TMD DISCUSSION PAPER NO. 109

U.S. AGRICULTURAL POLICY: THE 2002 FARM BILL AND WTO DOHA ROUND PROPOSAL

David Orden
Professor of Agricultural and Applied Economics, Virginia Tech, Blacksburg VA

Trade and Macroeconomics Division
International Food Policy Research Institute
2033 K Street, N.W.
Washington, D.C. 20006, U.S.A.

February 2003

This paper is part of the research project: WTO Negotiations and Changes in National Agricultural and Trade Policies: Consequences for Developing Countries. The project is funded by DANIDA (Ministry of Foreign Affairs) and implemented jointly by IFPRI and the Institute of Agricultural and Fisheries Economics (SJFI) of the Ministry of Food, Agriculture and Fisheries of Denmark.

ABSTRACT

The 2002 U.S. farm bill has been widely criticized for increasing subsidies with detrimental effects on competing agricultural producers abroad and for undermining U.S. leadership in achieving liberalized world agricultural trade. This paper provides an assessment that shows the 2002 bill has effects that are nuanced in at least four respects. It raises expenditures compared to 1996 legislation, but not compared to actual 1998-2001 outlays. It maintains planting flexibility, but extends support to new crops and undermines some of the decoupling of subsidy payments from production and market prices that had occurred. It violates the spirit of U.S. trade liberalization rhetoric, but probably not the letter of U.S. WTO commitments. And it continues the policies of wealthy countries that collectively distort agricultural production and world prices, but only marginally worsen the net effects of these policies.

The paper is divided into four main sections. The first section provides historical context on U.S. agriculture and agricultural policy, including discussion of the transformation of agriculture and shift in farm policy instruments toward direct support payments, the interface of domestic farm policy changes and international negotiations during the period of the GATT Uruguay Round negotiations, and the unilateral reforms undertaken by the United States in the 1996 farm bill, just after the WTO Agreement on Agriculture came into effect. Re-institutionalization of higher support for agriculture in the United States since 1998 is addressed in the second section of the paper, including a description and analysis of rising support expenditures as farm commodity prices fell during 1998-2001, a review of empirical estimates of the effects of farm subsidies on production, prices, trade, and the value of land, and a political-economy chronology of the development of the 2002 farm bill.

The third section of the paper turns to support provisions of the 2002 farm bill in four areas: the price and income support programs for grains and oilseeds, the special programs for sugar, dairy and peanuts, the conservation provisions, and those affecting trade access or export promotion. Recent estimates of the effects of the new farm bill on U.S. farm production are reviewed.

The final section of the paper summarizes the current U.S. position in the WTO Doha Round that was launched in November 2001. The July 2002 U.S. WTO proposal on agriculture calls for significant multilateral restraint on subsidies and protection, none of which was undertaken on a unilateral basis in the new farm bill. This divergence has frustrated proponents of further agricultural trade liberalization who would have preferred sharp unilateral reform action by the United States in 2002 as a clarion call for similar reforms abroad. Still, the current divergence between U.S. domestic policy and its international negotiating position does not preclude progress on agriculture as the multilateral negotiations proceed. Limited progress was eventually made after the Uruguay Round started under similar circumstances. By the conclusion of those negotiations, the 1985 U.S. farm bill that had been out of step with the initial U.S. GATT proposal hardly could be considered a key obstacle to the Agreement on Agriculture that was reached. It can still be hoped that substantial additional progress is made on agriculture in the Doha Round. The expensive 2002 U.S. farm bill that precedes the international negotiations, while unfortunate, is not going to be the limiting determinant of reforms achieved in a new multilateral agreement for agriculture.

ACKNOWLEDGMENTS

This discussion paper develops remarks made in presentations on the status of U.S. farm support programs at an IFPRI Policy Seminar, November 21, 2002, Washington D.C., and at the annual symposium of the Australian Agricultural and Resource Economics Society, September 19, 2002, University of New England, Armidale, Australia. The author is Professor of Agricultural and Applied Economics, Virginia Tech, Blacksburg VA 24061 (orden@vt.edu). Seminar participants offered helpful discussion and Bruce Gardner, Edwin Young, Paul Westcott and Robert Paarlberg have provided comments on an earlier version. Responsibility for the paper rests solely with the author.

TABLE OF CONTENTS

TABLES AND FIGURES

I. THE 2002 U.S. FARM BILL AND WTO DOHA ROUND PROPOSAL

In May 2002 the President of the United States signed into law a new six-year farm bill, the Farm Security and Rural Investment Act (FSRIA). The new legislation replaced the Federal Agriculture Reform and Improvement (FAIR) Act or "freedom to farm" law that received attention in 1996 for potentially ending farm subsidies as they had been known. If Congress had adhered to and strengthened the 1996 law, both the level and the year-to-year variability of previous farm support outlays would have been reduced. Instead, when a three-year run of high crop prices collapsed in 1998, the FAIR Act proved more costly than initially anticipated and Congress stepped in to authorize additional support payments on an annual "emergency" basis. Momentum also built up to augment the subsidies authorized in the 1996 farm bill in a sustained manner, leading to enactment of the FSRIA one year before the FAIR Act had been set to expire. The 2002 FSRIA continues or expands programs that provide both producer price guarantees and fixed direct payments for wheat, the feed grains, soybeans and minor oilseeds, rice, cotton, and several other commodities. It also authorizes a potentially expensive new counter-cyclical subsidy program for a large proportion, but in principle fixed quantity, of farm output. The new counter-cyclical payments restore a third tier of farm support—replacing the emergency payments with legislated subsidies similar to those in the past.

Passage of the new U.S. farm bill has been met with derision by domestic policy critics and a barrage of international condemnation. Nobel laureate Joseph Stiglitz derides the new farm support law as "the worst form of political hypocrisy," while the syndicated humorist David Barry chides that taxpayers might "wake up in the middle of the night in a cold sweat to ask: Am I doing enough to support mohair producers." Criticism of the negative effects of the U.S. subsidies on developing countries has been particularly severe. Reflecting widespread antipathy toward the farm bill among development proponents, Malloch Brown, head of the United Nations Development Program, accuses U.S. policy of "holding down the prosperity of very poor people in Africa and elsewhere for very narrow, selfish interests." The Australian Agriculture Minister Warren Truss underscores Stiglitz's political objection when he argues that "the worst feature of the U.S. farm bill is the way it limits the capacity of the U.S. to take a strong leadership role in trade negotiations."

The 2002 U.S. farm bill also has its defenders. When it was enacted, Larry Lindsey, then a presidential economic advisor, asserted somewhat modestly "The final bill adheres to congressional budget guidelines available at the time of the conference, advances our international trade commitments, and protects the fundamental reforms in the 1996 Freedom to Farm legislation." The U.S. House Agriculture Committee makes a more strident defense of U.S. policy. According to a set of "myths" and "facts" about the new law posted on its web page, "Myth 4" is that "U.S. farm policy is nothing but corporate welfare benefiting only those receiving direct help." The document asserts "FACT 4" is that "U.S. farm policy is important to national security, ensuring a safe, abundant, and affordable domestic food supply." The House Agriculture Committee document makes the claim that "Critics of U.S. farm policy would cede our food production to unstable

places like the Third World," and asks rhetorically "but in these times does any American want to depend on the Third World for a safe and abundant supply of food and fiber?" These comments mark a nakedly xenophobic appeal to public opinion and show that the intent of Congress (as interpreted in the document) is clearly to increase agricultural production in the United States compared to what it would be without farm support programs.

The sharply-worded and disparate views of the new U.S. farm bill are indicative of a festering global conflict over farm policies and trade. The situation is complex in many dimensions and both severe critics of the FSRIA and its staunch defenders can overstate their views. The 2002 U.S. farm bill takes few, if any, constructive unilateral steps toward reduction of subsidies. Nor does it expand the worst subsidy policies as abhorrently as sometimes implied. In particular, the 2002 FSRIA:

- raises expenditures compared to 1996 legislation, but not compared to actual 1998-2001 outlays;
- maintains planting flexibility, but extends support to new crops and undermines decoupling of subsidy payments from production and market prices;
- violates the spirit of U.S. trade liberalization rhetoric, but probably not the letter of U.S. World Trade Organization (WTO) commitments; and
- continues the policies of wealthy (OECD) countries that collectively distort agricultural production and world prices, but may only marginally worsen their effects.

On each of these four criteria, both critics and defenders of the FSRIA choose to focus on only part of the story, but a more balanced assessment of the rhetoric and reality of the 2002 farm bill is in order.

This paper provides one such assessment of the FSRIA. The paper is divided into four main sections. The first section provides historical context on U.S. agriculture and agricultural policy, including discussion of the transformation of agriculture and the subsequent shift in farm policy instruments toward direct support payments that started in the 1960s; the interface of domestic farm policy changes and international negotiations on agriculture during the period of the GATT Uruguay Round negotiations from 1985 to 1995; and the unilateral reforms undertaken by the United States in the 1996 FAIR Act, just after the WTO Agreement on Agriculture came into effect.

Re-institutionalization of higher support for agriculture in the United States since 1998 is addressed in the second section of the paper. Components of this analysis include a brief descriptions of rising support expenditures as farm commodity prices fell during 1998-2001; a review of empirical estimates of the effects of farm subsidies on production, prices, trade, and the value of land; and a political-economy chronology of the development of the 2002 farm bill.

The third section of the paper turns to support provisions of the FSRIA in four areas: the price and income support programs for grains and oilseeds; the special programs for

sugar, dairy and peanuts; the conservation provisions of FSRIA, and provisions of the law that affect trade access or export promotion. Recent estimates of the effects of the new farm bill on U.S. agricultural production are reviewed.

The fourth section of the paper briefly summarizes the current U.S. position in the WTO Doha Round that was launched in November 2001. The prospects are evaluated for progress in agricultural trade negotiations in the wake of the 2002 U.S. legislation. Detrimental effects on developing countries of U.S. and other farm support programs worldwide have strengthened the case for pursuit of further trade liberalization and reduction of agricultural subsidies among wealthy countries. Toward this end, shortly after passage of the 2002 FSRIA the United States administration submitted a Doha proposal calling for sharp multilateral reductions in border protection and domestic subsidies. The Doha position taken by the United States seems out of step with the domestic legislation that had been enacted, but a similar juxtaposition of legislation that increased domestic support followed by articulation of a tough international negotiating position occurred during the Uruguay Round of the GATT. Prospects for agricultural trade liberalization and limits on domestic subsidies emerging from the Doha Round are discussed in this context. Despite the heated rhetoric from both sides over the 2002 U.S. farm bill, meaningful progress is possible in the WTO Doha Round.

II. BACKGROUND ON THE U.S. FARM SECTOR AND POLICIES

American agriculture today scarcely resembles the troubled sector of the Depression-era 1930s that led to farm support programs. Seventy years ago agricultural productivity was low and the average income among six million farmers was less than one-half the national average. Agricultural productivity has now improved for more than a half-century in the United States through technological advances, capital investments, farm consolidation, and labor outmigration. The modernization of agriculture has allowed the real price of food to fall without impoverishing efficient farmers, and the farm/nonfarm income gap has mostly been eliminated. This is evidence of markets working in the long run, although interventions undertaken to prop up prices have sometimes idled farm resources and distorted production incentives.

Reforms of farm policy have been undertaken as the employment, production and income of farmers have undergone changes. The basic direction of policy reform has been a shift in policy instruments from acreage supply controls combined with price supports above market-clearing levels to less supply intervention and more direct income support, at least for crops that are exported. This policy evolution toward direct payments began in the mid 1960s when price support levels were lowered for corn, wheat and cotton to enhance U.S. competitiveness, and farmers were offered direct payments as compensation. Support payments from the government increased from less that six percent of farm income in the 1950s to over 20 percent in the 1960s, but the farm programs also remained dependent on idling land to control supply and boost market prices. A second move toward direct payments came in the mid 1980s, when price supports set too high in

anticipation of inflation and a low-valued dollar that did not materialize were reduced, with direct payments once again offered to farmers in lieu of higher prices. Still further steps in the direction of replacing market interventions with direct payments were taken in the 1996 FAIR Act. Yet, the 1996 law did not put farm policy on a new strategic path of reform. Crucial changes in farm program instruments were made, but the reform path Congress took in 1996 was the familiar one of a heavily compensated "cash out" of farm programs.[1]

II.1. Today's Farmers

The modernization of American agriculture has created a tri-modal farm sector. At one end are the most efficient commercial farms producing the bulk of food and fiber. At the other end are various small farms that account for most of the enumerated units but produce only a small part of output. In the middle are a group of farmers caught in the dynamics of modernization—the mid-sized farms on which there have been substantial investments and on which there remain full-time employment opportunities, but which may lack an adequate resource base to be competitive in face of continuing advances in technology and market integration.

The Economic Research Service (ERS), USDA describes three subgroups of farms for which agricultural employment is not likely to provide the basis for an adequate family living or the primary source of income (limited-resource, retirement and residential/lifestyle farms). These groups encompass 1.27 million farm units (63 percent of the total) but produce only 9 percent of farm output (see Table 1). For these farms, the commodity policies in farm bills have little impact on overall income. Farms in these groups often report negative net income from farming.

ERS also describes four subgroups for which farm employment is primary. Of the households with farming as a primary occupation, there are about 61,000 with gross sales of $500,000 or more (see Table 2). Operators of these large efficient farms do well: on average they report higher crop yields than farms with lower gross sales, and report higher than average net earnings on their output. Incomes are high per household ($175,000 on average) and returns on farm assets (8.7 percent on average in 1998) were higher than for other groups of farms. About half of these farms receive government payments. Any reduction of income transfers through farm programs would adversely affect the asset values and incomes of these operators, but they are relatively well positioned to absorb a moderation of farm support policy.

Three other farm sales subgroups comprise the "struggling middle" in agriculture. At the high end of this middle grouping are about 92,000 farms with sales of $250,000-$499,999. These farms earn substantial household incomes on average, about half from

[1] Orden, Paarlberg and Roe (1999) describe four alternative approaches that can be pursued to reform farm policy interventions. The four approaches differ in speed of implementation and whether compensation is made to those benefiting from the intervention programs. Of the four (a fast, compensated "buyout" or uncompensated "cutout," versus a slower compensated "cash out" or uncompensated "squeeze out"), only a slow reform with substantial compensatory payments (the cash out) has proven politically viable in the United States.

off-farm employment and half from farming. These farms are also relatively dependent on government payments (70.5 percent received payments in 1998), and report lower returns on assets than the farms with higher sales. Farm and off-farm incomes are about half as much for about 171,000 households with gross farm sales of $100,000-$249,999, and again about 70 percent of this group receives government payments. Finally, two-thirds of the struggling middle farms (422,000 farms) fall into the category of primary farm occupation and gross sales of less than $100,000. For this group, average income from farming was negative in 1998 and off-farm income was moderate ($37,000 on average). Less than half of these farmers (40 percent in 1998) receive government payments which were not sufficient on average to offset losses on crop and livestock income. These farms produce only 4 percent of total output.

Account might be taken of the demographics of the farm sector when designing future farm policies. The structure of the farm sector cannot be frozen in time, and the forces that are driving farm consolidation are as strong today as they have been at any time in the past six decades. The "struggling middle" farms are likely to transition into larger farms, into farms that do not provide a primary source of income, or out of agriculture. With or without support policies, there are likely to be fewer commercial farms in the future. The lower end of the middle-sized farms receive few government payments even now.

II.2. The 1985 Farm Bill and GATT Uruguay Round Agricultural Negotiations

Farm policy in the United States became less expensive and less intrusive in the 1970s than it had been during the 1950s and 1960s. Depreciation of the U.S. dollar and increased global demand for agricultural commodities brought an export boom. Farm program costs fell and land was brought into production that had previously been idled on a short-term basis (through annual acreage set asides required for support payment eligibility) or for a longer term (through a paid conservation reserve idling acreage for ten-year periods). Total U.S. planted acreage that had averaged 239.2 million acres from 1960-1970 averaged 270.7 million acres during 1971-1981.

When tight monetary policy was introduced to stem relatively high inflation of the 1970s, it brought appreciation of the U.S. dollar from 1981 to 1985. Agricultural prices and exports dropped causing farm program legislation enacted in 1981 to became intrusive. The administration proposed a substantial reduction in farm price and income support expenditures in 1985, but Congress adopted a more interventionist and costly approach. Under the 1985 farm bill, annual land set-asides and a new Conservation Reserve Program (CRP) were authorized. Land idling subsequently peaked at 77.7 million acres in 1988, when nearly one-third as much land was idled as planted. The 1985 farm bill also strengthened the reliance of farm policy on direct payments. Crop price support levels known as "loan rates" were lowered by 25 percent, causing world grain prices to fall. The term "loan rate" is derived from the original 1930s farm price support programs in which the option for farmers to forfeit crops under "loan" to the government created a floor under market prices. The forfeiture policy was continued for most supported crops in the 1985 farm bill but a rate-setting formula was adopted to keep loan rates below

market prices under most circumstances. This formula allowed the Secretary of Agriculture to set future rates based on a five-year "Olympic" moving average of past prices (dropping the highest and lowest years). The 1985 farm bill compensated U.S. farmers for lower loan rates with cash subsidies (called "deficiency payments") that were made counter-cyclically to offset movements in market prices compared to higher legislated "target" prices. The deficiency payments were based on historic output levels (85 percent of a fixed base acreage using a fixed average of past crop yields) but eligibility required continued production of the specific base-acreage crops subject to announced annual cropland set-asides. Support expenditures peaked at $25.8 billion in 1986 under this policy.

Global excess supplies and low prices also set the stage for the Uruguay Round GATT negotiations on agriculture that were launched in 1986. Despite adoption of the domestic 1985 farm bill that intervened in production and raised support expenditures, the United States made a dramatic initial GATT proposal for a "zero option" to eliminate all trade-distorting border measures and domestic subsidies within ten years. This proposal for international disciplines on farm policies brought praise from the newly-formed "Cairns Group" of smaller agricultural exporters, but was unacceptable to other important participants in world markets, including the European Union (EU) and Japan. As a strategic maneuver, the zero option laid out a clear challenge to the status quo, perhaps to jolt trade negotiators out of an overly-cautious incremental approach regardless of whether the stated goals were attainable. Maintaining an extreme negotiating position allowed the U.S. administration to argue internationally that substantial multilateral commitments to reduction of trade barriers and subsidies were necessary to open market opportunities for efficient agricultural producers and spread the burden of policy adjustment. Meanwhile, its own domestic farmers could be assured that the United States would not unilaterally cut subsidies—a point driven home by Congress with passage of the 1985 farm bill and subsequent policies that were enacted. The U.S. clung to its initial strategic negotiating position through a GATT mid-term review in December 1988 that failed in large part because of lack of agreement on agriculture.

It was only in subsequent negotiations that the United States softened its position and the EU offered modest GATT commitments. The negotiating framework shifted toward limits on (but not elimination of) trade-distorting domestic support; conversion of non-tariff border measures to tariffs (tariffication); binding tariff levels and reductions of the bound rates; tariff-rate quotas (TRQs) which provided low or zero tariffs fro a limited quantity of imports to ensure small amounts of trade of the most protected commodities; and limits on (but again not elimination of) export subsidies. The final Agreement on Agriculture that was incorporated in the World Trade Organization in 1995 is far less ambitious than the early U.S. zero option. For developed countries, over six years (by 2000) it called for a (i) reduction of forms of domestic supports (called "amber box") that directly affected production and, hence, trade by 20 percent, relative to a 1986–88 base-period average, (ii) linear reduction of bound tariffs by an average of 36 percent from a 1986–88 base-period average, with a minimum reduction of 15 percent; (iii) market access with zero or low tariffs for imports under TRQs equal to at least 5 percent of domestic consumption for the most highly-protected commodities; and (iv) reduction of

export subsidies of 36 percent in value terms, and 21 percent in volume terms, from a 1986–90 base-period average. The Agreement on Agriculture exempted from disciplines those support policies (known as "green box") that are judged to have at most minimal direct effect on production. A special exemption (known as the "blue box)" was also included for U.S. (and European) support programs made on partial acreage and associated with land idling (the U.S. deficiency payments fell into this category). In addition, the WTO agreement allowed exemptions for subsidies under *de minimis* provisions when they were less than 5 percent of the value of either the value of production of a specific commodity to which the subsidy applied (commodity specific *de minimis*) or of the aggregated value of agricultural production (for subsidies that were "not commodity specific"). Thus, only limited agricultural trade liberalization was achieved by the WTO Agreement on Agriculture. It is often asserted, nonetheless, that a framework was created to pave the way for additional progress in subsequent WTO negotiations.

