



Yield Risk, Price Risk, and Political Risk: How Safe is Your Safety Net?

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If we've learned from the past, ...

- 1933: AAA Agricultural Adjustment Act
- 1936: AAA Agricultural Adjustment Act
- 1948: AA Agricultural Act
- 1949: AA Agricultural Act
- 1954: AA Agricultural Act
- 1956: AA Agricultural Act
- 1958: AA Agricultural Act
- 1961: AA Agricultural Act

- 1965: FAA Food and Agriculture Act
- 1970: AA Agricultural Act
- 1973: ACPA Agriculture and Consumer Protection Act
- 1977: FAA Food and Agriculture Act
- 1981: FAA Food and Agriculture Act
- 1985: FSA Food Security Act
- 1990: FACTA Food, Agriculture, Conservation, and Trade Act
- 1996: FAIR Food and Agriculture Improvement and Reform Act
- 2002: FSRIA Farm Security and Rural Investment Act

Every program being used today has been used before, in some form or another:

- **PFC payments:**
 - 1963-1973 support payments
- **Counter Cyclical Payments:**
 - 1974-1995 deficiency payments
 - 1996-2002 MLA payments
- **Loan Program:**
 - 500 B.C. - present

What is not being used today?

- Set-aside requirements
- Annual paid land diversions
- Loan programs and CCC purchases that take large quantities off the market
- Large export subsidies

What are we trying to accomplish with the Farm Bill?

- Three popular political answers:
 - Stabilize farm income (reduce risk)
 - Raise farm income
 - Affect farm structure
- Let's consider these criteria for Illinois corn and soybeans.

Backdrop

- 1974 crop through 2001 crop (excluding 1983) in nominal dollars for Illinois:
 - Average market revenue/acre before government payments
 - CORN = \$263
 - SOYBEANS = \$215
 - Accounting for non-land variable costs, average net market revenue/acre
 - CORN = \$129
 - SOYBEANS = \$136

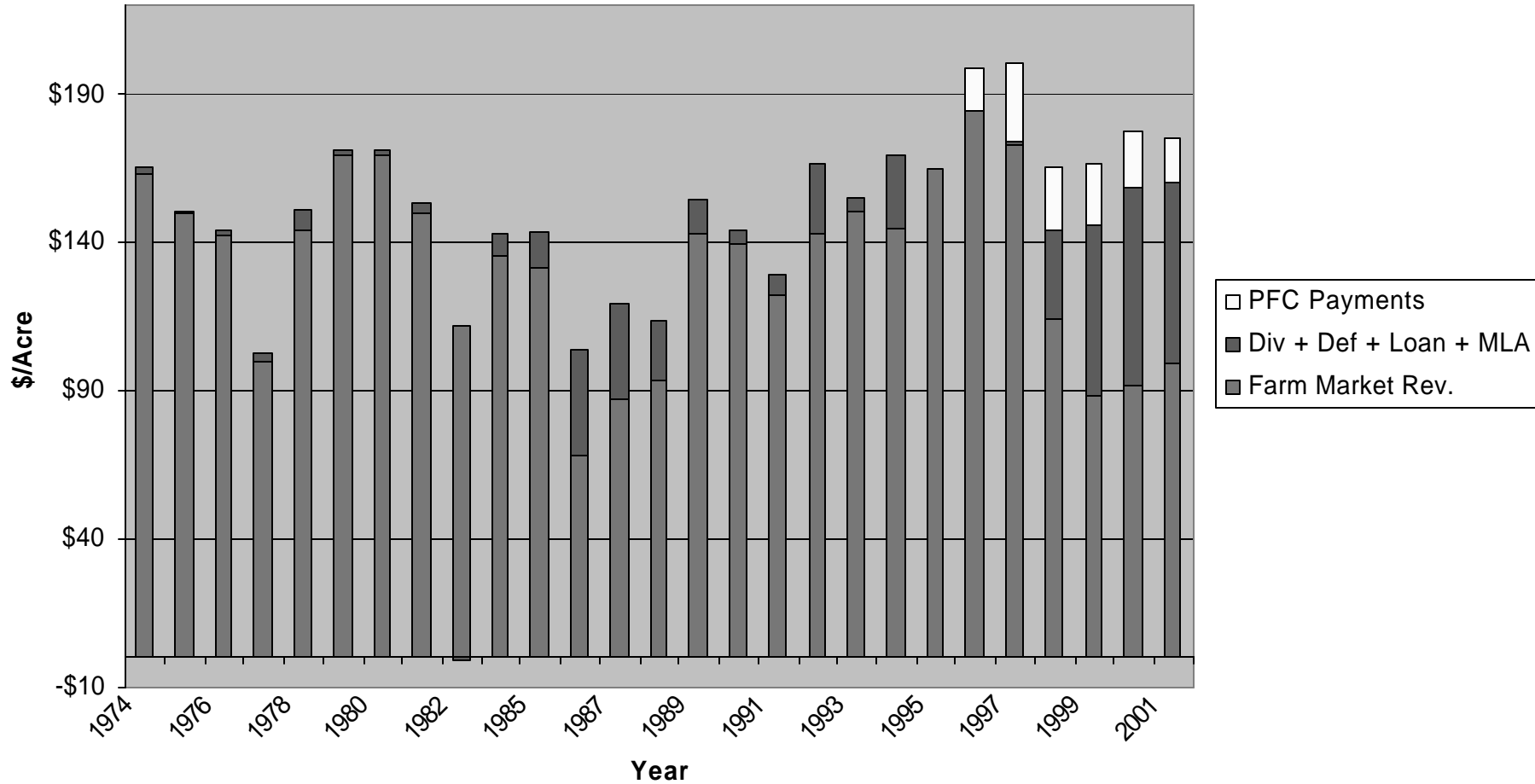
- How much “risk” is associated with the average incomes per acre?
 - Corn: \$41
 - Soybeans: \$26
 - Corn and Soybeans: \$31
- Decomposition of this risk shows that it is dominated by “price risk.”

