

14. Kansas Land Market—Are There Lessons to Learn From the 80's?

Bryan Schurle

<bschurle@ageconksu.edu>

Bryan Schurle has taught numerous courses in the undergraduate program, the graduate program and the Masters of Agribusiness program including introductory courses, computer courses, quantitative courses, agricultural finance and farm management. He currently has research and extension programs involving land values and financial management for producers.

Abstract/Summary

Land values have been changing rapidly in recent years, and fears of an asset bubble have been voiced by many. This presentation will look at the history of land values, and compare and contrast the recent changes with how the land market changed in the 70's and 80's. USDA data and sales data will be used to compare the two periods to get a better understanding of how markets can react to fundamentals of income and interest rates.

Kansas Land Market—Are There Lessons to Learn from the 80's?

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Bryan Schurle
Kansas State University



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Outline

- Brief discussion of US Economy
- Brief review of Asset Bubbles
- Land Values from different sources
- Lessons from the 80's
- Summary



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U. S. Economy

- Flourished before 2007 due to low savings and debt increases—huge housing expansion
 - Economic expansion at that time was not sustainable!
- Is struggling since 2007 as consumers save more and reduce debt
- Government debt has increased in effort to keep economy going



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U. S. Economy

- Still anemic, but slowly improving
- It is a long term debt problem, and it will not correct itself quickly!
- An election year—so lots of media coverage on the state of the economy
 - July meeting between Congress and Bernanke
 - You do something---NO---You do something.....
- Can't get back to 2007 economy—a “juiced” economy



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U. S. Economy

- Rates are low and will stay low for a while (FED wants to keep rates low into 2014)
- Rates will certainly increase down the road



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Asset Bubbles

- Housing bubble was the root of much of the financial mess
- We have had a lot of bubbles
- They happen in the stock market on average about every 7 years
 - Dot Com bubble(2000)
 - Housing bubble(2007)
 - Land bubble in the 80's



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Asset Bubbles

- Definition: trade in high volumes at prices that are considerably at variance with the fundamentals
- Hard to identify at the time
- Fundamentals for land are income from land and interest rates
 - Both are highly variable



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Land Values

- Information on land values—great need, particularly when land prices are changing rapidly
- Crop incomes have been exceptionally high in recent years
- Interest rates have been exceptionally low
- Land values have been increasing rapidly



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Land Price Changes in Selected States (Source: USDA data)

- Change in Land Value 2007-2012
 - Kansas up 58%
 - Oklahoma up 37%
 - Colorado up 4%
 - Missouri up 34%
 - Nebraska up 127%
 - Iowa up 108%
 - Illinois up 67%



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Two sources of Land Price Data

- USDA
 - surveys producers asking them for their opinion of the value of land
 - scientifically summarizes producer opinions
- Sales Price Data
 - data collected on actual sales across the state
 - data is collected for appraisal purposes by Kansas Society of Farm Managers and Rural Appraisers



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Comparing USDA and Sales Data

Year	USDA	% Increase	Sales Data	% Increase
2007	980	----	965	----
2008	1,020	4%	1,086	13%
2009	1,030	1%	1,099	1%
2010	1,100	7%	1,265	15%
2011	1,250	14%	1,616	28%
2012	1,550	24%	2,048*	27%*

*estimated before end of year with 359 sales



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Comparing USDA and Sales Data

- USDA shows 58% Kansas increase 2007-2012
- Sales data shows 112% increase 2007-2012
- Sales data shows 32% higher land price in 2012 (almost \$500 per acre) after being about equal in 2007



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Outline

- Examine differences between land prices reported by USDA and sales data on land prices
- Examine range in land prices each year
- Explore historical relationships between land prices and the fundamentals of income and interest rates



