexican Consulates.

INE

Since it started issuing its credential in 1992, the INE (previously, IFE) has distributed around 200 million voter ID cards. This includes replacement cards both due to expiration as well as lost cards and reflects the increase in the population of voting age. Based on estimates of mortality of cardholders, roughly 95 percent of the eligible population is thought to have an INE card.²³

As mentioned above, there are about 1,000 fixed registration modules throughout the country. In addition to either a naturalization letter or birth certificate, the individual should provide proof of address and one of about 20 different photo IDs. The last two items can be substituted by testimony from two witnesses that are from the same place of residence. There is an effort at outreach starting three years before national elections and an intensive push between October and December prior to the election. During this period, mobile units go to remote areas of the country. The INE card is free of charge.

The card has a 10 year duration and must be replaced. If lost, the process to replace it generally takes less than two weeks. This involves an online comparison of the fingerprints of the individual in question to those in the database for a 1:N comparison to verify the replacement of the card.

The INE card appears to be quite accessible to the vast majority of the eligible population. As described below, there are incentives based on its usefulness for many other transactions beyond voting that have increased demand.



²³ INE also checks whether the individual is in prison or otherwise should be disqualified from the voter roll.

Other functional IDs

Recently, there has been a trend toward inclusion of the CURP in the databases of the major functional IDs. However, this practice continues to be largely optional and therefore does not prevent individuals from being registered and provided program-specific identification. For example, while the practice at IMSS is to incorporate CURPS at enrollment, it is only mandatory if enrollment is done online. Access to the ISSSTE registration is not an issue given the nature of its mandate to cover only civil servants.

The mandatory private pension system now requires CURPs to be linked to individual pension accounts. However, the supervisor, the National Commission for the Retirement Savings System (CONSAR), recognizes that there are duplicates in their database, albeit a relatively small number out of the 55 million or so individual accounts.

In the case of the social pension (PPAM) there have been recent efforts to capture the CURP, but again, it has not been a barrier to enrollment. The process for identifying beneficiaries of this program involves biometric capture. To the extent that there are difficulties in accessing registration, these appear to be more general issues that affect overall enrollment, rather than anything onerous about the identification process of the program itself. On the other hand, as discussed in the next section, the 'proof of life' requirement that involves a visit by the beneficiary to a site with biometric verification points every six months could be an ID-related cost that reduces accessibility to the program's benefits.

In the case of PROSPERA, evidence of identification is very flexible with up to eight different choices of proof of identity available to the main beneficiary. According to government officials, the most popular form of identification submitted by enrollees is the INE. It is also worth noting that there is no such requirement for the dependents in the household, only for the main beneficiary. Since 2010, in order to implement a new program aimed at tracking education of children aged 0–9 years, an effort has been made to provide birth certificates to children in eligible households. It is not clear if delays related to obtaining certificates have prevented or delayed benefits being paid.

Finally, as mentioned above, INE has been capturing CURPs since 2010, and new voter IDs include this number on the card itself.

Robustness

CURP

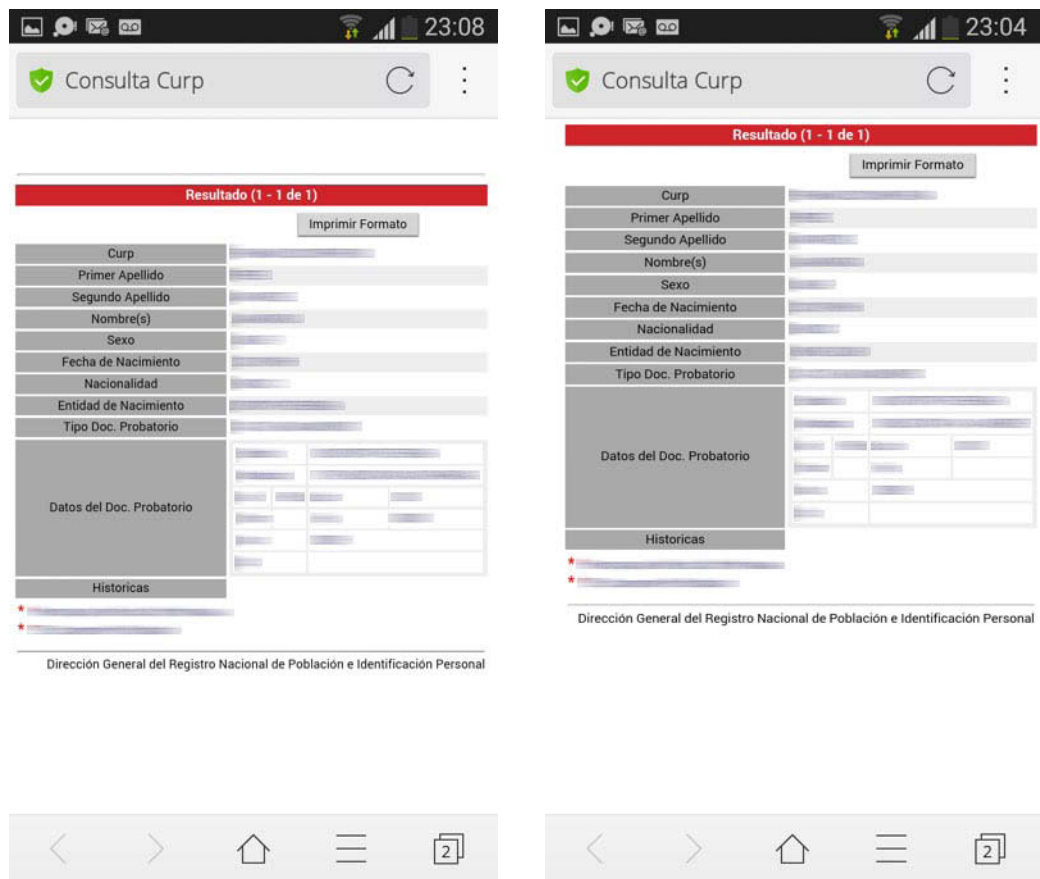
The CURP is made up of 18 alphanumeric characters that draw from the surname, first name, date of birth, gender, place of birth, and second last name initials plus a check digit. As mentioned above, it is well established that it is possible for an individual to have multiple CURPs as shown in Figure 12.

While some progress has been made to eliminate some of these duplicates, a robust deduplication process has not been put into place.²⁴

The inability to ensure uniqueness is a major flaw in Mexico's foundational ID and a source of frustration to those agencies that would like to use it to eliminate fraud, provide accurate administrative data (such as actual number of beneficiaries), and link different databases for various reasons. In some cases, there are direct costs that can be attributed to the lack of uniqueness, as in the double payment of certain pension benefits.

²⁴ An initial attempt at biometric deduplication focused on school-age children. This led to the collection of biometric data on approximate, 5.5 million children. However, this effort was later abandoned after the spending of around 2.3 billion pesos or 140 million US dollars.

Figure 12: Example of a Duplicate CURP



In most cases, however, the cost of not linking databases through a common identifier can only be estimated. For example, in the case of IMSS members' individual retirement accounts, a deduplication effort over the last few years identified 250,000 individuals with multiple accounts, and another 200,000 are still considered as potential duplicates. This effort used CURPs and other data fields in a difficult and time-consuming process which would not have been necessary had there been unique identifiers in the database. By unifying these accounts, thereby adding about 5 billion pesos to balances, the resulting pensions calculated for retiring workers would be substantially higher, and many would no longer qualify for the minimum pension guarantee that costs the central government tens of millions of dollars each year. These are some examples of the potential benefits of ensuring uniqueness.