II.3. Unilateral Farm Policy Reform: The 1996 FAIR Act

The ink was barely dry on the WTO agreements when the 1996 FAIR Act initiated four unilateral changes in U.S. farm policy compared to previous legislation. First, under the FAIR Act, supported farmers attained flexibility to plant whatever crops they chose (except most fruits and vegetables) on base acreages.[2] Second, authority ended for the USDA to require annual acreage idling to limit crop supplies. Third, farmers received fixed income transfers known as production flexibility contract (PFC) or agricultural market transition act (AMTA) payments that were based on past production and were independent of current market prices and farmers' planting decisions. These fixed income transfers replaced the earlier deficiency payments but did not require continued production of the crop for which payments were received. Fourth, the price guarantees made to crop producers for any amount of output through loan rates were capped under the FAIR Act at nominal levels well below market prices prevailing at the time, and the Secretary of Agriculture retained the authority to set rates lower based on the Olympic average formula of past market prices. By 1996, mechanisms had also been put fully in place for most crops that allowed farmers to receive a cash payment (a "marketing gain" or "loan deficiency payment" (LDP)) if market prices (determined for each county for wheat, feed grains, and oilseeds and by a common "effective adjusted world price" for rice or upland cotton) were below their loan rate levels. Farmers received these cash payments instead of forfeiting those crops into government-owned storage. Thus the loan rates continued to support prices for producers, but market prices were freed from the loan rate as a floor level and the government was extricated from cumbersome commodity stockpiling.

The changes to farm policy made in 1996 were new partial reforms along the cash-out lines of movement toward direct income transfers instead of land idling or government

[2] The 1990 farm bill had provided limited flexibility under which farmers could shift an optional 10 percent of their base acreage among crops without that land permanently losing payments eligibility, but eligibiity for deficiency payments was suspended on that acreage during years that alternative crops were grown.

stock-holding to push prices above free market-clearing levels. Planting restrictions and acreage idling are burdensome to farmers. Setting aside productive land to limit supply is also costly to national welfare, although trade competitors are unlikely to complain because land idling provides foreign producers with a competitive advantage in world markets. The FAIR Act reduced these undesirable impacts of farm policy (hence the term "freedom to farm") and, in this respect, improved the efficiency of American agriculture. The shift to fixed payments also reduced uncertainty about the budgetary cost of the legislation as enacted. The fixed payments were designed to fully "decouple" income support from incentives to produce particular crops, or any crop at all, since the payments were made even when base acreage was left idle, as long as the land was not converted to non-agricultural uses. As shown in Table 3, farmers responded to the increased flexibility the FAIR Act allowed with substantial movements away from the crops to which deficiency payments had been tied. Widely-used forecasting models from USDA and the Food and Agriculture Policy Research Institute (FAPRI) at Iowa State University failed to predict the shifts out of wheat production and into soybeans that occurred under the new farm bill, as shown in Figures 1-6.

The market-oriented policy innovations in the FAIR Act came at a time of high crop prices in 1995 and 1996 (see Figure 7). Despite these innovations, the extent to which the FAIR Act put farm policy on a less-interventionist or less-costly path was uncertain from the outset. It is unlikely that farm policy would have abandoned annual acreage idling had market prices not surged upward. Since prices did rise, agricultural proponents in Congress were able to tout the end to acreage set-asides and introduction of fixed payments as deregulation of a large part of agriculture. Freedom to farm had been a rallying point for the Republican Party since the 1950s, the last time before 1995 that Republicans had controlled Congress and been in a position to set the farm policy agenda. Yet even Republican proponents of these agricultural policy changes knew full well that while the FAIR Act gave farmers more cropping flexibility it also increased support expenditures in the short run because deficiency payments under the old farm program were falling as prices rose. Farmers liked the short-run outcomes of the FAIR Act of less regulation of their production and more direct payments. When challenged that the new farm policy nevertheless undermined longer-term support levels, proponent Pat Roberts (R-Kansas), then chairman of the House Agriculture Committee, opined that Congress itself was the long-term safety net. This has turned out to be the case.

The 1996 FAIR Act also failed to secure permanent reform of farm programs in a number of other respects. Traditional support programs were retained for sugar, dairy and peanuts. The FAIR Act did not repeal the permanent legislation from 1949 that motivates Congress to continue to write new farm bills. Annual unpaid land idling to boost prices was abandoned, but long-term paid land idling through the CRP and similar smaller programs was retained. Under the voluntary CRP, farmland owners submit bids to retire highly erodible and other environmentally sensitive cropland from production for 10 to 15 years. Farmers receive a "cost-share" co-payment to establish a permanent cover crop and annual rental payments for retiring land and maintaining specified conservation practices. While CRP enrollment is designed to enhance environmental quality, expansion of the CRP directly reduces land available for crop production. The CRP has

enrolled nearly 35 million acres since it was authorized in 1985, about 10 percent of U.S. cropland, in this long-term land retirement (see Figure 8). Over 20 million acres of CRP land once was eligible for production-related support payments. The various benefits associated with setting this land aside has attracted a strong constituency among conservationists, environmentalists and sportsmen, as well as among landowners and farmers who receive nearly $2.0 billion annually in land retirement payments. Whatever the merit of taking this land out of production to achieve environmental benefits, the CRP remains a form of supply control continued under the FAIR Act that reduces total U.S. farm output and raises commodity prices. The FAIR Act also added new expenditures to assist farm producers with costs of pollution control measures (in the "Environmental Quality Improvement Program"). This continued a tradition of "cost sharing" through conservation programs that provide farmers with financial support that might enhance rather than reduce production while retaining an environmental rationale and achieving environmental objectives.

III. RE-INSTITUTIONALIZING HIGHER FARM SUPPORT IN 2002

After spiking upward in 1995 and 1996, crop prices began to fall in 1997 and remained low through 2001, as shown in Figure 7. As prices fell, support expenditures built into the FAIR Act increased automatically because of the price guarantees provided by loan rates. The loan-rate-related expenditures jumped up to $1.8 billion in calendar year 1998, then $6.8 billion in 1999, $7.5 billion in 2000, and $6.2 billion in 2001 (see Tables 4 and 5). Loan rates were kept at their maximum legislated nominal levels, not lowered by formula as also allowed in the law.

Once prices fell sharply, the price guarantees and fixed payments under the FAIR Act provided less support to farmers than would have been available under earlier farm programs even with its built-in increased expenditures. Critics of freedom to farm decried it as "freedom to fail" with low prices, reduced support, and absence of a strong farm "safety net." A Congress closely divided on party lines couldn't resist responding to the criticism, and stepped in with "emergency" legislation and then with supplemental annual appropriations for additional direct payments (called "market loss assistance" (MLA) payments), as well as with new disaster relief and crop insurance subsidies. The effects on support policy were first to speed up delivery of scheduled fixed payments, then to increase their levels by 50 percent, and finally to double the payments in 1999, 2000 and 2001.

Expenditures for all of the major categories of direct payments made to farmers from 1996 to 2002 are shown in Tables 4 and 5. With the extra expenditures authorized by Congress on an annual basis, direct government payments received by farmers rose to over $20 billion during 1999-2001, providing more than 40 percent of net farm income. Critics of the FAIR Act called for permanently raising the levels of support for agriculture. Erstwhile proponents of freedom to farm were reduced to defending the 1996 farm bill not on its own terms but because support expenditures were increased by

Congress. More radical critics of farm subsidies, whatever the merits of their case, were left to decry the rising outlays, but in reality farm support levels had never been cut under the FAIR Act.

What caused the drop in farm prices and led to large subsidies starting in 1998? The early 1990s had been a reasonably prosperous period for agriculture, with world demand growth exceeding that of world supply. A sharp weather-related reduction in U.S. crop production then sent prices soaring upward in 1995. Subsequently, U.S. production recovered and world supply responded positively to the high prices in 1995 and 1996.

Demand conditions have also contributed to lower prices. Global market demand fell with the financial crisis in Asia. Moreover, after nine years of relative stability during 1988-1996, the U.S. dollar appreciated substantially for four consecutive years relative to the currencies of competitors and customers in global agricultural markets. Dollar appreciation drives down U.S. farm commodity prices and causes U.S. export values to fall, as shown in Figure 9. Having passed the FAIR Act, Congress has been unwilling to let lower prices cause a drop in farm income or farm land values, both of which have been sustained by the added subsidies. Farm income during 1998-2001 was sustained at an average level that exceeded its average during 1991-95 (see Tables 6 and 7). But the farm support policies themselves have also put downward pressure on prices, as LDPs and other support expenditures have induced more output than market signals alone.

III.1. "Safety Net" Economics

Before the 1996 FAIR Act, production-inducing farm price and income support policies that increased production were counterbalanced by legislated production-restricting annual acreage idling. This duality of policy had welfare costs, with much of the net loss from farm programs resulting from the untapped use-value of idled land. Under the FAIR Act, the losses from annual land idling are avoided, but the U.S. agricultural system is more susceptible to policy-induced overproduction. Some of the interventions intended to support farm income retard adjustments that would restore more profitable market-derived equilibrium conditions.

Three types of payments were made to farmers under the FAIR Act: first, the fixed payments that in principle are decoupled from production but add to farm income; second, the LDPs and marketing gains associated with loan rates above market prices; and third, the supplemental payments Congress began to authorize in 1998. Additional farm support comes from subsidized crop and revenue insurance. Various types of new or renewed counter-cyclical payments were proposed once agricultural prices started to fall in 1997. These proposals linked new payments either to specific commodity prices, to crop-specific income, or to an aggregate measure of multiple-crop sectoral income.[3] The basic economics and empirical impacts of these various farm support policies warrant

[3] See the report of the Commission on 21st Century Production Agriculture for discussion of some of the alternative proposals for counter-cyclical support program design.

brief exposition and can be illustrated by considering the effects of the fixed payments and loan rates included in the FAIR Act.

Wealth and Base-Building Effects of Decoupled Payments

PFC payments are decoupled from current planting decisions because they were determined by producers' acreage enrolled in farm programs during an earlier period, with payments made on 85 percent of this base acreage. Current yields also had no direct role in determining the level of PFC payments to producers under the FAIR Act because the payments were based on farm yields that date back to the early 1980s. As long as direct payments are tied to specific crops, severing their linkages to current acreage and yields is essential to decoupling the payments if they are not to stimulate increased output.

To the extent that PFC payments are decoupled from production, they add a discrete subsidy component directly to farm income. Such income supplements largely become reflected in the value of the land to which the payments are tied. Thus wealth of farmers and other landowners is increased by these payments, but returns to variable inputs used in agriculture such as farm labor or returns to management are not affected. Decoupled payments may lead to subsidy "envy" abroad as the wealth of domestic farmers is increased, but they do not lead to subsidy "injury" from lower market prices as long as the payments do not increase farm production. Figure 10 shows an example of U.S. land prices being stabilized compared to those in Canada as market prices rose then fell during 1995-97.

Questions have been raised, however, about the production stimulating effects of PFC payments in at least two ways. First, because these lump sum payments raise farmers' wealth, they may have several "wealth-related" effects. If farmers are risk averse, they may become less so and willing to take on more production risk when their wealth is higher. The guaranteed stream of income associated with PFC payments may thus increase producers' willingness to plant at all, or their willingness to switch cropping patterns to more risky alternatives with higher expected returns. Some farmers also may be liquidity constrained due to imperfections in capital markets, or they may be more willing to invest in agricultural production from retained earnings than from borrowed capital. Directly, higher incomes allow farmers to increase investment in their operations, by acquiring new land or equipment or through more intensive input use. Indirectly, the steady stream of PFC income make bankers more willing to extend credit to producers, also enhancing their opportunities to continue or expand production. In either case, the potential to stimulate additional investment provides the potential for increased output.

Each of these wealth effects may cause PFC payments to affect production decisions and ultimately impact market prices, domestic crop usage, and exports. But estimates of the impacts on production are small. For example, Young and Westcott conclude that wealth effects taken together led to an increase in aggregate planted area of less than 750,000 acres in 1999-2000, at most 0.3 percent of actual crop plantings.

A second issue concerns the base retention effects of decoupled payments. Do PFC payments induce farmers to keep land in base crops, in anticipation that their cropping decisions may determine future benefits?

Farmers have clearly taken advantage of planting flexibility under the FAIR Act. At a farm-specific level, the GAO reports that in 1999 over $1.2 billion more in MLA payments (out of $5.5 billion total) was received by 893,000 farms than those farms would have received if payments had been based on acreages planted to crops during that year. These farms had shifted out of the crops for which they were eligible for payments based on past production. A similar picture emerges from aggregate projected planted acreage and PFC payment bases. As shown earlier in Table 3, planted acreages projected by FAPRI for 2002 under continuation of the FAIR Act were below 2002 PFC base acreages for wheat, corn, sorghum, barley, oats, upland cotton, and rice. The projected aggregate planted acreage for these seven crops was 183.2 million, which is 28.7 million acres less than the full PFC base acreage of 211.7 million and just above the acreage on which payments are received (0.85 x 211.7 = 179.9). If the eligibility base were updated to 85 percent of projected planted acreage of the above crops, then farmers would find their aggregate base reduced to just 155.7 million acres. If soybean acreage is added, projected 2002 planted acreage rises to 257.8 million. Soybean acreage did not received PFC payments under the FAIR Act, but did received MLA payments and by 2001 seemed headed for inclusion as base acreage under many of the proposals then being made for the 2002 farm bill. The 257.8 million acres projected planting in 2002 was close to the anticipated payment base acreage under a new farm bill of about 265.5 million. Thus, farmers can be seen to planting acreage to protect payment bases in anticipation of base updating only if they assumed that soybean acreage would be included in the updated base.

Effects of Loan Rates

Loan rates provide a more direct price safety net for farm producers than decoupled payments. The rationale for price-support loan rates has a common-sense underpinning. In agricultural markets, demand and supply are inelastic (not very price responsive) in the short run, and are subject to relatively large shocks from factors such as weather, exchange rates, or cycles in economic growth. This can result in sharp price and income movements without a safety net of price guarantees in place. With a safety net, farmers are spared the full effects of adverse movements in prices and incomes, as illustrated in Figure 10 for a hypothetical adverse demand shift and provision of a “safety net price.” Providing a price guarantee may seem desirable, but production is kept above its level otherwise with the safety net in operation as farmers respond to the higher price (this is shown by a movement along the supply curve in Figure 10). With policy instruments such as LDPs and marketing gains the market price is pushed downward by the sustained production. Thus, part of the safety net payments that farmers receive from the government simply offset lost market-derived farm income. The net addition to farm profits from the safety net would become capitalized into land values, just as the case for decoupled income support, but there would be uncertainty about the value of this stream

of payments because future market prices, and hence safety net benefits, would be unknown.

In addition to the higher profits and lower market prices related to movements along a given supply curve, there is another effect of the safety net on farmers' supply decisions. A safety net protects farmers from the lower tail end of the distribution of possible market prices. Risk neutral farmer responds only to the "subsidy" effect from higher price expectations as discussed above. Risk averse farmers may also respond to the reduction in the variance among prices they receive (an "insurance" effect) and to an increase in their income (a wealth effect), which makes them willing to take greater production risk.[4] The latter two effects correspond to a shift in supply, represented in simply terms by S_2 compared to S_1 in Figure 12. This adds to the available supply when the safety net is operative, putting additional downward pressure on the market price. Notice that the shift in supply raises output even when market prices are strong enough that the safety net is inoperative. With inelastic demand, this means less gross farm revenue. When a supply shift is induced, farmers receive less market revenue than otherwise because of the safety net every year, but they only receive safety net payment benefits in years when prices are low.

The production responses, market price effects, and fiscal costs of loan rates and alternative safety net programs have been evaluated in numerous studies based on the simulation models developed by FAPRI and USDA. These models incorporate only the subsidy effects of the safety net policies. An illustration of this analysis is provided by FAPRI's 2001 assessment of the effects of adding a fixed amount ($1, $2 or $3 billion per year for five years 2001- 2005) to farm program expenditures under three policy alternatives. The first policy alternative was a uniform percentage increase in loan rates, the second alternative was introduction of a new income-supplement program, and the third option was continuation of MLA payments. These alternatives were estimated to have somewhat different effects on the farm sector. MLA payments were modeled as fully decoupled from production, like PFC payments, even though they were provided in response to low market prices. Under this assumption, the MLA policy option yielded the largest net income transfer to farmers (over 90 percent of the government expenditure). The income-supplement program had the largest effects on production and prices in the FAPRI analysis because payments under this option were assumed to be based on actual harvested acreage, which created production incentives because the expected returns on current output were increased. Each $1 billion increase in income-supplement expenditures was estimated to raise aggregate acreage (for eight major crops) by about 300,000 acres (less than 0.2 percent). Because market prices fell with the production induced by the income-supplement policy, farm income increases by less—by about 75 percent of the government expenditure—than with MLA payments. The alternative of raising loan rates affects production and prices too, but was estimated by FAPRI to have less effect on acreage planted and result in slightly higher farm income than the income-supplement program.

[4] The wealth effect requires an assumed utility function with decreasing absolute risk aversion.

In the FAPRI study cited above, loan rates have only a modest effect on production. Similar results are reported by Westcott and Price based on simulations of USDA's FAPSIM model. They find that the loan rate program (with aggregate expenditures averaging about $5 billion) raised aggregate acreage of eight major crops by 2 to 4 million acres (less than 2 percent) over the period 1999-2001. This is somewhat more of an acreage response than estimated by FAPRI, but is still relatively small. University of Maryland agricultural economist Bruce Gardner has estimated similarly that the combination of various U.S. subsidy policies (including the 1996 FAIR Act and payments for crop-damage insurance and related losses made through different legislation) raised farm output about 4 percent during 1998-2001, resulting in world prices being about 6 percent lower than otherwise.

A recent study by Mullen provides an exception to the small production effects reported for loan rates by FAPRI, Westcott and Price, or Gardner. In Mullen's model, risk averse farmers maximize expected utility by choosing levels of land and non-land inputs (assumed to be available in inelastic (elasticity = 0.4) and elastic (10.0) supply, respectively). Output is assumed to be deterministic for a given level of inputs utilized, while there is uncertainty about the prices received by farmers (which are taken as exogenous). The model is in equilibrium when input use solves the farmer's utility maximization problem and the input markets clear.

When the Mullen model is parameterized for Kansas wheat production in 1998 a modest risk aversion coefficient is computed as consistent with the data. Once this risk aversion parameter is derived, impacts of decoupled PFC payments are computed to be small, as found by Young and Westcott. But the loan rate effects reported by Mullen are larger than from the FAPRI and Westcott and Price studies. Loan rates are calculated to have raised the expected price of wheat per bushel from $3.45 to $3.63 (by 5.2 percent) in 1998 and reduced the variance of prices received by farmers from $1.11 to $0.65. Under a risk neutral assumption, this policy raises output by 7.7 percent, implying an elasticity of supply of about 1.4, which is higher than in FAPRI, Westcott and Price, Gardner and some other short-run analyses. Associated with this increase in output are increases in land use (about 3.7 percent) and land rental rates (9.3 percent), together with more of an increase in use of non-land inputs (12.1 percent) and slight increase in their price (1 percent). Welfare of farmer producers improves by $59 million (less than 1 percent), while welfare of suppliers of land inputs rises by 13 percent ($86 million).

Under the risk aversion parameter calculated by Mullen, the increase in wheat supply due to loan rates is larger—an increase of 33 percent, more than four times the estimated effect under risk neutrality. There are substantial increases in land use (15.1 percent) and land rents (42.8 percent), and again more of an increase in use (over 50 percent) and smaller increase in price (4.2 percent) of non-land inputs. Disaggregating the increase in production induced from risk averse farmers by the loan rate program, 32.9 percent of the increase can be attributed to the subsidy effect and another 7.2 percent to the wealth effect. The dominant impact (59.8 percent of the total) comes from the insurance effect induced by the reduction in the variance of prices received. Based on these results for production of one crop in one state, it can be argued that analyses that ignore the wealth

and insurance effects related to risk aversion result in understatement of the production stimulating effects of a loan rate policy.

III.2. Political Economy of the 2002 Farm Legislation

Once Congress began to increase farm subsidies on an annual basis, the political effort to turn the extra payments made during 1998 to 2001 into a permanent support entitlement under a new farm bill was marshaled aggressively by the House Agriculture Committee. The Committee was still under Republican control, but was chaired by Larry Combest (R-Texas) who had initially opposed the move to decoupled payments in the FAIR Act. Under Republican chairman Richard Lugar (R-Indiana), the Senate agriculture committee took a slower approach to sounding an alarm bell or calling for re-writing of the farm bill to raise support levels.

