



**AgEcon** SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

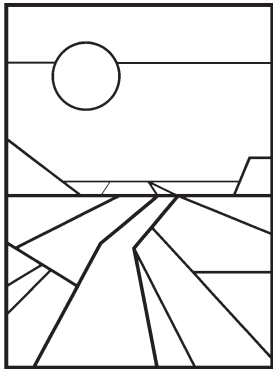
AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*



# PURDUE AGRICULTURAL ECONOMICS REPORT

SEPTEMBER 2000

## Indiana Land Values Rise

*Craig L. Dobbins, Professor and  
Kim Cook, Research Associate*

**T**he 2000 Purdue Land Values Survey indicates that the value of an acre of average bare Indiana cropland was \$2,173 per acre in June 2000. This was \$81 more than the value reported in June 1999, a 3.9 percent increase. This increase more than off-sets the 2.9 percent decline that was reported in 1999. Cash rents increased from 1999 to 2000 on average land by a little less than 2 percent to \$112 per acre. This is the same per acre value reported in 1998.

### Statewide Land Values

For the *six months* ending in June 2000, the value of bare tillable land was reported to have increased 0.9 percent on top land, 0.6 percent on average land, and 0.6 percent on poor land (Table 1). While only a small upward change, these numbers indicate that the declines reported last year have not continued.

While statewide land values moved higher for this six-month period, local conditions always exert important influences. Thirty-two percent of the survey respondents

*\* In 1999, 37 percent of the respondents reported that some or all classes of land declined in value from December 1998 to June 1999.*

*\*\* Transitional land is land that is moving out of agriculture.*

indicated that all classes of land were the same or higher during the December 1999 to June 2000 period. This was an increase from 24 percent of the respondents in last year's report. Thirteen percent of the respondents indicated that some or all classes of land fell in value during the same six-month period.\* Forty-four percent indicated that land values remained unchanged during the six-month period.



The statewide *12-month* increase in average value from June 1999 to June 2000 was 3.9 percent (Table 1). Top-quality land (157 bushel corn yield rating) was estimated to have increased by \$72 per acre to \$2,715 (Table 1). Average land (127 bushel corn yield rating) was valued at \$2,173, an increase of \$81, while poor land (98 bushel corn yield rating) was estimated to be worth \$1,630 per acre, an increase of \$84.

The land value per bushel of corn yield rating also increased this year. For top-quality land, the value per bushel of yield was \$17.28, up by 1.2 percent. Average quality land value was \$17.04 per bushel, while the poor quality value was \$16.70 per bushel (Table 1). The percentage increases were 2.8 percent on average land and 4.9 percent on poor land. These per-bushel figures are \$0.20 higher than last year on top

land, \$0.47 higher on average land, and \$0.78 higher on poor land.

The value of transition land\*\* also exhibited increases. The average value of transitional land in June 2000 was \$6,532, an increase of 8.5 percent from June 1999. For the six-month period from December 1999 to June 2000, transitional land increased by \$138 per acre, 2.2 percent (Table 1). However, due to the wide variation in estimates (from \$1,000 to \$30,000 in June, 2000), the median value may give a more meaningful picture than the arithmetic average. The median value of transitional land in June, 2000 was \$5,000 per acre, the same value reported in June, 1999.

### Statewide Rents

Cash rents increased statewide from 1999 to 2000 by \$2 per acre on all

### In This Issue

Indiana Land Values Rise . . . . .	1
2000 Purdue Income Tax	
School Programs . . . . .	6
Too Good To Last? The Outlook for the U.S. Economy in 2001 . . . . .	7
Outlook Meetings . . . . .	8
Electricity Deregulation in Indiana. . . . .	9
Legal Points for Indiana	
Farmland Leases . . . . .	12
Producers' Adjustments to "Freedom to Farm" . . . . .	13
New Ag Econ Staff . . . . .	16

**Table 1. Average Estimated Indiana Land Value Per Acre (Tillable, Bare Land) and Per Bushel of Corn Yield, Percentage Change by Geographic Area and Land Class, Selected Time Periods, Purdue Land Values Survey, June 2000<sup>1</sup>**

Area	Land Class	Corn bu/A	Land Value					Land Value/Bu			Projected Land Value	
			Dollars Per Acre			% Change		\$ Amount		% Change	Dec. 2000	% Change
			June 1999	Dec 1999	June 2000	6/99-6/00	12/99-6/00	1999	2000	6/99-6/00		
\$/A	\$/A	\$/A	%	%	\$	\$	%	\$	%			
North	Top	156	2,588	2,619	2,638	1.9%	0.7%	16.59	16.96	2.2%	2,619	-0.7%
	Average	125	1,925	2,012	2,040	6.0%	1.4%	15.68	16.33	4.1%	2,032	-0.4%
	Poor	93	1,344	1,408	1,413	5.1%	0.4%	14.89	15.14	1.7%	1,406	-0.5%
Northeast	Top	155	2,492	2,616	2,630	5.5%	0.5%	16.78	16.94	1.0%	2,576	-2.1%
	Average	126	1,997	2,062	2,062	3.3%	0.0%	16.29	16.37	0.5%	2,029	-1.6%
	Poor	97	1,531	1,601	1,595	4.2%	-0.4%	15.82	16.52	4.4%	1,577	-1.1%
W. Central	Top	158	2,780	2,784	2,786	0.2%	0.1%	17.77	17.61	-0.9%	2,779	-0.3%
	Average	131	2,267	2,282	2,289	1.0%	0.3%	17.35	17.52	1.0%	2,292	0.1%
	Poor	102	1,663	1,693	1,681	1.1%	-0.7%	16.43	16.55	0.7%	1,682	0.1%
Central	Top	163	2,867	2,948	3,006	4.8%	2.0%	17.91	18.43	2.9%	3,008	0.1%
	Average	134	2,372	2,509	2,519	6.2%	0.4%	17.88	18.76	4.9%	2,522	0.1%
	Poor	105	1,863	2,006	2,035	9.2%	1.4%	17.98	19.39	7.8%	2,036	0.0%
Southwest	Top	161	2,611	2,682	2,663	2.0%	-0.7%	16.50	16.54	0.2%	2,638	-0.9%
	Average	126	1,929	2,015	1,981	2.7%	-1.7%	15.27	15.70	2.8%	1,952	-1.5%
	Poor	92	1,269	1,358	1,330	4.8%	-2.1%	13.35	14.39	7.8%	1,318	-0.9%
Southeast	Top	142	2,246	2,105	2,185	-2.7%	3.8%	15.46	15.35	-0.7%	2,234	2.2%
	Average	116	1,783	1,721	1,808	1.4%	5.1%	15.22	15.65	2.8%	1,846	2.1%
	Poor	88	1,338	1,368	1,429	6.8%	4.5%	14.68	16.17	10.1%	1,471	2.9%
Indiana	Top	157	2,643	2,691	2,715	2.7%	0.9%	17.08	17.28	1.2%	2,702	-0.5%
	Average	127	2,092	2,160	2,173	3.9%	0.6%	16.57	17.04	2.8%	2,169	-0.2%
	Poor	98	1,546	1,621	1,630	5.4%	0.6%	15.92	16.70	4.9%	1,629	-0.1%
	Trans. <sup>2</sup>		6,019	6,394	6,532	8.5%	2.2%				6,705	2.6%

<sup>1</sup> The average land values contained in this summary represent averages over several different locations and soil types. If a precise value is needed for a specific property, this value can be determined by a professional appraiser.

<sup>2</sup> Transition land is land moving out of production agriculture.

*Purdue Agricultural Economics Report* is a quarterly report published by the Department of Agricultural Economics, Purdue University.

#### Editor

Gerald A. Harrison  
E-mail: harrison@agecon.purdue.edu  
Phone: 765-494-4216 or  
toll free 1-888-398-4636

#### Editorial Board

Lee F. Schrader  
Stephen B. Lovejoy  
Christopher A. Hurt  
Philip L. Paarlberg

#### Layout and Design

Cathy Malady

#### Circulation Manager

Patt Sheahan

#### Agricultural Economics Department

www.agecon.purdue.edu

#### PAER World Wide Web

www.agecon.purdue.edu/extensio/paer.htm

#### Cooperative Extension Service

www.anr.ces.purdue.edu

Purdue University  
Cooperative Extension Service,  
West Lafayette, IN

classes of land (Table 2). The estimated cash rent on top land was \$140 per acre, \$112 per acre on average land, and \$86 per acre on poor land. Rent per bushel of estimated corn yield was \$0.89 on top land and \$0.88 on average and poor land. This value is the same as 1999 for top land and is a 1¢ increase for average and poor land.

Statewide, cash rent as a percentage of estimated land value remained the same or decreased. For 2000, cash rent as a percentage of value was 5.2 percent on top and average land. The value for poor land decreased to 5.3 percent (Table 2).

