Agricultural Policy
for the 21st Century

Edited by
Luther Tweeten and Stanley R. Thompson

Foreword by
D. Gale Johnson

Iowa State Press
A Blackwell Publishing Company
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Foreword

D. Gale Johnson

Perhaps a more appropriate title for this collection of essays might be “Why so few can get so much without really trying.” For a long time our farm programs were guided by the Puritan ethic—in order to get a payment you had to do something such as idle land or restrict production. The FAIR Act of 1996 rejected the Puritan ethic and indicated that the government would make payments to you as long as you could prove that you had control over land that had produced certain crops in the past—you were no longer required to produce anything. Will this be the agricultural policy of the twenty-first century? Bullock and Coggins argue that such may be the case. Since the subsidy payments have been capitalized into the value of the land, eliminating the subsidies will result in a sharp fall in land values. Thus, the subsidy programs may be more or less permanent.

I thought that the FAIR Act of 1996 would provide the transition from the government farm programs as we had known them for the previous six decades to something approaching reliance on the market for decisions concerning production and consumption of farm products. But these hopes were dashed by the decision that the Agricultural Act of 1949 was the permanent farm legislation that would come into effect if there was no new legislation at the expiration of the 1996 act. I must admit that in spite of my pessimism, I did not imagine that within a very short time the subsidies paid to agriculture would exceed anything seen before.

Luther Tweeten argues that there has been a new paradigm guiding agricultural policy while David Orden argues that the policy decisions have not really been in response to that paradigm. Orden recognizes that the labor market has been able to reach equilibrium but he makes an argument about the land market that I do not find convincing. He seems to argue that since land has not left agricultural production, except in response to government programs such as the Conservation Reserve Program, it does not fit with the new paradigm. What equilibrium theory tells us with respect to land is that changes in demand for land will be reflected in
its price and not in its supply because the elasticity of supply is so low, approaching zero. Barring governmental intervention there is no significant alternative use for agricultural land—in spite of all the talk, urban and related land use constitute a very small percentage of national land use. Thus, it is not the return to a unit of farm land that is equalized in the market, since there is no alternative use for the vast majority of the land, but the rate of return per dollar value of the land that would be equalized to the return on similar investments in the rest of the economy. The returns to labor and capital in agriculture are equalized with returns to comparable factors elsewhere in the economy through changes in their supply, but in the case of land the equalization occurs through changes in its price and not in its quantity.

But whether there has been a new paradigm or not, the very substantial increases in both the absolute and relative returns to farm resources, especially labor, over the past half century, have been due to the functioning of markets and not to the operation of governmental price policies. Agricultural policy formulation has never recognized the extent to which agriculture had to adjust to economic growth, neither in this country nor in any other. It has not been much more than a century ago that half of the labor in the U.S. economy was engaged in farming; today it is about 2 percent.

Over most of that century the return to labor engaged in farming was less than in nonagriculture. Why? Because the slow growth of demand for farm output due to its low income elasticity of demand and the rapid growth of labor productivity in agriculture continuously reduced the demand for farm labor at a given wage. There had to be a continuous transfer of workers from agriculture to nonagriculture and a significant earnings difference was required to induce as much as 3 or 4 percent of the farm workforce to transfer out of farming year after year. It was not until the end of the 1970s that the annual labor transfer became very small and the incomes of farm and nonfarm people were approximately equalized. Our government had no significant role in assisting farm people to make the transfer to nonfarm jobs, but on this score it has been no different than governments throughout the world. Farmers everywhere have suffered because governments have been unwilling to recognize that farming must decline as economic growth occurs—nothing has been or is done to assist farm people to adjust.

The essays in this volume represent significant contributions to our understanding of recent developments in farm policy. While you may not agree with everything that has been written here, I am confident that you will find much from which you can learn and some things that will challenge your firmly held beliefs.
Preface

The chapters in this book were originally presented at a symposium, "Challenging the Agricultural Economics Paradigm," held at Ohio State University in September 2000. The symposium honored the career of Luther Tweeten, Anderson Professor of Agricultural Marketing, Policy, and Trade at Ohio State University for thirteen years. Before that, he was on the faculty of agricultural economics at Oklahoma State University for twenty-six years. Some papers were invited and others were selected by a review committee from competitive submissions.

Authors were encouraged to address two issues raised by Tweeten in his four decades as a professional agricultural economist: Do agricultural markets work and what is the appropriate role for government in these markets? Authors, many of the leading lights in agricultural economics, would not have consented to and were not asked to adhere to a thesis—they were asked to be as critical or supportive as their own individual special insights led them. Thus, topics range from farm policy, resource economics, international trade, and welfare economics to food security—topics Tweeten frequently addressed in his career. The insights and in-depth analysis offered by the authors are intended for all students of farm policy, including professors, classroom students, informed laypersons, and others grappling with the important economic issues of contemporary agriculture.

