AGRICULTURAL ECONOMICS RESEARCH

VOL. 25, NO. 2, APRIL 1973

Distribution of Farm Program Payments by Income of Sole Proprietors[1]

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Direct Government payments increase income in the farm sector by redistributing income from nonfarm to farm people. Direct payments are largest at high income levels. Thus, low-income farm families may not benefit greatly from these payments. However, data compiled by the Internal Revenue Service from Federal income tax returns show greater inequality in the personal distribution of income of people with farm earnings than in the distribution of payments. Payments should therefore be expected to slightly decrease rather than increase overall income inequality.

Key words: Government payments; income; income distribution; income inequality.

Farm programs payments clearly increase total income in the farm sector but there is much interest in how these payments are distributed among the people involved. Do high-income people benefit more than those with low incomes? Earlier reports show the distribution of payments by value of sales classes (*6*, p. 73) and these sales class distributions have been related to net farm income groupings (*5*). However, a distribution of payments by family income level has not been available.

This article examines the distribution of direct farm program payments among sole proprietors.[2] Attention is given to the distribution of payments both by payment size and by income class of payment recipients. The probable effect of direct payments on the distribution of proprietors' incomes is then examined. Finally, payment distributions are discussed by region and program. In this study, only direct payments are measured, although price supports are another important source of benefits for both program participants and nonparticipants.

The Data and Method

Much of the study is based on 1966 Federal income tax returns of persons reporting farm earnings. These data allow farm program payments to be related to combined farm and off-farm income, a measure of family income that is subject to tax.[3]

The Gini ratio is used in this study to measure how unequally payments are distributed among income classes of recipients. The ratio is derived from the Lorenz curve, which is obtained by plotting (from the lowest to the highest income level) the cumulative percentage of recipients on the horizontal axis against the cumulative percentage of income or payments on the vertical axis (fig. 1). If payments or incomes were equal for all proprietors, the Lorenz curve would be a diagonal line extending from the origin midway between the axes. However, neither payments nor incomes are ordinarily equally distributed and the Lorenz curve typically falls below the diagonal. The Gini is the ratio of the area between the diagonal (or line of equal distribution) and the Lorenz curve to the total area under the diagonal (A/A+B on the diagram).

The larger the ratio, the greater the inequality. Thus, a Gini ratio near zero indicates that payments or incomes are rather equally distributed among all proprietors. A value near one shows that most payments or income are received by a few proprietors.[4]

[1] A related study that may be of interest to readers is (*4*). Italic numbers in parentheses indicate items in the References, p. 44.

[2] Sole proprietors include both farm operators and landlords. Neither partnerships nor corporate farms are included.

[3] The tax data are from the 1966 *Proprietorship Tax Model*, which includes a stratified sample of 45,000 farm returns. The model was developed and data were tabulated by U.S. Department of Treasury, Internal Revenue Service. The authors did not have access to individual tax returns. Combined farm and off-farm income is referred to as "adjusted gross income" by Internal Revenue Service. The data are discussed more fully in (*2*) and (*3*).

[4] A method for computing the Gini ratio is presented in (*7*, pp. 34-36).

