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PURDUE AGRICULTURAL ECONOMICS REPORT

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Farmland Values Survey 2025

Contents:

Welcome from the Editor

Todd Kuethe, Schrader Chair in Farmland Economics & Professor of Agricultural Economics

Indiana farmland prices have continued the trend of record highs in 2025, according to the latest ***Purdue Farmland Value and Cash Rents Survey*** results. The survey is conducted out of the Purdue University Department of Agricultural Economics and produced through the cooperation of numerous professionals knowledgeable about Indiana's farmland market. These professionals provide an estimate of the market value for bare poor-, average- and top-quality farmland in December 2024, June 2025 and a forecast for December 2025.

The average price of top-quality farmland reached $14,826 per acre, a 3.0% increase from June 2024. Average- and poor-quality farmland also saw gains, with prices increasing 5.4% and 7.6% to $12,254 and $9,761 per acre, respectively.

Farmland prices increased modestly in 2025 at the state-level and across the northern two thirds of the state. However, farmland prices declined by varying degrees in the southern third of the state. Both the southwest and southeast regions experienced declines between 4.6% and 11.3%, depending on quality grade.

Respondents expect a modest increase in farmland prices through the rest of 2025 for most of the state, though prices are anticipated to continue to decline in the southwest and southeast regions. Additionally, land transitioning out of agricultural production declined in value slightly by 5.3%,. Statewide cash rents saw minimal changes, with some variation across regions, reflecting broader trends in land values.

The Department of Agricultural Economics conducts the Purdue Farmland Value and Cash Rents Survey each June and it is published in the quarterly publication Purdue Agricultural Economics Report.

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PURDUE AGRICULTURAL ECONOMICS REPORT

Farmland Prices Increase Despite Downward Pressure

Todd Kuethe, Professor of Agricultural Economics

Summary: *Indiana farmland values hit new record highs in 2025 despite regional declines, with development demand and recreational land gains offsetting downward pressure from lower farm incomes, weaker crop prices, and interest rates.*

State-wide average farmland prices once again hit a new record in 2025, according to the recent *Purdue Farmland Value and Cash Rent Survey*. The average price of top quality farmland is $14,826, up 3.0% from June 2024 (Table 1). Average and poor quality farmland also hit new highs at $12,359 and $9,819 per acre, with an annual increase of 5.4% and 7.6%, respectively. However, unlike previous years, the survey indicates a mixture of increases and decreases in farmland values and cash rents across regions.

In both the Southwest and Southeast regions, farmland values fell across all three quality grades. These regions, however, experienced the largest price increases since 2020. The survey suggests that farmland in the regions declined through the latter half of 2024 and rebounded in the first half of 2025. However, on net, the 2025 gain does not override the 2024 losses. The opposite pattern appears to hold in the four other regions of the state, increasing during the latter half of 2024 and declining in the first half of 2025. The highest per acre values across all three quality grades were found in the Northeast region, where top quality land fell just shy of $16,000 per acre. At the state-level, respondents are modestly optimistic about the remainder of 2025. However, further declines are expected across all quality grades in both the Southwest and Southeast regions.

The value of land transitioning out of agricultural production exhibited a 5.3% decline from 2024, falling to $29,043 per acre. The Purdue Farmland Values and Cash Rent Survey specifically asks for estimates of "farmland transitioning out of production agriculture and moving into residential, commercial, or industrial use." As one respondent noted, however, "residential land has a price range that is much less than commercial or industrial use." A number of other respondents note that major development projects, solar farms, and data centers are driving farmland prices in their market area. Several respondents also note that the price impacts are not limited to the county in which the development occurs but, instead, may extend to neighboring counties or other regions in the state as the result of 1031 exchange. Finally, one respondent notes that "development also raised housing costs and pushed recreational land values." The survey indicates that state-wide recreational land values increased by 18.0% from 2024, to a per acre average of $9,542.

Figure 1: County clusters used in Purdue Land Values survey to create geographic regions

Table 1: Average estimated Indiana land value per acre (tillable, bare land), per bushel of corn yield, and percentage change by geographic area and land class, selected time periods, Purdue Land Value Survey, June 2025[1]

			Land Value						Land Value/bu			Projected Land Value	
									Amount	Amount	% Change	Dec	% Change
	Land	Corn	June 2024	Dec 2024	June 2025	6/24-6/25	6/24-12/24	12/24-6/25	2024	2025	6/23-6/24	2025	6/25-12/25
Area	Class	Bu/A	$/A	$/A	$/A	%	%	%	$	$	%	$	%
North	Top	230	14,222	15,278	15,389	8.2	7.4	–6.9	61.84	66.91	8.2	15,750	2.3
	Average	198	11,250	12,333	12,333	9.6	9.6	–8.8	56.72	62.18	9.6	12,438	10.6
	Poor	168	8,625	9,056	9,222	6.9	5.0	–4.8	51.41	54.97	6.9	9,188	6.5
Northeast	Top	227	14,386	15,852	15,909	10.6	10.2	–9.2	63.36	70.07	10.6	15,940	10.8
	Average	199	11,727	12,887	13,791	17.6	9.9	–9.0	59.00	69.38	17.6	13,627	16.2
	Poor	171	9,300	11,100	11,032	18.6	19.4	–16.2	54.49	64.63	18.6	10,982	18.1
W. Central	Top	240	13,941	15,063	14,388	3.2	8.0	–7.4	58.17	60.04	3.2	14,350	2.9
	Average	210	11,512	12,927	11,731	1.9	12.3	–10.9	54.88	55.92	1.9	11,636	1.1
	Poor	180	9,432	10,268	10,135	7.5	8.9	–8.1	52.35	56.26	7.5	10,092	7.0
Central	Top	227	14,600	15,748	15,548	6.5	7.9	–7.3	64.46	68.64	6.5	15,578	6.7
	Average	199	12,282	13,451	13,192	7.4	9.5	–8.7	61.87	66.46	7.4	13,155	7.1
	Poor	170	9,833	10,756	10,567	7.5	9.4	–8.6	57.76	62.07	7.5	10,543	7.2
Southwest	Top	229	16,078	14,000	14,233	–11.5	–12.9	14.8	70.13	62.09	–11.5	14,067	–12.5
	Average	189	11,578	10,504	10,825	–6.5	–9.3	10.2	61.37	57.38	–6.5	10,533	–9.0
	Poor	155	7,644	7,288	7,488	–2.1	–4.7	4.9	49.32	48.31	–2.1	7,238	–5.3
Southeast	Top	214	11,000	10,250	10,417	–5.3	–6.8	7.3	51.36	48.64	–5.3	10,292	–6.4
	Average	183	9,250	8,250	8,167	–11.7	–10.8	12.1	50.45	44.55	–11.7	7,958	–14.0
	Poor	156	6,500	6,333	6,083	–6.4	–2.6	2.6	41.71	39.04	–6.4	5,833	–10.3
Indiana	Top	230	14,392	14,970	14,826	3.0	4.0	–3.9	62.57	64.45	3.0	14,797	2.8
	Average	199	11,630	12,359	12,254	5.4	6.3	–5.9	58.38	61.51	5.4	12,100	4.0
	Poor	170	9,071	9,819	9,761	7.6	8.2	–7.6	53.39	57.46	7.6	9,645	6.3
	Transition[2]		30,666	27,908	29,043	–5.3	–9.0	9.9				30,084	–1.9
	Recreation[3]		8,089	9,261	9,542	18.0	14.5	–12.7				9,613	18.8

[1] The land values contained in this summary represent averages over several different locations and soil types. Determing the value for a specific property requires more information than is contained in this report and should include an evaluation by a professional appraiser.

[2] Transistion land is land moving out of production agriuclture into other, typically higher value, uses.

[3] Recreation land is land located in rural areas used for hunting and other recreational uses.

