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Are U.S. Farm Programs Good Public Policy? Taking Policy Performance Seriously

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Policy evaluation is on the minds of many in Congress as the 2002 expiration date of existing farm program legislation approaches. For the past 70 years, farm policy has been dominated by the direct intervention of government in providing farm income support (Effland, 2000). While the intent to support incomes has remained constant, there has been no easy consensus on the matter of whether Congress should keep current programs intact and increase funding levels or, instead, reform existing legislation. Having spent more than $56 billion over the past three years in direct payments, much in the form of ad-hoc assistance, the high costs of the current system ensure the debate will continue. This paper offers a modest first step in extending the standard economic analysis of current U.S. farm programs, using the tools of distributional analysis and ethics-based evaluation.

Evaluating Public Policy

Economists, as should be expected, tend to focus on the efficiency of program benefit delivery when evaluating public policy programs. Inefficient delivery

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is wasteful and diverts scarce public funds away from other worthy uses. Although efficiency may be desirable, it is doubtful whether efficiency alone is an acceptable measure of public policy to society at large. As Randall (1999) points out, the efficiency criterion carries ethical baggage that we economists often overlook;

1. It is consequentialist (i.e., it determines the right action as the one that brings the highest valued outcome),

2. It judges value in terms of a money metric of individual preference satisfaction, and

3. It judges social welfare through simple aggregation, ignoring distributional concerns.

A broader concept of what constitutes "good" public policy will, among other things, incorporate non-consequentialist ethical frameworks and will allow for distributional concerns to be addressed.

Non-consequentialist theories do not judge the value of an action based on its outcome. Instead, value is derived from acting in accordance with a pre-existing code of ethics. Where consequentialists consider an action as being right based on whether the outcome of the action is good, non-consequentialists consider good actions as those that conform to some previous conception of what is right. These distinctions in how individuals may judge the moral value of public policy complicate the evaluation process.

We live in a morally plural society. Moral pluralism can be thought of in either of two ways. The first is that society is comprised of individuals who hold various ethical conceptions of what constitutes right and wrong (e.g. consequentialist v. non-consequentialist). A second way of viewing moral pluralism is that each individual will employ different ethical frameworks depending on the type of decision to be made. For example, the same individual may make choices in the home based on an egalitarian concept of right and wrong, but may use a utilitarian framework when faced with decisions in the workplace. In either form, moral pluralism must somehow be accounted for when evaluating public policy. The trick is not to find public policies that conform perfectly to a single ethical framework, for this will almost certainly

result in the violation of the ethical norms of a substantial portion of society. Instead, a heuristic for public policy evaluation that incorporates concepts from multiple ethical frameworks must be used.

Thompson, et al (1994) introduce a framework for evaluating the acceptability of public policy in a morally plural society. It consists of a systematic evaluation of public policy structure, conduct, and performance in light of the social problem being addressed. Good public policy is that which is morally acceptable to society. The process begins with an understanding of the purpose of proposed or existing public policy and the existing policy setting. Public policy that is acceptable to a morally plural society will have ethically acceptable structure, will promote ethically acceptable conduct, and will produce ethically acceptable outcomes. Acceptable structure means that the redistribution of rights and obligations within the policy program must be justified irrespective of policy program benefits (Thompson, et al., 1994). This requires the public policy to conform to some basic set of non-consequentialist heuristics. Acceptable conduct means that the policy is ethically acceptable, only if the elicited conduct is also ethically acceptable. Acceptable performance means that the policy outcomes have to be ethically acceptable. This addresses the consequentialists' concern that the policy that ought to be implemented is the one that produces the best outcomes. This piecemeal approach allows for consideration of diverse conceptions of moral value, recognizing that a single decision procedure that can guarantee a unique and determinate answer involving the choice among fundamental moral principles does not exist (Wolf, 1992).

This paper does not attempt a full analysis of the overall moral acceptability of farm programs as illustrated in Thompson, et al (1994). Instead, we concentrate in general on the area of acceptable performance, and in particular on the distribution of program benefits[1]. Our analysis uses distributional analysis of farm program benefits as a means of extending the economic analysis of policy performance to incorporate potential policy goals.

[1]We direct readers interested in analysis of non-consequentialist concerns regarding the acceptable structure of farm programs to Vorstenbosch (2000).

Farm Policy Setting: Distributional Analysis of Farm Program Benefits

The distribution of farm policy program benefits within the agricultural sector is calculated using data from the 1999 Agricultural Resources Management Study (ARMS) survey. Farm policy benefits are loosely approximated based on the direct effects of farm programs on farm profitability and income. Concentrating solely on the direct effects of farm programs ignores adjustments that farmer's may make in the absence of farm programs. The inclusion of the indirect effects of farm programs (e.g., impacts on land and other agricultural input costs) would provide the most complete picture of farm program impacts, but is beyond the scope of the paper. Distributions shown are for all farms meeting the official definition of a farm, i.e. over $1000 in agricultural sales, and are participating in government programs.

