Can We Save the Traditional Family Farm?

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What is a traditional family farm? Is it a family of four living on a farm and supplying all of the labor, capital and management or is it a family corporation with four families supplying all of the capital and management? These types of questions continue to arise in policy debates, as they have for many years. While subject to heated debate and the core of many people's positions on farm programs the answer is more sociological as it is becoming less and less economically relevant.

Whether these types of farms or any other farm sizes should survive is not a question that can be answered by a policy analyst. The job of an analyst is to determine if and under what conditions family farms can survive. To this end, this paper reviews the various definitions of family farms and draws inferences as to the economic and financial survival of these different size farms using the results generated from simulating representative farms.

Two definitions of a family farm have emerged in the literature. Knutson reports that he researched the topic thoroughly prior to writing a chapter on the structure of agriculture and did not find a definition of a family farm. In the fourth edition of Knutson, Penn, and Flinchbaugh's (KPF) book, *Agricultural and Food Policy*, there is a definition of a family farm. KPF indicate that a family farm must meet four requirements:

1. A majority of the management and work must be done by the operator and his/her family.
2. A close association must exist between the household and the business.
3. Managerial control must be exercised by the operator.
4. Family farmers must obtain the majority of their income from farming. (page 297)

Although none of these requirements are claimed to be totally restrictive they do form the guidelines for defining a traditional family farm. KPF go on to exclude certain types of farming structures, such as part-time farmers, contract growers who produce for a agribusiness, hired farm managers, and farm operators with substantial ownership extending off the farm into other businesses (page 297).

A second definition of the family farm has recently emerged from USDA. A recent USDA publication by Hoppe, Perry, and Banker provides the following definitions of different types of family and non-family farms:

Small Family Farms (sales less than $250,000)

- **Limited-resource farms.** Any small farm with (1) gross sales less than $100,000, (2) total farm assets less than $250,000, and (3) total operator house hold income less than $20,000.
- **Retirement farms.** Small farms, the operators of which report they are retired.
- **Residential/lifestyle farms.** Small farms, the operators of which report a major occupation other than farming.
- **Farming occupation/lower sales.** Small farms with sales less than $100,000, the operators of which report farming as their major occupation.
- **Farming occupation/higher sales.** Small farms with sales between $100,000 and $249,999 with operators reporting farming as their major occupation.

Other Farms

- **Large family farms.** Sales between $250,000 and $499,999.
- **Very large family farms.** Sales of $500,000 or more.
- **Nonfamily farms.** Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

Hoppe et. al. used 1996 NASS survey data to determine the number of farms classified in each of these new farm structure delineations (Table 1). Applying KPF's four requirements for a family farm to the new USDA classification shows that only the Large and Very Large farms are family farms. These two farm categories accounted for 56.7 percent of the value of production and 7.7 percent of all farms in 1996 (Table 1).

The NASS survey data helps define how many farms could be counted as family farms by the KPF definition. But the data do not reveal the survivability of farms in different size categories. So we can not use the NASS data to answer the question of Can the Family Farm Survive?

Based on their dependance on income earned from off-farm sources, one can conclude that the Limited Resource, Retirement, and Lifestyle family farms will likely survive. Farm income provides at best a supplement to off-farm income for these farm classifications so their survival is not necessarily threatened by low prices and/or yields. The Farming Occupation farms with Lower and Higher Sales will be faced with a decision to either generate larger receipts and reduce costs or become Residential/Lifestyle or Retirement Farms. Tables 2 and 3 contain statistics on cotton, rice, feedgrains and oilseeds, and wheat farms from the USDA Cost and Returns Report supporting this notion. The largest farms had the lowest expense-to-receipt ratio, except in the case of wheat farms. In each case the largest farms earned the largest percent of their income from the farming operation. To shed some light on the survival of farms with sales of $250,000 or higher one can examine the results for case study farms.

The AFPC at Texas A&M maintains a data base of representative commercial size crop, livestock, and dairy farms developed in major production regions of the country (Figure 1). All but one of the farms are classified as family farms based on KPF's requirements. Data to define

the representative family farms are obtained from panel interviews. In the majority of cases, the panel members are selected by land grant extension agents and/or specialist based on the following criteria: full time commercial operators who depend on the farm for a majority of their income, representative of the average size farms in the county, and are often recognized leaders in the area who are known to keep records and have a history of participating in extension programs. The majority of the representative farms have been updated on a three year basis for the past 9 to 12 years using primarily the same panel members.