Although no central thesis pervades this book, the chapters cannot be read without awareness that U.S. farm commodity programs have lost their way. They cannot be defended on economic equity grounds—income per farm household set successively higher all-time records in each of the five years from 1996 through 2000 and is well above income per nonfarm household. Wealth per farm household averages about double that of nonfarm households. Income and wealth of commercial farmers and landlords—the ultimate beneficiaries of commodity programs—are even more favorable.

Commodity programs also fail economic efficiency tests. By distorting savings
and investment decisions of taxpayers and encouraging excessive resource use
and commodity production by farmers, commodity programs reduce not only farm
crop and livestock receipts but also national income. This book makes the case
that commodity programs do not effectively address very real problems of family
farm loss, risk, and environmental degradation.

What accounts for the disarray in current public policy and difficulties in
formulating agricultural policy for the twenty-first century? Authors of this book
blame a partisan political bidding war, strategic alliances, and, most important, a
disengaged public. A better-informed public will be essential in pressuring members
of Congress to address effectively serious problems at far less cost to taxpayers
than incurred in the 1990s. These essays are intended to boost that effort.

We are deeply grateful to the many individuals, firms, and organizations that
made this book possible. We thank Wen Chern and Carl Zulauf for their service on
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the Department of Agricultural, Environmental, and Development Economics at
Ohio State University. Alan Randall, chair of the department, was especially
supportive. Views presented in the chapters of this book are solely the responsibility
of the authors, however.
Farm Commodity Programs: Essential Safety Net or Corporate Welfare?

Luther Tweeten

Contemporary commodity programs poorly serve publicly stated objectives for agricultural policy. These programs have become an exercise in politics rather than in economics. In a bidding war using taxpayers' money to win votes, Congress has ignored the new agricultural paradigm that farm commodity markets are efficient, that farm households have higher income and wealth than nonfarm households, and that farm people and natural resources are more appropriate targets than commodities for public policy. This chapter contends that the most effective anecdote for government failure lies not in political science but in economic education—a better informed public pressuring Congress for policy reform that recognizes the new agricultural policy paradigm.

INTRODUCTION

From 1933 to 2000, taxpayers spent $561 billion (year 2000 dollars) to support farm prices and incomes (Luttrell 1983, 17; Spitze 1996; U.S. Department of Agriculture March 2001, and earlier editions). Spending since 1950 alone totaled $451 billion or nearly $9 billion per year. Whether federal funds for farm price and income support have been well spent depends on the public objectives for those funds and whether these objectives were served. Farm numbers dropped from 6.5 million in 1933 to 2.0 million in year 2000 or by 69 percent (U.S. Department of Agriculture July 1960 40; February 2000, 39), but preserving farms is only one objective of commodity programs.

In the best tradition of public policy economics, it is customary for an economist to list positivistic options (means) to meet the needs of people. The media make clear that society wants policies that improve well-being of people through greater economic efficiency (more real income), economic equity (if transfers are made
they best go from the wealthy to the poor), and freedom to make decisions. Somewhat more objective sociopsychological scales of well-being constructed by social scientists also indicate that these objectives contribute to well-being of society (Blue and Tweeten 1997). So the first objective of this chapter is to explore whether farm commodity programs contribute to well-being of people by serving economic equity, efficiency, and freedom. The second objective is to examine whether commodity programs cost-effectively alleviate economic instability, environment degradation, cash-flow squeeze, family farm loss, and other farm problems.

The conclusion of this chapter is that commodity programs, whatever virtue they once may have had, no longer serve their intended economic objectives. Contemporary commodity programs appear to be much about politics and little about economics. How are the relatively few farmers who receive most of the benefit from farm programs (0.2 percent of the nation's population in 1999) able to extract billion of dollars annually from taxpayers and voters? Are commodity programs merely corporate welfare or are they entitlements essential to preserve the nation's heritage and family farmers for survival and maintaining income parity with nonfarmers? This chapter addresses these and other policy issues.

THE NEW AGRICULTURAL PARADIGM

American agriculture is operating under a new economic and policy paradigm (Tweeten 1989; Tweeten and Zulauf 1997). By paradigm, I refer to the presumptions, problem-puzzles, and problem-solving prescriptions of mainstream agricultural policy. The paradigm shift is certainly not a Kuhnian revolution in economic theory. (See chapter 3 by David Orden for further discussion of this issue and a somewhat dissenting assessment of my interpretation of paradigms in farm policy.) To be sure, economic theory has been in flux since Adam Smith's Wealth of Nations published in 1776, but the economic theory of Smith was not fundamentally different from the neoclassical economic theory of today. That neoclassical economic paradigm is the normative proposition that well-being of society is increased by pursuing policies providing social benefits in excess of social costs and the positive (predictive) proposition that individuals and firms will act to raise their well-being by pursuing actions providing them perceived benefits in excess of costs (for a more nuanced treatment, see chapter 15 by Alan Randall).