Figure 1 presents the distribution of pre-tax farm returns to farm business assets, including farm program benefits. Returns to farm business assets are used as a proxy for farm business profitability. The wide range in profitability levels is the result of differences in, among other things, management, weather, and prices. The dotted lines in Figure 1 denote the maximum returns to farm assets for the 25th, 50th, and 75th percentile of farms and are presented in Table 1.

Figure 2 presents the distribution of pre-tax household incomes with farm program benefits. The range in household incomes is affected by the same factors as farm profit, in addition to differences in off-farm incomes. Household incomes for the 25th, 50th, and 75th percentile of all farms are denoted by dotted lines and presented in Table 1.

Table 1: Farm Profitability and Household Income with Program Benefits

	25th percentile	50th percentile	75th percentile
Return to Farm Business Assets	-6.4%	-2.1%	1%
Household Income	$21,200	$43,500	$73,100

To calculate the direct impacts of farm program benefits in terms of farm profitability, the return to asset ratio is re-computed with government payments netted out of returns. Calculating the direct effect on household income is slightly more complex because farm business operations are sometimes shared between two or more households and because households that

farm often have income from other sources, such as off-farm employment. For these households, farm business income is first share-adjusted to account for any partnership, then government payments are netted out, and finally any non-farm income is added to derive to total household income.

Figures 3 and 4 illustrate the direct effects of farm program benefits on farm profitability and household income without farm program benefits, after the adjustments detailed in the previous paragraph are made. Returns to farm business assets and household income decline over the entire distribution of farms as a result of the removal of program benefits. Again, returns to farm business assets and household incomes for the 25th, 50th, and 75th percentile of all farms are denoted by dotted lines. The values are reported in Table 2. At the median, direct payments increased the median rate of return on assets by nearly 2 percentage points, from - 4% to - 2.1% , while direct payments increased the median household income by $10,000, from $33,500 to $43,500.

Table 2: Farm Profitability and Household Income without Program Benefits

	25th percentile	50th percentile	75th percentile
Return to Farm Business Assets	-8.7%	-4.0%	-1.2%
Household Income	$12,700	$33,500	$62,600

Figures 5 and 6 explicitly show the calculated change in the level of profitability or household income associated with any particular percentile of farms. The percentiles of the distribution appear along the horizontal axis, and the change in profitability (Figure 5) and incomes (Figure 6) for each percentile appears along the vertical axis. The slope of the lines has an intuitive interpretation. A flat line signifies a uniform effect across every percentile, which could result if every farm received an equal-sized payment. Lines that are not flat result when farms receive unequal payments. A downward-sloping line indicates that the outcome associated with the lower end of the distribution was improved more than the outcome at the upper end, or that payment levels decreased as well-being increased. An upward-sloping line indicates that payments disproportionately improved outcomes at the upper end of the distribution, or that payment levels increased as well-being increased.

Note that the lines in Figures 5 and 6 are roughly U-shaped, indicating that the effects of direct government payments on the distribution of well-being are mixed. Beginning with the effect on farm profits (Figure 5), the

least profitable farms enjoyed a ten-percentage point increase in the rate of profits. Note that despite the sharp increase at the lower end, the effect of payments on profits leveled off to 2.5 percentage points throughout the middle of the distribution, where profits remained negative despite the effect of payments. Over the upper third of the profit distribution, which includes those farms that would have shown a profit even absent the payments, the effect on profits increased rapidly in profit levels. To summarize, in 1999, direct payments influenced the extremes of the distribution in a similar way, boosting returns disproportionately for farms that had low and high rates of return relative to other farms. The profits of all other farms in between the extremes were less influenced by direct payments, as their rate of return increased by about two percentage points.

The Goals of Farm Policy

Recent congressional testimony, presumably designed to influence policymakers, has suggested many goals for farm policy: the delivery of safe food at reasonable prices, a fair financial return for farmers, fair treatment of agriculture in trade matters, and proper management of natural resources (Collins 2001). Likewise, a recent report by the Commission on 21st Century Production Agriculture mentions the goals of an abundant supply of high-quality agricultural products at reasonable prices, a prosperous and productive economic climate for farmers, family farms, and high quality of life in rural areas (Commission on 21st Century Production Agriculture, 2001). This paper examines current farm policy in light of the two most often suggested goals of farm policy: addressing the farm problem, and ensuring an adequate food supply through efficient production.

