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Determinants of Farm Size and Structure

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Iowa State University
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FARMLAND LEASING AND LAND TENURE IN SOUTH DAKOTA AND NEBRASKA*

-Empirical Findings Emphasizing Current Situation and Changes between 1951 - 1986

Dr. Larry Janssen and Dr. Bruce Johnson**

Importance of Farmland Leasing

Farmland leasing is a widely used method for transferring use rights of farmland. The proportion of U.S. farmland leased since 1930 has been in the range of 35-45% each year (USDC, 1984). In South Dakota, the proportion of farmland rented has fluctuated considerably. In 1930, rented acres comprised about 59% of South Dakota's land in farms. The percentage of rented acres rose to 70% by 1940 and then steadily decreased to about 37% in 1969 and 36% in 1982 (Peterson, 1987, p. 3). Approximately 68% of South Dakota's farm operators are involved in farmland leasing. Similar trends have occurred in Nebraska, where 40% of farmland is leased each year (USDC, 1984).

Changes in production methods have increased the efficient scale of operation in agriculture. As a result, farm operators have expanded the size of their operating units, using farmland leasing as a primary method for expansion. Leasing is recognized as an effective (and often permanent) means of acquiring control of the land base necessary for an economically viable operating unit.

The effects of the structural changes in the agricultural economy include changes in leasing patterns, rental markets, and the roles of market participants. Fifty years ago, four out of every ten farmers leased all of the land they farmed. By 1982, only one eighth of farmers were full tenants (USDC, 1984; Reid, 1979).

Most leased farmland is rented by partowner operators, who frequently rent from several different landlords. In South Dakota and in Nebraska, 75% of leased acres were

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**Dr. Larry Janssen is Associate Professor of Economics, South Dakota State University, Brookings, South Dakota. Dr. Bruce Johnson is Professor of Agricultural Economics, University of Nebraska, Lincoln, Nebraska. The authors are grateful for the able assistance of Mr. Scott Peterson, Economics Research Associate, South Dakota State University and Michael Lundeen, Research Technologist, University of Nebraska.

rented by partowner operators in 1982 (USDC, 1984). Partowner operators farm more acres individually, and in the aggregate, than either full owner or full tenant operators.

Nonoperator landlords, including retired farmers and investors without farm backgrounds, have been an increasing component of the U.S. farmland rental market. In 1978, nonoperator landlords rented out 87% of all privately owned agricultural land leased in the U.S. (Lewis, 1980; Baron, 1983). Most landlords (85%) and renters (80%) are individuals or family businesses. Farm operators and retired farmers constitute 41% of U.S. agricultural landlords. Most individual landlords (90%) lease to only one renter (Wunderlich, 1983).

The farm sector experienced considerable financial stress during the early 1980's. To alleviate problems caused by high interest rates, low crop prices, falling land values, and strained cash flows, many operators have opted for leasing farmland rather than borrowing money to purchase land (Scott, 1985). Compared to mortgaged ownership, leasing often allows farmers to lower their financial risk, increase their management flexibility, and conserve equity capital for financing other aspects of the farm business. The prospects of continued financial upheaval and uncertainty in the agricultural economy may cause farmers to continue to replace debt capital with leased capital in the future (Penson and Duncan, 1981).

Because farmland leasing is widespread, it is important to understand its impact on the organization, distribution, and efficient use of resources in agriculture and the distribution of returns in agriculture. It is also important to understand the nature and extent of changes in farmland leasing market participants and changes in leasing practices over time. Yet comparatively little data is available on the characteristics of farmland rental markets in most states - especially about share leasing practices and characteristics of landlords and tenants (Weisberger, 1979). In South Dakota and Nebraska, no comprehensive statewide study of the farmland leasing market has been conducted since 1951 (Hurlburt, 1954).

Farmland Leasing Study in South Dakota and Nebraska

For these reasons a two-state study of agricultural land leasing was partially funded by a grant from the Economic Research Service of the U.S. Department of Agriculture. The project consisted of a comprehensive survey of agricultural land leasing and farmland rental markets in South Dakota and Nebraska in 1986. The project's objectives were to investigate the role of land leasing in production agriculture and to investigate the performance of farmland rental markets. A common survey questionnaire, used in both states, was sent to landlords and renters.

In the next two sections, key findings from the 1986 leasing survey are presented. This survey was sent to approximately 5% of agricultural land renters and landlords in Nebraska and South Dakota - 5800 Nebraska and 4100 South Dakota renters and landlords. The farmland leasing survey was completed by 1615 Nebraska and 1155 South Dakota farm renters and landlords (Johnson, et al. 1987; Peterson and Janssen, 1988; Lundeen and Johnson, 1987).

