

The 1996 FAIR Act: Measuring the Impacts on Land Leasing

Abstract

Major innovations of the 1996 FAIR Act are PFC payments and almost complete planting flexibility. Because payments are attached to the land and not production, landlords are thought to capture most of the PFC payments. With the use of a November 1997 operator survey of cropland leasing arrangements in the Mississippi Delta of Arkansas, the current study investigates changes in crop mixes on leased land, operator attitudes concerning the operator/landlord sharing of FAIR Act benefits, and changes in leasing arrangements as a result of the FAIR Act. Although a number of operators agree that landlords disproportionately benefit from the FAIR Act, about three-quarters felt that there was no change or had no opinion. Similarly, we find little evidence that the arrangements of existing leases changed as a result of the FAIR Act. However, a number of operators report that leases were either terminated or added as a result of the FAIR Act.

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I like it because I can rotate which crops where I want them instead of splitting up fields and grow crops that produce more revenue and crops that will adapt better to certain land. It is also nice knowing about how much government payments I will receive in the future.

Because of the flexibility of the 1996 Farm Bill which allows the producer to grow crops that will return the most profit according to the market, I feel that in a crop share lease there is an advantage for the landlord and [sic] tenant.

In my area the landlord would like to have land back and draw full government payment and custom farm land in soybeans--not participating in annual farming work.

Comments of farm operators with land leases concerning the impacts of the 1996 FAIR Act, Mississippi Delta of Arkansas, November 1997

The 1996 Federal Agriculture Improvement and Reform (FAIR) Act is a distinct departure from previous farm bills. Major innovations of the FAIR Act are production flexibility contract (PFC) payments and almost complete planting flexibility. Under the FAIR Act, if the cropland had qualified for program benefits in any one of the past five years, then it is qualified to receive PFC payments for the 1996-2002 period. PFC payments are tied to historic production levels. Not only are PFC payments considered to be more generous than previous deficiency payments, but they are not tied to commodity prices--so that during periods of high commodity prices, farm income can be extraordinarily high.

An important area in which the FAIR Act may change the status quo is in lease arrangements (Schertz and Johnston). Because PFC payments are attached to the land, they should be reflected in higher land values. In order to capture some or all of the capitalization of PFC payments into land values, landlords must alter lease arrangements in their favor. Because all of the PFC payment goes to the tenant under a cash rent lease, the landlord could increase the cash rental rate to capture some or all of the PFC payment. For share leases, however, it is not as simple. While cash rental rates can readily reflect land values, share leases are thought to be more rigid since they are self-adjusting, i.e., landlords and tenants share losses and profits jointly. To capture additional PFC payments on share leases, landlords will have to increase their share of the crop

and/or decrease their share of expenses. Since the USDA reviews share leases for compliance with local practices, it is uncertain how successful landlords will be in adjusting share leases to their advantage. The ability of landlords to extract additional income from leases may be conditioned by PFC payment levels, social capital between landlord and tenants, competition for land in local rental markets, and the managerial ability of tenants.

Another area in which the FAIR Act will affect leased land is crop mix. Like owned land, it is thought that farm operators will rapidly change their crop mix on leased land in order to take advantage of market and rotation opportunities. Because farm operators often make crop decisions jointly with landlords, however, it is unknown whether leased land will be affected to the extent of owned land.

The purpose of the current study is to identify factors which explain changes in crop mixes on leased land and changes in lease arrangements due to the FAIR Act with the use of recent survey data collected from operators in the Mississippi Delta of Arkansas. To the best of our knowledge, this is the only study which has examined the impact of the FAIR Act on leasing with the use of actual farm operator data.

Data Set

In November 1997 a lease survey was mailed to a random sample of 1,500 farm operators in the Mississippi Delta of Arkansas. The survey queried operators concerning general farm and personal information, leasing arrangements, and the impact of the FAIR Act. Completed and usable questionnaires were returned by 214 farm operators who leased land. Operators may grow several crops on one lease and there may be different arrangements for each crop. In order to take account of this, each crop on a lease is treated as a separate lease. Because we could not expect operators to give detailed information on all of their leases under this definition, we only asked that

operators supply information on their largest soybean, cotton, and rice leases--those being the three most important crops in the region. With this method, the number of lease observations is 310.

