

The purpose of my study is to conduct a thorough examination of the underlying forces that drive gold prices, employing a collection of financial information dating back to 2007 and covering 86 distinct currency pairs, indexes and futures. This inquiry is about developing and testing predictive models, especially the Extra Trees Regressor model and neural network models, to figure out how gold prices and certain economic variables might be connected, with a focus on the different kinds of inflation indexes. I used an iterative method for choosing my what kind of regression will I use, starting with a look at about 15 regression models, which led to the choice of the Extra Trees Regressor model. Gold prices were predicted using a lagging method, which provided a substantive foundation for the subsequent deployment of neural network models. The endeavor to refine the predictive capability led me to the incorporation of five distinct types of inflation into both regression and neural network models. The mean absolute error revealed that each inflation type augmented the predictive power of the models, although to varying degrees. Through my hypotheses I will try to prove a significant difference between model outcomes and thus I will argue for the potential presence of causality. I used comparative evaluations of various approaches to strengthen this narrative, highlighting their strengths and flaws. Initially, the study proposes a framework for analyzing the impact of economic variables on financial assets, potentially extending beyond gold to other commodities or financial instruments. Secondly, it presents a new approach in the field of methodological blueprints for intertwining machine learning, economic analysis, and empirical validation to bridge the gap between correlation and causality. In the future I hope I can develop this method for practical applications, ranging from informed investment strategies to nuanced economic policy formulations.