THE AGRICULTURAL CONSERVATION PROGRAM'S COST SHARE ASSISTANCE TO SIZE RANKED FARMS: A DESCRIPTION OF RELATIVE PROPORTIONS

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ABSTRACT

THE AGRICULTURAL CONSERVATION PROGRAM'S COST SHARE ASSISTANCE TO SIZE RANKED FARMS: A DESCRIPTION OF RELATIVE PROPORTIONS

The distribution of benefits derived from public expenditures has frequently been a program objective itself, or at least, an equity constraint on public investment decisions. This study is a descriptive analysis of the Agricultural Conservation Program (ACP) payment distribution among size ranked recipient farms. This study provides (1) emperically derived Lorenz curves of the cumulative percentage distribution of ACP payments for 1964 in relation to size ranked farms, and (2) Gini concentration ratios that summarize the Lorenz curve relationships. It is believed that with this analysis program managers and policy analysts may be better informed regarding distributional aspects of this program and their policy implications.

Through more than 60 specific practices, ACP is intended to (1) restore and improve soil fertility, (2) reduce erosion caused by wind and water, and (3) protect and improve water for agricultural use. Operating through state and county conservation committees, the federal government provides funds for a specified portion of adoption cost for approved conservation practices. The proportion of a farmer's out-of-pocket costs financed through federal funds generally averages 50 per cent, although allowances may be higher if the local committee receives approval. Through this mechanism of economic incentives, farmers are induced to adopt conservation practices which, presumably, lead to achievement of program objectives. The study provides a capsule summary of the operations and historical funding levels for ACP.

The distribution of ACP direct payments among size ranked farms for 1964 was displayed on two geographic levels; first on a national basis, and

secondly on a state-by-state basis. In each case, the payment distributions were analyzed by participating farms (existing participants) and all farms (maximum eligibles).

It was found that 1964 ACP payments were concentrated somewhat among larger participating farms. A higher concentration was found among larger farms when all potential eligibles were considered, thus suggesting that non-participants generally had smaller farms--at least for 1964.

Selected regional differences were found in the 1964 payment distribution. The Southeastern States, for example, consistently demonstrated a higher concentration of payments among larger farms than what was the case for Western States.

The study included a brief assessment of program participation over time. It was found that the number of participants over the five years from 1959 through 1964 was twice the amount for 1959 alone--even though the program funding remained about constant. It would seem that monies were disbursed in rotating fashion from year to year among farmer beneficiaries.

A major problem encountered in this study was the lack of data on conservation needs for farmland by size of farm. In the absence of this information, it was difficult to determine whether or not ACP payments are distributed among eligible participants due to conservation needs or some alternative rationale. To try to answer this question, the cost share distribution was related to farmland on participating farms by size of farm. Even with the data difficulties, it was clear that smaller farms were receiving a greater proportion of payments than the proportion of farmland under their control. This finding is a startling contrast to the earlier analysis of payments to farms.

The crucial question then became: Why should ACP payments be distributed more than proportionately to farmland on smaller farms? A comparison of the payment distribution for ACP to other selected commodity programs provided some insight. It was found that the Agricultural Conservation Program was something of an anomaly compared to these other agricultural programs. ACP payments were distributed much more proportionately among participants than any of the other programs considered. It would seem that ACP monies were distributed more based on the existence of the farm as an entity rather than the acreage, or lack of acreage, under its control.

Joint consideration of the comparison of ACP to other agricultural programs and the large number of ACP participants over time, leads to the inference that the Agricultural Conservation Program has played a significant political role in addition to or in spite of the stated objectives of soil and water conservation. The study suggests that ACP has been used as a mechanism for gaining widespread political support for agricultural programs generally.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

Figure | Page

CHAPTER I

INTRODUCTION

Public policy, in the broadest sense, attempts to accomplish a social objective by directing specific actions, programs, or agencies down a determined path which, presumably, will lead to the desired end. Controversy surrounds some programs regarding disputed objectives, particular courses of action, or on external effects which may be associated with the action.

This study is addressed to one public program that annually disburses about $200 million to promote soil and water conservation--the Agricultural Conservation Program (ACP). A descriptive analysis of the payment distribution among recipient farms is the central purpose of the investigation. The investigation is relevant for public policy since the distribution of program benefits is itself often a program objective and, in any case, unique equity "constraints" seem to fall upon public investment decisions compared to decisions normally classed as private.

Public investments are motivated by a social benefit accruing to the public at large with little or no expectation of monetary profit. Many of the benefits of public programs in America today cannot be measured in dollar terms.[1] However, public programs are generally constrained by the

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[1] Theoretically, returns from a public program would be measured by the quantity of public goods demanded times the appropriate per unit value. However, public goods frequently have no market prices, thus quantities demanded are influenced. Measurement of program benefits therefore is exceedingly difficult.

size of potential external benefits inuring to private persons or groups. Mississippi Congressman, Jamie L. Whitten, voiced this concern over ACP's payment distribution recently during appropriation hearings for the Agricultural Stabilization and Conservation Service (ASCS) when he said:

> A few years ago, we came to recognize that the benefits of the ACP program should be distributed widely throughout the country, and we managed to keep a $2,500 limitation on the total payment to any one person.[1]

Actually, three concerns are expressed in his statement. The first is that program benefits should be distributed widely. Secondly, geographical areas are the units over which dispersion is to be made. Thirdly, providing a dollar ceiling for payments per person is an effective (or at lease workable) means of achieving this wide geographical distribution.

In contrast, private action is usually characterized by monetary incentives, whether they accrue in the long or short run. Little care or interest is expressed in generating monetary externalities. The "best" private action is the one contributing the most to the firm's profits, regardless who else benefits.

Part of the reasoning behind this apparent difference in attitude for externalities is the multiple-objective nature of public action. Further insight comes from a philosophical difference in approach. Frequently, private entities approach a problem by thinking in terms of product or objectives. To achieve a specified objective the company decides to follow any of a number of alternative courses of action. The decision is based on

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[1] U.S., Congress, House, Subcommittee of the Committee on Appropriations, Hearings, Department of Agriculture Appropriations for 1970, 91st Cong., 1st Sess., 1969, p. 164.

effectiveness and efficiency. In sharp contrast, however, many public officials think in terms of actions, e.g., if this or that action is taken, what will be the result? Will it meet a need? Will it have other effects? Decisions may or may not be related to effectiveness, efficiency, or equity.

The anticipated beneficiaries of public investment in soil and water conservation practices (exemplified by ACP) are members of the public at large. The rationale is that conservation practices provide direct benefits to downstream areas that do not directly support the costs of these practices. ACP overcomes this problem by the federal government bearing the portion of costs that generate public benefits.

Mississippi Congressman, Jamie L. Whitten, expressed this general philosophy during recent appropriation hearings regarding ACP. He described the purpose of the program as insuring that farms do not wash down creeks and natural river courses. The beneficiaries he identifies are "ourselves and posterity" while discounting the desire for the federal government to be looking after farmers specifically.[1]

Objectives

This study is intended to shed light on one specific facet of public investment in natural resources--the distribution of 1964 Agricultural Conservation Program payments among size ranked farms. Since farms are the immediate beneficiaries, it may be useful to determine what distribution exists for payments.

The intent of this study was not to analyze either the effectiveness or efficiency of the Agricultural Conservation Program. Accordingly, conclusions

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[1] Ibid.

on cost effectiveness or even success in achieving objectives cannot be found on these pages.

The thesis addresses the question of equity--but in a descriptive role as opposed to a normative evaluation.

The objectives of this study do not necessarily suggest that ACP payments should be distributed completely in accordance with the number of farms in a specified size range or to a size ranked distribution of farms. To do so would neglect the effectiveness and efficiency of the conservation program. Differences in conservation needs can be expected to exist among farms and if a quota system were developed to allocate cost share monies solely on the basis of farm size, it is unlikely that the program would be most effective. However, investigation of payment distributions should provide program managers and policy decision makers with additional information for evaluation of alternative means of obtaining social objectives--especially in light of the growing concern over distributional effects of public programs.

The benefits under consideration in this analysis are limited to the direct payments from the federal disbursing agency to individual farm recipients under the Agricultural Conservation Program. It does not consider the further benefits that may be of economic importance to the farm operator or to the processor of agricultural products, or to the ultimate consumer of such products. Further, the benefits of flood control, drainage, irrigation, soil maintenance are not considered in any way. The central and exclusive objective of the analysis is how the actual payments under the ACP program are distributed over participating and all potential farms when such farms are ranked by a size classification.

Approach

The approach used to accomplish these objectives was to develop relationships between farms and payments and then to compare actual to proportionate distributions.

Selection of Indicators

Measurement of payment "spread" among recipients can be based on several alternative indicators or descriptors of value. Total payments were selected for use in this study. Since data were not available, analysis of payments by specific practice was not possible. The final measure selected for use was the dollar amount of gross ACP cost share payments.[1,2] Farms were defined in accordance with established Agricultural Stabilization and Conservation Service procedures and are not compatible with the Census of Agriculture definition.[3]

Farms were treated two ways in the analysis. First, the payment distribution was related to only the farms actually receiving some federal assistance for conservation purposes under ACP. Participating farms are those farmers who have adopted, in the specified year, approved conservation practices.

The second treatment related the ACP payment distribution to all ASCS defined farms--participators and non-participators alike. All farms would be the maximum potential extent of program participation. This provides information on program participation as it affects payment distributions.

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[1]The naval stores conservation reserve program and the emergency conservation measures that are treated separately in ASCS records and receive separate appropriations have not been considered in this study.

[2]U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program, 1964 Frequency Distribution of Farms and Farmland, (Washington: U.S. Government Printing Office, 1966).

[3]Farms are defined by ASCS as those farm units that are eligible for and which apply for marketing quota and acreage allotment programs. In contrast, the census definition is based on dollar sales and acres of land area.

Analytical Methodology

Methodologies for the measurement of dispersion vary depending on the precise purpose of the analysis. In this study, Lorenz curves and Gini concentration ratios were used. The reason for selecting this approach was twofold:

1. The results would be reasonably comparable to other work undertaken by Bonnen and Boyne and thus allow a few inferences to be drawn by program comparisons.[1]
2. A simple quantitative index of dispersion can be derived from these procedures and thus permit subsequent statistical analysis.

The methodology entails a comparative proportionality analysis between payments and farms--each ranked by size groups.

Data Analysis

Results from the computed Lorenz curves and Gini ratios were analyzed for national and state levels. Factors which might explain the state-to-state variation in payment distribution were identified and analyzed. Finally, normative inferences are drawn from the descriptive information analyzed. Comparisons were made with other similar studies recently made on other public programs.

While the study considered only one direct payment program, it is conceivable that similar analyses can be applied to other federal programs. Explicit recognition must be made, however, of the potential sacrifice in strict program efficiency that possibly may result if resource development programs are constrained in any way by distributional considerations.

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[1]See Chapter V for the specific studies conducted by these researchers.

CHAPTER II

THE AGRICULTURAL CONSERVATION PROGRAM

The intended purposes of the Agricultural Conservation Program can be summarized as: (1) restoration and improvement of soil fertility, (2) reduction of erosion caused by wind and water, and (3) protection and improvement of water resources for agricultural purposes. These purposes are aimed at the agricultural sector as direct beneficiary but also to the general public through reduced flooding sedimentation loads in waterways, and the like. This chapter describes the program under investigation.