Figure 2: Influence of drivers of Indiana farmland values

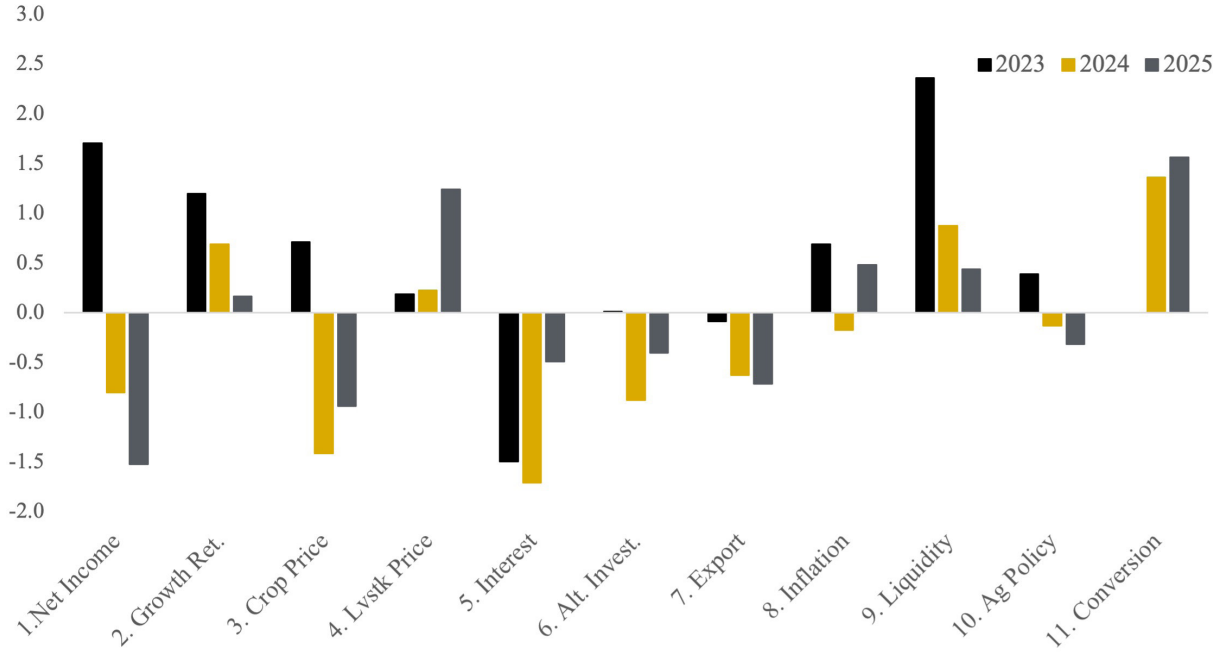
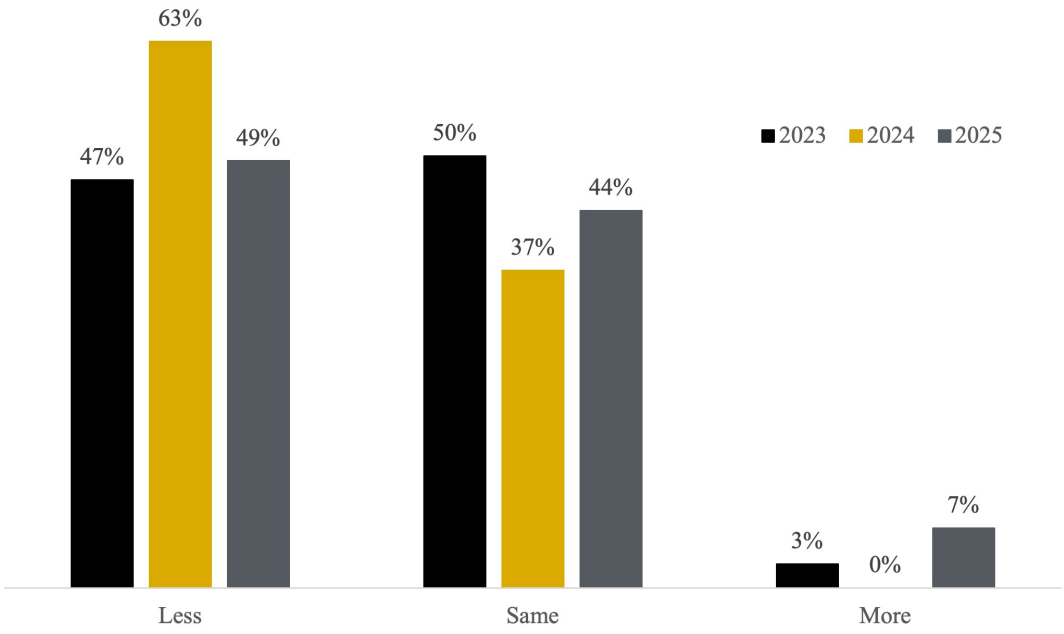


Figure 3: Percentage of respondents indicating less, same, or more farmland on the market than in the previous June



Farmland Market Forces

Respondents were asked to evaluate the importance of ten market forces that may potentially influence the farmland market: (1) current net farm income, (2) expected growth rate in farm returns, (3) crop price level and outlook, (4) livestock price level and outlook, (5) current and expected interest rates, (6) returns to alternative investments, (7) outlook for U.S. agricultural export sales, (8) U.S. inflation rate, (9) cash liquidity of buyers, (10) current U.S. agricultural policy, and (11) farmland conversion to other uses. Respondents rate each market force on a scale of –5 to +5, with –5 being the strongest negative influence. A positive influence is given a value between 1 and 5, with 5

representing the strongest positive influence. A score of 0 indicates the force was not influential. An average for each item was calculated, and averages for 2023, 2024, and 2025 are included in Figure 2. The horizontal axis shows the item from the list above.

Similar to 2024, current farm incomes are putting downward pressure on farmland values, but the downward pressure appears greater in 2025. Crop prices continue to put downward pressure on farmland values, but the positive influence of livestock prices increased relative to the two previous years. As one respondent suggests, "the livestock market is helping hold up farmland values." While interest rates continue to put downward pressure on farmland values, the pressure seems to being lower than it was in the recent years. One respondent also highlights the differences in adjustable and fixed mortgage rates this year. As suggested above, the strongest positive force for farmland prices remains the conversion to residential, commerical, or industrial uses (a category that was added to the survey in 2024).

Once again, a large portion of the respondents suggest less farmland on the market relative to a year earlier, yet at 49%, this sentiment was reported by slightly less half of all respondents. An additional 44% see transaction volumes unchanged from 2024. One respondent also notes that "sales are taking longer than previous years," another measure of market liquidity.

Five-Year Forecasts

While most respondents are modestly optomistic about farmland prices for the remainder of 2025, the survey's five year outlook for corn and soybean prices is slightly more pessimist than recent years (Table 2). The respondents are optimistic for lower interest and inflation rates five years frm now.

Table 2: Projected five-year average corn and soybean prices, mortgage interest, and inflation

	Price ($/bu)		Rate (%)	
Year	Corn	Soybeans	Interest	Inflation
2021	4.7	11.2	4.9	3.4
2022	5.7	12.8	6.4	5.8
2023	5.5	12.8	6.8	4.5
2024	5.0	12.4	6.6	3.7
2025	4.9	11.5	6.3	3.0
Average	5.2	12.2	6.2	4.1

Cash Rent

Statewide, cash rents exhibited a modest increase from 2024 to 2025 (Table 3). Indiana per acre cash rent for top quality land increased by 1.7% to $318, and per acre cash rent for average quality land increased by 1.6% to $264. The statewide average per acre cash rent for poor quality land increased by 1.53% to $207. Consistent with land vale changes, cash rents declined across all three quality grades in both the Southwest and Southeast regions. Thus, cash rent as a share of land values held relatively steady from the previous year and did not vary drastically across regions. In addition, rental rates per bushel of corn held relatively stable as well.

Looking Ahead

In sum, farmland prices increased modestly in 2025 at the state-level and across the northern two thirds of the state. However, farmland prices declined by varying degrees in the southern third of the state. Respondents generally expect prices to hold relatively stable for the remainder of the year, but, again, the expectations differ across the northern and southern poritons of Indiana. Traditional farmland price drivers suggest a mix of downward and upward pressure. Respondents remain concerned about interest expenses and crop prices but expect continued upward pressure from commercial and industrial development.