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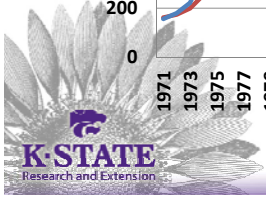
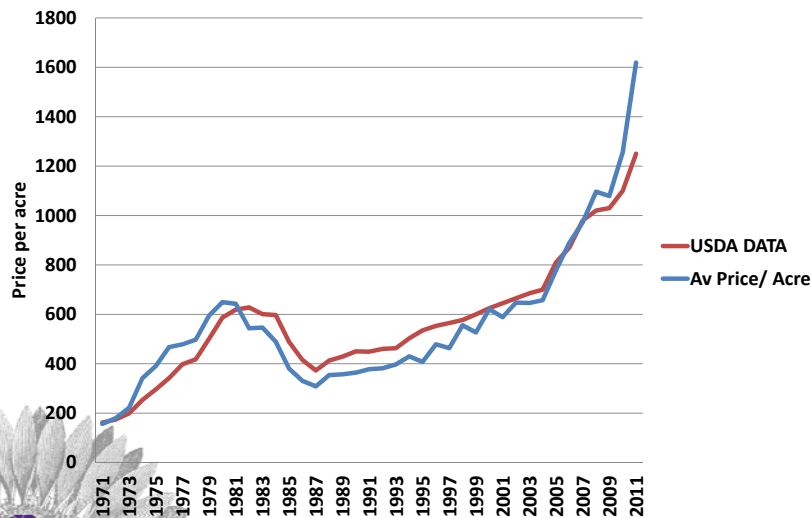
Previous Studies

- Gertel (1995)
 - sales values were 2% to 27% higher than surveys of opinions of values
- Shultz (2006)
 - sales values were 6% - 9% higher than surveys of opinions of value
 - opinion surveys may not pick up land value changes as quickly as they are occurring



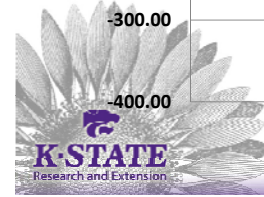
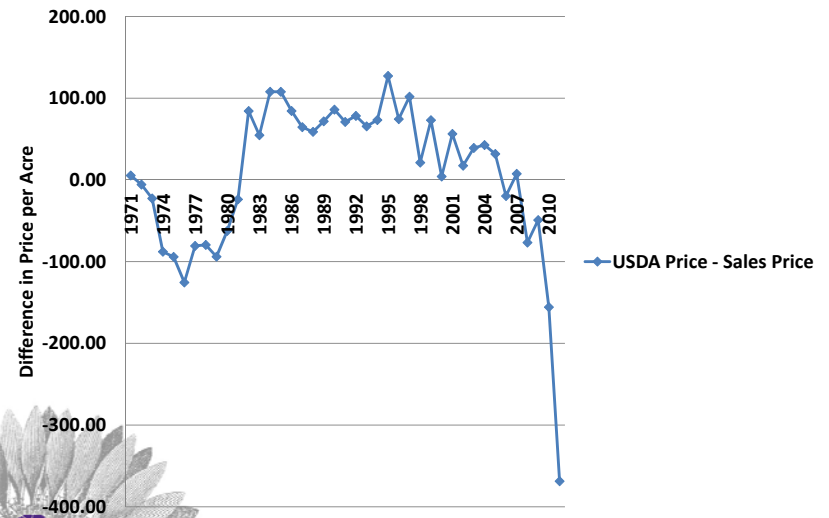
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Comparison of USDA and Sales Price Data



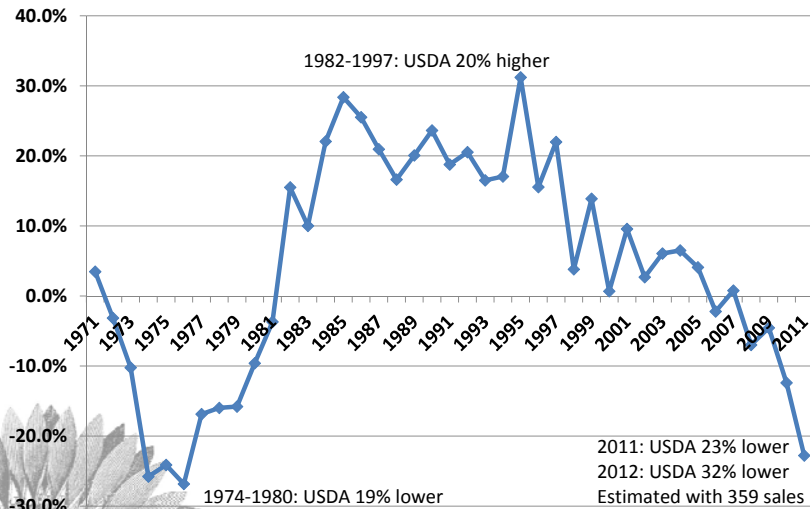
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USDA Price - Sales Price



