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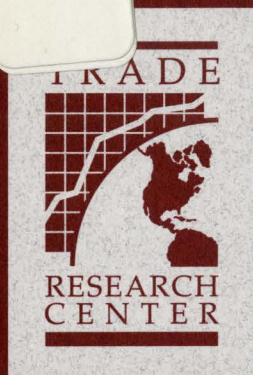
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The Economics of World Wheat Markets: Implications for North America

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The Short-Run Dynamics of World Wheat Prices

Eugenio Bobenrieth and Brian D. Wright

In studying the price of wheat, agricultural economists have focused largely on the spread between spot and futures prices and on the relation between that spread and current stockholdings and rational price forecasts. Speculators, on the other hand, largely focus on the high-frequency price movements relevant when a day is a long time to hold a position.

In this paper, our focus is on these daily changes in the spot price of wheat. Assuming that the reported spot price series for the Kansas City Board of Trade and the Minneapolis Grain Exchange are accurate measures of the current price, daily changes appear to be unpredictable and to have a non-normal probability distribution, with "fat tails" and volatility that appears to fluctuate over time. Similar observations regarding price changes of financial assets have been the motivation for a growing empirical literature on the estimation of price variation processes in financial securities markets.

We estimate the price variation process for daily wheat using a structural dynamic model of price formation that generates implications consistent with the above facts about the sample distribution of price changes. The approach generalizes the standard rational expectations storage model of commodity prices, offering a structural explanation for differences and persistence in volatility across time, non-normal distributions for price variations, price correlation, and continuously positive storage.

In particular, we use an estimation method to identify periods of growth and recession in the American economy. When we apply this method to the daily wheat spot market price change data, we find that it strongly distinguishes periods of high variance and low variance. When these periods are analyzed separately, the nonparametrically estimated daily price change distributions once again appear normal, as rational expectations models might predict.

The high-variance periods may well be periods in which critical market news is received. The subject of market reaction to news is strongly appealing, but it has been absent from the modern literature on commodity price determination. We conclude that when the distinction is recognized between the unconditional price distribution (a concept related to long-run behavior) and the conditional price distribution (which is the relevant object for the period-by-period recursive decision making), a much richer empirical characterization of wheat price series can be achieved.

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