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Economic Impacts of Ethanol Production in Georgia

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Background

- Increased gasoline prices create public interest in alternative fuel.
- Atlanta is a large potential market for a fuel oxygenate to meet emission standards for air quality.

Proposed Plant

- Conventional type dry grind plant.
- Produces 100 mg per year.
- Capital costs for construction is \$170.6 million.

Co-Products

- DDGS (Dried distillers grain and solubles).
- DDGS is used as a feed ration – Could be used by the Georgia poultry industry.
- Carbon dioxide as a co-product requires a user to locate near the ethanol plant.
- This analysis assumes CO₂ is vented into the atmosphere and returns no revenue.

Stochastic Prices

- Ethanol revenue and denaturant cost: Omaha rack prices from Nebraska Ethanol Board. Denaturant-unleaded fuel variability applied to \$1.00 average.
- DDGS revenue: Lawrenceburg, IN prices from USDA.
- Corn feedstock cost: Central Illinois prices from USDA with a \$0.40/bu. differential added for shipment to Georgia.

Georgia Corn

- Use of DDGS requires irrigated corn to prevent aflatoxin.
- Plant requires approximately 40 million bu. of irrigated corn. (230,000 acres)
- Georgia harvested 225,000 corn acres in 2006 – irrigated and non-irrigated.
- Assume all corn is imported from midwest.

Correlated Prices

- Correlations determined with monthly data for 2005-2006.
- Ethanol, DDGS, and denaturant prices have significant correlation.
- Corn prices have no significant correlation with other stochastic variables.

Covariance Matrix

	Ethanol	Denaturant	DDGS
Ethanol	0.3799	0.0834	3.033
Denaturant		0.0284	0.7431
DDGS			53.00

Truncated Normal Distribution

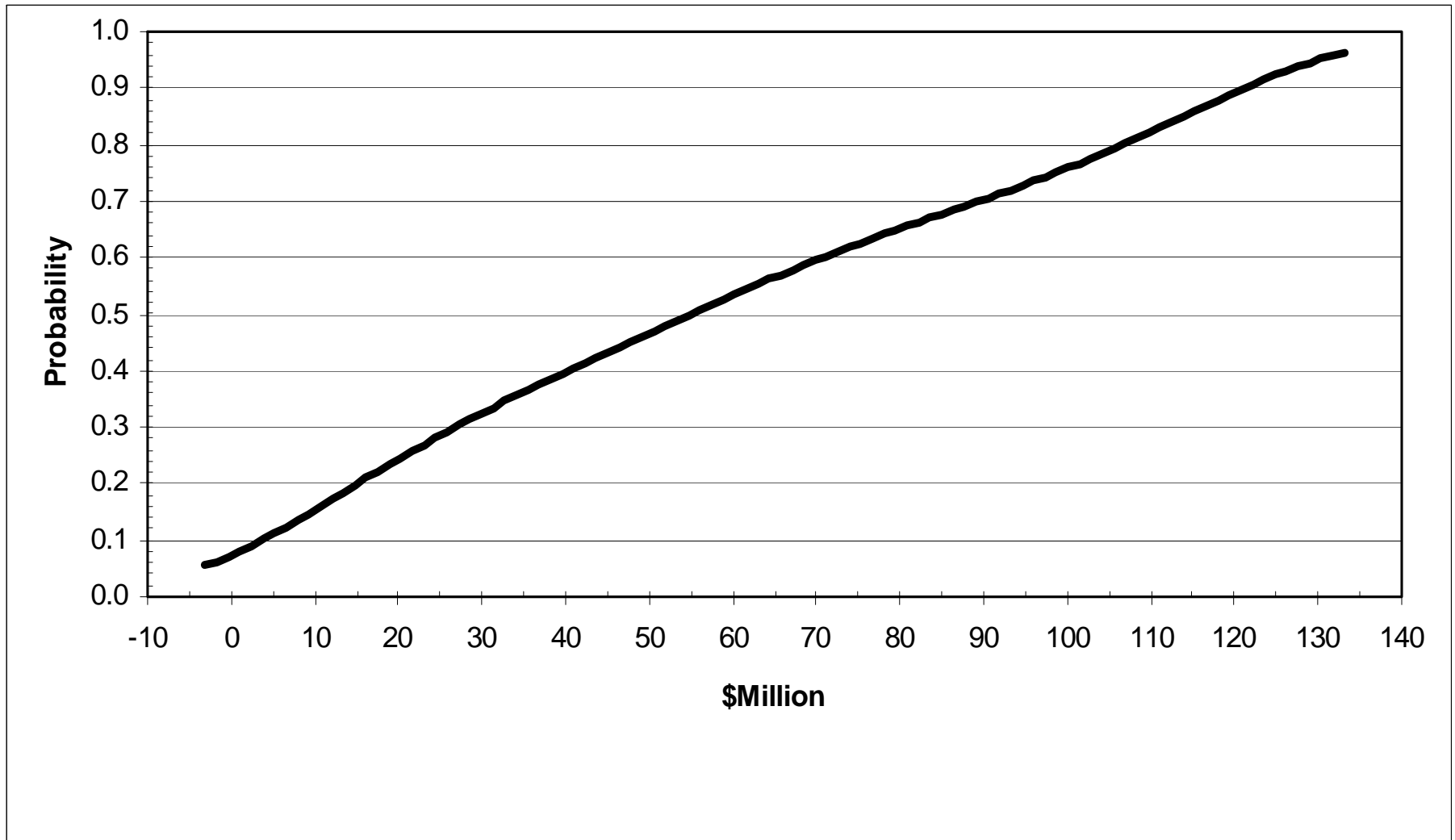
Simetar Application - Multivariate Normal for Correlated Variables

Variable	Historical	Min.	Max.	Simulated
Ethanol (\$/gal.)	2.17	1.70	2.80	2.20
Denaturant (\$/gal.)	1.00	0.80	1.25	1.00
DDGS (\$/ton)	80.94	70.00	100.00	81.14
Corn (\$/bu.)	2.50	2.30	2.79	2.54

Processing Costs	Dollars
Feedstock Cost	92,993,109
Enzymes	5,280,000
Yeast & Chemicals	1,810,000
Denaturant- Unleaded Gas	4,292,540
Natural Gas	27,200,000
Electricity	5,000,000
Water/Sewer	800,000
Labor plus Benefits	1,841,423
Repairs & Maintenance	2,000,000
Supplies/Office/Laboratory	400,000
Insurance	800,000
Other/Sales/Gen./Admin	5,780,000
Marketing - Ethanol	1,000,000
Freight - Ethanol	6,000,000
Management/Consulting	2,000,000
Interest on ST Debt	494,916
Processing Costs	157,691,988

Depreciation	10,742,193
Interest on LT Debt	7,856,570
Fixed Costs	18,598,763
Total Costs	176,290,750

Average NR to Land & Ownership = \$59.2 Million



Economic Impacts to Georgia Economy

	Direct Impact	Indirect Impact	Total Impact
Output (\$)	245,630,012	68,590,745	314,220,757
Labor Income (\$)	1,841,423	18,339,726	20,181,149
Employment	46	362	408

Taxes Generated

State Taxes (\$) 2,401,071

Local Taxes (\$) 2,171,327

Sum of Taxes (\$) 4,572,398

Summary

- Ethanol plants require large initial investment.
- High profit potential.
- Large economic impacts provide incentive for public support.

Comments and Questions