In the final sections, selected comparisons are made between findings from the 1986 survey and findings from the 1951 survey of farmland rental practices in Nebraska and South Dakota. The 1951 survey was conducted in six Midwestern states (South Dakota, Nebraska, Kansas, Iowa, Minnesota and Wisconsin) and is a product of the North Central Land Tenure Research Committee (Hurlburt, 1954).

These two surveys are comprehensive statewide surveys that obtained considerable data on farmland rental practices and rental market participants. A key difference between the two survey instruments is that respondents to the 1986 survey were landlords and farm renters, while farm renters were the respondents to the 1951 survey. However, there were few discernible differences in reporting by renters and landlords. Consequently, we believe it is possible to pool renter and landlord responses from the 1986 survey and make direct comparisons, where possible, to findings from the 1951 survey. Categorical modeling procedures (SAS, 1985, CATMOD procedure) were used to test for significant differences in sets of coefficients between time periods, along with significant differences in other sets of coefficients such as regional effects. At this preliminary stage both linear response models and log-linear models were used for comparison purposes.

Summary of Respondent Characteristics and General Leasing Characteristics - 1986

The principal findings and implications from the study of Nebraska and South Dakota respondents' characteristics and general leasing characteristics follow (Johnson, et al. 1987; Peterson and Janssen, 1988; Lundeen and Johnson, 1987).

1. The rental market for agricultural land remains predominantly local in nature, with 90-95% of farm operators and 55% of landlords residing in the same county or a county adjacent to their leased land. However, absentee land ownership is also common with 27% of landlords residing in another State. If absentee ownership increases in the future, there will likely be greater use of professional farm management services and a greater trend to cash leases and more formal leasing arrangements.

2. Farm rental income for most landlords was a modest proportion (<30%) of total household income, while most farm operators (75%) were highly dependent on net farm income. This suggests landlords and renters may not experience or perceive changing agricultural economic conditions in the same manner or to the same degree. It also suggests that many landlords are not traditional-farm oriented landlords, as occurred in the past.

3. Respondents' age varied by tenure status. Full tenants were usually the youngest group while nonoperator landlords were often near or past

retirement age. Between these extremes were partowner operators and fullowner operator landlords. This age continuum by tenure status illustrates the importance of the farmland rental market in transferring control of agricultural production from aging farm operators or landlords to younger farm operators.

4. Most landlords managed their own leases, but 15% of South Dakota landlords and 20% of Nebraska landlords reported leases managed fully or in part by someone else. Most outside managers (75-80%) were relatives of the landowner, suggesting the importance of family relationships in land ownership and control.

5. Most women respondents (84%) were nonoperator landlords and a majority were over 65 years of age. Women were 40% of nonoperator landlord respondents and only 10% of farm operator respondents. Women landlords were much more likely than male landlords to have someone else manage their farm leases.

6. Professional farm management services were used by 6-7% of Nebraska landlords and 2-3% of South Dakota landlords for managing their farm leases. Women landlords and those landlords living out-of-state were much more likely to use professional farm management services.

7. The majority of leased land involved a contract between unrelated individuals. However, a majority of renters and about three-eighths of landlords reported one or more leases with family members or relatives. Lease terms between family members did not significantly differ from lease terms between unrelated individuals, except that fewer written leases occurred between family members.

8. Multiple leasing by farm operators (leasing land from more than one landlord) was the rule rather than the exception. Also, a majority of farm operators with multiple leases used a combination of cash leases and share leases. Thus, today's renter often uses a sophisticated process of land resource control via farmland rental. In so doing, the renter's risks associated with losing any one parcel are reduced. It also suggests many renters may have more knowledge of and experience with farmland rental agreements than many landlords.

9. Despite the degree of landlord absentee ownership and multiple leasing among renters, most leasing agreements tend to be comparatively informal (verbal, year to year agreements). This suggests that patterns and terms of typical leasing agreements are well established within localities. In many cases, there may be little incentive for more formal agreements, especially if both parties reside in the same locality.

10. Most respondents reported considerable satisfaction with their leasing agreements, and most landlords and renters were reasonably certain of continuing their existing leases. These favorable perceptions and low incidence of reported changes in lease provisions suggest slow but deliberate adaptation by farmland rental market participants and institutions to changes in economic or agricultural conditions.