Several aspects of the data set commend it apart from its uniqueness. The Mississippi Delta is an intensively cropped area where leased land dominates owned land. High-value and high PFC payment crops such as cotton and rice are grown throughout the region. These characteristics indicate that lease renegotiations due to the FAIR Act should be common.

Model Results

In the model section we seek to identify factors that explain the impact of the FAIR Act on leasing with the use of binomial and ordered probit models. Variable definitions and means are reported in Table 1 and coefficient estimates in Table 2. Intercept coefficient estimates are not reported. Due to data deficiencies, proxies are used in several instances as noted in Table 1. Supply, the number of leased acres per operator in the county (estimated by authors from 1992 Census of Agriculture), is a proxy for the supply of leased land. Quality, the county average soybean yield (estimated by authors from NASS statistics), is a proxy for land quality. Lease-number, the number of leases held by an operator, is a proxy for an operator's ability to bargain with landlords. Distance, the distance in miles from the landlord's home to the leased land, is a proxy for the landlord's participation in managerial decision-making. Density, the population per square mile in the county, is a proxy for alternative uses for agricultural land.

The analysis assumes that changing the crop mix under the flexibility provided for in the FAIR Act is desirable in most instances and that landlords seek to change lease arrangements in order to capture more PFC payments. It is also assumed that operators currently find it desirable to expand and improve existing land holdings due to the general strong farm economy and easier access to credit due to appreciating asset values.

Crop Mix

Initially, we seek to identify factors which explain whether an operator changed the crop mix on leased land due to the FAIR Act. About 23.9% of operators reported that they had changed the crop mix on leased land due to the FAIR Act. Of the operators who reported changes, on net 18.2% increased their soybean acreage, 5.2% decreased their double crop (wheat/soybeans) acreage, 15.0% decreased their milo/sorghum acreage, 20.8% increased their rice acreage, and 7.8% decreased their cotton acreage. In the binomial probit model used to explore factors which influenced changes in crop mix, the dependent variable, Cropchange, is equal to 1 if the operator changed the crop mix and is equal to 0 if there was no change. Independent variables include operator and farm characteristics, operator/landlord social capital, landlord participation in managerial decision-making, land quality, and lease arrangement. Positive (negative) coefficient estimates indicate that the probability of changing the crop mix increases (decreases) and the probability of not changing the crop mix decreases (increases) as the independent variable increases.

As expected, the probability of changing the crop mix increases with Sales (assuming that operators on larger farms are better managers) and Education, both which are significant. The inclusion of Lease-number as an explanatory variable, assumes that operators have a learning curve for bargaining with landlords and that operators with more leases are higher up on that curve. Thus, we hypothesize that the probability of changing the crop mix increases with bargaining ability. Lease-number has the anticipated sign, positive, but the coefficient estimate is not significant. The negative and significant coefficient estimate on Experience indicates that older and more experienced operators were less likely to change their crop mix--possibly indicating they are less aggressive and innovative.

Operator/landlord social capital has long been thought to affect lease arrangements (Gwilliam). A priori we are unsure of the expected sign on Relationship. While relatives and close friends may be more likely to grant changes to operators, decision-making may be slower and more cumbersome because there are typically more decision-makers involved when landlords are relatives and there may be more than economic issues at stake. The sign on the Relationship coefficient estimate, negative, indicates that farm operators are more likely to change the crop mix when the landlord is not a relative or a close friend. The coefficient estimate, however, is only weakly significant.

