

# The ENSO Effect and Asymmetries in Wheat Price Dynamics

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## Abstract

Climate has historically played a critical role in the development of nations, primarily due to its intrinsic linkage with agricultural production and prices. This study examines one such relationship between the better known and most talked about climate anomaly, El Niño Southern Oscillation (ENSO), and the international prices of wheat, one of the most produced and consumed grain cereals in the world. The ENSO–price relationship, moreover, is assumed to be characterized by nonlinear dynamics, because of the known asymmetric nature of ENSO cycles, as well as that of wheat prices. This study applies a vector smooth transition autoregressive (VSTAR) modeling framework to monthly spot prices of wheat from the United States, the European Union, Australia, Canada, and Argentina, as well as the sea surface temperature anomalies from the *Nino3.4* region, which serves as a proxy for the ENSO variable. Results show that, overall, wheat prices tend to increase after La Niña events, and decrease after El Niño events. The regime-dependent dynamics are apparent with more amplified price responses after La Niña shocks, and with more persistent price responses during the La Niña conditions. This is consistent with the economics of storage, wherein shocks related to expected supply and demand are known to have a more pronounced effect in a low-inventory regime. Findings of this study have strong implications for development economics, as they point to an additional channel of adversity due to the ENSO-related climate shocks. Moreover, the ENSO-induced price fluctuations are likely to affect the dynamics of international food and cash programs during extreme episodes of this climate anomaly.

**Keywords:** Asymmetric Dynamics; El Niño Southern Oscillation; International Wheat Prices; Vector Smooth Transition Autoregression.

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