Summary - Share Leases and Cash Leases - 1986

The principal findings from the study of share leases and cash leases are (Johnson, et al. 1987; Peterson and Janssen, 1988; Lundeen and Johnson, 1987):

1. Cropshare leases were the dominant form of cropland leasing in Nebraska (72% of cropland acres leased and lease numbers) and a majority of cropland leasing in South Dakota (60% of cropland acres leased and 54% of lease numbers). Almost all rented pasture and rangeland were cash lease payments per acre or per AUM.

2. Almost all cropshare agreements were one of the following tenant-landlord shares of output: 2/3-1/3 share, 3/5-2/5 share, 1/2-1/2 share or 3/4-1/4 share. The dominant share agreement varied by region and crops grown. In South Dakota, about 60% of cropshare leases involved a 2/3 tenant's share of the crop. This share lease is dominant in most regions of the State, except for corn and soybean tracts in eastern South Dakota where 3/5-2/5 share leases are common. In Nebraska, the 3/5-2/5 share lease and 2/3-1/3 share lease were most common for non-irrigated cropland. The 3/5-2/5 share lease prevailed in most eastern Nebraska counties while the 2/3-1/3 share lease was common in central and western Nebraska. For irrigated cropland, the most common output shares were 3/5-2/5 and 1/2-1/2 tenant-landlord output shares, with 1/2-1/2 shares predominant on sprinkler irrigated land.

3. Most (75%) cropshare lease respondents reported the landlord and tenant sharing expenses for one or more variable inputs, but less than 10% reported all variable input expenses shared. In almost all cropshare leases, shared inputs were shared in the same proportion as crop output was shared. Fertilizer was the most commonly shared input expense, followed by insecticide or herbicide expenses. Input costs were more likely to be shared on leased tracts where corn or soybeans are grown and the tenant's share was 1/2 or 3/5 of crop output. Input costs were also more likely to be shared on irrigated cropland tracts.

4. From an economic efficiency viewpoint, the output shares and inputs shared in a cropshare lease should reflect the relative contributions of the renter and landlord (Heady, 1952; Hurlburt, 1962). Crop enterprise budgets were

used to estimate the renter's and landlord's relative cost contributions for typical crop share leases in different regions of South Dakota and Nebraska. Overall, the dominant output and input shares reported in the survey reflects a reasonable degree of economic efficiency. In most cases, participation in the Federal farm program improved the relative cost contribution of renter and landlord in relation to their output share. This suggests the share rental market for cropland in both states has adjusted to the growing importance of Federal farm programs in the mid-1980's.

5. Cash rental rates per acre varied substantially by region and land use. For example, average 1986 cropland cash rents varied from about \$11 per acre in western South Dakota to \$63-66 per acre in east central Nebraska. In Nebraska irrigated cropland cash rents varied from \$53 per acre in northwestern Nebraska to over \$100 per acre in southern Nebraska. Within each region, the average per acre cash rent is highest for irrigated cropland, followed by nonirrigated cropland, alfalfa hayland, native hayland, and native pasture. Reported rent-to-land value ratios, however, did not significantly vary by region.

6. Average cash rents declined from 1985 to 1986 for all agricultural land uses in most regions of both states. However, cash rental rates from 1985 to 1986 were actually changed in less than one fourth of the cash leases. This suggests that cash rental rates are flexible over time, but are not adjusted on specific leases until major changes are deemed necessary by the rental parties.

7. Except for changes in annual cash rental rates, the incidence of change in the details of cash and share agreements are infrequent. Moreover, the average lease has been in effect for more than a decade, which further suggests relative stability in leasing terms.

Selected Comparisons of Farmland Leasing Market Participants and Leasing Practices, 1951 and 1986

Comparisons of farmland leasing market participant characteristics and leasing practices between the two time periods indicates gradual, evolutionary changes are occurring in Nebraska and in South Dakota. Key findings from the statistical analyses of the 1951 and 1986 farmland leasing surveys in Nebraska and South Dakota are reported in the following paragraphs. Emphasis is placed on similarity or differences in findings between the two time periods. Statistical significance of sets of coefficients in the categorical models (linear and log-linear model specifications) were examined at the 1% level of significance.

1. Farmland renters may be full tenants (who lease all farmland operated) or partowner operators (who lease some farmland and own some farmland

operated). From 1951 to 1986, the proportion of partowners, relative to full tenants, has significantly increased in all regions of both states. Overall, partowner operators have increased from 42% to 78% of farmland renters. Also, partowner operators tend to rent in more acres than full tenants.

2. The incidence of female landlords has significantly increased from 1951 to 1986. In South Dakota, the proportion of female landlords has increased from 22% to 36% of all landlords. In Nebraska, the proportion of female landlords has increased from 26% to 41% of all landlords.