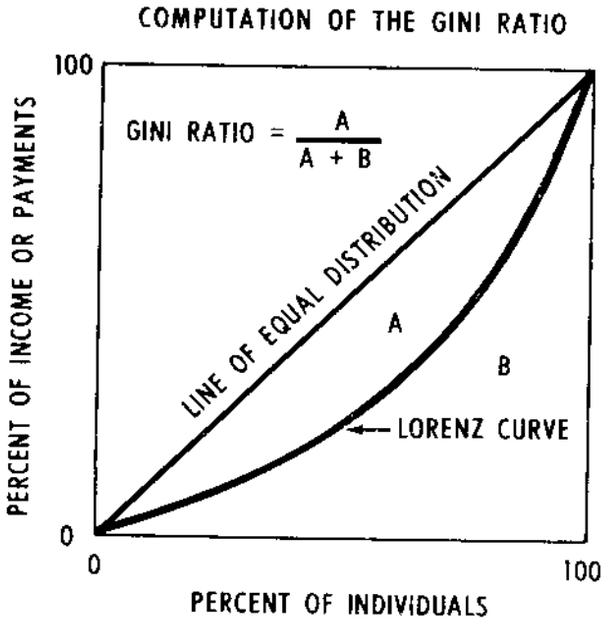

Figure 1

Inequality in Program Payment Size Distribution

Tax data confirm earlier studies that show considerable inequality in the distribution of farm program payments (*1, 5*). For example, about 57 percent of the payment recipients listed less than $1,000 but these payments accounted for only 15 percent of the total payments. In contrast, only 6 percent of payment recipients reported $5,000 or more but such large payments accounted for nearly 38 percent of the total dollars (table 1).

Table 1.—Government farm program payments to sole proprietors: Distribution of recipients and payments by size of payment, 1966[a]

Size of payment	Distribution of—	
	Proprietors with payments	Payments
	Percent	*Percent*
Less than $500	34.6	4.9
$500-$999	22.8	10.2
$1,000-$1,999	20.4	17.5
$2,000-$4,999	15.9	29.9
$5,000-$9,999	4.7	19.6
$10,000 or more	1.6	17.9

[a]Based on special tabulations by U.S. Department of the Treasury, Internal Revenue Service.

Effect of Payments on Income Distribution

Combined farm and off-farm income of proprietors with payments was slightly lower and a little more equal than for all persons with farm earnings (table 2). Persons with lower incomes generally received a smaller share of reported payments, and those with larger incomes a larger share, than their numbers would suggest. For example, 24 percent of payment recipients reported less than $2,500 from all sources. But recipients at that income level accounted for only 15 percent of program payments. In contrast, the 17 percent of recipients with incomes of $10,000 or more listed 34 percent of reported payments.

Payments are often assumed to increase income inequality. However, results from this analysis do not support that hypothesis. Although payments were larger at higher than at lower income levels, they were more equally distributed than total income and should thus tend to reduce inequality in income distribution. For example, half of all participants reported income of less than $5,000 and accounted for less than one-fifth of reported income. But such proprietors reported more than one-third of program payments. At the other end of the income scale, the 2 percent of persons with incomes of $25,000 or more reported nearly one-fifth of income but less than one-tenth of payments.

The Gini ratio for farm program payments was smaller—inequality was less—than for other major sources of income as well as for income from all sources combined (table 3). For example, the ratio of 0.227 for payments was less than the ratio of 0.296 computed for interest income—the most equally distributed off-farm income source. Inequality in the distribution of program payments by amount of income was also less than for farm earnings and for income from combined farm and off-farm sources. Finally, when both payments and income were distributed by income class the relatively greater inequality of income than of payments held in all regions (table 4).[5]

Payment Distribution by Program

Payments are not reported separately by program for tax purposes. However, the tax data were supplemented with information from USDA's 1966 Pesticide and General Farm Survey. These survey data show how the

[5]We have verified that direct payments were more equally distributed than income with data from the 1966 Pesticide and General Farm Survey. The general results were also confirmed using tax data for 1968.

Table 2.—Distribution of proprietors, income, and farm program payments, by income class, 1966[a]

Payment classification	Combined farm and off-farm income					Gini ratio[b]
	$1-$2,499	$2,500-$4,999	$5,000-$9,999	$10,000-$24,999	$25,000-or more	
	Percent of individuals					
Recipients	24.2	25.8	33.3	14.9	1.8	.427
Nonrecipients	27.5	24.2	31.8	13.7	2.8	.494
Total	26.3	24.8	32.4	14.2	2.3	.471
	Percent of income					
Recipients	5.0	14.6	36.4	31.4	12.6	--
Nonrecipients	5.0	12.8	32.2	27.0	23.0	--
Total	5.0	13.4	33.7	28.7	19.2	--
	Percent of payments					
Recipients	14.8	20.1	31.5	26.8	6.8	.227

[a]Based on special tabulations by U.S. Department of the Treasury, Internal Revenue Service. A similar table is available for 1968 (*4*).
[b]Excluding persons with losses from combined farm and off-farm sources.

