Crop Choice and Proximity to Ethanol Plants

Junpyo Park  
*University of Nebraska-Lincoln*

Eric Thompson  
*University of Nebraska-Lincoln*

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Junpyo Park and Eric Thompson, University of Nebraska - Lincoln

INTRODUCTION
• Taking into account local crop processors and livestock, we show transport costs have a substantial influence on land use decisions by farmers.
• We utilize detailed GIS data sources which are commonly available rather than a special survey of agricultural producers.

OBJECTIVES
• Estimate how the proximity to local agricultural processors impacts crop choice.

METHODS
• Tobit regression is an appropriate estimation technique when the value of the dependent variable is bounded.

\[ Y_i = X_i \beta + \gamma + \varepsilon_i \]
• The dependent variable is percent of crops of interest within a parcel and the independent variables are distance, crop prices, electricity price, crop productivity, groundwater irrigation capacity, and fixed effect.
• Multinomial logit crop choice model is also adopted to perform a consistency check.

\[ \text{Prob}(Y_i = j) = \frac{e^{\beta_j X_i}}{1 + \sum_{j=1}^{J} e^{\beta_j X_i}} \quad \text{for } j = 1, \ldots, J. \]

DATA
• Higher Resolution Cropland Classification from Natural Resources Conservation Service (NRCS)
• About 32,000 Micro-level Parcels analyzed in ArcGIS from 2011 and 2014

REFERENCES

RESULTS

CONTACT INFORMATION

Junpyo Park
jppark03@huskers.unl.edu
+1 (402) 480 – 4995

Eric Thompson
ethompson2@unl.edu
+1 (402) 472 – 3318