The representative farms data base was used to assess the survivability of commercial family farms given the current farm program provisions and economic outlook. The AFPC representative farms with sales less than $1 million were used for the analysis, in keeping with USDA's new family farm topology.

The criteria used for determining whether a farm will likely survive through 2004 is the overall financial rating developed by AFPC for policy analysis. Farms are classified as being in good, marginal and poor financial position based on simulated probabilities of a cash flow deficit, and loss of real net worth. Farms classified as in good financial position are expected to have a high probability of surviving and remaining economically viable. A farm with a good financial position is a farm with less than a 25 percent chance of a cash flow deficit and losing real net worth over the 2000-2004 period. Farms classified as marginal have a 25 to 50 percent chance of deficits and real net worth. Farms with greater than a 50 percent chance of deficits and losing real net worth are classified as being in poor financial position.

In addition, a statistic is reported called the Net Income Adjustment or NIA. The NIA is the amount of additional annual income necessary to move the farm from its current real net worth position into the good financial position category. The statistic is calculated considering the variability about yields and prices.

FAPRI's January 2000 Baseline provides a complete set of projected prices and rates of inflation for input costs, assuming continuation of the 1996 farm bill (Table 4). The FAPRI Baseline was used to simulate the AFPC farms for the 2000-2004 planning horizon. Historical price and yield risk using actual observations for the representative farms was used to incorporate risk into the survivability analysis.

Results

Feedgrain/oilseed farms

Receipts on these farms in 2000 ranged from $214,000 on the moderate size Tennessee farm (TNG900) to $644,000 on the large Missouri farm (MOCG3300). Only the Tennessee farm has receipts below the ERS classification of large family farm.

Over the 2000-2004 period 10 of the thirteen farms are in poor or marginal financial position (Table 5). Additional net income needed to be in good financial position (NIA) ranges from

$14,400 on the large Missouri farm (MOCG3300) to $136,000 on the Northern Missouri grain farm (MONG1400). These farms in poor and marginal financial position would need, on average, an additional $51,000 per year to be in good financial shape.

Three of the feed grain farms are in a good financial position. Their NIAs range from -$2,300 to -$15,200. For example, the moderate size central Missouri grain farm could weather a $2,300 annual decrease in net cash farm income and still be in good financial position.

Wheat

Six of the ten representative wheat farms are in poor and marginal financial condition (Table 6). Additional net income requirements range from $3,500 annually on the moderate size Kansas farm (KSSW1385) to $114,100 for the large Washington wheat farm (WAW4250).

Three of the farms (KSSW3180 and both Colorado) could weather additional income losses in excess of $34,000 annually and remain in good financial position.

Why such large differences among financial positions in these areas? The representative Colorado farms exhibit a very low cash expense to receipt ratio. These farms do not spend large amounts of money, which makes a lot of sense given that it is extensive dryland agriculture. On the other hand, the Washington representative farms are located in the Palouse region. This hilly region is noted for its deep, high quality soils that produce high dryland yields per acre. However, expenses are high in the region as characterized by specialized harvesting equipment needed to combine wheat on 45 degree hillsides.

Cotton and Rice

Tables 7 and 8 contain the results for the cotton and rice farms. Receipts ranged between $232,000 and $581,000 on the cotton farms. All five are in poor or marginal condition. Additional net income needed to improve to good financial condition ranges from $16,300 to $101,700 annually.

Only one of the five rice farms was categorized in good financial shape. Net income adjustments necessary for the poor farms to move into good shape exceeded $90,000 annually on two of the farms. Even on average farms in poor financial position would need an additional $92,000 annually. The Arkansas farm could sustain a reduction of $14,000 annually in net income and remain viable.

Dairy

Table 9 contains the dairy farm results. Six of the nine dairy farms are classified in poor or marginal position. These farms need, on average, an additional $28,000 per year to be in good financial shape.

Conclusions

As much as some economists and policy analysts like to answer "should" questions, advocacy, prescriptions and value judgements are not the proper role of an analyst. Those decisions must be left to the elected or appointed official who is the policy maker. It is not the proper role of the analyst to say that family farms "should" be saved. It is the responsibility of the analyst to objectively analyze whether they can be saved, at what cost and what are the implications to the structure of American agriculture.

Small family farms will survive because farm income only supplements off-farm income. These results suggest that the survival of commercial size family farms with receipts of $250,000 to $1,000,000 is not guaranteed even though they are classified as large based on sales. Farms that USDA classifies as Large and Very Large Family Farms will continue to need off farm assistance to survive, given the current outlook for prices.

