Time-Series Forecasting Model for Adoption Rates in Municipal Infrastructure Assets Systems, South Africa

Mazulu Dlamini[1], Sipho Motshekoe[2], Nontoko Mthembu[1]

[1] University of Cape Town

[2] Department of Electrical Engineering, University of Limpopo

Author notes

Mazulu Dlamini is affiliated with University of Cape Town and focuses on Engineering research in Africa.
Sipho Motshekoe is affiliated with Department of Electrical Engineering, University of Limpopo and focuses on Engineering research in Africa.
Nontoko Mthembu is affiliated with University of Cape Town and focuses on Engineering research in Africa.

Abstract

This Data Descriptor focuses on developing a time-series forecasting model to analyse adoption rates of municipal infrastructure assets systems in South Africa. A time-series forecasting model was developed using ARIMA (AutoRegressive Integrated Moving Average) methodology. The model's parameters were estimated based on historical data from to . The forecasted adoption rate for municipal infrastructure projects showed a consistent upward trend, indicating an increase in investment over the period. This study demonstrates the utility of ARIMA models in predicting future trends of municipal infrastructure investments in South Africa. Urban planners should use this model to anticipate and plan for future municipal infrastructure needs based on historical adoption rates. Municipal Infrastructure, Time-Series Forecasting, Urban Resilience, ARIMA Model The maintenance outcome was modelled as $Y\{\}=beta\,0+beta\,1\,X\{\}+ui+varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, econometrics, ARIMA, forecasting, regression, spatial, GIS*

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