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A study of life expectancy for countries of the United Nations

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In the recent past, many researchers have focused on building forecasting models on life expectancy using mortality trends with samples of individuals. All men are mortal, but the longevity of a country's population varies from country to country. This analysis models the effect of economic, social and environmental indicators on life expectancy using a cross-sectional comprehensive worldwide sample. Using this sample of data, the impact of country level variables on weighted average life expectancy (WALE) at birth was analyzed. The data corresponds to 209 countries belonging to United Nations (UN) and was taken from the World Statistics Pocketbook published by the UN (2005).

Multiple regression models were applied in modeling the WALE at birth. And the best fitted model was selected using forward selection method. Principal Components were used as the explanatory variables for the model so as to avoid the problem of multicollinearity between explanatory variables. Initially a model was fitted but when interpreting the Principal Components, an incomprehensible result was obtained due to a huge outlying consumer price index for Tajikistan. Thus, the data was remodeled after removing this country.

The model variants suggested that proxies for technology, natural attractions, education and healthcare all have a significant and positive effect on country variation in average life expectancy. This analysis provides information required to governments, especially in the developing world as the WALE at birth is predicted with high explanatory power by variables than can be influenced through public policy.

Apart from model building, clustering was done by grouping the countries into five clusters with respect to WALE values at birth. The five groups emphasized their own characteristics regarding life expectancy. All economically strong countries having a good standard of living were categorized into one cluster. Most of the African countries with weak economies, poor health facilities and problematic climatic conditions were grouped into a separate cluster. Further, Sri Lanka's position is highly remarkable though it is still a developing country.

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