The agricultural lobby achieved a crucial victory in April 2001 when it attained inclusion in a congressional budget resolution of a "reserve fund" of an additional $5.5 billion for that year and $73.5 billion over the next ten years (2002-2011) to enhance farm subsidies or increase spending on conservation, nutrition and related programs beyond the levels built into extension of existing law. This increased by three-fourths the baseline spending of nearly $100 billion on agriculture anticipated from continuation of the FAIR Act and allowed the 1996 law to be re-written one year before it was scheduled to expire.

Securing the additional long-term funds for agriculture rested on passage of specific authorizing legislation. The House Agriculture Committee was already moving forcefully toward this goal, with a coordinated set of hearings at which commodity groups presented their positions and provided cost estimates for their proposals. The message from the Committee to the commodity groups was clear: get organized, present your specific ideas, then let's strike a cross-commodity bipartisan deal among ourselves to capture the additional farm program dollars. Not surprisingly, the main farm groups each called for some type of counter-cyclical payments to re-institutionalize the extra annual subsidy appropriations farmers had been receiving since 1998. Farm groups were also nearly unanimous in favoring retention of the planting flexibility provided by the FAIR Act and in opposing limitations on payments received by individual producers.

The House Agriculture Committee passed a new 10-year farm bill in July 2001. Under the committee bill, most of the newly available money (nearly $50 billion) went to commodity support, with a substantial funding increase also offered for conservation, and some additional funds earmarked for market promotion, nutrition programs, and rural development. Fixed PFC payments were retained in the House bill as a basic income support mechanism. Loan rate levels from the FAIR Act were retained for most crops, with the loan rate lowered for soybeans. The soybean rate had been set too high compared to other crops in 1996, making the shift in crop production shown in Table 3 and Figures 2-6 a result of farm program incentives as well as market signals. The proposed lower loan rate would reduce the incentive to grow soybeans and resulting LDPs program expenditures. This realignment bore the cost of the House agriculture committee also authorizing fixed payments for all oilseeds—a typical "cash out" deal of

replacing price support with direct payments. Oilseeds had not previously received deficiency or PFC payments but had received MLA payments under the emergency appropriations, as noted above.

The new counter-cyclical support program called for by farm groups was provided in the House bill by reauthorizing crop target prices and deficiency payments from the pre-FAIR 1990 farm bill and also extending these payments to oilseeds. Unlike the pre-1996 deficiency-payments program, planting flexibility was retained by the House Agriculture Committee for the new counter-cyclical support payments—they would again be made on the basis of past acreage and yields but specific crops would not have to be grown in the future to qualify, nor would any annual land idling be re-imposed for payment eligibility. With fixed payments also guaranteed in the House bill, income transfers to farmers would not shrink below $5 billion per year with the new counter-cyclical policy, as would have happened in 1995 and 1996 if deficiency payments of the 1990 farm bill had not been replaced by the PFC payments of the FAIR Act. Thus, the House agriculture committee bill offered familiar policy instruments and substantial new support guarantees to farm constituents.

The House Agriculture Committee bill also included a one-time option for farmers to update the acreage bases on which they received PFC and counter-cyclical payments. Under the House updating option, farmers had the choice of keeping their old acreage bases or aligning their bases with planting decisions of recent years. The updating was justified as necessary because of the addition of soybeans and other oilseeds as base crops. Objections that such base updating undermined decoupling were overlooked—after all, the argument seemed to go, if farmers are gong to be supported why shouldn't it be for what they grow now, not some old historic acreage?

Challenges to Farm Policy Renewal

The reauthorization of higher levels of farm support faced four key challenges as the agriculture committee bill moved into the broader arenas of the House floor and Senate committee and floor debates. These challenges arose from tightening budget constraints, U.S. international commitments on agriculture in the WTO, pressure for more spending on conservation and the environment, and structural arguments about the purpose and target of farm subsidies. A new farm bill also might have been derailed by repercussions in the aftermath of the terrorist attacks on the World Trade Center and the Pentagon on September 11, 2001. The challenges related to budget constraints and the September 11 attacks potentially would reduce the overall level of support expenditures for agriculture, but proved ineffective. The WTO constraints were the subject of much discussion, which was new to U.S. farm policy rhetoric, but again proved relatively ineffective in constraining farm subsidy renewal. Instead, it was the challenges that arose in terms of domestic considerations over conservation and the environment, and over the instruments and distribution of support expenditures, that remained contentious throughout the farm bill reauthorization process.

Budget Constraints and Repercussions from September 11

Attaining supplemental funds for farm income support had been facilitated during 1998-2001 by rising tax revenues and federal budget surpluses. The budget resources that the agricultural lobby secured in 2001 for increased spending authority over the next decade stipulated that the extra cost of the farm programs not reduce availability of revenues for Social Security or Medicare. Sufficient fiscal surpluses were projected in April 2001 to accommodate the expenditures planned for agriculture and several other special reserve funds. But the economy had subsequently weakened and Congress had enacted 10-year tax reduction legislation sought by the new George W. Bush administration. This led to smaller budget surplus forecasts by August 2001. Advocates of fiscal constraint hoped that the prospect of cutting into Social Security funds would lead to reassessment of the amount of money to be allocated to agricultural subsidies in a farm bill.

That budget debate never occurred. The September 11, 2001 terrorist attacks changed the budget environment—war, after all, is an extraordinary circumstance in which budget discipline is waived. The terrorist attacks also altered the larger political dynamics in the United States. Terrorism became the defining issue of congressional and national focus. Yet the House floor debate on the farm bill, which was scheduled to begin September 12, was put off just 21 days. By early October 2001, the House passed one version of an expensive new farm bill with strong bipartisan backing. This was an extraordinary demonstration of the power of the farm lobby—the farm bill was the first legislation not related to the terrorist crisis that was taken up for full House floor debate after the September 11 attacks.

The Senate, in contrast, did not pass a farm bill in 2001. When it subsequently approved a five-year bill in February 2002, the Senate also authorized new expenditures of $73.5 billion if its bill was extended over a full 10-year period. Compared to the House bill, the Senate version front-loaded the new farm program expenditures. When the Senate bill was passed in February 2002, the projected cost of its added commodity support and conservation spending was nearly $38 billion during 2002-2006, compared to $30 billion under the House bill. The greater Senate generosity in the near term was to be offset by planned reductions in commodity support (mainly from lower fixed payments) in years 2007-2011 and sharp cuts to the Senate's higher conservation expenditures after the first five years. There was no guarantee that a future Congress would follow through with the proposed reductions in commodity support or conservation spending. Thus, the Senate bill was likely to set the stage for even more total farm program spending over the next decade than the already generous House bill.[5]

One voice for fiscal constraint as the House had pressed forward on farm policy during 2001 came from the Bush administration, but that voice was muted. The suggestion was floated that additional funding of $25 billion over five years was more reasonable than higher spending levels, but this suggestion died out quickly. The muted voice of the administration for fiscal constraint was not surprising. Commitments to future

[5] Budget analysts also discovered an error in their calculations for the Senate bill, forcing the Senate to backtrack to meet the limit imposed by the 2001 congressional budget resolution as a final bill was negotiated with the House.

agricultural spending had been made implicitly by the administration to secure votes for its tax cuts, and even before the September 11 attacks President Bush had often asserted that a strong agriculture "was part of our national security mix." Moreover, as the farm bill reauthorization progressed, the administration sought backing from agriculture for new trade promotion authority (TPA) under which it would participate in WTO negotiations or seek new regional and bilateral trade agreements. This further weaken any administration resolve to limit farm spending, even if spending more for farm subsidies might pose a threat to the trade-liberalization progress in the future. When the Senate failed to close off debate on its version of the farm bill in December 2001, the administration was quick to assure the farm lobby that full funding from the April budget resolution still would be available for agriculture when Congress reconvened in 2002. Thus, neither tightening budget circumstances after April 2001 nor repercussions from the traumatic terrorist attacks constrained farm program spending that had been locked in.

International Commitments

There has never been a strong connection between previously negotiated international agreements and changes to U.S. farm policy. The 1994 WTO Agreement on Agriculture had just come into effect when the FAIR Act was signed into law, but it was not international disciplines that propelled the modification U.S. farm policy in 1996. In WTO terms, the policy shift in the FAIR Act was only from one category of farm support programs not subject to international limits to another. Policy shifted from the WTO blue box exemption for support payments made on partial acreage and associated with land idling (the old deficiency payments), to the WTO green box which is exempt from disciplines and includes fixed direct payments (the PFCs) deemed not to be too trade distorting.

The WTO agreement only binds member countries domestic support in terms of their amber box programs that have the most direct effects on agricultural production and trade. With passage of the FAIR Act, U.S. amber-box subsidies were well below its WTO limits. As the price support provided to farmers began to rise automatically when agricultural market prices fell after 1997, and with the subsidies added by Congress in subsequent years, payments to U.S. farmers potentially classified in the amber box reached levels closer to the WTO constraints (see Figure 13). Moreover, in 2001, the Secretary of Agriculture decided, to the chagrin of agriculturalists in Congress, to notify the WTO that the supplemental farm payments of $2.8 billion made by the United States in 1998 would be classified as amber-box trade distorting. Subsequent MLA payments were also counted as amber box. But loopholes in the WTO Agreement on Agriculture were applied to this classification by the United States. Since the MLA payments did not require production of a specific crop, they were classified as "not commodity specific." Then the *de minimis* exemption was applied. As long as the MLA payments plus several other types of payments reported by the U.S. as not commodity specific did not exceed 5 percent of the value of aggregated crop production, the payments did not have to be counted against the U.S. WTO limit of no more than $19.1 billion of amber box expenditures. As shown in Figure 14, with these exempted payments U.S. support exceeded the value of $19.1 billion, so it was only by claiming the not-commodity-

specific *de minimis* exemption that the U.S. formally met its WTO commitments. Economic projections of subsidy costs under the House (and later Senate) farm bills showed that U.S. expenditures might formally exceed the WTO amber-box limit in some years, perhaps often if either draft bill became law.

Congressional response to the possibility that the new farm bill might violate WTO agreements was muted. The House simply added a clause to the committee bill that authorized (but did not require) the Secretary of Agriculture to take unspecified steps for reductions to "ensure that payments do not exceed, but in no case are less than, such allowable levels." In the Senate, a brief amendment was adopted with language only slightly more binding. Thus, WTO constraints also had little effect in disciplining the subsidy levels or determining the instruments proposed for farm programs in 2002.

Conservation and Environmental Programs

Both the House and Senate farm bills expand the CRP authority to around 40 million acres. This increase of the acreage eligible to be removed from production met opposition from agricultural supply and processing businesses and some production-oriented farm groups, but was less of an expansion of idled acreage than called for (to 45 million acres) by the House "sportsmen's caucus." The size of the CRP and related land-idling programs gives an indication of the relative strength of the lobbies for unfettered farm production versus a coalition of those favoring acreage controls, either to provide non-agricultural land uses for environmental and recreational purposes or simply to reduce crop supplies and prop up prices.

The House Agriculture Committee bill increased funding for agricultural conservation and environmental cost-sharing payments by over $8 billion, but an amendment to shift more of the new funds to these purposes (and spend less on commodity subsidies) was defeated on the House floor. The Senate bill included more new conservation spending than the House bill. An unusual 2001 mid-session change in leadership gave the control of a previously evenly-divided Senate to the Democrats, and this shift in leadership resulted in an increased focus on environmental programs. The Democratic agriculture committee chairman Tom Harkin (D-Iowa) had long championed an environmental payments policy that includes a substantial income support component as a substitute for direct PFC payments or counter-cyclical commodity subsidies. He turned this into language for a new "Conservation Security Program," that would pays producers to adopt or maintain specified conservation practices on land uder cultivation, rather than to idle land as in the CRP. Harkin urged a substantial shift of expenditures toward this new conservation program.

The Structure of Farm Payments

The House farm bill increased farm support mostly through the addition of new counter-cyclical payments. By allowing farmers to update their acreage bases, the House bill also took a step that undermined the decoupling of income support from production

incentives. If acreage base updating leads farmers to anticipate additional updating opportunities in the future, then expanded production not only earns market income but also builds base for potential government payments at a later time. Base updating raised the question of whether even fixed PFC payments made on changed acreage can be considered not to distort production. The new counter-cyclical subsidies and acreage updating proposed in the 2001 House farm bill were setbacks to the policy disciplines and reforms undertaken in 1996. The House bill did not effectively limit payments to individual farmers and the expanded subsidy levels themselves could become a cause of low farm prices. Thus, in many respects the House farm bill was too generous and unconstrained to be judged positively by those seeking farm support policy restraint domestically and abroad.

Under Democratic leadership, the Senate farm bill took further detrimental steps on the structure of farm payments. Democrats have long been the stronger proponents of higher loan rates, and the Senate bill increased the rates for all crops but soybeans and added loan rates for three new crops. The Senate bill phased down fixed PFC payments and provided lower target prices (called "income protection prices") than the House bill for the counter-cyclical payments. These latter steps might be viewed as constraints on farm subsidies, but the Senate bill allowed farmers to update both their production bases and their crop yields to reflect recent levels. At one point, the Senate bill also made the fixed and counter-cyclical payments available for 100 percent of updated farm output, in which case all of a farmer's recent production would be guaranteed not just the higher proposed loan rates but the proposed target prices. Updating of bases and yields provided a windfall to aggressive past operators and anticipation that further updating of subsidy eligibility would occur again at some time in the future would provide a stimulus to additional production.

In one respect the Senate bill proposed fiscally-conservative reform. An amendment on the Senate floor introduced tighter limits on payments to individual farmers than in the House bill, for a projected savings of $1.3 billion over ten years. This provision strengthen the "graduation" from subsidy eligibility often associated with social safety net programs, but which is anathema to most farm groups and has rarely been applied effectively to farm programs. Other proposals to limit farm support, and to ensure a wider distribution of payments among farmers than under the current programs, were defeated in the Senate.

IV. SUPPORT PROVISIONS OF THE 2002 FARM SECURITY AND RURAL INVESTMENT ACT

The final 2002 FSRIA negotiated between the House and Senate was signed into law by the President on May 13, 2002. Although budget assessments for the legislation are based on its provisions remaining in effect for ten years through 2011, the new law is only specified for six years through 2007.[6]

IV.1. Three-Tiered Price and Income Support for Grains and Oilseeds

The final FSRIA incorporates the three tiers of support initially included by the House Agriculture Committee, and illustrated for cotton in Figure 15. Direct payments are continued at rates similar to those provided under the FAIR Act and are added for soybeans and other oilseeds (see Table 8). Differences between the House and Senate bills on the levels of loan rates were settled by raising most rates compared to the maximum levels under the FAIR Act in 2002 and 2003, but then reducing the amounts by which the rates went up for 2004-2007. Loan rates were added for several commodities (dry peas, lentils, small chickpeas and peanuts, as shown in Table 9, and for mohair, wool and honey). The FSRIA also fixed the loan rates in nominal terms. This removed discretion of the Secretary of Agriculture to lower the rates to 85 percent of a moving average of past market prices that was provided in 1985 when the government was still taking the supported crops into storage if market prices fell below loan rate levels. Once LDPs and marketing gains came into effect, so market prices below loan rates no longer resulted in crops going into government storage, the pressure to keep loan rates below market price levels was lessened. Loan rates had not been changed under the FAIR Act even though the formula-based rates would have been lower than the maximums specified in the law after market prices dropped sharply from 1998 through 2001.

The target prices in the FSRIA for the new counter-cyclical payments are shown in Table 10. In contrast to loan rates, the target prices for most crops are increased after 2003. Counter-cyclical payments are made when the sum of the market price (or loan rate if the market price is lower) plus the fixed direct payment is less than the target price. In the final FSRIA, farmers retain flexibility to plant a range of crops—thus they do will not necessarily produce the crops for which they receive fixed and counter-cyclical payments. If the base crop is produced, counter-cyclical payments reduce revenue variability because the drop in revenue when market prices fall is made up by variable payments on a fixed part of the output. This insurance effect can stimulate production, similarly to the insurance effect of loan rates. Both the direct fixed payments and counter-cyclical payments are made on 85 percent of base acreage and "payment yield" determined under the bill. Each participant has to make a one-time decision about bases

[6] For detailed side-by-side comparison of the 1996 FAIR Act and the 2002 FSRIA see ERS/USDA. A good summary of the main provisions of the FSRIA related to support programs, conservation and trade is provided by Westcott, Young and Price.

and yields that then determine their payment eligibility for the duration of the FSRIA. The rules in the FSRIA for determining base acreage are the same for the fixed and counter-cyclical payments, but rules for setting program yields differ for the two types of payments.

The FSRIA allows base acreage to be determined using two options. The first option is to set base acres equal to contract acreage for the commodity that would have been used for 2002 PFC payments under the FAIR Act. In this case, average oilseed plantings in crop years 1998-2001 can be added to base acreage so long as total base acres do not exceed available cropland of a farm. The second option is to update base acres to reflect the four-year average of acres planted, plus those prevented from planting during crop years 1998-2001 due to drought, flood, other natural disaster, or other conditions beyond the control of the producer. Whichever method of setting base acreage is chosen has to be applied to all covered commodities for both direct payments and counter-cyclical payments.

Program payment yields for direct payments are unchanged for those crops previously covered under PFC payments. However, those farmers who update their base acreage, are also given options to update yields for the counter-cyclical payments. This distinction between the two support program in part reflects WTO considerations. The fixed payments are reported to the WTO by the United States as green-box payments that do not affect production. By not allowing yield updating, the U.S. reduces the likelihood of a challenge to the classification of these payments, even though updating of the base acreage is allowed. The counter-cyclical payments, in contrast, are likely to be reported as an amber box policy, similarly to the MLA payments. Even thought they will be made on a fixed acreage and yield once a producer enrolls in the support program, and do not require production of specific crops, the counter-cyclical payments are explicitly linked to market prices. Since the counter-cyclical payments are likely to be reported as amber box, yield updating does not pose the threat of a challenge to their classification. Of course, because the payments will not necessarily be made on crops actually being produced, the United States is also likely to report these payments as not commodity specific, which makes the WTO constraint on their use less binding in any case.

For the counter-cyclical payments on updated base acreage, there are three options for each individual crop to determine program payment yields. These options are to use current program yields; to update yield by adding 70 percent of the difference between program yields and the farm's average yields per planted acre for the period 1998-2001; or to update yield to 93.5 percent of 1998-2001 average yields per planted acre. For soybeans and other oilseeds payment yields are determined by average yields for 1998-2001 on a farm, multiplied by an adjustment factor of the national average yield for 1981-85 divided by national average yield for 1998-2001. No yield updating is then allowed for oilseeds. These complex yield updating rules reflect intricate negotiations among producers of various crops as well as possible WTO considerations.

The final FSRIA includes only modest payment limitations for individual producers. Annual payment limits on direct payments, counter-cyclical payments, and marketing loan payments (LDPs and marketing gains) are $40,000, $65,000, and $75,000,

respectively. A "three-entity" rule is retained that allows any individual to receive a full payment directly and up to a half payment from two additional entities. Thus, the maximum payment that an individual can receive is $360,000 per year. Producers with average adjusted gross income over three years of $2.5 million or more are not eligible for payments unless at least three-fourths of their adjusted gross income is from agriculture. For the payments related to loan rates, the limitations on individual eligibility is undermined by special "commodity certificates" that enable producers who are facing payment limits to continue to benefit from repayment rates below the loan rates.

IV.2. Divergent Programs for Sugar, Dairy and Peanuts

The FSRIA continues special programs for sugar, dairy and peanuts. These commodities have long been protected by tight import restrictions. Domestic consumer prices have been sustained above world market prices by also restricting domestic supplies, or by government stockpiling purchases, when necessary. Thus, the support programs for these three commodities had undergone less of the conversion to direct payments and reduced market intervention by 2002 than had occurred for the main crops. Under the FSRIA, the programs for sugar, dairy and peanuts became more divergent.

Sugar

The United States is a large net sugar importer. In 1996, the FAIR Act continued the traditional sugar program, with domestic sugar price supports fixed nominally at 18 cents per pound for raw cane sugar (about one-half of domestic sugar production) and 22.9 cents per pound for refined beet sugar (the other half of production). Sugar could be forfeited at these rates to USDA's Commodity Credit Corporation (CCC) under "non-recourse" loans (for which the commodity collateral is accepted in lieu of repayment). Thus, no basic liberalization of the sugar market was achieved, and the loan rates continued to provide a floor under domestic market prices.

A few small changes in the sugar program were made under the FAIR Act in the direction of market-oriented reform. A one-cent per pound forfeiture penalty was adopted, lowering the effective support price. Provisions were also enacted stipulating that CCC loans revert to a recourse basis (that must be repaid) if low-duty sugar imports under TRQs were to drop below 1.5 million tons, which eliminated the loan rate as a price support mechanism if the U.S. were to import less sugar than it had pledged under international commitments. The FAIR Act also eliminated the requirement that the sugar program operate at no net budget cost to the government, a change in legal status that technically created room for intrusive CCC expenditures, or perhaps for liberalizing direct payments. But none of this was eminent at the time the FAIR Act became law. Sugar prices were relatively high and sugar imports were well in excess of the recourse loan trigger.

