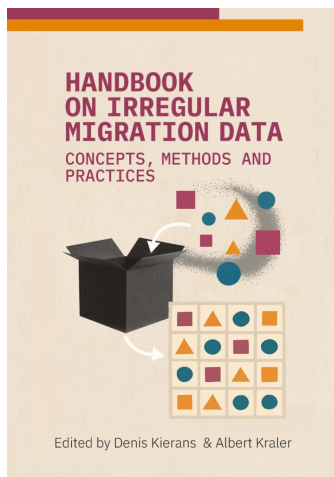




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Box 6.1: Metadata in the context of migration

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Metadata, data about data that offers context rather than direct description, can, in the context of migration, though not originally intended for migration research, serve as valuable indirect indicators of irregular migration patterns, behaviours, and trends. In this way, metadata can act as a complement to traditional sources like surveys, censuses and population registers to enhance our understanding of this complex issue. Like everyone else, irregular migrants leave traces of their presence within a country, especially in today's highly digital and technologically mediated environments. Whether making purchases,

applying for a driver's license, visiting a doctor, responding to a government survey, or logging onto social media, irregular migrants generate records that document their presence—often without their knowledge or intent. To better understand the population size of irregular migrants, as well as their needs and living conditions, researchers can tap into the data generated by such interactions, in combination with official data. Essentially, this viewpoint aligns in part with indirect demographic methods but extends beyond them by embedding the indirectness within the data itself, rather than relying on underlying assumptions or parameters.

Box 6.1: Metadata in the context of migration

Alejandra Rodríguez Sánchez

Metadata refers to data about data—information that provides context, structure, or insight into how data is produced, rather than describing the subject directly. In the context of migration, metadata includes digital traces such as social media logins, geolocations, IP addresses, mobile network records, and internet searches. These data can signal movement patterns, border crossings, or changes in residence. Though not originally intended for migration research, such metadata—often derived from social media platforms, telecommunications networks, or administrative systems—can serve as valuable indirect indicators of irregular migration flows, behaviours, and trends. Even traditional sources like censuses, population registers, or household surveys can be viewed through this lens, offering a way to connect diverse data approaches and better understand the complex challenge of estimating irregular migration.

Mixed approaches combining direct and indirect data on migrants

The presence of irregular migrants is generally unknown to authorities. Contact between irregular migrants and immigration authorities may occur through various means, such as encounters at entry points using forged documents, random border checks, sea rescues, police operations, or interactions with other government agencies. However, the completeness of data collected through these operations has been criticized for relying heavily on the number of border personnel, thereby conflating enforcement activity with the actual presence of migrants (Savatic et al., 2024).

Population registers are another important source of official data on migrants. A key example is Spain's

registration system, known as *empadronamiento*, which all residents are required to complete to access social services (Eniquez, 2019). However, due to recent legal changes, many irregular migrants may choose not to register, limiting the coverage of this data source, thus highlighting the voluntary aspect of participation (Velasco, 2021). Additionally, the use of data from registration systems is often restricted by data protection laws, which can prohibit the use of personally identifiable information or prevent the lawful matching of records across systems.

One of the most common ways researchers gather information on irregular migrants is through