Ethanol’s Affect on Basis in the Corn Belt

Preliminary Work

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Introduction

• U.S. Ethanol production increased 9.9 billion gallons from 2005 to 2010\(^1\)

• NASS surveyed corn prices in top producing states jumped\(^2\)
What is basis?
January 2005
June 2005

Ethanol Plant Capacity
- 1 - 33
- 34 - 75
- 76 - 157
- 158 - 420

June 2005
June 2006

Ethanol Plant Capacity

- 1 - 33
- 34 - 75
- 76 - 157
- 158 - 420

Map of ethanol plants in the United States highlighting capacity ranges.
June 2007
January 2009

June 2009

Ethanol Plant Capacity
- 1 - 33
- 34 - 75
- 76 - 157
- 158 - 420

June 2009
January 2010

Ethanol Plant Capacity
- 1 - 33
- 34 - 75
- 76 - 157
- 158 - 420
December 2010

Ethanol Plant Capacity

- 1 - 33
- 34 - 75
- 76 - 157
- 158 - 420

MAP OF ETHANOL PLANTS IN THE UNITED STATES
Ethanol plants and predicted basis July 2005, September 2010
Next Steps

• Model ethanol plant location and capacity choices

• Include corn production, transportation costs and ethanol plant ownership regime
• Timeline: July 2005 through September 2010
  – maximum of 3,341 basis locations, including 84 ethanol plants

• 19 states
  – Two do not have any operating ethanol plants (Arkansas and Oklahoma)

• Maximum of 175 ethanol plants, with capacities ranging up to 400 million gallons per year
Model Idea

- **First stage:**

\[
\frac{\text{Catchment}_{jt}}{d_{ij}} = \delta Z_{jt} + u_{jt}
\]

- **Second stage:**

\[
\text{Basis}_{it} = \beta_0 + \beta_1 R_{ij} \left( \frac{\text{Catchment}_{jt}}{d_{ij}} + \beta_2 \text{Own}_j \right) + \alpha X_{it} + e_{it}
\]
Data Sources

- Corn cash prices from DTN, My DTN Cash Bids
- Futures prices come from the Chicago Board of Trade
- Corn production information comes from USDA-NASS
- Ethanol plant information comes from the Renewable Fuels Association Annual Industry Outlooks from 2005-2010, and the Nebraska Energy Office
- Diesel prices and natural gas prices come from EIA
- Population, wages, and income come from the US Census Bureau
Thank you for your attention, interest and any comments you may have!


Sources


