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## Directions of U.S. Farm Programmes under a Freer Trade Environment

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For the new round of WTO multilateral trade liberalisation negotiations to be successful, the world will need to be more enthusiastic and flexible about opening markets. Partisans will need to submerge their self-interests, and the U.S. will need to take the initiative for more open markets. This paper makes the case that only modest changes in the U.S. domestic grain, oilseed, and cotton programmes are needed for compatibility with global free trade. The Federal Agricultural Improvement and Reform (FAIR) Act of 1996 and related policy changes in the 1990s brought fundamental reforms compatible with freer domestic and foreign markets. Chief among these were a shift from coupled deficiency payments to decoupled direct payments, an end to supply management, and less engagement of government in commodity stock accumulation and export subsidies. Converting commodity price support to recourse loans while ending all but administrative cost subsidies to crop insurance would go far to liberalise grain, oilseed, and cotton policies. Unilateral termination of commodity programmes including direct payments totalling 42 percent of net cash farm income in year 2000 would appear to be traumatic to producers. However, reduction of direct payments could be offset (for farm income) by rising farm commodity prices and receipts resulting from (1) less farm output attending lower loan rates and crop insurance subsidies, and (2) world farm commodity price-enhancement from freer global trade.

### INTRODUCTION

Global agricultural trade has stubbornly avoided multilateral liberalisation through bilateral Reciprocal Trade Agreement Act negotiations from 1934 to 1947, and seven rounds of General Agreement on Tariff and Trade multilateral agreements from 1947 through the Uruguay Round ending in 1994. Now agricultural trade liberalisation stands in the way of broader trade liberalisation, which is useful if not essential to invigorate a moribund world economy.

Key countries and regions retain “sacred cows” that they remain unwilling to sacrifice on the altar of free trade. The European Union demands its *precautionary* and *multifunctionality* principles. Canada wants to retain its wheat board and its dairy and poultry quota policies. East Asia insists on protecting domestic rice industries. The United States demands environmental and social (labour) chapters as

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strongly as developing countries (now dominating World Trade Organisation membership) oppose those chapters. The U.S. also clings to dairy, sugar, peanut, and tobacco programmes that will be challenged in future WTO negotiations.

If a new round of WTO multilateral trade liberalisation negotiations is to be successful, the world will need to be more enthusiastic and flexible about such negotiations than at present. Today, the U.S.A. and the world are hostage to commodity-group and other special interests. Partisans will need to submerge their self-interests to “jump-start” the faltering world economy. The U.S. probably will need to take the initiative with Congress’ providing trade promotion (fast-track) authority. This paper makes the case that only modest changes in the U.S. domestic grain, oilseed, and cotton programmes are needed for global free trade compliance. Changes to comply with global free trade in dairy, tobacco, sugar, and peanut programmes will be more difficult for the U.S. but also could provide major national and international income (deadweight) gains.

The U.S. and, indeed, worldwide *domestic* farm commodity programme policy and *international* trade policy are inseparable. Liberalisation of domestic commodity programmes and international trade tend to go together, but with no clear order of causality. Domestic MacSharry liberalisation of European Union domestic farm policy in 1992, and the 1985 and 1990 U.S. farm bills were precursors to a successful Uruguay Round Agricultural Agreement (URAA) in 1994. On the other hand, provision in the URAA for a 20 percent reduction in trade, distorting (amber box) programmes such as commodity price supports without production controls in developed countries by year 2000 while placing no limits on non-trade-distorting (green box) programmes such as decoupled direct payments, makes trade liberalisation a force for domestic farm policy liberalisation.

Nonetheless, some distinctions remain between domestic and international policy liberalisation. It is possible to have comprehensible unilateral domestic farm policy liberalisation without international policy liberalisation, as in the case of New Zealand, but it is more difficult to have comprehensive international trade policy liberalisation without domestic farm commodity policy liberalisation. This paper addresses potential impacts of the United States’ unilateral versus multilateral trade and commodity programme liberalisation. First, however, I review the implications of domestic agricultural commodity programme liberalisation for the U.S.

### **IMPACT OF 1996 FARM COMMODITY PROGRAMMES ON FARM OUTPUT AND RECEIPTS**

Table 1 contains estimates from various sources of the percentage increase in farm output (above competitive levels) induced by Production Flexibility Contract (PFC) payments, by marketing loan and loan deficiency payments, and by crop/revenue insurance subsidies.

Table 1

*Annual Loss of Farm Receipts and the Excess of Farm Output above Competitive Market Levels Induced by the 1996 Farm Bill, U.S., 1998–2000*

Programme Feature	Contribution to Farm Output		Loss in Farm Receipts <sup>a</sup>	
	Low	High	Short Run	Intermediate Run
	(Percent of Farm Output)		(\$ Billion)	
Direct Payments	0.15(W)	0.25(B)	0.68 1.13	0.19 0.32
Price Supports Including Loan Deficiency Payments	0.68(W)	1.38(W)	3.07 6.22	0.88 1.78
Insurance Subsidies	0.28(W)	4.10(S)	1.26 18.48	0.36 5.28
Total, All Sources	1.11	5.73	5.01 25.83	1.43 7.38

*Sources:* Interpreted from Westcott and Young (W); Burfisher, *et al.* (B); Skees (S).