As prices for crops fell after 1997, a policy crunch for sugar emerged. By 2000 domestic sugar production plus minimum imports to which the United States had committed were

going to exceed demand for domestic consumption and private stock-building at the supported domestic prices. To sustain those prices, the CCC accumulated sugar stocks and the USDA offered a sugar "plow down" in which it exchanged stockpiled sugar for destruction of some of the planted new sugar beet crop. The alternative of letting the domestic sugar price fall was rejected at this time. To avoid plowing down a growing crop in the subsequent year, a payment-in-kind (PIK) program was initiated to trade CCC stockpiled sugar for reduced beet planting. Supply pressure on the sugar market eased in 2001, lessening political pressure for reform.

In the 2002 FSRIA, domestic producers succeeded in tightening the provisions of the sugar support policies. The loan rates were continued at the same levels as the FAIR Act. The forfeiture penalty was eliminated, marketing assessments that had been adopted previously to provide a small amount of revenue to the government were ended (retroactive to October 2001), and interest rate on CCC loans were reduced, making the sugar program more lucrative for producers. More fundamentally, the new farm bill reinstated the stipulation that the sugar program be operated to the extent possible at no net cost to the government.

To make these new sugar provisions operational, authorization for a PIK was continued and authority was restored for USDA to control supply through domestic marketing allotments as long as imports were below 1,360 thousand metric tons. The combination of the no-net-cost provision and the constraint on use of domestic marketing allotments if imports exceeded the level set in the legislation was designed, in the words of the U.S. producers, to ensure that the USDA and U.S. trade representative stood "shoulder to shoulder" with the domestic industry in opposing loosening of import restrictions. Together these provisions tie the hands of policy administrators: imports above 1,320 thousand metric tons can not be offset by domestic marketing allotments to sustain the supported price, while allowing imports to exceed this level would induce violation of the no-net-cost provision if CCC stockpiling were to result. Thus, under the FSRIA the sugar program has to continue to be administered with tight import restraints, which sets the farm bill firmly against sugar trade liberalization.

Dairy

For dairy products, import restrictions under TRQs remain the primary instrument for sustaining domestic prices above world levels. Related dairy provisions of the domestic farm bill are among the most complex among farm programs. The 2002 FSRIA extends the two main dairy programs, purchases by the CCC to support the price of milk used for various processed (manufactured) products and federal milk marketing orders that regulate markets for the fluid milk consumed directly. Under the FAIR Act, the dairy price support program was scheduled to end on December 31, 1999, but it was extended in subsequent legislation. Under the 2002 FSRIA, the milk price support program is renewed again. Support purchase prices are set to ensure that the market price of milk used in processing averages at least $9.90 per hundredweight. To provide this price support, the CCC is authorized to buy necessary quantities of butter, cheddar cheese, or

nonfat dry milk. The Secretary of Agriculture retains the authority to adjust product purchase prices as deemed necessary.

Fluid milk markets are regulated by federal and state milk marketing orders retained under the FSRIA. Milk marketing orders define the relationship between prices of fluid and manufactured dairy products and maintains a regulated geographic price structure.

One modest "cash out" innovation under the FSRIA involves a new national dairy payment program. The Dairy Market Loss Payments (DMLP) program provides counter-cyclical payments for dairy producers through September 2005. These direct payments are to be made to dairy farmer on a monthly basis if the market price of fluid milk (called Class I) in Boston (Federal Marketing Order 1) is less than $16.94 per hundredweight. Payments are limited to 2.4 million pounds of milk per year per operation, which corresponds to the production from a relatively small dairy herd of about 135 cows. With this limit, about 50 percent of total national milk production is likely to be eligible for the direct payments, but only about 30 percent of the total production is from the smaller operations that produce less than the 2.4 million pound limit. For these small producers, the counter-cyclical payments create an incentive to expand production at the margin because the per-unit price they receive is supported at the target price level. For the larger farms producing about 70 percent of the milk in the United States, the direct payments program is essentially decoupled from production—it provides a variable payment on a fixed output that is inversely related to the price of milk. This is similar to the counter-cyclical crop support program in the FSRIA, so for the larger dairy producers the direct payments likewise have only indirect effects on production related to revenue insurance and wealth effects. It is likely that the whole amount of the direct dairy payments will be treated as product specific amber box payments in WTO notifications even though most of the payments will not be directly production stimulating.

Peanuts

Under the 2002 FSRIA a regime of domestic price supports well above world levels for edible peanuts, combined with long-established quotas on the domestic production eligible for sale in the U.S. market, was scrapped in favor of direct cash payments—a substantial cash out reform. Under the traditional support program, domestic quota holders received preferential prices for peanuts supplied to the domestic market for edible uses compared to prices received for peanuts (known as "additionals") that went into processing (crushing into oil and meal) or were exported. Access to the domestic edible market by foreign competitors was restricted by TRQs. Thus, the traditional peanut program created an income stream from higher prices reserved exclusive for those domestic and foreign farmers who had privileged access. Even domestic farmers without quotas were barred from producing peanuts for the domestic edible market but could produce peanuts as additionals.

The 1996, the FAIR Act had included only modest policy changes in the peanut program. The loan rate for quota peanuts for the domestic edible market was lowered from $678/ton to $610/ton and a price escalator that had previously pushed loan rates up with

rising production costs was eliminated. A minimum national quota was also eliminated, which allowed USDA to set annual quota poundage eligible for the domestic market based on demand estimates, and geographical production restrictions were partially relaxed.[7] The annual effective quota poundage was reduced from 1.47 million tons for the 1995 crop year to 1.15 million tons in 1996 and averaged 1.24 million tons during 1996-2000, only 82 percent of the effective quota average of 1.52 million tons for the pre-FAIR years 1993-1995. Despite the reduced quota, domestic peanut production remained nearly constant. The average national production for 1996-2000 was 1.82 million tons, or 99 percent of the average of 1.85 million tons for the years 1993-1995. As a result, under the FSRIA peanut producers were selling a relatively smaller proportion of their output at a lower quota support price for domestic consumption, and a relatively higher proportion of their peanuts at much lower prices in the additionals market.

One reason for the declining effective quota for the domestic edible market was the international trade agreements to which the United States committed in the 1990s that increased foreign access to the U.S. peanut market. Foreign producer access to the U.S. domestic market for peanuts increased from less than 4 percent of consumption prior to the 1993/94 marketing year to over 10 percent by the 1999/2000 marketing year due to market-access provisions of the WTO and NAFTA. Moreover, under NAFTA the tariff rate for peanuts is scheduled to decline to zero for Mexico in 2008, so imports are likely to rise. As long as the price in the U.S. domestic market remained above the price in world markets, as it had under the peanut quota program, other foreign producers will also have incentives to seek additional access in trade negotiations.

The 2002 FSRIA, however, made fundamental change to the peanut program. Under the FSRIA peanuts receive support through policies similar to other crops. The quota-based dual market structure is replaced with a support program of direct payments that includes the basic three components: loan rates and related payments, fixed direct payments, and counter-cyclical payments. In addition, peanut quota holders are compensated for their loss of quota rights.

The new peanut program is quite lucrative for both former quota holders and for producers of peanuts once sold as additionals. The cash out has an estimated cost of $4 billion over ten years. Under the FSRIA, any producer of peanuts is eligible for a loan rate of $355/ton on all current production. Those who qualify as an “historic producer” of quota or additional peanuts are also guaranteed a direct fixed payment of $36/ton and a target price under the counter-cyclical payment program of $495/ton for the output from 85 percent of historic peanut acres and recent yields. Thus, for a traditional producer who

[7] The tight restriction on peanut production for the domestic edible market had only been relaxed slightly from the original supply control program of the 1930s through 2001. Until 1996, quota peanuts had to be grown in the county and state in which the quota had originally been assigned. Under the FAIR Act some quota could be transferred (leased or permanently sold) across county lines within a state. This reform was phased into effect, until a maximum 40% of the state’s quota was eligible to move across county lines. This policy change allowed part of quota peanut production to move from higher-cost production areas to lower-cost areas. The largest shift of production has occurred in Texas, where nearly all of the allowed quota transfer has occurred from Central Texas to West Texas. Less transfers of quota across county lines occurred in other states.

continues to grow peanuts, the minimum average revenue would be $474/ton on a level of production equal to recent output ((0.85)*($495) + (0.15)*$355 = $474). The traditional peanuts producers also attain planting flexibility. They can receive the fixed payments ($36/ton) and the counter-cyclical payments while growing another crop if that is deemed more profitable. If peanuts are grown, the new guaranteed revenue is much higher than received in the past by additional producers, who had only been eligible for a loan rate of less than $200/ton. And for five years, the quota holders attain an additional $220/ton. Thus, for the next five years the total guaranteed revenue is $694/ton for a quota owner, compared to $610 under the FAIR Act. After five years, guaranteed revenue for a quota holder falls below the previous guarantee, but the quota buyout of $220/ton for five years compares favorably with market prices for many sales of quota rights before the 2002 farm bill was passed. Apparently these market prices included a discount for the possibility that the peanut quota program would not last forever.

There are a number of other political economy aspects to the cash out adopted for peanuts in the United States in 2002. Rising imports and potential trade liberalization that increased foreign access to the domestic edible market were used as arguments to motivate a policy change as being necessary to "preserve the domestic industry." The preservation argument was central—the intent of the new peanut support policy is to sustain the domestic industry not cause its demise. The future of the domestic industry can not be guaranteed under the FSRIA because farmers can shift out of peanut production under planting flexibility, whereas under the earlier quota system peanuts had to be grown to attain the high domestic price. But domestic producers are well compensated for lower market prices under the FSRIA and incentives for domestic peanut production are improved for the traditional growers of additionals and new entrants. In contrast, one group that is disadvantaged by the change in U.S. peanut policy is foreign producers who had attained TRQ market access. Unlike domestic producers, the foreign producers do not receive any payments as compensation for the lower U.S. domestic peanut prices. Under the FSRIA, with lower prices access to the U.S. market is of less value to foreign producers but the U.S. is better positioned to liberalize peanut trade. This positioning is quite in contrast to the sugar policies adopted in 2002.

It is noteworthy that U.S. sugar producers did not endorse a cash-out reform similar to peanuts in 2002, instead opting to tighten restrictions under their traditional price support program. The sugar producers faced the same government budget environment as peanut producers, and could have sought to have some of the new money Congress made available for agricultural support in April 2001 used for sugar payments. Sugar potentially faces even more pressure from imports (tariffs on sugar imports from Mexico also are eliminated in 2008 under NAFTA and world sugar prices remain far below the U.S. levels). Sugar producers are widely held to be a more powerful lobby than peanut producers. Yet the sugar industry didn't seek new cash-out payments under these circumstances. Apparently the industry expects to hold on to its current support program for some time. Trade liberalization is unlikely to occur without being accompanied by some sort of cash out for sugar producers in the United States.

Part of the reason the sugar industry did not endorse a cash out in 2002 lies in the domestic structure of the industry. Cane sugar is characterized by large production units, in Florida in particular, making payment limits per operation a political obstacle to adoption of direct support. A second reason lies in the prospective short-term cost of a sugar cash out. For each penny of payments per pound of sugar under a marketing loan program, the cost is around $180 million, assuming payments on recent levels of output. The PIK program reduced sugar beet acreage by about 6 percent in 2001, which all else constant reduces total domestic sugar production by about 3 percent. If instead of constraining supply market prices had been allowed to fall below the loan rate with compensating cash payments, the program cost would have been from $200 million to as high as $1 billion per year, depending on the price responsiveness (elasticity) of demand. Marketing allotments and PIK programs were anticipated being in use for at least several years in 2002, implying a cash out would prove costly over this time period. Longer term, the cost would depend on uncertain supply and demand conditions, including future international trade agreements, as well as the demand and supply responses to lower prices.

IV.3. Conservation Programs

Conservation and environmental programs play an important role in agricultural production decisions. Through these programs, producers receive cost-share, rental, and other direct payments in return for using specified farming practices or for setting aside land in conserving uses. The FSRIA continues and, in most cases, expands various conservation/environmental programs. The programs that retire environmentally sensitive land from crop production are extended, but most new expenditures are for conservation measures for livestock operations and land that stays in production (see Figure 16).

Idling of farmland under the Conservation Reserve Program (CRP) has been the primary conservation/environmental program in effect since 1985. The final FSRIA increased the land-idling authority of the CRP to 39.2 million acres, compared to 36.4 million under the FAIR Act. This increase in CRP acreage will add marginally to its output-reducing effect.

The Environmental Quality Incentives Program (EQIP), which provides technical assistance, cost sharing, and incentive payments to assist livestock and crop producers with conservation and environmental improvements, is expanded under the FSRIA. Cost sharing (up to 75 percent) or incentive payments can be provided for a wide range of practices, including nutrient management, livestock waste handling, conservation tillage, terraces, and filter strips. EQIP is unique in its relative focus on livestock producers.

Under the FSRIA, a new Conservation Security Program (CSP) is also initiated, as proposed by Senator Harkin. The CSP will focus on land-based practices and specifically excludes livestock waste-handling facilities. Producers will develop and submit a conservation plan to USDA that identifies the resources and designated land to be conserved. The plan can include conservation practices that fall within one of three tiers provided in the program. Producers entering into first-tier conservation security contracts

will receive a base payment for conducting the practices designated in the conservation plan. Producers may also be eligible for bonus payments for implementing additional (tier two and three) conservation measures.

The new mix of conservation support programs under the FSRIA calls attention to the policy discretion involved in U.S. programs regarding acreage idling for environmental purposes. While the U.S. has maintained the CRP and related long-term land-idling since 1985, it is not under any international obligation to do so. Historically, the U.S. has enacted conservation land idling as a supply control measure during times of low prices (the 1930s, the 1960s, and again in 1985) and has let these programs expire when market demand is relatively strong, as in the 1970s. Competitors in world markets don't object to land idling in the United States, which reduces U.S. production and gives the foreign producers a competitive advantage, but the CRP has been criticized for unnecessarily restricting output and pushing world prices for basic grains higher than otherwise. Were the U.S. to shift more fully toward support for use of environmental practices on land that continues in production in the future, along lines of the CSP, output could expand but competitors in world markets would have little basis for objections under the WTO or other trade agreements.

The conservation programs of the FSRIA also brings attention to the affects of domestic environmental regulations on agricultural competitiveness. Should EQIP or CSP payments be considered production subsidies? Once domestic regulations are enacted requiring certain environmental performance, producers are obliged to comply. The EQIP expenditures reduce compliance costs of producers. Under an alternative approach, these could be viewed as costs that should be borne by producers (the polluter pays) that might affect agricultural production levels. Thus, the EQIP expenditures can be considered production subsidies, but under WTO rules any subsidies that offset (but do not exceed) environmental costs of measures undertaken by producers are eligible for classification in the green box and are exempt from limit commitments. Likewise, subsidies under the CSP are, in principle, offsetting costs related to maintaining environmental quality, and thus qualify as being in the WTO green box even if adoption of the supported practices is not required by domestic regulations.

IV.4. Trade Provisions

The FSRIA continues and modifies programs designed to develop and expand commercial outlets for U.S. commodities in world markets and to provide international food assistance. Increased emphasis is placed on high-value and value-added products and export programs oriented toward development of commercial markets. The subsidizing Export Enhancement Program (EEP) is re-authorized in the FSRIA, although this program has not been used for crops in recent years because of the loan rate payments that have allowed market prices for crops to fall as low as needed to make U.S. products competitive in world markets.

For dairy products, U.S. domestic prices can exceed world levels. The Dairy Export Incentive Program (DEIP) is extended and pays cash subsidies that allow dairy product

exporters to buy U.S. products and sell them abroad when international prices are below domestic prices. Removing products from the domestic market with the DEIP helps sustain domestic price levels and thus plays a role in the milk price support program. The DEIP quantities and dollar amounts are subject to WTO limit commitments.

There is also the question of whether total payments for non-exempt crop support under the FSRIA will violate the U.S. amber box limit commitment in the WTO Agreement on Agriculture. The FSRIA requires the Secretary of Agriculture "to the maximum extent practicable, to adjust domestic commodity program expenditures to avoid exceeding allowable" WTO domestic support ceilings. Although exceeding the U.S. commitment is possible with very low prices, it is unlikely. The United States is cleverly using the *de minimis* exemption for non commodity-specific support to reduce the probability that the new FSRIA counter-cyclical payments will count against its WTO constraint, as described above. A number of countries are finding other clever tricks that can be used to meet the letter of their WTO commitments without substantially changing the support provided to agriculture.

Finally, the FSRIA introduces several new technical trade barriers. Country of origin labeling is mandated by 2004 for meats and fresh fruits and vegetables. Increased importation for fattening in the United States of feeder cattle from Mexico and feeder pigs from Canada provided much of the impetus for some agricultural producers to lobby for these new rules. In order for livestock to be labeled as a product of the United States, the animals have to be born, raised and processed domestically. The country of origin labeling requirement will impose implementation costs that could reduce access of foreign products to the U.S. market or lead to price discounts for foreign producers. In the case of a few specialty products (catfish and ginseng) the FSRIA includes definitions that preclude foreign products from the domestic market. These restrictions are potentially subject to challenge in the WTO.

IV.5. Empirical Assessments of Farm Bill Impacts

Taking into account the four three main crop support programs, the special programs for sugar, peanuts and dairy products, and conservation/environmental programs, what can be said about the production-stimulating and trade-distorting effects of U.S. farm policies? The loan rates provide price incentives that increase production of the main crops, while the CRP directly reduces crop acreage. The fixed direct payments are largely decoupled from crop production, but raise farmers' wealth. These payments are a source of subsidy "envy" abroad where less-subsidized farmers would welcome similarly higher wealth levels, but the direct payments only cause subsidy injury to foreign producers (from lower world prices that are induced) if the increased wealth of U.S. farmers, or anticipation of future updating of support-payment eligibility, has indirect production-stimulating effects. The new FSRIA counter-cyclical payments are also partly decoupled from production, but may stimulate increased output through their revenue insurance effects, as well as through indirect effects similar to the fixed payments. For the specialty commodities, the U.S. sugar program stimulates domestic production and reduces consumption, at a cost to foreign producers excluded from the U.S. market. Trade and

domestic policies for dairy products similarly limits foreign market access. For peanuts, the new FSRIA support program eliminates a price differential that once made the U.S. market lucrative for those foreign producers with TRQ access but precluded access by other foreign producers.

Empirical assessment of the production and market impacts of U.S. farm programs can be made in several contexts. Studies that have assessed the overall effects of the many support policies among wealthy countries have highlighted the net detrimental effect these policies have on developing countries. One recent study (Beghin *et al.*) estimates that rural value-added in low- and middle-income developing countries would rise by $60 billion if developed countries removed all of their agricultural protection and subsidy policies.

Studies that focus on U.S. policies alone show less production-stimulating and price-depressing effects, as described above. Loan rates have the most direct impacts on production among the commodity support policies. Westcott and Price (cited above) found that loan rate expenditures during 1999-2001 raised aggregate acreage of eight major crops about 2 percent. This study took into account only the subsidy effects of loan rates; related studies suggest the insurance effects can create additional impacts of similar magnitude. Gardner (also cited above) calculates that U.S. output was raised by about 4 percent from 1998-2001 because of various subsidies.

Despite the heated rhetoric that has surrounded the 2002 FSRIA, only limited additional impacts are found from enactment of the new farm bill. An analysis of projected crop production under the FSRIA compared to continuation of the FAIR Act by Westcott, Young and Price shows the loan rates in the FSRIA leading to at most a 1 percent short-run increase in aggregate planted acreage. In their analysis, an increased enrollment of land in the CRP more than offsets the production-stimulating effects of the changed loan rates in the longer term, so the new farm bill results in less aggregate output after a few years. This study again accounts only for the subsidy effects of higher loan rates, ignoring the insurance effects that result from reduced price variance. With both effects accounted for, the net effect is likely to be slightly higher crop production under the FSRIA. Likewise, if world prices turn out lower than projected by the study, loan rate expenditures and effects on U.S. production would be larger, as they were during 1998-2001.

V. THE U.S. PROPOSAL FOR DOHA ROUND NEGOTIATIONS ON AGRICULTURE

While violation of the formal U.S. commitments in the WTO is unlikely under the FSRIA, the re-institutionalization and extension of subsidy programs in the new U.S. farm bill certainly violates the spirit of a pledge WTO members made in the Agreement on Agriculture to renew negotiations in 2000 with the intent to achieve further reductions in tariffs and support. This inconsistency has caused some of the intense rhetoric about

the U.S. farm bill. Adoption of the expensive new farm bill drives a wedge between the United States and the Cairns Group of smaller and less subsidized agricultural exporters. It has even allowed the European Union, which is generally protective of its domestic agriculture and has been slower to adopt decoupled policy instruments, to fault the United States for backsliding.