#### Area Land Values

Changes in the value of farmland in the six different geographic areas of Indiana (Figure 1) for December 1999 to June 2000, ranged from a -2.1 percent decrease for poor land in

the Southwest to an increase of 5.1 percent for average land in the Southeast region (Table 1). For the December 1999 to June 2000 period, the Southeast, Central, and North regions reported increases for all land types. The Southeast region reported the strongest increases. The Southwest reported declines for all land types. In the Northeast and West Central regions, small declines were reported for poor land, and small increases were reported for top and average land.

For the year ending in June 2000, the change in land values ranged from a 2.7 percent decline in top farmland in the Southeast region to a 9.2 percent increase for poor land in the Central region. All regions except the West Central region reported strong increases in some or all land types for the year ending in June 2000. The changes in land values for West Central Indiana were

still positive, but smaller than those reported in other regions. The decline in land value was for top land in the Southeast region, declining 2.7 percent.

The highest valued top-quality land was in the Central area, \$3,006 per acre. The next highest values were in the West Central (\$2,786), Southwest (\$2,663), North (\$2,638), and Northeast (\$2,630). Reported values for average quality land were \$2,519 in the Central and \$2,289 in the West Central areas but only around \$1,800 to \$2,100 in the other areas.

Land values per bushel of estimated average corn yield (land value divided by bushels) on top land were \$17.61 and \$18.43 for the West Central and Central regions (Table 1) and between \$16.54 and \$16.96 for the Southwest, North, and Northeast. The Southeast had the lowest land value per bushel at \$15.35.

Respondents were asked to estimate rural home sites with no accessible gas line or city utilities and located on a black top or well-maintained gravel road. The median value for five-acre home sites was \$5,000 in all areas except the Central region, where the median was \$6,000 per acre (Table 3). Estimated per acre median values of the larger tracts (10 acres) ranged from \$4,000 to \$5,500.

### Area Cash Rents

All regions except the Southeast reported increases in cash rents for the year (Table 2). This is a sharp contrast to last year's survey, in which only the North region reported cash rent increases. In the Southeast, a decline of 2.8 percent was reported for top land, and no change was reported for average and poor land. The only other cash rent decline reported was for poor land in the West Central region.

The largest percentage increase in cash rent occurred for average land in the Northeast region, increasing 4.0 percent. This was followed by an increase of 3.9 percent for top land in the Northeast and average land in the Southwest region.

**Table 2. Average Estimated Indiana Cash Rent Per Acre, (Tillable, Bare Land) 1999 and 2000, Purdue Land Value Survey, June 2000**

Area	Land Class	Corn bu/A	Rent/Acre		Change '99-'00 %	Rent/bu. of Corn		Rent as % of June Land Value	
			1999 \$/A	2000 \$/A		1999 \$/bu.	2000 \$/bu.	1999 %	2000 %
North	Top	156	139	140	0.7%	0.89	0.90	5.4	5.3
	Average	125	108	111	2.8%	0.88	0.89	5.6	5.4
	Poor	93	78	81	3.8%	0.87	0.87	5.8	5.7
Northeast	Top	155	127	132	3.9%	0.86	0.85	5.1	5.0
	Average	126	101	105	4.0%	0.82	0.83	5.1	5.1
	Poor	97	80	82	2.5%	0.83	0.85	5.2	5.1
W. Central	Top	158	153	153	0.0%	0.98	0.97	5.5	5.5
	Average	131	125	127	1.6%	0.96	0.97	5.5	5.5
	Poor	102	97	96	-1.0%	0.96	0.94	5.8	5.7
Central	Top	163	148	150	1.4%	0.92	0.92	5.2	5.0
	Average	134	122	123	0.8%	0.92	0.92	5.1	4.9
	Poor	105	96	99	3.1%	0.93	0.94	5.2	4.9
Southwest	Top	161	132	136	3.0%	0.83	0.84	5.1	5.1
	Average	126	102	106	3.9%	0.81	0.84	5.3	5.4
	Poor	92	74	76	2.7%	0.78	0.82	5.8	5.7
Southeast	Top	142	108	105	-2.8%	0.74	0.74	4.8	4.8
	Average	116	83	83	0.0%	0.71	0.72	4.7	4.6
	Poor	88	64	64	0.0%	0.70	0.72	4.8	4.5
Indiana	Top	157	138	140	1.4%	0.89	0.89	5.2	5.2
	Average	127	110	112	1.8%	0.87	0.88	5.3	5.2
	Poor	98	84	86	2.4%	0.87	0.88	5.4	5.3

Cash rents were again highest in the West Central and Central areas at \$153 and \$150 per acre, respectively, for top land, and \$127 and \$123 per acre, respectively, for average land. Cash rents per bushel for the Central and West Central regions ranged from \$0.92 to \$0.97. These were also the highest in the state. The per-bushel rent for top land was 90¢ in the North, 85¢ in the Northeast, 84¢ in the Southwest,

and 74¢ in the Southeast. In all areas, rates per bushel within areas varied by 3¢ or less by land quality.

### Land Market Activity

In a period of low commodity prices in which there are only a few "must sell" transactions, there is often a reduced number of farmland transfers. In effect, price is maintained by limiting supply. While the survey does not provide strong evidence that

**Table 3. Median Value of Five-Acre Home Sites and Home Sites of 10 Acres or More**

Area	Median Value, \$ per acre							
	Under 5 Acres				10 Acres & Over			
	1997 \$/A	1998 \$/A	1999 \$/A	2000 \$/A	1997 \$/A	1998 \$/A	1999 \$/A	2000 \$/A
North	5,000	5,000	5,000	5,000	4,250	4,000	5,000	5,000
Northeast	4,250	5,000	5,000	5,000	4,000	4,000	4,000	4,500
West Central	5,000	5,000	5,000	5,000	5,000	4,700	4,000	5,000
Central	5,000	5,000	5,000	6,000	4,500	5,000	5,000	5,500
Southwest	4,250	5,000	5,000	5,000	5,000	4,500	5,000	5,000
Southeast	4,000	5,000	5,000	5,000	3,500	3,000	3,750	4,000

transfer numbers are declining, survey respondents indicated that some reduction in the number of transfers may be occurring. The number of farmland transfers in the six months ending in June compared to a year earlier was estimated to be up by 20 percent of the respondents. In 1999, 22 percent of the respondents indicated an increase in transfers. In 1998, 34 percent indicated an increase. No change in the number of transfers was reported by 51 percent of the respondents, while 28 percent (compared to 30 percent in 1999 and 20 percent in 1998) indicated a reduction in the number of transfers. Less land was thought to be on the market by 37 percent of this year's respondents. More land was thought to be on the market now by 11 percent of this year's respondents.

Respondents were asked to provide their perceptions of how the purchasers of farmland had changed from a year earlier. Demand from farmers was said to have increased by 26 percent of the respondents, while 17 percent of the respondents indicated that farmer demand had declined. In 1999, 15 percent of the respondents indicated an increase in farmer demand, while 39 percent indicated a decline.

Nearly everyone (83 percent) indicated an increase in demand for rural residences. Less than three percent of the respondents indicated a decrease in demand for rural residences, while 15 percent indicated no change. Thirty-two percent of the respondents indicated that individual nonfarm investors in farmland had increased, while 19 percent

indicated that this source of demand had decreased. In 1999, 25 percent of the respondents indicated an increase from individual nonfarm investors, while 20 percent indicated a decrease in demand from individual nonfarm investors.

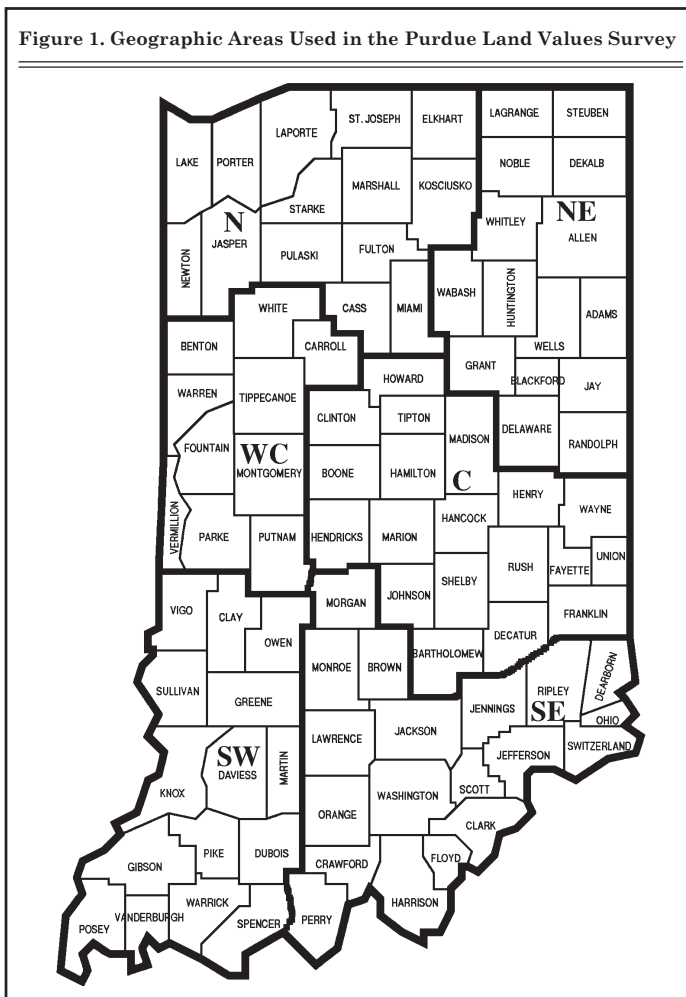
The purchase of farmland by pension funds and other large investors is always a topic of discussion. Compared to a year ago, 8.0 percent of the respondents indicated that demand from this source had increased, 28 percent indicated a decrease, and 64 percent indicated no change. These are similar to the numbers reported in 1999, when 6.0 percent of the respondents indicated an increase and 35 percent indicated a decrease.

