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Using Real Options Theory to Analyze the Impacts of Urban Development on Farm Real Estate Markets

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Abstract: This paper assesses the real option values of farmland using data from Ohio, USA. The option value of delaying the sale of a farm property was measured using an emerging, relatively new theory namely, the theory of real options pricing. As opposed to standard corporate finance theory, this new theory incorporates both the uncertainty about the future net benefits of a selling decision and the irreversibility of this action taken. Results from this option value calculation show that the vast majority of real call option values calculated for this sample are greater than zero, suggesting that deferring the decision to sell farmland is optimal for most Ohio landowners. The study then seeks to associate the impacts of urban development on Ohio farm-real estate with some important real option-determining factors suggested by the literature. To set forth this association, these option-determining factors were independently regressed on some urbanization-related variables to find out the relation between these variables. Results from this econometric analysis indicate that urban influences along with some farm and non-farm variables thought to be correlated with the land’s option value are all important factors affecting the value of the state’s farmland.

Key Words: Real Options, Farmland, Option Value, Irriversibility, Uncertainty

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