Conservation Needs

Erosion problems and their associated ramifications were found to be substantially less on land having protective vegetative cover. This finding, together with inferences on splash accentuated soil erosion, provided a potential avenue to help control the land deterioration and erosion problems prevalent during the 1930's.[1] The problem was to initiate widespread use of available erosion control techniques. The Soil Conservation and Domestic Allotment Act authorized the federal government to share farmers' out-of-pocket costs for applying approved conservation practices on their land. The government would also provide the farmer technical assistance in analyzing the conservation practices best suited to his farm.

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[1] See J.H. Stallings, Soil Conservation (Englewood Cliffs: Prentice-Hall Inc., 1957), for a review of the historical setting that was to stimulate soil and water conservation efforts in the U.S.

Incentives

The program achieves the adoption of conservation practices through a cost share incentive package. Economic theory would suggest that if profit maximization were the central motivation behind a farmer's decisions, conservation practices would be adopted as appropriate for his farm until the marginal value product of the practice about equaled the marginal factor cost.[1] (See point P on Figure 1.) If the government paid for a specified share of practice cost, the cost per practice unit would decrease, shifting the marginal factor cost line to a lower level. The theoretical case would suggest that more conservation measures would be used by the farmer until the increment of value again equals the increment of costs. In the diagram, practice use would increase to OR from OP.

This theoretical simplification, however, should be adjusted to consider the multiple products that can be obtained from the various conservation practices. Interdependence with other farm resources should also be considered. Time dimensions would yield real world insight into incentives for practice adoption. For example, establishment of enduring vegetative cover yields the benefit of the vegetative crop as a product, a subsequent year's increment to a small grain crop output from any added soil improvement or fertility retention caused by the conservation practice, and reduced flooding sedimentation in areas below the protected cropland. Costs, however, would include opportunities foregone as well as out-of-pocket outlays for the conservation practice plus value of the farmer's labor and use of other farm resources. The real dynamics of the program indicate that the simple economic incentive description is far from complete.

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[1]Assuming that product and resource prices are constant.

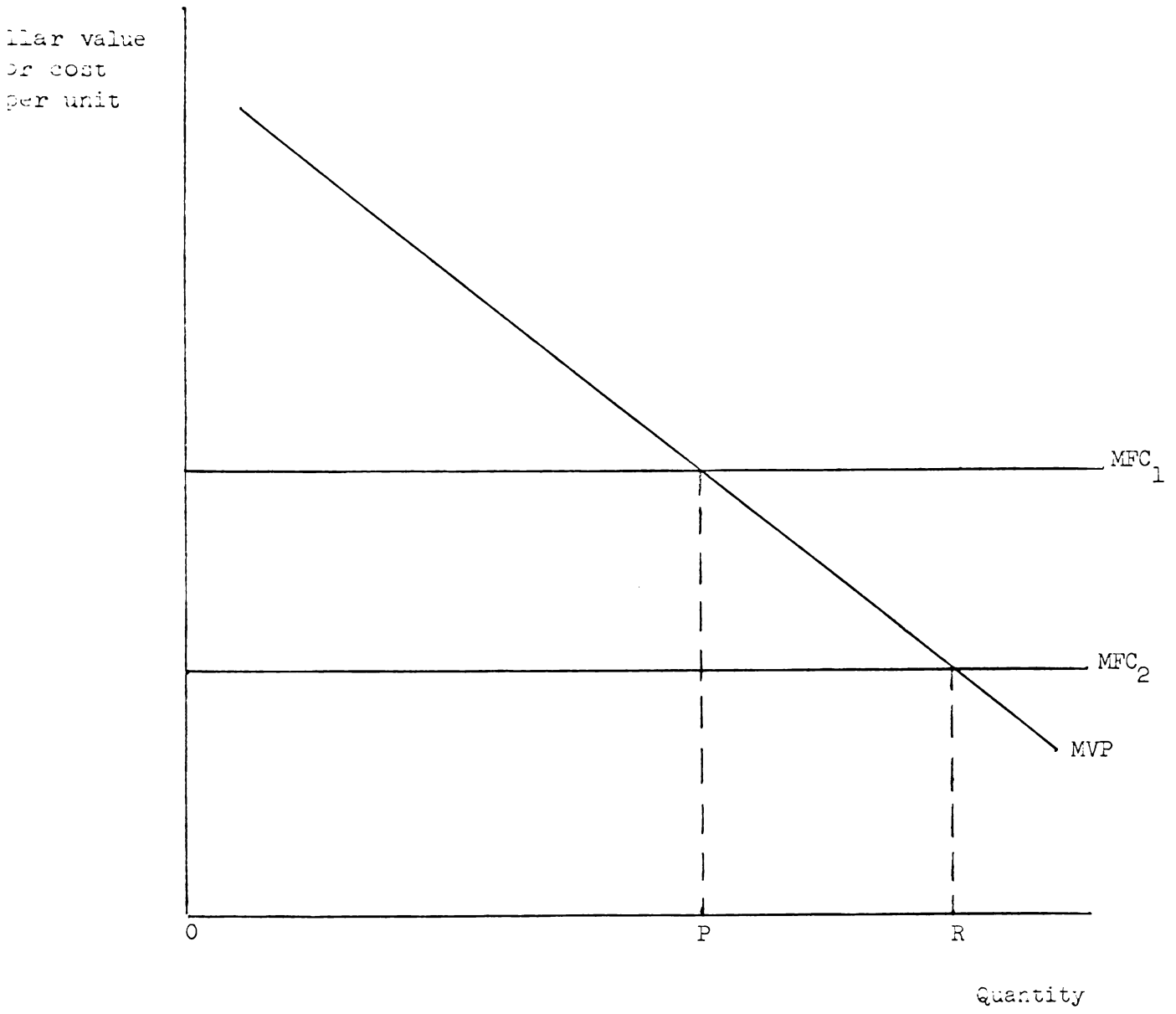

FIGURE 1

Theoretical Operation
of
ACP Cost Share Incentive Payments

According to Agricultural Stabilization and Conservation Service administrators, many participating farmers lose money in the short run.[1] The returns from conservation practices are not usually visible within the first two or three years. Many practices are heavily oriented towards long-run returns--such as those labeled as having permanent and enduring benefits. Increased farmer financial risks sometimes are also involved in practice adoption.[2] These problems, coupled with the economic and physical constraints facing the various types, sizes, and classes of farms may well pose an implied barrier to widespread distribution of program benefits.

Program Mechanics

The program is developed and administered at the local level. County committees, composed of resident farmers, formulate plans under the technical guidance of state ASCS groups involved in ACP.[3] Plans are then submitted to state offices and subsequently to federal authorities for review. ASCS then formulates a national program and submits this for congressional review and authorization. Finally state and local groups develop their programs within the structure of the national program. The county committees are responsible for field administration of the program.

Through this system of operations, national and state specialists in ACP have little control over the farms or farmers likely to receive cost share assistance. Local committees have the final decision. Little, if any consideration is explicitly made for farm size during the approval process.

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[1]U.S., Congress, House, Subcommittee of the Committee on Appropriations, Hearings, Department of Agriculture Appropriations for 1967, 89th Cong., 2d Sess., 1966, pp. 295-298. Cited hereafter as House Subcommittee of the Committee on Appropriations, USDA Hearings for 1967.

[2]Ibid., 295.

[3]The formal designation is the Agricultural Stabilization and Conservation county committee.

Fund Disbursements

Program funds are distributed among states generally in accordance with their conservation needs, except for a minimum allotment formula built into the authorizing legislation. Funds are then distributed among counties by state administrators--presumably based on needs measured by the composition and extent of county committee requests. The local committees then disburse funds to participants based on the specific practice and the relevant cost share rate. The rate generally averages 50 per cent of out-of-pocket costs although allowances can reach 80 per cent in some states and counties. The local committee determines the specific rate applicable to each participating farm.

Trends in Program Assistance

The fast acceptance of ACP concepts and approved practices is discernable from the long-term trends in program dollar assistance. During the first year of operation, 1936, more than $60 million was spent to finance part of the costs of conservation practice adoption. More than twice that amount was spent five years later--during 1941. The total amount of assistance has leveled since the close of World War II. Table 1 presents a summary of major program indicators since 1936 by five-year averages.

The number of participating farms reached its peak during the war years. The general downward trend is indicative of either a decline of farmer interest, the achievement of some of the conservation objectives of the program, or the long-run exodus of farmers from agriculture. A mathematical truism of the faster rate of decrease in participating farms than in total assistance is the increased payments per farm. This ratio increased at 8.8 per cent annually over the quarter century period.

TABLE 1

TRENDS IN ACP COST SHARE ASSISTANCE: FIVE YEAR AVERAGE ANNUAL RATES OF ASSISTANCE AND PARTICIPATION, 1936-1964[a]

Period (5 Year Average)	Assistance Regular ACP ($1,000)	Number of Participating Farms (1,000 Farms)	Cropland on Participating Farms (1,000 Acres)	Payments Per Farm[b] ($)	Payments Per Acre[c] ($)
1936-1940	94,778	3,654	322,104	25.94	.29
1941-1945	205,321	3,886	364,478	52.84	.56
1946-1950	222,112	2,608	294,181	85.16	.76
1951-1955	194,239	1,789	229,091	108.57	.85
1956-1960	212,991	1,098	162,945	193.98	1.31
1961-1964	218,898	1,158	171,578	189.03	1.28

[a]Computed from: U.S. Department of Agriculture, Agricultural Statistics (Washington: U.S. Government Printing Office, various years).

[b]Payments per participating farm.

[c]Payments per acre of cropland on participating farm.

Cropland on participating farms serves as another measure of program trends. Over the long run, the gross magnitude has declined, but this says nothing of the acreage treated under the program during each of the relevant years.

Program Practices

What are the specific practices that are approved for cost share assistance? They are mostly intended to control soil erosion or permit conservation of water. During 1964, the practice that had the largest single share of program expenditures was application of liming material to permit land use for soil conserving crops. The second largest practice was the establishment of permanent cover for erosion control or land use adjustment. The third ranking practice was the provision of interim cover and green manure. All approved conservation practices for 1964 are specified in Table 2.

The general groupings of practices were used as summary measures to determine the most important practices for each state. The percentage of total state ACP assistance in each group was computed (see Table 3).

The establishment of permanent cover would appear to be the most important measure for Northeastern and several North Central States. Also the Ozark States would appear to require permanent cover crops for erosion control. All of these areas had more than half of state payments devoted to this group of practices.

The Western States have only small percentages of total practice funds devoted to crop cover. In contrast, water conservation and water management practices are considered most important--with more than half of practice monies funneled into this group, classed as C type practices.