#### Land Value/Cash Rent Multiples

While the recent change in land value has a strong influence on land value's future direction, the annual return to a land investment must also be considered. One way to assess the relationship between the annual return and land values is to observe the land value/cash rent multiple. This is similar to the "price/earnings ratio" often referred to by stock market analysts. For example, data from the 2000 Purdue survey indicates a value/rent multiple of 19.4 ( $\$2,173 \div \$112 = 19.4$ ). Is this figure abnormally high, thus suggesting that land values are too high? To answer this question we need to have an estimate of what is "normal."

For the period 1975 to 2000, the value to rent multiple has ranged from a low of 12.4 in 1986 to a high of 20.6 in 1979 (Figure 2). Over the 1975 to 2000 period, the value to rent multiple averaged 16.2, with a standard deviation of 2.6. At a multiple of 19.4, the value to rent multiple is in a range similar to that in the 1978 to 1981 period. If one assumes that the value to rent multiple is normally distributed, this means there is only a 11-percent chance that a higher value will be achieved. Or looking at it from the other side, there is an 89-percent chance of a lower value to rent multiple. Since 1975, the land value to rent multiple

Figure 1. Geographic Areas Used in the Purdue Land Values Survey



has exceeded 19.0 in seven years (1978-1981 and 1998-2000), indicating that the value to rent multiple is more likely to decline than increase.

**Farmland Value Outlook**

The decline in land values last year raised the question, "Will land values continue to decline?" This year's survey indicates the answer is "no." Low crop prices place downward pressure on farmland values. But at the same time, increasing yields and increased government income support provide positive influences.

However, the survey respondents were pessimistic about any further increases in land values during the period of June to December 2000. When asked to project land values for December 2000, respondents reported declines in value for all land types in the North, Northeast, and Southwest regions. Strong increases in land values in the Southeast were expected. For the Southeast, top land was expected to increase 2.2 percent, average land 2.1 percent, and poor land 2.9 percent. The largest declines were expected in the Northeast region (Table 1). Land values in the Central and West Central regions were expected to remain the same. These projections in the past have accurately predicted direction, but have not been a good indicator of the actual magnitude of change.

Longer term, respondents were more optimistic. When asked where they expected land values to be five years from now, 67 percent of the survey respondents expected land values to increase. The remaining 33 percent were divided between expecting a decline (11 percent) or no change (22 percent). In last year's survey, the number of respondents expecting an increase was 51 percent, and the number expecting a decline or no change was 49 percent. On average, respondents expected an increase of 9.0 percent for the five years. In 1999, respondents expected land values for the five-year period to increase 2.0 percent.

Expectations regarding intermediate crop prices have a strong

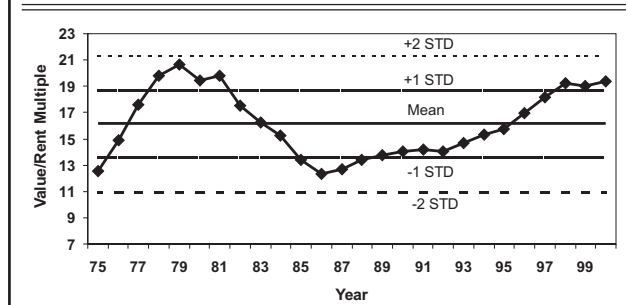
influence on farmland values because of their impact on the return to the land investment and their impact on the cash flows associated with the investment purchase. In order to gain some insight into the income level expected from a land purchase, respondents were asked to estimate annual average prices over the next five years for corn and soybeans. Respondents have made these projections since 1984 (Table 4).

A decrease occurred in the expected five-year average price of corn and soybeans. However, these changes, 3¢ for corn and 1¢ for soybeans are small compared to the

decline of 77¢ for soybeans and 23¢ for corn reported in 1999. To the extent that land market participants have similar reduced expectations, these low price expectations will exert downward pressure on land values.

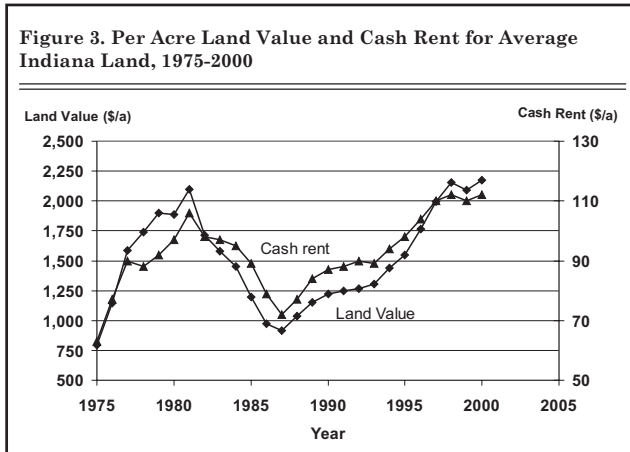
Other important factors associated with a land purchase include the expected farm mortgage interest rate and the rate of inflation. The estimated interest rate increased this year, the first estimated increase in four years. As mortgage rates increase, the cash flow subsidy that is often required by a land purchase will increase. If long-term

**Figure 2. Value to Rent Multiple for Average Indiana Land, 1975-2000**



**Table 4. Projected Five-Year Average Corn and Soybean Prices, Mortgage Interest and Inflation**

Year	Prices, \$ per bu.		Rate, % per year	
	Corn	Beans	Interest	Inflation
1984	\$3.13	\$7.35	13.3%	6.5%
1985	2.70	6.13	12.3%	5.1%
1986	2.32	5.43	11.0%	4.2%
1987	2.16	5.62	10.7%	4.5%
1988	2.50	6.82	10.9%	4.6%
1989	2.48	6.55	11.0%	4.7%
1990	2.61	6.22	11.0%	4.6%
1991	2.47	6.07	10.4%	4.2%
1992	2.52	6.04	9.5%	3.8%
1993	2.35	5.96	8.7%	3.8%
1994	2.48	6.18	8.9%	3.8%
1995	2.50	6.02	9.2%	3.9%
1996	3.01	6.63	9.1%	3.7%
1997	2.72	6.81	9.0%	3.4%
1998	2.54	6.34	8.6%	3.1%
1999	2.31	5.57	8.4%	2.9%
2000	2.28	5.56	9.1%	3.2%
Average	\$2.53	\$6.19	10.1%	4.1%



interest rates continue to rise, this will add increased downward pressure on land values.

In a market that, over the last several years, has been characterized by either a series of increases or declines (Figure 3), the land market seems unsure about the direction in which it should go. At the current time, low grain prices, increasing petroleum prices, and increasing interest rates point toward lower land values and cash rents. Improved profits from hog and beef enterprises, increased government payments, and the continued strength of the general economy with its demand for country home sites

and recreational land point toward high land values and cash rent.

Like last year, low grain prices and rising costs seem to call for downward adjustments in land value and cash rent. Will a decline occur? If the Federal Reserve continues to increase interest rates to slow the general economy and fuel prices remain high, we may see some decline in the demand for development land and thus in land values. The direction that cash rents take will be determined by expectations regarding government payments. At this time, little change in cash rents or land values is expected in the year ahead.

Periods such as this, while creating difficulties for some producers, provide opportunities for others. For some, the changes of the past two years have resulted in a decision to leave farming. For others, it has presented the opportunity to expand farm size by renting or purchasing. If you are expanding the farm business, it is always prudent to do some careful budgeting and develop a plan of action for dealing with a surprise that results in substantial revenue reductions.

\*\*\*\*\*

*The land values survey was made possible by the cooperation of professional farm managers, appraisers, brokers, bankers, Purdue Extension educators, and persons representing the Farm Credit System, the Farm Service Agency (FSA) county offices, and insurance companies. Their daily work requires that they stay well-informed about land values and cash rents in Indiana. The authors express sincere thanks to these friends of Purdue and Indiana agriculture. They provided 360 responses representing nearly all Indiana counties. We also express appreciation to Carolyn Hunst of the Department of Agricultural Economics for her help in conducting the survey.*

## 2000 Purdue Income Tax School Programs

**P**urdue University will be conducting 11 two-day general income tax update programs and three one-half day workshops devoted exclusively to agricultural tax issues. These programs are intended primarily for tax professionals. Dates and locations are:

Date	Location
Nov. 1-2 (W-Th)	Fort Wayne - IUPUI
Nov. 13-14 (M-T)	South Bend - Century Center
Nov. 13-14 (M-T)	Valparaiso - Great Room VU
Nov. 16-17 (Th-F)	Indianapolis/East - Holiday Inn
Nov. 16-17 (Th-F)	Evansville - 4-H Center
Nov. 20-21 (M-T)	West Lafayette - Stewart Center
Nov. 20-21 (M-T)	Terre Haute - Indiana State Univ.

