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ELIMINATING COMMODITY PROGRAMS: FARM FINANCIAL EFFECTS AND
AGRICULTURAL STRUCTURE ADJUSTMENTS

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ABSTRACT

The combined income, asset, and equity effects of adopting farm programs based on permanent legislation or eliminating farm programs could be significant and differ widely enough across farms to significantly affect agricultural structure. Eliminating programs could cause the farm sector to lose 15 to 20 percent of current operators.

ELIMINATING COMMODITY PROGRAMS: FARM FINANCIAL EFFECTS AND AGRICULTURAL STRUCTURE ADJUSTMENTS

The primary concern of all participants in the 1985 farm bill debate is the spiraling budget deficit. It is generally conceded that the farm sector will have to participate in any widespread spending reduction by the Federal government. Other issues, more farm specific but centered around making the farm sector more market oriented, will be dealt with in the upcoming Congressional debate on replacing the Agriculture and Food Act of 1981. These issues include:

- o Tying the loan rate to moving average of 3 or 5 previous years market prices.
- o Reducing the payment limitation to farmers; perhaps changing the payment to a per crop basis rather than a per farmer basis.
- o Extending credit guarantees to banks that agree to write off a percentage of loans made to farmers in financial difficulty.
- o Changing non-recourse loans to recourse loans made by private lending institutions.
- o Increasing export subsidies (loan guarantees to foreign buyers, export PIK, etc.) on U.S. agricultural products.

Although each of these issues is being addressed in the ongoing farm bill debate, it remains unclear how each issue will be finally resolved. The current consensus is that Congress will not make any radical changes in farm government programs in the 1985 farm bill. However, there are likely to be some adjustments, and possibly sweeping changes, in present farm programs. If agricultural legislation expiring in 1985 is not replaced, farm programs will revert from the Agricultural and Food Act of 1981 to permanent support

program statutes. Conversely, if current legislation were modified to eliminate all price and income supports, the twin forces of (international) market demand and supply would determine income and returns in the farm sector.

Changing the provisions of commodity programs affects individual farms not only by changing their cash flow through increased or decreased net returns for commodities, but also through capital gains or losses, as farmers' expectations lead them to bid more or less to acquire ownership and control of farm assets (Richardson and Condra). Adverse cash flows and capital losses can lead, in turn, to forced liquidation or disinvestment; while increased cash flows can lead to buoyant expectations and capital appreciation of assets, which in turn, lead farmers to increase their debt levels to expand their holdings. While the effects of the policy options on individual farms can be reasonably precisely determined, the ultimate impacts on the structure of agriculture remain relatively qualitative (Baum and Schertz). Ultimate effects depend on which farms are forced by cash flow and capital losses (or enticed by capital gains) to leave the industry--and which farms acquire the assets of those who leave. Current economic knowledge can only indicate which types, sizes, and organizations of farms will experience difficulties--but do not indicate which farms will take over the assets of those that are forced or enticed out of agriculture (Baum and Harrington).

The objective of this analysis is to study possible financial effects on selected representative regional farming situations to provide a perspective on likely farm sector structural adjustments caused by either a reversion to permanent legislation or elimination of current commodity programs. The following section describes the selection of the representative farming situations and analytical procedures. Subsequent sections describe the results of each policy alternative scenario.

Effects on Typical Farms

Effects of reverting to permanent legislation or eliminating all commodity programs were simulated for six typical farms for the years 1985-1989 using REPFARM, a generalized representative farm model (Baum, McElroy and Ryan). Commodity prices, financial data, and other input information were taken from a recent similar, but aggregate farm sector study by O'Brien and Fulton (Table 1). The six representative farms were chosen to depict the farm types most strongly affected by commodity programs (Hatch, et. al.):

