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Comparison of Alternative Sources of Farmland Values

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Poster prepared for presentation at the Agricultural & Applied Economics Association's 2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July 24-26, 2011

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Comparison of Alternative Sources of Farmland Values

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Stampede Farms, Oklahoma State University, and Federal Reserve Bank of Kansas City

Objective: Determine the Strengths and Weaknesses of Three Alternative Sources of Agricultural Land Values

- USDA Annual Land Values
- Federal Reserve Quarterly Survey
- Oklahoma Transaction Prices

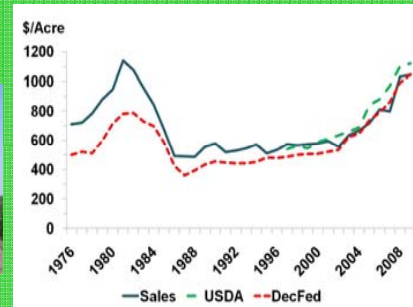
Land Type	Statistic	Trans-Fed	Trans-USDA	USDA-Fed
Non-irrigated	Correlation	0.935	0.962	0.993
	Mean Difference	14.929	-45.967	60.896
	SD	65.521	70.602	24.257
Irrigated	Correlation	0.826	0.784	0.984
	Mean Difference	137.474	89.301	48.446
	SD	166.088	181.078	38.207
Ranchland	Correlation	0.918	0.920	0.993
	Mean-Difference	429.700	344.856	84.844
	SD	118.620	121.127	81.403

Correlation and Differences Among Data Sources

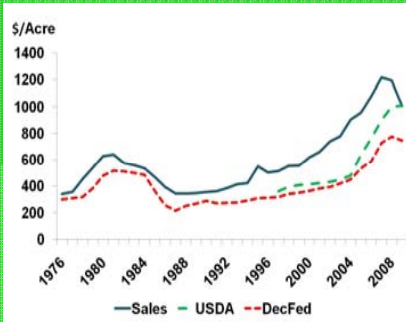
Independent Variable	Land Type		
	Non-irrigated	Irrigated	Pasture
Intercept	-0.232	9.997	5.552
ΔQ_{2t}	0.821***	0.543***	0.544***
ΔQ_{1t}	0.779***	0.865***	1.138***
$\Delta Q_{4,t-1}$	0.677***	0.463***	0.600***
$\Delta Q_{3,t-1}$	0.283	-0.017	0.016
$\Delta Q_{2,t-1}$	0.477**	0.121	0.400
$\Delta Q_{1,t-1}$	0.587***	0.139	0.404**
$\Delta Q_{4,t-2}$	0.172	0.467***	0.241
$\Delta Q_{3,t-2}$	-0.352	-0.038	0.119
R^2	0.682	0.782	0.716
F-stat: Annual Average	10.20***	9.58***	9.34***
F-stat: Jan 1 st	9.91***	20.54***	10.48***

Note: Asterisk (*), double asterisk (**), and triple asterisk (***) denote coefficients significant at 10%, 5%, and 1% respectively.

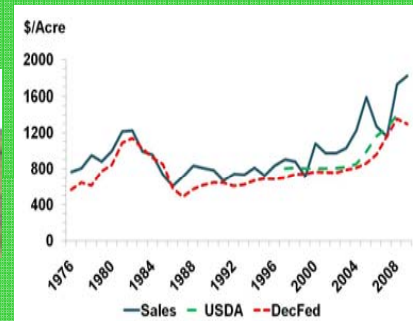
USDA Annual Land Value Changes as a Function of Past Quarterly Federal Reserve Land Value



Estimated Oklahoma Irrigated Cropland Value



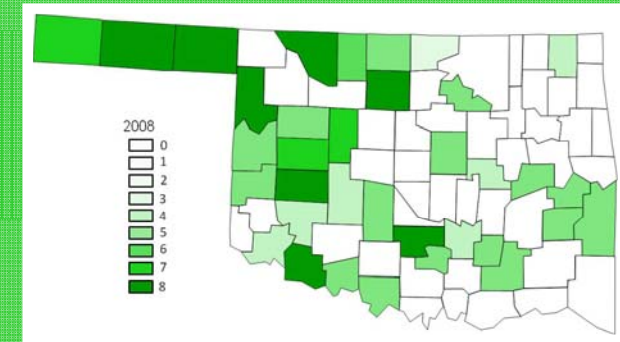
Estimated Oklahoma Non-irrigated Cropland Value



Estimated Value of Oklahoma Ranchland

Procedures

- Correlations
- Regression of USDA values on lagged Federal Reserve values
- Granger Causality



Distribution of Federal Reserve Oklahoma Survey Respondents

Conclusions

- Federal Reserve survey is a leading indicator
- USDA values are closer to June values than January values
- Transaction prices are higher than survey values

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