

# Analysis of Life Expectancy and Mortality Rate in Western Balkan Region Projections for Albania

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## ABSTRACT

During the last decade Western Balkan countries have experienced a visible economic and demographic movement which has also affected the Mediterranean countries and western part of Europe. Referred to the World Bank economic report (Fall 2018), in most of the Western Balkan region, growth projections for 2018 have been revised upward. Notwithstanding this development there has been a tendency of WB population to move towards Western Europe and North America. Especially after the word crisis in 2000, the situation in the field of economy, politics, justice, health, education and social policy has undergone important changes. Also, involvement of some Balkan countries in the European Union and visa liberalization for some Western Balkan countries, including Albania, has encouraged the expatriate of a significant proportion of the population forward European developed countries such as England, Germany and France. This movement has made it difficult for national agencies to record and store population data.

**Key words:** demography, mortality, life expectancy, Lee-Carter, forecasting, western Balkan.

## INTRODUCTION

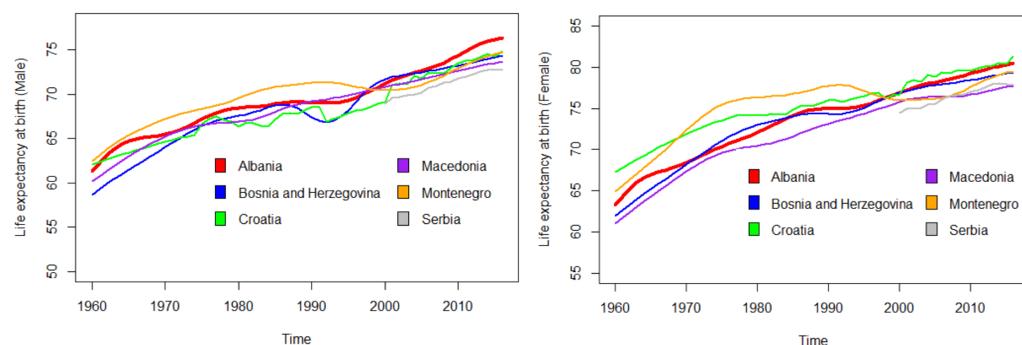
In our study we have analysed two main indicators of demography evolution: life expectancy and mortality rate. Data are taken from the official statistical publications of World Bank (starting from 1960) for the Western Balkan countries. We notice in our study that life expectancy (male and female) in Albania has experienced a rapid linear growth through the period 1960-2016 compared to other WB countries (Bosnia and Herzegovina, Serbia, Montenegro, Macedonia, Croatia).

## LIFE EXPECTANCY

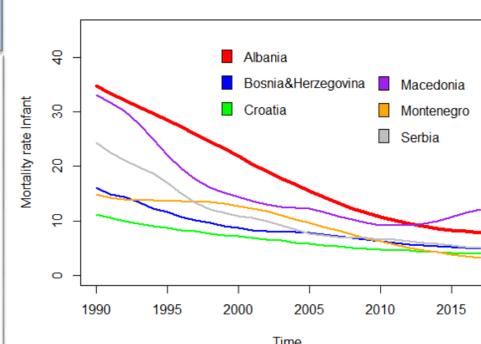
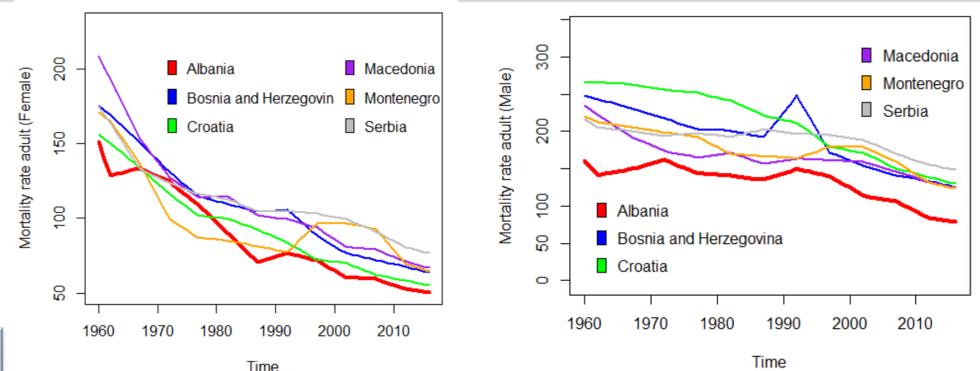
The progress of life expectancy was surprising (from 60 years old in 1960 to 78 years old in 2016) leaving by this way behind all the WB countries and trying to reach the level of neighbor Mediterranean countries, Italy and Greece. The speed growth of life expectancy is faster for females achieving the level of 80.45 years in 2016.

