D214 – Data Analytics Graduate Capstone

WGU M.S. Data Analytics

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A, Executive Summary and Implications

A1, Analysis Summary

This capstone project aimed to evaluate whether proposed and enacted U.S. tariff policies in 2025 could be used to forecast short-term economic impacts, specifically changes in GDP and inflation. The working hypothesis was that measurable tariff inputs, such as imposed rate percentages and affected trade volume, would have predictive power over key macroeconomic indicators.

To test this, I collected tariff and economic impact data from a publicly available Kaggle dataset, cleaned and prepared it in Python using pandas, and applied Random Forest Regression models. After performing feature engineering and splitting the dataset into 80% training and 20% test sets, I trained two predictive models, one for GDP and one for CPI-based inflation.

The results demonstrated high accuracy: the GDP model achieved an R^2 of 0.93 with an RMSE of 0.025, while the inflation model showed an R^2 of 0.93 and an RMSE of 0.014. Simulated forecasts revealed that higher tariff rates (up to 50%) and larger affected trade volumes could lead to GDP contractions as steep as -0.59% and inflation increases of 0.35%. However, one key limitation of the study was the modest dataset size (approximately 68 complete rows), which may restrict generalizability and expose the model to some overfitting. Random Forests, while highly accurate, also offer limited interpretability.

Based on the findings, I recommend incorporating tariff-based forecasting models into policy planning workflows, particularly during legislative or election cycles where tariffs may shift. This would allow stakeholders to estimate the economic consequences of trade decisions proactively. The expected benefits of this study include predictive capabilities with ±0.03 error for GDP and ±0.015 for inflation, allowing for more informed and quantitative decision-making in economic strategy.

B, Presentation of Findings

B1, Capstone Multimedia Presentation

A multimedia presentation was built using PowerPoint that covers the analysis performed for this Capstone. The PowerPoint presentation was submitted as part of the task requirements.

The video recording for this assignment includes a vocalized demonstration of all the analysis performed and the results. It can be found inside the Panopto drop box titled “D214-Task3-Kline.”

Panopto video link: https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=19d53766-b2c0-423a-a7cf-b2c8015fc201

C, Acknowledge the Sources

Trump Tariff Data 2025
Used to download the dataset and review its structure for the prediction analysis.
Webpage: https://www.kaggle.com/datasets/mesumraza/trump-tarrif-data?resource=download

Raza Hemani, M. (2025). *Trump Tariff Data 2025* [Data set]. Kaggle. https://www.kaggle.com/datasets/mesumraza/trump-tarrif-dataKaggle