In principle, the CURP could be used to authenticate transactions. However, without a credential, this would be limited in practice since it would be relatively simple to derive the CURP of an individual (see Figure 2 for a description of how the CURP is generated) or to simply copy it. An interesting exception is voluntary pension payments. By simply entering the CURP into a Point of Sale Machine (POS) at a retail shop (e.g., 7-Eleven) the individual pension account can be accessed through the central database through a CONSAR regulated Company Operating the National Database of the Tax Administration System (PROCESAR). The individual can make a contribution to his account which is immediately credited, and a receipt is provided. This works because the incentive to contribute into someone else's account is negligible and of no concern. In contrast, if the CURP is to be used for say, health insurance authentication, the potential for obtaining benefits that belong to another person would be great.

INE

The INE is the only form of identification that provides assurance of uniqueness and which covers a large proportion of the population. Deduplication during the first two decades of INE's existence relied on two fingerprints taken at the time of enrollment. Given the size of Mexico's voter roll, this would allow a significant number of errors in the deduplication process. In 2012, INE began collecting ten fingerprints for the first time. To date, approximately 30 million out of 83.5 million have ten fingerprints in the system and this number is expected to grow quickly. This should reduce the error rates in the deduplication process.

The INE credential, shown in Figure 13, has a number of security features that makes it difficult to falsify or reproduce. The OCR number which is specific to each physical card, can be used for online verification that the card is 'live'. It has a 10 year duration which forces replacement with the latest technology and guards against physical deterioration of the card.

An important recent development is the process since November 2014 of comparing the RENAPO database to the INE database so as to eliminate individuals reported as deceased. This has been made possible by the collection of CURPs during the INE enrollment process since 2008. Today, more than 93 percent of INE cardholders have an associated CURP in the database.

The relative robustness of the deduplicated INE database and the corresponding credential with some security features combined with its coverage makes it an attractive option for authentication. In fact, it is the most common form of identification used to meet Know Your Customer (KYC) regulations despite the fact that the authentication is generally manual, i.e., the bank agent looks at the card and enters the details into the system by hand rather than reading the card itself. This is the weakest form of authentication, especially where there are possibilities for collusion. INE staff reported receiving complaints of stolen identity and falsified INE cards, although there are no estimates of how frequently this occurs.

One way to address this problem is to increase the security level of the authentication process. Recently, the INE has signed Memorandums of Understanding (MOUs) with a major bank and the municipal government of Mexico City, Federal District to provide online, biometric authentication services. This authentication service consists of a web-based interface for clients which allows comparison of fingerprints and ID information of the individual being authenticated with the data in the INE registry. Based on the fingerprint match, the system returns a validation stating "match" or "no-match." It does not provide further information on the individual. The INE charges about US\$0.70 for each authentication.

This is a practical solution to the absence of a good foundational ID in Mexico. However, there are at least two issues that arise as the INE becomes the main authentication mechanism for the financial sector (and possibly for other areas). First, since INE's charter and mandate are expressly to facilitate a transparent and accurate voting process, the authentication services may be neglected or simply abandoned at some point in the future. If a large number of services were authenticated in this way, such a change could be

Figure 13: The INE Credential



very disruptive and costly. Second, the INE database refers only to individual adults. Most social programs deal with families or households and therefore should be able to identify children and link members of a family. It is difficult to imagine how the INE database could be used in this way and again, performing this function would go far beyond its institutional mandate.

Other functional IDs

Among the other major functional IDs, none is deduplicated biometrically. There are plans to do so for both passports and the consular ID card. The passport provides a secure, machine-readable credential in the form of the passport booklet, while the credential for the Consular ID card includes a chip as shown in Figure 14. There are plans to deduplicate both databases which will make them, in addition to the INE, the most robust forms of ID available, albeit for a limited population.

While the rest of the functional or program-specific IDs covered are not based on deduplicated databases, each has made efforts to reduce duplicates and erroneous entries. In two of the programs—PROSPERA and PPAM—the credentials that are utilized also allow for electronic authentication and therefore provide higher levels of security.

In the case of PROSPERA, biometric data (two index fingers) for the head of the household (currently, around 7 million households are covered) is collected and incorporated onto the chip of the smart card which is issued as shown in Figure 15. This allows a strong authentication process at the point of paying the cash transfer (80 percent of the beneficiary households use fingerprint authentication at the moment of payment).

In addition to the cost of the biometric enrollment and the cards themselves, estimated at around \$2 per card issued, there is a charge per transaction of 30 pesos or approximately US\$2.

The process of enrolling beneficiaries in electronic payments and in biometric authentication was provided by the National Savings and Financial Services Bank (BANSEFI), and was conducted simultaneously. One issue that arose with PROSPERA recently is the accessibility of the raw fingerprint data due to concerns over the use of proprietary software (called MORPHO) by the service provider to capture biometrics. PROSPERA has recently requested the service provider to transfer all their biometric files into a Wavelet Scalar Quantization (WSQ) image (WSQ Grey-Scale Fingerprint Image Compression Specification, Version 3.1). BANSEFI has studied that process and has informed that they have the capability of transforming each biometric file from the MORPHO to the WSQ standard.

Figure 14: Consular ID Card



Figure 15: PROSPERA's Biometric Smart Card



Biometrics are not used for deduplication since PROSPERA does not have its own Automated Fingerprint Identification System (AFIS)/Automated Biometric Identification System (ABIS). Since 2010, efforts have been made to reduce duplication using CURPs and other fields such as, name, date of birth, and state of birth. In addition to the comparison within the database, there is a bimonthly cross-check with the RENAPO database to verify and assign CURPs. Despite the fact that it is not required at the time of PROSPERA enrollment, this process has resulted in 80 percent of PROSPERA beneficiaries (heads of household) having a CURP in the database. This non-biometric deduplication process has found roughly 1 percent duplicates yielding millions of dollars of savings for the program. Nevertheless, the lack of truly unique IDs for some heads of household and most dependents allows more room for duplication of benefits and consequent leakages. For a program that spends close to 4.2 billion dollars per year on benefits, the savings from more robust deduplication could reach the tens of millions of dollars.

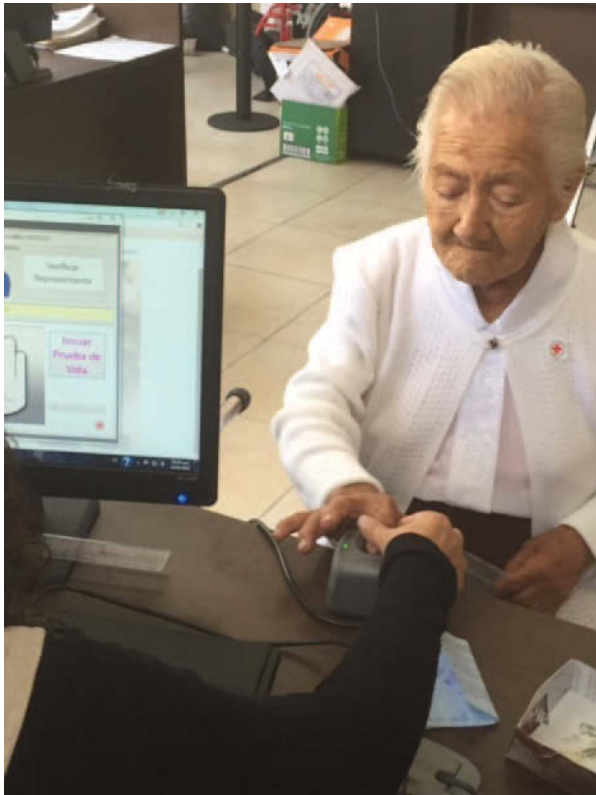
Biometrics are also used for authentication (and not deduplication) in the social pension program PPAM. For roughly one-fourth of the beneficiaries, a bankcard is issued (Figure 16, left) while the rest receive special vouchers (Figure 16, right).

