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Comparison of Alternative Sources of Farmland Values

Christopher Zakrzewicz, B. Wade Brorsen, and Brian C. Briggeman*

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*Christopher Zakrewicz is a MS graduate of Oklahoma State University and is currently assistant operations manager at Stampede I Redwolf Farms in Oklahoma City, OK, B. Wade Brorsen is regents professor and Jean & Patsy Neustadt Chair in the Department of Agricultural Economics at Oklahoma State University, and Brain C. Briggeman is an economist with the Omaha Branch of the Federal Reserve Bank of Kansas City. Partial funding from the Oklahoma Agricultural Experiment Station is gratefully acknowledged. The views expressed are those of the authors and do not necessarily reflect the positions of Federal Reserve Bank of Kansas City or the Federal Reserve System.

Contact Author: B. Wade Brorsen (Email: wade.brorsen@okstate.edu)

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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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