The new paradigm emphasizes that agricultural commodity markets work. To be sure, the government needs to play a role in provision of public goods (e.g., grades, standards, basic research, information systems, infrastructure, competition) so the market can function well. But compelling historical experience demonstrates that when these public goods are provided, the market rarely can be improved upon for economically efficient provision of food and fiber and for economic growth, international competitiveness, and food security. Farmers respond to prices set by supply and demand to clear markets, using all publicly available information.
Farms like other firms are always in very short-run equilibrium but never fully achieve long-term equilibrium because markets are dynamic. However, equilibrium is close enough so that able commercial farmers with or without subsidies on average earn returns comparable to what their capital and labor resources would earn if employed in other sectors of the economy.

This new paradigm contrasts with the traditional wisdom that held that government must perennially intervene in agricultural commodity markets to avoid surplus production and to raise prices, resource returns, and incomes that inevitably would be low without interventions. (For a superb review of historic development of the old paradigm, see Bonnen and Schweikhardt [1998].) The old paradigm held that, because farm markets do not work, chronic income transfers from taxpayers and consumers (the latter from commodity prices inflated by supply controls) are essential for farm resources to earn a "parity" return. The old paradigm contended that farmers could not adjust rapidly enough to avoid surplus output and chronic low returns as agribusinesses released a continuing torrent of new laborsaving, output-increasing technologies. The old paradigm held that farmers could not survive in a farming economy at the mercy of shocks from nature and man—the latter from misguided macroeconomic policy, use of food as a weapon, and the like. The new paradigm recognizes that market failure is much more frequent with natural resources than with commodities and that government failure in providing public goods is more common than price-system failure in supplying market goods.

The old paradigm dominated agricultural economists' thinking for decades. The presumption that the farming economy was in chronic disequilibrium and unable to earn returns comparable to resource returns in other sectors was supported by an elaborate conceptual superstructure. Most notable was Willard Cochrane's (1965) treadmill theory that technology continually increases food and fiber supply relative to demand, forcing commodity prices and revenues down, the latter because of inelastic product demand. Glenn Johnson's (see Johnson and Quance 1972) fixed asset theory held that the process of moving low-paid labor and other redundant resources out of farming in response to lower revenue was thwarted because resources were fixed to farming—tractors and combines had no use, no salvage value, and hence no mobility outside agriculture even if returns on them in agriculture were low.

These theories are indeed useful to explain annual and cyclical instability of farm prices, resource returns, and income, but do not explain chronic low returns for one simple reason: data unequivocally establish that able operators of commercial farms earn as favorable returns as their resources would earn elsewhere when averaged over almost any five-year period since the 1930s. I have explained in detail elsewhere the shortcomings of the treadmill and fixed asset theories (Tweeten 1970, 1989).

The "new" agricultural paradigm may be said to be old in that a few perceptive
agricultural economists such as Don Paarlberg in the 1960s noted the tendency for markets to properly reward resources on commercial farms. The term “new” refers to accumulation of enough years of data to definitively validate the paradigm.

Many, perhaps most, agricultural economists now subscribe to the new paradigm. Some agricultural economists remain agnostic, contending that presence of interventions in the past does not provide a real test that (free) markets work. But we have had abundant tests: only about two-fifths of farmers receive payments from government and only about half of all farm commodity output is covered by government commodity programs. Markets for these nonprogram commodities are characterized by considerable instability, but competent commercial operators earn favorable returns over time if they do not pay excessive prices for land as in the asset-inflation “bubble” of 1975-1985. Not surprisingly, individual farmers and farm organizations benefiting from commodity programs tend to reject the new policy paradigm.

The general public seems to be unaware of the new paradigm. Orden et al. (1999) state, “We found that agrarian mythology [the old paradigm?] played little or no role in the 1996 FAIR Act outcome” (p. 227). That may be what they observed but the power of agrarian mythology is truly manifested in its enabling of costly transfers to agriculture without raising a high profile. The 0.2 percent of America’s population (commercial farmers) who receive most of the benefits of commodity programs is in no position to dictate farm policy to the remaining 99.8 percent of the population. The public must be submissive. The myths of farm fundamentalism and the old paradigm immobilize the nonfarm public so that commercial farm interests can prevail in farm policy. Thus farm policy reform requires a more informed public operating in the political arena.

The propensity for equilibrium emphasized in the new paradigm means that farm income is now set by income of nonfarmers. The farming economy, a vital but small part of the nation’s economy, is much influenced by but does not much influence the nonfarm economy. It follows that the farming industry and the nation have a stake in sound public policies that raise national income, and not in commodity programs that lower national income. But before returning to the role of the public in the farm economy and politics, I review current farm policy in light of policy objectives and farm problems.

ECONOMIC EFFICIENCY
Economic efficiency is apparent when resources are allocated to their highest and best use. Such allocation is apparent in rates of return on resources—markets will move resources from low return uses to higher return uses. This movement draws down high returns and lifts low returns until returns to a resource are equal among uses—adjusted for risk and pleasure of working in an occupation. Thus economic efficiency is evident if resources on commercial farms with competent managers
earn rates of returns on average (not necessarily each year) comparable to what those resources would earn in nonfarm uses. (Of course, part-time and poorly managed resources receive less reward.)