It would appear that the ACP program should be reaching a wide cross section of farms facing conservation problems. The legislation and economic

TABLE 2

REGULAR ACP CONSERVATION PRACTICES

I. CONSERVATION PRACTICES WITH ENDURING BENEFITS

Measures Primarily for Establishment of Permanent Cover (A-type)

- Permanent cover for erosion control or needed land-use adjustment
- Additional acreages of enduring cover in crop rotations to retard erosion
- Liming materials to permit the use of conserving crops
- Rock or colloidal phosphate to permit the use of conserving crops
- Gypsum or sulphur to permit the use of conserving crops
- Contour stripcropping to protect the soil from water erosion
- Field stripcropping to protect the soil from wind erosion
- Trees or shrubs planted for forestry purposes
- Trees or shrubs planted to prevent wind or water erosion
- Tillage of trees or shrubs planted prior to 1964
- Fencing planted areas of trees or shrubs for forestry or erosion control
- Removal of stonewalls or hedgerows to permit installation of conservation measures

Measures Primarily for Improvement or Protection of Cover (B-type)

- Improvement of established cover for soil or watershed protection
- Fireguards on rangeland
- Rangeland improvement by deferred grazing to permit natural reseeding
- Control of competitive plants on range or pasture
- Tillage operations on pasture or rangeland
- Wells for livestock water to improve grassland management
- Springs or seeps for livestock water to improve grassland management
- Livestock water reservoirs to improve grassland management
- Pipelines for livestock water to improve grassland management
- Artificial watersheds to accumulate runoff for livestock water
- Fences to protect established cover
- Tanks or troughs for storage of livestock water
- Timber stand improvement
- Firelanes or firebreaks to protect woodlands
- Dams or ponds for forest fire control
- Stocktrails through natural barriers to improve grassland management

Measures Primarily for the Conservation or Disposal of Water (C-type)

- Sod waterways to dispose of excess runoff and to control erosion
- Permanent cover to control erosion in gullies and other critical areas
- Terraces to control erosion or conserve moisture
- Removal of inadequate terraces
- Diversion terraces or ditches to control erosion
- Storage-type dams for erosion control
- Nonstorage-type dams, checks and drops for erosion control
- Structural protection of outlets or inlets to control erosion
- Protection of streambanks or shores to control erosion or to prevent flooding

TABLE 2--Continued

Drainage of farmland normally devoted to crops to permit conservation farming
Spreading spoil banks along drainage ditches constructed prior to 1964
Reorganization of irrigation systems to control erosion and conserve water
Reorganization of irrigation systems (pooling agreements only)
Leveling irrigable land to control erosion and conserve irrigation water
Reservoirs for irrigation water
Lining irrigation ditches to control erosion and conserve water
Structures in lined irrigation ditches
Spreader terraces or ditches to permit beneficial use of runoff
Regular subsoiling to improve water penetration and control erosion

Measures Primarily to Benefit Wildlife (G-type)

Permanent cover for wildlife feed or habitat
Annual cover for wildlife feed or habitat
Planting trees or shrubs for wildlife feed or habitat
Development of shallow water areas for wildlife habitat
Level ditching for wildlife habitat
Shallow pits to improve wildlife habitat or feed
Ponds for wildlife

II. CONSERVATION PRACTICES WITH BENEFITS OF LIMITED DURATION

Interim Cover and Green Manure Crops for Erosion Control and Land-Use Adjustment (D-type)

Measures Primarily for Temporary Protection from Erosion (E-type)

Stubble mulching to control erosion and improve permeability
Contour farming to control erosion
Emergency tillage to control erosion and conserve moisture
Surfacing clod-forming subsoil to control erosion and conserve moisture
Weed control as a step in controlling erosion
Mulching orchards, vineyards, cropland or eroded pastures

TABLE 3

PRACTICE SHARES OF 1964 ACP ASSISTANCE BY STATE[a]

State Code	State Name	Distribution of Assistance by Practice Type					
		A	B	C	D	E	G
		(Per Cent)					
1	Alabama	42.74	12.46	6.62	37.00	--	1.18
2	Alaska	82.78	11.51	5.71	--	--	--
3	Arizona	0.20	18.16	80.88	--	--	0.76
4	Arkansas	40.28	18.46	18.92	22.27	--	0.07
5	California	7.98	11.10	79.32	0.25	0.20	1.15
6	Colorado	6.74	27.46	64.58	*	0.71	0.51
7	Connecticut	36.22	33.75	9.19	11.81	0.88	8.15
8	Delaware	38.05	2.51	16.15	40.10	--	3.19
9	Florida	56.71	10.54	6.74	23.90	0.06	2.05
10	Georgia	40.78	14.06	5.09	39.07	--	1.00
11	Hawaii	22.57	28.08	35.32	0.73	10.82	2.48
12	Idaho	7.23	12.58	77.10	2.04	1.02	0.03
13	Illinois	70.91	7.99	18.32	1.21	0.52	1.05
14	Indiana	52.99	7.38	27.97	10.55	0.02	1.09
15	Iowa	43.17	11.56	42.90	0.12	1.73	0.52
16	Kansas	15.80	22.42	56.33	--	4.83	0.62
17	Kentucky	66.01	21.32	9.44	3.08	*	0.15
18	Louisiana	48.39	17.51	13.56	20.51	--	0.03
19	Maine	65.32	25.10	7.03	1.85	0.12	0.58
20	Maryland	64.23	9.50	14.25	11.72	--	0.30
21	Massachusetts	62.20	15.72	8.85	11.75	0.50	0.98
22	Michigan	39.25	4.10	32.65	18.66	--	5.34
23	Minnesota	47.67	12.33	36.48	1.89	0.95	0.68
24	Mississippi	38.07	41.57	9.39	10.76	--	0.21
25	Missouri	77.22	10.88	8.61	3.26	*	0.03
26	Montana	18.65	35.25	40.41	0.59	4.12	0.98
27	Nebraska	24.88	17.12	54.52	0.93	0.73	1.82

TABLE 3--Continued

State Code	State Name	Distribution of Assistance by Practice Type (Per Cent)					
		A	B	C	D	E	G
28	Nevada	4.18	15.72	80.10	--	--	--
29	New Hampshire	48.34	43.81	6.02	0.58	0.04	1.21
30	New Jersey	44.75	1.15	24.12	28.25	0.33	1.40
31	New Mexico	1.12	30.87	64.09	0.11	3.44	0.37
32	New York	76.21	6.84	11.74	2.98	--	2.23
33	North Carolina	44.42	20.75	21.16	13.66	--	0.01
34	North Dakota	33.86	21.58	7.03	17.89	17.81	1.83
35	Ohio	58.27	11.55	24.25	4.14	0.01	1.78
36	Oklahoma	36.15	40.09	17.56	3.33	2.87	--
37	Oregon	25.63	11.43	59.82	1.67	0.85	0.60
38	Pennsylvania	67.84	16.93	11.82	2.13	--	1.28
39	Puerto Rico	54.49	36.09	9.34	--	0.01	0.07
40	Rhode Island	48.50	18.36	5.50	20.45	--	7.19
41	South Carolina	39.33	23.90	22.74	14.03	--	*
42	South Dakota	32.97	36.54	11.81	9.64	8.31	0.73
43	Tennessee	74.81	13.04	2.89	9.22	--	0.04
44	Texas	19.73	39.16	18.57	12.12	10.41	0.01
45	Utah	3.84	18.45	77.33	--	0.02	0.36
46	Vermont	52.52	37.35	6.88	0.30	0.04	2.91
47	Virginia	31.03	46.56	10.33	11.42	--	0.66
48	Virgin Islands	36.66	53.67	9.67	--	--	--
49	Washington	23.25	8.47	56.33	1.87	8.93	1.15
50	West Virginia	55.34	40.78	3.13	0.46	--	0.29
51	Wisconsin	64.45	4.18	22.96	0.56	0.04	7.81
52	Wyoming	7.20	24.32	67.65	0.18	0.43	0.22

*0.005% or less

[a]U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program Summary by States, 1964 (Washington: U.S. Government Printing Office, 1965), pp. 5-64.

mechanisms of the program do not lend any significant hint of special concern with specific sizes of farms, although it would appear that some of the practices are oriented towards interests of the various regions. This latter feature is in response to the wide difference in conservation needs as the regions differ in resource attributes and other localized characteristics.

CHAPTER III

APPROACH AND METHODOLOGY

Distributional analysis involves the investigation of the "spread" of the item studied over the relevant body of recipients. In some cases the recipients might be geographical regions--such as states or counties.[1] Frequently, the item studied is some variation of the income concept. The recipients have been workers in occupational classes, families, landowners, etc.[2] Studies of this type have shed light on the existing distributions and their trends for measures of economic power, attainment, or concentration.[3] The concepts have more recently been applied to public programs that are intended specifically to bring about some shift in the existing distribution of economic rewards or economic resources.

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[1]The geographical spread of federal research and development (R & D) monies is an interesting example. See the report to the Subcommittee on Science, Research and Development of the Committee on Science and Astronautics for a detailed description of the geographical distribution of R & D spending. U.S., Congress, House, Subcommittee of the Committee on Science and Astronautics, Obligations for Research and Development, and R & D Plant, by Geographic Divisions and States, by Selected Federal Agencies, Fiscal Years 1961-1964, 88th Cong., 2d Sess., 1964. The distribution of population has also carried important political implications.

[2]Herman P. Miller has described the 1959 distribution of family income with respect to most of the major economic factors that are directly related to income, including, for example, education, occupation, industry of employment, and socio-economic characteristics of families. U.S. Bureau of the Census, Income Distribution in the United States, by Herman P. Miller, a 1960 Census Monograph (Washington: U.S. Government Printing Office, 1966).

[3]Richard Caves, American Industry: Structure, Conduct, Performance (Englewood Cliffs: Prentice-Hall Inc., 1964), p. 8.

The distributional analysis of the ACP payment stream treated farms as the unit over which payments are spread. Alternative factors might include farmers, farm operators, farm families, acres of farmland, or farmland exhibiting a need for conservation practices. The farm, however, is the basic unit which is considered from the government's perspective when application is made for cost share assistance. For example, in the event of multiple ownership of a farm, such as a partnership, all owners are considered as one person for ACP purposes. In the case of one person owning separate farms, separate ACP payments can be obtained. Due to the program concentration on farms as the recipient unit, cost share payments were analyzed with respect to farms.

Selection of Measures

In this study the principal concern was how ACP cost share payments are distributed among farms ranked by size. Although the program is intended as a means of combating resource depletion and deterioration problems, an income redistribution purpose for ACP has been hypothesized.[1] If this were the case, the distribution of payments would be expected to be skewed towards the size range of farms that are the intended recipients.

All of the current analysis of distributional characteristics of federal programs must be viewed as something less than fully satisfactory. Unless some reasonably complete objective can be specified, the analysis must be limited to describing what has been. In the case of ACP we are unable to present a quantified objective and therefore, we cannot estimate the proportion of the

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[1] K. William Easter, "An Evaluation of the Agricultural Conservation Program's Performance in Fulfilling Program and Political Objectives" (unpublished Ph.D. dissertation, Department of Agricultural Economics, Michigan State University, 1966).

final objective that has been satisfied or achieved. In any event, the availability of data is crucial to the analysis of public programs. For this study, data were available on the extent of ACP payments among farm size ranges.

The naval stores component of ACP and the emergency conservation measures were not included in the study. The former is both extremely small in dollar amount and is specialized in geographical coverage. The emergency conservation outlays were excluded because they are available only in designated disaster areas. Furthermore, their evaluation would be less likely to yield meaningful results unless the disaster area were sufficiently widespread as to encompass a large cross section of farms in various size ranges.

Measurement of Farms

An issue of considerable importance to this study is the lack of consistency between the Census of Agriculture and data available from the Agricultural Stabilization and Conservation Service. The problem lies in the operational definitions. The Census of Agriculture defines farms in terms of a combination of land area as a place of agricultural operations and the estimated value of agricultural products sold. This definition, although useful and effective for many purposes, does not conform to the farm program oriented definition used by ASCS. The latter considers a farm to be a production unit which holds a marketing quota and/or an acreage allotment under the ASCS administered federal price support program.