Table 3: Average estimated Indiana cash rent per acre (tillable, bare land), 2024 and 2025, Purdue Land Value Survey, Juney 2025

			Rent/Acre		Change	Rent/bu. of corn		Rent as % of June Land Value	
Area	Land Class	Corn Bu/A	2024 $/A	2025 $/A	24-25 %	2024 $/bu	2025 $/bu	2024 %	2025 %
North	Top	230	297	313	5.42	1.29	1.36	2.1	2.0
	Average	198	239	247	3.05	1.21	1.24	2.1	2.0
	Poor	168	180	179	–0.31	1.07	1.07	2.1	1.9
Northeast	Top	227	289	306	5.56	1.27	1.35	2.0	1.9
	Average	199	239	253	5.84	1.20	1.27	2.0	1.8
	Poor	171	188	201	6.47	1.10	1.17	2.0	1.8
W. Central	Top	240	339	358	5.64	1.41	1.49	2.4	2.5
	Average	210	284	299	5.04	1.35	1.42	2.5	2.5
	Poor	180	231	239	3.59	1.28	1.33	2.4	2.4
Central	Top	227	306	328	7.40	1.35	1.45	2.1	2.1
	Average	199	263	282	7.17	1.33	1.42	2.1	2.1
	Poor	170	213	223	4.69	1.25	1.31	2.2	2.1
Southwest	Top	229	323	286	–11.36	1.41	1.25	2.0	2.0
	Average	189	251	229	–8.43	1.33	1.22	2.2	2.1
	Poor	155	182	173	–4.59	1.17	1.12	2.4	2.3
Southeast	Top	214	263	248	–6.01	1.23	1.16	2.4	2.4
	Average	183	218	197	–9.92	1.19	1.07	2.4	2.4
	Poor	156	177	167	–5.66	1.13	1.07	2.7	2.7
Indiana	Top	230	313	318	1.74	1.36	1.38	2.2	2.1
	Average	199	260	264	1.61	1.30	1.32	2.2	2.2
	Poor	170	204	207	1.53	1.20	1.22	2.3	2.1

Purdue Farmland Value and Cash Rent Survey

The Purdue Farmland Value and Cash Rent Survey is conducted each June. The survey is possible through the cooperation and contribution of numerous professionals knowledgable of Indiana's farmland market. These professionals include farm managers, rural appraisers, land brokers, agricultural loan officers, farmers, and Farm Service Agency (FSA) county office directors.

These professionals were selected because their daily work requires they stay well informed about farmland values and cash rents. These professionals provide an estimate of the market value for bare poor, average, and top quality farmland in December 2024, June 2025, and a forecast for December 2025. To assess productivity of the farmland, respondents provide an estimate of long-term corn yield for top, average, and poor productivity farmland. Respondents also provide a market value estimate for land transitioning out of agriculture and for recreational land.

The data reported here provide general guidelines regarding farmland values and cash rent. To obtain a more precise value of an individual tract, contact a professional appraiser or farm manager that has a good understanding of the local market.

Prior reports are located at: https://purdue.ag/paer_archive

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PURDUE AGRICULTURAL ECONOMICS REPORT

Are farmland price expectations "wrong"? It depends how you ask.

Dewey J. Robertson, MS Agricultural Economics Student

Summary: *Analysis of the Purdue Farmland Values and Cash Rents Survey shows price expectations often seem inaccurate because they're assumed to be averages—when many respondents report the most likely price. Viewed this way, expectations are rational in most cases, making them more useful for producers and investors.*

This article summarizes Dewey J. Robertson's masters thesis, which is available here.

Farmland is the single largest asset in American agriculture— valued over $3.5 trillion, accounting for 83% of total U.S. farm assets (USDA ERS, 2024). Because land plays such a central role in farm wealth and credit, understanding how farmland expectations are formed are critical for producers, lenders, and landowners.

Every year, surveys, such as the *Purdue Farmland Values and Cash Rents Survey*, ask agricultural professionals to report future farmland price expectations. The *Purdue Farmland Values and Cash Rents Survey* provides farmland price expectations and observed prices for three quality grades (top, average, poor) at the state level and for six regions. Table 1 provides summary statistics on selected historical expectations and observed prices. Reports from these surveys enable producers and investors to make more informed decisions by providing reference points representative of their own lands.

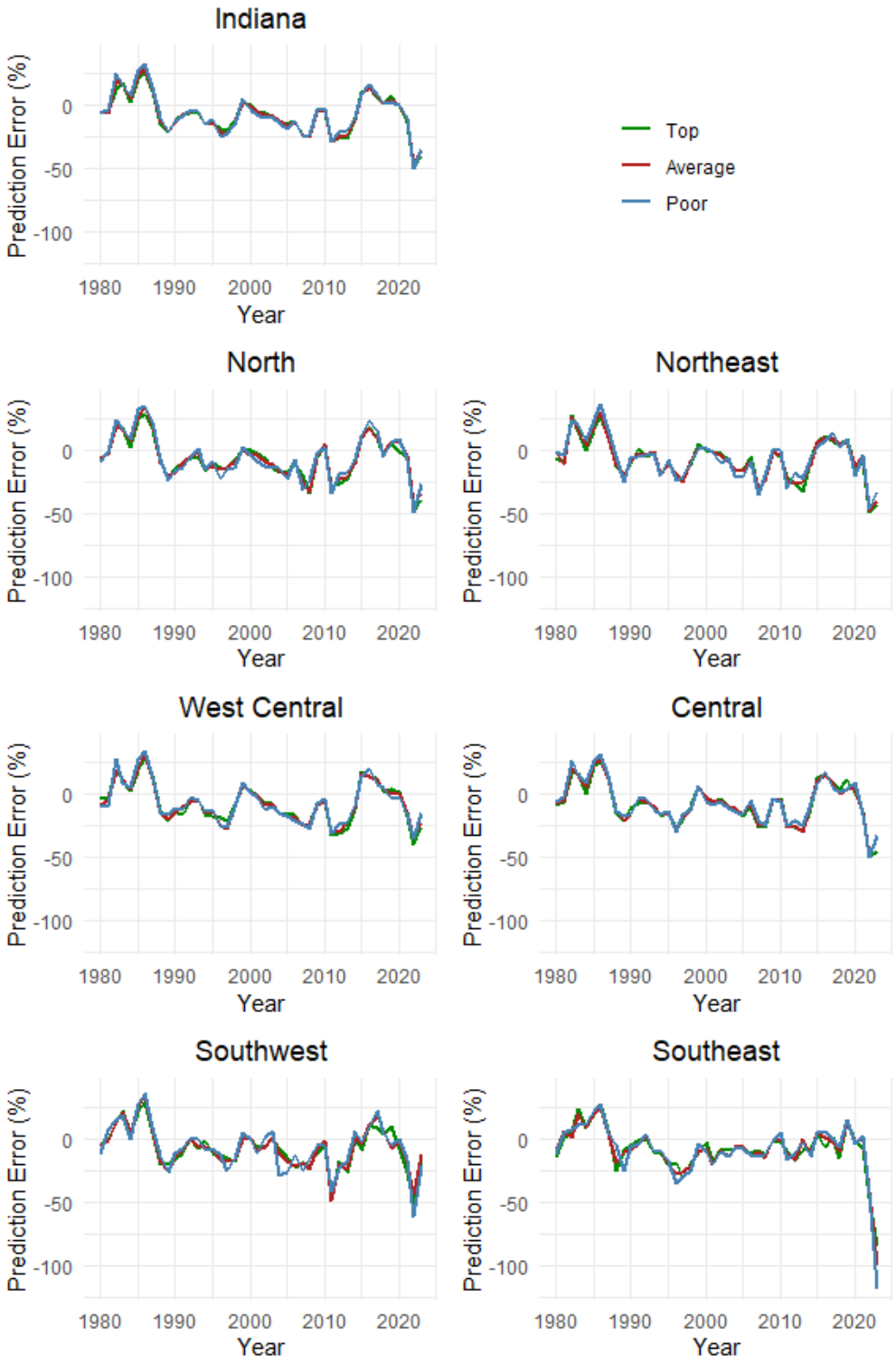
Farmland prices vary quite a bit across Indiana. The West Central and Central Regions consistently have higher average observed farmland prices for all three quality grades. The Southeast region, in contrast, has the lowest average prices across all quality grades. These differences likely relet differences in productivity, land use potential, or other market influences such as proximity to growing urban areas.