Vouchers and cards are only assigned to program applicants who are eligible and will be incorporated into the program. For the program applicants living in urban areas, eligibility analysis is conducted in situ through online cross-checking of the beneficiary's information with the databases of federal pension systems as IMSS, ISSSTE, PEMEX, and Armed Forces (state pension systems are not included). The

Figure 16: PPAM Physical Tokens: Vouchers and Bankcards



Figure 17: Biometric Proof of Life for the PPAM Scheme



cross-checking process uses both CURP and demographic information to compare one to N (where N is the total population). Once eligibility is assured, the beneficiary is surveyed (socioeconomic data), enrolled in a bank account, and has both of his or her fingerprints taken as well as those of the selected proxy. The bank enrollment process consists of assigning the beneficiary with a nonpersonalized bank kit, which contains a bank card, PIN number, and contract, and it is then linked to the survey information through a beneficiary number. The data collected is consolidated centrally and sent to the bank to open a bank account at a later time.

In the case of applicants living in rural areas, information is captured in the field and processed centrally at a later time. Once eligibility is established, a personalized voucher set containing 12 vouchers (good for two years) is printed and sent to the field to be delivered to the beneficiary by a social worker from the ministry.

Vouchers have security features to avoid duplication and require the beneficiary to present a valid official ID to receive them, signing a receipt during this process. There have been several documented cases across the country where a third party (neither beneficiary nor proxy) makes use of the vouchers to receive the bimonthly cash transfer. These situations occur most frequently when the social worker and the payment agent have colluded, compromising the manual oversight of the payment process.

A particular type of authentication that is relevant for a program of this kind is 'proof of life'. At the time of the initial enrollment, biometrics are captured (two fingers). These biometrics are then used for a 1:1 comparison every six months to ensure that the beneficiary is still alive. (The process that the team observed in Mexico City—see Figure 17—appeared to take no more than a few hours). This process obviously imposes some transportation and time costs to beneficiaries who must visit the stations that are set up to conduct the authentication.

The IMSS and ISSSTE have both made efforts to incorporate biometrics for authentication purposes. In both cases, the projects were eventually cancelled, but only after tens of millions of dollars had been spent

Figure 18: The IMSS Credential



to procure the necessary equipment and to conduct enrollment. The IMSS credential, shown in Figure 18, provides limited authentication functionality and is generally used for manual authentication.

The manual authentication of IMSS transactions extends to ‘proof of life’ for pensioners who must show up every six months at a designated IMSS office. This imposes costs on pensioners but also provides greater potential for fraud. On the other hand, IMSS staff reported fraud related to funeral benefits through false death claims which cannot be effectively verified through RENAPO’s death registry.

The incorporation of CURPs into the IMSS database is a recent phenomenon and it is still not mandatory for enrollment. Nevertheless, around 95 percent of new enrollments include the CURP. However, past practices, including a decentralized enrollment process at the regional level until 1997, have resulted in many duplicates or individuals with multiple accounts and contribution histories. IMSS management estimates that roughly 90 percent of the database for active workers includes the CURP, while this figure falls to about two-thirds for pensioners. The figures for dependents are much lower.

There is a MOU pending with RENAPO, but in the meantime, there have been efforts to cross-check CURPs in the IMSS database with those in RENAPO, and this has resulted in the elimination of many duplicate accounts. Nevertheless, many are thought to remain.

The pension scheme for public sector workers, ISSSTE, collected biometrics for hundreds of thousands of its members before abandoning the plan to use biometric authentication. There are reported cases of multiple accounts which have sometimes resulted in overpayment of benefits. This can happen, for instance, when an individual enters the system through different government departments and is assigned a new program ID number. In some cases, the calculation of the recognition bond used to credit years of service prior to the 2008 reform is done twice, and upon retirement, the individual would be entitled to twice the amount that he should be. It is not clear how many of these cases exist, but given the size of the amounts involved, the extra payments are likely to be in the millions of US dollars.

It is worth noting that in 2014, ISSSTE moved away from physical proof of life, instead performing regular cross-checks with the RENAPO death registry to remove pensioners from their list. This process is more effective for ISSSTE than for IMSS due to the very high rate of death registration among retired civil servants. It obviously reduces costs both to the government and to the beneficiaries.

Finally, the private pension supervisor, CONSAR, has recently developed a plan to biometrically identify members of the AFORES (the acronym given to the private pension fund providers in Mexico). Beginning in mid-2016, these firms will be responsible for capturing biometric data (10 fingerprints and digital quality

Figure 19: The Seguro Popular Biometric Capturing



Figure 20: The Seguro Popular Credential



photos) for their members when they interact for the purpose of changing funds or applying for different services. There is also a central AFIS that will be used to deduplicate these individuals. The mandate was motivated by the false registration of pension fund members by some agents (at a financial cost to members for each switch) as well as the desire to minimize duplicate pension accounts.

The health insurance scheme for informal sector workers, Seguro Popular, has been implementing a strategy entitled Nominal Health System²⁵ (SINOS for its initials in Spanish) since 2009. One of the three components of SINOS involves capturing the biometrics of all beneficiaries 10 years old and older. SINOS started as a pilot in the Nayarit in 2009 and gradually expanded to the rest of the country in the following three years. Through this strategy, the ten fingerprints are registered. The objective of the strategy is

25 Sistema Nominal en Salud.

to authenticate beneficiaries at the point of service in order to facilitate the service provision in public hospitals and clinics. This system has not yet been implemented for deduplication purposes.

Integration

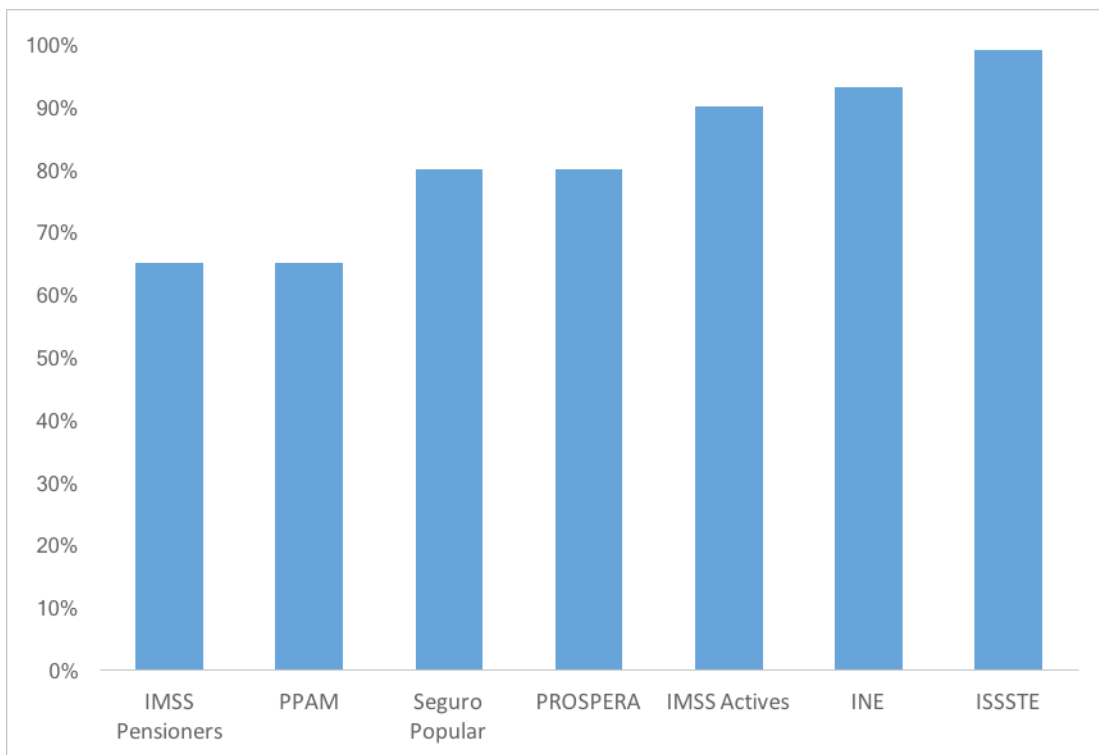
A unique identifier with universal coverage can be used for multiple purposes and can allow the efficient cross-checking of important databases. In the United States, for example, the social security number is used for a myriad of transactions, both public and private. In Peru, the national ID is mandated for the vast majority of formal interactions between individuals and government as well as for banking and other purposes.