The hypothesis is tested that as the landlord's participation in managerial decision-making increases, the probability that the crop mix changes decrease. The hypothesis is based on the simple idea that changes are more readily made among a party of one than a party of two--thus taking the landlord out of the decision-making process should create more change. Although significant only at 0.065 on a one-sided test, the positive sign on Distance supports the hypothesis that the probability of changing the crop mix increases as landlord's participation in managerial decision-making decreases. Similarly, the negative sign on Cropchoice supports the hypothesis, but the coefficient estimate is not significant. The inclusion of the Cashrent variable is based on the notion that landlords more actively participate in decision-making in share than cash rent leases--so that crop mixes are more likely to change under cash rent than share leases. Cashrent is of the expected sign, positive, and the coefficient estimate is significant. Finally, we hypothesize that when alternative uses for agricultural land are high, landlord involvement in decision-making will be lower since much of the landlord's interest in the land is for development potential. The sign and significance of the Density coefficient estimate support this hypothesis.

Since net income is highest and yield variability lowest on irrigated land, operators should pursue profitable crop mix changes more vigorously on irrigated land. The sign on Irrigation, positive, supports this hypothesis, but the coefficient estimate is significant at 0.096 for a one-sided test..

Attitude of Operators Toward Operator/Landlord Sharing of FAIR Act Payments

In an initial step toward determining what impact the FAIR Act has had on lease arrangements, operators were queried concerning their opinion on changes in landlord/tenant division of lease proceeds due to the FAIR Act. Possible responses were 1) more advantage to landlord, 2) more advantage to tenant, 3) no impact--same as before, and 4) no opinion. In 19.7% of the leases, the operator indicated that the landlord has the advantage, 7.7% the operator, and 72.7% no change or no opinion.

To facilitate the identification of variables which explain these opinions, the no change and no opinion responses are grouped into one category. The responses are assumed to be ordered, so that Impact equals 0 if the operator indicated that the tenant has the advantage, equals to 1 if no change/opinion, and equals to 2 if the landlord has the advantage. Positive (negative) coefficient estimates from the ordered probit model indicate that the probability that the landlord has the advantage increases (decreases) and the probability that the tenant has the advantage decreases (increases) as the independent variable increases.

Operator human capital and the dependence farm income are factors likely to affect operators' opinions of which party the FAIR Act favors. The Experience coefficient estimate, which is positive and significant, indicates that operators with more experience are more likely to believe that landlords are favored. Similarly, although not significant, the Education variable indicates that better educated operators are also more likely to believe that landlords are favored.

The sign and significance of the Dependence coefficient estimate indicates that the probability that operators believe that landlords are favored increases as dependency on farm income increases. Interestingly, Lease-number indicates that those operators who are better negotiators are more likely to believe that tenants are favored. This is consistent with the notion that better negotiators are more successful at winning concessions from landlords.

Operators who have less social capital with their landlords (Relationship) are more likely to believe that landlords have the advantage. Other variables which indicate that operator-landlord relations affect operator opinions are Nochoice and Profit-motive. The Nochoice coefficient estimate indicates that when the landlord dictates the lease type (cash rent or share) the probability that the operator believes that landlords have the advantage increases. Similarly, although not significant, the probability that the operator believes that landlords have the advantage increases when the landlord's lease choice is driven by a profit motive.

Two variables which should affect the operator's opinion of who has the advantage are Supply and Quality. We hypothesize that operators will believe that tenants have the advantage when the supply of leased land is high and landlords have the advantage when land quality is high. The signs of Supply and Quality support these hypotheses, but the coefficient estimate of Supply is not statistically significant.

Because cash rent leases are believed to readily adjust to reflect changing profitability, while share leases are thought to be more static because they are self-adjusting, we anticipated that operators with cash rents would be more inclined to be of the opinion that landlords have the upper hand. Contrary to expectations, the coefficient estimate of Cashrent is negative and non-significant. The negative sign on Cashrent may be reflecting the fact that cash rent leases are generally more profitable and offer more managerial freedom for operators than share leases.

