

THE EFFECTS OF CHANGING FERTILIZER PRODUCTION COSTS ON U.S.
AGRICULTURAL MARKETS: A PARTIAL EQUILIBRIUM ANALYSIS

Braydon Minear

Dr. Wyatt Thompson, Thesis Supervisor

ABSTRACT

Recent fertilizer price volatility motivates this partial equilibrium simulation analysis of fertilizer markets. Previous studies have utilized a simultaneous supply and demand framework to examine important relationships among economic variables in the fertilizer industry. In order to update and build on prior research, this study estimates an econometric model of U.S. nitrogen, phosphate and potash fertilizer markets and links it to the FAPRI-MU agricultural commodities model system in order to analyze relationships between domestic fertilizer production costs and key agricultural commodity variables. Fertilizer production input price shock responses indicate inelastic U.S. fertilizer demand, unique fertilizer use decisions across nutrient and crop sectors and a low responsiveness to fertilizer costs in U.S. agriculture in general.