Expectations, however, often fail to accurately predict future farmland prices. Figure 1 shows the prediction error of farmland price expectations as a percentage. While the magnitudes of expectation errors differ by region and quality grades, patterns of expectation errors remain constant through time. Two common measures of expectation errors, mean absolute error (MAE) and root mean square error (RMSE), are provided in table 1. MAE measures the average magnitude of errors in absolute value, treating all errors equally. RMSE, on the other hand, examine the average of square errors which penalizes large errors more than small ones. While average prices vary, the accuracy of price expectations is consistent across regions looking at the MAE. The higher RMSE, however, indicates that market experts in the Southeast make larger errors, likely due to unique market conditions or harder-to-predict factors.

Table 1: Summary Statistics, 1980-2023

	Observed		Expected			
	Mean	Std. Dev.	Mean	Std. Dev.	MAE	RMSE
Indiana						
Top	4,210.89	2,933.60	4,576.95	3,359.77	13.60	16.91
Average	3,446.23	2,476.05	3,730.04	2,801.10	13.75	16.89
Poor	2,666.66	1,970.15	2,880.67	2,235.96	14.16	17.55
North						
Top	4,216.57	2,888.36	4,545.34	3,259.69	13.76	17.45
Average	3,358.27	2,411.39	3,586.07	2,636.20	14.24	17.43
Poor	2,503.77	1,840.77	2,654.55	1,983.56	15.26	18.52
Northeast						
Top	4,025.96	2,850.57	4,401.38	3,332.42	13.79	17.71
Average	3,324.91	2,499.07	3,627.40	2,893.25	13.50	17.29
Poor	2,631.86	2,082.52	2,866.83	2,400.25	13.81	17.88
West Central						
Top	4,656.25	3,394.31	4,998.88	3,700.63	14.13	16.90
Average	3,894.36	2,903.98	4,165.99	3,125.92	14.09	16.66
Poor	3,083.46	2,410.14	3,284.34	2,575.25	14.36	16.97
Central						
Top	4,497.30	3,014.77	4,864.32	3,445.22	14.51	17.87
Average	3,800.73	2,598.86	4,104.48	2,944.80	14.13	17.29
Poor	3,060.86	2,138.36	3,290.99	2,422.70	14.29	17.42
Southwest						
Top	4,294.34	3,129.03	4,671.79	3,562.21	13.23	17.24
Average	3,248.73	2,379.33	3,504.69	2,653.68	13.29	17.27
Poor	2,214.68	1,634.84	2,403.78	1,907.45	14.43	18.97
Southeast						
Top	2,929.73	1,878.71	3,264.63	2,439.81	13.31	19.52
Average	2,378.68	1,539.33	2,641.64	1,972.02	13.35	20.81
Poor	1,840.11	1,171.92	2,049.35	1,530.83	14.49	23.48

Figure 1: Farmland price expectation errors by quality grade and region, 1980-2023



Prior economic research has found not only that farmland price expectations are often wrong but also that they are "irrational"—that is, they consistently over or underpredict (biased) or fail to fully use all available information (inefficient). But there may be an underlying issue causing this: what if we have been misunderstanding how people think about their expectations?

Most surveys, including the *Purdue Farmland Values and Cash Rents Survey*, ask for a single number to represent future price expectations but do not clarify the specific statistical number to report. Are respondents then reporting future price expectations as the average expected price, the ***most likely*** price, or something else entirely?

To answer this question, we test expectation rationality using data from the *Purdue Farmland Values and Cash Rents Survey*. Traditional rationality tests assume that reported values are the mean (average) of expected future prices. Because the survey does not specify to report the mean expected future price, these expectations may be deemed "irrational" when they fail to accurately predict the average future price. However, in reality, they may be rationally predicting other values of future prices such as the most likely (mode) or the midpoint (median).

In my thesis research, I use new statistical tools developed by Dimitriadis et al. (2025) to test farmland price expectation rationality at the mean, median, and mode. I found that expectations are rational in every case when interpreted as the mean or the mode, but never the median. In 52% of cases, expectations were considered rational when interpreted as the average (mean) expected price. In 72% of cases, expectations were considered rational when interpreted as the most likely value (the mode) of expected prices. In an overlapping 24% of cases the mean and mode are indistinguishable from one another meaning they could be reporting the average or most likely expected price or that these two values are close together. In these overlapping cases, it is possible to consider them as the most likely future price at the aggregated state level. They are found to be mode rational. Price expectations for higher quality lands (top and average) are more often the most likely future price when compared to price expectations for poorer quality lands that reflect the average future price.

Table 2: Rationality Results

	Top	Average	Poor
Indiana	mode	mode	mean
North	mean-mode	mean	mean
Northeast	mode	mode	mode
West Central	mean-mode	mean	mean
Central	mean	mean-mode	mean
Southwest	mode	mode	mean-mode
Southeast	mode	mode	mode

So, farmland price expectations aren't "wrong"—they're just ***not always averages***. This explains, at least partially, why previous studies found bias; they assumed people were reporting the average expected price, when in reality, they may have been reporting the "most likely" expected price. Producers and investors using price expectations from the *Purdue Farmland Values and Cash Rents Survey* should consider expectations as the "most likely" future price in their decision making.

Key takeaway: farmland price expectations may be more useful than they look—if we understand how to read them right.

References

Dimitriadis, T., A.J. Patton, and P.W. Schmidt (2025) "Testing Forecast Rationality for Measures of Central Tendency" *Review of Economics and Statistics*, forthcoming.

PURDUE AGRICULTURAL ECONOMICS REPORT

Is farmland a good investment? Comparing risk & returns to other asset classes

Dewey J. Robertson, MS Agricultural Economics Student & Todd Kuethe, Professor of Agricultural Economics

Summary: *Indiana farmland offers returns above bonds but below equities, with less volatility than stocks. Adding cash rents boosts returns, and its low correlation with equities and inverse correlation with bonds make it a strong portfolio diversifier.*

Farmland is more than a production input; it is the largest asset in the agricultural sector. Farm real estate accounts for 83% of total U.S. farm assets and is valued at more than $3.5 trillion (USDA ERS, 2024). Farmland's predictable, stable returns as well as its ability to appreciate over time makes it an attractive investment. Given the high commitment of owning and operating farmland, it is worth comparing how farmland as an asset compares to alternative investments. In a previous article, farmland was found to offer stable returns across most investment horizons, providing total returns comparable to equities but with far lower risk. Given recent changes in political and macroeconomic conditions, it is worth revisiting the topic to see how Indiana farmland as an asset compares to alternative investments in today's economy.

Table 1 provides a summary of several major investment over four investment horizons (1980 – 2024, 1990 – 2024, 2000 – 2024, 2010 – 2024). Investments are evaluated primarily by their promise of return and their risk of loss. Expected returns and risks can be captured by three common measures. First, the mean represents the expected return, as a percentage, over an investment horizon. For example, ten-year treasury bonds had a mean return of 3% between 1980 and 2024, but had much higher returns (11.4%) when considering a more recent investment horizon (2010-2024). Second, the standard deviation (St.D.) represents the variation in returns over an investment horizon. The standard deviation can be considered a measure of the variability or riskiness of an investment—the higher the variation the riskier the investment. Third, the coefficient of variation (CV) is a ratio calculated as the standard deviation divided by the mean return (St.D./Mean). This ratio expresses the relationship between expected returns and riskiness of an investment. Economic theory suggests that risk averse investors are only willing to take on additional risk if they are compensated by a higher expected return. As a result, risk averse investors prefer investments with lower coefficient of variation.

Major investments in table 1 include equities, bonds, and other popular asset classes. Equities investments are comprised of two common stock indices: the Dow Jones Industrial Average (DJIA) and the Standard and Poor's 500 (S&P500) indices. Returns for each index is calculated as the percent change in index value from the last trading day of June in one year to the last trading day of June the year prior ([((P_t-P_(t-1)))⁄P_(t-1)]×100). Bond investments include ten-year U.S. treasury bond (Treasury (10)) and AAA-rated corporate bonds (AAA). Bond yields are likewise calculated as the percent change of end of June trading values. Other investments analyzed are the Federal Housing Finance Agency all-transactions U.S. residential housing price index (Housing) and gold spot multi-contributor, the London Stock Exchange spot price of gold (Gold). Included at the bottom of Table 1 is the Consumer Price Index (CPI) inflation measure. As a general rule, investments should have expected returns that at least keep up with rate of inflation so as to preserve the nominal value of an investment over time.

