

# **Sex Ratio among the Oldest Old. The Effect of Differential Mortality between Italian Regions.**

Domenica Rasulo\*, Graziella Caselli\*\*

\*Office for National Statistics, London (UK)

\*\* Department of Demographic Sciences, University of Rome “La Sapienza” (Italy)

CONTACT ADDRESS: Dr. Domenica Rasulo  
Office for National Statistics  
SW1V 2QQ London (UK), tel.: +44 (0) 20 7533 5106  
[domenica.rasulo@uniroma1.it](mailto:domenica.rasulo@uniroma1.it)  
[domenica.rasulo@ons.gsi.gov.uk](mailto:domenica.rasulo@ons.gsi.gov.uk)

## Research Issue

So far studies have explained the centenarian sex ratio by assessing separately the male and female mortality instead of evaluating how they jointly contribute.

This study aimed to fill this gap by decomposing a difference in female ratio (FR) at age 99 in sex differentials in mortality. The analysis was carried out on cohorts 1891-1892 and involved two Italian regions with a low FR (Calabria and Sicily) and two regions with a high one (Veneto and Lombardy). The variation in FR was explained through the male and female mortality from age 60 to age 99.

## Data

Data were represented by population figures of cohorts 1891-1892 and their probability of dying from age 60. The probability of dying between ages 60 and 99 were computed using the method of extinct generations.

## Methodology

Life tables by sex and region from age 60 onwards were computed. The female ratio used for the decomposition was given by the product of the female ratio at baseline and the person-years ratio at age 99. The comparison between the predicted female ratios and those observed at age 99 indicated that the estimates were very close to the real ones.

The decomposition method, which was applied on each difference between the southern and northern regions, provided the effect due to the sex composition at baseline and sex differentials in mortality between ages 60 and 99.

## Outcomes

Although the difference in FR between the southern and northern regions is pretty similar, distinct factors account for the deviation of Calabria and Sicily from Lombardy and Veneto. While the lower sex ratio in Calabria is mostly due to the higher survival of men, the magnitude of Sicilian ratio is also attributable to the female mortality. In particular, when comparing Sicily to Veneto, the higher mortality of Sicilian women represents the main factor lowering the difference.

The decomposition proposed appears to be a relevant instrument to explain how sex ratios with similar magnitude might result from opposite dynamics.