



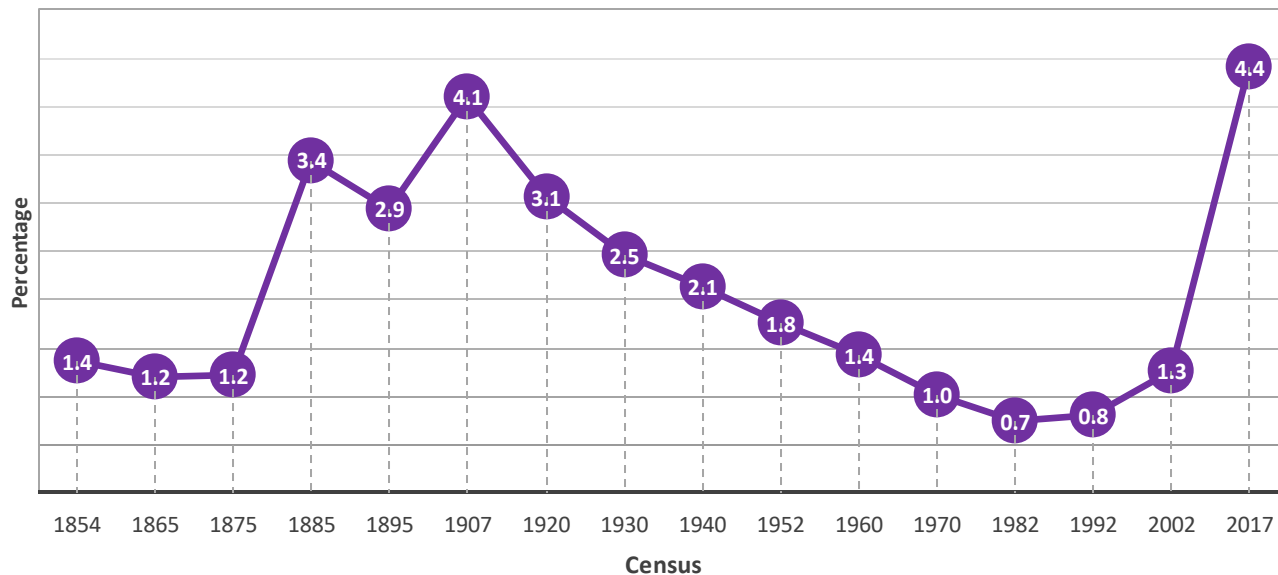
Micro and macro data integration for international immigrations statistics

National Statistical Institute (INE)
Department of Foreign Affairs and Migration (DEM)

July 2024.

CONTEXT 1. DATA SOURCES: Censuses as traditional source for measure Immigration stocks

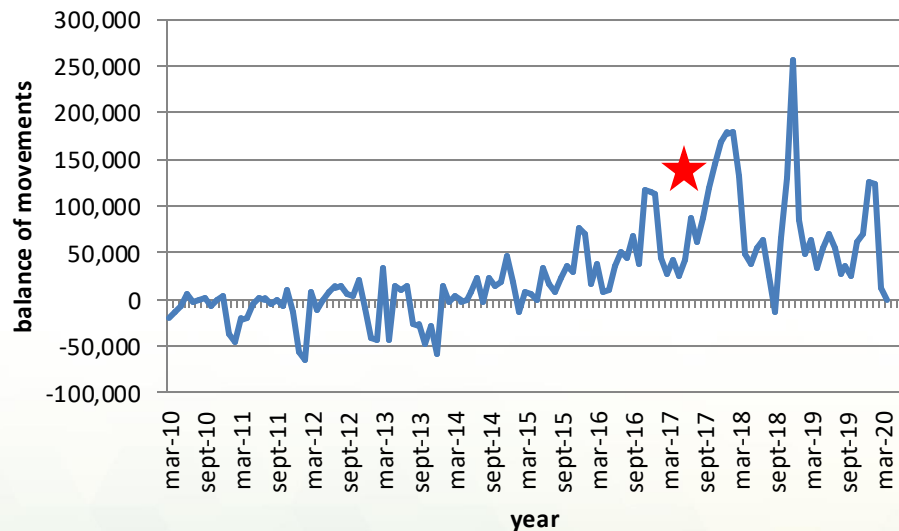
Graph 1. Percentage of the foreign or foreign-born population (1854-2017)