- o Illinois Corn-Soybean Farm: 360 crop acres, 180 acres corn, 180 acres soybeans. Total value of assets in 1982: \$1,109,086.
- o Iowa Corn-Hog Farm: 240 crop acres, 140 acres corn, 60 acres soybeans, 40 acres oats; 100 litters farrow to finish hogs. Total value of assets in 1982: \$704,360.
- o Kansas Wheat-Livestock Farm: 480 crop acres, 360 acres wheat, 80 acres alfalfa, 40 acres sorghum; 15 beef cows, 30 stockers. Total value of assets in 1982: \$597,906.
- o Mississippi Delta Cotton-Soybean Farm: 1040 crop acres, 480 acres cotton, 560 acres soybeans. Total value of assets in 1982: \$1,710,951.
- o Washington Wheat-Fallow Farm: 1080 crop acres, 540 acres wheat, 540 acres fallow. Total value of assets in 1982: \$982,821.
- o Wisconsin Dairy Farm: 45 milk cows, 160 crop acres, 60 acres corn, 30 acres corn silage, 20 acres oats. Total value of assets in 1982: \$496,115.

The tenure of equity combinations of these farms are extremely important in determining the survivability of farms in adverse situations and the distribution of benefits in favorable economic times. Accordingly, these farms were simulated for the following tenure and equity combinations:

- o Full owner - 100 percent equity: well established, long time owners.
- o Full owner - 70 percent equity: established, but with above average debt.
- o Part owner - 60 percent equity: younger farmers establishing farms with above average levels of debt.

Table 1. Commodity Prices Projected Under Reversion to Permanent Legislation and Under Suspension of all Commodity Programs

Commodity	1985	1986	1987	1988	1989
-----Dollars/bushel-----					
Wheat					
Permanent legislation					
Loan rate	3.30	3.89	4.08	4.26	4.45
Average price	2.95	4.00	3.90	3.80	3.85
No legislation					
Average price	2.95	2.80	2.95	3.10	3.25
Corn					
Permanent legislation					
Loan rate	2.55	2.91	3.00	3.17	3.37
Average price	2.34	2.91	3.00	3.17	3.37
No legislation					
Average price	2.34	2.40	2.60	2.65	2.75
Sorghum					
Permanent legislation					
Loan rate	2.42	2.76	2.85	3.01	3.20
Average price	2.25	2.76	2.85	3.01	3.20
No legislation					
Average price	2.25	2.15	2.40	2.55	2.70
Soybeans					
Permanent legislation					
Loan rate	5.02	7.40	7.63	7.83	8.04
Average price	5.36	7.40	7.63	7.83	8.04
No legislation					
Average price	5.36	6.25	6.50	6.80	7.15
-----Dollars/pound-----					
Cotton					
Permanent legislation					
Loan rate	.57	.90	.94	1.01	1.10
Average price	.60	.90	.94	1.01	1.10
No legislation					
Average price	.60	.58	.61	.63	.69
Choice steers (avg price)					
Permanent legislation	.547	.700	.718	.725	.755
No legislation	.547	.700	.708	.710	.715
Feeder steers (avg price)					
Permanent legislation	.593	.696	.688	.679	.698
No legislation	.593	.696	.721	.693	.682
Barrows & gilts (avg price)					
Permanent legislation	.392	.490	.500	.520	.560
No legislation	.392	.485	.455	.475	.505
-----Dollars/hundredweight-----					
Milk (avg price)					
Permanent legislation	12.50	18.00	19.50	20.95	22.45
No legislation	12.50	11.25	14.20	15.10	12.60

The simulation model used to evaluate the effects of reversion to permanent legislation or eliminating all commodity programs generated land values endogenously, based on current and past rates of return and a trend variable. As income, profitability and rates of return varied with the tenure and equity positions of the operators, the projected 1989 land values differed for each ownership-equity configuration. The results of the simulations generating variable land values are presented in Table 2. For example, with revision to permanent legislation, projected land values for Illinois corn-soybean farms are \$1999/acre for full owners with full equity, \$1655/acre for full owners with part equity and \$1403/acre for part-owners with part equity. These land values can be interpreted as relevant only under the assumption that all Illinois corn-soybeans farmers are full owners with full equity, in which case anticipated earnings are capitalized into land to project a value of \$1999/acre in 1989. Likewise, if all operators are full owners with part equity, projected land values are \$1655/acre, and if all operators are part owners with part equity, projected land values are \$1403/acre.

These land values are used for the farm's asset valuation and greatly influence the debt-asset ratio. In the simulation results, a full owner/full equity Illinois farmer has \$130,080 more assets in land alone (and thus net worth) than a part owner/part equity operator of the same acreage. This disparity is reflected in the equity/asset ratios presented in Table 3 for each tenure/equity combination.

