

Chapter 6

Effects of Government Payments on Land Rents, Distribution of Payment Benefits, and Production

Michael J. Roberts

Economic reasoning and some empirical evidence suggest that farmland rental payments increase with more direct government payments to farmers (Barnard et al., 1997; Floyd, 1965; Gardner, 1992; Kuchler and Tegene, 1993; Goodwin et al., 2003; Kirwan, 2003; Lence and Mishra, 2003; Roberts et al., 2003). The roles of farm operator and farm landowner diverge on the 60 percent of U.S. cropland that operators rent from owners (USDA, 2003).²⁷ As a result, the degree to which farmland rents increase with government payments strongly influences the distribution of payment benefits between landlords and renters. By examining the degree to which land rents increase with increasing payments, we also obtain indirect evidence on the potential production impacts associated with domestic agricultural programs. This evidence is useful because a direct empirical assessment may be difficult or impossible, especially when program payments are decoupled. Understanding how agricultural payments could affect production is central to tracing the full range of market effects of agricultural payment programs, including impacts on world commodity prices as a result of national supply responses.

Effect of Payments on Land Rents Depends on Production Distortions

If agricultural land markets are competitive, land rents will vary according to the profits tenant farmers expect to earn from farming. High-quality agricultural land, capable of producing higher yields or higher value crops, will command a higher rent per acre. Similarly, agricultural lands eligible for government payment programs also will tend to command higher rent per acre. How much higher the rent may be depends on the features of government programs, including the flexibility granted (whether they may grow crops, which crops they may grow, the production practices they may use).

Many agricultural payments—called coupled payments—are connected to the amounts and/or prices of certain crops. To maximize profits *plus* payments, farmers may use land differently than they would without the payments—for example, by producing greater amounts of more heavily subsidized crops. Altering types or quantities of crop production to boost payments may generate additional costs and so lower net revenues, which will offset some of the payments farmers receive. Moreover, if farmers collectively produce more output in response to payments, commodity prices will fall. When market revenues fall as a result of the program, per-acre rents are expected to rise proportionately less than the per-acre

²⁷ This figure is derived from table 74 of the Agricultural Economics and Land Ownership Survey (2001).

payments farmers expect to receive. If land markets are competitive, the difference will reflect the amount that profits are reduced by the production distortion. In other words, the greater the distortion, the less rents will increase with increasing payments.

In contrast, lump-sum, or decoupled, agricultural payments are allocated irrespective of land use, current production, prices, or input use. In the absence of market imperfections, these payments provide farmers with no incentive to manage their operation any differently than they would without them, and rents will tend to increase dollar for dollar with level of payments received. As an example, consider two parcels of land, identical in all attributes except that the decoupled payments are linked to the second parcel. If payments are decoupled, production activities and profits will be identical on both parcels, and the increase in rent can be expected to equal the level of payments.

No farm program appears to be completely without potential effects on production. Production Flexibility Contract (PFC) payments, established in the 1996 Federal Agriculture Improvement and Reform Act (and called “direct payments” in the 2002 FSRI Act), are perhaps the least coupled of all U.S. Government payments to farm operators. These payments are based on historical plantings and program participation and place few restrictions on farmers’ production activities. The restrictions prohibit new fruit or vegetable plantings or conversion of payment-receiving land to a non-agricultural use. Thus, if these restrictions are not binding, these payments would not be expected to reduce profits. Accordingly, farmers would not be expected to discount the value of current payments when determining rent. Alternatively, if the FAIR Act programs were to induce an increase in production, which increases costs or lowers commodity prices and thereby reduces profits, then the increase in rents would be expected to increase less than the full amount of the payments.

If the land rental market operates efficiently, the program-induced increase in profits plus payments will tend to be passed through to the land owner – either the full face value of payments or a smaller amount. If efficient land markets are assumed, the amount by which payments are not passed through to land owners therefore signals the degree to which payments could be distorting production activities and profits. If, however, land rental markets adjust slowly and/or incompletely, then the value of the payments may not be passed through to land owners in the first year or two after the program is implemented. Thus, one cannot determine to what extent incomplete pass-through of payments in land rents is attributable to imperfect and/or slowly adjusting land rental markets rather than production distortions attributable to the payments themselves.

Evidence on the Links Between Payments and Land Rents

A first step toward understanding wealth and production effects stemming from coupled and decoupled payments is to determine how they affect land rents. Land rents would be expected to increase more (relative to a context with no payments) the smaller the production distortion induced by the

payments. Land rents should rise commensurately with payments if payments have no effect on production and if land markets operate efficiently.

Income or wealth effects, which have often been used to explain possible production distortions from PFC and Market Loss Assistance (MLA) payments, depend in part on the share of payments passed on to landlords via higher rents. After accounting for rent pass-through, one can then examine the relationship between payment benefits received and the wealth of farm households that receive them. The magnitude of changes in wealth may indicate the potential for the different kinds of production distortions stemming from market imperfections (described in Chapter 3 on labor, Chapter 4 on risk, and Chapter 5 on capital).²⁸ Information about who ultimately receives payment benefits may also be interesting in its own right.