The WTO agriculture negotiations are now integrated into the Doha Round that was launched in November 2001. Just after the FSRIA was enacted, the U.S. submitted, in July 2002, a new WTO proposal on agriculture. The U.S. proposal calls both for changes in the instruments through which WTO reduction commitments are measured and for significant new disciplines on the levels of agricultural tariffs and subsidies.

The United States proposes that the linear tariff reduction rules of 1995-2000 be replaced by use of a Swiss formula that would bring high tariffs down more rapidly than low tariffs. A maximum tariff rate of 25 percent would apply after five years. The U.S. proposal for domestic support is that the special exemption from WTO limitation commitments be abolished for blue box programs that combine acreage-idling provisions and partially decoupled counter-cyclical payments. These expenditures would be subjected along with other non-exempt support to an aggregate ceiling of 5 percent of the total value of agricultural production. This appears a sharp reduction of domestic support, but the U.S. still exempts both product-specific and not-product-specific expenditures fitting the *de minimis* rules, which continues to leave room for additional support programs (see Brink for discussion). The U.S. proposal calls for a complete elimination of direct export subsidies, export taxes, and phased reductions in controls on agricultural trade by state enterprises. Special safeguard provisions regarding TRQ commodities would be eliminated and clarifications made about TRQ administration and the use of export credits or other forms of implicit trade subsidization. The U.S. proposal acknowledges that special and differential treatment would apply to commitments of developing countries. These criteria are spelled out in some cases and left vague in others.

Overall, the U.S. proposal calls for substantial reductions of trade barriers in world agriculture. The Unites States has, in this sense, reestablished its position as a rhetorical champion of agricultural trade liberalization within the WTO. This may seem purely posturing—"political hypocrisy" in Stiglitz's terms—given enactment of the new U.S. domestic farm bill. However, the current divergence between U.S. domestic policy and its international negotiating position follows a familiar pattern. As described above, in the 1986-1993 GATT Uruguay Round of negotiation enactment of an expensive and interventionist domestic farm bill in 1985 was followed by a U.S. proposal for drastic subsidy reductions—the "zero option" for elimination of all trade-distorting domestic and border policies within ten years.

In 2002, as in the 1980s, while not reforming its farm policies unilaterally the United States has expressing willingness, if its proposal is taken at face value, to engage in simultaneous multilateral liberalization of a significant magnitude. The European Union and Japan, also major players in world agricultural markets, have judged the 2002 U.S.

proposal too drastic, rejecting it so far just as they opposed the U.S. zero option and negotiated for less tough commitments to tariff and subsidy reductions throughout the GATT Uruguay Round.

If the past pattern of international negotiations repeats itself in the Doha Round, the July 2002 U.S. proposal calls for a degree of liberalization of world agricultural markets that exceeds the amount of reform other nations will eventually agree to enact. But suppose other countries were to "call the U.S. bluff." Would the United States be in a position under its new farm bill to accept this unexpected offer?

In several respects, the U.S. proposal is designed not only to bring substantial trade liberalization but to do so in ways that are particularly easy on its own farm programs. The U.S. has relatively few high protective tariffs that would have to come down sharply with the Swiss formula. It is also easy for the U.S. to call for eliminating blue box exemption, since it unilaterally gave up support programs in the blue box when it adopted planting flexibility under the 1996 FAIR Act. Export subsidies are hardly used by the U.S., export taxes are unconstitutional, and the U.S. does not restrict agricultural trade access to specified state enterprises. The burdens of reform called for in these areas by the U.S. proposal would mostly fall elsewhere.

Enacting the U.S. WTO proposal nonetheless would impose some significant restrictions on it own farm programs. The peanut program was reformed in 2002 in a way that facilitates adoption of a 25-percent tariff maximum, but bringing down existing tariffs on sugar and dairy products would require changes in entrenched domestic support programs. The proposed limit for non-exempt domestic support of 5 percent of the aggregate value of total agricultural production would leave the United States with a cap of about $10 billion on non-exempt amber box support, just half of its current limitation. Meeting that cap would entail reducing support, unless clever new schemes to shield expenditures were concocted. The subsidy constraint would be even more binding if other nations were to propose that separate constraints be applied to crop production and livestock production, in which case non-exempt U.S. farm program expenditures would be limited to around $5 billion annually. Thus, at face value, the U.S. Doha Round proposal could discipline the agricultural subsidies and protection of the United States compared to current levels, as well as those of other WTO member countries.

VI. CONCLUSION: IS PROGRESS POSSIBLE TOWARD LESS SUBSIDIES AND PROTECTION?

The 2002 U.S. farm bill has been widely criticized for increasing subsidies with detrimental effects on competing agricultural producers abroad and for undermining U.S. leadership in achieving liberalized world agricultural trade. A careful assessment shows that the 2002 FSRIA has effects that are nuanced in at least four respects. It raises expenditures compared to 1996 legislation, but not compared to actual 1998-2001 outlays. It maintains planting flexibility, but extends support to new crops and

undermines some of the decoupling of subsidy payments from production and market prices that had occurred. It violates the spirit of U.S. trade liberalization rhetoric, but probably not the letter of U.S. WTO commitments. And it continues the policies of wealthy countries that collectively distort agricultural production and world prices, but only marginally worsen the net effects of these policies.

The July 2002 U.S. WTO proposal on agriculture calls for significant multilateral restraint on subsidies and protection, none of which was undertaken on a unilateral basis in the new farm bill. This divergence has frustrated proponents of further agricultural trade liberalization who would have preferred sharp unilateral reform action by the United States in 2002 as a clarion call for similar reforms abroad. Still, the current divergence between U.S. domestic policy and its international negotiating position does not preclude progress on agriculture as the multilateral negotiations proceed. Limited progress was eventually made after the Uruguay Round started under similar circumstances. By the conclusion of those negotiations, the 1985 U.S. farm bill that had been out of step with the initial U.S. GATT proposal hardly could be considered a key obstacle to the Agreement on Agriculture that was reached. It should be hoped that substantial additional progress is made on agriculture in the Doha Round. The expensive 2002 U.S. farm bill that precedes the international negotiations, while unfortunate, is not going to be the limiting determinant of reforms achieved in a new multilateral agreement for agriculture.

VII. SELECTED READING

Beghin, John C., David Roland-Holst and Dominique van der Mensbrugghe. "Global Agricultural Trade and the Doha Round: What are the Implications for the North and South?" Working Paper 02-WP 308, Center for Agricultural and Rural Development, Iowa State University, Ames, Iowa, June 2002. Available at www.card.iastate.edu.

Brink, Lars. "Assessing the Proposals of the Cairns Group, Canada, and the United States for WTO Disciplines on Domestic Support," presented at the annual meeting of the International Agricultural Trade Research Consortium (IATRC), Monterey California, December 2002.

Commission on 21st Century Production Agriculture. Directions for Future Farm Policy: The Role of Government in Support of Production Agriculture, Report to the President and Congress, January 2001.

ERS, USDA. "The 2002 Farm Bill: Side by Side Comparison with 1996-2001 Farm Legislation." Available at www.ers.usda.gov.

FAPRI. "The 1-2-3 Scenarios: An Analysis of Safety Net Alternatives," FAPRI-UMC Report 7-00, Iowa State University, July 2000.

_____. "Analysis of the Grain, Oilseed, and Cotton Provisions of the Agricultural Act of 2001, H.R. 2646." FAPRI-UMC Report 9-01, Iowa State University, August 2001.

GAO. "Market Loss Assistance Payments," GAO/RCED-00-177R, June 2000.

Gardner, Bruce. "North American Agricultural Policies and Effects on Western Hemisphere Markets." Draft paper presented at the conference Agricultural Liberalization and Integration: What to Expect from the FTAA and the WTO?, Inter-American Development Bank, Washington D.C., September 23, 2002.

Green, Randy. "The New Farm Bill and Trade Policy: Bargaining Chip or Time Bomb?" Presented at the annual meeting of the American Agricultural Economics Association, Long Beach, California, July 29, 2002.

House Agriculture Committee. "The Facts on U.S. Farm Policy." Available at www.agriculture.house.gov.

Mullen, Kathleen. The Risk Reduction Effects of U.S. Direct Government Payments on Production and Welfare, M.S. Thesis, Cornell University, August 2001.

Orden, David. “Reform’s Stunted Crop.” Regulation 25:1 (Spring 2002): 26-32.

Orden, David. “It is Time for Domestic Sugar Policy Reform.” Testimony presented to the United States Senate Committee on Agriculture, Nutrition and Forestry, July 2000.

Orden, David, Rashid S. Kaukab and Eugenio Diaz-Bonilla. “Liberalizing Agricultural Trade and Developing Countries.” Issue Brief, Carnegie Endowment for International Peace, November 2002. Available at www.ceip.org/files/pdf/Agricultural-Liberalization-IssueBrief.pdf.

Orden, David, Robert Paarlberg and Terry Roe. Policy Reform in American Agriculture: Analysis and Prognosis. Chicago: The University of Chicago Press, 1999.

Sumner, Daniel A. “Implications of the U.S. Farm Bill of 2002 for Agricultural Trade and Trade Negotiations.” Presented at the annual symposium of the Australian Agricultural and Resource Economics Society, University of New England, Armidale, Australia, September 19, 2002.

U.S. Congress. The Future of Federal Farm Commodity Programs, Hearings before the Committee on Agriculture, Serial No. 107-2, U.S. Government Printing Office, Washington D.C., 2001.

Westcott, Paul C., C. Edwin Young and J. Michael Price. “The 2002 Farm Act: Provisions and

Implications for Commodity Markets.” Agriculture Information Bulletin Number 778, Economic Research Service, U.S. Department of Agriculture, November 2002. Available at www.ers.usda.gov.

Westcott, Paul C. and J. Michael Price. “Analysis of the U.S. Commodity Loan Program with Marketing Loan Provisions.” Agricultural Information Bulletin Number 801, Economic Research Service, U.S. Department of Agriculture, April 2001.

Young, Edwin C. and Paul C. Westcott. “How Decoupled is U.S. Agricultural Support for Major Crops?” American Journal of Agricultural Economics 82:3 (August 2000): 762-767.

Table 1. Who Are Today's Farmers

Category	Number	Percent of Total Sales	Average Income per Household ($)		
			Off-farm	Farm Total	Payments
Limited Resources	150,268	1	13,153	-3,229	620
Retirement	290,938	2	47,158	-2,499	1,494
Residential	834,321	6	76,390	-4,309	902

Source: ERS, USDA

Table 2. Who Are Today's Farmers (continued)

Category	Number	Percent of Total Sales	Average Income per Household ($)		
			Off-farm	Farm Total	Payments
Farming Occupation					
Sales <$100,000	422,205	4	37,186	-2,413	2,260
Sales $100K-249,999	171,469	15	28,717	21,463	11,314
Sales $250K-499,999	91,939	15	47,252	59,289	21,451
Sales $500,000 +	61,273	57	33,240	175,865	25,379

Table 3. Planting Flexibility (million acres)

Crop	Traditional Base Acreage	2002 Expected Planted Acreage
Wheat	78.4	62.3
Corn	81.4	79.7
Sorghum	13.5	9.5
Barley	11.1	5.9
Oats	6.7	4.9
Upland Cotton	16.4	15.4
Rice	4.2	3.4
Soybeans*	60.6*	74.6
Sunflowers*	2.9*	2.7

•Not a "base acreage" crop under the 1990 or 1996 farm bill.

Acreage shown is the 1990-1995 average planted.

Table 4. Government Payments to Farmers 1996-2000 (million dollars)

	1996	1997	1998	1999	2000
Pre-FAIR Programs	-732	-575	-5	NA	NA
CRP, Other Env.	2,099	1,950	1,475	1,494	1,615
AMTA Payments	5,973	6,120	6,001	5,046	5,049
Marketing Loan Payments/Gains	0	0	1,792	6,814	7,551
"Emergency" Assistance	0	0	2,841	7,804	8,492
Total*	7,340	7,495	12,380	21,513	22,896

Source: USDA. * Includes small miscellaneous not shown

Table 5. Government Payments to Farmers 2001-2002 (million dollars)

	2001	2002 (F)
Pre-FAIR Programs	NA	NA
CRP, Other Env.	1,803	1,845
AMTA/Direct/Counter-cyclical/ Peanut quota/Dairy Payments	4,040	9,916
Marketing Loan Payments/Gains	6,172	4,026
"Emergency" Assistance	8,405	908
Total*	20,727	16,971

Source: USDA. * Includes small miscellaneous not shown

Table 6. Farm Income 1991-2001 (billion dollars)

Year	Net Cash	Net Farm
Average 91-95	53.5	43.2
Average 96-97	58.1	51.8
1998	54.8	42.9
1999	55.7	44.3
2000	57.5	46.4
Average 98-00	56.0	44.5

Table 7. Farm Income 2001-2002 (billion dollars)

	2001	2002 (F)
Crop Receipts	96.4	99.1
Livestock Receipts	106.4	97.4
Direct Payments	20.7	17.0
Farm-related Income	14.9	15.7
Gross Cash Income	238.5	229.2
Cash Expenses	178.8	178.4
Net Cash Income	59.7	50.8
Net Farm Income	45.7	36.2

Table 8. Direct Payments

Crops	1996 Farm Bill 2002 Rate	2002 Farm Bill 2002 – 07 Rate
Corn ($/bu)	0.261	0.28
Sorghum ($/bu)	0.314	0.35
Wheat ($/bu)	0.461	0.52
Upland Cotton ($/lb)	0.0572	0.0667
Rice ($/cwt)	2.05	2.35
Barley ($/bu)	0.202	0.24
Oats ($/bu)	0.022	0.024
Soybeans ($/bu)	N/A	0.44
Minor Oilseeds ($/lb)	N/A	0.0080
Peanuts ($/ton)	N/A	36

Table 9. Loan Rates

Crops	1996 Farm Bill 2001 Rate	2002 Farm Bill 2002 – 03 Rate	2002 Farm Bill 2004 – 07 Rate
Corn ($/bu)	1.89	1.98	1.95
Sorghum ($/bu)	1.71	1.98	1.95
Wheat ($/bu)	2.58	2.80	2.75
Upland Cotton ($/lb)	0.5192	0.52	0.52
Rice ($/cwt)	6.50	6.50	6.50
Barley ($/bu)	1.65	1.88	1.85
Oats ($/bu)	1.21	1.35	1.33
Soybeans ($/bu)	5.26	5.00	5.00
Minor Oilseeds ($/lb)	0.093	0.096	0.093
Peanuts ($/ton)	N/A	355.0	355.0
Dry Peas ($/cwt)	N/A	6.33	6.22
Lentils ($/cwt)	N/A	11.94	11.72
Small Chickpeas ($/cwt)	N/A	7.56	7.43

Table 10. Target Prices

Crops	2002 - 2003	2004 – 2007
Corn ($/bu)	2.60	2.63
Sorghum ($/bu)	2.54	2.57
Wheat ($/bu)	3.86	3.92
Upland Cotton ($/lb)	0.724	0.724
Rice ($/cwt)	10.50	10.50
Barley ($/bu)	2.21	2.24
Oats ($/bu)	1.40	1.44
Soybeans ($/bu)	5.80	5.80
Minor Oilseeds ($/lb)	0.0980	0.1010
Peanuts ($/ton)	495.0	495.0