Economic efficiency means that over time the public is getting the most out of resources used to meet its food and fiber needs. Too many resources in agriculture would mean that society is being denied resources for education, health care, recreation, or other favored purposes. Too few resources in agriculture could cause food shortage. Several means are available to judge economic efficiency. One is to apply principles from welfare economics:

1. **Market goods** are rival, excludable, and transparent (see box 1.1). A huge body of historic evidence indicates that markets almost never fail to provide efficient allocations of such market goods—helped of course by basic research, infrastructure, information, antitrust, and sound macroeconomic policies provided by the public sector. **Public goods** are characterized by externalities and are candidates for government interventions to correct these externalities. Externalities mean that private returns (costs) differ from social returns (costs) so that private firms do not act in the public interest. Consequently, presence of externalities is the first welfare economics condition for a public good justifying government intervention.

2. The second condition for government involvement is that interventions to correct market failure must cost less than the market failures being corrected. An example is crop yield risk in agriculture. Asymmetry of information (farmers know more than insurers), adverse selection (only high-risk farmers tend to sign up for insurance), moral hazard (insured farmers can plant a high-risk rather than a low-risk crop knowing they will be covered if the high-risk crop fails), and unequal discount rates (the public can borrow at a lower interest rate than can private firms to support insurance, storage, etc.) all point to a possible role for the public to cushion farmers against instability. On the other hand, the record of public mismanagement of crop insurance is legendary. For that reason the social cost (waste, etc.) of publicly supplied insurance, storage, and forward pricing is quite likely greater than the social cost to the public of relying on private tools of risk management.

The “bottom line,” however, is that farm commodities are market goods that
are allocated most efficiently by prices set through market supply and demand. Thus, efficiency is served by public intervention in some natural resource markets but not in commodity markets.

Box 1.1

Markets work well where goods are rival, excludable, and transparent. The latter terms cannot be separated from externalities: where goods are nonexcludable, freeloaders cannot be kept away, thus marginal private returns to firms fall short of marginal social returns to the public at large. Consequently, the private sector producers too little to maximize social benefits.

Where goods are nonrival so that consumption by one consumer does not reduce consumption available to another, marginal cost of good A to a consumer is zero because no goods and services are forgone to expand output of A. Hence, a private firm that sets a positive price to cover overhead costs will charge private marginal costs in excess of social marginal costs. The result is too little output to maximize net benefits for society.

Lack of market transparency including lack of knowledge also constrains market choices and the role of public policy. For example, many farmers do not know and probably underestimate their soil erosion or water pollution rate. Hence, they are likely to underestimate payoffs from conservation and underinvest in “best management practices” for sustainable agriculture. The public sector supplying information can help producers to make better decisions.

Competition also contributes to well-functioning markets. Experience indicates that only a few firms are necessary to provide a competitive and efficient market as noted in chapter 7 by Persaud and Tweeten. The important conclusion, however, is that farm commodities are rival, excludable, and transparent, and that markets are competitive. Such markets have been found to operate efficiently the world over as well as in American agriculture.

This conclusion contrasts sharply with the situation for natural resource markets. Environmental issues of soil conservation and of air, water, and food quality or safety are closely tied to externalities driving a wedge between private and social costs so that the public interest is not served. Where externalities abound and markets are scarce, public intervention may be essential to avoid excessive soil, water, and air degradation (see Tweeten and Amponsah 1998).
**Rate of Return on Farm Resources**

I have elsewhere summarized a large number of farm management and farming industry studies indicating favorable rates of return on resources of competent commercial farm operators (Tweeten 1989, ch. 4). At least since 1970, rates of return on resources have averaged 3-4 percent over all farm assets but 15-20 percent on large farms (Tweeten 1989, 118-23). Compilations from data used by Hopkins and Morehart in chapter 4 of this volume indicate that three-fifths of farm households had negative rates of return on assets in the late 1990s, but three-fifths of farm output had positive rates of return. Returns are somewhat comparable among types of farms of similar size, although returns vary by year and among farms of a given type.

**Lost National Income**

Rates of return on assets in a well-functioning market will be equal with or without market interventions because benefits to farmers from market distortions are bid into rents and land prices until returns are equalized among resources. This subsection measures economic inefficiency by the loss in national income (deadweight loss or cost) caused by commodity program market distortions. Before turning to that topic, however, I briefly review why aggregate farm commodity price or terms of trade (parity ratio defined as the ratio of the index of price received by farmers for crops and livestock to the index of prices paid by farmers for inputs) is a poor measure of market efficiency and fairness.

Farm commodity terms of trade or parity in 1999 was only 40 percent of the 1910-14 average (U.S. Department of Agriculture March 2001, 27). This number has been interpreted by some to mean that farmers are only receiving 40 percent of a “fair” price. In fact, as explained below, real farm prices have risen!