The Mexican identification system is moving toward a higher level of integration, yet there are important limitations at present. The dominance of the INE for formal financial sector transactions alongside the dependence of government programs on the CURP has created a bifurcated system which effectively requires individuals to rely on both forms of identification. To the extent that the INE authentication pilots are scaled up and expanded, this dichotomous situation will continue. At the same time, the flaws in the CURP documented above, especially the potential for duplicates, limits its usefulness in this regard.

Steady if partial progress is being made, however. Linking the issuance of the CURP to the birth registration process carries with it the potential for a lifelong, unique number that can be harnessed, especially by programs that need effective identification of children within households. Over time, a population register that allows households to be defined by linking CURPs can be created and used by multiple programs (even where definitions differ).

The incorporation of the CURP into the major functional databases should also allow for better cross-checking. Figure 21 summarizes the current situation in this regard. This is a major change from the situation

Figure 21: Percentage of Individuals in Each Functional Database with CURPs



just five or ten years ago before these programs made special efforts to integrate the CURP, and this has already allowed certain database links to be made that were impossible previously.

Together, these databases cover the vast majority of Mexicans. If their CURPs were unique and universal, cross-checking databases would likely generate significant fiscal savings. One estimate of fraudulent health insurance usage due to the inability to cross-check the databases of Seguro Popular with IMSS was around US\$300 million during 2014.²⁶ It would also be possible to ascertain the aggregate impact of the overall social protection system on households receiving multiple benefits and allow for more sophisticated social policy to be implemented.

A good example of this is the pension policy. An individual aged 65 and above is not considered eligible for the social pension in Mexico if she is receiving a pension from IMSS or ISSSTE above a certain amount which effectively excludes those pensioners. The current cross-checking relies partly on CURP but also on other fields such as date of birth. This is obviously less accurate than checking on the basis of a biometrically deduplicated unique ID. Moreover, a more elegant approach (that is used in Chile) might be to reduce the social pension amount as the contributory pension level increased. To do this however, requires a robust mechanism of linking the two databases (and perhaps, the poverty database for targeting purposes). Since more than a third of both types of pensioners do not have a CURP in the system, this is currently not possible. Ultimately, the path to full integration involves three elements; (i) the universalization of the CURP (ii) robust deduplication, and (iii) mandates for its inclusion in all government databases. The last two elements raise important questions both as to Mexico's overall identification policies as well as to safeguards required for the protection of individuals from exclusion and misuse of their personal data.

Legal framework for personal data protection

The first section of this report described the legal and institutional context of Mexico's identification system beginning with the Constitution itself. Another important aspect to analyze in terms of the ID system is the institutional and legal infrastructure developed by the country specifically to ensure that the information being compiled and managed by the competent authorities will respect the individual's right to privacy and generally protect the integrity of personal data.

In terms of the foundational ID in Mexico, the 'Ley General de Poblacion' sets the legal basis for this unfinished agenda. The proposal to replace this legislation is discussed in the next section, but it is worth noting that if it were to be passed, it would open up a new chapter in Mexico's identification history, creating a new foundational system that could replace not only current authentication practices but also replace the ad hoc cross-checking between databases that is the current practice in Mexico. As such, the potential implications for personal data protection would be profound.

The current regime for personal data protection dates back to the creation of the Federal Institute of Access to Information and Data Protection (IFAI) in 2003.²⁷ During its first decade, the focus has been on transparency and access to information. As in many developing countries, concerns about corruption and lack of accountability were the primary motivation to set up this regulatory body. Personal data protection has been a secondary priority for the new agency. This is reflected in the current staffing. Out of 500 staff, only about one-fifth are dedicated to personal data protection, although this number is growing. The overall budget of IFAI is expected to rise from 600 million pesos in 2014 to 893 million in 2015.

Mexico has begun to close the gap in the last decade in terms of the protection of personal information in the hands of the federal public sector. The legal provisions on the topic are contained in Chapter IV of the Federal Law on Transparency and Access to Public Governmental Information,²⁸ which came into effect on June 2002 and was last revised in July 2014.

26 Based on interviews with Secretaría de la Función Pública.

27 <http://inicio.ifai.org.mx/SitePages/ifai.aspx>

28 Ley Federal de Transparencia y Acceso a la Información Pública Gubernamental, 2014.



Both the foundational ID (CURP) and the functional IDs must comply with the provisions established in the seven articles contained in Chapter IV of the law. Here is a summary of the 7 articles:

- Article 20 regulates the use of personal data establishing that this information can only be used for the expressed purpose established when the information was retrieved. Additionally, the responsible authority must develop and implement clear procedures to obtain, update, and secure the information in their possession.
- Article 21 stipulates that the responsible authority may not distribute, publish, or commercialize the information contained in their system without the express written consent of the individual.
- Article 22 describes the five cases in which the express written consent of the individual is not required to make available this information: for statistical and academic purposes (in which case data are disassociated with personal information); when data are transmitted among relevant public institutions to be used for purposes contained in their respective bylaws; when this information is required through a judicial process; and, to a third person when a part of the institutional services are subcontracted to a third party that requires the information to provide the service.

Under Article 23, all systems that manage personal information must be reported and updated to the Federal Institute for Access to Information and Data Protection²⁹ (IFAI) and other relevant institutions.

Articles 24 and 25 establish the individual's right to request his or her information be made available directly or to a representative free of charge; the right to update this information; and the obligation to sanction institutions when either of these requests is denied.³⁰

It is important to emphasize that this law only applies to public governmental institutions at the federal level and each state has the authority to legislate its own personal information protection laws that will be imposed on its institutions. Additionally, the current provisions on personal information protection will be a topic of debate for the new legislature since, in October 2014, IFAI submitted a new comprehensive

29 Instituto Federal de Acceso a la Información y Protección de Datos, 2014.

30 Ley Federal de Acceso a la Información Pública Gubernamental, July 2014.

law entitled “General Law on the Protection of Personal Data in Possession of the Competent Public Authorities” for consideration.³¹

Summary and ratings

The previous sections present an identification system with gaps in several areas. In terms of inclusiveness or accessibility, a small proportion of the population, likely to be among the poorest in Mexico, is excluded from the birth registration process. This gap, in turn, means that the unique number assigned at birth is still not universal. Incentives to enroll adults in the electoral system have led to high coverage and relatively easy access to this form of functional ID, making it in many ways, the de facto foundational ID for the country.

The INE database is deduplicated and the most robust form of identification available to a large share of the population. At the same time, the CURP is not and there are more numbers in circulation than people and evidence of many duplicate CURPs. This lack of robustness in terms of uniqueness limits the potential benefits that could be derived from this foundational ID, particularly in ensuring that the same individual is not counted more than once in a particular database. The nature of the CURP as a number with biographical details and logic and lacking a credential or biometric data also makes it unreliable for authentication purposes. This is why the financial sector has increasingly started to rely on the INE credential. INE cannot be used in the same way for children, however.

The result of the fact that there is no robust and universal form of identification in Mexico has led those that administer major social programs to create separate systems of their own. In some cases, these forms of identification allow for strong authentication while in other cases, expensive initiatives have been aborted altogether. None allow for biometric deduplication and can only partly ensure uniqueness.