Figure 1. Corn Acres

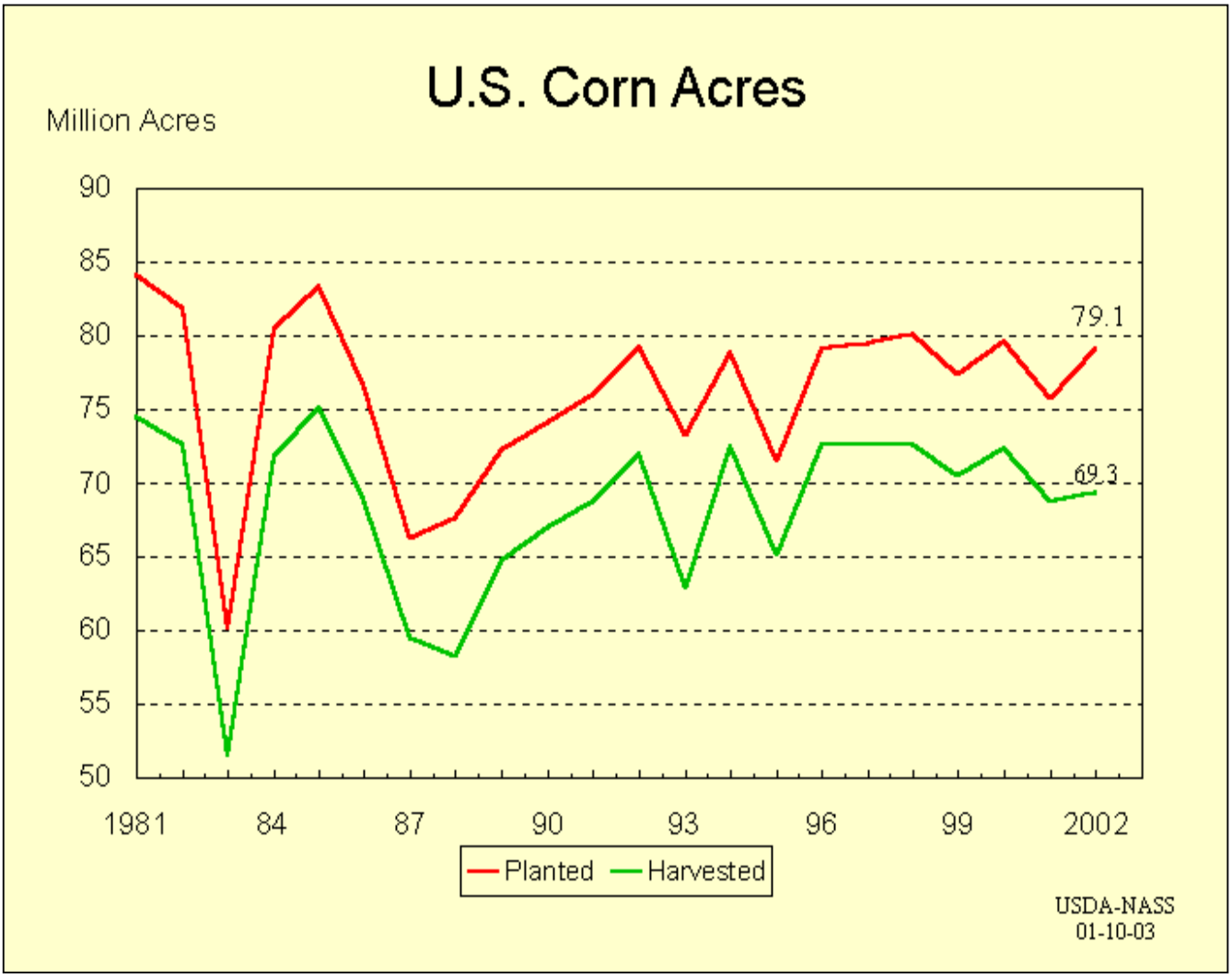


Figure 2. Wheat Acres

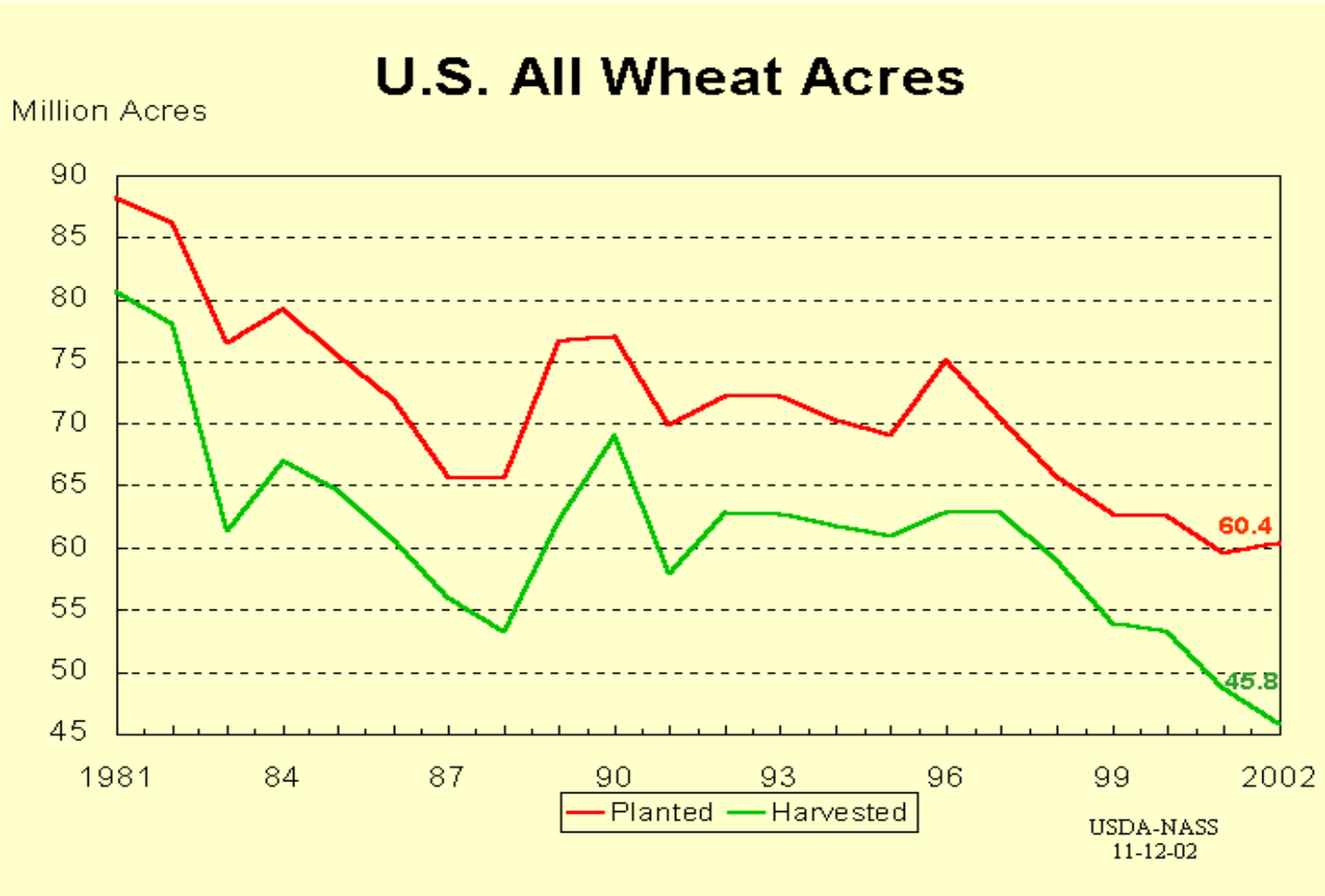


Figure 3. Soybean Acres

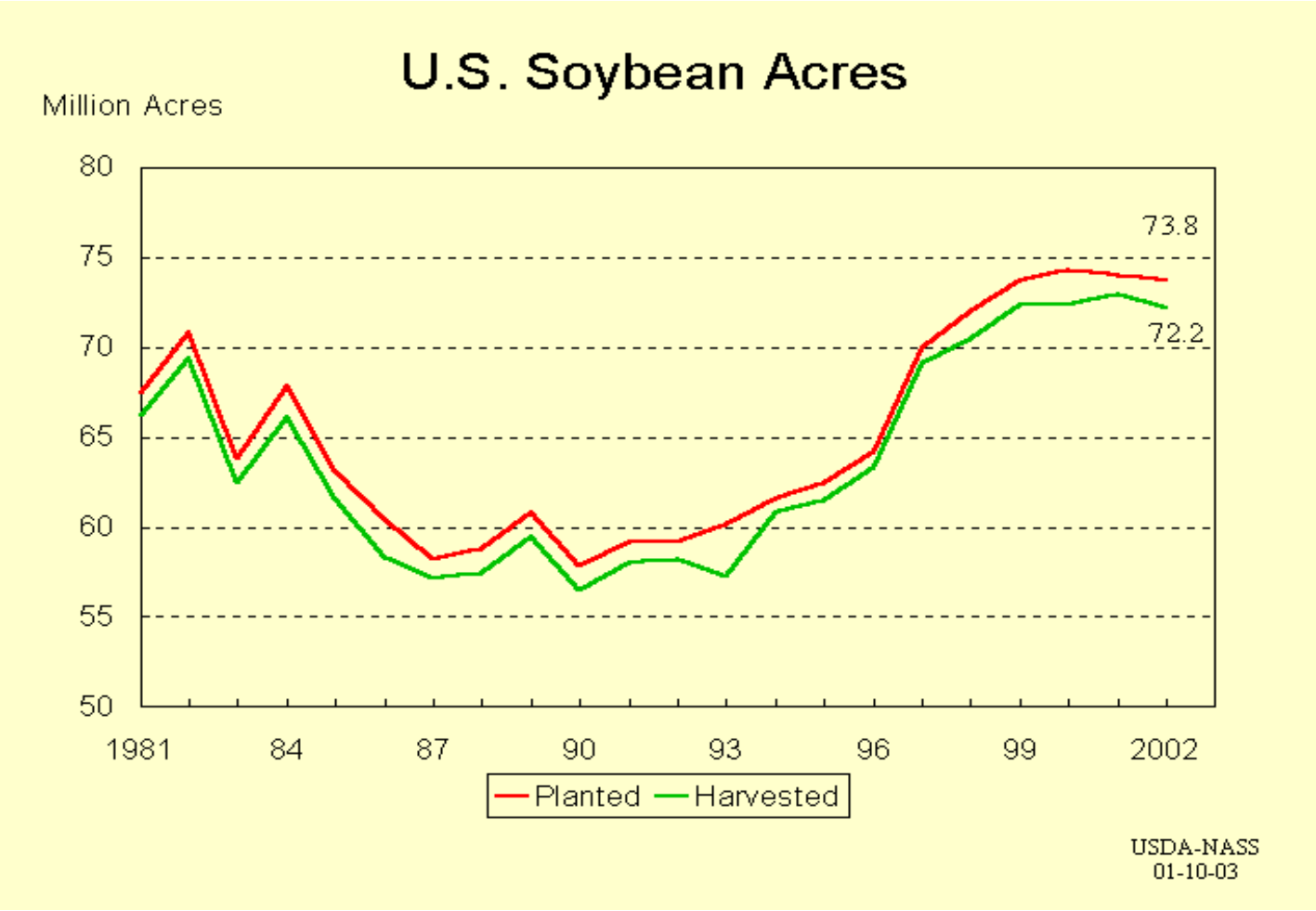


Figure 4. Projected and Actual Corn Acreage

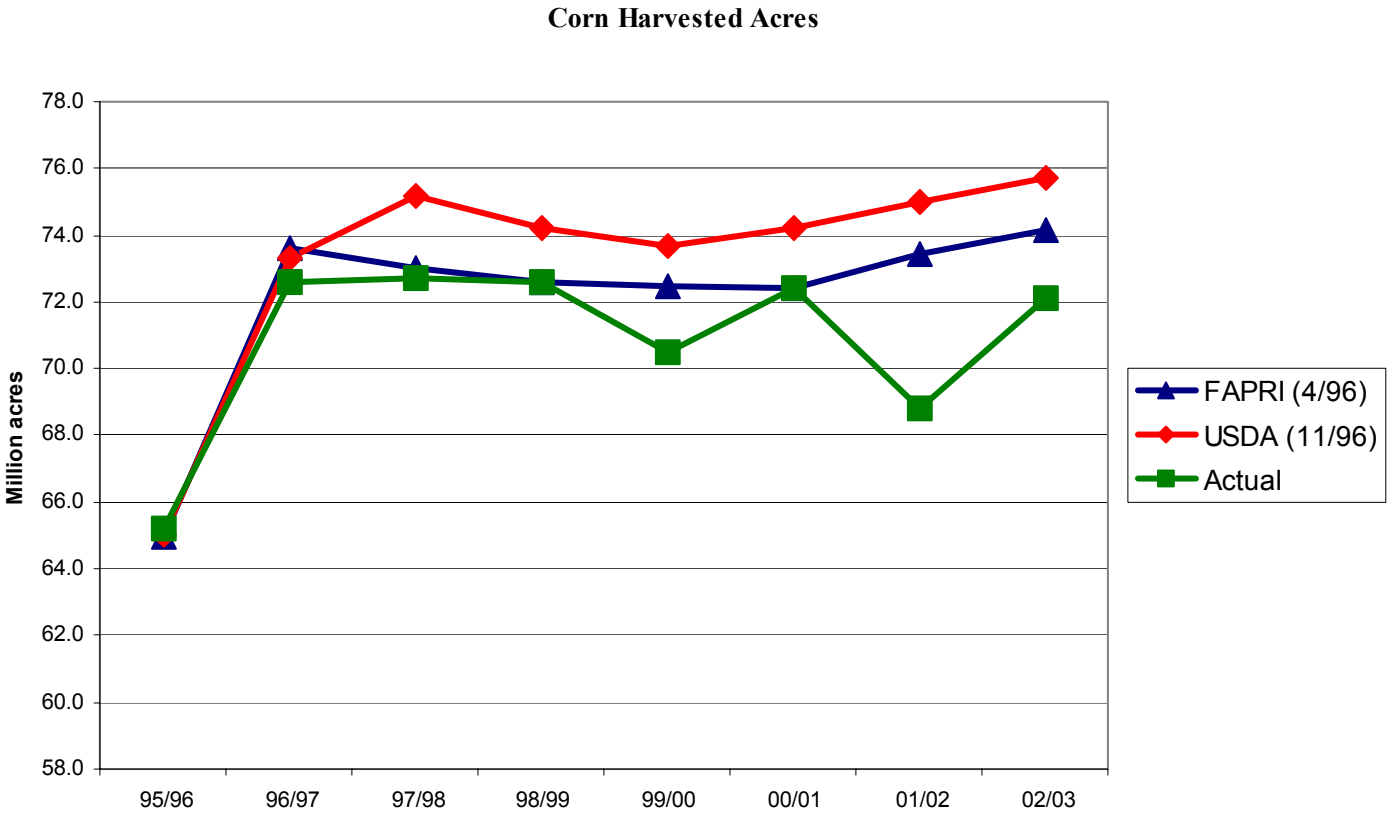


Figure 5. Projected and Actual Wheat Acreage

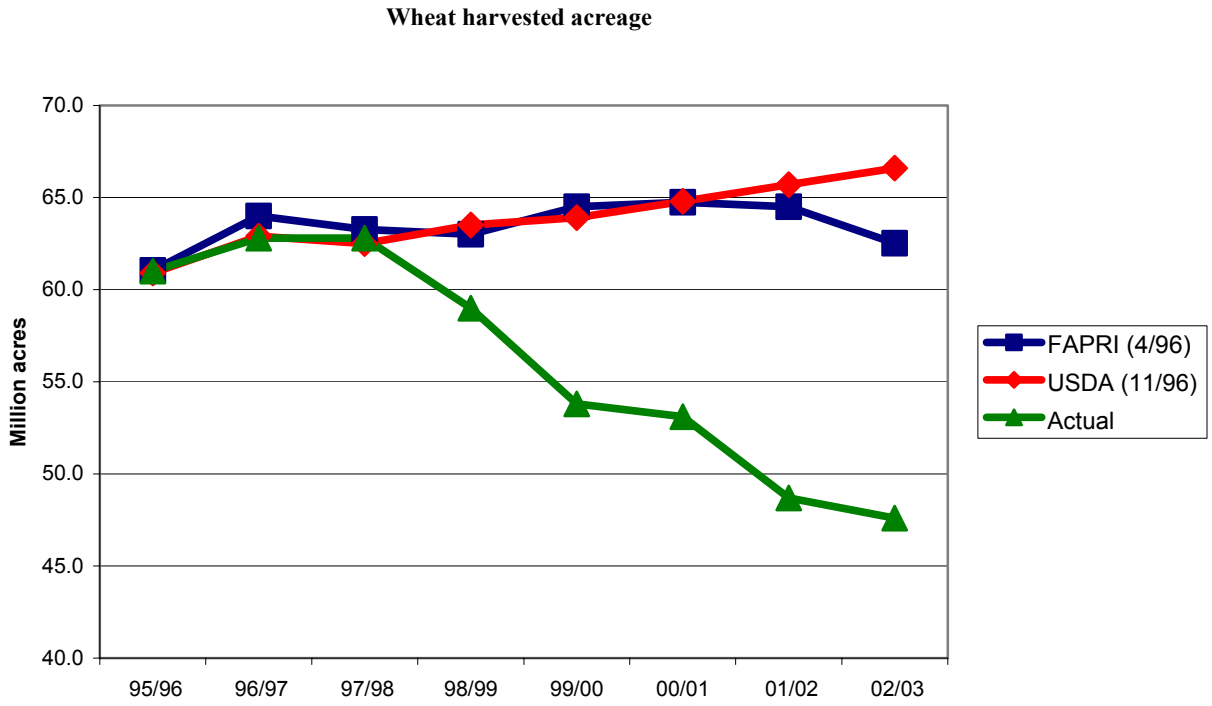


Figure 6. Projected and Actual Soybean Acreage

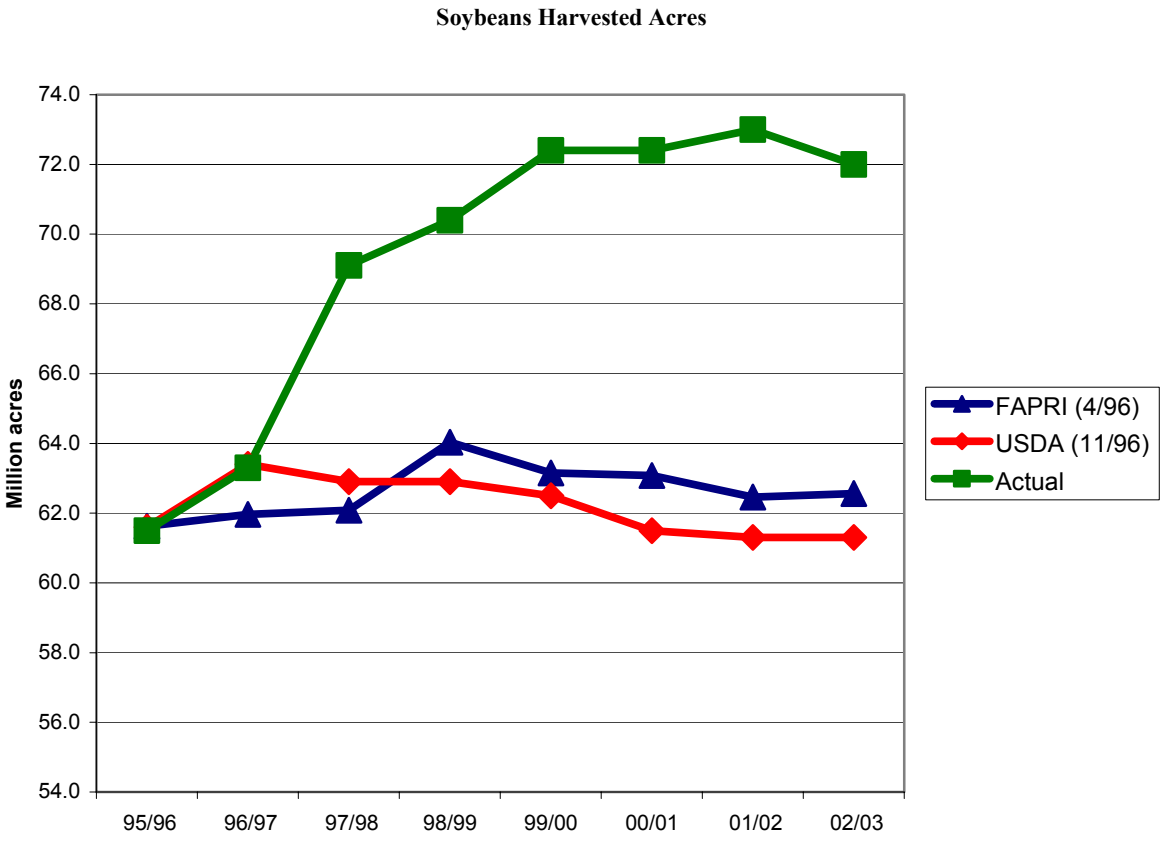


Figure 7. Prices Received and Paid

Figure 8. Location of CRP Enrollment (October 2000)

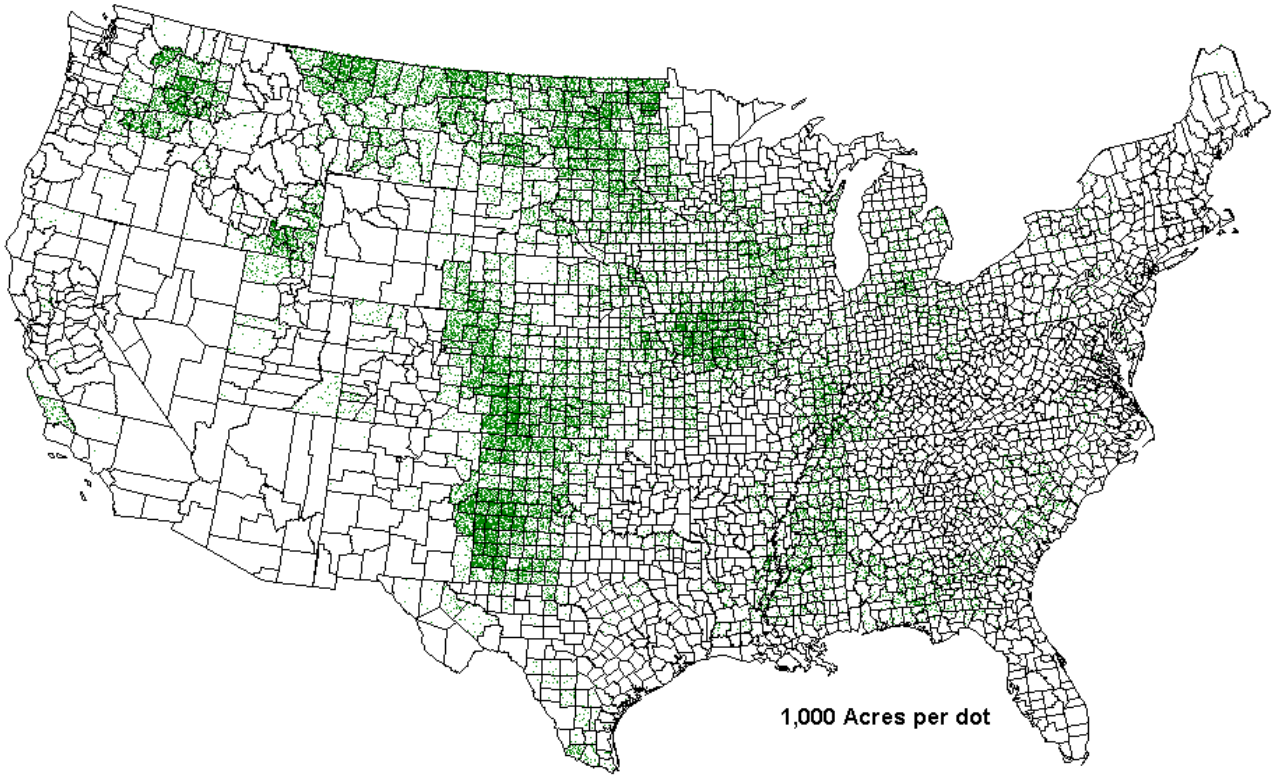
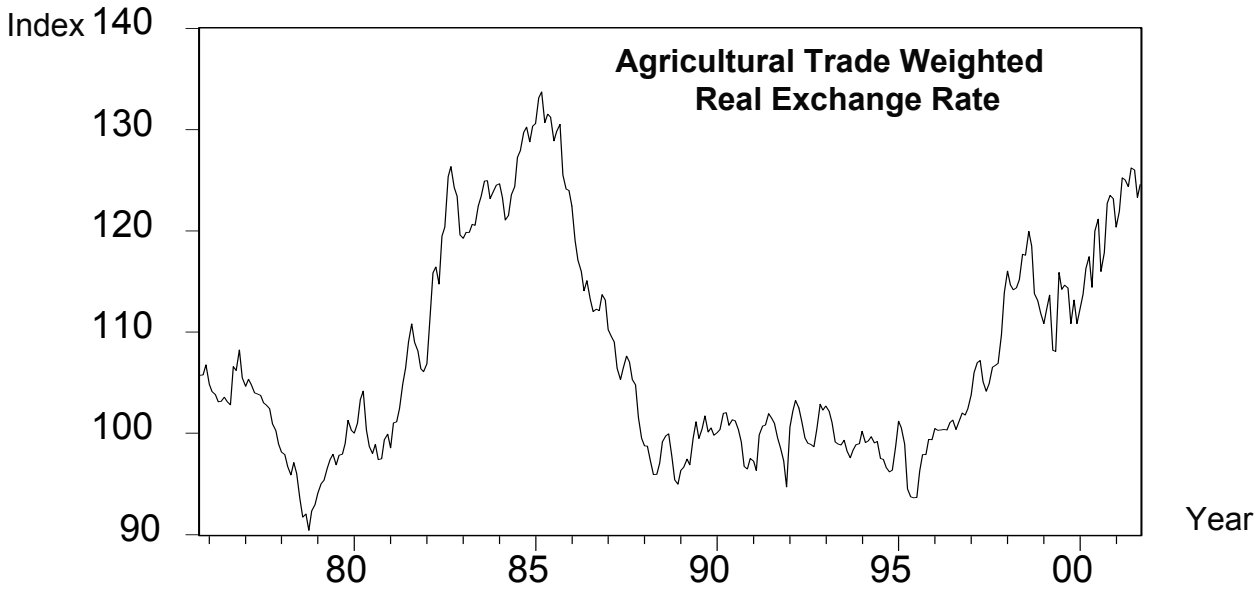