Technology is not the villain it is often portrayed to be. It has raised real economic terms of trade for farmers and nonfarmers alike—including for farmers who left their operations in midcareer (see Perry et al. 1991; Bentley et al. 1989). Aggregate farm output and aggregate production input are measured over time by weighting physical quantities by constant dollar prices. These constant-dollar values are added over all inputs to measure aggregate production input and are added over all crops and livestock to measure aggregate farm output. The multifactor productivity index (ratio of aggregate output of crops and livestock to aggregate farm production input) in 1999 was 3.94 times the 1910-14 level. Thus, the factor terms of trade index, defined as the real price (purchasing power) of farm output per unit of farm production input, was 158 percent (40 x 3.94) of the 1910-14 level. In other words, real buying power (factor terms of trade) of the average production input was 58 percent greater in 1999 than in the 1910-14 base period!
Alternatively, a productivity index of 3.94 in 1999 meant that farmers were "growing 4 blades of grass where one grew" in 1910-14 with the same input volume. Hence, farmers needed only 25 percent as high a real price in 1999 to achieve the same real income per unit of production input as in 1910-14. In fact, however, real farm commodity price in 1999 was 40 percent of that in 1910-14, hence real price received per factor input in 1999 was 40/25 or 158 percent of that in 1910-14 after the parity ratio is adjusted for productivity growth. It follows that, comparing 1999 with 1910-14, the real parity ratio (factor terms of trade) was up by 58 percent rather than down 60 percent as implied by the conventional parity ratio (commodity terms of trade) of 40 percent.

Technology not only allowed real farm prices to improve but also helped real farm income to improve. Real personal income per capita of the U.S. population increased to 3.5 times its 1930 level by 1999, an average annual gain of 1.8 percent per year (Council of Economic Advisors 2000, 335, and earlier issues). Meanwhile, per capita income of farmers increased from 40 percent that of the average American to 117 percent of the average American (U.S. Department of Agriculture 1960, 38; March 2001, 46). It follows that real income per person on farms was approximately ten times (3.5 x 117/40) higher in 1999 than in 1930.

In an earlier study (Tweeten 1994, 7), I apportioned the 3.4 percent annual growth rate in real per capita income of farm residents to five principal sources for the 1930-1990 period as noted in table 1.1.


Table 1.1. Proportion of Farm Household Income Growth by Source, 1930–1990

<table>
<thead>
<tr>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parity price ratio (commodity terms of trade)</td>
</tr>
<tr>
<td>Multifactor productivity growth</td>
</tr>
<tr>
<td>Farm size growth</td>
</tr>
<tr>
<td>Government payments growth</td>
</tr>
<tr>
<td>Off-farm income growth</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Technology played a role in several of these sources of income growth. Partly because of productivity gains in excess of the increase in demand for farm output, a falling parity ratio would have reduced farm household income from 1930 to 1990, ceteris paribus. Multifactor productivity gains more than compensated. Other things equal, multifactor terms of trade accounted for approximately 14 percent (19 percent gain from productivity less a 5 percent loss from falling parity price ratio) of the increase in farm income per capita from 1930 to 1990. Government payments and farm commodity programs in general contributed little to growth in productivity and income of farm people (Makki et al. 1999).
Technology was central to the two major sources of farm income growth—farm size and off-farm income. Mechanization technology accounted for much of the 28 percent increase in farm income attributed to greater farm size. Mechanization along with improved roads and vehicles also facilitated off-farm employment and earnings, which accounted for 56 percent of the income gain of farmers per capita.

Market distortions caused by commodity programs reduce national income in several ways. Federal income taxes used to support government programs lose on average at least $16 of real national income (deadweight loss) per $100 collected (Ballard et al. 1985, 13). Thus, government payments to farmers averaging $18.6 billion per year from 1998 to 2000 lost $3.0 billion of national income annually because the public made different savings, investment, and labor use decisions than they would have in the absence of taxes that finance farm programs.

Commodity programs reduced national income by distorting use of farmers’ as well as taxpayers’ resources. Prior to the 1996 farm bill, commodity programs emphasized idling cropland, causing output to fall short of output of a well-functioning economy by an average of 5-6 percent in the 1960s and 1980s—periods of considerable excess capacity (Tweeten 1989). Annual loss in national income averaged $4-6 billion (about 4 percent of farm receipts according to estimates by Tweeten (1989, 351) and the Council of Economic Advisors (1987, 159).)

In contrast to earlier farm bills, the 1996 farm bill induced too much rather than too little commodity production for economic efficiency. Estimates of excessive farm production induced by direct payments, marketing loans, and insurance subsidies are shown in table 1.2. Only grain, oilseed, and cotton supports are considered.