Roberts et al. (2003), by analyzing over 60,000 records of the Agricultural Census, estimated the amount by which total government payments (excluding conservation programs) increased land rents in both 1992 and 1997, on either side of the watershed 1996 FAIR Act. The estimates were based on a statistical comparison of farm-specific per-acre rental costs with county average rental costs and how much this comparison depended on the amount of payments received per acre farmed. Many variables were used to control for other factors affecting land rents, and statistical techniques accounted for differences between actual payments received and payments a farmer could have *expected* to receive at the beginning of the season, when rental agreements are typically negotiated.²⁹ For 1992, the study found that on land rented via cash leases, 21 cents of each dollar in government payments received (plus or minus 4 cents) was passed through to landlords via higher rents. The estimate for the same farms in 1997 was 33 cents per dollar of government payments (again, plus or minus 4 cents).³⁰

These findings suggest that PFC payments have approximately 50 percent greater effect on land rents than pre-FAIR coupled payments. A large share of the benefits, for both coupled and decoupled payments, seem not to be passed through to landlords. This is true even in 1997, a year in which nearly all payments were from the PFC program.³¹ Because nonoperator landlords own approximately 60 percent of cropland, they receive an estimated 20 percent of the total payment benefits via higher rent (33 cents of the 60 percent of program dollars paid to tenant operators).

Of course, 1997 was the first year in which rental contracts were negotiated after the FAIR Act, and 1992 was the second year after implementation of the prior farm bill. If cash rents adjust slowly to the new program benefits, we may be understating the benefits of the PFC payments to landlords – both relative to the prior program and in absolute terms. Also, lands receiving higher per-acre government payments likely differ in many ways from lands receiving lower per-acre payments, even within counties, and our analysis may be reflecting these unmeasured differences. Although great care was taken to control for confounding factors, some unobservable factors affecting rents may be correlated with government payments and cause the estimates to be biased.

²⁸ It makes sense that payment benefits retained by tenants would be relevant when assessing potential wealth effects. It could be, however, that wealth effects on landlords could also play a role. Landlords sometimes make decisions that affect production, as they often supply equipment, irrigation water, or other inputs to production. In any case, tracing out the flow of wealth is important for understanding where wealth effects are likely to be largest.

²⁹ A statistical technique called “instrumental variables” was used to account for expectation error.

³⁰ The analysis was based on cash rent leases only. In share-contract leases, the landlord receives a share of the proceeds from crops grown, where the share is established at the beginning of the growing season.

³¹ The year 1997 was unique in that nearly all government payments (excluding conservation payments) emanated from PFC payments. Of the approximately \$8 billion paid to farmers in direct government payments in 1997, \$6.1 billion were PFC payments, \$1.7 billion were toward conservation (not included in this analysis), and \$257.3 million came from other sources. Unfortunately, the census data do not discern between PFC payments and other kinds of nonconservation payments.

Distribution of Payment Benefits

Most payments are tied to current or historical production of certain field crops. As a result, large farmers in Midwestern States generally receive more government payments than other farmers. Large farmers also rent a greater share of land from nonoperating landlords, and may pass more payment benefits on to landlords. An account of payment pass-through is therefore needed to understand the relationship between payments and household wealth.

Using 1999 ARMS data, Roberts and Key (2003) examined the relationship between total (coupled, decoupled, and conservation) payments received and the wealth of farm households. In 1999, payments totaled \$21.1 billion, of which 23.8 percent were PFC payments, 35 percent MLA payments, and 32.2 percent loan deficiency payments. Loan deficiency payments have much stronger ties to production than PFC and MLA payments. Figure 6-1 shows the relationship between payments and wealth, both with and without adjustments for payment pass-through via higher rents. Each point represents 1 percent of the sample of farms sorted according to household net worth. The study adjusted total payments by reducing them (by a factor) for land rented in by the farm operator from another land owner and increasing them for land rented out by the operator to another farmer. The factor used for all payments was the 1997 estimate of 33 cents per decoupled payment dollar passed through to landlords.³² With or without the pass-through adjustments, wealthy farmers receive far more payment benefits than less wealthy farmers.

