# URANIUM & SUBSTITUTES: IMPLICATIONS FOR COMMODITY MARKETS

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dx.doi.org/10.18374/JIFE-24-1.8

## ABSTRACT

*This paper was created with the intent of expanding upon previous work, The Structural Importance of Uranium: Commodity Volatility and Sustainability. With a focus on macroeconomic implications as well as the intention to identify potentially contrary evidence to uranium's structural importance, the paper goes on to examine the inverse relationship between the uranium spot price and a basket of commodity substitutes. In line with expectations deduced from the literature, there is a lack of statistical evidence to support the idea that uranium spot price volatility can be explained by volatility in general energy markets. The model used in this paper, maintains a significant prediction accuracy on average across all events of 71.79%, with additional evidence to lend credence in goodness of fit regarding specific categories of macroeconomic events. These findings have led to the development of a basis for the continuation of research surrounding specific logistic regression forecasting methodologies in commodities markets. Onwards, the thesis of uranium as a structurally important mineral continues to lack contradictory empirical evidence. The importance of this study's niche continues to be highlighted as supply-side constraints in uranium markets manifest and energy security concerns mount amid global conflicts.*

***Keywords**:* Uranium, Logistic Regression, Commodities, Oil, Energy

***Acknowledgements***

This could not have been completed without my mother's unwavering support. Love you mom.

## 1. INTRODUCTION

In supply systems wherein production of further derivative results, i.e, wheat processed into flour and henceforth flour-based results being derivative of secondary processing mechanisms, factors influencing supply will have consequences for all derivative(s) of production. This principle or notion of influence in particular is magnified and incredibly observable when approaching these supply systems at their largest levels. Videlicet, aggregating energy specific commodity production as a forecasting mechanism for demand of energy. Conversely though, this approach may be undermined by the notion that demand should anticipate production and not vice versa.

At this level, production factors must be scheduled or better said, *coordinated*, to achieve an efficient outcome at the highest levels of supply and demand. Consider the coordination and direction of energy sources at the national level, which must align dozens of various considerations and directives to ultimately arrive at what is not necessarily the efficient or equilibrium outcome but defined most simply as an "achievable" outcome. Ultimately, it is not necessarily the initial physical supply regarding the primary level of production that will have an impact regarding the determination of outcomes, but it is the influence of various directives and considerations of economic, social, or related sorts that will act as grand determining factors.

Emphasis ought to be placed less in many cases upon quantitative phenomena, such as the depression or elevation of general price levels, especially in the case of commodities, but directed towards the decisioning which initiated and directly influenced the occurrence of these quantitative phenomena. This