Changes in Lease Arrangements

Over 80% of the leases indicated that the operator had leased the land and grew the same crop in 1995 as in 1997. However, of these leases, in only 15 instances did the operator indicate that there had been a change in the lease arrangement, and in only 1 instance did the operator indicate that the change was due to the FAIR Act. However, 21 leases indicate that a lease had been terminated and 13 leases that a lease had been added due to the FAIR Act. That the net change in leases is negative supports the notion that landlords are operating leases themselves in order to collect all of the PFC payments.

Because only 1 existing lease had changes in its arrangements due to the FAIR Act, we alternatively identify variables that explain why operators terminated or added new leases. The independent variable in the ordered probit model is Drop/Add which is equal to 0 if a lease was terminated, 1 if a lease was neither terminated nor added, and 2 if a lease was added. In no instance was a lease both terminated and added. Positive (negative) coefficient estimates indicate that the probability that a lease was added increases (decreases) and the probability that a lease was terminated decreases (increases) as the independent variable increases.

Producer characteristics play a role in the landlord/producer's decision to terminate or add leases. The positive and significant coefficient estimate on Lease-number indicates that operators who have better bargaining skills are more likely to add leases. We have no a priori hypothesis on the sign on Education. The coefficient estimate on Education, which is significant at 0.08 on a two-sided test, indicates that the probability of adding leases increases with educational levels. Operators with more years of experience are likely to be in the contraction phase of their careers and thus may be more inclined to terminate leases with less favorable arrangements, while younger operators are seeking to expand by adding leases. The sign on Experience supports that hypothesis

and the coefficient estimate is significant. Finally, we explore whether operators who are more dependent on farm income are more likely to add leases. The sign on Dependence indicates that dependency is related with terminating leases, but the coefficient estimate is not significant.

When the supply of leased acres is plentiful, operators should be able to add leases under favorable conditions. Alternatively, when the supply of leased acres is plentiful, operators should readily terminate leases with unfavorable arrangements, given that another lease can be readily added. Thus, a priori, the expected sign of Supply is ambiguous. The coefficient estimate of Supply is negative and significant, supporting the hypothesis that leases with unfavorable arrangements will be terminated when the supply of leased land is plentiful. A priori, the expected sign on Quality is also ambiguous. While operators may prefer to add leases with high quality land, landlords may be able to obtain more favorable arrangements on leases with high quality land or find self-production desirable due to high net returns. The coefficient estimate of Quality, which is positive but not significant, supports the hypothesis that operators prefer to add leases with high quality land due to their higher returns.

We assume that operators prefer leases in which landlords have minimum participation in managerial decision-making. Density and Cashrent are included in the model to test this hypothesis. The inclusion of Cashrent in the model assumes that operators who already cash rent will seek additional cash rent leases. The coefficient estimates on Density and Cashrent are positive and significant, indicating that operators prefer leases in which they have optimal decision-making power.

Concluding Remarks

The 1996 FAIR Act is a distinct departure from previous farm bills. Major innovations of the FAIR Act are PFC payments and greater planting flexibility. The FAIR Act is believed to affect

the arrangements and the crop mix of leased land. The purpose of the current study is to identify factors which explain changes in arrangements and crop mixes on leased land due to the FAIR Act.

Data collected from operators in the Mississippi Delta of Arkansas indicate that 25% of operators reported changes in the crop mix on leased land, 20% of operators felt that the FAIR Act gives an advantage to landlords while nearly three-quarters felt there was no change or had no opinion, and the FAIR Act caused little change in existing lease arrangements, but did cause leases to be terminated and added. Factors which influenced these changes include operator human capital, operation characteristics, supply of leased land and land quality, operator/landlord social capital, and landlord participation in decision-making.

It is possible survey results are not as dramatic as expected because operator opinions concerning the division of program payments are conditioned by the crop flexibility provisions of the FAIR Act and the strong performance of the farm economy. The results support the notion that operators do not appear to willfully accept changes in lease arrangements, rather that a landlord has to seek a new operator in order to procure more favorable arrangements.