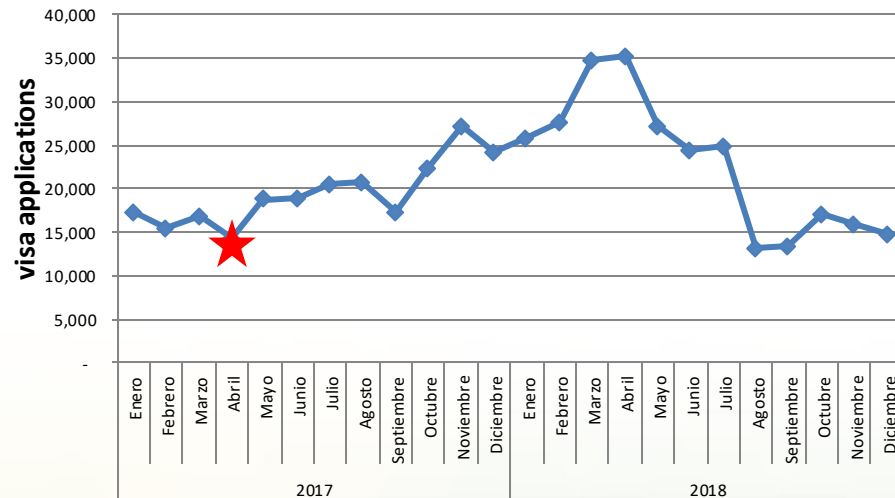
Source: Population and housing censuses 1854-2017

Notes: From 1854 to 1952 the indicator corresponds to the total number of people of foreign nationality over the total number of people registered.
From 1960 to 1982 it corresponds to the total number of people born abroad out of the total number of people registered.
From 1992 to 2017 corresponds to the total number of people born abroad and habitual residents (excluding passers-by) out of the total of the habitual resident population.

Balance of entries and exits to the country (2010-2020)



Applicants for residence permits (2017 – 2018)



1. Significant increase of international immigration after census
2. Different official figures for the stock of immigrants in Chile in 2018
3. Need for information to generate public policies

Data sources: administrative data for measuring regular immigration flows

There are at least four institutions involved in the management of the migratory flow, which has led to databases with varying concepts, objectives, and quality.

SERMIG

National Migration Service (Ministry of Interior)