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Percent Difference (USDA-Sales/Sales)



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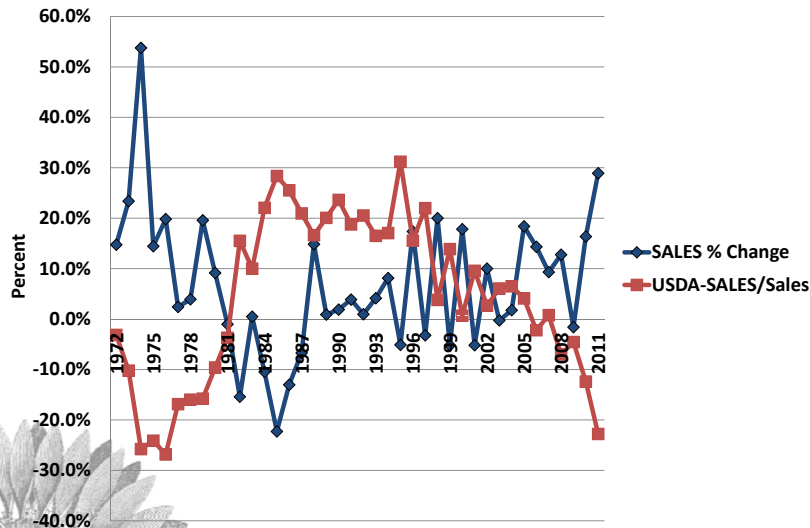
Examining Lags in USDA Prices

- The first graph suggests that USDA value might be lagging the sales price—at least for certain periods
- Explore whether “rapidly changing values” result in big differences between USDA price and Sales price



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Rate of Change and Difference in Value



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Comparing Rate of Change with Differences

- Graph suggests that Difference between USDA and Sales Value may be a function of how fast land values are changing
- Results of estimating impact:
 - USDA prices are too low when prices are rising rapidly, and too high when prices are falling rapidly
 - USDA prices are influenced by how fast prices have changed the last **two** years



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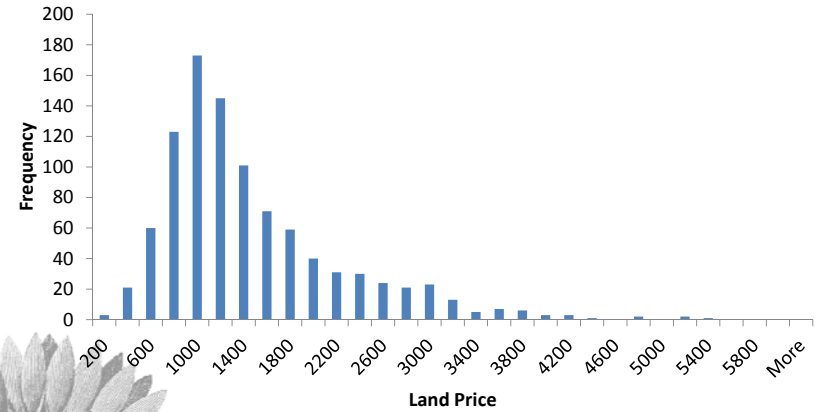
Conclusion

- When prices are changing rapidly
 - Need to stay informed
 - Get professional advice
 - There may be a big premium to you to have the latest information



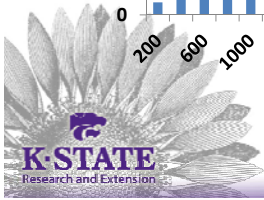
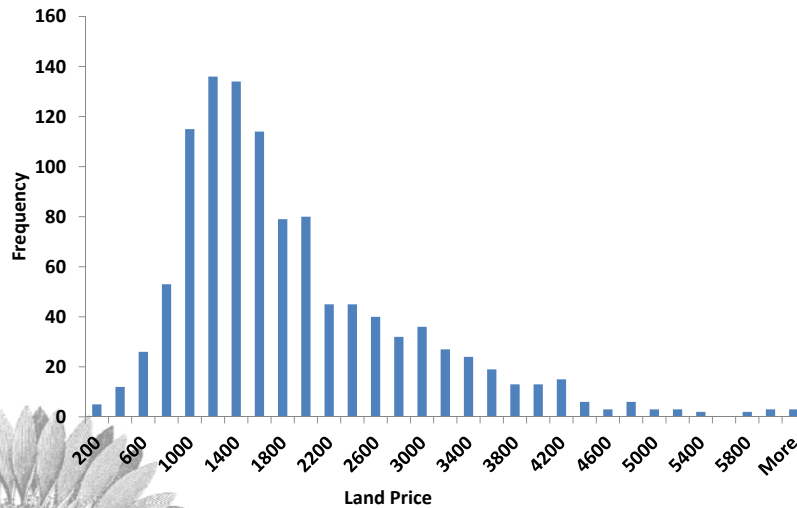
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Histogram of Land Prices 2010



