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Using Data Science to Explore the Relationship between Economic Metrics and Overall CPI Levels

Welcome to the world of economic analysis! You're a 2nd-year UVA student with a knack for data science and a curiosity about how financial systems shape our world. Now, imagine yourself as a data strategist hired to inform decision-making at a top investment firm. Your task? To find a statistical relationship between economic metrics, such as the 30-year inflation rate, percent change of commercial real estate prices, and 30-year mortgage rates, on the overall Consumer Price Index levels.

Scenario

The US economy is at a turning point during the 2024 election. Investors and policymakers are scrambling to make sense of fluctuating inflation rates, shifting real estate prices, and variable mortgage trends. You have been tasked with analyzing historical data to uncover patterns and predict future trends. You'll explore how variables like the 30-year fixed mortgage rate, commercial real estate loan volumes, sticky CPI, and more affect the CPI, a critical measure of economic health. Your insights could help businesses allocate resources, predict market shifts, and determine economic changes. Furthermore, your data analysis work can help the Federal Reserve Board in making practical decisions that are in the best interest of American consumers and the economy.

Mission

Using Python and data science techniques, you will:

- 1) Analyze Historical Data: Discover correlations and causations among key economic indicators.
- 2) Forecast Future Trends: Leverage time-series models to make predictions about CPI levels.
- 3) Deliver Actionable Insights: Develop a data-backed narrative that highlights your findings and recommendations.

Deliverable

By the end of this case study, you'll produce an executive-level analysis and forecast that could guide decision-makers in real estate, banking, and policy sectors. Your work will be shared with faculty and industry professionals, showcasing your skills in applying data science to real-world problems.

Are you ready to step into the driver's seat and tackle one of today's most pressing economic challenges? Dive into the data and let your curiosity lead the way! Access the project resources and starter code here: [GitHub Case Study Repository](#).