Figure 9. U.S. Agricultural Trade Weighted Real Exchange Rate and Real Agricultural Exports and Imports



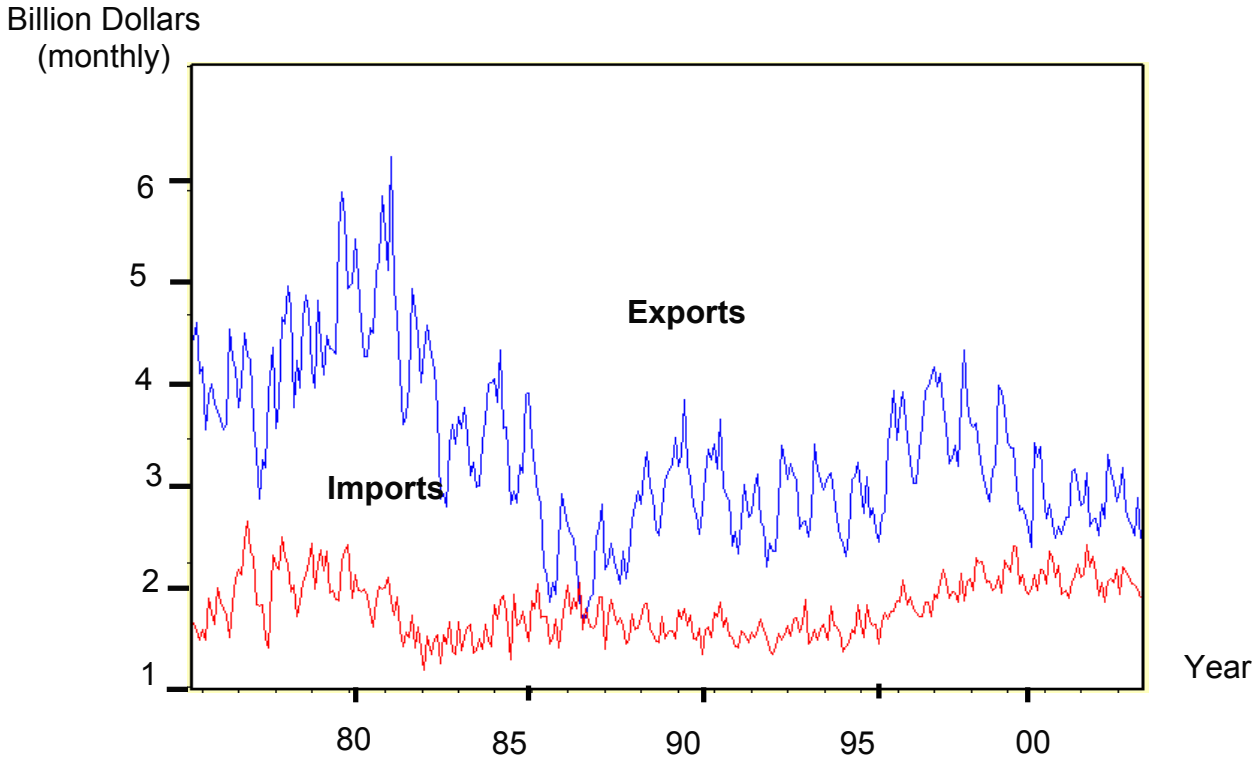
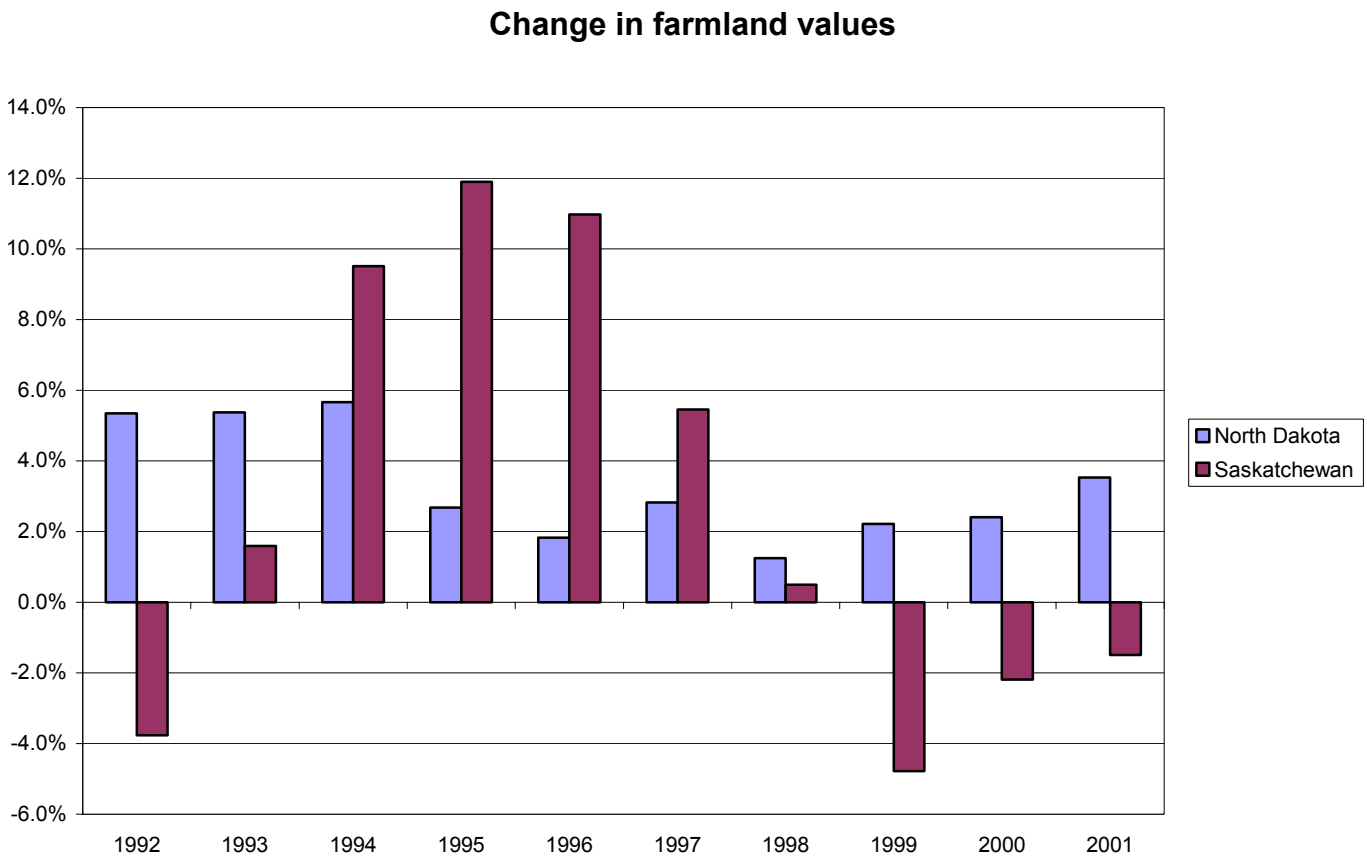


Figure 10. U.S./Canadian Land Values



Source: Joe Glauber, USDA

Figure 11. Effects of a Safety Net

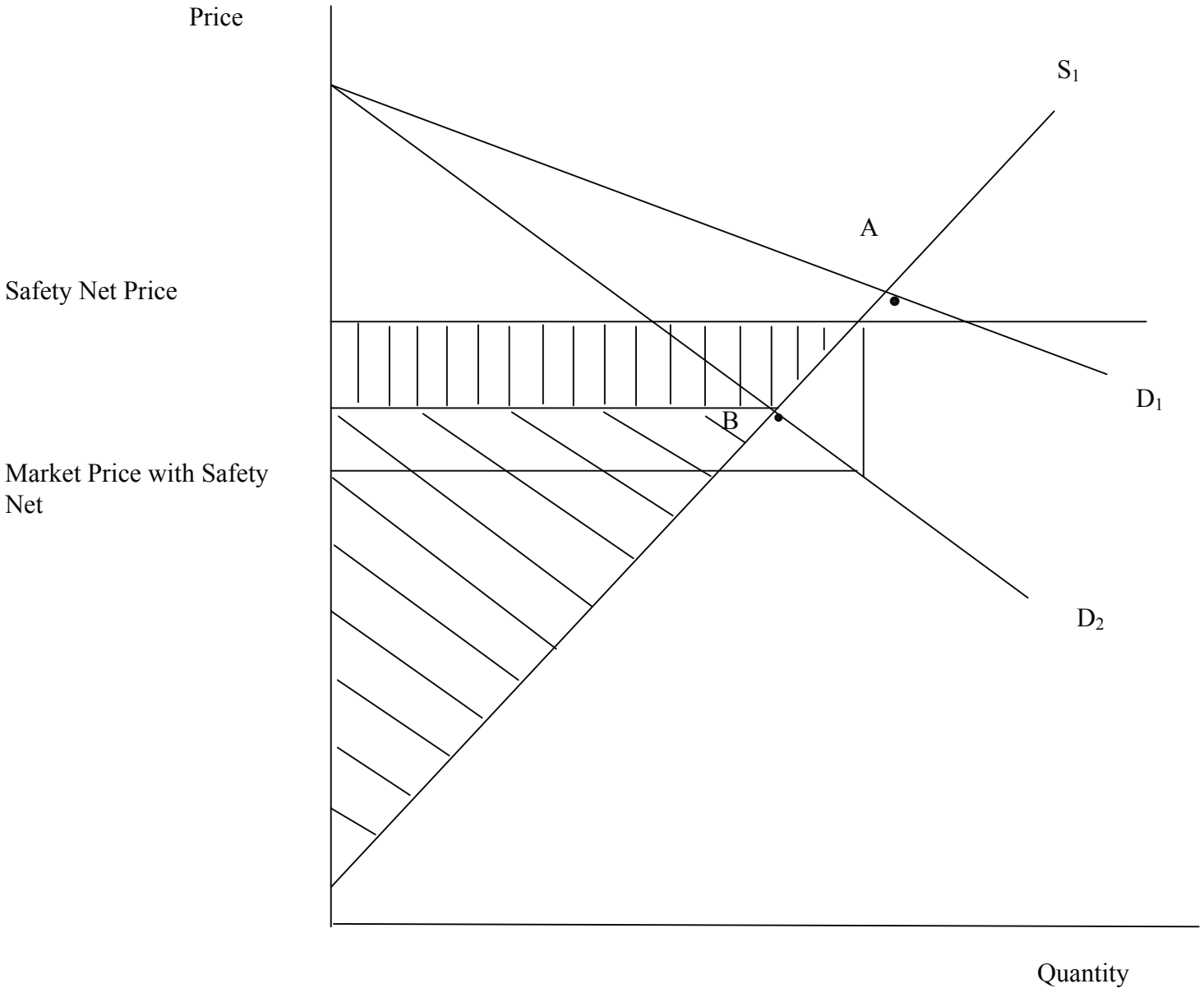


Figure 12. Effects of a Safety Net (continued)

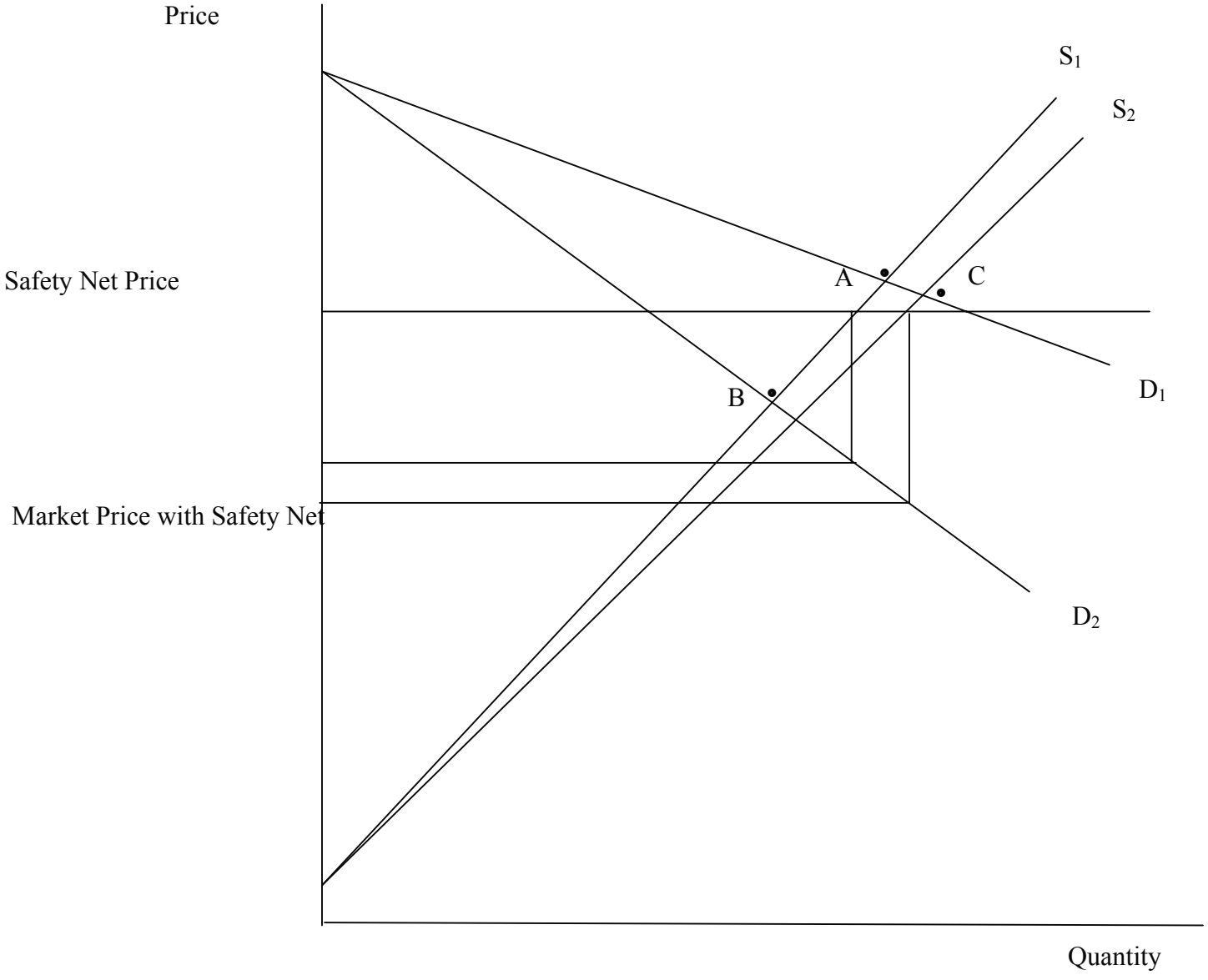
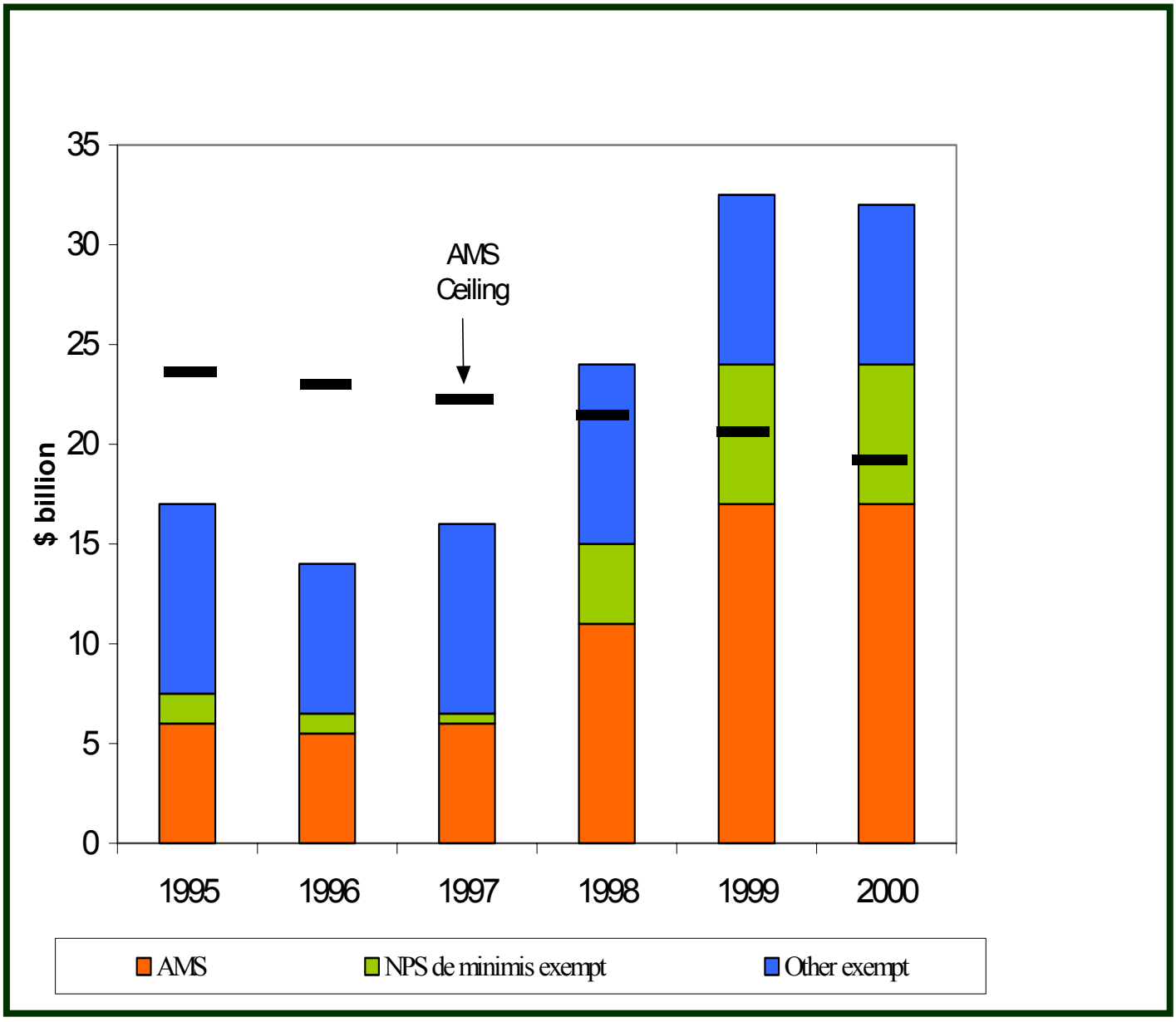
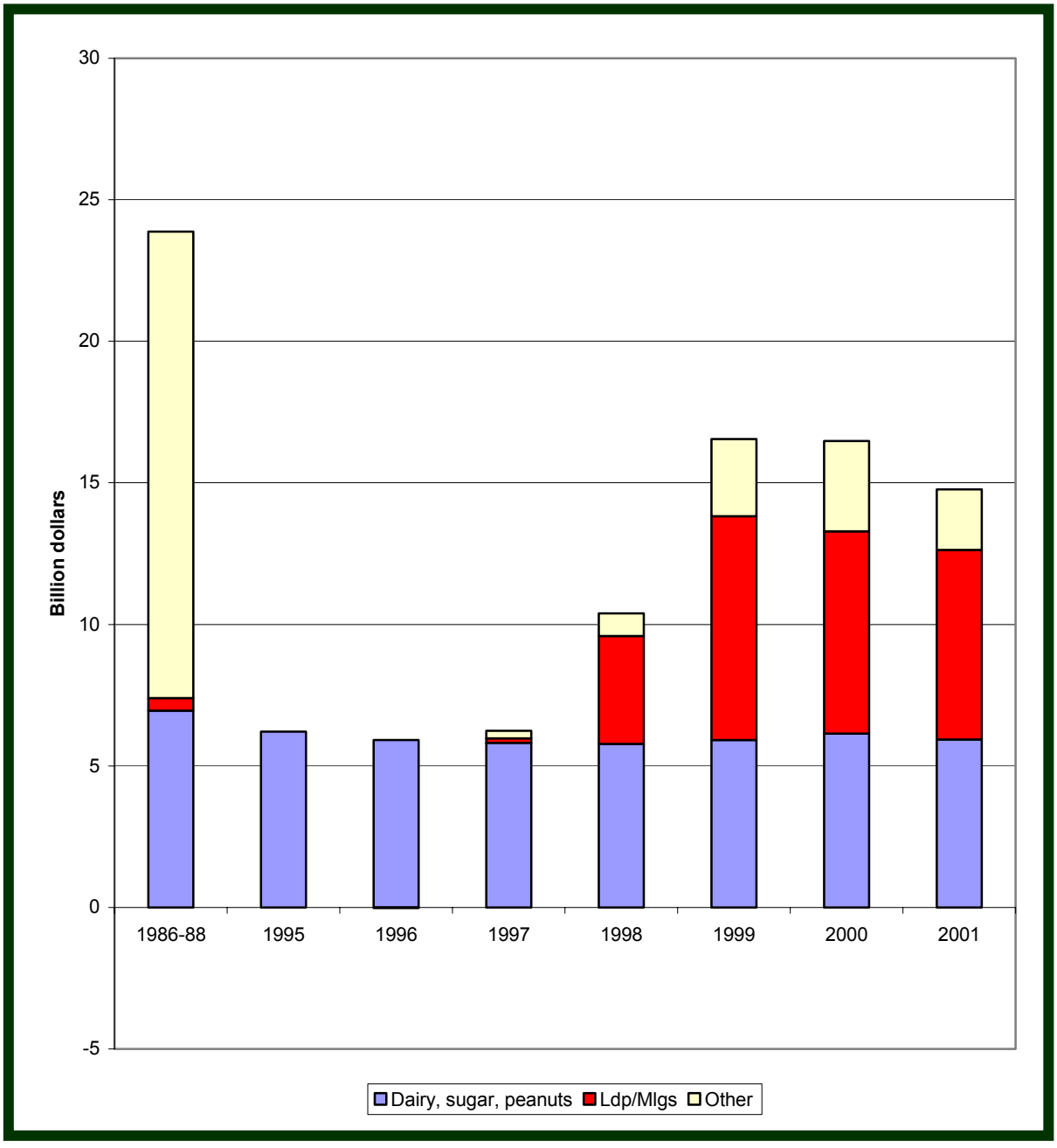