size and distribution of payments varied by program or program combination (table 5). Inequality in the distribution of payments was greatest for cotton payments. The tendency for cotton payments to increase payment size and inequality was evident for both single-program participants and those combining cotton and other payments. For example, operators combining cotton and feed grain payments had larger total payments and greater inequality in payment size than those with feed grain payments alone. Also, combined feed-grain—

Table 3.—Relative inequality of income reported from selected sources by sole proprietors, 1966[a]

Source	Percent of farm proprietors reporting	Gini ratio[b]
	Percent	
Farm business profit	[c]66	.381
Farm program payments	37	.227
Wages and salaries	56	.318
Interest	47	.296
Dividends	11	.759
Nonfarm business	[c]9	.526
Partnership	[c]3	.498
Capital transactions	[c]34	.473
All sources	100	.471

[a]Based on special tabulations by Internal Revenue Service, U.S. Department of the Treasury. Distributions exclude returns with losses from all sources and those without income from the specified source.
[b]Gini ratios computed from distributions of income from indicated source by amount of income from combined farm and off-farm sources.
[c]Excluding returns with loss from the source. For information on those with losses see (*3*), table 6.

Table 4.—Recipients of farm program payments: Relative inequality of income and program payments by region, 1966[a]

Region	Percentage reporting program payments	Relative inequality[b]	
		Income[c]	Program payments
Northeast	22	.485	.064
Lake States	42	.381	.098
Corn Belt	42	.388	.162
Northern Plains	58	.379	.202
Appalachian	32	.452	.145
Southeast	39	.457	.158
Delta	34	.532	.328
Southern Plains	35	.456	.337
Mountain	34	.432	.264
Pacific	31	.432	.236
All regions	37	.427	.227

[a]Based on special tabulations by U.S. Department of the Treasury, Internal Revenue Service.
[b]Gini ratios computed from distributions by amount of income.
[c]Income from combined farm and off-farm sources.

Table 5.—Farm program payments: Average payment and relative inequality by program 1966[a]

Program or program combination	Average payment	Gini ratio[b]
	Dollars	
Feed grain	1,070	.180
Wheat	1,120	.176
Cotton	1,500	.334
Feed-grain—wheat	2,170	.142
Feed-grain—cotton	3,570	.503
Feed-grain—wheat—cotton	4,580	.356
Wool	250	.069
Long-term land retirement	1,280	[c]–.037
Agricultural conservation	220	.138

[a]Based on data from the 1966 Pesticide and General Farm Survey, a sample survey of 16,300 farm operators including farm proprietors, partners, and corporations. About 6,400 program participants had usable records. The relatively few records with losses from farming or all sources combined were omitted.

[b]Gini ratios computed from a distribution with seven income size classes.

[c]The Gini ratio was negative because payments were concentrated in lower income classes.

wheat—cotton payments were larger and less equal than feed-grain—wheat combinations.

Limits to the Study

The analysis reported above is limited because sole-proprietor tax returns do not account for all farm businesses. Thus, in 1966 direct payments totaled nearly $3.3 billion (*6*, p. 52), but proprietors reported only $1.9 billion on their tax returns—about three-fifths of the total (*8*, p. 114). Other businesses receiving payments include farm corporations, partnerships, institutional farms, and estates and trusts. Also, some payments not accounted for by tax data appear to be payments to low-income people who do not report for tax purposes. Most of these are probably individuals with less than the minimum taxable income (*2*, pp. 2-6).

Concluding Remarks

Inequality of income among payment recipients was greater than inequality in the distribution of payments. Thus, payments would not be expected to increase inequality in income distribution. These findings do not mean that low-income persons benefit greatly from direct farm program payments. They only show that the relatively great income inequality among people with farm earnings does not seem to be matched by inequality in farm program payments, when the distribution is by income classes.

Although program payments do not seem to increase income inequality among people with farm earnings, neither have they effectively eliminated income problems of farm people. Thus it would be a mistake to expect similar programs to rid the farm sector of such problems in the future. Also, because it has not been possible to trace all benefits to recipients, the data used in this analysis do not account for the full effect of farm programs on income distribution. A more complete analysis would include the distribution of benefits from price support measures as well as those from direct payments. Also needed is improved accounting for distributional effects of payments to businesses other than proprietorships.

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