Table 1 shows that asset classes generally follow the same patterns of return and risk. Equities (DJIA and S&P500) offer the greatest mean returns across investment horizons. However, equities are also the riskiest investments with the highest standard deviations. Bonds, on the other hand, are generally safer while yielding smaller returns.

Table 1: Expected returns and risk of alternative investments

	1980 - 2024			1990 - 2024			2000 - 2024			2010 - 2024		
	Mean	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**
DJIA	10.0	15.7	1.6	9.1	13.6	1.5	6.1	13.5	2.2	11.2	10.7	1.0
S&P500	10.4	16.2	1.6	9.5	14.7	1.6	6.8	15.4	2.3	13.1	11.6	0.9
Treasury (10)	3.0	32.3	10.9	3.5	35.1	10.1	5.9	40.8	6.9	11.4	49.5	4.3
AAA bonds	6.9	3.0	0.4	5.7	1.8	0.3	4.8	1.3	0.3	4.0	0.8	0.2
Housing	4.6	4.5	1.0	4.3	5.0	1.2	4.8	5.9	1.2	4.9	6.1	1.3
Gold	7.2	25.8	3.6	6.3	14.8	2.3	10.1	15.3	1.5	7.3	14.9	2.0
CPI	3.3	2.6	0.8	2.7	1.8	0.7	2.6	2.0	0.8	2.6	2.2	0.9

So, how does Indiana farmland compare to high-risk, high-return equities and low-risk, low-return bonds? Table 2 reports returns to Indiana farmland as captured by appreciation—that is the percent changes in farmland values obtained from the Purdue Land Values and Cash Rents Survey—for three quality grades of land (top, average, poor). Across all investment horizons, Indiana farmland values appreciate at rates below the mean returns of equities but above the returns of bonds. Indiana farmland appreciation were, in general, less risky and volatile than equities yet were considerably riskier than bonds. Interestingly, returns and risk to investing in Indiana farmland varies little by land quality. When compared to other investments, farmland is more consistent at appreciating year to year.

Table 2: Expected returns and risk of farmland based on price appreciation

	1980 - 2024			1990 - 2024			2000 - 2024			2010 - 2024		
	Mean	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**
Top	4.5	10.1	2.2	6.9	8.1	1.2	7.4	9.1	1.2	7.8	11.2	1.4
Average	4.6	10.1	2.2	7.1	7.9	1.1	7.4	8.7	1.2	7.5	10.6	1.4
Poor	4.8	10.8	2.2	7.4	8.6	1.2	7.7	9.3	1.2	7.4	11.3	1.5

Returns on farmland investments may be captured by land value appreciation, as discussed above, as well as by the additional gains from agricultural production that happens on the land. Table 3 reports the returns and riskiness of farmland investment that includes appreciation and production gains, captured by cash rents. Returns from cash rents, like those from farmland appreciation, tend to increase steadily over time—though they generally yield lower returns than land appreciation.

Table 3: Expected returns and risk of farmland as measured by appreciation and cash rents

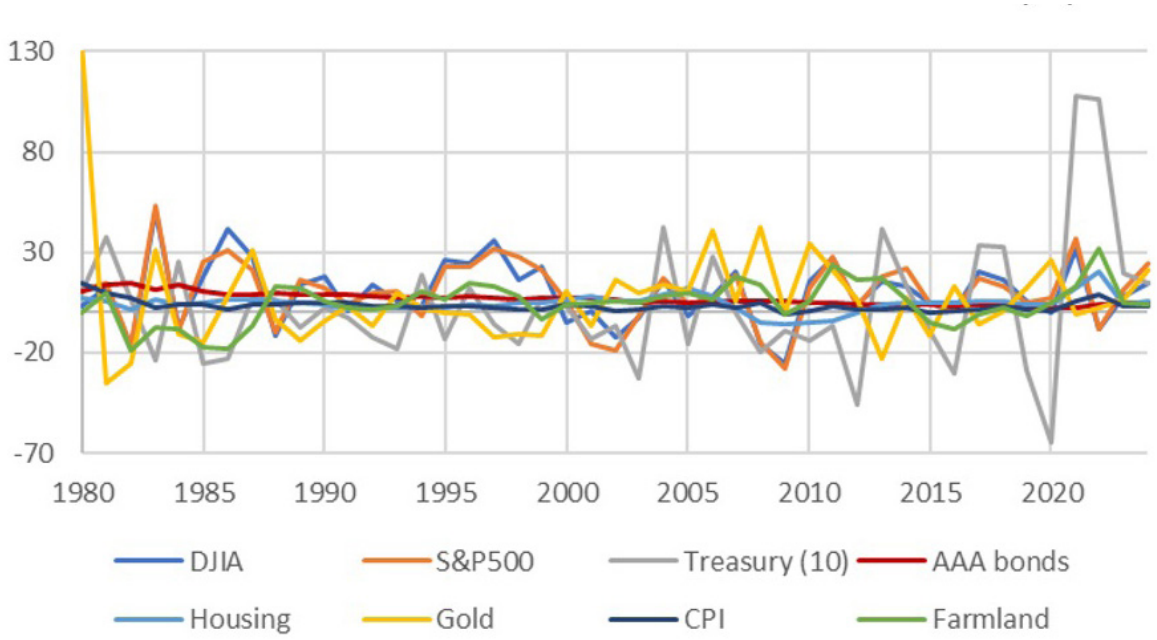
	1980 - 2024			1990 - 2024			2000 - 2024			2010 - 2024		
	Mean	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**	**Mean**	**St.D.**	**CV**
Top	2.4	6.1	2.6	3.3	5.2	1.6	3.5	6.0	1.7	3.3	7.0	2.1
Average	2.5	5.8	2.3	3.4	4.9	1.4	3.6	5.6	1.5	3.6	6.5	1.8
Poor	2.7	6.2	2.3	3.5	5.0	1.4	3.8	5.7	1.5	3.7	6.7	1.8

Farmland as an investment is attractive not only for its returns but for the diversification it brings to an investment portfolio. Well diversified portfolios include investments whose returns are independent to the returns of other investments. It could thus be said that a diverse portfolio is one in which investment returns are uncorrelated. Assets can also prove to be a beneficial inclusion in an investment portfolio if returns are inversely correlated with other investments. In other words, if an investment increases in returns while others decrease, it helps to offset losses. Table 4 shows the correlation between farmland price appreciation and the returns of other investments. Table 4 suggests that farmland is weakly correlated with many investments, particularly equities. Moreover, farmland is inversely correlated with bond yields.

Table 4: Correlations between farmland appreciation and returns of other investments

	Farmland									
	Top	**Average**	**Poor**	**DJIA**	**S&P500**	**Treasury**	**AAA**	**Housing**	**Gold**	**CPI**
Farmland										
Top	1.00									
Average	0.99	1.00								
Poor	0.97	0.99	1.00							
DJIA	-0.07	-0.06	-0.03	1.00						
S&P500	-0.03	-0.02	0.00	0.94	1.00					
Treasury	0.38	0.35	0.32	0.07	0.08	1.00				
AAA	-0.42	-0.41	-0.41	0.02	-0.01	-0.03	1.00			
Housing	0.07	0.08	0.12	0.11	0.14	0.53	-0.05	1.00		
Gold	-0.01	-0.01	0.02	-0.03	0.02	-0.13	-0.10	0.00	1.00	
CPI	0.15	0.13	0.12	-0.09	-0.02	0.44	0.49	0.34	0.35	1.00

Figure 1: Farmland and Alternative Investment Returns (%)