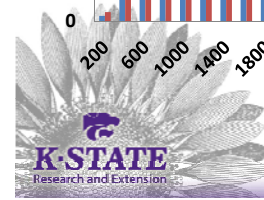
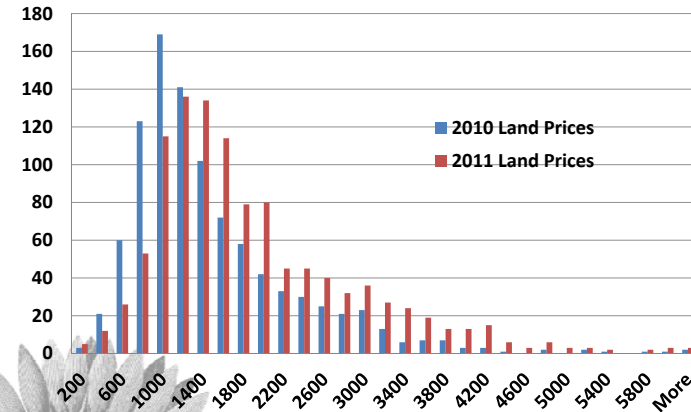
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Histogram of Land Prices 2011



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Histograms of 2010 and 2011 Land Prices



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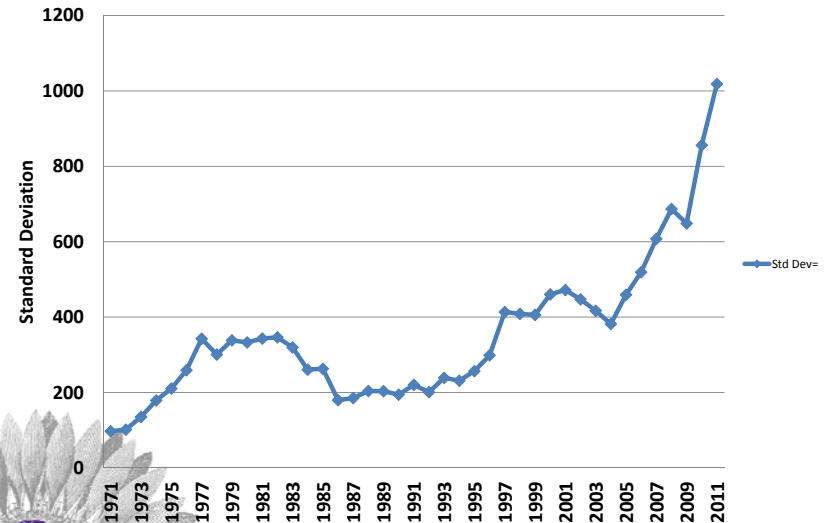
Examining the Range in Prices Each Year

- Calculated the Standard Deviation each year
 - Measures the differences from the average price
 - Measures how spread out the prices are



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Standard Deviation of Sales Prices Each Year



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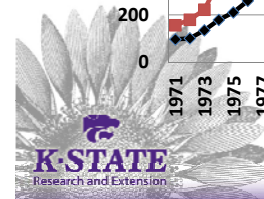
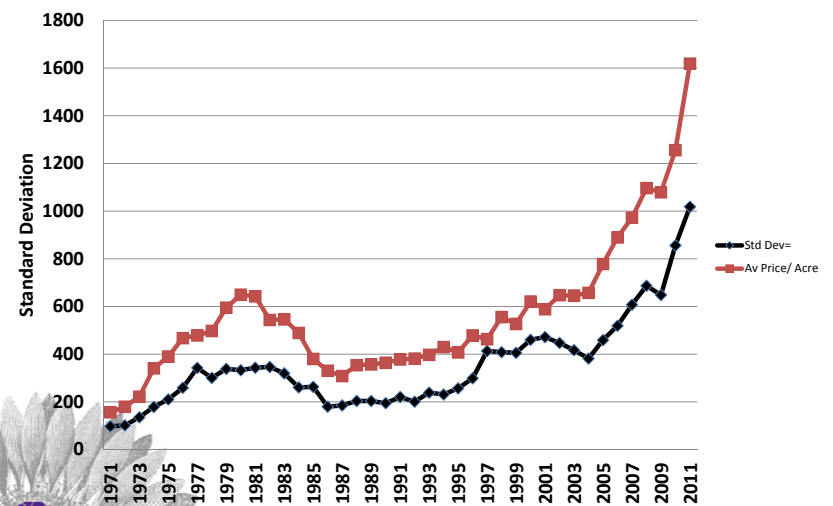
Examining the Range in Prices Each Year