## MORTALITY

Life insurance companies have faces two basic types of risk when signing pension contracts: financial risk and demographic risk. Financial risk can not be predicted precisely because of other factors, we need to focus on the impact of demographic factors. The forecast of pension funds in the PAYG system is directly linked to the forecasting mortality rate and his impact on the pension funds. The forecasting of mortality rate tends to be useful for government institutions, directly related institutions, policy makers, and decision-makers of private insurance companies who study actuarial methods.



**Fig.1 (a, b) Life expectancy (Male, Female), 1960-2016** Data source: World Bank  
<https://data.worldbank.org/indicator/SP.DYN.LE00.IN?end=2016&start=1960>, Authors



Mortality rate in adult (female and male) has experienced a decreasing trend for all WB countries. It is noticed that mortality rate for Albanian adult male has been and continue to be the lower rate in all WB countries. Infant mortality rate for Albania is high compared with the region.

**Fig.2 (a, b, c) Mortality rate (Female, Male, infant), 1960-2016** Data source: World Bank  
<https://data.worldbank.org/indicator/SP.DYN.AMRT.FE?end=2016&start=1960>, Authors

## CONCLUSION

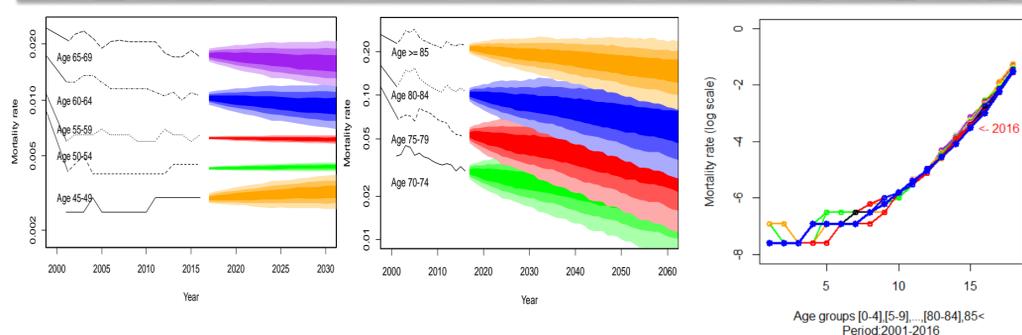
As we have noticed from our study the life expectancy in Albania has faced a rapid growth during the period 1960-2016. Life expectancy progress, especially after 2000, has an upward trend, otherwise mortality rate has a decreasing trend compared to other WB countries.

Based on the advantage of LC model we have predicted the data on mortality rate in the upcoming years for Albania population which support the negative trend for the next years on 60-85+ age group, constant level on 50-59 and an increasing level at age 45-49 because of deadly diseases.

## FORECASTING MORTALITY RATE (L-C model)

One of the best stochastic models in forecasting the mortality rate is the Lee-Carter model. It has the lower error predicted and also the best compatibility on PAYG System. We can see an overview of Lee Carter's model and the possibility of using it to build the mortality prediction on Albanian population data.

The forecast up to 2060 gives a descending trend for age groups 60-69 and a constant level of the predicted rate for age groups 50-59. The opposite happened with the age group 45-49 positive trend. This prediction can be interpreted as a result of deadly diseases that characterize these age group during the years under analyzed on Albania population.



**Fig.3 (a, b) Mortality rate forecast for age groups (c) Mortality rate (log) by age groups, 2001-2016**  
Data Source: *INSTAT, OBSH, 2018. Authors*