The "farm problem" is a phrase often used to describe economic difficulties of the farm sector relative to the nonfarm sector. In particular, the existence of low returns to farm businesses as well as farm households, and high year-to-year volatility in returns due to the unique characteristics of farm sector. The case for an endemic farm problem as most closely associated with the Schultzian sectoral model (Gardner 1992). The Schultzian model specifies that, for agricultural products: (1) the demand is very inelastic, (2) the supply is very inelastic, (3) the demand increases slowly over time, and (4) the supply increases more rapidly. The symptoms of the farm problem are manifest in indicators of farmer and farm sector well-being, and

include (1) low incomes relative to living expenses, (2) low rates of return to agricultural assets, and (3) variability in both incomes and rates of return.

Relative to the goal of addressing the farm problem, the goal of promoting efficiency in production seems straightforward. The policy goal of promoting efficiency goes back even earlier than the goal of addressing the farm problem, dating back to the 1820's, when farmers began to promote the need for specialized training and scientific research to advance the productivity and professionalism of the industry (Effland 2000). Later, productivity gains in the agricultural sector were found to fuel development in other industries as labor and resources were freed from food and fiber production. Productivity in agriculture has increased greatly because of investments in research by governments and also by the willingness of individual producers to invest retained earnings into their businesses.

Scenario # 1: Evaluating Farm Programs as a Solution to the Farm Problem

Assessing the severity of the farm problem, as well as attitudes towards addressing it, has been the subject of considerable study. See Gardner (1992) and Bonnen and Schweikhardt (1998) for useful background. The first symptom, low well-being at the household level, is often viewed using a household-level measure of income, wealth, or consumption. The second symptom, low rates of return, focuses on the specific business of farming in which the household is engaged, and is often viewed using a business-level measure of profitability, such as return on assets or equity. The third symptom, variability, is sometimes viewed through the incidence of adverse outcomes, such as personal bankruptcy or business dissolution. In all cases, the farm sector is compared with itself across time or with non-farm households or businesses.

Evidence suggests that the farm problem, as conventionally defined, no longer exists. For example, USDA reports that the average income for a farm household has been comparable to the average income for a nonfarm household since the early 1970's, save for the stretch of years between 1979 to 1985 (Gardner 1992; ERS 2001). Hopkins and Morehart (2000) also show that the rate of profit earned by the farm operations of households is comparable to the rate of profit earned by sole proprietorship businesses (such as stores and other service providers) operated by non-farm households. Direct assessments of the variability of incomes and returns to business assets is

more difficult, as data on individual households and businesses is not generally available over time. Nonetheless, Hopkins and Morehart (2000) note that the distribution of returns for a farm business is much more compact than the distribution of returns for nonfarm businesses, indicating that for a given year profits are more variable across firms in the nonfarm sector than the farm sector. Another indicator of risk, the probability of business dissolution, indicates that since 1985 the rate of involuntary and voluntary dissolutions was up to ten percentage points lower for farm businesses than nonfarm businesses, averaging two to six percent for farms over the period (U.S. Small Business Administration 2000; Goodwin 2000; American Bankers Association 2000).

We interpret the evidence on household incomes, business profits, and risk as indicators that the "farm problem" does not exist at the aggregate level. However, distributional analysis provides some additional perspective, demonstrating that the "farm problem" may still affect a portion of farm businesses and households. Recently, a new idea has been advanced that farm policy should increase its efforts to address those households below a threshold of well-being, such as below a poverty line, through a safety net mechanism (Harwood and Jagger 1999; Gunderson et al., 2000).

Figure 6 shows the effects of farm program benefits to be concentrated at the extremes of the distribution of household incomes. The level of income corresponding to the poorest households (including those with negative to approximately $17,000 in total earnings) increased by up to $30,000. However, this high improvement in the level of well-being dropped off quickly and settled near $10,000 over the middle percentiles of the distribution. From upwards of the 80th percentile of farm household income (with annual incomes starting at $80,000 even absent the direct government payment) payment levels increased in absolute amount.

Existing farm policy programs fail to meet the goal of providing an income safety net for the poorest farm households. Even with program benefits, low income farms remain below the poverty level, while the very richest farms receive similar program benefits as poor farms in terms of increases in incomes. Income safety net programs in non-farm sectors do a much better job of targeting program benefits to the poorest percentile of the distribution. Figure 7 shows the effect of social safety net-type benefits in place for society at large (payments such as now available as Temporary Assistance for Needy Families, or TANF). These payments, calculated for all non-farm households using the Survey of Consumer Finances (SCF) public microdata files for

1998, increased the outcome at the lower end by a smaller absolute amount than payments to farm households, but the effects were more targeted. Thus, alternative policy designs could provide improved results in terms of a safety net.