Nov. 27-28 (M-T) . . . Indianapolis/West - Adam's Mark  
 Nov. 27-28 (M-T) . . . Seymour - American Legion

Nov. 30 - Dec. 1 (Th-F) Kokomo - Johanning Conference Center  
 Nov. 30 - Dec. 1 (Th-F) Muncie - Ball State - Cardinal Room

Dec. 5 (T) . . . . . Ag Tax Workshop - Warsaw  
 Dec. 6 (W) . . . . . Ag Tax Workshop - Indianapolis  
 Dec. 7 (Th) . . . . . Ag Tax Workshop - Evansville

For additional information and registration material call 765-494-7219, 800-359-2968 ext.92L or keyword: tax.



Income Tax Management for Farmers, a two-hour program for producers will be presented on Tuesday, December 12, 2000 from 7 to 9 p.m. EST over the closed-circuit television system at about 25 locations. Contact 888-398-4636, ext. 44241 for further information.

# Too Good To Last? The Outlook for the U.S. Economy in 2001

Larry DeBoer, Professor

**O**n August 22, the Federal Reserve's Open Market Committee decided to leave interest rates unchanged. Their press release summed up the reasons:

- Recent data have indicated that the expansion of aggregate demand is moderating toward a pace closer to the rate of growth of the economy's potential to produce. The data also have indicated that more rapid advances in productivity have been raising that potential growth rate as well as containing costs and holding down underlying price pressures.

This shows that nobody slings jargon like the Federal Reserve. It also shows that the Fed sees the pace of growth moderating. That's what they've been aiming to accomplish over the past year of interest rate hikes.

Yet, just three days later, the U.S. Commerce Department issued an estimate of Gross Domestic Product (GDP) growth for the second quarter. The figure was 5.3% above inflation. Since summer 1999, the economy has grown 6% above inflation, the fastest rate since 1984. This rapid growth comes in the tenth year of the current expansion, already the longest in U.S. history. If the economy is slowing down, the GDP accountants haven't heard the news.

## Why Slow It Down?

We've got a good thing going. Nine and a half years of expansion, unemployment at a 30 year low, growing productivity, Federal budget surpluses, and, if you don't count oil, little inflation. Why slow it down?

Because the Federal Reserve and most economists just can't believe that something this good can last. The economy is clearly at full capacity. This means that available resources are fully employed. Land,

machinery and especially people are working full tilt producing goods and services. There are help wanted signs in every shop window.

Since there are no more unemployed resources to put into production, the economy should be able to grow only as fast as those resources grow. That means that the growth of the economy is limited to growth in the number of people available for work (the labor force), plus growth in the tools they have to work with (the capital stock), plus increases in the amount that labor can produce using those tools (productivity). Economists add these up and get something like 3.5% per year.

Suppose people, businesses and governments try to increase their purchases of goods and services by more than that amount. That's fine if there are unemployed resources to put into production. Production can grow more than 3.5%. With no unemployed resources, though, the amount people try to buy is more than what can be produced. A bidding war is likely. Businesses, desperate to take advantage of sales opportunities, bid workers from other firms with higher wages, and materials from other firms with higher prices. Costs rise for all businesses, and in most industries firms will try to pass higher costs to consumers in higher prices. That's inflation.

The Federal Reserve is the sworn enemy of inflation. When they see it as a threat, they act to cut the ability of people, businesses and governments to increase their purchases. They do this using the only tool they've got, interest rates. The Fed raises interest rates. Home buyers think again when they see their potential mortgage payments rise. Businesses think again when the cost of borrowing for new equipment

rises. Even governments may postpone capital projects, not wanting to pay extra interest. The growth in purchases slacks off, with luck to the rate that the economy can grow.

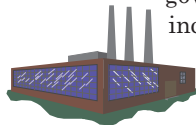
## There is No Inflation

The inflation rate over the past year was 3.6%, the highest rate since 1991. Did the economy finally suffer the costs of rapid growth and low unemployment? No. Oil prices increased, and with it the Consumer Price Index. Taking the energy and food sectors out of the inflation rate gives a better measure of the overall trend in prices. This "core" rate of inflation increased from 2.1% in July 1999 to 2.4% in July 2000. Inflation remains low.

Perhaps the most mysterious economic event of the past decade is how an economy at full capacity can grow so fast without increasing inflation. Answers come in two flavors: productivity growth and increased competition.

Until the mid-1990s, most economists thought the full-capacity growth rate was around 2.5%, not 3.5%. It had been something like that lower figure for about twenty years. In the second half of the decade, though, productivity started to grow faster. Maybe information technology reached some sort of "taking off point." Maybe the boom in investment in plant and equipment so increased the capital stock that each worker had more and better tools to work with. That's what the Fed means when they say, "rapid advances in productivity have been raising that potential growth rate."

Each worker produces more output. When workers and suppliers must be bid away from other firms at higher costs, firms can cover those costs with sales of more output. There is less need to pass along cost increases in higher prices. There is less inflation.





Another reason that price increases have been less than expected is because of increased global competition. Imports as a share of inflation-adjusted GDP grew from 9% in 1989 to 15% in 1999. Businesses fear raising prices lest they lose market share to the competition. Instead, they look for even more cost savings and productivity improvements, or cut their profit margins.

### Will the Economy Slow Down?

Productivity is rising, competition is fierce, and inflation is mild. In 1999-2000, the Fed decided that the better part of valor required interest rate hikes, to slow the economy down. Now they see it happening. What is the evidence?

Consumers increased their spending faster than their incomes during the past year, so much so that saving turned negative. Households in total are withdrawing funds from savings to support their purchases. In the second quarter, though, consumer spending slowed to just 3%, after a 7.6% rise in the first quarter. Higher interest rates should discourage purchases of durable goods, and perhaps slower growth in stock market values will make consumers feel less wealthy.



Housing construction really did slow down over the past year, growing only one percent above inflation. This will continue, as shown by the declining number of building permits issued to construction firms. Higher mortgage rates are probably the reason. Business investment in equipment and buildings did not slow, and shows no sign of doing so. Eventually, though, higher interest rates must affect these investment decisions, too. There also are signs that the investment sector is pressing against capacity limits. Firms may buy fewer trucks because they can't find drivers. Fewer buildings may be built because of a shortage of materials.

Exports of all goods and services grew faster over the past year than in the previous two, mostly because

of the recovery in Asia. Imports grew even faster, which probably helped hold down inflation in the United States.

The Federal government ran an enormous surplus, about \$230 billion in fiscal 2000. This is exactly what the economy needed. Big surpluses mean that income is taxed away and not spent, which reduces the amount people and firms can try to spend on the economy's limited output. Our divided, stalemated government is partly responsible. In the current climate, perhaps this is a blessing.

### Outlook

Probably the economy will slow down. Consumers show some signs of cooling it. Higher interest rates, low savings and slower growing stock values may discourage them.

Housing construction has already slowed; other investment likely will respond to higher interest rates too. Import growth will continue to exceed export growth. Even if the election ends divided government, big tax cuts or spending increases won't affect the economy before next summer. Expect GDP to grow 3.5% above inflation. That's the rate the economy can grow from labor, capital and productivity increases. Slower growth and smaller changes in oil prices should let inflation drop to 3% over the next year, and the economy will still grow enough to keep the unemployment rate down at 4%.

Let's take the Fed at their word. They see a slow down—their mission is accomplished. They may also want to appear neutral during the coming election season. For most of the rest of this year, and the first part of the next, then, expect no changes in interest rates from the Fed. If the economy doesn't slow down, though, they will surely act to raise rates. So we hedge, a little. By this time next year, put the short and long term rates a bit higher than they've been, the 3-month Treasury rate at 6.2%, the 30-year Treasury rate at 6.4%.

Want more? See the Department of Agricultural Economics Outlook web page, at <http://www.agecon.purdue.edu/extensio/index.htm>

## Outlook Meetings

**Y**our invited to attend an outlook meeting this fall during the 73<sup>rd</sup> annual Purdue Outlook Campaign. This will be an important year to examine storage alternatives for Indiana's record crop and to consider the ways to handle LDP's and grain pricing. Policy alternatives are beginning to come into focus, and these will be outlined. The economics of what crops to plant for 2001 have also changed, so you will want to hear Purdue's evaluation. As always you will get outlook updates and management practices to consider for corn, soybeans, wheat, cattle, hogs, as well as prospects for farm income, land values, and cash rents. Please check with your County's Extension Office for specific meeting location and details.

