

# **ABSTRACT**

**THESIS: Modeling and Forecasting of Saudi Arabia Revenue and Expenditure Data**

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Saudi Arabia is one of the richest countries in the world, but its economy heavily depends on oil. In my research my prime objective was to predict the expenditure pattern of Saudi Arabia in terms of oil and total revenue. We considered six variables here. Current, capital and total expenditure are considered as response and oil, other and total revenue are considered as explanatory variables. This can be done by regression method. The commonly used least squares method heavily depends on normality and other standard assumptions. For this reason we consider distribution free nonparametric and robust regression methods. Since this is a time series data this prediction can also be done using ARIMA models. In our study we evaluate the prediction obtained by different regression and time series methods (OLS from classical regression, LMS from robust regression, LOWESS from nonparametric regression and AR(1) from ARIMA time series models) by cross validation technique. Our results suggest that current, capital and total expenditure of Saudi Arabia can be predicted in the best possible way when we consider the oil revenue/total revenue as the predictor and use the nonparametric LOWESS method to generate forecasts.