While targeting particular households is one way that a safety net might operate, others propose to activate a safety net using a broader indicator of overall sectoral well-being, such as the price of certain agricultural commodities. Presumably, such a safety net would be to the benefit of all producers regardless of income level or business profitability. Increasing the range of outcomes that the safety net addresses will, of course, add to its overall costs, if the goal is to remain the achievement of a minimum income level of the worst-off population.

Scenario # 2: Evaluating Farm programs as incentives for increased productivity

According to Tweeten (1989) most efficiency improvements in agriculture have resembled the scale-biased, labor-saving kind of technology, rather than the scale-neutral, output-increasing kind of technology. Indeed, the history of agricultural development in the U.S. confirms that Schumpeter's 1942 model of creative destruction holds. Under this theory, entrepreneurs introduce new products and processes, enjoy excess profits for a time, and then are displaced by subsequent innovators in a continuous process characterized by dramatic increases in technical efficiency. Adoption of efficiency-increasing technology involves the substitution of capital for labor and therefore requires the farmer to have sufficient liquidity to finance adoption. Liquidity may be provided either from the retained earnings of the farm business or from other liquidity sources of the household. These conditions are met primarily by farms and households that are least likely to exhibit symptoms of the farm problem, i.e. have either low household incomes or unprofitable businesses or experience high levels of variability in their stream of returns.

Therefore, the goal of promoting efficiency improvements is perhaps best met by targeting support to larger farms. Supporting farms that are not capable of generating a sufficient level of economic surplus to invest in further efficiency improvements would be pointless, if not counter-productive. Financial support given unsuccessful farms may be used to subsidize inefficient production practices, or, perhaps worse, to afford a level of consumption for

the household that it otherwise would not be able to attain. Supporting farms with high rates of return will have the greatest impact on efficiency, as more of the support will go towards investment, and relatively little to smoothing consumption.

As discussed earlier in the paper, program benefits in terms of both returns to asset (Figure 5) and household income (Figure 6) are concentrated in the extremes of the distribution. However, an alternative program of direct subsidy only to the most productive farms is unlikely to be pursued because it would be in violation of international trade commitments. The WTO requires that farm income support programs keep production decisions tied to market signals, and although it is not concerned with the rationale or justification for different programs, it is concerned with how programs affect trade. The potential for direct payments to distort the production decision, and by extension trade flows, rests largely on the wealth effects brought about by the payments (Young and Westcott 2000). Tielu and Roberts (1998) argue that payments can distort production because producers receiving payments are more attractive borrowers, and producers are likely to invest more with payments than without payments, leading to higher production in the long run. A guaranteed stream of payments may also elicit more risky behavior.

Because actions that use direct payments to improve efficiency violate the acceptable conduct rule as put forth by the WTO, we cannot compare the efficiency of farm policy with non-farm policy as we did with the safety net objective. Therefore current policy, which in general is reported by the U.S. to the WTO as exempted support (ERS 2001), may be the best way to support this goal. We recommend further efforts for attaining this goal be devoted to finding programs that encourage productivity-enhancing investments that respond to market signals. In order to avoid diluting the value of these programs, they should not be available to the lower end of the distribution of households or farm businesses.

Conclusions

In summary, there is something to please as well as discourage those who pursue either a safety net or food supply criterion. For safety net proponents, the boost to the lower end of the distribution is undeniably welcome, as the worst-off firms increased their returns by up to ten percentage points and the worst-off households increased their incomes by up to $30,000. However,

these effects leveled off very quickly, and the worst-performing firms did not become profitable, nor did the lowest-income households exceed any common poverty line as a result of the payments. For efficiency proponents, the disproportionately greater payments to the most successful firms and to the highest-income households likely also satisfies their objectives to an extent because funds go disproportionately to highly efficient and profitable farms.

The two most commonly stated goals of current farm programs work against each other. Payments going disproportionately to the successful firms put those supported by the safety net in peril, as the payment given to successful firms is pure surplus and likely invested either in land or other capital assets. A lack of targeting, therefore, may exacerbate the performance gap. Moreover, the outcomes of households at the lowest end of the distribution do not exceed any common poverty line, a goal that likely could be achieved at lower total program cost under targeted assistance.

Conversely, it is the payments going to the lower end at a disproportionate rate that constrain the productivity improvements of successful businesses and households. Payments going to unsuccessful firms and households bid up the cost of further innovations for the highly successful producers, and inhibit the flow of resources to their most productive use. Although current farm policy does allow incentives for agricultural productivity improvements, a fully directed subsidy is not an option due to the WTO.