PURDUE AGRICULTURAL ECONOMICS REPORT

Trends in Farmland Price to Rent Ratios in Indiana

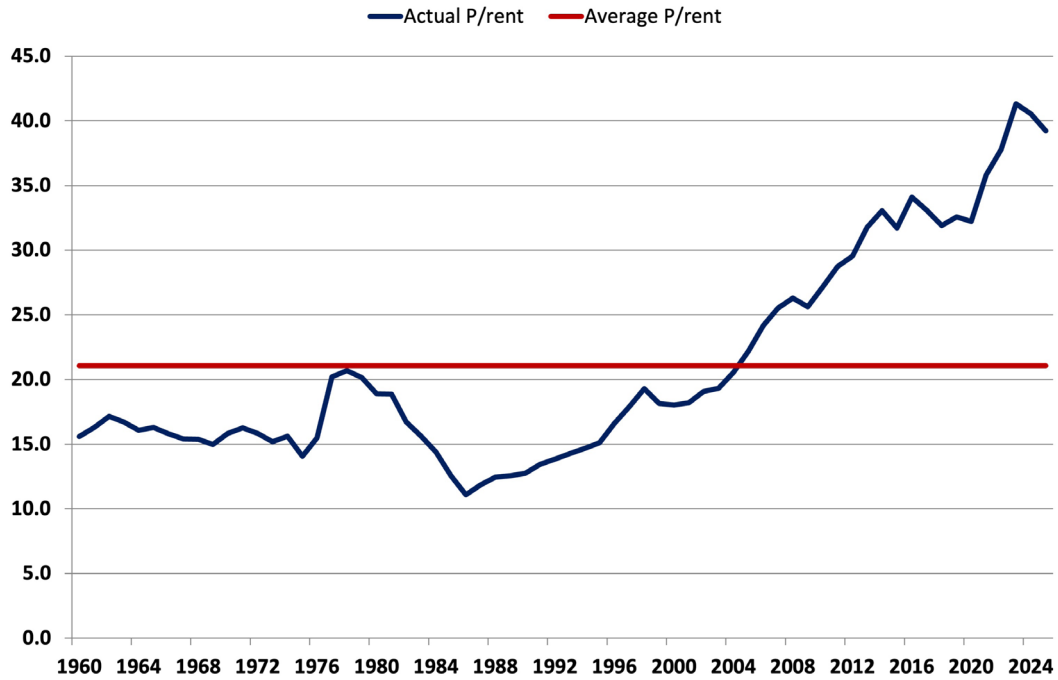
Michael Langemeier, Professor of Agricultural Economic

Summary: *The P/rent ratio (farmland price per acre divided by cash rent per acre) is substantially higher than historical values. The P/rent10 ratio is computed by dividing farmland price per acre by the ten-year moving average cash rent. A negative relationship was found between the P/rent10 ratio at the time of purchase, and the 10-year and 20-year rates of return.*

Farmland prices in west central Indiana increased slightly in 2025 (1.9%), and are 22.0% above the previous peak in 2014. Compared to the farmland price in 2007, current farmland prices in west central Indiana are 193% higher. Farmland prices are influenced by many factors including net income, the growth in earnings, crop and livestock prices, interest rates, alternative investment returns, inflation, liquidity, agricultural policy, and energy policy. Cash rent, which is influenced by net return to land, along with interest rates, are often referred to as fundamental factors impacting farmland prices. Concerns are periodically expressed by many investment analysts that farmland prices are higher than justified by the fundamentals. One justification for this concern is that previous research has established the tendency of the farmland market to over-shoot its fundamental value.

A standard measure of financial performance most commonly used for stocks is the price to earnings ratio (P/E). A high P/E ratio sometimes indicates that investors think an investment has good growth opportunities, relatively safe earnings, a low capitalization rate, or a combination of these factors. However, a high P/E ratio may also indicate that an investment is less attractive because the price has already been bid up to reflect these positive attributes.

Figure 1: Farmland Price to Cash Rent Multiple for West Central Indiana, 1960 to 2025.



This paper computes a ratio equivalent to P/E ratio for farmland, the farmland price to cash rent ratio (P/rent), and discusses trends in the P/rent ratio. We use land value and cash rent data for the 1960 to 2025 period for west central Indiana to illustrate the P/rent ratio. Data from 1975 to 2025 were obtained from the annual *Purdue Land Value and Cash Rent Survey*. For 1960 to 1974, the 1975 Purdue survey numbers were indexed backwards using the percentage change in USDA farmland value and cash rent data for the state of Indiana.

Price to Rent Ratio

The P/rent ratio for west central Indiana averaged 21.1 over the 65-year period from 1960 to 2025 (figure 1). The peak P/rent ratio before 1990 occurred during the 1977 to 1979 period. The P/rent ratio dropped substantially from 1980 to 1986 reaching a low of 11.1 in 1986. The rise from around 15 in 1976 into the 20s and down to 11.1 in 1986 corresponds to what is viewed as the bubble in farmland prices that was followed by one of the most difficult periods in history for production agriculture (i.e., the early-to-mid 1980s).

The P/rent ratio has been above the long-run average since 2004. From 2004 to 2014, the P/rent ratio increased from 20.6 to 33.0. Since 2014, the P/rent ratio has ranged from 31.7 in 2015 to 41.3 in 2023. The current value of 39.2 is relatively high compared to the historic average of 21.1 and a previous high of around 20, and thus at least raises concerns that current farmland prices are overvalued in relationship to returns. Having said that, one of the reasons often mentioned as a major explanatory factor associated with the recently high P/rent ratio is low interest rates. The average interest rate on 10-year treasuries from 1960 to 2025 was 5.8%. The interest rate on 10-year treasuries has been below its long-run average since 2001. However, after averaging less than 1.0% in 2020, the 10-year treasury rate has been increasing. The average rate for 2024 was 4.2% and for the first 6 months of 2025 was 4.4%.

Over the 65-year period from 1960 to 2025, the P/E ratio for stocks is 19.8, which is similar to the long-run average P/rent ratio. Though the long-run averages are similar, the P/E and P/rent ratios do not necessarily track one another. The average correlation coefficient between these two measures is only 0.32. Though not the topic of this paper, diversification potential between the stock market and farmland is relatively high.

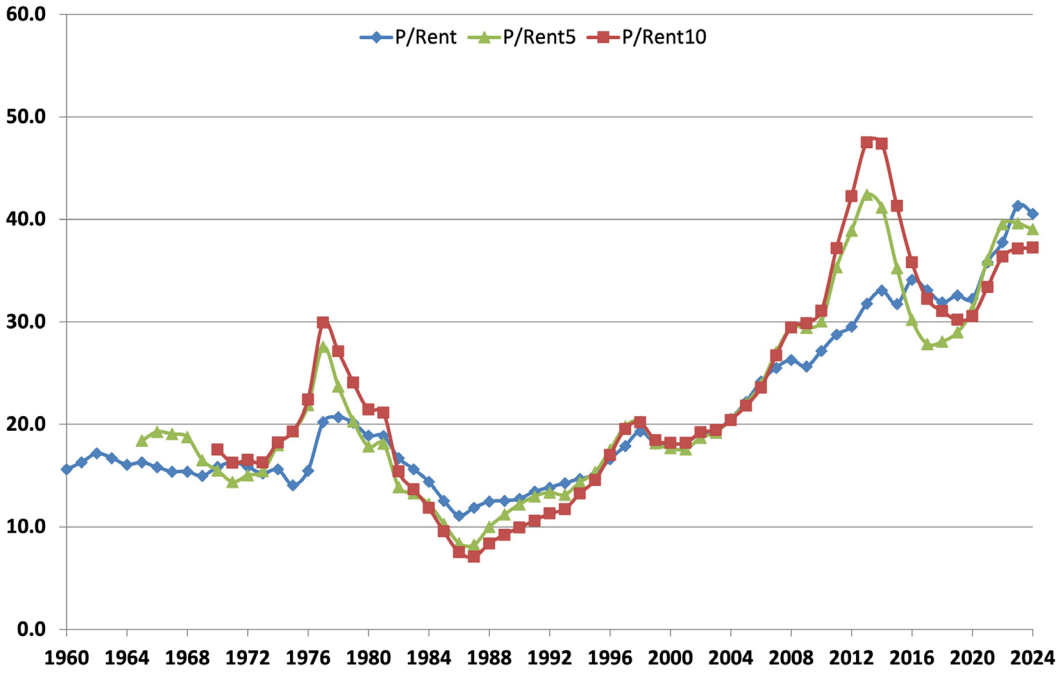
Cyclically Adjusted P/Rent

Shiller (2005; 2025) uses a 10-year moving average for earnings in the P/E ratio, often labeled either P/E10 or cyclically adjusted P/E (CAPE), to remove the effect of the economic cycle on the P/E ratio. When earnings collapse in recessions, stock prices often do not fall as much as earnings, and the P/E ratios based on the low current earnings sometimes become very large. Similarly, in good economic times P/E ratios can fall and stocks look cheap, simply because the very high current earnings are not expected to last, so stock prices do not increase as much as earnings. By using a 10-year moving average of earnings in the denominator of the P/E ratio, Shiller has smoothed out the business cycle by deflating both earnings and prices to remove the effects of inflation. Shiller also uses the P/E10 to gain insight into future rates of return. That is, if an investor buys an asset when its P/E10 is high, do subsequent returns from that investment turn out to be low, and vice versa?