The total number of farms in the U. S. amounted to 3,157,857 according to the 1964 Census while ASCS estimated farms at 4,922,701 for the same period. Differences such as this did not permit consideration of Census data during the

analysis.[1] ASCS data were used throughout the study.[2]

For this study farm size was measured by total reported acreage of farmland. The size classes considered in the analysis are:

Under 100 acres

100-139 acres

140-179 acres

180-259 acres

260-499 acres

500-999 acres

1000-1999 acres

2000 acres and over.

Use of these size ranges for constructing Lorenz curves required assuming that within each farm size group, farm numbers and payments were proportionately distributed.

Lorenz Curve

The primary analytical tools used for this study were the Lorenz curve and the related Gini concentration ratio. These measures permit comprehensive precise description of the study results.

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[1]During an initial part of the study, an attempt was made to estimate the distribution of ACP payments over Census defined farms. To do this required the assumption that a similar size distribution of farms existed for both ASCS and Census definitions. It also required the assumption that a proportionate share of gross payments accrued to Census farms in the size ranges as what existed for ASCS data. It was concluded that composite assumptions such as these would not be valid for the study since the ASCS data are weighted more towards small farms compared to Census data. The earlier Census based estimates were not used due to this limitation.

[2]U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program, 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966).

In brief, the Lorenz curve is the locus of points that relates the cumulative percentage of ACP payments to the associated cumulative percentage of size ranked farms. It is descriptive of the relative share of aggregate payments that is received by each specified percentile of farms. This curve is described in Figure 2. The diagonal represents a Lorenz curve in the case of perfect proportionality between share of payments received by each percentile of farms.

The Lorenz curve can generally be expected to depart somewhat from the diagonal--but the extent is dependent on the items under investigation. In the case of ACP, it is not possible to determine a priori the likely extent of departure from the diagonal that would be expected. The area between the Lorenz curve and the diagonal serves as a measure of proportionality between payments and farms. For example, were only a small area to exist between the two functions, then the extent of proportionality can be concluded to be high. Conversely, if the area is large, the proportionality is small.

The Gini Ratio

The relationships between the Lorenz curve and the diagonal can be briefly summarized in a single statistic through use of the Gini ratio. This indicator measures the proportion of the total area under the diagonal that lies between the Lorenz curve and the diagonal. Figure 2 depicts this feature. The cross hatched area between the Lorenz curve and the diagonal represents the amount of departure from absolute proportionality between payments and farms. When divided by the total area under the diagonal, the Gini ratio is formed. The larger the deviation from absolute equality, the larger will be the area between the curve and the 45^{o} line--and therefore the larger the Gini ratio. Conversely, the smaller the deviation the smaller the area and the lower the ratio. The Gini ratio will vary between zero and unity. For example, if the

Gini concentration ratio was .98, it would suggest that a very few farms were receiving almost all of the ACP payments. A ratio of .02 would mean the reverse.

It should be noted that the Gini concentration ratio does not possess any normative significance alone. Being purely descriptive, the ratio cannot suggest that one value is preferred over another concentration value.

Procedures

The data on farms and payments were arrayed among the various size ranges of farms and cross tabulated to reveal what share of aggregate payments was received by a specified percentile of farms. Since the analysis is based on shares, the rigid dimensions of the size ranges was a slight problem. The data on payments within a size range were assumed to be distributed in roughly the same proportion as farms--therefore, permitting percentile to percentile comparisons. For example, payments received by farms in the 50-69 acre size class were distributed to the lowest fifth and the second fifth of farms in the same proportions as farm numbers, thus assuming that payments per farm were constant within the specified size range.

This procedure produces a slight bias in the resulting data, but valid alternative procedures could not be developed that materially enhanced the usefulness of the results.

CHAPTER IV

THE DISTRIBUTION OF ACP PAYMENTS

The analysis was conducted on two levels; first on a national basis, and secondly on a state-by-state basis. In each case, the payment distributions were analyzed by participating farms and all farms. The all farms category was assumed to be a measure of all potential participants in the cost share program.

Average Payments Per Farm

One way to view government payments for conservation purposes would be on an average basis. Table 4 depicts average cost share payments per participating farm for selected size ranges. Clearly, a positive relationship exists between farm size and average payment. The overall average payment per participating farm was $190 for 1964. The average payment per participating farm for the size group of less than 100 acres was 90 per cent lower than the overall average. The average payment for the 2000 acres and over size group was 244 per cent more than the overall average. The same general pattern exists throughout the possible size ranges.

Share of Payments

The distribution of payments is more clearly visible when shares of payments are compared to selected proportions of participating farms. Table 5 presents the share of gross ACP cost share payments received by each fifth of participating farms arrayed by size. The lowest fifth--the smallest 20 per cent of U. S. farms with the smallest acreage of farmland as defined by ASCS--received only 10.5 per cent of aggregate cost share payments. The second fifth

TABLE 4

AVERAGE PAYMENT PER PARTICIPATING FARM FOR SELECTED SIZE OF FARM CATEGORIES, 1964 AGRICULTURAL CONSERVATION PROGRAM[a]

Size of Farm (acres)	Average Payment Per Participating Farm (dollars)
Under 100	100
100-139	144
140-179	171
180-259	198
260-499	249
500-999	333
1000-1999	443
2000 and over	654

[a]U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program, 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), p. 56.

TABLE 5

SHARE OF 1964 ACP TOTAL PAYMENTS RECEIVED BY EACH FIFTH OF SIZE RANKED FARMS[a]

Lowest Fifth	Second Fifth	Middle Fifth	Fourth Fifth	Highest Fifth
10.5	12.3	18.1	22.5	36.6

[a]Table I in Appendix A.

had a slightly larger share, 12.3 per cent. The fifth of all farms ranking the largest in acreage received 36.6 per cent of 1964 cost share payments. In other words, the top fifth had more than three and a half times the share of direct payments than that of the lower 20 per cent of participating farms.

Converting payment share data to a cumulative basis leads to a measure of payment concentration in addition to distribution. A relatively high concentration is foreshadowed by the cumulative distribution of payments among participating farms (see Table 6). For example, the top 10 per cent of participating farms captured 22.5 per cent of the available cost share assistance. This is accentuated by looking at the larger farms--those with 1,000 acres or more. They were 4.9 per cent of ACP participants, but received 13.5 per cent of total payments.

The Gini concentration ratio--serving as a summary index of the difference between cumulative percentiles of payments and farms--amounted to .271. This Gini suggests that ACP cost share assistance is more proportionally distributed among recipient farms than are other farm programs.[1]

What does the distribution look like when conservation payments are compared with all potential recipients? If large farms do not participate in the program and if small farms receive sizable payments, the Gini ratio can be expected to move closer to zero. Conversely, if smaller farms comprise a larger share of the non-participants, the Gini ratio would become larger. If non-participants are generally distributed over size ranges the same as participating farms, the difference in the Gini ratio should be relatively small.

In 1964 there were 4.9 million farms defined by ASCS standards. Theoretically, all of these were eligible for ACP assistance if they would apply any

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[1] See Chapter V.

TABLE 6

LORENZ CURVE OF 1964 ACP TOTAL PAYMENTS AMONG SIZE RANKED PARTICIPATING FARMS, UNITED STATES[a]

Proportion of Farms	Proportion of Payments (%)
Lower 10%	5.3
Lower 20%	10.5
Lower 33%	17.7
Lower 40%	22.8
Lower 50%	31.1
Higher 50%	68.9
Higher 40%	59.1
Higher 33%	52.7
Higher 20%	36.6
Higher 10%	22.5

Gini concentration ratio 0.271

[a] Table I in Appendix A.

of the more than 70 different approved conservation practices.[1] About 1.1 million farms--22 per cent of all farms--participated in ACP during that year.

The 1964 data reveal a greater payment concentration among large farms when the analysis includes all potential units capable of seeking--but not necessarily receiving--cost share assistance. The lower fifth of all farms received 6.9 per cent of the payments while the lower half received only 17.3 per cent (see Table 7).

TABLE 7

LORENZ CURVE OF 1964 ACP TOTAL PAYMENTS AMONG ALL SIZE RANKED FARMS, UNITED STATES[a]

Proportion of Farms	Proportion of Payments (%)
Lower 10%	3.4
Lower 20%	6.9
Lower 33%	11.4
Lower 40%	13.7
Lower 50%	17.3
Higher 50%	82.7
Higher 40%	74.5
Higher 33%	68.1
Higher 20%	51.9
Higher 10%	32.9

Gini concentration ratio .454

[a] Table II in Appendix A.

[1] Realistically, however, a number of barriers may exist that limit participation. See Chapter V.

In contrast, the upper fifth of all farms received more than half of conservation program payments made during 1964. Accordingly, the Gini ratio almost reached the middle of the zero-to-one scale, about .454. This concentration measure is close to 70 per cent higher than when only participating farms are included in the analysis.

One reason for the larger Gini ratio, in the case where all farms are considered, is that more than half of all non-participating farms are rather small in acreage. A proportionately larger share of participating farms are more than 180 acres in size (see Table 8).

TABLE 8

COMPARATIVE DISTRIBUTIONS OF PARTICIPATING AND NON-PARTICIPATING FARMS BY SIZE CLASS, AGRICULTURAL CONSERVATION PROGRAM 1964[a]

Size Class (in acres)	Distribution of All Farms (per cent)	Distribution of Participating Farms (per cent)	Distribution of Non-Participating Farms (per cent)
under 100	49.8	32.5	54.6
100-139	11.6	12.5	11.3
140-179	12.2	13.4	11.8
180-259	9.6	13.4	8.5
260-499	10.0	16.1	8.3
500-999	4.0	7.2	3.1
1000 and over	2.8	4.9	2.3

[a]U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), pp. 47-49.

Analysis by States

The distribution of payments among farms is only generally revealed by data on the national level. Closer analysis by states provides further insights on farm size specific differences in payment distributions.

Lorenz curves and Gini concentration ratios were computed for each state plus the territories of Puerto Rico and the Virgin Islands. The analysis followed the same framework as that described for the national level.

Using the Gini ratio as a summary measure of the Lorenz curve, the degree of concentration was found to vary substantially by state. States with the highest concentration of payments among the larger participating farms generally included the eastern seaboard and the southern tier of the U. S., from New Mexico to the Atlantic. A few scattered additional states had fairly large Gini ratios. In contrast, states with low Gini ratios included the North Central and the Western States.

Table 9 lists the states ranked in order of the Gini ratio estimated from participating farms. Seven of the 10 highest states are located in the southeastern part of the U. S. Table 10 presents the state rankings when the Gini is computed on the basis of all farms.

The range of Gini ratios estimated for all states is summarized in Table 11. The range of Gini ratio values is presented in the far left-hand column using an arbitrary interval length of .050 units. The highest frequency of clustering for derived ratios was around .250--and closely in line with the national estimate of .271 when only participating farms are considered.