Distributional analysis allows for policy performance to be measured along ethically pluralistic criteria. Because it can consider, rather than ignore, a part of the ethical baggage brought on by the efficiency criterion (chiefly the aggregation issue) it expands the economist's standard policy evaluation. Distributional analysis is also valuable because it monitors outcomes on the population not targeted by programs, highlighting the impact of unclear policy goals and the need for reforming delivery of program benefits.

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Figure 1. Cumulative Distribution of Returns on Assets, 1999

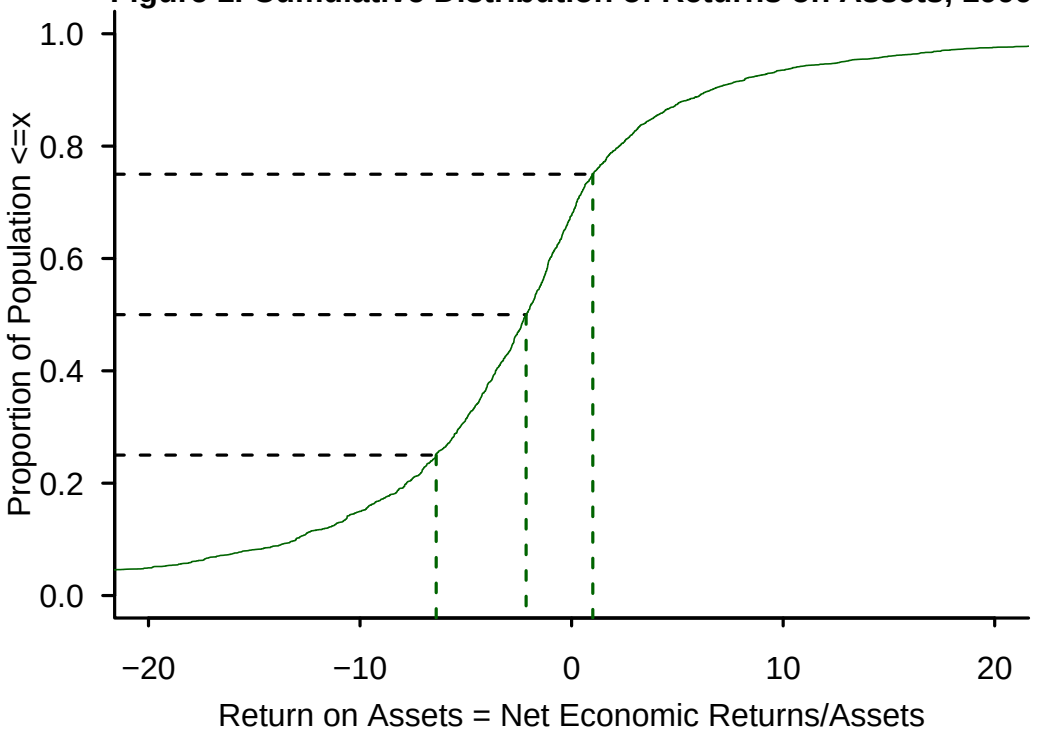