Table 1. Variable Definitions and Means

Variable	Definition	Means
Dependent Variables		
Cropchange	1 if a change in crop mixture due to FAIR Act; 0 otherwise.	0.24
Impact	0 if advantage to tenants as a result of FAIR Act; 1 if no change or no opinion; 2 if advantage to landlords.	1.12
Drop/Add	0 if lease terminated due to FAIR Act; 1 if no leases terminated or added; 2 if lease added.	0.98
Independent Variables		
Relationship	1 if landlord other; 2 acquaintance; 3 close friend; 4 relative	2.76
Experience	Number of years tenant has been a farm operator.	23.82
Nochoice	1 if landlord dictated a cash rent or share lease; 0 otherwise.	0.28
Supply	Ratio of leased acres in county to number of operators	438.46
Profit-motive	1 if cash rent or share lease chosen based on landlord's desire to maximize individual returns; 0 otherwise.	0.11
Education	1 if tenant completed less than 8 years; 2 some high school; 3 completed high school; 4 Vo-tech; 5 some college; 6 college grad.	4.34
Dependence	1 if less than 25% of total operator income from farming; 2 if 25 to 49%; 3 if 50 to 75%; 4 if more than 75%.	3.41
Quality	Average soybean yield in county. (bu/acre)	23.33
Lease-number	Total number of leases operator holds.	3.55
Sales	1 if 1997 gross operator sales less than \$50,000; 2 if \$50,000 - \$99,999; 3 if \$100,000 - \$249,000; 4 if \$250,000 - \$499,999; 5 if more than \$500,000.	3.47
Cashrent	1 if the lease is a cash rent; 0 if the lease is a share.	0.27
Irrigation	1 if the leased land is irrigated; 0 if non-irrigated.	0.76
Distance	Miles from the landlord's home to leased land.	108.99
Density	Population per square mile in county which leased land located.	43.45
Cropchoice	1 if the landlord actively participates in crop selection; 0 otherwise	0.31

Table 2. Maximum Likelihood Coefficient Estimates from Probit Models

	Cropchange: Change in Crop Mixture	Impact: Impact on Lease Returns	Drop/Add: Drop/Add Leases
Relationship	-0.1362 (0.1080)	-0.1902 (0.0106)	
Experience	-0.0253 (0.0015)	0.0144 (0.0239)	-0.0156 (0.0509)
Nochoice		0.4010 (0.0148)	
Supply		-0.0004 (0.3926)	-0.0020 (0.0019)
Profit-motive		0.1375 (0.5390)	
Education	0.1256 (0.0732)	0.0294 (0.5512)	0.1117 (0.0791)
Dependence		0.1513 (0.0487)	-0.1267 (0.1989)
Quality		0.0581 (0.0596)	0.0497 (0.1984)
Lease-number	0.0321 (0.2923)	-0.0565 (0.0226)	0.0666 (0.0275)
Sales	0.1568 (0.0853)		
Cashrent	0.1855 (0.0853)	-0.0829 (0.6176)	0.7881 (0.0006)
Irrigation	0.3387 (0.1917)		
Distance	0.0004 (0.1321)		
Density	0.0069 (0.0505)		0.0074 (0.0532)
Cropchoice	-0.1140 (0.5591)		

Note: The dependent variable in the first model is Cropchange. The dependent variable in the second model is Impact. The dependent variable in the third model is Drop/Add. The numbers in parentheses are p-values from two-sided tests of statistical significance of the coefficient estimates. Model one is a binomial probit model and models two and three are ordered probit models. Intercept coefficient estimates are not reported. See Table 1 for variable descriptions. A positive coefficient indicates that the probability of choosing the highest of the discrete dependent variables increases as that variable increases. A negative coefficient indicates that the probability of choosing the lowest of the discrete dependent variables increases as that variable increases.

References

Gwilliam, K. "Farmland Leasing and Contract Choice in Michigan: The Influence of Social Distance." Ph.D. thesis. Michigan State University, East Lansing, 1993.

Schertz, L. and W. Johnston. "Landowners: They get the 1996 Farm Act Benefits." *Choices*, first quarter (1988):4-7.