County	Date	Time
Adams	09/21/00	6:30 PM
Allen	09/18/00	12:00 PM
Bartholomew	09/13/00	6:30 PM
Boone	09/14/00	7:00 AM
Cass	09/18/00	7:30 AM
Clark	12/12/00	7:30 AM
Clay/Owen	09/18/00	7:00 PM
Clinton	09/13/00	7:30 AM
Crawford/Harrison	12/12/00	Unknown
Daviess	December	Unknown
Decatur	09/20/00	7:00 PM
Dekalb	09/21/00	6:30 PM
Fayette	11/02/00	6:30 PM
Fulton	09/19/00	7:30 AM
Grant	09/13/00	8:00 AM
Hamilton	09/19/00	7:00 AM
Hancock	09/13/00	6:30 AM
Howard	09/13/00	7:30 AM
Huntington	09/20/00	7:00 AM
LaPorte/Porter	09/18/00	7:30 AM
Madison	09/13/00	8:00AM
Montgomery	09/15/00	7:00 AM
Newton	09/14/00	7:30 PM
Orange/Lawrence	12/11/00	6:30 PM
Perry/Spencer	09/20/00	7:30 AM
Posey	09/13/00	5:00 PM
Pulaski	09/21/00	7:30 AM
Putnam	09/13/00	7:00 AM
Rush	09/14/00	6:30 PM
Scott	12/11/00	Unknown
Shelby	09/18/00	7:00 PM
St. Joseph	January	Unknown
Sullivan	09/21/00	7:00 AM
Tippecanoe	09/13/00	11:30 AM
Tipton	March	Unknown
Warrick	09/14/00	7:00 AM
Washington	12/12/00	10:30 AM
Wayne	09/14/00	11:30 AM
Wells	09/13/00	6:30 PM
White	09/14/00	7:30 AM

# Electricity Deregulation in Indiana

Adair Morse, Ph.D. Candidate and Zuwei Yu, Ph.D.,  
State Utility Forecast Group\*

**R**egulation of electricity in the United States has ensured that service remains reliable and that sufficient quantities of electricity are provided to every industry and household at a price deemed reasonable by the regulating agency. In 1996, the Federal Energy Regulatory Commission (FERC) issued Order 888, which requires states to open electricity transmission lines to wholesale competition. In other words, all electricity generators should have equal access to transmission services. By forcing states to implement wholesale competition, the FERC hoped that utilities would be able to lower costs to consumers while yet ensuring reliable service.

A natural step from wholesale competition in electricity is to deregulation in the power generation industry. Since open access to transmission lines will bring about generator competition, there may be no need for electricity generators to remain regulated. States have the authority to choose both whether electricity generation should be deregulated and how such deregulation should take place. The reality for most states is not *whether* deregulation should happen, but *when* and *how* it should take place. Some states, especially the high-cost states like California and New York, have not only implemented wholesale deregulation, but also have begun to promote retail competition in which there is competition among utilities for individual accounts. In Indiana, the proposed restructuring plan has failed twice in the General Assembly in the past few years because different interest groups have been unable to agree upon a path to deregulation.

This article briefly lays out the justification for the national deregulation of electricity generation, summarizes the current state of the Indiana electric power industry, explores the impact of deregulation on prices, and finally draws some implications for Indiana's rural consumers.

## National Deregulation of Electricity Generation

Generally, industries are regulated under one of two scenarios. In the first scenario, it is not considered efficient for more than one firm to provide a product or service. With electricity, it is awkward to think that two companies would build separate networks of electricity wires in the same region. The other scenario for regulation occurs in industries for which a basic standard of service is mandated by the government. The electricity market fits under this description as well. Regulation ensures that electricity service is reliably provided during the course of the day and that quality standards are met. These standards include voltage, frequency, stability, etc.

So why deregulate electricity? The answer is that it is the transmission and distribution of electricity that require regulation and not the generation itself. In the future, while a single transmission company within a region will deliver power and maintain electricity lines, electric power generation companies may compete either consumer-by-consumer to generate the electricity for each account or in a pooled marketing setting. In some states, this is already a reality, and pilot programs for retail choice are being tested. But why would consumers want this to happen?

Most economists argue that regulation raises prices to consumers. This occurs because the regulating agency fixes consumers' prices based

on the value of the assets of the regulated power company; this method allows for a fair rate of return on these assets. Thus, the firms have an incentive to buy expensive capital equipment and facilities that may be beyond a cost-effective level of investment.

In the U.S., regulated electricity provision is inefficient in its state-level orientation. Trade of electricity from states with low costs of generation (Indiana) to states with high costs of generation (Illinois) has been hindered by restrictions caused by individual state-level regulations. Thus, each state has continued to expand facilities to meet the demand for electricity within its own boundaries. In a fully competitive regional climate, consumers could buy cheaper power directly from a neighboring state.

Finally, regulation may not encourage innovation, particularly by smaller independent firms. Advances in new technologies, especially in natural gas turbine generation, offer relatively affordable and often environmentally friendly generation alternatives. These technologies may be fairly easily adapted by industries or communities as an alternative to purchasing electricity from larger generators when the market price rises at peak supply periods.

However, there are no certainties that deregulation and the ensuing competition will bring lower prices that typically accompany greater efficiency. The following example may illustrate this idea.

In electricity generation, nuclear and coal-fueled power plants can economically generate a steady stream of electricity. However, these facilities cannot easily increase or decrease output. Thus, electricity generation companies also build natural gas-fueled power plants that can be cheaply turned on or off to meet peak periods of demand – the hottest hours in the summer and the



\* This article does not reflect the views of the State Utility Forecast Group or any other organization. The opinions represented are solely the judgments of the authors.

coldest hours in the winter. At peak periods, most power plants are generating electricity at maximum capacity. The few remaining gas plants can be in a position to charge high rates for the extra production.

This *peak pricing* phenomena, shown in Figure 1 for summer peak demand in Pennsylvania, New Jersey, and Maryland (the PJM Power Pool), has occurred in most deregulated electricity environments. In such a situation, peak power generators may be able to take advantage of little competition and thus to take large profits at consumer expense. It would seem logical that new plants might be built if there were opportunities to profit from peak demand. This would in turn lower the ability of firms to implement peak pricing strategies. However, both the short duration of the peak periods and the uncertainty of the market may discourage new firms from entering the market, leaving existing peaking units unchecked as profit makers.

### Indiana Electricity Generation

In 1997, Indiana was ranked as the 8<sup>th</sup> lowest cost generator of electricity among the fifty states. Neighboring Kentucky generates electricity even more cheaply than Indiana, and Illinois and Ohio run higher cost generators. Indiana's low-cost position stems from the abundant availability of coal and from the early development of low-cost generating facilities to take advantage of the coal supplies.

In theory, Indiana's low electricity prices should be significant in drawing high power-using industries into the state. Lawmakers would like to preserve this ability to attract businesses to build (and keep) facilities in Indiana. Forecasts for Indiana electricity prices by the State Utility Forecasting Group (SUFG) at Purdue University predict a slight decline in the real price of electricity over the next 7 years if the market were to stay regulated. Where Hoosiers may have a choice concerning regulation, interstate commerce laws will not allow states to insulate themselves from exports or imports from other States. Thus, depending on the speed of deregulation in other states, this forecast may be short-lived, and low prices in Indiana may be influenced by higher prices in other states.

At the same time, Indiana's demand for electricity is supposed to continue to grow more than the projected expansion in electricity generation. Thus, the fear that the currently proposed generation additions largely may not be built on time heightens concerns over future supply shortages, particularly during peak periods.



### Impact of Deregulation in Indiana

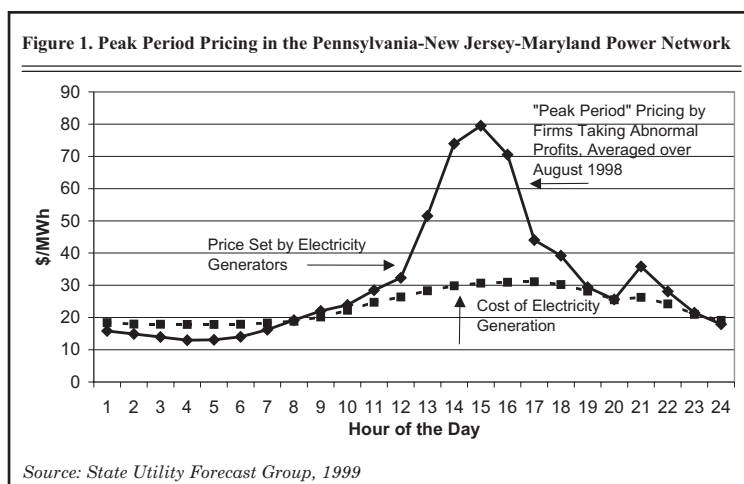
The SUFG has forecast that deregulation may initially lower consumer prices in Indiana as competition among producers ensues, if there is no artificial manipulation of electricity market prices. However, the

long-run price level may in fact be higher than the current prices. As mentioned, power generation companies may be able to extract profits at high peak periods. They may also be able to raise prices at other times in the day if they can somehow coordinate their pricing schemes among firms without breaking antitrust (cartel) laws. Finally, prices may be higher in Indiana simply because other states will want to buy more of the less expensive electricity from Indiana and bid up the price.