Direct Government Payments
Production flexibility contract payments and disaster loss payments presumably don’t affect producers’ current and future production decisions. Payments are said to be decoupled from future production. However, some portion even of payments not specifically tied to current or future production decisions find their way into production inputs. One reason is because farmers are short of capital. Payments lessen that restraint by providing security for production loans or by directly purchasing production inputs. Direct payments have raised farm output over competitive market levels by 0.15 percent (Westcott and Young 2000) to 0.25 percent (interpreted from Burfisher, Robinson, and Thierfelder 2000) as noted in table 1.2.
Table 1.2. Annual Production of Farm Output above Competitive Market Levels Induced by the 1996 Farm Bill and Crop Insurance Programs, United States, 1998–2000

<table>
<thead>
<tr>
<th>Program feature</th>
<th>Contribution to farm output (%)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Direct payments</td>
<td>0.15</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Marketing loans and loan deficiency payments</td>
<td>0.68</td>
<td>1.38</td>
</tr>
<tr>
<td></td>
<td>1.38</td>
<td></td>
</tr>
<tr>
<td>Insurance subsidies</td>
<td>0.28</td>
<td>4.10</td>
</tr>
<tr>
<td></td>
<td>4.10</td>
<td></td>
</tr>
<tr>
<td>Total, all sources</td>
<td>1.11</td>
<td>5.73</td>
</tr>
<tr>
<td></td>
<td>5.73</td>
<td></td>
</tr>
<tr>
<td>Loss in farm receipts ($billion)</td>
<td>4.93 25.46</td>
<td>Percentage for total additional output multiplied by gross receipts elasticity 1+1/E times 1998–2000 farm receipts averaging $193.2 billion. E is aggregate adjustment elasticity defined as the sum of demand and supply elasticities (see later text).</td>
</tr>
</tbody>
</table>

Sources: Westcott and Young (2000), Burfisher et al. (2000), Skees (2000).
Marketing Loans and Loan Deficiency Payments

Even loan support prices set below the average market price distort production because the anticipated or expected (mean) commodity price (on which producers make production decisions) is raised when the lower part of the price distribution is removed. Loan rates for crops under the 1996 farm bill are well above operating costs of production, hence supports induce farmers to produce because operating costs are sure to be covered. In some cases, as in soybeans, loan rates are above total unit cost (including land and overhead expenses) of production on efficient commercial farms. Hence loan supports distort production and trade compared to production and trade in well-functioning competitive markets.

Westcott and Young (2000, 12) estimate that marketing loan and loan deficiency payments have added four to five million crop acres. The high estimate in table 1.2 assumes that acres added are as productive as average cropland and that all crop and livestock production depends ultimately on crop production, hence production is increased by 4.5 million acres on 325 million acres of cropland or by (4.5/325) or 1.38 percent. The lower estimate of 0.68 percent added output adjusts for possible lower productivity of added acres and for resources beyond crops required to produce livestock. This lower estimate recognizes that livestock can be produced from grass and imported feeds as well as from domestic crops.

In the 1990s, the government shifted from nonrecourse loan rate supports (which tended to hold market prices at the loan support rate) to marketing loans that provided payments to farmers on the shortfall of market prices below the loan support rate. The former nonrecourse loan program was faulted for holding prices at high levels that provided an umbrella under which our export competitors produced to take over our world markets. In contrast, the marketing loan program has been faulted for dumping our commodities in world markets at subsidized prices below production costs. Either type of loan support distorts markets by generating excess production. An alternative would be a recourse loan that farmers could obtain from government for the loan rate value of a commodity at harvest but would have to be repaid at full loan value plus interest before the next harvest. A recourse loan would enable operators to avoid selling on an oversold harvest market and relieve cash-flow pressures while not distorting market incentives.

Insurance Subsidies

In year 2000, crop and revenue insurance subsidies totaled approximately $2.5 billion and accounted for 60 percent of crop revenue insurance cost, encouraging output. The nation gets more of what it pays for with insurance subsidies—risk. Crop risk is especially great in the Plains states, thus it is no surprise that Jerry Skees (2000) finds the contribution of insurance subsidies to crop acreage harvested is especially large in the Great Plains states such as Texas and North Dakota. (See Shiva Makki’s detailed analysis in chapter 6.) Crop and revenue insurance loss
ratios (program costs for indemnity payments and administration relative to premiums) averaged 1.88 for the United States from 1981 to 1999 and averaged over 2.0 in several states including Arkansas (2.97), Texas (2.72), Georgia (2.68), North Carolina (2.40), and North Dakota (2.16).

Crop and revenue insurance causes more land to be in crops and causes land to be cropped more intensively. For example, risky corn may be planted in place of less risky grain sorghum in the semiarid plains because a high corn yield will earn more than grain sorghum and a low corn yield will "earn" an insurance payment. Insurance subsidies hold land in crops that otherwise would be unprofitable to farm and would revert to grassland or forest. The land not only is marginal for farming but also may be environmentally fragile, prone to wind and water erosion. Westcott and Young (2000, 12) estimated that crop and revenue insurance premium subsidies have added approximately 900,000 acres to aggregate plantings of eight major crops. This translates into a 0.28 percent increase in farm output (table 1.2).