- Standard deviation increased, then decreased, then increased again
- Pattern in the standard deviation looks very similar to the pattern in land values



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Standard Deviation of Sales Prices Each Year



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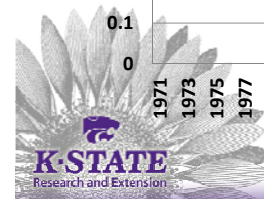
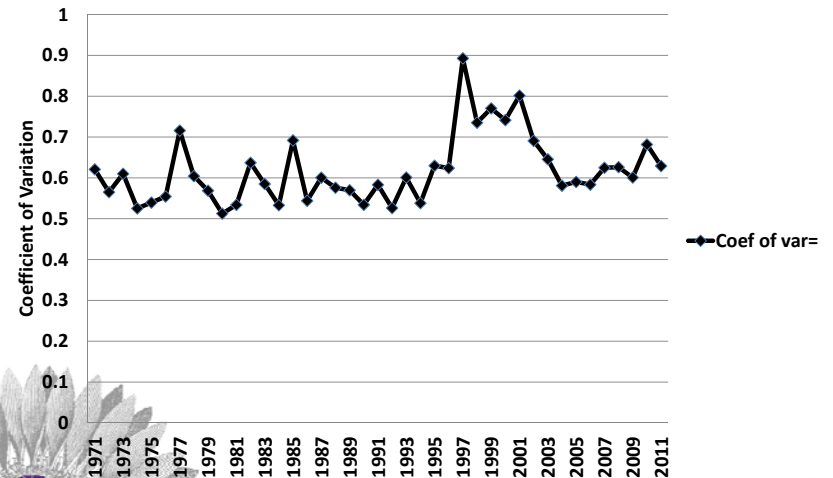
Examining the Range in Prices each Year

- Calculated the coefficient of variation of price each year
- Coefficient of variation measures the “relative variability around the average”



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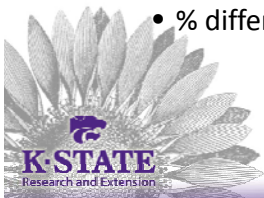
Coefficient of Variation for Land Price Each Year



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Examining the Range in Prices Each Year

- We examined the coefficient of variation
 - Remarkably stable around .6 over the years
 - Conclusion is that although variability around the average has increased, the “relative” variability is remarkably stable
 - Dollar value of differences will be larger when prices are higher
 - % differences in land values will be about the same



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Relationships of Land Values to Fundamentals

- Farm Incomes have been exceptionally high
- Interest Rates have been exceptionally low
- Consider the historical relationships to see if land prices are out of the historical range



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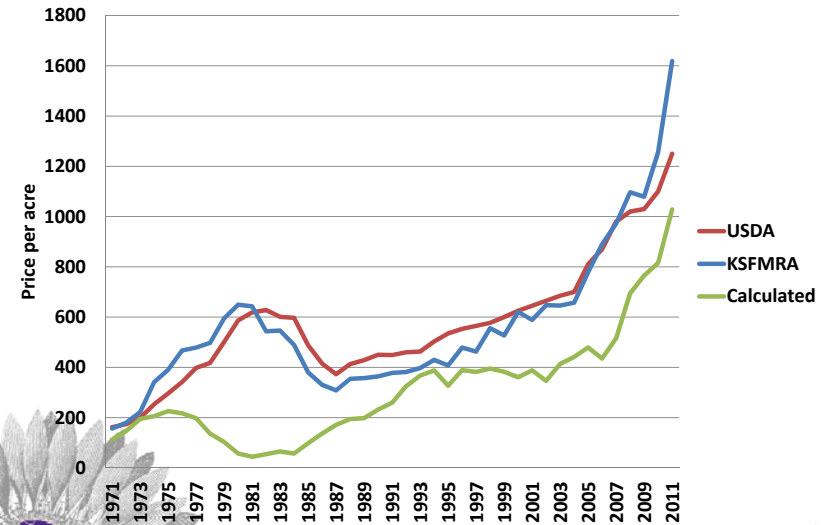
Exploring Historical Income, Rates and Land Values