Figure 13. U.S. Direct Support by WTO Category



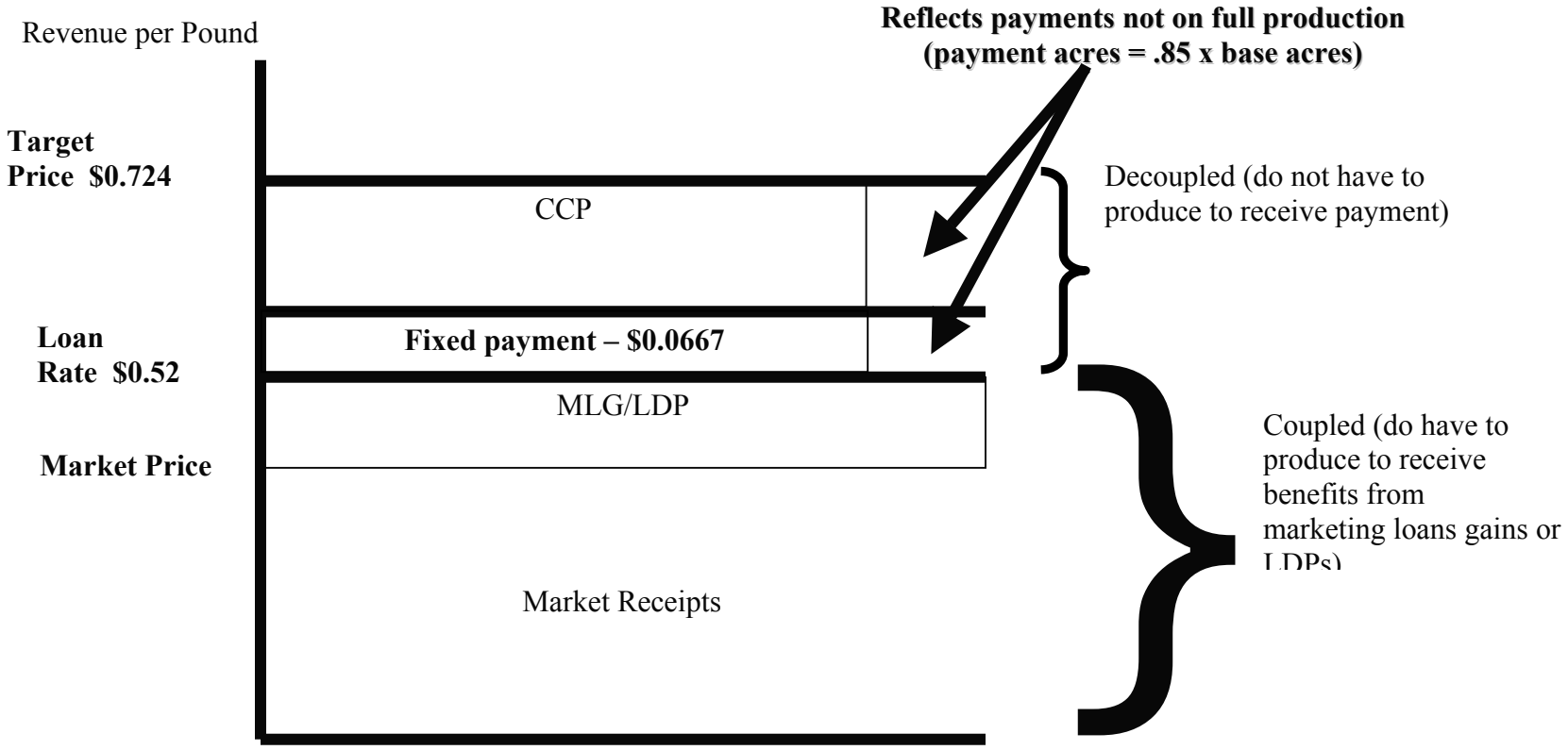
Source: Dan Sumner

Figure 14. WTO Amber Box Expenditures by U.S.



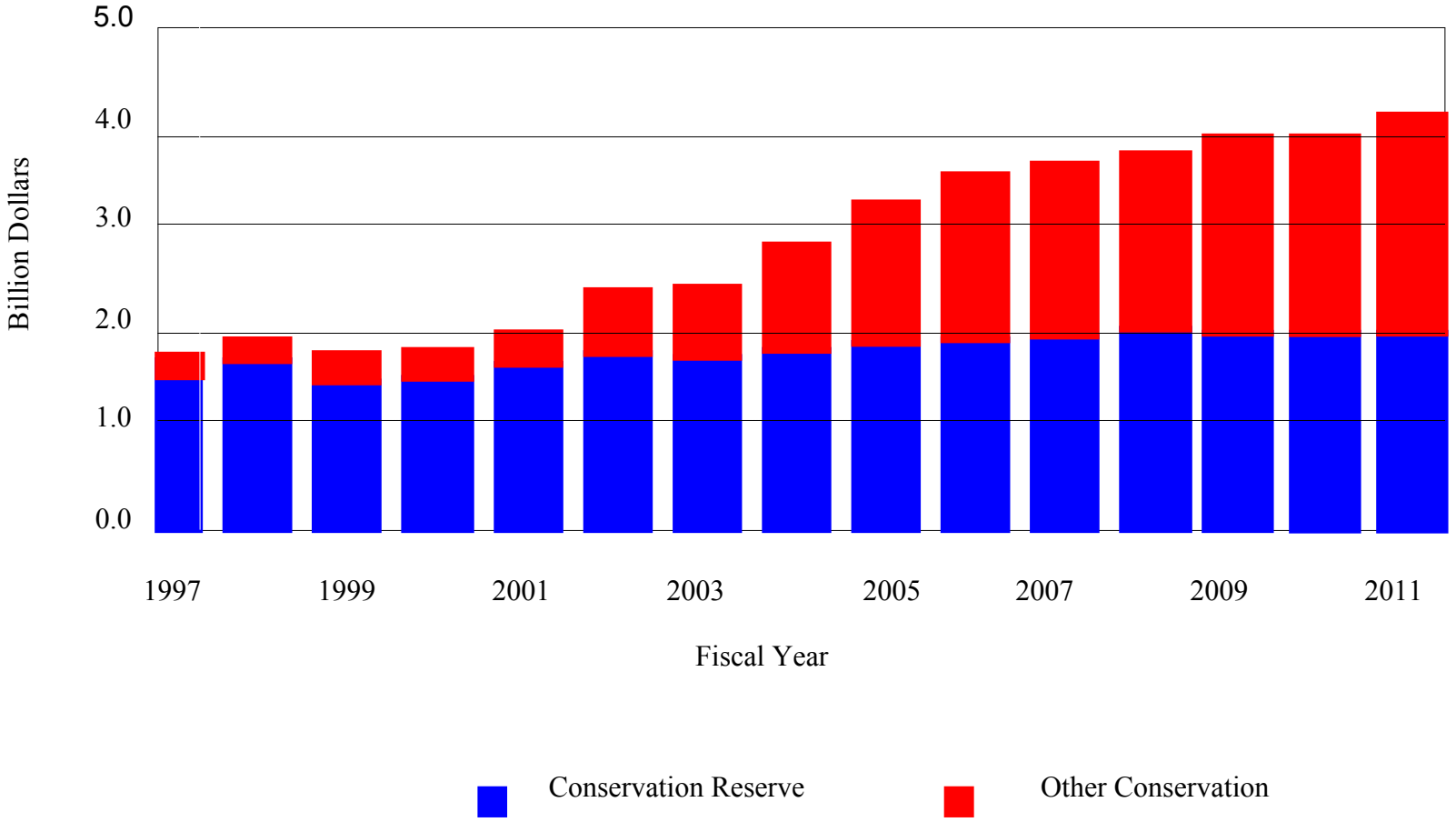
Source: Dan Sumner

Figure 15. Three Forms of Government Support
(example: cotton)



Source: Joe Outlaw, Texas A&M University

Figure 16. Conservation Program Expenditures



Source: FAPRI, July 2002 Baseline

LIST OF DISCUSSION PAPERS

No. 51 - "Agriculture-Based Development: A SAM Perspective on Central Viet Nam" by Romeo M. Bautista (January 2000)

No. 52 - "Structural Adjustment, Agriculture, and Deforestation in the Sumatera Regional Economy" by Nu Nu San, Hans Lofgren and Sherman Robinson (March 2000)

No. 53 - "Empirical Models, Rules, and Optimization: Turning Positive Economics on its Head" by Andrea Cattaneo and Sherman Robinson (April 2000)

No. 54 - "Small Countries and the Case for Regionalism vs. Multilateralism" by Mary E. Burfisher, Sherman Robinson and Karen Thierfelder (May 2000)

No. 55 - "Genetic Engineering and Trade: Panacea or Dilemma for Developing Countries" by Chantal Pohl Nielsen, Sherman Robinson and Karen Thierfelder (May 2000)

No. 56 - "An International, Multi-Region General Equilibrium Model of Agricultural Trade Liberalization in the South Mediterranean NICs, Turkey, and the European Union" by Ali Bayar, Xinshen Diao and A. Erinc Yeldan (May 2000)

No. 57 - "Macroeconomic and Agricultural Reforms in Zimbabwe: Policy Complementarities Toward Equitable Growth" by Romeo M. Bautista and Marcelle Thomas (June 2000)

No. 58 - "Updating and Estimating a Social Accounting Matrix Using Cross Entropy Methods" by Sherman Robinson, Andrea Cattaneo and Moataz El-Said (August 2000)

No. 59 - "Food Security and Trade Negotiations in the World Trade Organization: A Cluster Analysis of Country Groups" by Eugenio Diaz-Bonilla, Marcelle Thomas, Andrea Cattaneo and Sherman Robinson (November 2000)

No. 60 - "Why the Poor Care About Partial Versus General Equilibrium Effects Part 1: Methodology and Country Case" by Peter Wobst (November 2000)

No. 61 - "Growth, Distribution and Poverty in Madagascar: Learning from a Microsimulation Model in a General Equilibrium Framework" by Denis Cogneau and Anne-Sophie Robilliard (November 2000)

No. 62- "Farmland Holdings, Crop Planting Structure and Input Usage: An Analysis of China's Agricultural Census" by Xinshen Diao, Yi Zhang and Agapi Somwaru (November 2000)

No. 63- "Rural Labor Migration, Characteristics, and Employment Patterns: A Study Based on China's Agricultural Census" by Francis Tuan, Agapi Somwaru and Xinshen Diao (November 2000)

No. 64- "GAMS Code for Estimating a Social Accounting Matrix (SAM) Using Cross Entropy (CE) Methods" by Sherman Robinson and Moataz El-Said (December 2000)

No. 65- "A Computable General Equilibrium Analysis of Mexicos Agricultural Policy Reforms" by Rebecca Lee Harris (January 2001)

No. 66- "Distribution and Growth in Latin America in an Era of Structural Reform" by Samuel A. Morley (January 2001)

No. 67- "What Has Happened to Growth in Latin America" by Samuel A. Morley (January 2001)

No. 68- "Chinas WTO Accession: Conflicts with Domestic Agricultural Policies and Institutions" by Hunter Colby, Xinshen Diao and Francis Tuan (January 2001)

No. 69- "A 1998 Social Accounting Matrix for Malawi" by Osten Chulu and Peter Wobst (February 2001)

No. 70- "A CGE Model for Malawi: Technical Documentation" by Hans Lofgren (February 2001)

No. 71- "External Shocks and Domestic Poverty Alleviation: Simulations With a CGE Model of Malawi" by Hans Lofgren with Osten Chulu, Osky Sichinga, Franklin Simtowe, Hardwick Tchale, Ralph Tseka and Peter Wobst (February 2001)

No. 72 - "Less Poverty in Egypt? Explorations of Alternative Pasts with Lessons for the Future" by Hans Lofgren (February 2001)

No. 73- "Macro Policies and the Food Sector in Bangladesh: A General Equilibrium Analysis" by Marzia Fontana, Peter Wobst and Paul Dorosh (February 2001)

No. 74- "A 1993-94 Social Accounting Matrix with Gender Features for Bangladesh" by Marzia Fontana and Peter Wobst (April 2001)

No. 75- "A Standard Computable General Equilibrium (CGE) Model" by Hans Lofgren, Rebecca Lee Harris and Sherman Robinson (April 2001)

No. 76- "A Regional General Equilibrium Analysis of the Welfare Impact of Cash Transfers: An Analysis of Progresa in Mexico" by David P. Coady and Rebecca Lee Harris (June 2001)

No. 77- "Genetically Modified Foods, Trade, and Developing Countries" by Chantal Pohl Nielsen, Karen Thierfelder and Sherman Robinson (August 2001)

No. 78- "The Impact of Alternative Development Strategies on Growth and Distribution: Simulations with a Dynamic Model for Egypt" by Moataz El-Said, Hans Lofgren and Sherman Robinson (September 2001)

No. 79- "Impact of MFA Phase-Out on the World Economy an Intertemporal, Global General Equilibrium Analysis" by Xinshen Diao and Agapi Somwaru (October 2001)

No. 80- "Free Trade Agreements and the SADC Economies" by Jeffrey D. Lewis, Sherman Robinson and Karen Thierfelder (November 2001)

No. 81- "WTO, Agriculture, and Developing Countries: A Survey of Issues" by Eugenio Diaz-Bonilla, Sherman Robinson, Marcelle Thomas and Yukitsugu Yanoma (January 2002)

No. 82- "On boxes, Contents, and Users: Food Security and the WTO Negotiations" by Eugenio Diaz-Bonilla, Marcelle Thomas and Sherman Robinson (November 2001: Revised July 2002)

No. 83- "Economy-Wide Effects of El Niño/Southern Oscillation ENSO in Mexico and the Role of Improved Forecasting and Technological change" by Rebecca Lee Harris and Sherman Robinson (November 2001)

No. 84- "Land Reform in Zimbabwe: Farm-Level Effects and Cost-Benefit Analysis" by Anne-Sophie Robilliard, Crispen Sukume, Yuki Yanoma and Hans Lofgren (December 2001: Revised May 2002)

No. 85- "Developing Country Interest in Agricultural Reforms Under the World Trade Organization" by Xinshen Diao, Terry Roe and Agapi Somwaru (January 2002)

No. 86- "Social Accounting Matrices for Vietnam 1996 and 1997" by Chantal Pohl Nielsen (January 2002)

No. 87- "How Chinas WTO Accession Affects Rural Economy in the Less Developed Regions: A Multi-Region, General Equilibrium Analysis" by Xinshen Diao, Shenggen Fan and Xiaobo Zhang (January 2002)

No. 88- "HIV/AIDS and Macroeconomic Prospects for Mozambique: An Initial Assessment" by Charming Arndt (January 2002)

No. 89- "International Spillovers, Productivity Growth and Openness in Thailand: An Intertemporal General Equilibrium Analysis" by Xinshen Diao, Jorn Rattso and Hildegunn Ekroll Stokke (February 2002)

No. 90- "Scenarios for Trade Integration in the Americas" by Xinshen Diao, Eugenio Diaz-Bonilla and Sherman Robinson (February 2002)

No. 91- "Assessing Impacts of Declines in the World Price of Tobacco on China, Malawi, Turkey, and Zimbabwe" by Xinshen Diao, Sherman Robinson, Marcelle Thomas and Peter Wobst (March 2002)

No. 92- "The Impact of Domestic and Global Trade Liberalization on Five Southern African Countries" by Peter Wobst (March 2002)

No. 93- "An Analysis of the Skilled-Unskilled Wage Gap Using a General Equilibrium Trade Model" by Karen Thierfelder and Sherman Robinson (May 2002)

No. 94- "That Was Then But This is Now: Multifunctionality in Industry and Agriculture" by Eugenio Diaz-Bonilla and Jonathan Tin (May 2002)

No. 95- "A 1998 Social Accounting Matrix (SAM) for Thailand" by Jennifer Chung-I Li (July 2002)

No. 96- "Trade and the Skilled-Unskilled Wage Gap in a Model With Differentiated Goods" by Karen Thierfelder and Sherman Robinson (August 2002)

No. 97- "Estimation of a Regionalized Mexican Social Accounting Matrix: Using Entropy Techniques to Reconcile Disparate Data Sources" by Rebecca Lee Harris (August 2002)

No. 98- "The Influence of Computable General Equilibrium Models on Policy" by Shantayanan Devarajan and Sherman Robinson (August 2002)

No. 99- "Macro and Macro Effects of Recent and Potential Shocks to Copper Mining in Zambia" by Hans Lofgren, Sherman Robinson and James Thurlow (August 2002)

No. 100- "A Standard Computable General Equilibrium Model for South Africa" by James Thurlow and Dirk Ernst van Seventer (September 2002)

No. 101- "Can South Africa Afford to Become Africa's First Welfare State" by James Thurlow (September 2002)

No. 102- "HIV/AIDS and Labor Markets in Tanzania" by Channing Arndt and Peter Wobst (October 2002)

No. 103- "Economy-Wide Benefits from Establishing Water User-Right Markets in a Spatially Heterogeneous Agricultural Economy" by Xinshen Diao, Terry Roe and Rachid Doukkali (October 2002)

No. 104- "Do Direct Payments Have Intertemporal Effects on U.S. Agriculture?" by Terry Roe, Agapi Somwaru and Xinshen Diao (October 2002)

No. 105- "General Equilibrium Measures of Agricultural Policy Bias in Fifteen Developing Countries" by Henning Tarp Jensen, Sherman Robinson and Finn Tarp (October 2002)

No. 106- "Trade in Genetically Modified Food: A Survey of Empirical Studies" by Chantal Pohl Nielsen, Sherman Robinson and Karen Thierfelder (November 2002)

No. 107- "Opportunities and Challenges in Agriculture and Garments: A General Equilibrium Analysis of the Bangladesh Economy" by Channing Arndt, Paul Dorosh, Marzia Fontana and Sajjad Zohir with Moataz El-Said and Christen Lungren (November 2002)

No. 108- "Globalizing Health Benefits for Developing Countries" by Eugenio Díaz-Bonilla, Julie Babinard, Per Pinstrup-Andersen and Marcelle Thomas (December 2002)

No. 109- "U.S. Agricultural Policy: The 2002 Farm Bill and WTO Doha Round Proposal" by David Orden (February 2003)

Copies can be obtained by calling Maria Cohan at 202-862-5627 or e-mail: m.cohan@cgiar.org