Visa registry in Chile

expiration of tourism extension permit

MINREL

Ministry of Foreign Affairs

Consular visa registry

PDI

Investigations police

Border control registry

Police reports

Place of residence**

SRCeI

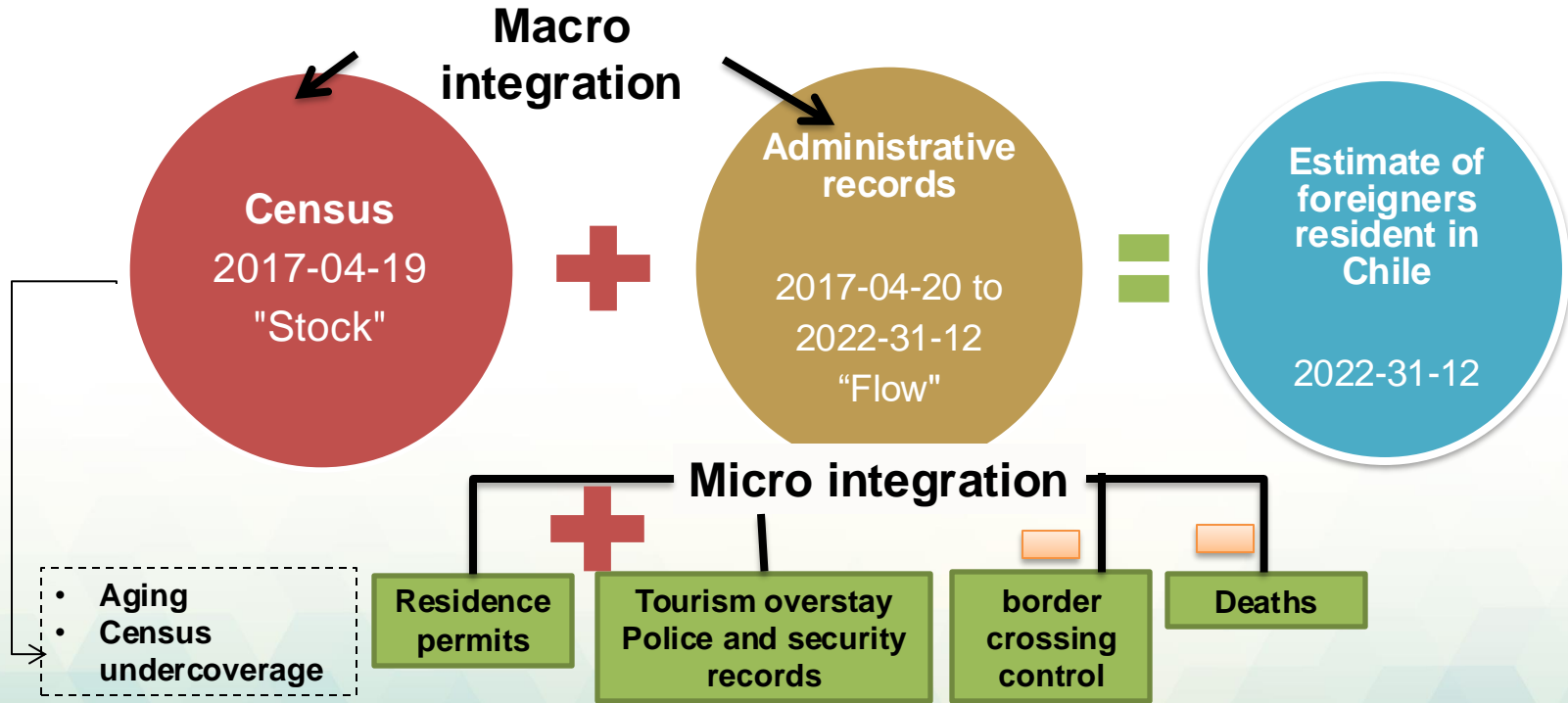
Service of Civil Registration and Identification

Registry of vital events (births, deaths, marriages)

Identification number: RUN

** for cases of visas requested outside the country

Methodology for estimating foreigners residing in Chile (2022)





$$782,495 \text{ (48,2\%)} + 735,356 \text{ (regular)} + 107,223 \text{ (irregular)} = 1,625,074 \text{ (100\%)}$$

Linking variables for micro level



The Unique National Role, also known by the acronym RUN, is the unique and unrepeatable identification number that every Chilean has, whether resident or not in Chile, and **every foreigner who remains, temporarily or permanently, with a visa other than the tourist visa in Chile.**

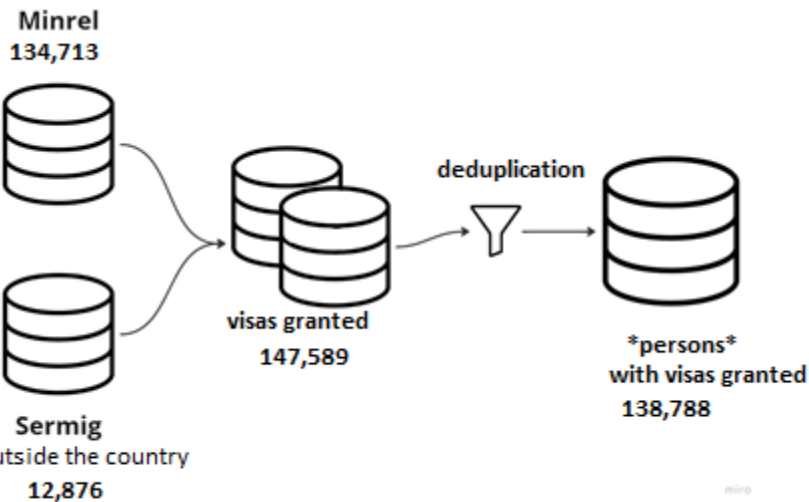
For foreigners without RUN, these are key variables for identification and deduplication:



Linking process: stage 1- visa applications requested abroad



This section consolidates the data on consular visas granted between 2017 and 2022 from Minrel, and the base of temporary residences granted outside Chile from Sermig administrative records.



