Estimating continuous local and regional historical populations from marriage records. A case study in the Barcelona area, 1451-1860

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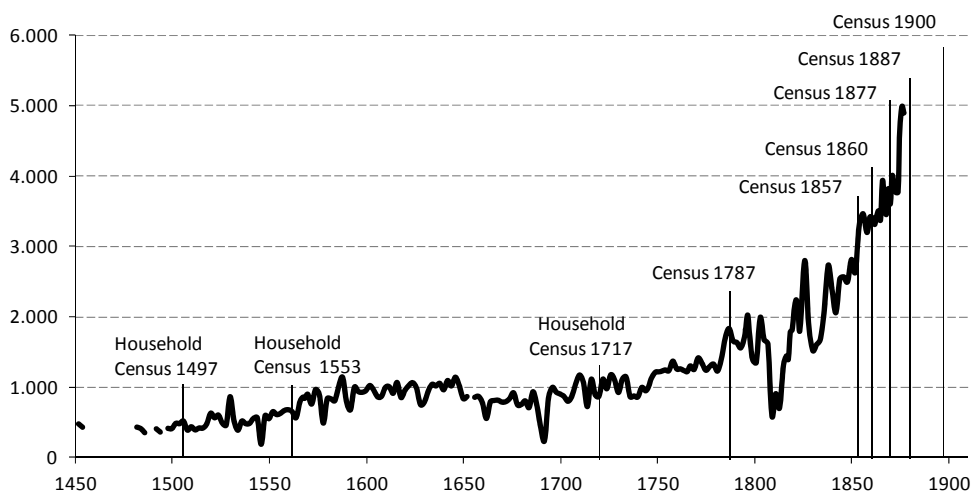Miquel Valls (mvalls@ced.uab.es)

Abstract

Introduction

Ancient censuses are scarce or non-existent in most countries before the 19th century. Estimating past populations is thus a necessity for many historical research purposes. The *Barcelona Historical Marriage Database (BHMD)*, built through the on-going ERC Project *Five Centuries of Marriages,* provides a continuous series of marriages for 90 parishes in Barcelona and its surrounding area that can be used in population estimates under the assumption that marriage rates are constant in time and space in the limits of our study.

The BHMD gathers the information on over 610.000 marriages celebrated in over 250 parishes of Diocese of Barcelona between 1451 and 1905. We will refer as Barcelona area the 90 parishes of the Oficialitat de Barcelona, representing 90% of the total population and offering reliable continuous data from 1481 to circa 1880. Data after 1880 need revision to assert the coverage.

The following graph shows the chronology of marriages in the Barcelona area. Assuming constant marriage rate, the population trend would look exactly the same. Vertical lines show the moments at which censuses and household censuses were taken.

Graph 1. Marriages, 1450-1880

In the present contribution our goals are three: a) discussing the ideal *fixed marriage rate* to be used as a tool for estimating populations; b) estimating the yearly populations of each of the 90 parishes from 1720 to 1860; c) and producing continuous population estimates for the city of Barcelona and for the whole Catalonia since 1451.
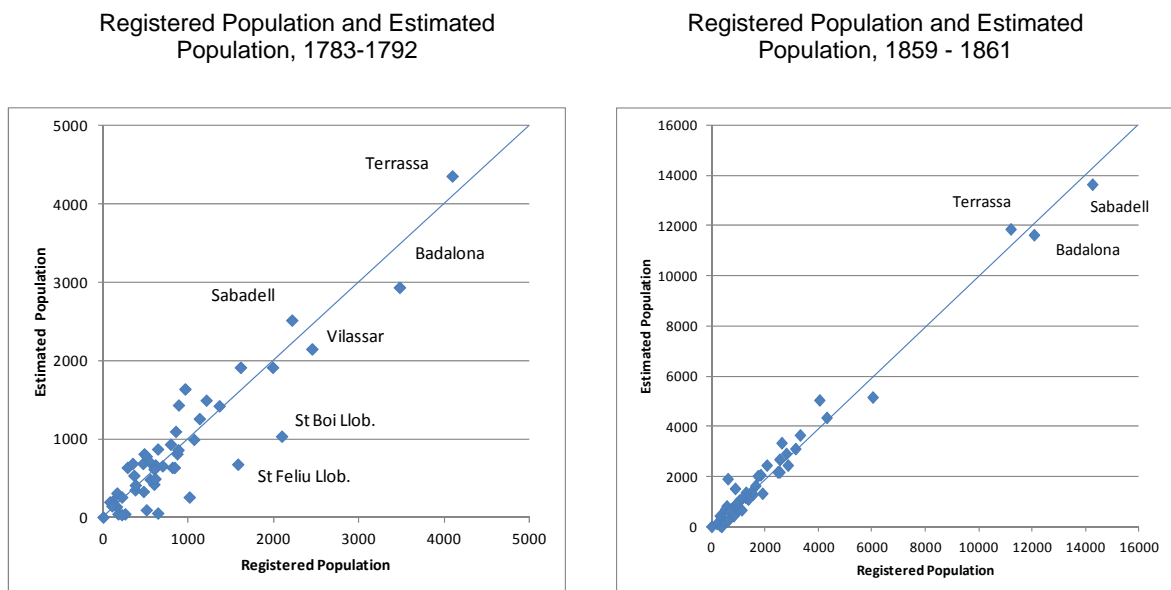