- Calculate land value using Income/Rate
- Calculate P/E ratio



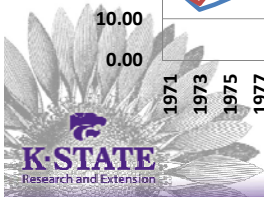
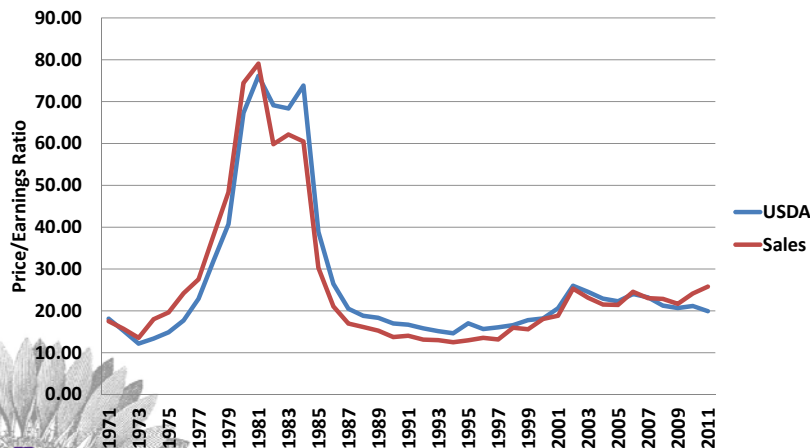
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USDA, Sales, and Calculated Prices



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USDA and Sales P/E Ratios



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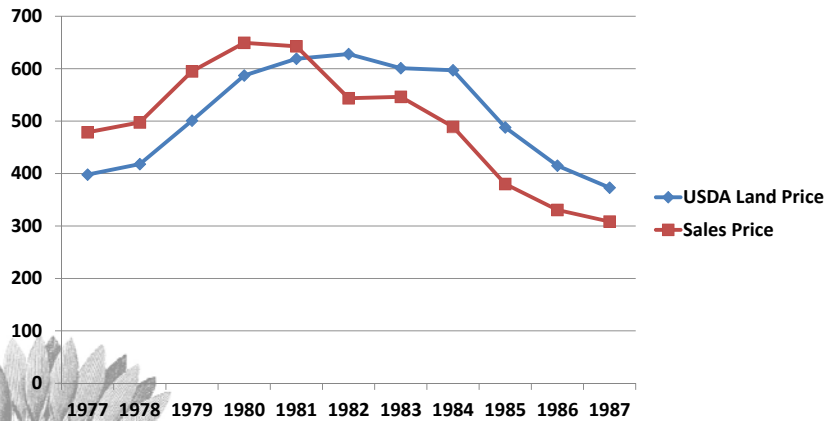
What can we learn from the 80's?

- Painful time in agriculture
- Like what the rest of the economy has been going through the last few years



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Land Prices Peak in Early 80's



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Interest Rates in Early 80's

- Interest rates:
 - 8.8% in 1977
 - 9.6% in 1978
 - 11.9% in 1979
 - 15.2% in 1980
 - 18.5% in 1981



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Farm Incomes in Early 80's

- Net Farm Income In Kansas 000's (USDA)
 - 819,000 in 1979
 - **114,000** in 1980
 - 340,000 in 1981