As a result, the simulation results were modified to determine a unique land value for each representative farm regardless of tenure and equity considerations. The single land value was computed as an average of land values for the full owner/full equity operator and the full owner/part equity operator. It was felt that these operators represent a majority of

Table 2. Measures of Farm Well-Being for Representative Farms Under Reversion to Permanent Legislation and Under Suspension of all Commodity Programs

Representative Farm	Reversion to Permanent Legislation				No Commodity Programs			
	Average : annual net : cash income : 1985-1981 :	Ending : net worth : 1989 :	Ending : land value/acre : 1989 :	Composite : index of 1/ well-being : 1989 :	Average : annual net : cash income : 1985-1989 :	Ending : net worth : 1989 :	Ending : land value/acre : 1989 :	Composite : index of 1/ well-being : 1989 :
Illinois Corn-Soybean								
Full owner-full equity	64,783	1,217,388	1,999	126.7	38,116	1,139,349	1,563	114.4
Full owner-part equity	48,791	401,145	1,655	108.2	13,889	300,492	1,273	86.1
Part owner-part equity	34,376	152,624	1,403	86.5	1,114	56,175	1,105	54.2
Iowa Corn-Hog								
Full owner-full equity	74,027	1,205,145	1,755	157.2	58,294	1,129,630	1,528	137.0
Full owner-part equity	63,671	800,082	1,607	132.1	47,846	705,509	1,379	120.0
Part owner-part equity	56,316	436,567	1,180	105.5	40,688	315,462	1,202	113.2
Kansas Wheat-Livestock								
Full owner-full equity	28,192	538,034	584	112.2	24,623	504,608	553	103.7
Full owner-part equity	11,055	114,322	474	73.1	9,770	74,243	440	65.1
Part owner-part equity	4,053	69,439	445	43.5	-12,645	21,942	408	15.3
Mississippi Delta Cotton-Soybean								
Full owner-full equity	118,469	2,917,466	1,506	150.7	32,612	2,168,390	1,064	103.8
Full owner-part equity	94,661	2,068,354	1,378	149.0	8,822	1,197,040	919	84.5
Part owner-part equity	68,316	829,206	1,101	129.0	-16,737	164,920	670	27.3
Washington Wheat-Fallow								
Full owner-full equity	44,206	1,362,496	978	128.0	30,650	1,146,274	913	112.6
Full owner-part equity	30,287	967,334	817	112.4	16,467	804,880	740	88.7
Part owner-part equity	11,132	248,235	598	69.7	-1,547	182,048	545	18.3
Wisconsin Dairy								
Full owner-full equity	50,040	714,793	1,754	169.5	9,065	400,191	1,164	70.5
Full owner-part equity	44,896	340,502	1,391	174.7	5,192	131,218	874	48.6
Part owner-part equity	43,679	252,398	1,282	199.6	5,020	97,414	902	49.0

1/ Sum of indices of net cash income, net worth, and land value; 1984 = 100.

Table 3. Measures of Credit Needs and Credit Worthiness of Representative Farms under Revision to Permanent Legislation and Under Suspension of Commodity Programs