As shown in Figure 2, Kentucky and Indiana have not yet legislated electricity deregulation, but Illinois and Ohio are both quickly moving to deregulate. This is a logical progression. Consumers in Illinois and Ohio would face lower prices if electricity generators from Indiana and Kentucky were allowed to sell more electricity in neighboring states. The downside of this situation for Hoosiers might be that as local generators begin selling more electricity to other states, the supply of less expensive electricity left over for Indiana consumers would grow smaller and smaller, forcing prices to rise.

However, a trade-induced increase in price will likely occur even in a regulated environment! As demand in other states rises, local power companies will want to build more facilities. Indiana consumers may find themselves paying for these new projects via regulated prices.

For example, Indiana electricity generators may expand capacity to meet not only the growing shortages in Indiana but also electricity demand from other states. New facilities, however, are built with newer, more expensive technologies than those in existing assets of generation firms. The total value of all facility and equipment investment would naturally rise, and more importantly, the average investment for each megawatt (MW) of electricity would also increase. Recalling that regulators set consumer prices based on the assets of firm, even with new revenues from other states, price increases would be warranted. The accuracy of this scenario



depends on the ability of the Indiana regulators to decipher which assets are exclusively for export generation and the power of the regulators to balance this information against generators' requests for rate increases. It may be that the Indiana Utility Regulatory Commission can exclude generation assets used for exports when calculating a fair price to charge Indiana consumers.

In these examples, the selling of less expensive Indiana electricity to other states may have the detriment of increasing local prices. However, there is a benefit for Hoosiers in trade scenarios as taxable revenues are brought home from sales in other states and as (a limited number of) new jobs are created in the expansion of generation.

Some Hoosier legislators are concerned that consumers may see higher prices in the near future due to the trade impact. But lawmakers have no intention of implementing deregulation until they can be sure that generators will act competitively. Collusion and peak pricing are the key concerns to be addressed before deregulation will occur.

**Consumer Pooling**

How does all of this affect the Indiana consumer? Consumers must be prepared for the reality of a deregulated environment. The large Indiana industries (automobiles/parts, steel, etc.) will be able to contract directly with generators and get the lowest prices possible. (This already is occurring.) However, the small users of electricity, particularly in rural areas, are potentially exposed to high prices because the quantities demanded are less, and the distances between consumers are greater. One option here involves the pooling of consumers.

The existence of rural electricity cooperatives in some areas may offer some relief to higher prices for widely dispersed consumers. Already such organizations have pools of clients/owners which may be able to negotiate with the deregulated electricity companies for more favorable pricing. Other types of pooling organizations may be yet to form. The State of Indiana believes that new

breeds of utility marketing firms will develop that also serve this pooling function, contracting consumers and re-selling these accounts to generators while taking a margin of profit. This is much like the early years following the telephone deregulation.



Risk management will play an important role for buyers and resellers of electricity. Even large industries may have a future need for firms specializing in managing risk. Electricity cannot be stored; therefore, if peak pricing does occur, energy consumers usually cannot just altogether stop using electricity. Generators may offer incentives to consumers or resellers who use less electricity in peak periods. Yet this voluntary cutback in peak demand may not entirely solve the potential for severe price fluctuations. Thus, the role of electricity resellers may evolve to a role of risk management. If contracts with end-users of electricity bind resellers to sell at a particular price, these middlemen may bear the burden of price fluctuations. Option and insurance markets to smooth electricity

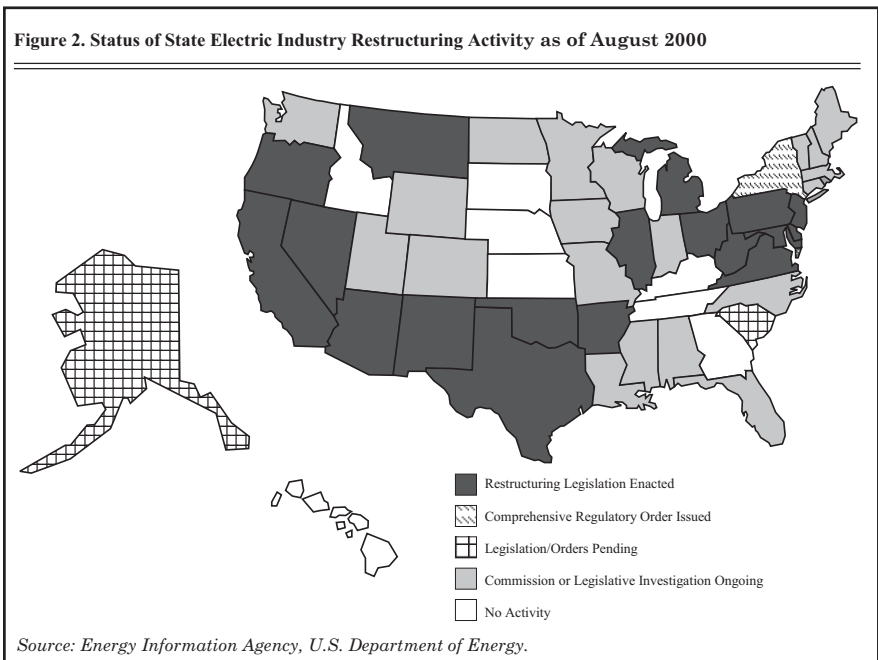
prices are already in development and early use stages.

There are great difficulties involved in predicting the dynamics of competition in a consumer market for electricity that has never existed. In the coming months and years, Indiana cannot afford to miss the opportunity to learn from other states that are already encountering some of these transformations.

**Summary**

The lessons of the Indiana electricity situation might be the following:

- ▶ Hoosiers should encourage the state to ensure that deregulated utilities are not allowed to extract abnormal profits in periods of high demand before Indiana embraces deregulation. However, in doing so, Hoosiers should be sensitive to two dangers:
  - Too much interference in producer profit potential may discourage investment in capacity planned for export. This in turn will lower possible benefits for the state such as additional tax revenues or creation of new job opportunities.



— Hoosiers should be aware of the dangers of fighting possible higher prices associated with the trade of electricity across state lines. Continued regulation will not fully protect price levels from increasing as Indiana generators expand sales in other states. Instead, Indiana may hinder efficiencies that come from a competitive environment. This may be even more important as federal nitrogen oxide (NO<sub>x</sub>) emissions laws are implemented by 2003. The new



environmental laws will increase the cost of running Indiana's old line coal generators and may force the remodeling or even the closure of some plants. Deregulation may encourage quicker adoption of new, environmentally improved technologies both by large generators and by individual industries or communities.

- ▶ In the coming environment of electricity competition, consumers should be proactive in thinking about how their business and personal electricity accounts can be pooled for price discounts in the

age of competition. In doing so, however, both industrial consumers and pooled groups should understand the cost and role of risk management that this new environment demands.

More information on deregulation of electricity in the United States as a whole or in Indiana in particular can be found on the Internet at the following sites.

State Utility Forecast Group  
<http://www.ecn.purdue.edu/IIES/SUFG>  
 Indiana Utility regulatory Commission  
<http://www.ai.org/iurc/>  
<http://www.state.in.us.iurc/energy/>  
 U.S. Department of Energy  
<http://www.eia.doe.gov>

## Legal Points for Indiana Farmland Leases

Gerald A. Harrison, *Extension Economist*

**I**ndiana law requires at least three months advance notice of a lease termination.

Because March 1 is the customary start of the lease year in the Midwest, the lease termination date is before December 1. Term leases, which begin and end on specific dates, may need no termination notice. The critical need is to communicate! If there is a desire to renegotiate the terms of a lease, it may be wise to terminate the lease with a notice.

Tenants may want to terminate a lease they no longer can afford. Settling on a rental rate or share lease terms for 2001 and beyond may require renegotiation. The price outlook for corn and beans is a sobering factor. However, rental rates have not declined. The major reason for the strength in rents is not the market price outlook. A double "Freedom-to-Farm (FTF)" payment for 1999, and the expectation for the same in 2000, and the loan deficiency payment (LDP) helped out a great deal. Farmers may have received an LDP of nearly 30 cents a bushel last fall for all of the corn they produced. For a 150 bushel/acre crop, at 30 cents/bushel

the LDP was \$45 an acre. When the farmer actually priced his 1999 crop determined the final outcome for 1999 crop year.

The FTF payment for a farm depends on the farms program yield, and base acres. For example, with a program base of 75% of tillable acres, and a program yield index of 120 bushel the 2000 FTF payment for 80 acres would be about \$26 per tillable in 2000 (80 acres x .75 x .85 x 120 bu. x 33.4 cents). With a double FTF payment, and LDP at 30 cents on an actual yield of 150 bu. that is \$97 per tillable acre, and the farmer still has the corn to sell.

Actual crop yields are an important factor for the LDP payment. Hopefully, a farmer has crop insurance in case of serious deficiencies in yields.

It is important that landowners, and their tenants settle any differences, and set their lease terms soon. Generally, once the FSA provides an advance payment to a certified producer, the FSA does not assist in a return of that advance. This is true even though another tenant may

obtain a lease for a given farm for year 2001.