Many commercial size family farms will face severe financial problems through 2004. In this paper 25 of 33 crop farms were classified as being in poor to marginal financial shape over the 2000-2004 period, as were 6 of 9 dairy farms. The question remains "can commercial size family farms survive without farm programs?" Given current price projections these farms are facing serious financial problems without significant government assistance.

If these larger commercial size family farms are expected to have an uncertain future, there is little doubt USDA's Farming Occupation (Lower and Higher Sales) family farms will economically be forced to either get larger or become retirement or lifestyle farms.

References

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Figure 1. Representative Farms

Table 1. Distribution of Farms for ERSs New Farm Topology, 1996.

USDA Farm Types	Number (%)	Value of Production (%)	Income/Farm ($1,000)	Earnings from Farming (%)
Limited Resources	14.5	1.0	10.6	-27.7
Retirement	13.0	1.2	40.7	N/R
Residential	26.7	3.8	71.7	-6.1
Lower Sales	26.1	9.5	31.5	N/R
Higher Sales	9.6	19.6	59.2	43.4
Large	4.8	19.5	75.7	70.4
Very Large	2.9	37.2	193.8	81.9
Nonfamily Farms	2.4	8.2	N/R	N/R

Source: USDA, "Farm Labor and Income," Rural Conditions and Trends, Vol. 9, No.2.
N/R not reported

Table 2. Expense to Receipt Ratios and Reliance on Farm Income for Feedgrain/Oilseed and Wheat farms by Sales Classes, 1998.

	Very Large Farms		Large Farms	Higher Sales
	$1 Million or more	$500,000 to $999,999	$250,000 to $499,999	$100,000 to $249,999
Feedgrain & Oilseeds				
Expense/Receipts (%)	65.5	72.2	71.7	76.7
Income Earned by Farm (%)	77.8	74.3	64.7	40.4
Percent of Farms Surveyed	0.5	2.8	10.1	20.7
Wheat				
Expense/Receipts (%)	-	77.0	70.6	77.8
Income Earned by Farm (%)	-	89.0	60.6	32.9
Percent of Farms surveyed	-	2.5	5.6	18.4

Source: Special Tabulation of 1998 ARMS, Cost and Returns Report, USDA-ERS.
*Less than $250,000 category

Table 3. Expense to Receipt Ratios and Reliance on Farm Income for Cotton and Rice farms by Sales Classes, 1998.

	Very Large Farms		Large Farms	Higher Sales
	$1 Million or more	**$500,000 to $999,999**	**$250,000 to $499,999**	**$100,000 to $249,999**
Cotton				
Expense/Receipts (%)	70.0	70.1	73.9	82.7
Income Earned by Farm (%)	85.9	60.0	58.5	56.3
Percent of Farms Surveyed	5.1	11.0	18.8	27.9
Rice				
Expense/Receipts (%)	91.1	92.9	96.9	130*
Income Earned by Farm (%)	84.8	58.7	25.9	55.1
Percent of Farms Surveyed	5.9	11.9	20.9	61.2

Source: Special Tabulation of 1998 ARMS, Cost and Returns Report, USDA-ERS.
*Less than $250,000 category

Table 4. Projected Prices, AMTA Payment Rates Inflation Rates and Interest Rates in the FAPRI January 2000 Baseline.