Sources of crop revenue risk

	Corn			Soybeans		
	Price Effect	Yield Effect	Price-Yield Correlation	Price Effect	Yield Effect	Price-Yield Correlation
Farm	67.4%	32.6%	-42.5%	65.3%	34.7%	-38.0%
State	74.6%	25.5%	-51.2%	77.5%	22.5%	-40.8%

- Additional diversification effect from combining corn and soybeans reduces risk by 23.6% at the farm level, and 14% at the state level relative to the average of individual crop risks.
- How much of the risk is abated through farm programs?

Corn and Soybean Farm Revenue Components



Per acre effects of corn support

	Without support	With price support	Change
Average Income	\$129	\$152	\$23
Risk	\$41	\$30	-\$11

Per acre effects of soybean support

	Without support	With price support	Change
Average Income	\$136	\$143	\$7
Risk	\$26	\$22	-\$4

Two periods of large support in 2002 \$

- 1986-1988:
 - \$86 per corn acre
- 1999-2001:
 - \$70 per acre w/o AMTA payments
 - \$106 per acre with AMTA payments
- Is it fair to compare these levels of support?
 - Adjusted to an acre basis
 - Adjusted for set-aside costs
 - Adjusted for inflation
 - NOT adjusted for
 - Effects of government program on market price and production
 - Technological changes leading to different sized farm units

If a typical farm in 1970 is 400 acres,
what is its equivalent in 2000?

Soybean Acres	Corn Acres	Farm Acres	Growth in farm ac/yr
200	200	400	0
500	500	1,000	20
750	750	1,500	36.66
1,000	1,000	2,000	53.33
1,250	1,250	2,500	70
1,500	1,500	3,000	86.66

Support under different growth rate assumptions

Growth per year	2000 Farm total ac	1987 \$86 per corn ac	2000	
			W/O AMTA \$70 per corn ac	With AMTA \$106 per corn ac
0	400	\$16,000	\$14,000	\$21,200
20	1,000	\$31,820	\$35,000	\$53,000
53	2,000	\$55,900	\$70,000	\$106,000
87	3,000	\$80,840	\$105,000	\$159,000

Looking back over three decades

- In 2002 \$:
 - Income support, on average, has been about \$23 per corn acre with a risk reduction effect of \$11.
 - The same level of risk reduction is achieved through soybean rotation.
- The “large” recent support payments are:
 - About the same level in real dollars per acre as in 1986 through 1988
 - Much larger on a “per farm” basis, depending on how the farm unit is defined

How does present program stack up?

- Depends on your view of
 - The average price for corn and soybeans through 2007?
 - PFC payments versus price responsive payments
 - Market versus political risk

Current Program

Corn	Price	Risk
Price	Support/Acre	Reduction/Acre
\$1.57	\$114	\$18.46
\$1.72	\$93	\$18.53
\$1.89	\$72	\$18.09
\$2.07	\$50	\$17.47
\$2.28	\$31	\$14.86
\$2.51	\$15	\$10.17
\$2.76	\$5	\$4.81

In summary

- With CC and LDP, a corn price of \$2.40 - \$2.45 provides about the same income support and risk reduction as past 30 years. Lower prices lead to more support and risk reduction
 - This does not include direct payments.
 - And does not account for farm size.
- So, under reasonable assumptions, today's program is "successful," relative to past programs, in reducing the income risk present in year to year changes
- But ...

“Political” Risk

- Associated with the uncertainty about what the next program will be
- Depends greatly on three things:
 - Congress’s attitude toward PFC payments
 - Perceived level of “equilibrium” commodity prices (market conditions the year before ...)
 - WTO negotiations

Political risk, continued ...

- Given the capitalization of payments into land prices, this creates a huge risk to land owners and lenders.
- Suggest that when “penciling out” what land is worth as farm land, that you explicitly consider PFC and price-support programs separately

Effect on farm structure, or “optimal” farm size

- Programs affect cost of entry, encouraging larger farms
- Programs reduce risk, causing ...?
- These program effects, however, are arguably swamped by
 - Technological effects
 - Yield diversification effects

Take home messages

- Crop revenue risk is dominated by price risk
- The ability to reduce revenue risk through current program is “high” relative to past programs
- The income support is “high” relative to past programs

Messages, continued

- No free lunch
 - The high level of risk reduction and income support creates a high level of political risk
 - This political risk is faced primarily in land valuation decisions