

PAA 2011

Session 1: 1103 – Cases Studies in Applied Demography

Session 2: 408 – Adult mortality

Understanding the Gap between Females and Males in Life Expectancy in Cuba.

Madelín Gómez

Centre d'Estudis Demogràfics. Spain

Esther María León

Population and Development Studies Centre,

National Statistics Office. Cuba

Short abstract

The paper analyzes the case of Cuba, who experienced high life expectancy (80 years old for females and 76 years for males in 2006) but lower sex differential. Who is the responsible for this pattern of the sex differential, is it because males are doing better and catching up female's survival, or is it because females are worsening theirs? Given the increasing importance of mortality at older ages to the life expectancy, we also explore what had happened in the sex differential after age 60, and the contributions of the main causes of death.

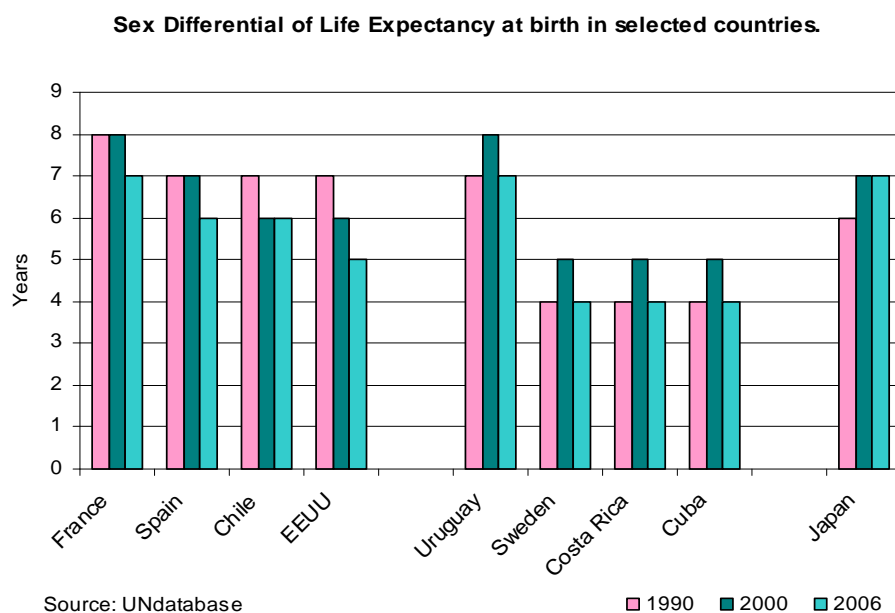
Data of population and specific death rates published by National Statistic Office and Public Health Ministry of Cuba will be used. We will apply the decomposition method (Shkolnikov et al, 2001) to determine the role of age and cause specific-death rates over the sex differential in two periods in time, from 1986 to 1996, and 1996 to 2006.

Introduction

The substantial increase in longevity over the last 20th Century in the developed world was in first place due to the decline in infant mortality, who experience a noticeably drop. As life expectancy at birth is an average a measure of what happen on mortality through all ages, while infant mortality decrease until very low levels, the gains in life expectancy start depending more on what is happening with mortality at older ages.

Life expectancy differs markedly between sexes, depending on the evolution of mortality patterns of males and females. The sex differential in life expectancy at birth has been increasing, favouring females during the last 20th Century with around 5 to 8 years more of life expectancy, mostly observed in the developed world. Nevertheless, some of these countries experienced a reduction or stagnation of this indicator by the end of the Century.

Graph 1 depicts the trend of the sex differential for selected countries for the years 1990, 2000 and 2006. We can observe 3 main groups with specific behaviour in this indicator. First group shows a decline in the indicator from 8 or 7 years of difference to 7 and even 5 years. Second group face first an increase in the sex differential, followed by a decline for the last year observed. Stand out Uruguay with high sex differential, at same levels of France and Japan. Cuba is among this second group, along with Sweden and Costa Rica, who reveals low levels of 4 or 5 years of sex differential in the life expectancy. For the last group only Japan was selected, who is the record life expectancy in the world, and present high level of sex differential with first an increase, followed by stagnation in 7 years.