1. Discussing marriage rates in time and space and picking the convenient technical *fixed marriage rate*

Observed marriage rates have been calculated for the area using the population figures from the censuses of 1787 and 1860. These rates have been applied then to the average yearly marriages in each parish; the populations so estimated have been compared to their counterparts in the Census, showing striking coincidence (see Graphs 2). Thus, the assumption of spatial homogeneity has been easily accepted.

As for time variations, rates calculated at every census from 1787 to 1970 (not shown here) show that marriage rates do not sensibly differ from 9 per thousand, with no visible time-trend until 1970, when it drops dramatically. We discarded the idea of having an marriage rate moving with time and decided in favor of a 9 per thousand *fixed marriage rate* to be used for all estimates.

By marriage rate we understand the average number of yearly marriages in a given population related to de average population or the population at the middle of the year. Marriages of reference include all marriages, irrespectively of former marriage status of the spouses. Contrary to expected rates calculated on the basis of never-married persons, besides being more complex to calculate, showed more fluctuations and worse estimating properties. In this case, the simpler was the better.

Graph 2 Registered Population and Estimated Population.

Registered Population and Estimated Population, 1783-1792

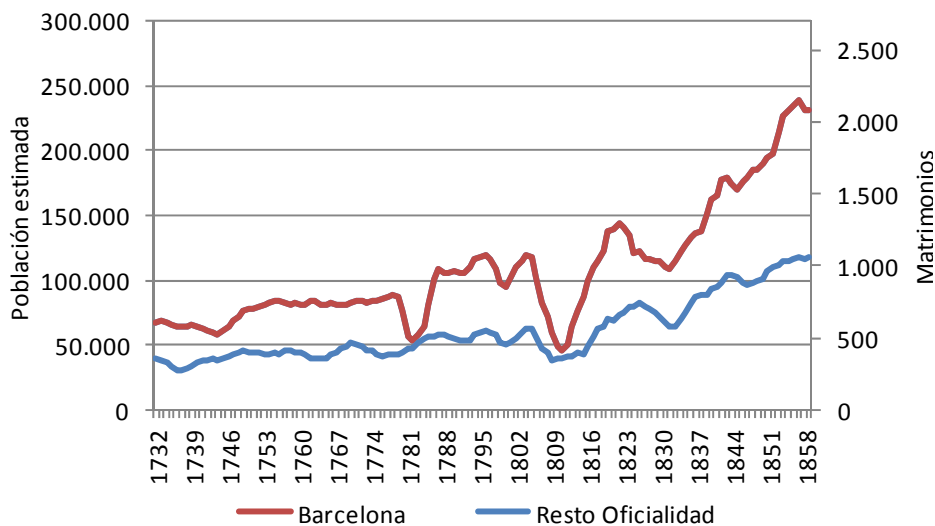Registered Population and Estimated Population, 1859 - 1861

2. Estimation of local populations, 1720-1860

All local populations have been estimated from 1720 to 1860, because parish assignation was unclear before 1720 and frequent censuses were available after 1860. Time-trends been analyzed in search of consistency. Results are shown in maps and graphs.
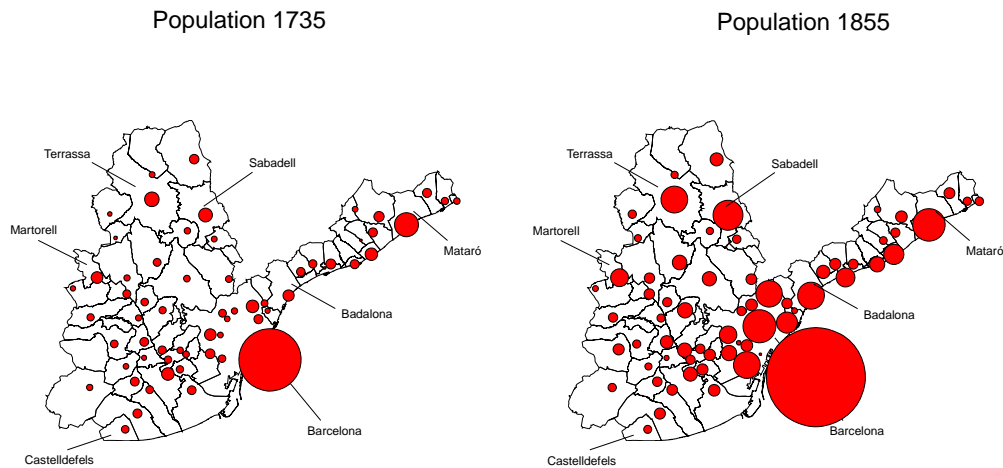
Graph 3 show the time trends in the city of Barcelona and in the rest of the area. Moment fluctuations are consistent, as well as relative growth.