Jerry Skees (2000) estimated that crop and revenue insurance subsidies have added 25 million to 30 million acres of crops in the United States—an area nearly as large as that enrolled in the Conservation Reserve Program (CRP) and about one-tenth of total cropland harvested in the nation. The high estimate in table 1.2 assumes that twenty-five million crop acres are added by insurance subsidies and that they are only as productive as CRP acres—about half the productivity of an average acre cropped (see Tweeten 1989, 350). Thus, insurance subsidies add as much as 4.1 percent to farm output.

Total Impact
Excessive output and resources committed to farming cost the nation $0.93 billion in lost income based on the average, 3.4 percent, between the low (1.11 percent) and high (5.73 percent) estimate of excessive production in table 1.2. The national income (deadweight) loss is $2.64 billion with the high estimate. This average for 1998-2000 is not much less in real terms than the cost of commodity program distortions in the 1960s and 1980s. Adding previously uncounted annual loss from tax distortion ($3.0 billion) and of administrative and lobbying resources (about $2 billion that could have been better used elsewhere), the total loss in national income is $5.93 billion based on 3.4 percent excess output in grains, oilseeds, and cotton only. Income loss of $600 million from peanut, tobacco, sugar, and dairy programs (Tweeten et al. 1997) brings the total to $6.53 billion, or 3 percent of farm receipts (see Council of Economic Advisors 1987, 159 for cost in 1985). The above estimates and alternative calculations by Bruce Gardner in chapter 2 indicate that losses in national income from farm programs could be greater from distortions in the way taxpayers use their income than from distortions in the way farmers use their resources.
Several other observations follow from estimates in table 1.2:

- Based on adjustment elasticities shown in Table 1.2, additions to output reduced farm receipts from $4.93 billion to $25.46 billion in the short run of one to two years, and by $1.42 billion to $7.38 billion in an intermediate run of three to four years. The impact on farm receipts is zero in the long run because farm aggregate demand is near unitary elasticity.

- Termination of grain, soybean, and cotton commodity programs might not reduce aggregate farm income. Less production attending termination of programs could raise farm commodity prices and gross farm receipts to compensate for the loss of government payments, which totaled $23.3 billion in year 2000. This number is less than the "high" estimate of $25.5 billion added to farm receipts in the short run from termination of 1996 farm bill production incentives.

- A notable conclusion from Table 1.2 is that most of the excess output under the 1996 farm bill comes from excessive loan rates and (especially) from insurance subsidies. These production incentives lower farm prices and receipts while raising costs, creating pressure to return to supply management programs (Schnittker 2001, 93-98). Because sizable direct payments induce relatively little excess output, it follows that direct payments could be set as deemed necessary to maintain desired farm income after terminating loan rates (or setting them to cover only variable production costs or to provide the basis for recourse loans) and insurance subsidies that distort farm resource allocation. Thus liberalization of domestic and export markets potentially could make no group worse off but make the public better off while being supportive of the World Trade Organization "green box" rules for nondistorted trade. An extended period of direct payments to farmers, however, would lose substantial national income.

Because U.S. agricultural import tariffs average only one-fourth the 45 percent average for other industrialized countries, the United States stands to gain $20 billion of farm receipts annually from the 12 percent gain in world agricultural prices expected with world trade and commodity program liberalization (see Burfisher et al., 5, 10). Domestic farm program and trade liberalization could add $5-7 billion annually to U.S. national income and $31 billion annually to global income in the short run. Gains would be double that each year in the long run as dynamic gains from additional savings, investments, and productivity work their way through the system (see Burfisher et al. 2000, 5).
The 1996-type direct payment program makes freer world trade less onerous to U.S. farmers. One reason is because pre-1996 supply management programs caused farm output to be too low while post-1996 programs caused output to be too high relative to a well-functioning market. It follows that with an inelastic short- and intermediate-run output demand, liberalization with a pre-1996 program would lower farm receipts and with a post-1996-type program would raise farm receipts. While price support and insurance reform along with trade liberalization would add receipts to compensate for an end to direct payments, thereby benefiting American farmers and the nation, continuation of some decoupled payments could help farmers through the transition.

**ECONOMIC EQUITY**

Economists have avoided economic equity issues about as assiduously as other social scientists have avoided economic efficiency issues. Perhaps the most controversial issue of my professional career (at least as measured by attacks from economists whom I respect) is my effort to analyze as objectively as possible a presumably taboo topic: the marginal utility of income. Neal Blue and I (1997) estimated that the value of another dollar is 50 percent higher for low-income families than for families with median income. In turn, the latter families derive about five times as much utility from another dollar as a family with five times the median income. Of course, before concluding that wholesale income redistribution is warranted, issues of property rights and investment incentives must be confronted. The conclusion of importance here, however, is that government transfers of income/wealth from households with low income/wealth to those with high income/wealth reduce well-being of society.