Representative Farm	Reversion to Permanent Legislation			No Commodity Programs		
	Cash flow : deficits : refinanced :	Percent : of : 1984 debts :	Ending : equity/asset : ratio :	Cash flow : deficits : refinanced :	Percent : of : 1984 debts :	Ending : equity/asset : ratio :
<u>Illinois Corn-Soybean</u>						
Full owner-full equity	0.0	0.0	.901	0.0	0.0	.971
Full owner-part equity	0.0	0.0	.734	153,114	44.8	.607
Part owner-part equity	0.0	0.0	.653	200,615	66.0	.257
<u>Iowa Corn-Hog</u>						
Full owner-full equity	0.0	0.0	.953	0.0	0.0	.965
Full owner-part equity	0.0	0.0	.782	0.0	0.0	.765
Part owner-part equity	0.0	0.0	.575	0.0	0.0	.642
<u>Kansas Wheat-Livestock</u>						
Full owner-full equity	0.0	0.0	.931	0.0	0.0	.942
Full owner-part equity	160,184	79.2	.508	180,115	88.8	.233
Part owner-part equity	172,614	94.1	.079	193,740	96.2	.051
<u>Mississippi Delta Cotton-Soybean</u>						
Full owner-full equity	0.0	0.0	.923	0.0	0.0	.888
Full owner-part equity	0.0	0.0	.854	0.0	0.0	.751
Part owner-part equity	0.0	0.0	.763	169,588	45.5	.470
<u>Washington Wheat-Fallow</u>						
Full owner-full equity	0.0	0.0	.878	0.0	0.0	.877
Full owner-part equity	0.0	0.0	.748	71,753	20.0	.578
Part owner-part equity	153,758	53.6	.375	196,543	68.5	.337
<u>Wisconsin Dairy</u>						
Full owner-full equity	0.0	0.0	1.000	0.0	0.0	.852
Full owner-part equity	0.0	0.0	.792	210,480	97.3	.308
Part owner-part equity	0.0	0.0	.683	178,663	85.0	.236

American farmers, and it is their profitability that most strongly influences land values. The assets, net worths, indexes of well-being and equity/asset ratios were adjusted for each representative farm and each tenure/equity configuration to reflect this single land value projection (Table 4).

Reversion to Permanent Legislation

Most farms would experience significant gains from reversion to permanent legislation. Annual net cash incomes would improve by as much as 282 percent for part owner/60 percent equity Wisconsin dairy farmers (Table 2). Ending net worths would be substantially higher--partly from increased land values (land values increased by as much as 32 percent in Mississippi) and partly due to and capital investment. Land value increases caused by more buoyant expectations would increase the well-being of most farms. Full owners would receive the largest amounts and percentages of benefits, because capital gains accrue mostly to farmland owners.

In terms of overall improvement in economic well-being (Table 2, Column 4), full owners with full and part equity showed the largest percentage increase in their well-being. On a commodity basis, dairy farms demonstrated the largest improvement in their economic well-being. Their combined cash flows and net worths improved from 69 to 99 percent over the base year. Producers of livestock, particularly cattle, derived the least benefit from reversion to permanent legislation. Their overall index of well-being improved only for full owners with full equity.

Some measures of the credit needs and credit worthiness of these farms under reversion to permanent legislation were also estimated (Table 3). Some cash flow deficits would have to be refinanced on the corn-soybean, wheat and cattle farms and the overall indebtedness of most farms would increase. Increasing ending equity/asset ratios indicate more overall willingness of farm operators to employ debt financing for expansion and farm reinvestment.

Table 4. Adjusted assets, net worth, and indexes of well-being reflecting a single land value projection.

	Reversion to Permanent Legislation				No Commodity Programs			
	Average : annual net : cash income: 1985-1989 :	Ending : net : worth : 1989 :	Ending : land : 1989 :	Composite : index :	Average : annual net : cash income: 1985-1989 :	Ending : net : worth : 1989 :	Ending : land : value :	Composite : index :
<u>Illinois</u>								
Full owner-full equity	64,783	1,160,868)		(119.9	38,116	1,081,029)		(107.2
Full owner-part equity	48,791	457,305)	1,827	(112.7	13,889	358,812)	1,418	(95.0
Part owner-part equity	34,376	291,224)		(115.2	1,114	181,095)		(85.3
<u>Iowa</u>								
Full owner-full equity	74,027	1,188,105)		(157.2	58,294	1,111,150)		(135.2
Full owner-part equity	63,571	817,122)	1,681	(164.3	47,846	723,989)	1,454	(126.3
Part owner-part equity	56,316	552,007)		(170.3	40,688	363,478)		(124.5
<u>Kansas</u>								
Full owner-full equity	28,192	367,154)		(110.0	24,623	477,728)		(97.8
Full owner-part equity	11,055	199,762)	529	(80.9	9,770	101,123)	497	(71.8
Part owner-part equity	4,053	92,401)		(60.9	-12,645	64,662)		(31.2
<u>Mississippi</u>								
Full owner-full equity	118,469	2,850,906)		(147.0	32,612	2,092,470)		(98.8
Full owner-part equity	94,661	2,134,914)	1,442	(153.4	8,882	1,272,960)	992	(90.3
Part owner-part equity	68,316	1,183,846)		(160.6	-16,737	319,480)		(43.1
<u>Washington</u>								
Full owner-full equity	44,206	1,275,016)		(121.4	30,650	1,487,438)		(105.5
Full owner-part equity	30,287	1,054,836)	897	(120.2	16,467	898,840)	826	(98.8
Part owner-part equity	11,132	571,155)		(110.7	-1,547	485,528)		(48.5
<u>Wisconsin</u>								
Full owner-full equity	50,040	685,673)		(162.9	9,065	376,992)		(65.2
Full owner-part equity	44,896	369,623)	1,572	(182.2	5,192	154,419)	1,018	(54.7
Part owner-part equity	43,679	385,798)		(226.3	5,020	131,894)		(58.7