31 Propuesta de Ley General de Protección de Datos Personales en Posesión de Sujetos Obligados.

Table 4. Main Social Protection Program's 2015 Budgets

Program	2015 Budget Millions MX Pesos
PROSPERA	74,160
<i>Seguro Popular</i>	74,789
PPAM	42,515
IMSS	265,320
ISSSTE	154,825
Total	611,609

Source: Presupuesto de Egresos de la Federacion 2015.

The 'silo' ID system that has emerged not only results in duplicating costs of identification, but also limits integration of databases that often cover much of the same population. In the area of social protection, this makes it difficult or impossible to enforce eligibility rules that limit benefits to one program or to monitor which households are receiving what benefits from the government. Moreover, the inability to ensure uniqueness continues to allow for duplicate beneficiaries.³²

Table 4 shows spending on five large social programs in Mexico for 2015. Note that the budget allocation for RENAPO during the same period was around 546 million pesos (around 34 million US dollars) or less than 0.1% of the total spending on these five social programs. Although the total spending at the state government level on civil registration is not known, it is unlikely that this would increase this ratio significantly. This suggests that if even a very small reduction in unwarranted social spending due to duplication or the enforcement of eligibility conditions could be achieved with better identification, the investment would have a positive fiscal impact within a very short time. Moreover, many of the costs to legitimate program beneficiaries in terms of enrollment and transactions with government programs would be reduced, especially for the poor.

Based on the discussion in previous sections and using the typology found in Annex 1, Table 5 summarizes key assessment results in a color-coded system.³³ Accessibility is shown to be moderately satisfactory due to relatively high levels of birth certification and access to a CURP, especially after the introduction of the CURP at the moment of birth registration. The functionality of the widely available INE credential also adds to the accessibility of identification for certain purposes such as financial transactions.

Much more is required to achieve robustness, however. The CURP has a weak credential beyond the initial birth certification stage and is not effectively deduplicated to ensure uniqueness. The result is the increasing use of the INE for financial sector authentication and the proliferation of various forms of functional IDs of varying quality.

The result is expensive duplication of the costs of identification and fragmentation of the system generally. In addition to the direct expenses incurred by government and individuals, this arrangement precludes certain policies from being implemented and others from being effectively enforced or monitored. The

32 An example of a policy initiative that is difficult to implement without uniqueness is the proposal by Santiago Levy to introduce individual health insurance and pension accounts for every adult Mexican with a minimum contribution from the government. Without the assurance that some individuals will not be able to enter the system multiple times and others may be excluded completely for lack of having been captured in the population register, such a proposal will be difficult or impossible to implement.

33 Red indicates that significant attention needs to be paid to a particular dimension; orange signals that a dimension requires vigilance, elements for effective performance are in place, but significant gaps or constraints persist; yellow indicates moderately satisfactory performance, with most of the elements showing satisfactory parameters; finally, green indicates well-performing practice, with broad-based success in the examined elements. These ratings are meant to be indicative and to highlight the areas where most improvement is needed.

Table 5. Overall Ratings by Key Criteria

Dimension	Performance
Accessibility	Satisfactory
Robustness	Satisfactory
Integration	Unsatisfactory
Legal/personal data protection	Satisfactory

result, despite efforts to periodically link databases in various ways, is a low level of integration and high level of redundancy across the identification system.

Finally, taking into account ongoing efforts to improve the legislative framework, especially regarding personal data protection, and the fact that there is a dedicated and relatively well-resourced agency responsible for this area, the legal and personal data protection indicator is rated as moderately satisfactory.

Options for improving the system

The foundation of Mexico's pension system is its civil registry, which dates back more than 150 years. Based on discussions with RENAPO officials, it appears that the recent efforts to modernize and integrate the federal system at a national level will significantly strengthen the system, especially with regard to a more uniform and secure birth certification process and database. This analysis of Mexico's identification system does not, however, look into the details of operations and performance of the 32 civil registration systems that operate at the state level. These are known to vary greatly in terms of capacity and performance, and while the national figures on birth registration are relatively high, there continue to be pockets of under-registration of births and deaths in particular jurisdictions. This suggests the need to study the constraints in these states and to provide federal support where needed to increase accessibility.

The possible measures included providing demand-side incentives by eliminating any explicit fees for birth registration and even providing cash payments at the point of registration.³⁴ On the supply side, special units could be set up in states with federal support that would be equipped to deal with the more remote populations and indigenous people. An example of this can be seen in a special unit established in Peru that uses mobile units to take the enrollment to some of the most remote areas of the country. This unit could work closely with programs targeted to the poor such as PROSPERA to achieve better outreach. Incentives based on performance of local registrars as well as the provision of additional staff and budget are also alternatives.

In contrast to the civil registry, the CURP, which is barely 20 years old, is a very recent addition to the identification system. It is now being linked directly to birth registration and, in principle, every new birth certificate should include a centrally issued and unique number. In practice however, even with universal birth registration linked to the issuance of the CURP, *uniqueness is far from assured*. In terms of the stock of existing CURPs, there are more numbers in circulation than people in Mexico, and the existence of duplicates is well documented. In the past, this occurred both because issuance was decentralized and there was no system of deduplication. CURPs are now issued centrally, but there is still no robust way to deduplicate effectively. This has led to the need for expensive and time-consuming processes to try to weed out as many duplicates as possible among the adult population—a process that is only partially successful.

As it currently exists, the CURP is also ill suited for authentication purposes. It is not difficult to access someone's CURP. Good authentication therefore would



³⁴ This raises questions about incentives to register multiple times. The new integrated information system makes this more difficult, but not impossible. The proposed link to the biometrically established identity of the mother would address this concern to a large extent.

require additional checks in the form of a secure credential, additional passwords, biometric information, or some combination of these three. A good example is the private pension system. Despite the fact that the database of individual account holders contains the CURP, the regulator (CONSAR) has recently mandated that private pension firms collect biometric information for their members to reduce various types of fraud. CONSAR plans to deduplicate this database itself, suspecting a small but significant number of duplicates in their database. They also plan to use the biometrics for authentication of transactions, for example, for a person moving from one pension fund to another or withdrawing from their balances for certain purposes.

These two weaknesses—lack of uniqueness and inability to authenticate—greatly reduce the utility of the CURP for another important identification function, *cross-referencing databases*. While there has been a significant effort to include the CURP in major program databases and they are being used for validations across programs to some extent, the lack of uniqueness and verifiability reduces the reliability of these checks. As a result, the social pension program has to use its own biometric check when comparing the IMSS database of pensioners with their database. In the financial sector, the deduplicated INE number is preferred and used for KYC purposes.