<sup>a</sup>Proportional addition to output multiplied by gross receipts elasticity  $1+1/E$  times 1998–2000 farm receipts averaging \$193.2 billion.  $E$  is aggregate adjustment elasticity defined as the sum of demand and supply elasticities where short-run  $E = -0.3$ , intermediate run  $E = -0.6$ , and long run  $E = -1.0$ . Because  $E = -1.0$  in the long run, the receipt impact is zero.

### Direct Payments

Direct government payments averaged \$16 billion per year from 1998 to 2000 and were the principal farm income support instrument [U.S. Department of Agriculture (2001), p. 58]. The term “decoupled” implies that payments do not influence farm pricing, output, and trade. In fact, no payment is purely decoupled. Farmers are inevitably short of funds—either cash or loan collateral—to acquire more production inputs. Payments lose that constraint and find their way into expanding production inputs and outputs. Some farm programmes are far more decoupled from output than others, however, as is apparent in Table 1. The estimates, indicating that direct payments added only 0.15 to 0.25 percent to farm output, are an important and reassuring finding, if correct. The numbers imply that direct payments can be used to maintain domestic farm income without seriously distorting domestic output or international trade. Direct payment transfers to farmers far exceeded the \$1 billion reduction in farm receipts caused by programme-induced expansion in farm production. We note later, however, that considerable *national* income was lost from distortions in national savings and investments resulting from additional taxes used to provide payments.

### **Marketing Loans and Deficiency Payments**

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

Westcott and Young (2000, p. 12) estimate that incentives embodied in marketing loan and loan deficiency payments added 4-5 million acres to crop production. The high estimate in Table 1 assumes that acres added are as productive as average crop land and that all crop and livestock production depends ultimately on crop production, hence production is increased by 4.5 million acres on 325 million acres of crop land or by  $(4.5/325)$  or 1.38 percent. The lower estimate of 0.68 percent added output adjusts for possible lower productivity of added acres and for resources beyond crops required to produce livestock. This lower estimate in Table 1 recognises that livestock can be produced from grass and imported feeds as well as from domestic crops.

In the 1990s, the government shifted from non-recourse loan rate supports (which tended to hold market prices at the loan support rate) to marketing loans that provided payments to farmers on the shortfall of market prices below the loan support rate. The former non-recourse loan programme was faulted for holding prices at high levels that provided an umbrella under which our export competitors produced and sold to take over our world export markets. In contrast, the marketing loan programme has been faulted for dumping our commodities in world markets at subsidised prices below production costs. Either type of loan support distorts markets by generating excess production.

An alternative would be a recourse loan that farmers could obtain from government for the loan rate value of a commodity at harvest but which would have to be repaid at full loan value plus interest before the next harvest. A recourse loan would enable operators to avoid selling on a glutted harvest market and relieve cash-flow pressures without distorting market incentives. A recourse loan that would have to be repaid in cash at face value would distort domestic and international markets, but less than either a marketing or non-recourse loan. A recourse loan could sharply reduce the \$3 to \$6 billion loss in farm receipts induced by excess output from price supports (Table 1).

An alternative would be to reduce loan rates to cover only variable costs of production. If additional countercyclical payments are deemed to be politically essential, the "old" loan rate could be made a target price, and a deficiency payment

paid on the shortfall of the loan rate (or market price, if above the loan rate) below the target price multiplied by a historical “decoupled” programme acreage and yield.

### **Insurance Subsidies**

In year 2000, crop and revenue insurance subsidies totalled approximately \$2.5 billion and accounted for 60 percent of crop revenue insurance cost, encouraging output. The nation gets more of what it pays for with insurance subsidies—risk. Crop risk is especially great in the Plains states. Thus it is no surprise that Jerry Skees finds the contribution of insurance subsidies to crop acreage harvested especially large in the Great Plains states such as Texas and North Dakota. Crop and revenue insurance loss ratios (programme costs for indemnity payments and administration relative to premiums paid by farmers) averaged 1.88 for the U.S. from 1981 to 1999, and averaged over 2.0 in several states including Arkansas (2.97), Texas (2.72), Georgia (2.68), North Carolina (2.40), and North Dakota (2.16).

Crop and revenue insurance causes more land to be in crops, and causes land to be cropped more intensively. For example, risky corn may be planted in place of less risky grain sorghum in the semi-arid Plains because a high corn yield will earn more than grain sorghum and a low corn yield will “earn” an insurance payment. Insurance subsidies hold land in crops that otherwise would be unprofitable to farm and would revert to grassland or forest. The land is not only marginal for farming; it also may be environmentally fragile, and prone to wind and water erosion. Westcott and Young (2000, p. 12) estimated that crop and revenue insurance premium subsidies have added approximately 900,000 acres to aggregate plantings of eight major crops. This translates into a 0.28 percent increase in farm output (Table 1).