If the first principle of economic equity is to make transfers only from higher to lower income/wealth households, then something is amiss when massive transfers were made to farmers whose income per household set successively higher all-time records in each of the years 1996 through 2000 (U.S. Department of Agriculture March 2001, 46).7 Income per farm household averaged 6 percent to 17 percent above that of nonfarm households in each of the years 1996 through 2000. Government payments alone did not account for greater income of farm than nonfarm households. In fact, from 1998 to 2000, *nonfarm income alone* per farm household exceeded income from all sources per nonfarm household! If the definition of what is a farm remains unchanged, that relationship may continue for the foreseeable future, further eroding arguments for income transfers to farmers.
Table 1.3. Income and Net Worth of U.S. Farm Operator and All Households Compared in 1998

<table>
<thead>
<tr>
<th>Classification of farm</th>
<th>Number of operator households</th>
<th>Total household income</th>
<th>% of US average household</th>
<th>Total net worth</th>
<th>% of US average household</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>From off-farm sources</td>
<td>From all sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All operator households</td>
<td>2,022,413</td>
<td>52,628</td>
<td>88.1</td>
<td>59,734</td>
<td>115.2</td>
</tr>
<tr>
<td>Small family farms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited-resource a</td>
<td>150,268</td>
<td>13,153</td>
<td>132.5</td>
<td>9,924</td>
<td>19.1</td>
</tr>
<tr>
<td>Retirement (retired)</td>
<td>290,938</td>
<td>47,158</td>
<td>103.3</td>
<td>45,659</td>
<td>88.1</td>
</tr>
<tr>
<td>Residential/lifestyle (nonfarmer)</td>
<td>834,321</td>
<td>76,390</td>
<td>106.0</td>
<td>72,081</td>
<td>139.0</td>
</tr>
<tr>
<td>Farming occupation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower sales (under $100,000)</td>
<td>422,205</td>
<td>37,186</td>
<td>106.9</td>
<td>34,773</td>
<td>67.1</td>
</tr>
<tr>
<td>Higher-sales ($100,000–250,000)</td>
<td>171,469</td>
<td>28,717</td>
<td>57.2</td>
<td>50,180</td>
<td>96.8</td>
</tr>
<tr>
<td>Large family farms ($250,000–499,000)</td>
<td>91,939</td>
<td>47,252</td>
<td>44.4</td>
<td>106,541</td>
<td>205.5</td>
</tr>
<tr>
<td>Very large family farms (Over $500,000)</td>
<td>61,273</td>
<td>33,240</td>
<td>15.9</td>
<td>209,105</td>
<td>403.2</td>
</tr>
</tbody>
</table>


a Household income under $20,000, farm assets under $150,000, and gross sales under $100,000.
Farm operator household income averaged 115 percent of U.S. average household income, and wealth averaged 174 percent of U.S. average household wealth in 1998 (table 1.3). Landowners are the ultimate beneficiaries of farm programs. Data are unavailable on their income and wealth, but it is almost certainly well above that of farm operators households shown in table 1.3.

The four classes of farms (lower four rows in table 1.3) whose operators classify themselves as farmers each have wealth averaging at least double that of the average U.S. household, hence do not warrant receiving farm commodity program payments if the equity criterion is to transfer wealth only from higher to lower wealth households. The remaining three farm categories are limited-resource farms (household income under $20,000, farm assets under $150,000, and gross farm sales under $100,000), retirement farms (operators retired), and residential/lifestyle farms (operators list their occupation as other than farming). These three categories of farms account for 63 percent of all farms, but for only 10 percent of the value of farm production. Because of high income of residential/lifestyle farms, the high wealth of retirement farms, and the limited production of each of these two classes of farm, neither farm class would seem to be helped much by commodity programs distributing benefits nearly in proportion to farm sales.

That leaves limited-resource farms as the only category passing the equity test in table 1.3. These farms account for 7 percent of all farms but for only 1 percent of farm output and government payments. Only 18 percent of them received payments compared with 70 percent on midsized farms in 1998. Payments for limited-resource households averaged only $722 in 1998. It follows that commodity programs dispensing benefits according to farm output are of little or no benefit to limited-resource farms. Because over $100 of payments to all farmers were required to direct $1 to limited-resource households, commodity programs are a highly cost-ineffective means to help poor farmers. Rather, households on limited-resource farms can benefit from counseling, education, training, job search and relocation assistance, and public assistance programs.

Especially with the 1996 farm bill, commodity programs have become more market oriented. Providing more freedom for farmers to make production and marketing decisions is not a pressing current issue. Nonetheless, an end to market-distorting program features discussed earlier could enhance producers' freedom to make efficiency-enhancing production and marketing decisions.

Standard measures of poverty are so flawed they have little meaning in agriculture. A commercial farmer in poverty will not long be in business. Hobby farmers account for most small farm numbers but on average they are not poor. Even when nonmoney income, income averaging, and net worth (not currently included in poverty measurement) are considered along with conventional sources of income, many of the limited-resource farm households in table 1.3 are in poverty.