As farms employ more debt for expansion or refinancing of cash flow deficits, the increased values of farm assets (capital gains on farmland) would only marginally improve the overall debt/asset ratio of the farm sector. Whether this would result in more or fewer farms of each commodity type is unclear, because all farmers wishing to expand or enter into farming must bid against each other for relatively fixed amounts of land (Tweeten).

Suspension of All Commodity Programs

Suspension of all commodity programs would result in moderate to severe cash flow difficulties, capital losses as values of farmland decline, and financial distress as borrowing capacity limits and debt/asset ratio limits are reached. These conditions would cause some highly leveraged farms to become insolvent. Annual net cash incomes would decline for most farms and would become negative for some. Ending net worths would be eroded by both the refinancing of cash flow deficits and by the capital losses from declining farmland values. Full owners with no debt or very little debt would be the least distressed. Their capital losses would be largely paper losses, as they would not be forced to liquidate their investments in an adverse market. More leveraged farms would suffer more financial distress as their cash flow deficits would be larger by the interest on their indebtedness. Their debt/asset ratios would deteriorate faster as cash flow deficits are refinanced and asset values decline (Table 3). Farms with initial debt/asset ratios above 50 percent would likely face insolvency.

The overall deterioration of the economic well-being of farms is shown in the composite index of well-being (Table 2). Full owners with full equity would survive with little deterioration of their overall well-being. Full owners with part equity and part owners would suffer more severe declines in their index of economic well-being. Dairy farms would suffer

the most severe declines in well-being through suspension of all commodity programs. Corn Belt feed grain and livestock farms would be least affected by suspension of commodity programs.

Equity/asset ratios would deteriorate for the farm sector as a whole. It should be noted that equity/asset ratios below 60 percent have historically resulted in a high proportion of cash flow deficits requiring refinancing. Whether additional levels of financial distress will cause declines in farm numbers on a commodity or regional basis depends on the forbearance of the lenders, and which types and sizes of farms can successfully bid on the farm assets that are forced into liquidation.

At this point it is not possible to assess whether there would be increased concentration (relatively more large farms) or decreased concentration (relatively more medium sized farms) of the farm sector. However, small and very small farms would likely increase in number and proportion, because they can use their off farm income sources and high equities to weather the period of adjustment. Also, resource use would remain largely unchanged by the financial adjustment of farms, because land and other farm assets would continue to be used in production--except for some small proportion of land in the process of changing ownership. Even farms in foreclosure would likely be rented out to neighboring operators. Thus, while the assets might change hands, and be revalued, they would likely continue in production, with, at most, a single season of retirement.

Summary and Conclusion

The options of reversion to permanent commodity legislation or elimination of all direct commodity programs could affect the economic well-being of farms, the production and investment decisions they would make, and ultimately, the structure and organization of the farm sector. It is likely that the

effects on farms would be different, depending on their commodity mixes, sizes, and their tenure and equity arrangements. In general, reversion to permanent legislation would cause most farms to have higher net cash incomes, larger net worths, and substantial capital gains through increased farm asset values. By contrast, eliminating all commodity programs would cause moderate to severe cash flow losses, substantial capital losses as farm asset values decline, and high probabilities of forced liquidation. Most severely impacted by the elimination of commodity programs would be dairy farms. Least affected would be cattle production areas. For reversion to permanent legislation, dairy farms would show the largest cash flow increases.

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