The same general clustering occurs when all potential farms are considered, except that the mode was .350-.399 and the weighted national estimate was .454. This difference can be explained by the implicit equal

TABLE 9

STATE COMPARISONS OF ACP PAYMENT CONCENTRATION RATIOS AMONG PARTICIPATING FARMS[a]

Rank	State	Gini Ratio
1	Mississippi	0.3740
2	Louisiana	0.3660
3	Alabama	0.3310
4	Florida	0.3300
5	Arkansas	0.3280
6	South Carolina	0.3260
7	Virgin Islands	0.3240
8	South Dakota	0.3110
9	Hawaii	0.2910
10	Delaware	0.2840
11	Utah	0.2830
12	Georgia	0.2770
13	Connecticut	0.2760
14	Maine	0.2710
15	Puerto Rico	0.2690
16	Texas	0.2650
17	Rhode Island	0.2620
18	Virginia	0.2620
19	North Carolina	0.2600
20	Maryland	0.2510
21	Colorado	0.2450
22	Tennessee	0.2430
23	New Jersey	0.2420
24	New Mexico	0.2380
25	Massachusetts	0.2360
26	New Hampshire	0.2270
27	Indiana	0.2170
28	Pennsylvania	0.2140
29	North Dakota	0.2130
30	West Virginia	0.2110
31	Missouri	0.2070
32	New York	0.2020
33	Michigan	0.1970
34	Illinois	0.1960
35	Vermont	0.1950
36	California	0.1890
37	Kentucky	0.1770
38	Ohio	0.1760
39	Nebraska	0.1630
40	Montana	0.1560
41	Nevada	0.1530
42	Kansas	0.1480
43	Oklahoma	0.1460

TABLE 9--Continued

Rank	State	Gini Ratio
44	Iowa	0.1450
45	Wisconsin	0.1370
46	Minnesota	0.1320
47	Idaho	0.1310
48	Oregon	0.1280
49	Wyoming	0.1170
50	Arizona	0.0970
51	Washington	0.0740
52	Alaska	0.0430

[a]Table I in Appendix A.

TABLE 10

STATE COMPARISONS OF ACP PAYMENT CONCENTRATION RATIOS AMONG ALL FARMS[a]

Rank	State	Gini Ratio
1	South Carolina	0.6030
2	Alabama	0.5850
3	Delaware	0.5640
4	Florida	0.5580
5	Louisiana	0.5460
6	Georgia	0.5310
7	New Jersey	0.5200
8	Arkansas	0.5120
9	Mississippi	0.5000
10	Maryland	0.4970
11	Texas	0.4900
12	California	0.4780
13	Hawaii	0.4770
14	Missouri	0.4770
15	Indiana	0.4590
16	Illinois	0.4470
17	Virgin Islands	0.4440
18	Tennessee	0.4370
19	Michigan	0.4360
20	South Dakota	0.4360
21	Ohio	0.4290
22	Kansas	0.4270
23	New York	0.4260
24	Wisconsin	0.4260
25	Pennsylvania	0.4250
26	Massachusetts	0.4110
27	Virginia	0.4060
28	Kentucky	0.3930
29	Minnesota	0.3870
30	Oklahoma	0.3840
31	Iowa	0.3800
32	Nevada	0.3800
33	Nebraska	0.3780
34	New Hampshire	0.3780
35	North Dakota	0.3760
36	Connecticut	0.3740
37	Oregon	0.3740
38	Maine	0.3730
39	Montana	0.3680
40	Washington	0.3520
41	North Carolina	0.3410
42	Utah	0.3340

TABLE 10--Continued

Rank	State	Gini Ratio
43	New Mexico	0.3330
44	Idaho	0.3250
45	West Virginia	0.3240
46	Rhode Island	0.3020
47	Puerto Rico	0.2740
48	Vermont	0.2630
49	Colorado	0.2430
50	Alaska	0.2260
51	Whoming	0.1710
52	Arizona	0.0370

[a]Table II in Appendix A.

TABLE 11

SPREAD OF ACP PAYMENT CONCENTRATION RATIOS AMONG STATES[a]

Value of Gini Ratio	Participating Farms		All Farms	
	Number	Rel. Frequency	Number	Rel. Frequency
Less than 0.100	3	5.8	1	1.9
0.100-0.149	8	15.4	--	--
0.150-0.199	9	17.3	1	1.9
0.200-0.249	12	23.1	2	3.8
0.250-0.299	12[b]	23.1	2	3.8
0.300-0.349	6	11.5	6	11.5
0.350-0.399	2	3.8	13	25.0
0.400-0.449	--	--	12	23.1
0.450-0.499	--	--	6[b]	11.5
0.500-0.549	--	--	5	9.6
0.550-0.599	--	--	3	5.8
0.600-0.649	--	--	1	1.9
0.650-and over	--	--	--	--
Total[c]	52	100.0	52	100.0

[a]Tables 9 and 10.

[b]National average also falls in the specified range.

[c]Sum of column may not equal total due to rounding.

weighting of state results when analyzing the mode whereas the national estimate is based on explicit state weights using the original data.

Clearly, cost share assistance is concentrated among larger farms in most states. The difference in program participation for farms in specified size ranges accounts for much of the concentration. In Table 12, for example, the ten states ranking highest in payment concentration based on participating farms were singled out for analysis. These states have a significantly higher proportion of non-participants than participants in the less than 180 acres size class. The same general pattern exists for all states.

TABLE 12

COMPARATIVE DISTRIBUTION OF PARTICIPATING AND NON-PARTICIPATING FARMS WITH LESS THAN 180 ACRES OF FARMLAND FOR SELECTED STATES--1964 AGRICULTURAL CONSERVATION PROGRAM[a]

State	Share of Farms With Less Than 180 Acres		
	All Farms	Participating Farms	Non-Participating Farms
Mississippi	75.5	64.4	81.1
Louisiana	82.6	67.4	87.2
Alabama	82.9	61.4	86.9
Florida	76.5	56.0	82.0
Arkansas	77.0	61.1	82.0
South Carolina	84.3	61.0	88.5
Virgin Islands	91.6	79.3	93.2
South Dakota	43.1	30.8	48.8
Hawaii	88.6	71.4	89.7
Delaware	83.8	60.8	90.1

[a] U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), pp. 46-49.

CHAPTER V

ANALYSIS OF THE ACP PAYMENT DISTRIBUTION

Gini ratios for each of the states and the nation--augmented by the underlying Lorenz curves--serve as a useful measure of the distribution and concentration of conservation cost share payments. This chapter summarizes an analysis of possible reasons and relationships behind the payment distribution and the interpretation of the results.

Factors Behind Non-Participation in ACP

A number of reasons exist that might explain the low participation of small farms in ACP--and thus the existing distribution of payments.

The soil and land use problems covered by ACP may be concentrated on farms that are participants in the program. During appropriation hearings, however, program administrators indicated that the 2 million farms not participating in ACP from 1959 to 1962 probably have conservation needs relatively greater than participating farms.[1]

A lack of information on available conservation benefits and financial incentives might be another factor behind non-participation. Definite conclusions cannot be drawn due to a lack of data.

It is possible that some small farm operators lack sufficient funds to supply their share of practice costs. However, the variable rate for federal cost shares should cover many of these cases, provided that the farm operator relies mainly on his farming business for his livelihood.

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[1] House Subcommittee of the Committee on Appropriations, USDA Hearings for 1967, p. 226.

It is also possible that the conservation practices that are available to farmers are not of sufficiently high value to permit worthwhile returns from participating in the program. This is likely to be the case for many practices with long enduring benefits such as permanent cover.

The last possibility includes the spectrum of non-economic, social inhibitors to widespread program participation. In theory, there are no barriers of this type--nothing can bar a farmer, share-cropper or landowner from receiving federal assistance for conservation practice adoption provided that funds are available, regulations are followed, conservation needs exist, and the participant can raise his share of the cost. Without any evidence to prove conclusively that these potential barriers really do exist, it can only be hypothesized that program participation is dependent on institutional barriers. The relatively high Gini ratio values for many of the Southern States, however, suggests that possibly institutional barriers may discourage small farms from seeking ACP assistance.

The full significance of these hypothesized forces behind non-participation cannot now be determined.

Penetration

Even though non-participation can be explained in theory, little can be proven from the available data. We can, however, identify the regions that tend to have the highest rates of participation in ACP over a period of time. On this point we shift from a one year period of analysis to a five year period. Any attempts to explain non-participation must consider dynamics because participants in one year may or may not have been in ACP during prior years.

Data are available on the number of farms that participated at least once in ACP from 1959 through 1964. When this figure is expressed as a per cent of

all potential farms it can serve as a measure of program "penetration" or the extent of involvement of farms in ACP. For example, North Dakota had about 82 per cent of all ASCS defined farms participate at least once in ACP from 1959 through 1964. The nation as a whole averaged 49.5 per cent. California ranked the lowest among the contiguous states with only 27 per cent of all possible farms involved at least once in ACP over the five year period.

The highest levels of penetration were for the New England States and states in the upper portions of the Missouri and Colorado River Valleys. Lowest penetrations exist for the western seaboard, two of the Southeastern States, and the Great Lakes area. More than half of the states are within 10 percentage points from the national average.

By comparing the long term participation figures to the annual data for 1959 and 1964 a clearer perception can be developed on what is happening over time. In 1959, 18.8 per cent of all farms participated in the Agricultural Conservation Program. Participation increased slightly to 21.9 per cent by 1964. Over the five year period, however, half of the farms in the country had participated at least once in ACP. This gain in participation was not achieved by higher funding levels for the program because funding had remained stable during this period.[1] It is also unlikely that lower cost share spending per farm explains the larger participation because almost half of the states actually increased the average size of payment on the average sized participating farm.[2] Instead, higher participation was probably achieved

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[1] Above, p. 12.

[2] Data for the nation as a whole, however, reveal a decrease of 7 per cent in average size of payment. This information does not refute the above argument because the decrease is small compared to the large gain in program participation. Furthermore, the state-by-state analysis did not reveal any consistent relationship between payment size and long-term participation rates in ACP.

by rotating the available money around to different farmers from year to year within each county. This conclusion is supported by the fact that almost all states (46 of 52) at least doubled in the proportion of participating farms to all farms over the five year period compared to 1959 annual data.[1]

Distribution Analysis

Proper analysis of ACP's payment distribution depends on what purpose lies behind the program. For example, if the program were intended to encourage conservation practices only on small farms, the desired distribution would be heavily skewed to the left. This would be indicative of some income redistribution objectives for ACP in addition to conservation practice adoption. Conversely, if conservation incentives were intended to be strictly proportional to the relative frequency of all farms by size class--conservation assistance to all, provided that some did not get more than a proportionate share--then the desired distribution would lie roughly along the diagonal of the box diagram described in Chapter III. Since the stated purpose of ACP is not related to farm size, the relevant base of comparison is limited to the distribution of conservation needs among the various farm size ranges.

Conservation needs are generally described only with respect to types of land use and by region. No consideration is made of farm size or ownership. Were conservation needs identified by ownership or sales characteristics, it might be possible to develop estimates for general size ranges as rough measures that would be compared to the ACP distribution described in this study. Of course, even this approach would have limitations since ownership

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[1]Of the six exceptions to this doubling of participation, all states but one generally conformed to the dramatic increase in participation but at slightly smaller rates, e.g., 88 per cent.

patterns are usually based on Census of Agriculture data rather than ASCS defined farms. For this study it was not possible to construct a measure of conservation needs for farms in the various size groups.

