STOCHASTIC POPULATION FORECAST FOR KENYA: ARIMA MODEL APPROACH

BY

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ABSTRACT

Trends in population have important implications for a government in planning and formulating its manpower-related policies. A business may also need to adjust its long-term market strategies according to these trends. Nonetheless, today, the tremendous increase in population is the major issue of the world. In this empirical study, population of Kenya from 1960 to 2009 is modeled using Box Jenkins arima methodology. The population of Kenya is also forecasted for the next 20 years using the parsimonious arima (1, 2, 2), model. If the current growth rate trend continues, the population of Kenya would be approximately 65.08 by 2029. The model was validated by the criteria of AIC, Ljung-Box test, P-values and graphical techniques e.g. ACF and PACF plots of residuals. The projected population by parsimonious arima model is close to the projected population of Kenya by different bureaus (CIA) but there is a notable wide gap with projections from KNBS.

In addition, the results shows that the population growth rate will be at 4.273 by year 2029 as the population will be approaching 65.0819 million. Further, the results depict a negative trend on crude death rate while the crude birth rate has a positive trend and a steady growth as we get to 2029.