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Social, Economic, and Legislative Factors and Global Road Traffic Fatalities

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Abstract

Background: Road traffic fatalities (RTF) is the 8th cause of mortality around the world. At the end of the Decade of Action, it would be of utmost importance to revisit our knowledge on the determinants of RTF.

Methods: We used Road Safety Development Index (RSDI) which accounts for the interactions between system, human and products to assess the RTF in 115 and 113 countries in 2013 and 2016, respectively. To analyze data, three statistical procedures (linear regression, Classification and Regression Trees (CART), and Multivariate Adaptive Regression Splines (MARS)) were employed.

Results: CART has the best performance amongst all others followed by MARS for 2013 and 2016 data set with an R^2 around 0.83. Results show that any increase in human development index (HDI) was associated with RTF reduction. Comparing RTF data of 2013 and 2016, 8 countries experienced a change of more than 30%. RTF change in these countries showed significant relationship with GINI index. Considering the three components of HDI, it is revealed that education explained most of RTF variation in CART model followed by income and life expectancy.

Conclusion: Policy makers can make provisions to reduce RTF in the long run by focusing on enhancing the three components of HDI, mainly education. However, there is a need to investigate the correlation among these three components with RTF with different time-trend procedures.

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

Figures

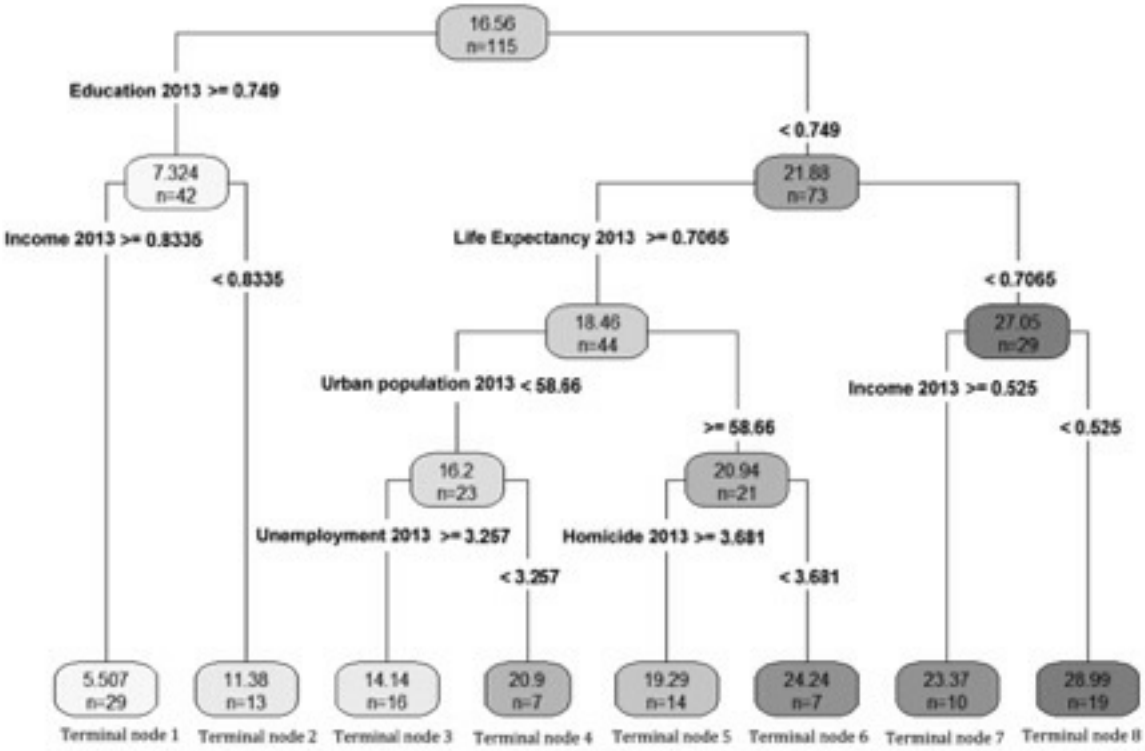

Figure 1

Optimal tree created by CART (2013).

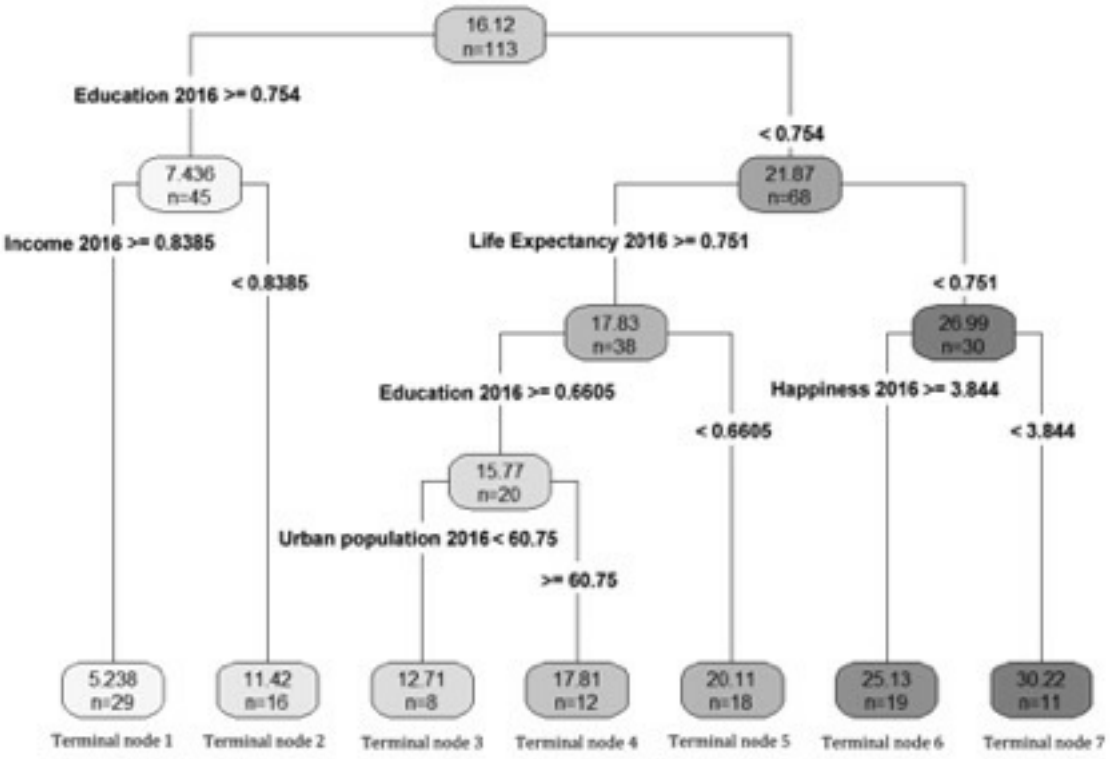

Figure 2

Optimal tree created by CART (2016).