The P/rent ratios reported thus far are the current year's farmland price divided by current year cash rent. Here, we model our P/rent10 after Shiller's cyclically adjusted P/E ratio. Cash rent and farmland prices are deflated, and the 10-year moving averages of real cash rent are calculated. The P/rent10 ratio is computed by dividing the real farmland price by the 10-year moving average real cash rent. A similar computation is done for operator net returns (P/NR-10). We also compute a P/rent5 ratio by dividing real farmland price by a 5-year moving average of real cash rent.

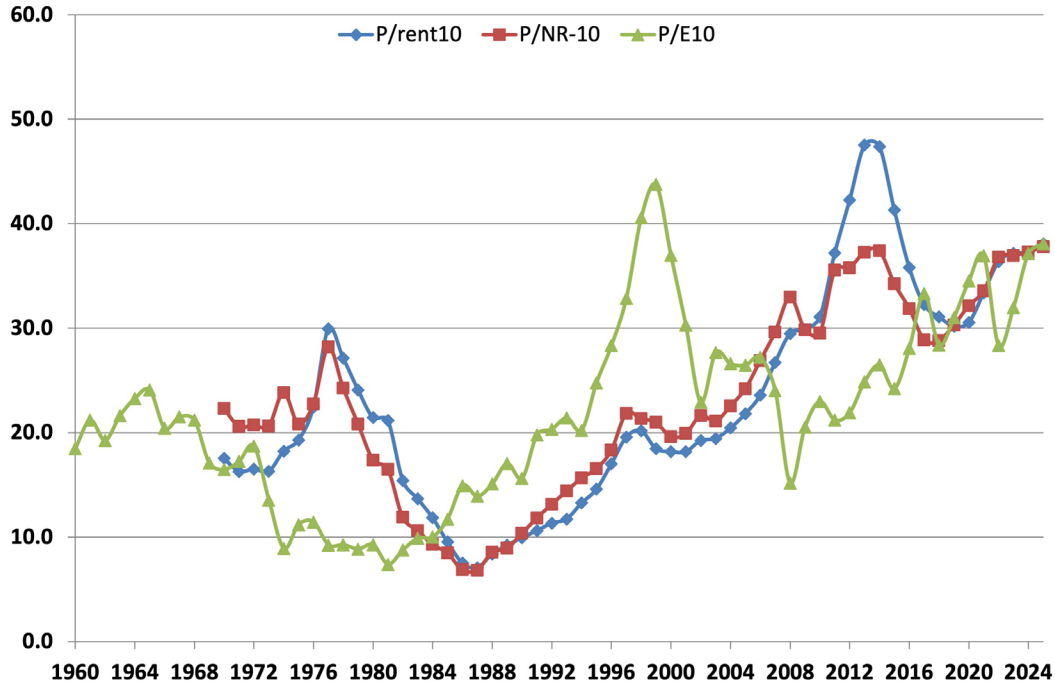
Figure 2 compares the current P/rent ratio with the P/rent5 and P/rent10 ratios. From 2011 to 2015, the P/rent10 ratio was substantially higher than the P/rent ratio. Essentially, during this time period, current cash rent, used to compute the P/rent ratio, was higher than the 10-year average cash rent. The P/rent5 ratio was also higher than the P/rent ratio during this time period, however this ratio was not as high as the P/rent10 ratio. Assuming that cash rent and interest rates were primary drivers of farmland prices during this period, those purchasing farmland were likely using current cash rents rather than a longer run average of cash rents when evaluating the expected long-run returns from owning land. Currently, the P/rent, P/rent5, and P/rent10 ratios range from 38.1 to 39.2, a very tight range, indicating that the current rent, five-year average rent, and ten-year average rent are similar.

Figure 2: Current, 5-Year, and 10-Year Cyclically Adjusted P/rent Ratios for West Central Indiana, 1960 to 2025.



The P/rent10, P/NR-10, and Shiller's P/E10 ratios are illustrated in figure 3. The P/rent10 ratio peaked in 2013 at 47.5. The ratio then steadily declined, reaching a low of 30.2 in 2019. The ratio increased from 30.5 in 2020 to 38.1 in 2025. The current P/rent10 ratio (i.e., 38.1) is still relatively high compared to the long-run average (using 1960 to 2025 data) of 23.1. Does the current P/rent10 ratio signify a bubble or is something else going on? With regard to this question, we would like to make two points. First, though interest rates have increased recently, they are still low compared to the long-run averages since 2007. The rate on 10-year treasuries has averaged only 2.8% since 2007. Second, as we note below, the P/rent10 is currently similar to the P/NR-10 ratio, suggesting that we are in equilibrium.

Figure 3: Ten-Year Moving Average of Cyclically Adjusted P/rent, P/OO, and P/E Ratios, 1960 to 2025.



The P/NR-10 ratio fell through the first half of the 1970s when real returns grew faster than land values, increased from around 20 in the mid-1970s to 28.2 in 1977, and then fell to 6.8 in 1987. The P/NR-10 ratio then increased steadily until it reached an initial peak of 37.4 in 2014. The P/NR-10 ratio has ranged from 28.8 to 37.8 since 2014. From 2015 to 2018, the P/NR-10 ratio was smaller than the P/rent10 ratio, indicating that ten-year average cash rents were smaller than ten-year average net returns to land. From 2019 to 2024, the P/NR-10 ratio was slightly higher than the P/rent10 ratio. Currently, the P/rent10 ratio is slightly higher than the P/NR-10 ratio. In the long-run, you would expect the two ratios to be similar. In fact, the average P/rent10 and P/NR-10 ratios for the 1960 to 2025 period were 23.1 and 23.0, respectively.

It is evident from figure 3 that there is not a close link between the P/E10 ratio and the P/rent10 ratio. The P/E10 ratio was much higher than the P/rent ratio from 1995 to 2002. In contrast, the P/E10 ratio was quite a bit lower than the P/rent ratio from 1976 to 1981, in 2008, and from 2011 to 2015.

Buy at a High Ratio: Get a Low Future Return?

Shiller also discusses the relationship between the P/E10 ratio and the annualized rate of return from holding S&P 500 stocks for long periods. In general, his results show that the higher the P/E10 ratio at the time of purchase, the lower the resulting multiple year returns, like for the next 10 or 20 years. The west central Indiana farmland and cash rent data from 1960 to 2025 are used to compute 10-year and 20-year annualized rates of return. Returns are the sum of the average of cash rent as a fraction of the farmland price each year, plus the annualized price appreciation over the holding period.

The results for farmland show a negative relationship similar to that exhibited in Shiller's stock data. The 10-year holding period returns for farmland show a strong negative relationship (Figure 4). That is, if one purchased farmland when the P/rent10 ratio was very high, like now, they tended to have a low 10-year rate of return. Alternatively, if one purchased farmland when the P/rent10 was intermediate or low, they tended to have moderate to high 10-year returns. The 10-year returns ranged from a small negative to 20%, and averaged 11.1%. The 20-year holding period returns also exhibit a strong negative relationship with the P/rent10 ratio (figure 5). The 20-year holding returns range from 6 to 14%, and averaged 10.9%.

Figure 4: Ten-Year Rate of Return (left axis) and P/rent10 at the Time of Purchase (horizontal axis), 1960 to 2015.