Acreage of farmland on participating farms may serve a proxy role generally suggestive of conservation need. Although this is not strictly correct, it may serve as a general guideline to aid the analysis.

A sharp contrast seems evident between the payment distribution among farms and the distribution among farmland on participating farms. Participating farms that are under 100 acres in size received 17.1 per cent of gross ACP payments. About 32.5 per cent of all farms were in this size group. Payments were less than proportional to the share of farms. At the same time, however, farms in this size group had only 4.6 per cent of the farmland on all participating farms. Payments were more than proportional to this share of farmland.

This same contrast exists on the other end of the size spectrum. Farms of 2000 or more acres in size received 6.7 per cent of total ACP payments. These same farms represented only 1.9 per cent of participants, but they had 35.8 per cent of the farmland on participating farms. The proportion of payments lies between the share of farms and the share of farmland in this specific size group. The $2,500 limitation on cost share payments to any one farm may well contribute to this outcome.

Similar findings on payment concentration on smaller farms are indicated by the per acre averages for cost share assistance (see Table 13). For example, payments averaged $1.95 per acre of farmland on farms less than 100 acres. Farms in the 180 to 259 acres size class averaged $0.93 per acre--or half the rate for smaller farms. On a per acre of farmland basis, smaller farms have been receiving relatively large portions of gross ACP payments. The variable

TABLE 13

AVERAGE PAYMENT PER ACRE OF FARMLAND IN PARTICIPATING FARMS BY SIZE OF FARM, UNITED STATES[a]

Size Class (acres)	Payment per Acre (dollars)
Under 100	1.95
100-139	1.24
140-179	1.10
180-259	.93
260-499	.71
500-999	.48
1000-1999	.31
2000 and over	.10

[a] U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), p. 57.

rates for cost shares account for part of this concentration. Table 14 presents payments per acre of farmland by states.

Table 15 presents the proportion of payments concentrated among selected proportions of farmland on participating farms. The table is similar to the Lorenz curve presented as Table 6 in Chapter IV except acres of farmland have been substituted for number of farms. In this case the upper fifth of farmland--land on the largest farms--had only 3.8 per cent of assistance payments. The lower fifth had 48.3 per cent--almost half of total payments. The Gini concentration ratio of .458 indicates that payments are concentrated on the farmland that comprises many of the smaller participating farms throughout the country.

These data reveal a skewed distribution of ACP payments towards smaller farms--a startling contrast to the data presented in Chapter IV where it was

TABLE 14

AVERAGE ACP PAYMENT PER ACRE OF FARMLAND ON PARTICIPATING FARMS BY SIZE OF FARM, 1964 AGRICULTURAL CONSERVATION PROGRAM BY STATE[a]

State Code	State Name	Farm Size Classes (in acres)								
		Under 100	100-139	140-179	180-259	260-499	500-999	1000-1999	2000 and over	Total
1	Alabama	2.094	1.316	1.185	1.026	0.877	0.650	0.425	0.194	0.708
2	Alaska	4.428	3.394	2.583	1.519	1.354	0.648	0.090	--	1.956
3	Arizona	17.107	8.150	8.161	5.049	4.076	2.317	1.107	0.043	0.166
4	Arkansas	1.612	1.012	0.901	0.765	0.653	0.513	0.383	0.225	0.620
5	California	9.957	4.905	4.114	2.981	2.225	1.340	0.674	0.166	0.778
6	Colorado	3.185	2.165	2.522	1.746	1.267	0.642	0.349	0.106	0.357
7	Connecticut	2.729	1.580	1.636	1.314	1.041	0.678	0.324	0.224	1.240
8	Delaware	2.148	1.302	1.176	1.044	0.919	0.720	0.590	0.120	0.952
9	Florida	2.897	1.773	1.442	1.290	1.056	0.699	0.448	0.076	0.390
10	Georgia	2.182	1.220	1.089	0.900	0.728	0.535	0.365	0.165	0.612
11	Hawaii	13.290	5,959	2.982	2.414	1.690	0.926	1.097	0.040	0.137
12	Idaho	3.369	1.982	1.385	1.222	0.735	0.433	0.222	0.111	0.500
13	Illinois	1.705	1.136	1.009	0.889	0.703	0.539	0.384	0.271	0.872
14	Indiana	1.485	1.030	.915	0.782	0.661	0.506	0.381	0.166	0.846
15	Iowa	2.763	1.660	1.406	1.179	0.942	0.669	0.494	0.154	1.107
16	Kansas	2.820	1.900	1.498	1.122	0.894	0.500	0.312	0.170	0.602
17	Kentucky	2.132	1.278	1.067	0.899	0.685	0.475	0.320	0.140	0.968
18	Louisiana	2.224	1.447	1.326	1.096	0.927	0.676	0.476	0.210	0.741
19	Maine	1.675	1.096	0.959	0.897	0.772	0.555	0.343	0.067	0.690
20	Maryland	1.656	1.175	1.000	0.929	0.736	0.576	0.396	0.210	0.870
21	Massachusetts	2.842	1.752	1.444	1.315	1.009	0.560	0.476	0.164	1.256
22	Michigan	2.164	1.425	1.324	1.138	0.878	0.659	0.385	0.195	1.203
23	Minnesota	1.938	1.162	1.065	0.858	0.630	0.395	0.263	0.185	0.704
24	Mississippi	1.397	0.870	0.781	0.707	0.631	0.515	0.416	0.232	0.585
25	Missouri	1.414	0.950	0.827	0.707	0.548	0.404	0.280	0.213	0.625

TABLE 14--Continued

State Code	State Name	Farm Size Classes (in acres)								
		Under 100	100-139	140-179	180-259	260-499	500-999	1000-1999	2000 and over	Total
26	Montana	4.718	3.487	2.095	1.976	0.898	0.428	0.239	0.108	0.180
27	Nebraska	2.384	1.627	1.280	1.018	0.760	0.482	0.288	0.096	0.446
28	Nevada	10.398	3.702	4.618	3.073	2.523	1.152	0.688	0.070	0.256
29	New Hampshire	2.424	1.722	1.356	1.277	0.925	0.581	0.285	0.222	0.910
30	New Jersey	2.432	1.905	1.738	1.277	1.148	0.732	0.606	0.095	1.337
31	New Mexico	8.571	6.109	4.585	3.827	2.120	0.986	0.408	0.048	0.157
32	New York	2.105	1.368	1.175	1.044	0.830	0.587	0.380	0.212	0.926
33	North Carolina	1.149	0.753	0.677	0.584	0.466	0.324	0.227	0.123	0.648
34	North Dakota	0.694	0.476	0.434	0.348	0.273	0.195	0.137	0.100	0.186
35	Ohio	2.274	1.499	1.291	1.106	0.885	0.609	0.431	0.236	1.237
36	Oklahoma	2.657	1.702	1.077	1.006	0.688	0.415	0.257	0.106	0.577
37	Oregon	6.220	3.040	2.300	1.946	1.285	0.605	0.316	0.087	0.470
38	Pennsylvania	2.429	1.754	1.560	1.342	1.108	0.787	0.557	0.230	1.410
39	Puerto Rico	2.158	2.009	1.528	1.629	1.244	0.742	0.650	0.043	1.589
40	Rhode Island	2.894	1.536	1.656	1.435	0.987	1.056	0.059	--	1.543
41	South Carolina	2.129	1.355	1.216	1.070	0.876	0.618	0.461	0.233	0.773
42	South Dakota	0.971	0.688	0.593	0.518	0.430	0.314	0.217	0.116	0.256
43	Tennessee	1.292	0.847	0.748	0.642	0.509	0.373	0.264	0.184	0.673
44	Texas	2.243	1.367	1.142	0.972	0.750	0.503	0.314	0.080	0.362
45	Utah	2.913	2.040	1.547	1.312	0.804	0.482	0.342	0.079	0.439
46	Vermont	1.685	1.076	0.970	0.870	0.674	0.452	0.259	0.078	0.642
47	Virginia	1.355	0.883	0.781	0.666	0.521	0.370	0.218	0.118	0.619
48	Virgin Islands	5.115	--	--	1.127	1.132	1.111	0.598	0.259	0.913
49	Washington	5.062	2.534	1.932	1.562	0.855	0.411	0.214	0.077	0.437
50	West Virginia	1.484	0.922	0.792	0.668	0.486	0.320	0.169	0.078	0.630
51	Wisconsin	2.626	1.546	1.286	1.038	0.791	0.641	0.497	0.207	1.031
52	Wyoming	5.662	3.127	3.185	2.467	1.335	0.906	0.394	0.077	0.193

[a] U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), p. 57.

TABLE 15

LORENZ CURVE OF 1964 ACP TOTAL PAYMENTS AMONG ACREAGES OF FARMLAND ON SIZE RANKED PARTICIPATING FARMS FARMS IN THE UNITED STATES[a]

Proportion of Farmland	Proportion of Payments
Lower 10%	29.3
Lower 20%	48.3
Lower 30%	62.8
Lower 40%	75.4
Lower 50%	84.4
Higher 50%	15.6
Higher 40%	9.2
Higher 30%	5.7
Higher 20%	3.8
Higher 10%	1.9

Gini concentration ratio 0.458

[a]Computed from: U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program, 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), pp. 8, 10.

demonstrated that ACP payments tended to go to larger farming units in greater proportion than what farm numbers alone would suggest. The data presented here can be explained in a number of ways. First, conservation needs might be concentrated on the smaller farms throughout the country, thus the proportion of payments going to smaller farms might reasonably be expected to exceed that implied by quantities of farmland alone. Secondly, the ACP program might be one mechanism for attempting to redistribute income towards smaller farmers. A third possible explanation represents a more likely interpretation of these contrasting relationships between payments and farm size. The Agricultural Conservation Program may serve as an instrument to provide at least some agricultural subsidy to everyone with a farm, thus building a large constituency in support of agricultural payment programs in general as well as ACP specifically. If this interpretation is correct, then the distribution of farmland would not be very important to program decisions; it would simply be a by-product that would result after certain program decisions had been implemented.

To explore this point further we need to look at payments, farms, and farmland simultaneously by farm size groups, realizing that farmland acts only as a loose proxy for conservation needs. Figure 3 graphically depicts the interrelationships of these four variables.

The diagram is composed of four separate but interrelated curves. The top half contains a graphic presentation of the Lorenz curves of payments related to participating farms (on the right) and acres of farmland on participating farms (on the left). Since payments are distributed more than proportionately to farmland, the Lorenz curve on the left rises above the diagonal. The inverse is shown on the right for payments distributed among participating farms.