We then arrive to some questions regarding this issue: *Why is Cuba facing an increasing life expectancy, especially in women, with a trend of a stagnation or decline in the sex differential at low level? Who is the responsible for this decline, is it because men are doing better and catching up the women in terms of survival, or is it because women are worsening theirs?*

Background

The epidemiological transition theory explains that mortality patterns have several states in his evolution. From a state of predominance of infections and parasitic diseases to a stage where chronic and degenerative becomes predominant (Omran, 1971).

Afterwards, Rogers and Hackenbert (1987) has emphasized that risk behaviours and lifestyle could also determine large proportion of death in contemporary high income countries, resulting in a mixed of mortality patterns from different stages.

Trovato 2005, shows that there is a decline in the sex gap due to convergence in causes of death, with a decline of men's deaths due to accidents and violence, lung cancer and suicide and consequently an improvement of male survival.

In order to answer the questions previously mentioned, we are going to study the case of Cuba, which is a developing country who has reached a low level of infant mortality with 6.3 per thousands births for 2001-2003 and a life expectancy at birth of 80.02 for women and 76.00 for men in 2005-2007 (total life expectancy of 77.97).

With the sharp decline in infant mortality, Cuban life expectancy faced a steady increase until 70 years of life expectancy in 1970, 10 years after Japan reached it (who has nowadays the record life expectancy of the world). The trend was to a slow but continues rise up to 77 years old in 2000 (thirty years later), while for the case of Japan reach it in 1980 (20 years later).

Cuba begins 20th Century with a total life expectancy of 37.7 years (1900-1904) and a differential by sex of 3.96 years (González and Ramos, 1996; López, Albizu and Gran, 2005), remain lower than 4 years during almost the entire Century. In the first half of the Century the mortality patterns was predominantly of infectious diseases (especially higher for women), while later on was driven by non-infectious diseases (since 1946) with a disadvantage for men.

After the Cuban Revolution in 1959, women took an active role in the transformation of the society, with an increase in the labor force participation and the search for equity among sexes. Moreover, it also leads to share similar behaviours and risk with males, for instance smoking tobacco (which has increase especially in females until 2006 with 16 % of women and 14% of men). This factors could possibly lead to a worsening in female survival for causes that previously did not affect them, while at the same time, the improvements in the health system could had a positive effect in the male survival.

Results from López, Albizu and Gran (2005) show that there was a higher progress in survival of men compare to women in the last two decades of the 20th Century, which leads to maintain the lower sex differential observed before.

In the first decade of the 21st Century, it was observed an increase in the life expectancy, but at a lower pace, reaching 80 years for women and 76 years for men in 2005-2007 with a differential by sex of 4 years.

Objective

Focusing on the low sex differential in life expectancy at birth that Cuban population shows over time, the main objective of this paper is *to analyse the contribution of the difference in mortality patterns by sex to the life expectancy over the last two decades of the last Century and the first decade of 21st Century*. Contributions of the main causes of death by sex will be use to decompose their effect in the sex gap at three specific points in time (1987, 1996, 2006).

Given the increasing importance of mortality at older ages to the improvements in life expectancy, we will also explore for the same period of analysis, what had happened in the sex differential after age 60, and the contributions of the main causes of death.

It should be notice that the period under study represents three cut points stages, before, during and after the economic crises that Cuba faced during the nineties. Did these facts have an influence on the trend of life expectancy in Cuba? We will look at the changes in the contributions of mortality to the life expectancy for 1987-1996 and 1996-2006.

Data and Methods

Data of population and specific death rates by sex in yearly basis published by National Statistic Office and Public Health Ministry of Cuba will be used. We will apply the decomposition method (Shkolnikov, Begun and Andreev, 2001) to determine the role of age and cause specific-death rates over the differences observed between sexes in the life expectancy and in two periods in time.