If an existing lease is not terminated, a tenant may be liable for rent or lease terms according to the lease for 2000. This termination notice is generally required even if the land is sold or the owner dies.

Landowners and tenants are reminded to consult their respective lawyers, and other counselors, for help with: evaluating the current conditions, lease termination notices, and drafting new lease provisions.

More information on farmland lease law including tax aspects, and the economics of leasing may be obtained by contacting your county Purdue Cooperative Extension Office. To obtain a copy of "Legal Aspects of Indiana Farmland Leases," and other lease information call Gerry Harrison at (765) 494 4216 or toll free 1-888-398-4636. "Legal Aspects ..." is listed as "Lease Law" with Harrison's Ag Law Course on the Internet at: <<http://www.Agecon.purdue.edu/academic/agec455/>>. Lease forms may be viewed on the Internet at <<http://www.agcom.Purdue.edu/AgCom/Pubs/agecon.htm#3>> E-mail: <[harrison@agecon.purdue.edu](mailto:harrison@agecon.purdue.edu)>

# Producers' Adjustments to "Freedom to Farm"

*George F. Patrick, Professor and Kurt Collins, Graduate Research Assistant\**

The 1996 Farm Bill, sometimes referred to as the "Freedom to Farm Act," substantially modified the economic environment for many producers. The standing disaster assistance program was eliminated, and major changes were introduced in crop insurance. Fixed production flexibility payments, that decline over time, were used in place of deficiency payments. Initially, commodity prices were well above levels that would have resulted in deficiency payments under the prior law. However, prices for 1998 crops declined sharply, and corn and soybean prices have continued at historically low levels. Loan deficiency payments (LDPs) were common in both 1998 and 1999, and the government has also responded with additional payments to increase farm income. Patrick and Musser found that participants in the 1997 Top Farmer Crop Workshop (TFCW) did give greater importance to price variability than producers in the 1991 or 1993 workshops. However, the average rating of 15 sources of risk was no higher in 1997 than in previous years. Similar results were obtained with respect to the importance ratings of responses to risk. Although the importance to producers of some marketing responses increased, the increase had occurred before the change in farm policy.

This article extends the analysis of producers' responses to participants in the 1999 TFCW. Analysis is limited to those producers with \$100,000 or more gross income from farming. Workshop participants are not a representative sample of all farmers, but their views and opinions are considered typical of large-scale commercial farmers. The average producer responding operated nearly 2,000 acres of crops, primarily corn and soybeans, was about 40 years of age, and had completed

about three years of schooling beyond high school. Participants were asked to rate, on a scale of one (low) to five (high), their willingness to accept risk, views of changes in risk faced as a result of "Freedom to Farm," and the importance of a number of sources of risk in their decision making. They were also asked to use a similar scale to rate the importance of a number of responses to risk and to indicate whether they were used in their farm operation.

Results indicate no change in TFCW participants' willingness to accept risk between 1993, 1997, and 1999. However, producers do view farming as more risky, especially with respect to price, after the 1996 policy changes. Crop price variability and the government commodity program have increased in importance as sources of risk. Producers give greater emphasis to being a low-cost producer and to participating in the government program as risk management responses. There is some increase in the rating of importance and use of some marketing and insurance-related responses to risk, but this is quite limited. Producers also indicate some decline in their debt-leverage management and use of financial/credit reserves, reflecting the current financial stress in agriculture.

## Willingness to Take Risk and Perceptions of Riskiness

Participants in each of the Workshops were asked to self-assess their willingness to accept risks relative to other farmers on a scale of one (much less willing) to five (much more willing). The average values for participants were 3.66, 3.59, and 3.79 for the 1993, 1997, and 1999 TFCWs, respectively. The differences in the averages for the three Workshops are not statistically significant, indicating no change in farmers' willingness to accept risk

over the period. However, the 1999 TFCW participants are more willing to accept risk than farmers in general. The average value of 3.29 for willingness to accept risk for a stratified random sample of 342 Indiana crop producers with gross incomes of \$100,000 or more is significantly lower than that of the TFCW participants.

Participants in both the 1997 and 1999 Workshops were asked to characterize the effect of the change in government farm policy with "Freedom to Farm" on the price and income risk faced by their farm businesses as compared with five years earlier. Again, a five-point scale, with one indicating "much less risky" and five indicating "much more risky," was used. In 1997, both price and income risk received identical average values of 3.83. In 1999, the average value for price risk was 4.19, significantly higher than in 1997. The average value for income risk was also higher in 1999, 3.96, but the difference is not statistically significant. These results suggest that producers have not changed in their willingness to accept risk as a result of "Freedom to Farm," but producers do view farming as involving more risk, especially with respect to price, after the changes in government farm policy.

## Sources of Risk

Table 1 summarizes the averages and standard deviations (a measure of the dispersion of responses) of the nine most highly rated sources of variability from the 1993, 1997, and 1999 TFCW surveys. Crop price and crop yield variability have been the most highly rated sources of risk in both 1997 and 1999, and price was significantly higher than in 1993. Injury, illness, or death of the operator and environmental regulations were the most highly rated sources of risk in 1993. Although the importance rating of injury, illness, or death of the operator declined sharply, the decline was not



\* Appreciation is expressed to Lining Li for her assistance in initial tabulation of the data.

**Table 1. Averages and Standard Deviations (in parentheses) of Ratings of Importance<sup>1</sup> of Highly Rated Sources of Risk for Top Farmer Crop Workshop Participants<sup>2</sup>**

Source of Risk	1993 N=73	1997 N=41	1999 N=28
Crop price variability	4.12 <sup>b</sup> (0.87)	4.61 <sup>a</sup> (0.63)	4.61 <sup>a</sup> (0.63)
Crop yield variability	4.08 <sup>b</sup> (0.78)	4.49 <sup>a</sup> (0.68)	4.32 <sup>ab</sup> (0.77)
Business arrangements with output purchasers	NA —	4.12 <sup>a</sup> (0.75)	4.18 <sup>a</sup> (0.86)
Cost of capital items	3.79 <sup>a</sup> (0.89)	3.95 <sup>a</sup> (0.89)	4.11 <sup>a</sup> (0.92)
Government commodity programs	3.62 <sup>ab</sup> (1.04)	3.20 <sup>b</sup> (0.88)	4.00 <sup>a</sup> (1.05)
Technology	3.86 <sup>a</sup> (0.95)	3.80 <sup>a</sup> (0.81)	4.00 <sup>a</sup> (0.72)
Input costs	3.93 <sup>a</sup> (0.82)	3.90 <sup>a</sup> (0.80)	3.89 <sup>a</sup> (0.97)
Injury, illness, or death of operator	4.35 <sup>a</sup> (0.94)	4.10 <sup>a</sup> (1.16)	3.82 <sup>a</sup> (1.16)
Environmental regulations	4.17 <sup>a</sup> (0.77)	3.73 <sup>b</sup> (0.78)	3.82 <sup>ab</sup> (1.06)

<sup>1</sup> Importance was evaluated on a Likert-type scale of 1 (not very important) to 5 (very important).

<sup>2</sup> Average values for the importance of a source of risk in different years with the same superscript are not statistically different at the five percent level.

statistically significant. In part, this is due to the large standard deviations (indicating wide differences among respondents) of the ratings. For environmental regulations, the high importance rating in 1993 appears to reflect the concern about conservation tillage practices and compliance. Although the decline in importance given to environmental regulations from 1993 to 1997 was statistically significant, the

importance in 1999 was not significantly different from the value in 1993. However, it should be noted that most of the TFCW participants did not produce livestock and would not be affected by recent developments in livestock environmental regulations.

The possibility of changes in business arrangements with output purchasers, a source of risk not considered in the 1993 survey, was

rated third in importance in 1999. The importance given to government commodity programs declined from 1993 to 1997, reflecting the change in government farm policy. However, the importance of government commodity programs was at its highest level in the 1999 survey. This is not surprising given the importance of governmental payments as a part of 1998 and 1999 farm income. The importance ratings given to technology and input costs as a source of risk in decision making were not significantly different over the three surveys.

It is common to classify risks faced by producers into the categories of production, market or price, financial, legal, and human risks. All five areas are represented in the nine most highly rated sources of risk. Crop yields and technology are directly related to production, while commodity prices reflect the market risk. Input costs and costs of capital items have a financial risk component. The legal area of risk is represented by changes in government commodity programs and environmental regulations. One aspect of human risk is represented by the possible injury, illness, or death of the operator.