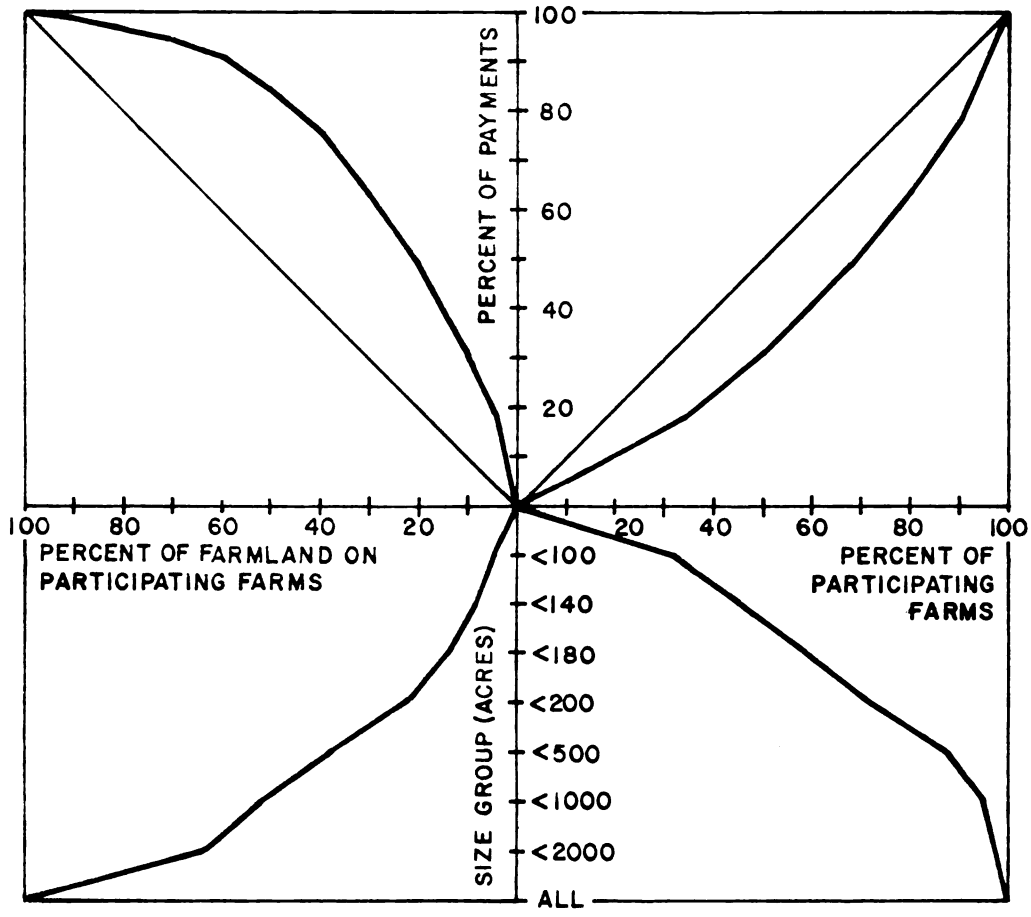

FIGURE 3

The Relationship of Payments, Numbers of Farms,

Farmland and Farm Size

The bottom half of the diagram relates the specified shares of farms and farmland to the appropriate size group. For example, farms with less than 100 acres comprise about a third of ACP participants, but they have less than 5 per cent of the total farmland on all participating farms.

A major policy implication can be inferred from this diagram. The information presented here suggests that ACP has been used as a mechanism for providing an agricultural subsidy for the largest possible number of farmers. In other words, ACP provides a subsidy on a per farm basis rather than on a per unit of output or per acre of land as many of the other agricultural programs tend to do. This seems to happen even though the actual monies are expended for applying a conservation practice to a farmer's land.

Program Comparisons

To explore the possibility that ACP is being used as a means to generate farmer support of agricultural payment programs in general, an alternative evaluation was undertaken. The ACP payment distribution was compared to the distribution of money income received by farmer and farm-manager families and to selected ASCS crop program payments. Since these alternatives reflect financial position and income transfers rather than conservation needs, they cannot be viewed as useful measures for developing conservation policy inferences. They do, however, provide general indications of the relationship between ACP benefit distributions and the existing distribution of income flows and certain commodity program payments.

Boyne has estimated the distribution of total money income among farmers and farm manager families.[1] The fifth of these families with the highest

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[1]David H. Boyne, "Changes in the Income Distribution in Agriculture," Journal of Farm Economics, Vol. XLVII, No. 5, (December, 1965), pp. 1213-1224.

incomes received about half of aggregate money income during 1963. In comparison, the top fifth of farms when ranked by size, received 51.9 per cent of gross cost share payments. The closeness of the measures would suggest that payments on the upper end of the size scale of farms is generally proportional to money income distribution.

Several income and price support programs directed by ASCS were analyzed by Bonnen.[1] The programs having the closest relationship to ACP are generally the diversion components of the wheat and feed grain programs. Both of these programs demonstrate generally greater shares of benefits accruing to recipients at the larger end of the size scale compared to ACP. For example, the top 5 per cent of the farms in the wheat program received 27.9 per cent of the aggregate diversion payments and this same fraction of farms received 20.7 per cent of the feed grain diversion payments. Since the data are based on allotment farms, the ACP measure with the greatest comparability would be participating farms. The top 5 per cent of size ranked farms participating in ACP received only 13.8 per cent of aggregate payments--a share only half the size of the wheat diversion program (see Table 16).

Significant, also, is the extent of payment concentration in the other programs analyzed by Bonnen. The diversion payments component of the feed grains program referred to above had the lowest Gini concentration ratio of all those included in Bonnen's study. Examples of the other programs are: rice (.632), wheat price supports (.566), feed grain price supports (.588), and cotton (.653).[2]

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[1]James T. Bonnen, "The Distribution of Benefits From Selected U.S. Farm Programs," Rural Poverty in the United States, A Report by the President's National Advisory Commission on Rural Poverty (Washington: U.S. Government Printing Office, 1968), pp. 461-505.

[2]Ibid., p. 505.

TABLE 16

ACP PAYMENTS COMPARED TO SELECTED DOLLAR MEASURES BY QUINTILE GROUPS AND THE HIGHEST FIVE PER CENT OF FARMS AND FARMER BENEFICIARIES

	Lower Fifth	Second Fifth	Middle Fifth	Fourth Fifth	Highest Fifth	Top 5%
ACP Payments Among All Farms[a]	6.9	6.8	11.8	22.6	51.9	20.4
ACP Payments Among Participating Farms[b]	10.5	12.3	18.1	22.5	36.6	13.8
Total Money Income Among Farmers and Farm Manager Families[c]	3.2	8.5	14.7	23.1	50.5	20.8
Wheat Diversion Payments Among Allotment Farms[d]	6.9	7.3	12.2	16.3	57.3	27.9
Feed Grain Diversion Payments Among Allotment Farms[e]	4.4	11.7	15.7	21.4	46.8	20.7

[a]Figures derived from Table II, Appendix A.

[b]Figures derived from Table I, Appendix A.

[c]David H. Boyne, "Changes in the Income Distribution in Agriculture," Journal of Farm Economics, Vol. XLII, No. 5, (December, 1965), p. 1217.

[d]James T. Bonnen, "The Distribution of Benefits From Selected U.S. Farm Programs," Rural Poverty in the United States, A Report by the President's National Advisory Commission on Rural Poverty (Washington: U.S. Government Printing Office, 1968), p. 505.

[e]Ibid., p. 505.

This program comparison suggests that ACP cost share payments are distributed much more proportionately among participants than any of these alternative programs. These data strongly suggest that certain steps are being taken to have a widespread farmer constituency that can share in the ACP assistance program.

Concluding Remarks

More than all other programs administered by ASCS, the Agricultural Conservation Program has the widest possible involvement of farms, small as well as large. Total participation or even proportional participation has not been the case, but ACP has been one source of federal assistance where payments have accrued to farmers more because of existence of the farm as an entity rather than because of the gross acreage under the farmers' control. Farms with less than 180 acres, for example, received 38.6 per cent of ACP payments even though less than 15 per cent of all farmland was under the control of these smaller farms.

The larger than proportionate share of cost share payments going to farms with the fifth of farmland lying on the lowest end of the size scale is suggestive of the broad distribution of payments. Factors contributing to this interpretation include:

a) the higher rates of cost share assistance for farms that cannot raise sufficient funds to pay the normal fifty per cent of costs;

b) the $2,500 limitation on total payments to any one person, thus, in effect, permitting more money to be available for farms with less than the massive acreages that otherwise tend to be associated with farms with large payments; and

c) the ACP cost shares appear to be the only ASCS program that distributes monies based more on land resource problems (conservation needs) rather than on high soil productivity and large acreages as would seem to be the case for other programs.[1]

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[1]An excellent analysis of the distribution of benefits from selected farm programs and the relationship to land farmed is provided by James T. Bonnen in his paper "The Absence of Knowledge of Distributional Impacts: An Obstacle to Effective Public Program Analysis and Decisions," Joint Economic Committee, The Analysis and Evaluation of Public Expenditures: The PPB System, Vol. I, 91st Cong., 1st Sess., pp. 419-449.

APPENDIX

TABLE 1

DISTRIBUTION OF 1964 ACP GROSS PAYMENTS AMONG SIZE-RANKED PARTICIPATING FARMS:
PERCENTAGE OF STATE PAYMENTS RECEIVED BY VARIOUS PERCENTILES OF FARMS

State	Lower 10%	Lower 20%	Lower 33%	Lower 40%	Lower 50%	Higher 50%	Higher 40%	Higher 33%	Higher 20%	Higher 10%	Gini Ratio
Alabama	5.0	9.9	16.6	20.0	27.0	73.0	65.0	58.6	42.7	26.5	.331
Alaska	7.3	17.1	30.7	37.5	47.7	52.3	42.1	35.3	22.8	11.6	.043
Arizona	5.6	11.5	23.6	30.8	42.1	57.9	45.2	36.7	20.8	10.4	.097
Arkansas	5.1	10.1	16.9	20.9	27.8	72.2	64.0	57.7	42.7	28.3	.328
California	6.3	12.6	21.0	26.1	35.3	64.7	54.7	47.1	29.7	15.5	.189
Colorado	3.6	7.3	15.5	22.5	32.6	67.4	55.9	48.0	31.8	17.8	.245
Connecticut	5.4	10.8	18.0	21.7	28.5	71.5	62.1	54.0	36.4	20.4	.276
Delaware	5.4	10.9	18.1	22.7	30.0	70.0	61.4	54.5	38.8	23.6	.284
Florida	4.5	9.0	15.1	18.8	26.3	73.7	65.1	58.6	41.3	24.6	.330
Georgia	5.5	10.9	18.8	23.2	30.8	69.2	60.5	54.3	38.7	23.2	.277
Hawaii	6.2	12.4	20.7	24.9	31.1	68.9	62.7	57.3	43.2	27.0	.291
Idaho	7.4	14.8	25.7	31.6	40.5	59.5	49.1	42.3	27.7	15.6	.131
Illinois	6.1	12.3	21.9	27.2	36.3	63.7	54.4	47.0	32.0	17.7	.196
Indiana	6.3	12.6	21.0	26.0	34.6	65.4	55.9	49.1	33.7	19.4	.217
Iowa	7.1	14.5	25.4	30.9	39.8	60.2	50.6	44.1	28.5	15.9	.145
Kansas	6.5	14.4	25.2	30.8	39.8	60.2	50.4	43.9	29.2	17.0	.148
Kentucky	7.1	14.2	23.7	28.5	37.4	62.6	53.2	46.4	31.3	17.8	.177
Louisiana	4.8	9.5	15.9	19.1	24.3	75.7	68.0	61.7	46.1	29.3	.366
Maine	4.6	9.3	17.6	22.4	30.1	69.9	60.1	53.5	35.5	21.0	.271
Maryland	5.3	10.6	18.6	24.0	32.4	67.6	58.4	51.2	35.5	20.4	.251
Massachusetts	6.0	11.9	19.9	23.9	32.0	68.0	58.2	51.1	34.2	18.5	.236
Michigan	6.7	13.5	22.4	27.0	35.7	64.3	55.1	48.0	32.1	18.1	.197
Minnesota	6.6	13.7	25.4	31.3	40.9	59.1	49.4	42.5	26.9	15.2	.132
Mississippi	4.7	9.5	15.8	19.0	25.4	74.6	67.3	61.8	47.3	32.1	.374
Missouri	5.9	11.7	21.4	26.8	35.5	64.5	54.6	47.9	32.0	19.1	.207
Montana	7.3	15.7	25.4	30.2	37.9	62.1	53.8	48.4	29.3	14.6	.156
Nebraska	6.5	14.0	24.2	29.6	38.0	62.0	51.8	45.0	30.3	16.9	.163
Nevada	6.6	13.2	22.7	28.5	38.6	61.4	50.1	43.3	28.0	14.3	.153
New Hampshire	5.2	10.4	18.4	24.0	32.8	67.2	56.7	49.1	31.5	17.5	.227
New Jersey	5.4	10.9	18.1	22.7	32.2	67.8	57.5	49.8	34.2	19.2	.242
New Mexico	4.4	8.8	14.6	17.6	29.6	70.4	55.5	46.2	29.6	15.0	.238