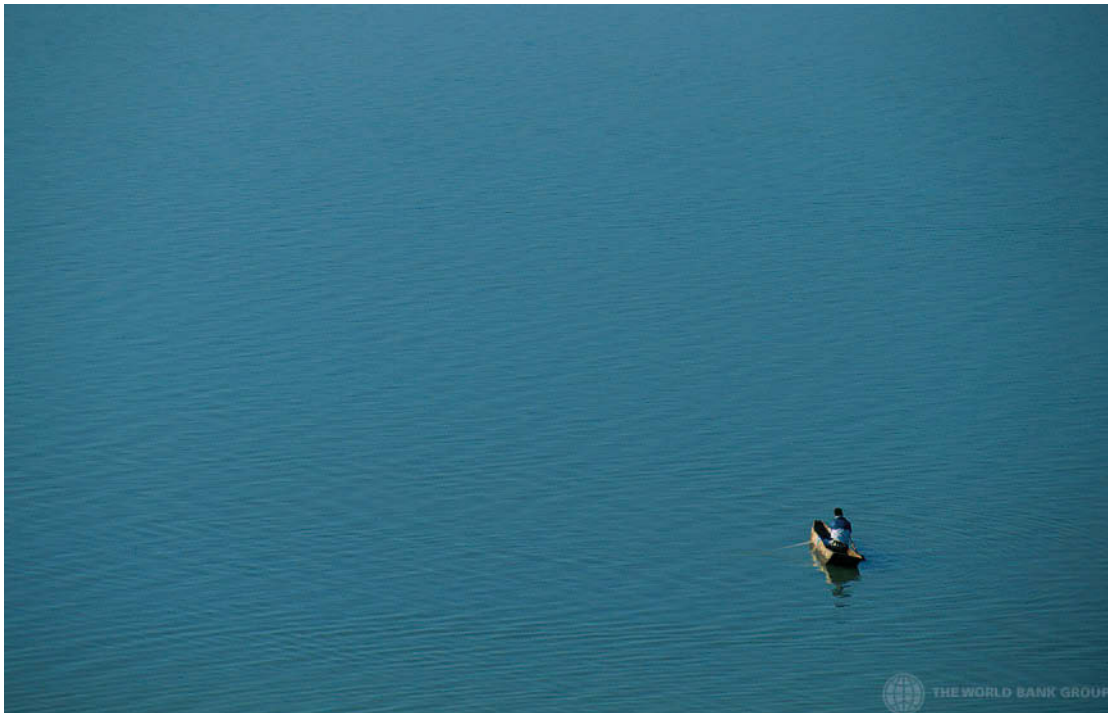
Clearly, it is inefficient for the Mexican government to continue to create parallel identification systems. Costs are much higher when multiple agencies have to purchase biometric enrollment kits, authentication hardware and software and even ABIS (Automated Biometric Identification System) for deduplication. Moreover, the fact that there are multiple identity issuers means that it is not possible to verify that person A in program A is the same as person A in program B, thus putting limits on the feasibility of implementing certain desirable policies or reducing certain types of fraud. A robust common identifier would also allow sophisticated monitoring of individuals and households receiving benefits from multiple programs, such as health insurance and pensions or paying social insurance and income taxes.³⁵

There are at least three broad approaches to addressing the underlying problem, each with its advantages and disadvantages.³⁶ The first approach requires RENAPO to conduct a mass enrollment of the type that was aborted five years ago. This approach could involve the issuance of a new credential or not but would ensure that the CURP was a unique, lifetime identifier. The second approach would leverage INE's deduplicated database of adults in order to 'clean' the CURP database for adults. The third approach would rely on the major government programs to collect biometrics and use a common set of standards including deduplication.



35 In Chile and Uruguay, for example, it is easy to quickly generate a report showing which individuals and households are participating in different government programs, paying income taxes, etc.

36 A third possibility would be to harness the capabilities of the INE number to ensure uniqueness and provide authentication services. This is already taking place, albeit on a pilot basis with regard to authentication for financial transactions. However, providing a legal identity credential legally falls within the mandate of RENAPO. The current role that INE plays in this regard was considered temporary. While this 'temporary' role has lasted more than two decades, it is not clear that an electoral institution with a specific mandate to administer elections is the best permanent home for providing legal identity. The separation of the civil registry and the national ID may also make it more difficult to link the two databases. In the case of Peru, for example, this led the government to move the identification branch of the electoral agency to an autonomous agency that was merged with the civil registry.



Variant 1a: Deduplication of CURPs through new, mass biometric enrollment

In this variant, biometric information would be captured from all Mexicans above a certain age such as 15 and linked to their CURPs. (A special effort could be made to reach those without CURPs to give them one and collect biometrics at the same time, but this would affect a relatively small number of adults). These data would be used to efficiently deduplicate the RENAPO CURP database and avoid future duplicates from entering the system. The birth certification process is already linked to the parent's CURP which would now be unique, preventing multiple registrations of children (at least by the same mother). Upon reaching a specified age, the child's biometrics would be collected and deduplicated. Registered births and deaths would add or subtract from this unique CURP database automatically. No credential would need to be issued. Rather, online authentication, possibly using biometrics in some cases, would confirm or deny whether the CURP in question belonged to the individual. Programs that wished to have off-line authentication or to issue credentials for other reasons could do so while still taking advantage of this authentication service. This resembles the Aadhar system in India in that no credential is issued. There are however, two important distinctions. First, the CURP is linked to the civil registry, whereas the Aadhar number is as of yet not linked. Following from this, the CURP, unlike Aadhar, does represent legal identity, i.e., legal status vis-a-vis the state.

Variant 1b: Variant 1a with new credentials issued by RENAPO

This variant involves the same enrollment process but adds the issuance of a national identification card which involves additional steps and costs.

Variant 2: CURP deduplicated with INE database

As discussed earlier, the estimated coverage of the voter identification system, INE, is around 95 percent of Mexico's adult population. The INE is deduplicated and for 30 million individuals in the database, this

process uses 10 fingers which should be sufficient to ensure very low error rates. By 2022, as reenrollments take place, uniqueness should have been achieved for the entire database. More than 93 percent of individual INE entries also have CURPs, and this figure will soon reach 100 percent. Combining these two facts suggests that by verifying unique CURPs using the INE database to clean RENAPOs data covers more than 88 percent of the adult population. Over time, this would rise to 95 percent under current voter registration rates. All CURPs found in the INE dataset would be considered valid. Moving forward, an automatic system to facilitate a check of new CURPs would be put into place.

People without a CURP number (including those below 18 and noncitizens) will need to reregister through RENAPO which would use the same biometric registration standards as INE allowing the latter to perform a deduplication before RENAPO issues a new CURP. This could extend down to the age of say 12 if needed.

CURPs incorporated into functional databases are checked against the list of proven CURPs. That will immediately narrow the number of questionable cases to a relatively few. The functional applications require those few to reregister, whether with RENAPO or possibly the INE if the database is merged.

The credential could be upgraded over time and RENAPO could issue separate cards for noncitizens and those under voting age, but all cards would have the same standards (albeit with different information distinguishing voters from nonvoters, etc.).

Variant 3: Federated identification system

Another approach would be to create a set of common identification standards that could be used by various government agencies administering the programs with the broadest population coverage. Along with the five programs listed in Table 4, pension fund affiliates supervised by CONSAR could be included. The vast majority of the labor force has opened an individual account at one time or another and would therefore be captured at some point in the database. These programs together would reach a very high proportion of the adult population and the deduplication services already procured by CONSAR would be sufficient to deduplicate the database and ensure uniqueness of the CURP, which is almost universally present in these databases.

Even with common standards, this would require a great degree of coordination between government agencies which would act as enrollment agents. Each time an individual first interacts with one of these programs, the administrator would check if the person had a CURP. If the answer was no, the person would be biometrically enrolled (checking to make sure he was not already in the database) and RENAPO would issue the person a CURP. If the person did have a CURP already but had not been biometrically enrolled, his fingerprints would be captured. If the 1:n comparison yielded no match, the CURP would be recognized for authentication purposes. Finally, if the individual had a CURP and claimed to have been biometrically enrolled, a 1:1 check would be made against the database. If it matched, his identity for the purposes of the program would be established. Over time, the CURP database would be cleansed of duplicates and uniqueness would be gradually ensured. Data-sharing protocols would allow databases to be cross-checked automatically (subject to the appropriate personal data protection safeguards). Each program could choose to issue its own credential or link for online authentication with the CONSAR infrastructure.

This option raises an important issue, namely, the need to set common standards, especially for biometric capture and authentication. This is the responsibility of RENAPO which last produced such standards in 2009. Updating these standards in line with international practice would be important in any of the options mentioned above.

Each of the three approaches described may have several possible variants and different potential transition scenarios.

Comparing the three options

Table 6 summarizes the advantages and disadvantages of each of the three approaches.