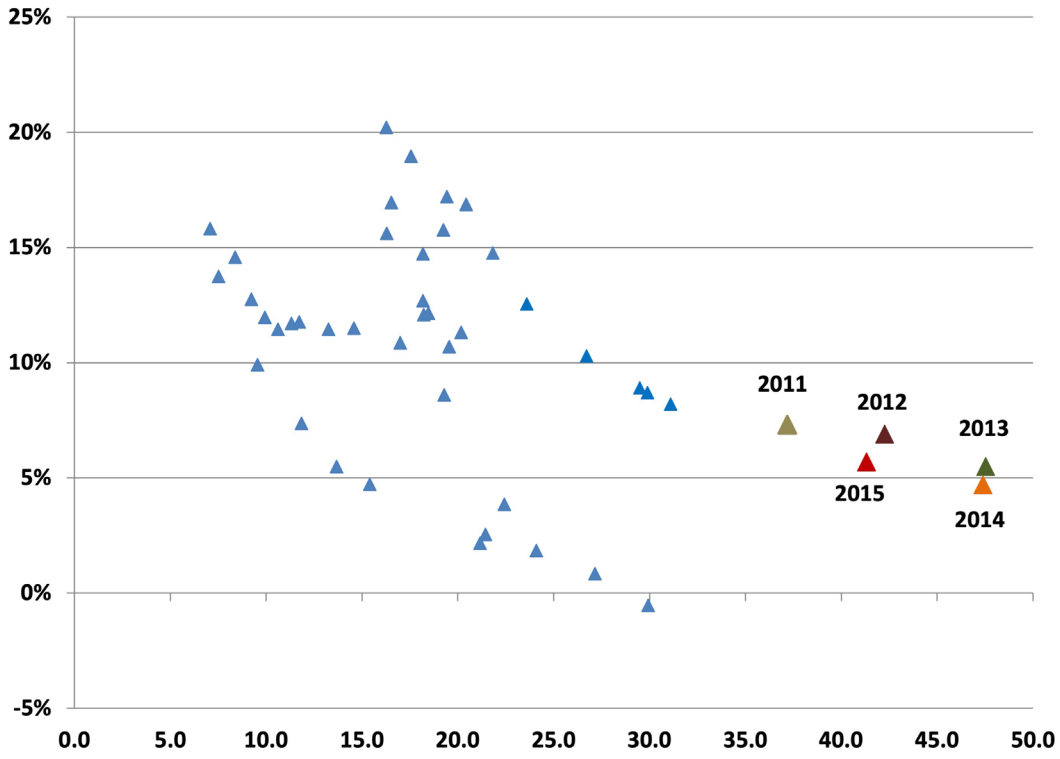
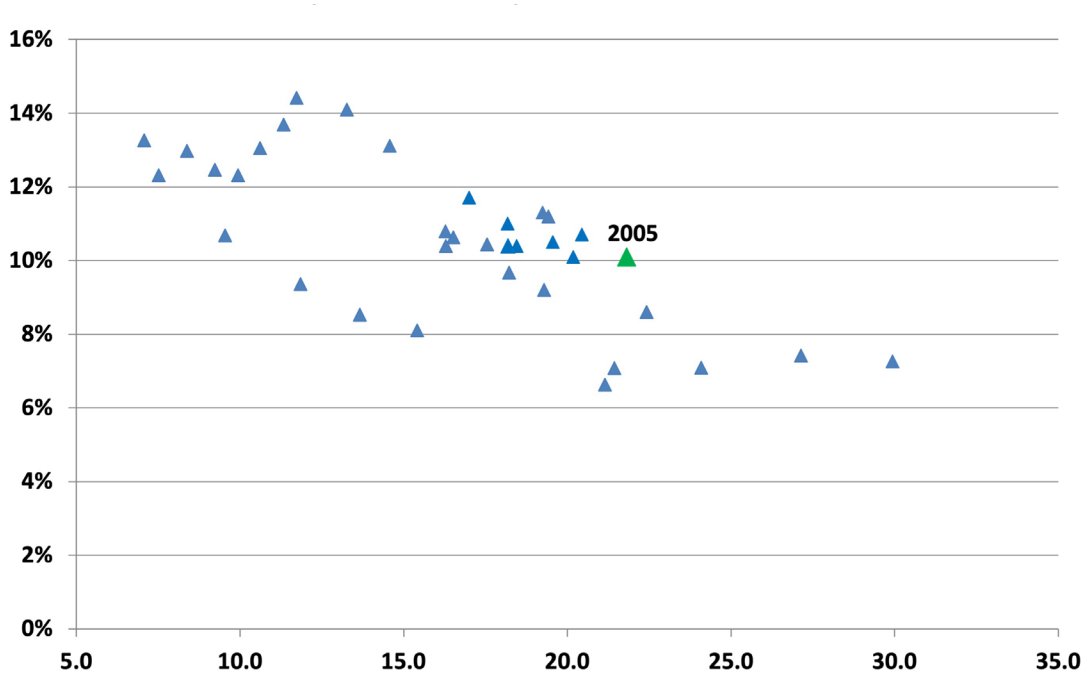


Figure 5: Twenty-Year Rate of Return (left axis) and P/rent10 at the Time of Purchase (horizontal axis), 1960 to 2005.



As noted above, figure 4 presents the ten-year rate of return for farmland and the P/rent10 ratio for land purchased in west central Indiana from 1960 to 2015. The P/rent10 ratio in 2015 (i.e., 41.3) was the fourth highest ratio experienced since 1960. Despite this fact, the ten-year rate of return for farmland purchased in 2015 was still 5.7%. From 2016 to 2024, the P/rent10 ratios range from 30 to 37. Will rates of return for land purchased since 2016 stay positive? The answer to this question depends on what happens to net returns to land and interest rates. If long-run net returns are strong and interest rates stay relatively low, the answer to the question is probably yes.

The 20-year rate of return for land purchased in 2005 is 10.1%, which is in the middle of the range of 20-year rates of return illustrated in figure 5. Since 1996, the 20-year rate has been in a fairly tight range (i.e., 10 to 12%). It will be interesting to see if the 20-year rate of return declines as the P/rent10 ratio increases in the next few years. For land purchased in 2006 the P/rent10 is 23.6. In the following four years, this rate will increase to approximately 31. After 2010, the P/rent10 range from 30 to 47.

Final Comments

Our analysis indicates that the P/rent ratio (price per acre divided by cash rent per acre) is substantially higher than historical values. In order to maintain the current high farmland values, cash rents would have to remain relatively high, and interest rates would also have to remain relatively low. Most agricultural economists expect crop net returns to be lower than the levels experienced in 2021 and 2022 in the next few years. What about the capitalization rate, which is computed by dividing cash rent by land values (i.e., the inverse of the P/rent ratio)? The implied capitalization rate in 2025 using west central Indiana data is 0.025. Several factors impact the capitalization rate including interest rates and macroeconomic factors such as rent growth, GDP, credit risk, and asset class. The relationship between the capitalization rate and interest rates is not a one-to-one relationship. Specifically, capitalization rates have a much narrower range than interest rates. Having said that, the recent increases in interest rates put upward pressure on the capitalization rates. This along with lower net crop returns suggests that the P/rent ratio should at least stabilize, and depending on the impact of interest rates on capitalization rates could even decline in the near future.

We demonstrated that farmland values have tended to have a cyclical component in which farmland values move too high relative to the underlying fundamentals and then over time move too low relative to fundamentals. We use a cyclically adjusted P/rent ratio to show that a very high P/rent ratio, as we have now, tends to be associated with low subsequent returns. Simply stated this means that the historical relationships show that those who bought farmland when the P/rent ratio was high tended to have low subsequent returns. On the other hand, those who bought farmland

when the P/rent ratio was intermediate or low, tended to have intermediate or high subsequent returns. The current record high P/rent ratio could be a warning to current farmland buyers that their odds of favorable returns on these purchases are probably not high.

Our reading from examining 65 years of history is that the current relationship between farmland prices and cash rents suggests that farmland prices are elevated. If we are correct, this means that those purchasing farmland at current prices may experience "buyer's remorse" in coming years. However, there remain some possible situations in which farmland values could be maintained or even increase. Positive influences on land include relatively low interest rates, the relatively small percent of land currently on the market, the attractiveness of farmland to pension fund managers, and the fact that land is a good hedge against inflation.

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