TABLE I--Continued

State	Lower 10%	Lower 20%	Lower 33%	Lower 40%	Lower 50%	Higher 50%	Higher 40%	Higher 33%	Higher 20%	Higher 10%	Gini Ratio
New York	5.5	11.2	21.0	26.5	35.4	64.6	54.4	47.6	30.9	17.6	.202
North Carolina	6.6	13.2	22.0	26.4	33.0	67.0	60.5	55.4	40.0	24.3	.260
North Dakota	5.0	11.0	21.2	26.3	34.4	65.6	54.8	47.5	33.0	18.5	.213
Ohio	7.1	14.1	23.5	28.6	37.6	62.4	53.1	46.2	31.1	17.8	.176
Oklahoma	7.3	14.8	26.0	31.2	39.0	61.0	51.3	44.0	29.2	16.6	.146
Oregon	7.4	14.9	24.8	30.1	39.7	60.3	49.9	42.1	26.1	14.0	.128
Pennsylvania	6.1	12.2	20.5	26.3	35.0	65.0	55.6	48.7	33.1	19.0	.214
Puerto Rico	7.2	14.3	23.9	28.6	35.8	64.2	57.0	52.3	42.7	35.6	.269
Rhode Island	6.2	12.4	20.7	24.9	31.1	68.9	61.1	55.1	37.4	21.8	.262
South Carolina	5.0	9.9	16.5	20.2	27.3	72.7	64.5	57.8	41.7	26.3	.326
South Dakota	4.2	9.5	16.7	20.9	29.3	70.7	62.1	56.4	40.7	25.5	.311
Tennessee	6.3	12.7	21.1	25.4	32.1	67.9	58.4	51.9	36.1	21.6	.243
Texas	5.2	10.4	18.8	23.6	31.4	68.6	59.8	52.4	37.2	22.4	.265
Utah	5.5	11.1	18.4	22.1	27.6	72.4	62.1	54.6	37.2	22.9	.283
Vermont	4.6	10.5	20.4	26.4	35.9	64.1	53.7	45.6	29.5	16.7	.195
Virginia	5.8	11.7	19.5	23.4	30.6	69.4	60.2	53.1	36.9	21.5	.262
Virgin Islands	6.3	12.5	20.9	25.1	31.3	68.7	62.4	58.2	49.0	35.2	.324
Washington	8.2	16.3	27.3	34.2	44.6	55.4	44.0	37.0	23.5	13.1	.074
West Virginia	6.5	13.0	21.6	26.0	33.8	66.2	56.4	49.2	32.7	18.1	.211
Wisconsin	7.4	15.0	25.8	31.8	40.8	59.2	59.6	42.9	28.8	16.4	.137
Wyoming	5.4	13.7	26.1	31.8	40.7	59.3	47.8	40.7	25.1	12.5	.117
United States	5.3	10.5	17.7	22.8	31.1	68.9	59.1	52.7	36.6	22.5	.271

[a] Computed from data in U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program, 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), pp. 5, 10.

TABLE 11

DISTRIBUTION OF 1964 ACP GROSS PAYMENTS AMONG ALL SIZE RANKED FARMS:
PERCENTAGE OF STATE PAYMENTS RECEIVED BY VARIOUS PERCENTILES OF FARMS

State	Lower 10%	Lower 20%	Lower 33%	Lower 40%	Lower 50%	Higher 50%	Higher 40%	Higher 33%	Higher 20%	Higher 10%	Gini Ratio
Alabama	2.9	5.9	9.8	11.7	14.7	85.3	82.4	80.2	67.3	50.6	.585
Alaska	4.3	9.1	19.9	26.5	36.4	63.6	53.7	47.1	33.8	23.0	.226
Arizona	3.8	7.6	15.8	23.2	47.6	52.4	24.8	20.7	12.4	6.2	.037
Arkansas	3.4	6.7	11.2	13.4	16.8	83.2	77.9	72.9	58.9	41.5	.512
California	3.6	7.3	12.1	14.5	18.2	81.8	78.2	73.8	57.7	33.8	.478
Colorado	4.2	8.4	18.6	24.7	34.9	65.1	54.9	48.1	35.5	22.6	.243
Connecticut	4.6	9.1	15.2	18.2	22.8	77.2	70.2	64.2	45.6	27.0	.374
Delaware	3.0	5.9	9.9	11.9	14.8	85.2	82.2	78.2	65.2	46.4	.564
Florida	2.7	5.5	9.1	10.9	13.6	86.4	83.6	78.9	63.7	41.9	.558
Georgia	2.9	5.9	9.8	11.7	14.6	85.4	79.7	75.0	60.0	41.1	.531
Hawaii	4.8	9.7	16.1	19.4	24.2	75.8	70.9	67.7	61.3	50.8	.477
Idaho	4.7	9.5	15.8	18.9	26.4	73.6	64.8	58.2	40.9	23.5	.325
Illinois	3.1	6.2	10.3	12.4	16.8	83.2	74.8	67.2	49.0	30.9	.447
Indiana	3.8	7.6	12.6	15.1	18.9	81.1	77.3	70.1	53.3	34.8	.459
Iowa	3.1	6.1	12.1	16.1	24.1	75.9	67.8	61.3	44.5	26.2	.380
Kansas	2.4	4.8	9.2	13.6	20.5	79.5	71.5	64.6	46.4	29.7	.427
Kentucky	4.7	9.4	15.7	18.8	23.5	76.5	71.8	65.8	48.5	30.8	.393
Louisiana	3.4	6.8	11.3	13.6	17.0	83.0	79.6	77.4	64.2	47.1	.546
Maine	3.5	6.9	12.6	16.7	23.5	76.5	68.4	61.4	43.8	25.6	.373
Maryland	2.9	5.9	9.8	11.7	14.7	85.3	78.6	72.4	56.1	35.3	.497
Massachusetts	4.3	8.5	14.2	17.0	21.3	78.7	74.5	67.6	49.1	29.9	.411
Michigan	4.3	8.5	14.2	17.0	21.3	78.8	74.5	68.7	52.5	34.4	.436
Minnesota	2.9	5.7	11.2	15.1	23.1	76.9	68.9	61.4	44.6	25.7	.387
Mississippi	3.5	7.0	11.6	14.0	17.4	82.6	76.8	72.1	58.4	41.0	.500
Missouri	2.8	5.5	9.2	11.0	15.6	84.4	77.1	69.8	51.6	31.8	.477
Montana	1.7	4.8	13.2	17.7	24.8	75.2	67.6	60.8	45.0	22.5	.368
Nebraska	2.4	4.8	12.5	16.9	23.6	76.4	67.9	61.1	42.9	26.3	.378
Nevada	3.7	7.5	12.5	15.0	19.3	80.7	72.1	63.2	42.2	23.0	.380
New Hampshire	3.8	7.7	12.8	15.3	22.2	77.8	69.1	61.8	44.2	25.7	.378
New Jersey	3.1	6.2	10.4	12.5	15.6	84.4	81.3	78.3	58.0	38.2	.520
New Mexico	4.1	8.2	13.6	16.3	23.8	76.2	65.3	57.0	37.6	23.0	.333

TABLE II--Continued

State	Lower 10%	Lower 20%	Lower 33%	Lower 40%	Lower 50%	Higher 50%	Higher 40%	Higher 33%	Higher 20%	Higher 10%	Gini Ratio
New York	2.7	5.5	9.1	12.1	19.1	80.9	72.2	65.4	46.8	27.0	.426
North Carolina	5.8	11.7	19.5	23.4	29.2	70.8	65.0	61.1	48.4	32.0	.343
North Dakota	2.0	5.4	11.5	16.5	23.9	76.1	68.6	60.6	41.9	26.2	.376
Ohio	4.3	8.6	14.3	17.2	21.5	78.5	74.2	68.6	52.0	33.5	.429
Oklahoma	3.7	7.3	12.2	15.9	24.0	76.0	67.6	62.0	45.6	28.3	.384
Oregon	4.7	9.5	15.8	18.9	23.6	76.4	71.6	64.5	46.5	27.0	.374
Pennsylvania	3.9	7.8	12.9	15.5	19.4	80.6	72.1	65.6	49.9	32.1	.425
Puerto Rico	7.1	14.2	23.7	28.4	35.5	64.5	57.4	52.6	43.2	36.1	.274
Rhode Island	5.6	11.2	18.7	22.5	28.1	71.9	66.3	59.5	39.1	22.3	.302
South Carolina	2.8	5.6	9.3	11.1	13.9	86.1	83.3	81.5	69.3	53.4	.603
South Dakota	1.8	5.0	10.8	13.8	19.6	80.4	71.3	64.6	49.2	31.9	.436
Tennessee	4.5	9.0	15.0	18.0	22.5	77.5	73.1	70.1	54.5	36.0	.437
Texas	2.7	5.4	9.1	10.9	15.7	84.3	76.9	71.1	53.8	34.8	.490
Utah	4.9	9.8	16.4	19.7	24.6	75.4	68.8	60.0	40.2	24.2	.334
Vermont	3.4	7.4	15.9	20.8	30.5	69.5	59.3	50.7	32.3	18.2	.263
Virginia	4.5	9.0	15.0	18.0	22.5	77.5	72.9	66.0	49.8	31.9	.406
Virgin Islands	5.3	10.6	17.6	21.1	26.4	73.6	68.3	64.8	57.8	49.7	.444
Washington	4.7	9.4	15.7	18.9	23.6	76.4	69.4	61.3	42.7	24.8	.352
West Virginia	5.4	10.8	18.0	21.6	27.0	73.0	65.5	59.0	43.3	26.1	.324
Wisconsin	3.1	6.2	10.4	12.5	19.7	80.3	72.3	64.7	46.9	30.0	.426
Wyoming	3.4	8.3	21.8	28.7	38.9	61.1	50.1	43.3	28.2	14.1	.171
United States	3.4	6.9	11.4	13.7	17.3	82.7	74.5	68.1	51.9	32.9	.454

[a] Computed from data in U.S., Agricultural Stabilization and Conservation Service, Agricultural Conservation Program, 1964 Frequency Distribution of Farms and Farmland (Washington: U.S. Government Printing Office, 1966), pp. 4, 10.

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