Figure 2. Cumulative Distribution of Total Household Income, 1999

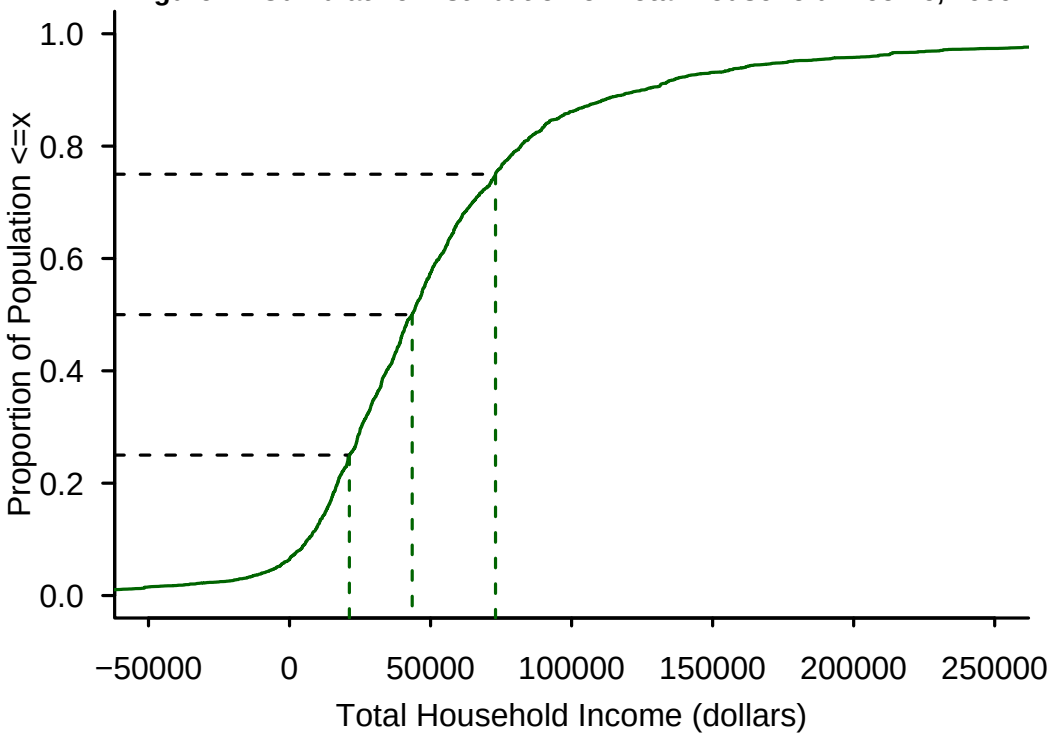

Figure 3. Returns on Assets without Government Payments, 1999

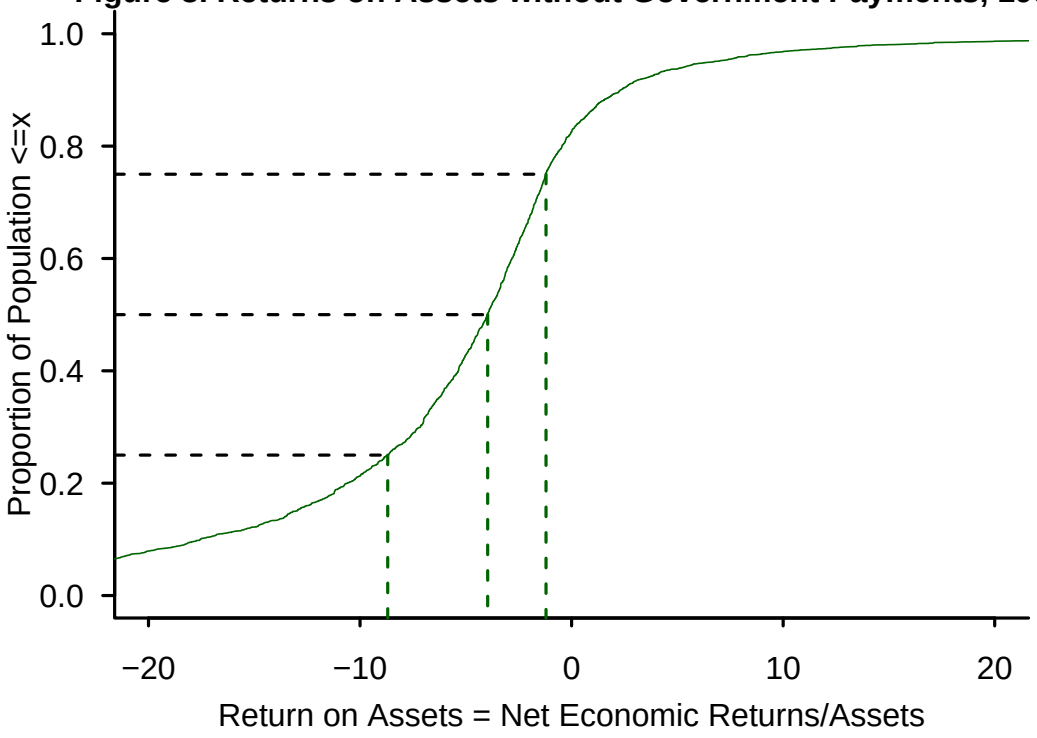

Figure 4. Total Household Income without Government Payments, 1999

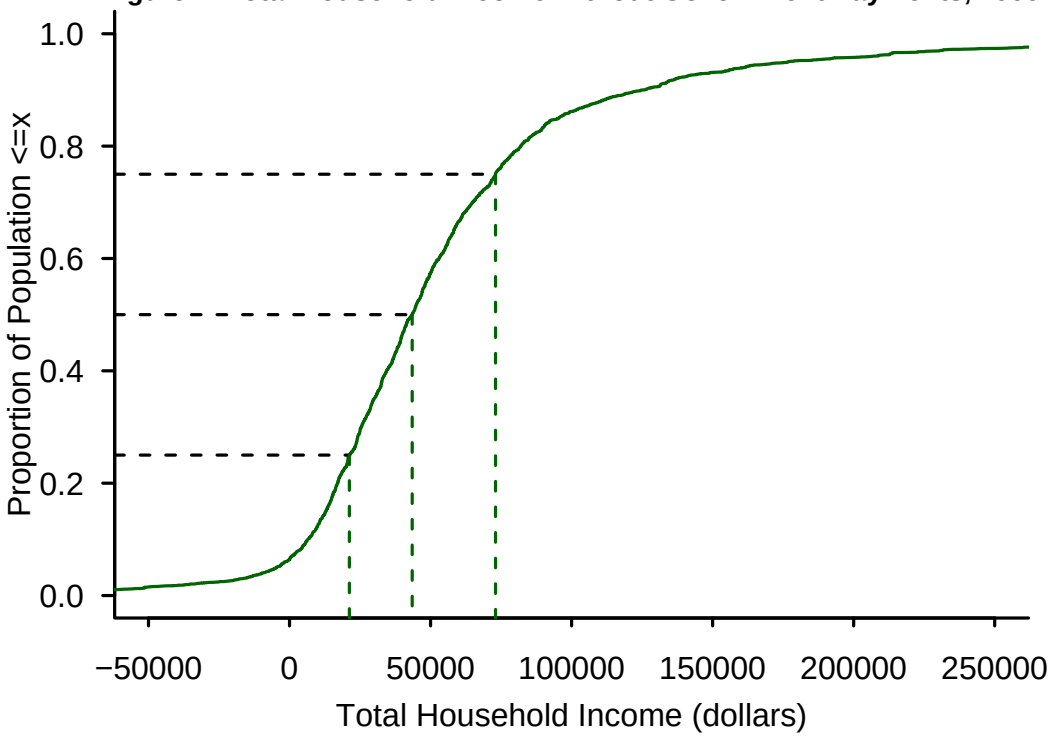