Graph 3. Estimated Population. Marriage rate 9 per thousand. 5 years moving average 1730 – 1860

Graphs 4 and 5 show, as a sample, the relative populations sizes of the municipalities at the beginning and the end of the period under study. Maps have been produced for every 5 year period and will be shown in the presentation at EPC as a moving sequence, where the effects of the invasion by the Napoleon's armies in 1808 appear very clearly, consistent in their local differences with well documented historical facts. The effects of protoindustrialization and industrialization are also clearly visible. This completely new information will be very useful in geographical and urban studies about the emergence of the contemporaneous metropolitan city.
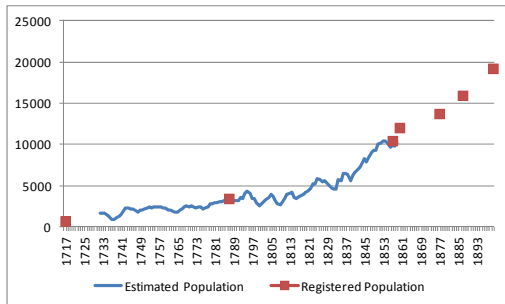
Graph 4 and Graph 5. Population 1735 and 1855
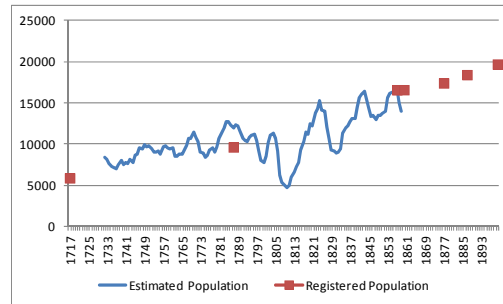
Population 1735

Population 1855

Graph 6 shows the continuous population estimates for the cities of Badalaona, Terrassa, Sabadell and Mataró, the largest in the area besides Barcelona. As it has been pointed above, the very destructive effects of the war in the city of Mataró are easily perceived. The dots in the graphs show the existing census data for these municipalities and make evident how much more information can be available through our method.

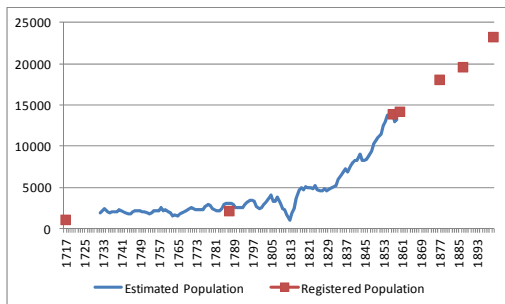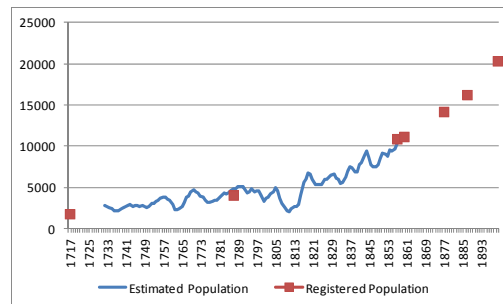Graph 6. Registered Population and Estimated Population, 1717 - 1900

Badalona

Mataró

Sabadell

Terrassa

3. <u>Estimating populations for Barcelona and for Catalonia since 1451</u>.

The rough historical data available from historians since the 15th century suggest a surprising stability, until 1860, in the proportions between the city of Barcelona, our area of study and the whole Catalonia. Therefore, since the Barcelona Historical Marriage Database starts in 1451, we are presently estimating continuous populations for Barcelona and Catalonia. Comparison of provisional results calculated through marriages with occasional population data mentioned in literature promise quite satisfying results.

This part of our contribution is still in construction, needing some extra checking and verification of the entire database.

Results will be shown in the presentation at the EPC as an extra, only if relevant and credible.