The five sources of risk that were rated as the least important by producers are indicated in Table 2. For both 1997 and 1999, land rents received the lowest average score of any of the sources of risk considered, significantly below the value for 1993. Changes in the family labor force and family relations were also rated as relatively unimportant sources of risk, with no significant changes over time. The rating given to credit availability increased from 1993 to 1999, but the change was not statistically significant. Changes in business arrangements with input suppliers was added in the 1997 survey, but the increase to 1999 was not significant. This suggests that mergers and changes in the supply industry apparently do not cause concern that changes in output purchasers do among farmers. Overall, the rating of 16 sources of risk considered in all three surveys did not differ

**Table 2. Averages and Standard Deviations (in parentheses) of Ratings of Importance<sup>3</sup> of Lowly Rated Sources for Top Farmer Crop Workshop Participants<sup>4</sup>**

Source of Risk	1993 N=73	1997 N=41	1999 N=28
Land rents	3.53 <sup>a</sup> (1.03)	2.50 <sup>b</sup> (1.52)	2.80 <sup>b</sup> (1.71)
Family labor force	3.18 <sup>a</sup> (1.24)	3.41 <sup>a</sup> (1.13)	3.29 <sup>a</sup> (1.27)
Family relationships	3.70 <sup>a</sup> (1.27)	3.68 <sup>a</sup> (1.33)	3.29 <sup>a</sup> (1.27)
Credit availability	3.26 <sup>a</sup> (1.23)	3.44 <sup>a</sup> (1.18)	3.50 <sup>a</sup> (1.07)
Business arrangements with input suppliers	NA —	3.15 <sup>a</sup> (1.01)	3.53 <sup>a</sup> (1.07)
Average of 16 sources	3.68 <sup>a</sup> (0.53)	3.59 <sup>a</sup> (0.51)	3.62 <sup>a</sup> (0.65)

<sup>3</sup> Importance was evaluated on a Likert-type scale of 1 (not very important) to 5 (very important).

<sup>4</sup> Average values for the importance of a source of risk in different years with the same superscript are not statistically different at the five percent level.

significantly in spite of the different economic environment.

### Responses to Risk

Producers may make a variety of responses to manage risk. The 1993 survey included 21 responses in the production, marketing, and financial areas. Both the 1997 and 1999 surveys considered 25 responses, with the additional responses in the marketing area. Table 3 summarizes averages and standard deviations for the seven responses rated at 3.85 or higher in 1999. Producers also indicated whether they used the response in their farm operation.

Being a low-cost producer was rated at 4.79 in 1999, significantly higher than in the earlier surveys. It is likely that this high rating reflects the economic stress felt by producers because of low crop prices. Nearly 77 percent of respondents indicated they used the response, up slightly from 71 percent and 67 percent in 1993 and 1997, respectively. Liability insurance, used by over 95 percent of producers, was the highest rated response in 1993 and 1997, and there was no significant difference among years. The largest absolute change, more than 0.8, was in the importance given to participation in the government commodity program. About 85 percent of producers used this response in all three years. The rating of using production techniques that work under a variety of conditions was significantly lower in 1999 than in 1997 or 1993. The percentage of producers using this response slipped from 87 percent in 1993 to 77 percent in 1999.

There are no statistically significant changes in the ratings of the other three responses to risk in Table 3. More than 60 percent of producers are hedging the selling price of at least some of their production, while about 85 percent have life insurance for the operator and/or key personnel. Although importance given to debt-leverage management was unchanged, the percentage of producers indicating use of the response declined from about 64 percent in 1993 to 42 percent in 1999. Apparently, the tough economic times have resulted in a number of

**Table 3. Averages and Standard Deviations (in parentheses) of Ratings of Importance<sup>5</sup> of Risk Management Responses by Top Farmer Crop Workshop Participants<sup>6</sup>**

Risk Management Response	1993 N=70	1997 N=41	1999 N=28
Being a low cost producer	4.40 <sup>b</sup> (0.79)	4.15 <sup>b</sup> (0.96)	4.79 <sup>a</sup> (0.50)
Liability insurance	4.40 <sup>a</sup> (0.62)	4.54 <sup>a</sup> (0.87)	4.57 <sup>a</sup> (0.69)
Government program participation	3.86 <sup>b</sup> (1.04)	3.49 <sup>b</sup> (1.12)	4.32 <sup>a</sup> (0.86)
Using production techniques that work under a variety of conditions	4.35 <sup>a</sup> (0.66)	4.10 <sup>ab</sup> (0.74)	3.93 <sup>b</sup> (0.83)
Hedging selling price of crops	3.62 <sup>a</sup> (1.22)	3.78 <sup>a</sup> (0.94)	3.93 <sup>a</sup> (1.05)
Life insurance for operator/key personnel	3.64 <sup>a</sup> (1.09)	3.98 <sup>a</sup> (0.96)	3.86 <sup>a</sup> (1.33)
Debt-leverage management	3.81 <sup>a</sup> (1.08)	3.66 <sup>a</sup> (1.11)	3.85 <sup>a</sup> (0.92)
Ave. Of 20 responses to risk	3.47 <sup>a</sup> (0.51)	3.54 <sup>a</sup> (0.44)	3.56 <sup>a</sup> (0.49)

<sup>5</sup> Importance was evaluated on a Likert-type scale of 1 (not very important) to 5 (very important).

<sup>6</sup> Average values for the importance of a risk management response in different years with the same superscript are not statistically different at the five percent level.

producers not being able to practice what they consider important. The percentage of producers indicating they maintained credit/financial reserves also declined from 70 percent in both 1993 and 1997 to 50 percent in 1999.

There were a number of responses to risk that were rated under 3.0 on the five-point scale of importance. Off-farm employment rated only 2.0, while hail and fire insurance for crops was 2.68. Minimum price contracts for the selling price of

commodities and disability insurance were also rated less than 3.0.

Table 4 presents the average importance ratings and the percentage of producers using selected marketing and crop insurance responses to risk. Only those producers indicating use of at least one risk management response are included. There are no statistically significant changes in the rating of importance for any of the responses over the period. There was some decline in the use of forward contracting,

**Table 4. Average Importance Value<sup>7</sup> and Percentage of Producers (in parentheses) Indicating Use of Selected Responses for Top Farmer Crop Workshop Participants<sup>8</sup>**

Risk Management Response	1993 N=58	1997 N=34	1999 N=26
Forward contracting the selling price of crops	4.14 (95)	4.32 (94)	4.18 (77)
Hedging selling price of crop	3.62 (69)	3.78 (68)	3.93 (62)
Using a written marketing plan	–	3.29 (32)	3.68 (46)
Using a marketing consultant	–	3.15 (53)	3.64 (50)
Multiple peril crop insurance	2.57 (38)	2.78 (56)	3.27 (50)
Minimum price contracts	–	3.15 (26)	2.74 (15)

<sup>7</sup> Importance was evaluated on a Likert-type scale of 1 (not very important) to 5 (very important).

<sup>8</sup> Only producers indicating use of at least one risk management response are included.



probably reflecting the unfavorable prices in 1999. Written marketing plans and crop insurance showed some increase in use over the 1993 to 1999-period. However, there has been generally quite limited change in producers' risk management responses as a result of "Freedom to Farm."

### Implications

There are no "right" or "wrong" answers with respect to the ratings of the importance of various sources of and responses to risk. Producers attending the TFCWs do tend to be more willing to accept risk than farmers in general. They also perceive that farming is riskier, especially with respect to price, than it was before passage of the "Freedom to Farm" legislation. Crop price variability and the government commodity program have increased in importance as a source of risk. Producers give greater emphasis to being a low-cost producer and to participating in government program as risk management responses. There is some increase in the rating of importance and use of some marketing and insurance related responses to risk, but this is quite limited. Producers also indicate some decline in their debt-leverage management and use of financial/credit reserves, that reflects the current financial stress in agriculture.

Although producers recognize that change has occurred and the

economic environment is different, only limited adjustments appear to have been made. In some cases, such as disaster assistance and crop insurance, this may be due to inconsistent actions by the government. In other cases, such as revenue insurance, producers are gradually learning about the possibilities associated with the new risk management responses. There are a number of responses that farmers can make to manage risk. As the risk environment changes and new risk management tools are developed, a

producer's risk management strategy needs to be dynamic, adapting to the changes occurring. Both producers and those serving producers need to be aware of the changes that are occurring. These changes will impact producers as well as those servicing producers' needs.

### References

Patrick, G.F. and W.N. Musser, "Large-Scale Farmers' Views of Sources and Responses to Risk," *Purdue Agricultural Economics Report*, September 1999, pages 8-11. Available at <[www.agecon.purdue.edu/extensio/Paer/paer0999.pdf](http://www.agecon.purdue.edu/extensio/Paer/paer0999.pdf)>

## New Ag Econ Staff

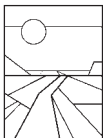


**Matt Mooney**

**M**att Mooney is the Ag Econ Department's WWW Specialist since last May. He is from Michigan, where he attended Central Michigan University for my BAA and MA. Mr. Mooney is working on my dissertation in Education Technology, where he is examining the use of Undergraduate Teaching Assistants in the instructional computing lab.

Before coming to Ag Econ, Matt was the lab coordinator for Educational Technology and the Technical Coordinator for Purdue's On-line Writing Lab. Matt will be assisting faculty and staff with Web pages for their courses of instruction and with other uses of the WWW by the faculty.

*Purdue University is an Equal Opportunity/Affirmative Action employer.*



Gerald A. Harrison  
Purdue University  
Department of Agricultural Economics  
1145 Krannert Building, Room 630  
West Lafayette, IN 47907-1145

Non-profit Organization  
**U.S. Postage**  
**PAID**  
Purdue University