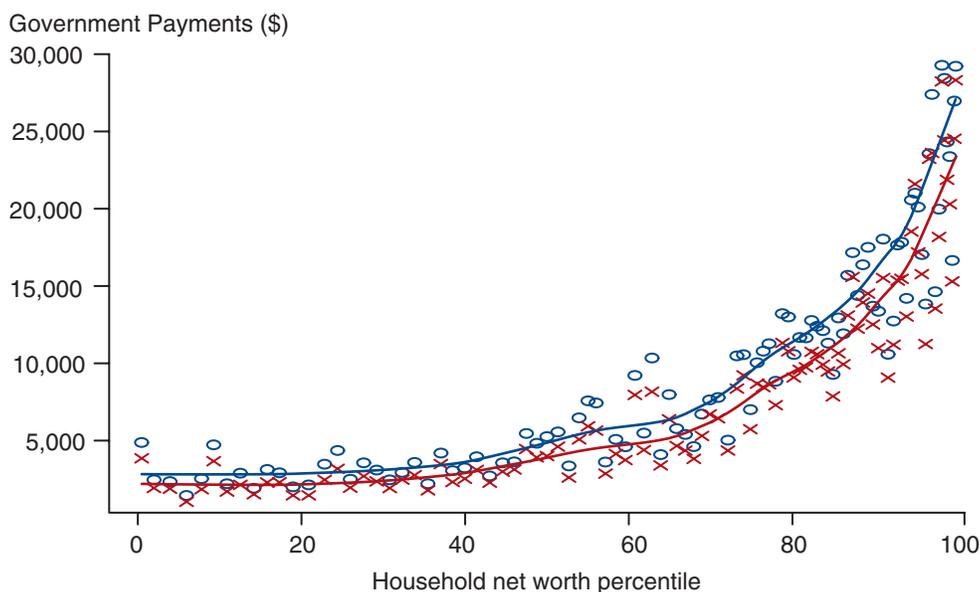
Table 6-1 presents data on government payments (coupled and decoupled) to farm households in 1999, adjusted to take into account their tenancy arrangements. More than 58 percent of farm households received no government payments in 1999, mainly because they did not produce program crops and did not participate in other programs. In contrast, 1.2 percent of farm households received slightly more than 25 percent of total adjusted government payments, and about 0.2 percent of farm households received almost 9 percent of all adjusted payments. Households in the highest payment category (more than \$150,000 of adjusted government payments) averaged more than \$2.1 million in net worth and \$236,663 in (coupled and decoupled) government payments. Across all farm households, adjusted total government payments in 1999 were \$5,860, about 1 percent of average net worth. Across PFC recipients, adjusted (coupled and decoupled) government payments in 1999 averaged \$20,381, compared to an average net worth of \$562,567. In 1999, PFCs accounted for 24 percent of total payments to producers.

By these tenancy-adjusted measures of well-being, a large share of government payment benefits went to the wealthiest farmers in 1999. Although adjusted total payment levels are substantial for the higher payment categories, other researchers have shown that wealth transfers on this scale have a relatively small effect on labor supply (see chapter 3).

³² Note that payments in 1999 were substantially higher and of a different composition than in 1997 so it is not clear whether the pass-through rate affected payments by the same factors as in 1997. The calculations also assume the factor is the same for share leases as it is for cash-rent leases.

Figure 6-1

The Relationship between government payments and household net worth, 1999



Note: Blue indicates payments received and red indicates adjusted payments, which account for higher rents paid and received.

Source: Roberts and Key (2002).

Table 6-1—Coupled and decoupled payments to farm households, adjusted for land tenancy characteristics

Adjusted government payments category	Average unadjusted government payments	Average adjusted government payments	Share of farm households	Share of all government payments	Average farm household net worth
	\$ per household		Percent		\$
0	0	0	58.1	0.00	507,263
\$1 - 10,000	3,373	3,019	27.4	14.1	514,431
\$10,000 - 25,000	19,312	16,476	7.8	21.9	719,726
\$25,000 - 50,000	42,020	34,978	4.1	24.3	992,557
\$50,000 - 75,000	76,234	60,494	1.4	14.2	1,210,949
\$75,000 - 150,000	126,331	100,643	1.0	16.6	1,461,119
> \$150,000	278,817	236,663	0.2	8.9	2,146,703
All farm households	6,966	5,860	100.0	100.0	562,657
All PFC participants	24,882	20,381	22.0	64.2	660,031

Source: Roberts and Key (2002). Data are from 1999 USDA Agricultural Resource Management Survey. All averages are weighted to account for sample design. Payments are adjusted for payment pass-through on operators' rented-out and rented-in acreage. See Roberts and Key for details on how payments were adjusted for land tenancy arrangements.

Conclusions

Recent evidence suggests that government payments to farmers do induce higher land rents. The estimated effect is much larger for PFC payments than for pre-1996 payments, which had stronger ties to current production. Although cash rents vary a great deal across farmland, the rents seem not to vary dollar for dollar with PFC payments: only an estimated 33 cents of each decoupled payment dollar is reflected in higher cash rents. Many factors may contribute to this observation. Some rural land rental markets may not be competitive. It may take time for land owners to adjust rental agreements to changing government payment terms and levels, and they may not seek to extract all farming benefits from these tenants due to familial or personal relationships. It may be that production is affected by PFC payments via the wealth effect in combination with one of more of the market imperfections described in Chapter 1, by the remaining land restrictions, or perhaps via other channels not yet explored. Finally, it could be that these estimates are biased by variables not included in our model. At present, the finding that renters pass through only a third of a lump sum payment received may be viewed as puzzling.

The finding that wealthy farmers receive a large share of payment benefits—coupled and decoupled—is less ambiguous. This relationship is robust to different assumptions about the effect of payments on land rents and provides some insight into the distribution of payment benefits. Wealthy farm households receive sizable payments and produce most farm output.