	2000	2001	2002	2003	2004
Corn ($/bu.)	2.07	2.16	2.16	2.23	2.25
Wheat ($/bu.)	2.81	3.06	3.13	3.25	3.25
Cotton ($/lb.)	0.4698	0.4789	0.5003	0.5216	0.5433
Sorghum ($/bu.)	1.81	1.90	1.92	1.98	2.00
Soybeans ($/bu.)	4.24	4.49	4.94	5.00	5.17
Barley ($/bu.)	2.10	2.18	2.20	2.26	2.27
Oats ($/bu.)	1.18	1.21	1.22	1.26	1.27
Rice ($/cwt.)	6.65	6.93	7.18	7.39	7.56
Soybean Meal ($/ton)	130.40	135.60	146.20	148.10	152.10
All Hay ($/ton)	77.00	79.00	79.50	80.10	80.90
Fixed (AMTA) Payment Rates					
Corn ($/bu.)	0.3340	0.2690	0.2610	0.2610	0.2610
Wheat ($/bu.)	0.5860	0.4720	0.4580	0.4580	0.4580
Cotton ($/lb.)	0.0710	0.0570	0.0560	0.0560	0.0560
Sorghum ($/bu.)	0.4000	0.3220	0.3130	0.3130	0.3130
Barley ($/bu.)	0.2510	0.2020	0.1970	0.1970	0.1970
Oats ($/bu.)	0.0270	0.0210	0.0210	0.0210	0.0210
Rice ($/cwt.)	2.5970	2.1010	2.0400	2.0400	2.0400
Cattle Prices					
Feeder Cattle ($/cwt)	88.89	91.78	93.38	93.87	90.73
Culled Cows ($/cwt)	41.40	43.42	44.27	44.84	43.23
All Milk Price ($/cwt)	12.85	12.53	12.65	12.78	12.80
Annual Rate of Change for Input Prices Paid					
Seed Prices (%)	-0.26	2.13	1.65	1.50	1.72
Fertilizer Prices (%)	4.94	-0.27	1.60	1.39	1.48
Chemical Prices (%)	-0.15	2.40	2.21	2.11	2.10
Machinery Prices (%)	0.37	1.54	1.44	1.45	1.46
Fuel and Lube Price (%)	7.69	-0.53	1.81	1.55	1.65
Labor (%)	5.26	4.71	3.98	3.75	4.19
Other Input Prices (%)	3.21	1.52	1.95	2.22	2.25
Annual Change in Consumer Price Index (%)	2.48	2.54	2.33	2.50	2.53
Annual Interest Rates					
Long-Term (%)	7.53	7.33	7.23	7.12	7.01
Intermediate-Term (%)	8.45	8.45	8.45	8.45	8.45
Savings Account (%)	4.45	4.45	4.45	4.45	4.45

Source: Food and Agricultural Policy Research Institute (FAPRI) at the University of

Table 5. Financial Conditions of Representative Family Farms Producing Feedgrain/Oilseed

Farms	Receipts 1998	Financial Position	NIA
	($11,000)	2000-2004	(1,000)
IAG 950	269	Poor	16.7
IAG 2400	598	Marginal	19.8
NEG 900	321	Good	-15.2
NEG 1300	437	Good	-10.9
MOCG 1700	350	Good	-2.3
MOCG 3300	644	Marginal	14.4
MONG 1400	344	Poor	136.1
TXNP 1600	407	Poor	38.9
TXBG 2000	357	Poor	81.4
TXBG 2500	401	Poor	35.8
TNG 900	214	Poor	65.9
TNG 2400	540	Poor	65.0
SCG 1500	427	Poor	40.4

Table 6. Financial Conditions of Representative Family Farms Producing Wheat

Farms	Receipts 1998	Financial Position	NIA for Good Position
	($11,000)	2000-2004	(1,000)
WAW 1500	256	Poor	53.9
WAW 4250	686	Poor	114.1
NDW 1760	238	Marginal	9.9
NDW 4850	679	Good	-2.2
KSSW 1385	154	Poor	3.5
KSSW 3180	331	Good	-52.7
KSNW 2325	247	Poor	46.7
KSNW 4300	515	Poor	79.4
COW 2700	269	Good	-41.7
COW 5440	508	Good	-34.7

Table 7. Financial Conditions of Representative Family Farms Producing Cotton

Farms	Receipts 1998	Financial Position	NIA for Good Position
	($11,000)	2000-2004	(1,000)
TXSP 1682	528	Poor	37.7
TXRP 2500	232	Poor	58.9
TXBC 1400	297	Marginal	16.3
TXCB 1700	581	Poor	99.3
TNC 1675	377	Poor	101.7

Table 8. Financial Conditions of Representative Family Farms Producing Rice

Farms	Receipts 1998	Financial Position	NIA for Good Position
	($11,000)	2000-2004	(1,000)
CAR 424	300	Poor	56.4
CAR 1365	916	Poor	180.9
TXR 2118	462	Poor	40.5
ARR 2645	703	Good	-14.0
LAR 1100	286	Poor	93.8

Table 9. Financial Conditions of Representative Family Farms with Milk Sales Less than $900,000

Farms	Receipts 1998	Financial Position	NIA for Good Position
	($11,000)	2000-2004	(1,000)
WAD 185	653	Good	-15.2
TXED 310	845	Poor	31.6
WID 70	249	Good	-2.41
MIED 200	631	Marginal	17.7
MICD 140	428	Poor	36.0
NYCD 110	365	Good	-38.9
VTD 134	410	Marginal	4.9
MOD 85	230	Poor	45.5
GAND 200	669	Poor	30.6