Does the U.S. exchange rate explain commodity price volatility?

Amyaz A. Moledina and Terry L. Roe

July 26, 2002

The price of a commodity is the most watched and analyzed measure of the competitiveness U.S. agriculture. More recently, multilateral organizations, commodity dependant economies in the developing world, and certain researchers have focused on the volatility of this variable, which by simple measures of variance has seemed to increase over time Blandford (1983) and Heifner and Kinosita (1994) . The argument made is that with increasing uncertainty and in the absence of complete risk markets, the allocative errors in resource allocation or the presence of a risk premium can cause agents to choose resource levels that are Pareto inefficient. Recent evidence shows that the volatility in commodity markets is not as high as implied by simple measures of variance (Dehn 2000, Moledina and Roe 2002). Nevertheless with the finding of Mitchell (1980) that most of volatility in commodity prices is due to macroeconomic and political factors, and Schuh's seminal article on the role of exchange rates in changing the structure of U.S. agriculture, this paper tests the extent to which changes in the volatility of a trade weighted exchange rate of the United States and its competitors affects international commodity prices and price volatility.

We begin by outlining a simple partial equilibrium theoretical model to illustrate the importance of risk and market structure in determining the ultimate direction of the effect of exchange rate volatility on quantities, price levels and price volatility. We then proceed to empirically test two hypothesis (1) the effect of exchange rate volatility on commodity prices and (2) the effect of volatility on commodity price volatility. Both theoretic and empirical results show that the direction of the effect of exchange rate volatility on price and price volatility is ambiguous and that the magnitude of the effect of small. However, the magnitude of the effect of exchange rate volatility on price and price volatility varies across commodities and markets. Because of the low explanatory power of the exchange rate, it is possible that other macroeconomic and institutional variables are more important in predicting the low commodity price volatility that we observe.