### Regression: calculation and interpretation

**STATISTICS**

13

**Life expectancy at birth**

What is life expectancy at birth? Do you think it is the same for men and women? What do you think is the gender gap?

Life expectancy at birth is the average number of years that a person would expect to live if the mortality pattern by age (death rates for each age) currently observed is maintained. Life expectancy is the most widely used indicator to make comparisons on the incidence of mortality in different populations and, based on this, on health conditions and the level of development of a population.

The gender gap (women-men) is the difference in years between the life expectancy of men and that of women.

We have obtained the following data from the INE regarding the life expectancy at birth in Spain from 1991 to 2013.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Change in life expectancy at birth in Spain and the gap difference in genders | | | | | | | |
|  | Men | Women | Gender difference |  | Men | Women | Gender difference |
| 1991 | 73.5 | 80.7 | 7.2 | 2003 | 76.4 | 83.0 | 6.6 |
| 1992 | 73.9 | 81.2 | 7.3 | 2004 | 77.0 | 83.6 | 6.6 |
| 1993 | 74.1 | 81.2 | 7.1 | 2005 | 77.0 | 83.5 | 6.5 |
| 1994 | 74.5 | 81.6 | 7.1 | 2006 | 77.7 | 84.2 | 6.4 |
| 1995 |  | |  | 2007 | 77.8 | 84.1 | 6.4 |
| 1996 | 74.6 | 81.8 | 7.2 | 2008 | 78.2 | 84.3 | 6.1 |
| 1997 | 75.2 | 82.2 | 6.9 | 2009 |  | |  |
| 1998 | 75.4 | 82.3 | 6.9 | 2010 | 79.1 | 85.1 | 6.0 |
| 1999 | 75.4 | 82.3 | 6.9 | 2011 | 79.3 | 85.2 | 5.8 |
| 2000 | 75.9 | 82.7 | 6.8 | 2012 | 79.4 | 85.1 | 5.7 |
| 2001 | 76.3 | 83.1 | 6.8 | 2013 | 80.0 | 85.6 | 5.6 |
| 2002 | 76.4 | 83.1 | 6.8 |  |  |  |  |

It represents the data referring to men and women in the same points diagram. What can you say about the evolution of life expectancy for each gender? What can you say about the evolution of the gender gap data?



**1**

Draw a line that passes through the point cloud of activity 1, for both men and women. Then enter the data in your calculator for and get the equations of the lines that you have drawn.



**2**

These equations are an algebraic model of the relationship between the years of birth and life expectancy at birth. Could you use the equations you have obtained to predict what life expectancy was at birth in 1995 and 2009 for men and women? And to predict life expectancy at birth in 2029? And in the year 2063? justify your answer.



**3**

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