

Constructing new demographic dataset for foreigners in Italy: Record linkage on administrative sources

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Introduction

Since the last census in 2001 the number of foreigners in Italy increased rapidly: today they represent almost 7.2% of the total population (ISMU 2009). About 4.5 million foreigners are assumed to be living in Italy at the beginning of 2008 regardless of their legal status. How much information do we have about them? How do they behave? What are their characteristics? Only the *Sample Survey on Labour Force* started to provide information on foreign workers in 2004. The other official sample surveys are not generally representative for foreigners (Strozza and Cibella 2006). These difficulties increased the demand for reliable administrative records as sources of statistical information on migrants especially if the focus is on demographic behaviors.

The main administrative data on foreigners in Italy are collected by municipality and recorded by Istat (Favazza and Sorvillo 2006). Using the *Survey on Live Births*, we obtain information on new births, parents and main details of the head of the household. Information on deaths in any given year, including the cause of death, can be found in the *Survey on Deaths*. Only a small sample of the foreigners is represented in this survey because of their age structure. *The Survey on mobility* records the number and characteristics of people who move from one municipality to another, or to/from abroad. The information about spouses is collected by the *Survey on marriages*. Data on *residence permits* are provided by the Ministry

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of the Interior, and recorded by ISTAT. Besides, every ten years the National Institute of Statistics collects a large number of information on foreigners using *Population census*.

Considering these sources we have the possibility to study only a specific characteristic or behavior of the foreigners but it does not surmount the limits on the information system about foreign population in Italy because it does not allow us to study more than one aspect simultaneously.

To overcome these limits in the data and to give proper importance to the information from administrative sources we have implemented record linkage between these different datasets. Our main interest is to link the fertility behaviors with the migration history hence, we will focus on the births and on the resident permits registers.

The main novelty of this work is the use of stock data from administrative registers to construct a longitudinal dataset that includes information on births and migrations in a determinate interval of years. This information was missing until now in the Italian context. The possibility of recovering information allows us to analyze the risk of having one or more children in the period considering also the migration history. The aim is to show problems, strategies and results of the record linkage procedures and possible applications of the new dataset.

Data and Methods

The data used come from the *Survey on Live Births* of the resident population and from the *residence permits* of the Ministry of the Interior in Italy. The first are recorded in the Municipal Resident Population Registers and collected by the Italian National Institute of Statistics (Istat) since January 1999. The individual form used (named P4) includes little information on births (date and place of birth, citizenship), parents (date and place of birth, citizenship, and marital status) and the main details of the head of the household. These surveys allow us to obtain detailed demographic information on all births at the municipality level. We considered the period 2002-2006 because from this period the survey is more reliable and well-established and the number of births from foreign mothers is higher and more important.

The data on residence permits are available from 1992. They include information on the demographic (sex, age, civil status, citizenship) and on the migration (date of arrival, duration and reason of the permits) characteristics of the foreign population “present” in Italy. For these data the information is collected by province because this is the smallest administrative aggregation for Police headquarters. We are interested in studying the period 2001-2006.

We use record linkage techniques to identify the same individual, object or event in different databases using common characteristics and the information available in the single files (Fellegi and Sunter 1969). These techniques are particularly useful for migration studies where the data are sparse as they can improve the existing data by enhancing and integrating administrative sources. For the record linkage technique we have to use unique identifiers and deal with their possible errors or to construct identifiers of our own (Winkler 2001). We did not have unique identifiers available so we constructed different *keys* with the aim of correcting typing errors on the form. Deterministic and probabilistic strategies are tested in this paper.

First results

In the first step of our analysis we individualize births from the same mothers by period, using record linkage techniques. The aim of this procedure is to identify the same woman in different years and to acquire information about the mothers and their children. At the end of the procedure we have 283,700 births coming from 252,330 foreign-origin mothers. By reconstructing the fertility history of immigrant mothers in the period considered we can use the results of the record linkage as panel data. The new information that we received from the record linkage allowed us to study the timing of one or several births. To sum up, the aim of the record linkage was to create a dataset of mothers on the basis of events obtained from a dataset on births. In this way each mother is linked to all her births during the period 2002-2006. In a second step we are establishing the link between the reproductive history in the short term, already individualized, with the migration information from the residence permits. These results will be available in time for the PAA meeting. Using this new dataset we will be able to study the risk to have a first birth and the timing between two births in Italy. Particular attention we will give to the impact of citizenship and migration history on the choice to have another child.

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