Figure 5. Increase in Return on Assets from Direct Payments, 1999

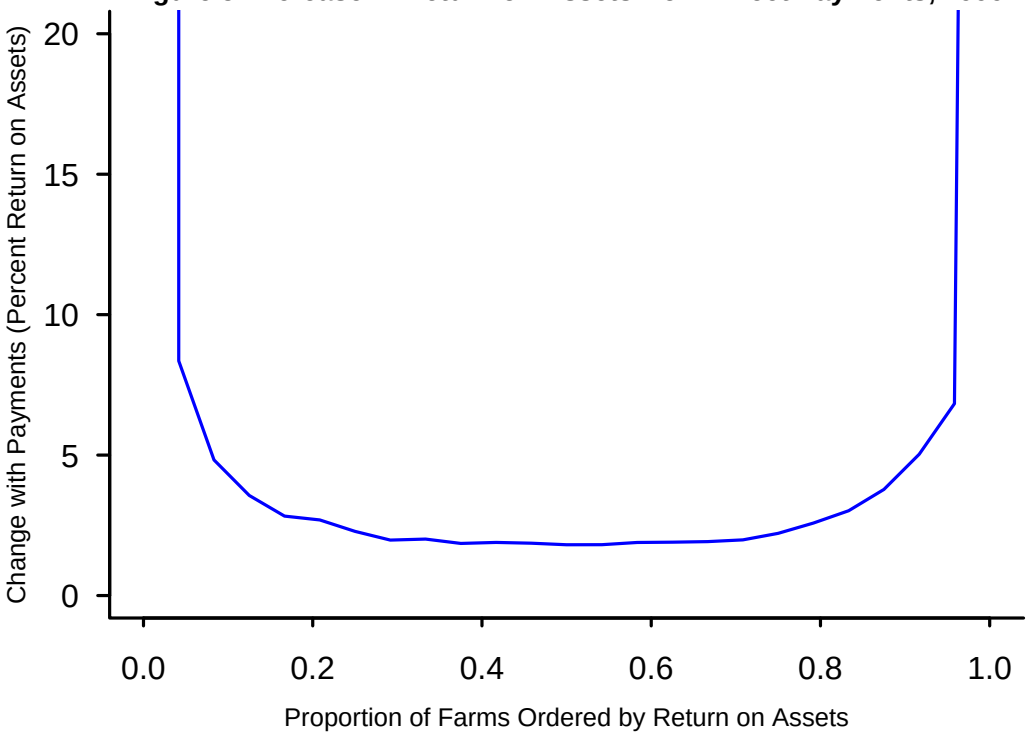

Figure 6. Increase in Household Incomes from Direct Payments, 1999

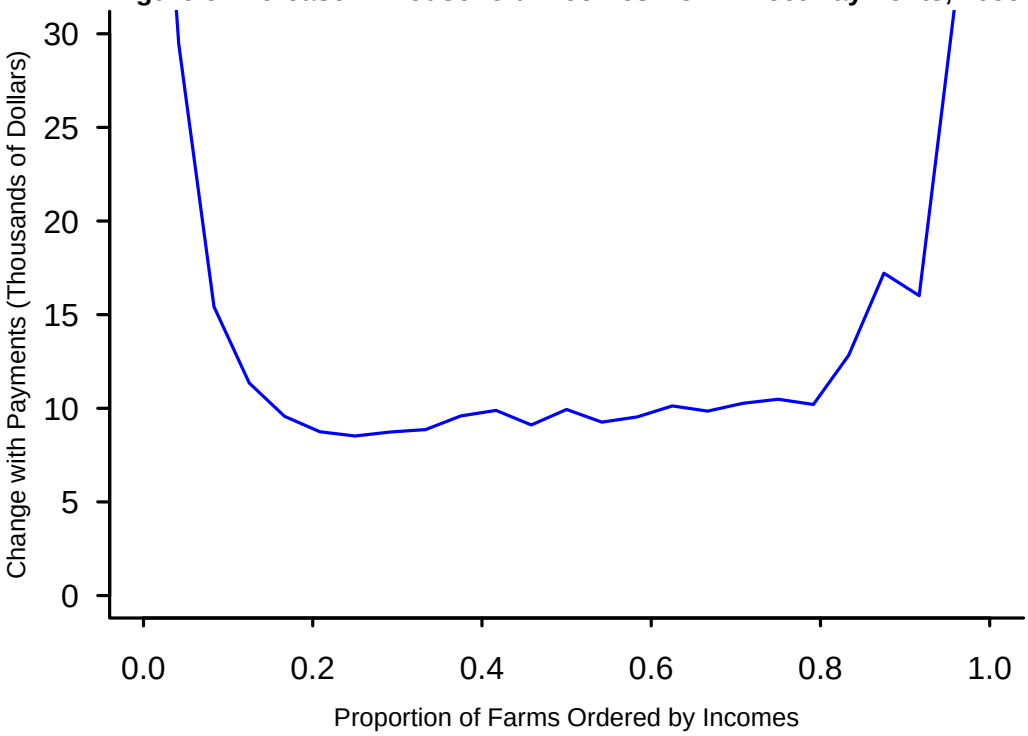
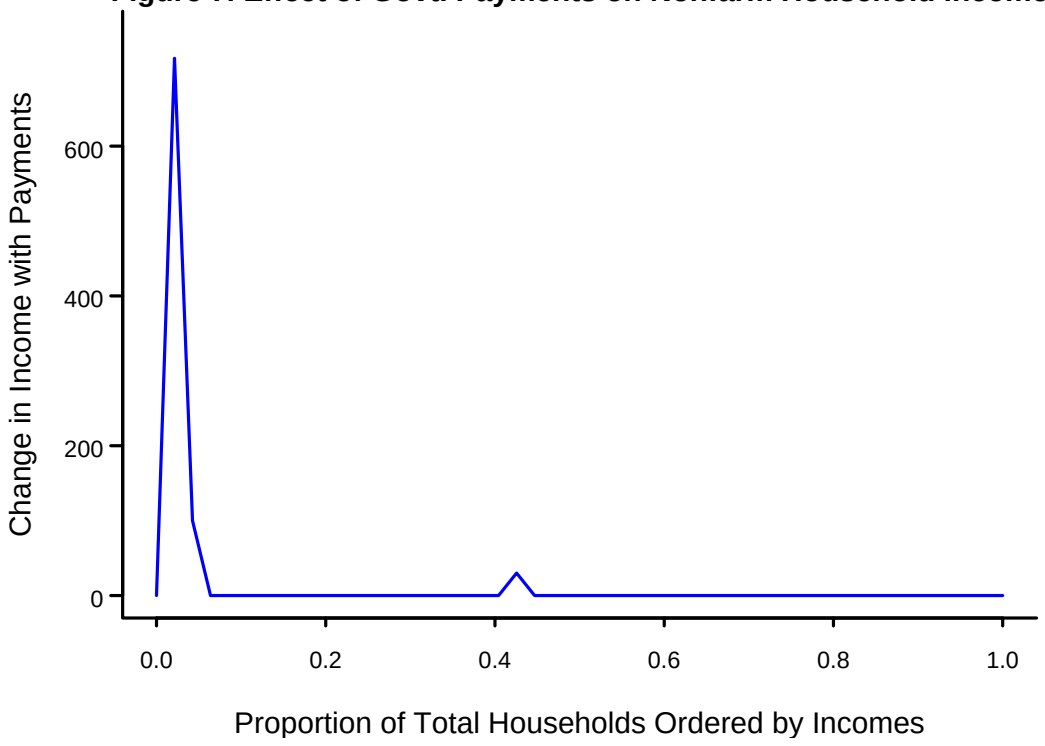
Figure 7. Effect of Govt. Payments on Nonfarm Household Income