There are several advantages to the first option in both its forms. Institutionally, RENAPO’s mandate is already defined in a way that makes it the appropriate body to manage Mexico’s system of legal identity, including both civil registration and civil identification as these terms are normally understood.³⁷ A centrally administered mass enrollment campaign would likely move more quickly to achieve the objective—a robust CURP—faster than the federated option but not as quickly as using INE’s database. Variant (a) would be cheaper than variant (b) in which a new card is issued, although these savings might be partially offset to the extent that online authentication infrastructure is added to costs. The physical token for variant (a) could be the INE card and could eventually include biometric off-line capability if considered necessary, as could the card issued in variant (b). The cost of the card would increase depending on its capacity and for how many types of services and transactions it could be used to authenticate. Some of these costs would be offset by the reduction in card costs for specific programs.

The second option of using the INE database to deduplicate the stock of adult CURPs would seem to be the cheapest and easiest of the three options to implement. It would however, require a very high degree of collaboration between these two institutions with their very different mandates. There would still be a need for RENAPO to deal with the relatively small number of CURPs that belong to individuals that are not in the INE database, as well as resident aliens and younger adults if there was a desire to reduce the age for deduplication. Nevertheless, the social programs that now contain CURPs in their database would be in sync with the RENAPO unique list of CURPs and could address the remaining invalid CURPs. In the end, unique CURPs would be available in all major databases and there would now be potential for a two or three factor authentication through the INE credential, other credentials leveraging the same authentication mechanism, or even online authentication.

The federated option is perhaps the most complex in terms of coordination across government agencies and a more complex procedure for enrollment. It would most likely take longer to achieve high coverage rates, at least for some parts of the population that may not frequently interact with the agencies responsible for enrollment. It would have the advantage of encouraging interoperability across programs as some

Table 6. Comparison of Three Approaches to Deduplicating CURPs

Approach	Advantages	Disadvantages
RENAPO mass enrollment	Builds ‘clean’ and complete database consistent with RENAPO mandate; no need for cross-agency coordination; easier to link to birth registration if only RENAPO	Expensive; difficult to implement and requires complex IT procurement; massive logistical operation and public information campaign
INE-RENAPO partnership	Leverages existing INE deduplication infrastructure; CURP uniqueness can be established quickly and cheaply; technology and processes already stabilized	Requires close cooperation between INE and RENAPO; does not cover people below voting age or resident aliens; beyond INE’s mandate
Federated approach	Can leverage CONSAR deduplication infrastructure, so low cost; would help major programs converge on common standards	Requires major programs and RENAPO to coordinate closely and change existing processes; likely to be slowest option

37 See Harbitz, M. and Kentala, K., 2015. Dictionary for Civil Registration and Identification.

standard practices would be required in order to ensure efficient deduplication.

In terms of cost, the previous, aborted attempt at a mass biometric enrollment for a national ID card was at the time projected to cost around US\$250 million. This seems like a fairly low figure on a per capita basis compared to other countries. The cost of variant (a) which does not produce a credential of any kind would clearly be less expensive than variant (b). It is not clear whether the federated, 'bottom-up' approach would cost more or less than option 1. On one hand, an infrastructure connecting program systems to RENAPO would be an additional cost but the cost of enrollment would be somewhat lower since their existing human and physical capital could be utilized and the marginal cost of each enrollment would be lower than in the case of a mass enrollment. At the same time, it is likely to take longer to complete. As noted, Option 2 would be the least costly option.

The potential payoff from such an investment includes savings from the elimination of duplicate or non-existent beneficiaries as well as reduction of fraud. Citizens served by multiple programs would not have to incur the cost of multiple biometric enrollments and would save time on more easily authenticated transactions. It also may facilitate more sophisticated policies which require multiple databases to be cross-checked to determine eligibility. Even doubling the original estimate above and ignoring reduction in spending on functional IDs, the cost would represent less than 1 percent of the social spending budget shown in Table 4 and would decline further as the system stabilized and the initial mass enrollment was completed. This suggests that the investment would likely produce a positive return in a very short period of time.

Finally, it is important to mention that as the system becomes more efficient and interconnected, the need for strong institutional capacity and an appropriate framework for personal data protection will increase. Annex 2 provides comments on the draft legislation on this subject. Beyond the legal framework, the IFAI may have to expand its existing capacity to enforce these laws.



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Annex 1: Illustration of ID and CR system assessment results

	Weaker 1	2	3	Stronger 4
Accessibility <ul style="list-style-type: none"> • Coverage • Cost of access and timeliness • Barriers to access • Enrollment approach active or passive • Updating and linking NID with civil registry 	<p>Minority of population has an accepted ID; poor generally excluded; acquiring ID costly in relative terms and administratively cumbersome. Civil registry unreliable or inaccessible with very low rates of birth and death certification.</p>	<p>Majority of population covered; acquiring ID somewhat costly but government policy can be onerous; civil registry functional but coverage is low, records decentralized, and with significant delays after birth; passive enrollment approach for ID.</p>	<p>Almost universal coverage/access with isolated pockets not covered; civil registry captures majority of births in central registries with minimal delays; obtaining ID and birth certificate or similar legal identity document not costly and proactive efforts to enroll in progress.</p>	<p>Universal coverage/access (including noncitizens, indigenous groups); cost of acquiring ID minimal in relative terms. Good links with centralized civil registry for updates; obtaining ID and birth certificate or similar legal identity document not costly and proactive efforts to enroll in progress.</p>
Robustness <ul style="list-style-type: none"> • Uniqueness • Security • Authentication 	<p>Official IDs are easily falsified and weak enforcement; government and donor programs use proprietary ID to fill gap; no institutional capacity to monitor ID database; authentication process very unreliable/dysfunctional.</p>	<p>Some control of ID issuance, quality control, and database maintenance; mostly paper-based recordkeeping; authentication process unreliable.</p>	<p>Modern technologies employed for ID security features; basic authentication processes.</p>	<p>All IDs deduplicated and in electronic format; very difficult to produce fraudulent IDs. Good authentication standards applied.</p>

	Weaker 1	2	3	Stronger 4
Coherence and Integration <ul style="list-style-type: none"> • Ubiquity • Interoperability • Common transaction standards • Regulated access to data 	<p>Little or no database linkages across programs; high dependence on local knowledge (e.g., community) and references for verifying identity.</p>	<p>A few major programs use a common identification platform; benefits tied to particular locale and not portable. Access to data not or poorly regulated.</p>	<p>Some private and public transactions can be done with single ID; most program MIS linked; authentication standards exist but are weak and vary across programs. Access to data is regulated, enforced, and monitored to some extent, yet more efforts are needed to ensure data protection and privacy.</p>	<p>Most private and public transactions can be done with single ID at national level; same advanced authentication standards used across programs. Vast majority of government MIS can be linked by unique ID or through other mechanism. Regulated access to data that ensures data protection and privacy is effectively enforced and monitored.</p>
Legal Framework and Personal Data Protection <ul style="list-style-type: none"> • Existing provisions • Compliance • Institutional capacity 	<p>Outdated or no legal framework.</p> <p>Ad hoc or nonexistent mechanisms for privacy and data access.</p>	<p>Minimal protocols in place for personal data protection and privacy. Government agency designated as responsible and limited capacity. Weak compliance/enforcement.</p>	<p>Government agency designated as responsible but lacking resources for implementation and reasonable capacity. Most of the internationally accepted personal data protection standards and protocols are followed; mostly digital information on individual records.</p>	<p>Government agency designated as responsible and well resourced, good capacity. Full compliance with internationally accepted personal data protection guidelines.</p>

Annex 2: Comment to the draft data protection law regarding public sector

MEXICO, MAY 2015³⁸

Background

The Mexican Constitution recognized privacy under Article 16 and recently such article has been amended to specifically recognize data protection as a fundamental right.³⁹ Article 16 recognized privacy was conceived to protect individuals in their existing context, but the new environment brought by new technologies, the Internet, and global networks also brought additional risks to individual's privacy. The G-8 e-Forum celebrated in May 2011 also recognized the important relevance of new technologies and the Internet in the society and the role of governments in fostering innovation while protecting individual's privacy.