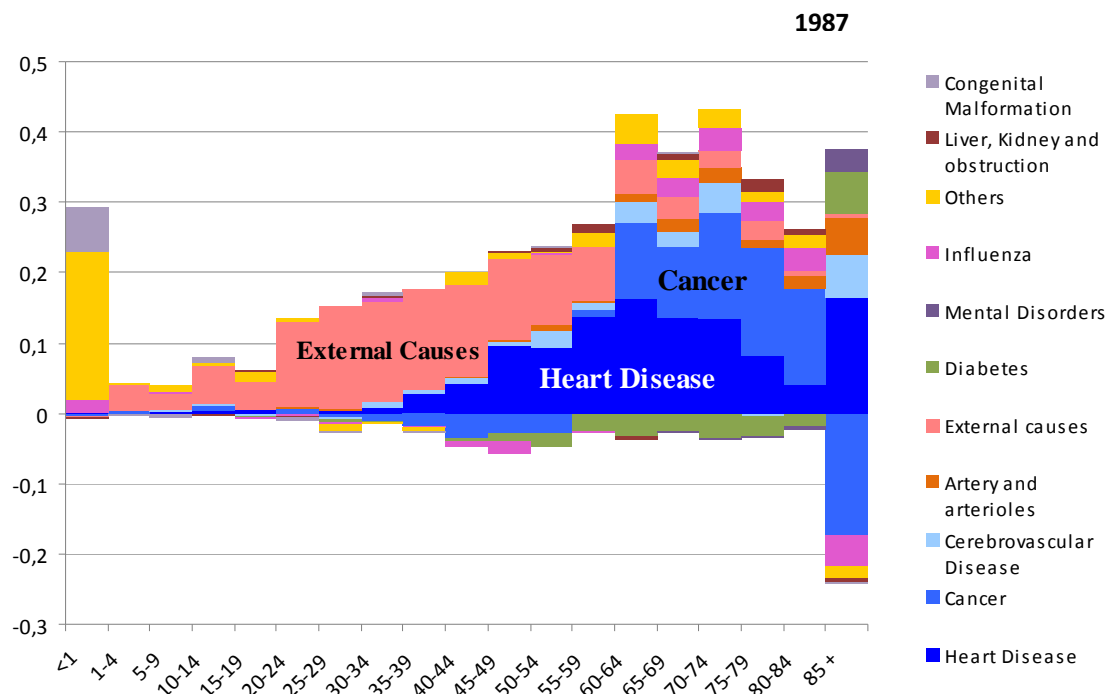
The method allows us to split the difference between life expectancies, in our case we are going to analyze differences in females and males for 1987, 1996 and 2006; and differences in 1986-1996 and 1996-2006 in each sex.

Preliminary Results

Our first result is the decomposition by age and specific-causes of death of the sex differential of 1987 (Graph 2). The graph depicts how is the contribution at each age to the differential of the life expectancy, showing a predominance of the higher survival of

women for almost all age groups, except for their disadvantage specially at adult ages due to Cancer and Diabetes, and strongly effect of Cancer at 85 years and over.

Graph 2. Decomposition of the difference in Life Expectancy at birth between females and males by causes of death and age, 1987.



Males present a disadvantage particularly for external causes, which is predominant at young ages but also affecting the adults until age 60, heart disease and Cancer.

Further steps show the change in this behavior for the year 1996 and 2006, where the infant mortality markedly drops his contribution, and it concentrates in older age groups.

References

- González F. and Ramos O. (1996) "Cuba: Balance e indicadores demográficos estimados del período 1900-1959" CEDEM y ONE. La Habana.
- López L. M.; Albizu-Campos J. C. and Gran M. A. (2005) "Evolución del diferencial por sexo de la esperanza de vida al nacer. Cuba, Siglo XX". Rev. Cubana de Salud Pública; 31(3): 182-91.
- Nathanson C.(1984) "Sex Differences in Mortality" Annual Review of Sociology, No 10
- Rogers and Hackenbert (1987) "Extending Epidemikologic Transition Theory: A New Stage". Social Biology, No. 34.
- Shkolnikov M.; Begun A. and Andreev E. (2001) "Measuring inter-group inequalities in length of life". Genus, LVII, No. 3-4.
- Trovato F. (2005) "Narrowing Sex Differential in Life Expectancy in Canada and Austria: Comparative Analysis." Vienna Yearbook of Population Research, pp. 17-52.