	Deterministic combinations (14 total)	Filtered rows	Total weight
1	Full name, passport and date of birth	7,711	87.6%
2	Full name, country of origin and date of birth	764	8.7%
3	Surname, passport and date of birth	123	1.4%
4	Names, passport and date of birth	59	0.7%
5	Full name, passport, day of birth and month of birth	37	0.4%
...
	Total rows filtered:	8,801	

Linking process: stage 2- visa applications requested within country

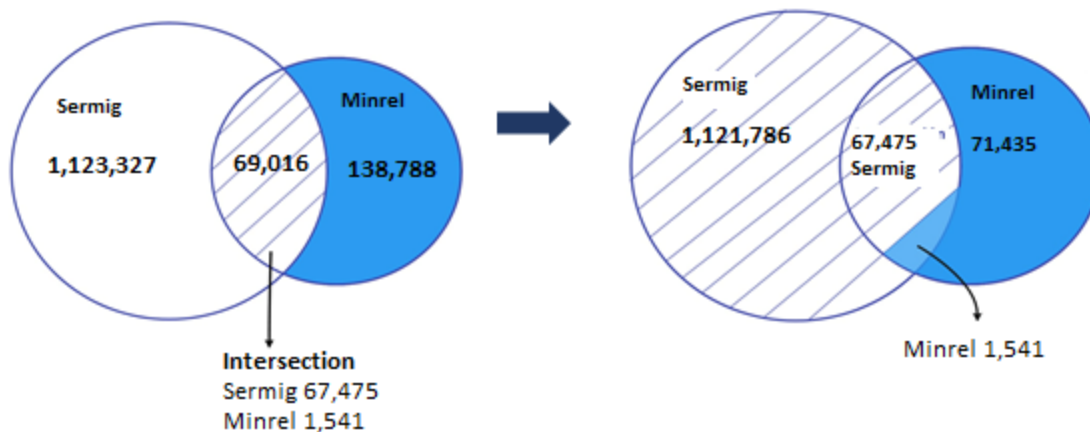
This part of the estimate of foreigners in Chile is carried out with the data that comes exclusively from Sermig, corresponding to the administrative records that maintain their first act after the 2017 Census.

In total, this database contains 10,062,876 administrative records, which must be transformed into persons, after subtracting the 8,939,550 duplicate files, a base of **1,123,326 foreign people**

	Filter criteria	Filtered rows
1	Foreign code (ID-Sermig)	7,499,336
2	Full name, date of birth and nationality	12,756
3	filter the date of the first act until December 31. And after the 2017 Census	1,427,458
	Total filtered rows:	8,939,550

Linking process: Stage 3. Union

With the purpose of consolidating the databases of foreign people who may be within Chilean territory
The Minrel base and the Sermig base are united in a large database of people.



Finally, this base of 1,193,221 people is the final record that is sent to the PDI to know their last border movement.

Linking process: Stage 4. Border crossing checking

The main objective of this stage is to attach to each of the migrants the last border movement registered in the PDI information system.

-Stage that corresponds to an internal process that carries PDI, and is carried out with the SQL programming language.

Percentages of linking Sermig and Minrel administrative data with PDI border crossing data, by estimation year

	Sermig	Minrel	Total
2022	93.3%	80.6%	92.4%
2021	93.7%	72.2%	91.1%
2020	94.0%	75.6%	91.7%
2019	93.7%	47.7%	88.5%
2018	92.6%	78.9%	91.8%

- **Unpacking the methodology:** Need to discuss the procedures that are currently in use in the construction of official Statistics, considering the quality of the administrative records and the possibilities of use of their key variables (unique identifiers, names, surnames, dates of birth, etc.). The estimation of foreigners residing in Chile is an example and opportunity to do so.
- **Database integration:** the integration of administrative records, to deduplicate people, must be done within a methodological framework that establishes its scope based on the result that is intended to be achieved (deterministic methodology), as well as the limitations (programming languages, infrastructure processing computing).
- **Challenges:** the methodological framework of the estimation serves as an example to show the integration of administrative records, and its potential to integrate other administrative records that allow estimating in the most adequate way possible the current migratory reality in Chile (e.g.: migratory irregularity), being sensitive to the inclusion of different population groups (migrant children and adolescents).