In 2006, the Mexican Constitution was amended to incorporate the concept of access to information and transparency. Later on in 2009, the Mexican Constitution was amended to introduce the right to data protection as a stand-alone fundamental right under Article 16 and the mandate to the Federal Congress to enact a data protection law. Therefore, in 2010 the Data Protection Law was enacted affecting private sector files.

The present draft law intends to provide a data protection regime for those public sector files including personal data.⁴⁰ The Federal Law on Transparency and Access to Public Information (2003) establishes a clear relation between the right to access public information and the protection of personal data. Therefore, the spirit of the legislator was to allow access to public information while establishing limits to such access and therefore providing for an equilibrium between transparency and protection of personal data.

The draft law is composed by 141 articles, 13 titles, and 26 chapters and the scope of subjects includes files held by political parties, any authority or agency part of the Executive, Legislative, or Judicial, public funds, and any person that received or used public funds or acts on behalf of any authority at federal, state, or municipal level.

The draft law intends also to harmonize data protection related terms adopting the Madrid Resolution issued in 2009 as the Data Protection International Standards. In addition, the present draft law recognizes data protection principles already included in the Madrid Resolution, namely: (i) lawfulness, (ii) consent, (iii) finality, (iv) proportionality, (v) data quality, (vi) transparency, and (vii) accountability. Finally the law also adopts the so-called ARCO rights (access, rectification, cancellation, and object to process for specific purposes) recognized under the Madrid Resolution.

³⁸ The present comments have been provided by Fredes Montes, financial sector specialist taking into consideration international guidelines on data protection and privacy and the context of Mexico as regards to their membership to international organizations and their broad guidelines on data protection. For further clarifications please contact fmontes@worldbank.org.

³⁹ Please see Constitución Política de los Estados Mexicanos (artículo 16.2), 2009.

⁴⁰ At the Federal District level there are 11 specialized laws covering data protection aspects in public files, but there is a need to harmonize such laws.

One of the major questions unsolved these days regarding personal information held by government agencies is if such information should be considered public information or if it should be considered private information held by public authorities. In many jurisdictions this question remains unsolved and so is the case of Mexico.

The World Bank is currently engaged in developing a national identification system for individuals with the ultimate objective of serving as a key enabler to further development particularly in emerging markets. The initiative is known as Identification for Development (ID4D) and within such context there is a need to understand the existing identification databases, its coverage at the national level and reliability, but also the legal framework that enables and limits its use. The following comments are provided taking into consideration such perspectives.

Data Protection Requirements for information held by government agencies

Government agencies are considered data controllers and therefore they are subject to certain requirements regarding the processing of files including personal data.

Purpose for data collection and further processing should be specific, lawful, and legitimate. (see Article 28.1)

Purpose for data collection should be compatible with the purpose for data processing and further use of such data. If specific data has been collected for a specific purpose, it cannot be used for a completely different purpose without data subject's consent. (see art. 28.1)

Data collected should be limited to such data items that are relevant, adequate, and necessary to the purpose established for its processing (see art. 29)

Data Subjects should be informed about the data collection and further processing of such data by the data controller. The information provided should be done through a Privacy Notice and should include the following:

Name of the data controller;

Purposes of data collection, processing, and further dissemination with specific mention to situations that require data subject's consent;

Specific mention to existing data transfers including additional data controllers and purposes for such transfers;

Mechanisms available so data subjects could effectively exercise its opposition right;

Mechanisms so that the data subject could effectively exercise its ARCO rights;

Name and address of the Information Unit;

Website with all relevant information of privacy policies; and

The Privacy Notice could be provided directly to the data subject or through such means of communication that meet the requirements listed above set forth under Articles 31 and 32.

Data Files subject to this law should also be protected by strict data security measures to avoid its damage, loss, corruption, destruction, or unauthorized access and/or processing. In addition data controllers should ensure its confidentiality, integrity, and availability. A security measures document should be issued by every agency holding personal data files.

All data controllers should ensure that data subjects are able to exercise their ARCO rights

Access to their personal data;

Request a rectification (correction) of erroneous data included in the files;

Request the suppression of their personal data from the files. (the law is silent regarding the specific circumstances under which this request can take place).

Data Subject's objection to further processing under the following circumstances:

Under a lawful processing the damage to a specific data subject is greater than its benefit; and
The data subject objects to the processing of such data for specific identified purposes.

Article 55 establishes certain limits to these ARCO rights, such as: (i) data subjects need to be effectively identified, (ii) existence of a litigation that requires such information, (iii) data controller has no accountability over such file, (iv) processing is necessary to protect legal interests, and (v) when processing is necessary to fulfill data subjects' obligations.

Data transfers (both domestic and cross-border) require data subject's consent. Article 65 is clear regarding the need to obtain data subject's consent prior to transfer any piece of personal data, although Article 69 establishes certain circumstances where such consent can be replaced by a Privacy Note. In addition, every data transfer is subject to contractual arrangements between the data controller and user. This contract should include provisions regarding obligations and responsibilities of the parties regarding the processing and further use of personal data. An exception to this provision exists when the transfer takes place between data controllers in compliance to a specific legal provision or in the case of a cross-border data transfer when such transfer is provided in compliance with an existing international convention ratified by Mexico. Other exceptions include: (i) transfer is necessary in the context of an investigation or legal prosecution, or (ii) transfer is necessary for medical diagnostics or provision of health services.

Each data controller should conduct a Privacy Impact Assessment (PIA). According to Article 71, each data controller should evaluate massive processing of personal data included in their files, the purposes of its use, and the public objectives, and in pursuing such objectives identify the data subjects that are going to be impacted by the collection and further use of such data. The PIA should enable authorities to identify the potential risks of operating such files with personal data and seek mitigating measures to those risks. Authorities should complete the PIA within 70 days prior to the date of commencement of the measure that allows for such massive processing of personal data included in government agencies files. The PIA finalizes with the elaboration of a report including all the objectives, scope of data, users, risks, and mitigation measures as well as the mechanisms to ensure the effective provision of ARCO rights to data subjects.

The Instituto Federal de Acceso a la Informacion (IFAI) will create a registry for all public institutions—data controllers that operate a file or multiple files—including personal data. Consultation to this file which enables all data subjects to know if their data could be included in one of these files and to identify the data controller to each file is free.

The IFAI is the authority in charge of the adequate compliance of this law and therefore has specific functions to enable enforcement of this law. The role of IFAI also includes: (i) contribute to its further understanding by the general public and the data controllers, (ii) build capacity among data controllers and data subjects regarding the role of data protection, (iii) identify and define public objectives regarding data protection, (iv) ensure that ARCO rights are respected and enable access to vulnerable groups, and (v) dialogue and coordinate with the relevant authorities regarding their role as data controllers.

Although data protection is recognized as a fundamental human right, it has certain limits which are clearly established under the present law. Article 4 establishes the limits to the data protection which are: (i) national security, (ii) public health, and (iii) third parties' rights.

Conclusions

The law is not clear regarding the potential of further processing and use of personal data held by public agencies by private sector entities. For instance, the role that information on identification of individuals plays in the financial sector and the use of such data by third parties is not clear. According to the Mexican law each case should be subject to a Privacy Impact Assessment. In any other areas it will depend on the existence of MOUs between authorities and the interest of such usage for the individual. Ultimately and in the absence of a specific law, the use of such information for other purposes will require the previous data subject's consent before it is transferred to a third party for its processing.

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