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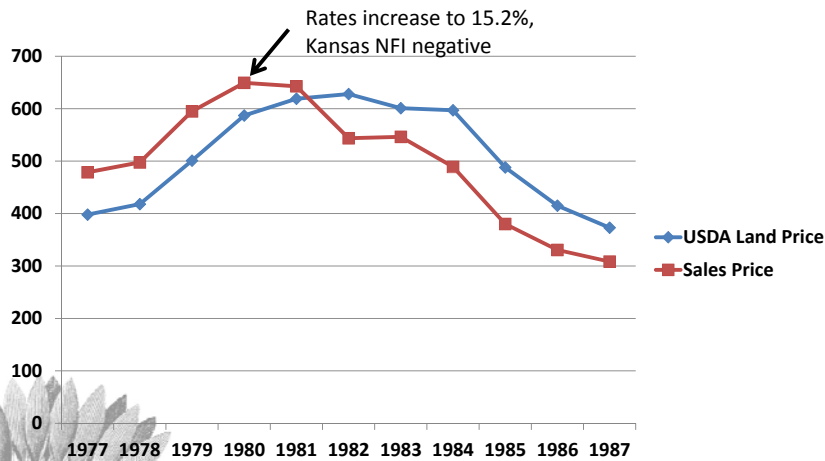
Farm Incomes in Early 80's

- Net Farm Income In Kansas per farm KFMA
 - 43,689 in 1979
 - 14,215 in 1980
 - **1,871** in 1981
 - 11,053 in 1982



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Land Prices Peak in Early 80's



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Land Price Adjustments

- Land Prices do adjust to
 - Interest rates
 - Farm Incomes
- Is it a slow or fast adjustment????
 - USDA very slow adjustment
 - Sales Prices much faster
 - Not like the stock market!!!!!!!!!!!!!!



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Things to think about

- Income levels
 - Crop insurance reduces “short run” risk
 - Crop insurance does not reduce longer run risk if market prices tank
 - **WARNING: Do not underestimate the income risk**
 - Early farm programs had a “cost escalator” (costs increase—farm payments increased—land values increased—costs increased-...)
 - Risk was underestimated in the 70's

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Things to think about

- Rates Will Go Up
- They have enormous room to go up—starting at such a low level
- They have drifted lower since 1980's
- These drops have benefited values of land, houses, stocks, etc!
- When rates increase, all these values will be influenced!



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Things to think about

- Inflation had a huge impact on behavior in the market in the 70's
 - Buy now
 - Bid it up
 - Get money into assets!!!!!!!!!!!!
- Too much debt is a widespread problem
 - Paying off government debt
 - raise taxes
 - cut spending
 - Inflate and pay debt off in cheaper dollars



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Things to think about

- “Leverage” is not magic
 - Works **for you** when you earn a rate **higher** than you pay on debt
 - Works **against you** when you earn a rate **lower** than you pay on debt
 - Best strategy in recent years **for many**—be as highly leveraged as you can be!!



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Things to think about

- Best strategy in 70's—be as highly leveraged as you can be!!!!!!!!
- In 80's, best strategy changed quickly
 - Incomes collapsed, rates increased to stop inflation
 - Best strategy switched to —have as little debt as you can—low leverage wins!!!!!!



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Things to think about

- Bank profits have been lean
- Banks getting hit with all kinds of regulations
- Banks have a lot of money to loan
- They may be tempted to loan more money



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Things to think about

- Do not get caught with the wrong strategy!!!
- If you get caught with the wrong strategy—adjust as soon as possible!!!!



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Things to think about

- Too much of a good thing can be a bad thing
- Examples:
 - Really High corn prices
 - Brings more production around the world
 - Causes customers to find an alternative
 - Really Low interest rates
 - Raises all kinds of asset prices
 - Encourages people to be too highly leveraged



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Things to think about

- The averages show production agriculture to be in great financial shape—low debt to asset ratio
- In a competitive market, someone is always at the margin—just barely making it financially
- Too many people “at the margin” can cause markets to stumble



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Things to think about

- Two ways for a bubble to develop
 - People bid unreasonable amounts for land, far above what income and interest rates would suggest—possibly due to the appreciation they anticipate
 - Fundamentals change
 - Income drops precipitously
 - Rates increase substantially



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Things to think about

- “Profits” generally get bid into land prices
- You might want to take those profits and bid in a market that is not flooded with profits



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Summary

- USDA prices tend to lag sales prices
- Sales prices range more in \$'s, but roughly the same in % terms
- Average Land Prices are starting to be worrisome—recently they were not unreasonable relative to current income and rates, but there is growing concern



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Summary

- Lots of things to worry about but
 - Crop production has seen some wonderful years
 - Asset appreciation has added a considerable amount of wealth to agricultural producers
- Crop Production has been a great place to be compared to the rest of the economy



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Questions/Comments/Share Your View



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