3. The median age of renter and landlord has increased in both states. Statistical tests concerning shifts in the age distribution of renters and landlords were significant for both renters and landlords in both states. However, these changes correspond with the general increase in the proportion of U.S. adults that are 55 years of age or older.

   The principal change in the landlords' age distribution is an increase in the proportion of landlords 65 years or older and an decrease in the proportion of landlords 45-64 years of age. This change is closely related to the increased proportion of female landlords who are mostly 65 years of age or older.

   Examination of the age distribution of respondent renters indicates 30% of renters were 45 years or older in the 1951 survey compared to 48% of renters in the 1986 survey. This increase is related to the pronounced shift to partowner operators that has occurred since the early 1950's. Most partowner operators are 35 - 64 years of age while most full tenants are less than 45 years old.

4. The distribution of rental tract sizes has shifted in most regions of both states. An increased proportion of smaller rental tracts (less than 180 acres) and larger rental tracts (1000 or more acres) are shown in the 1986 survey results than in the 1951 survey results. A shift to smaller tract sizes reflects the land parcelization phenomenon associated with partownership tenure. The bimodal distribution of rental tract sizes may be related to the bimodal distribution of total farm acres operated.

5. Multiple landlords per renter is much more prevalent in 1986 than in 1951. In 1951, 55% of respondent renters leased land from only one landlord, compared to only 34% in 1986. The proportion of respondent renters leasing from 5 or more landlords has increased from about 2% in 1951 to 12-13% in 1986. These phenomena have occurred at similar rates in most regions of both states. These findings provide additional evidence that today's commercial farm operators are involved in fairly sophisticated land acquisition behavior that likely involves a combination of farm expansion and risk reduction motivations. Multiple tracts, typically owned by different landlords, are acquired to obtain adequate acreage, and the business risk associated with losing any single parcel is reduced.

6. The incidence of written leases has increased slightly (28% vs. 33%) from 1951 to 1986, but the increase is not statistically significant. A majority (51%) of leases between unrelated individuals were written in 1986, compared to 45% of leases in 1951. Comparatively few leases between family members are written leases.

7. The incidence of cash leases for cropland has dramatically increased from 1951 to 1986, while combination share - cash leases has drastically declined. The proportion of share leases (with no cash payments) has remained about the same. The shift in lease type is more pronounced in South Dakota than in Nebraska. For example, in 1951 less than 6% of cropland leases in South Dakota were cash leases compared to 45% of cropland leases in 1986.

8. The incidence of landlord and renter sharing costs of some inputs has significantly increased in both states. For example, costs of any input were shared in only 20% of South Dakota cropshare leases in 1951, compared to some input cost sharing on 70% of cropshare leases in 1986. Input cost sharing in Nebraska cropshare leases was more likely in both time periods, but the trend toward greater input cost sharing was evident. In both states, there were significant regional differences in the proportion of leases with input cost sharing.

Conclusions and Implications

Farmland rental markets in Nebraska and South Dakota appear to be functioning in a reasonably efficient and equitable manner. Examination of returns to share leases and cash leases indicates farmland rental markets are reasonably efficient in adjusting to geographic differences within the State and to Federal farm program changes.

Regional differences in crop output shares and in the array of inputs shared reflect geographic differences in cropping patterns, yield risk, and cultural practices. The examination of relative cost contributions indicates landlords and renters usually negotiate leases within a reasonable degree of economic efficiency and equity.

Changes in farmland rental market participants and leasing practices from 1951 to 1986 have been evolutionary in nature and are one important component of structural changes in production agriculture. There has been some increase in the complexity of farmland leasing as partownership has increased and a greater proportion of landlords are nontraditional landlords. The greater use of purchased inputs, increased complexity of farm programs and other management decisions in cropland agriculture has led to increased use of cash leases, but also to greater incidence of shared input costs on share leases. In both cases, the risk-return relationship for landlords and renters have changed, but the aggregate impact is not known.

Perhaps the most important conclusion is that drastic changes have not occurred in farmland rental market participants and in many key leasing practices over the 35 year time period. The sources of stability seem to be the long term duration of most rental agreements, the largely local nature of leasing markets, the renter-landlord relationship, and the gradual, socially conservative nature of change in cropland and rangeland agriculture in Nebraska and South Dakota. At the same time, incremental changes occur in response to major changes in economic conditions. Consequently, agricultural land leasing remains an effective means of production control for farm operators (especially partowner operators) and ownership control for landlords.

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