Jerry Skees estimated that crop and revenue insurance subsidies have added 25–30 million acres of crops in the U.S.—an area nearly as large as that enrolled in the Conservation Reserve Programme (CRP), and about one-tenth of total cropland harvested in the nation. The high estimate in Table 1 assumes that 25 million crop acres are added by insurance subsidies and that they are only as productive as CRP acres—about half the productivity of an average acre cropped [see Tweeten (1989), p. 350]. Thus, insurance subsidies add as much as 4.1 percent to farm output. This added output in turn reduced farm receipts by up to \$26 billion, offsetting benefits of all government payments to farmers. Thus use of insurance subsidies as a “Trojan horse” to provide direct payments to farmers not only distorts international trade—it also may offset much of the intended income benefits of commodity programmes for U.S. farmers.

### **Total Impact**

Excessive output and resources committed to farming cost the nation \$0.93 billion in lost income based on the average, 3.4 percent, between the low (1.11

percent) and high (5.73 percent) estimate of excessive production in Table 1.<sup>1</sup> The national income (deadweight) loss is \$2.64 billion with the high estimate. This average for 1998-2000 is not much less in real terms than the cost of commodity programme distortions in the 1960s and 1980s.

Each \$100 of tax dollars providing payments to producers reduces national income by approximately \$15 due to distortions in saving and investment allocations [Ballard, *et al.* (1985)]. Adding this previously uncounted annual loss from tax distortion (\$3.0 billion), and cost of administrative and lobbying resources (about \$2 billion that could have been better used elsewhere), and the total loss in national income is \$5.93 billion based on 3.4 percent excess output in grains, oilseeds, and cotton only. National income loss of \$600 million from peanut, tobacco, sugar, and dairy programmes [Tweeten, *et al.* (1997)] brings the total to \$6.53 billion, or 3 percent of farm receipts [see Council of Economic Advisors (1987), p. 159 for cost in (1985)].

Several other observations follow from estimates in Table 1:

- Additions to output reduced farm receipts from \$5.01 billion to \$25.83 billion in the short run of 1-2 years, and by \$1.43 billion to \$7.38 billion in an intermediate run of 3-4 years. The impact on farm receipts is negligible in the long run because farm aggregate demand is near unitary elasticity.
- Termination of grain, oilseed, and cotton commodity programmes might not reduce aggregate farm income. Less production attending termination of programmes could raise farm commodity prices and gross farm receipts to compensate for the loss of government payments, which totalled \$23.3 billion in year 2000. This number is less than the “high” estimate of \$25.8 billion added to farm receipts in the short run from termination of the 1996 farm bill production incentives.
- Most of the excess output under the 1996 farm bill comes from excessive loan rates and (especially) from insurance subsidies. These production incentives lower farm prices and receipts while raising costs, creating pressure to return to supply management programmes [Schnittker (2001), pp. 93–98]. Because sizable direct payments induce relatively little excess output, it follows that direct payments could be set as deemed necessary to maintain desired farm income after terminating loan rates (or shifting to recourse loans or lowering loan rates to cover only variable production costs) and insurance subsidies that distort farm resource allocation. Thus

<sup>1</sup>The formula is  $DW = .5R \left( \frac{1}{\alpha} - \frac{1}{\beta} \right) \left( \frac{\Delta q}{q} \right)^2$  where  $DW$  is deadweight cost in \$ billion,  $R$  =

\$193.2 billion farm receipts,  $\alpha$  = intermediate-run supply elasticity of 0.2,  $\beta$  is intermediate-run demand elasticity of -0.3, and  $\Delta q/q = 0.034$  is the addition to output as measured by an average of the high and low estimate in Table 1 of excess farm output induced by programmes.

liberalisation of domestic and export markets potentially could make no group worse off but make the public better off while being supportive of the World Trade Organisation “green box” rules for non-distorted trade. Transition payments could buffer adjustments. But, that scheme didn’t work in the 1996 farm bill. And if maintained too long, transition payments could unduly inflate land prices and rents. Also, an extended period of direct payments to farmers would lose substantial national income.

### **New Programme Directions**

In July 2001, the House Agriculture Committee of the U.S. Congress proposed a countercyclical programme patterned after the pre-1996 target price-deficiency payment programme. A payment would be paid to producers based on the shortfall of the market price below the target price multiplied by programme yield and acreage. The payment depends on market price and programme acreage and yield. Programme acreage is updated to recent levels. Programme yield is fixed at 1980s levels but producers may anticipate that such yields also will be updated based on recent yields. Thus farmers feel the need to maintain or expand their production base. It follows that loan deficiency payments are likely to be classified as amber box (market and trade distorting) programmes potentially constituting an impediment to further trade liberalisation in a situation where the World Trade Organisation could call for a considerable phase-down or phase-out of amber box programmes.<sup>2</sup>

Programme benefits from commodity loan rate supports, fixed payments, and countercyclical payments are all coupled to the farm and influence land prices. Hence farm owners and renters have reason to maintain high programme yields and acreages to maximise programme economic benefits and, hence, land values. If proposed generous programmes would be coupled, the U.S. could exceed the WTO amber box limits, and could create commodity surpluses that would return the U.S. to supply management programmes.

Commodity programmes that restrict deficiency payments on production to 85 percent of historic “programme” yield and production would appear to be somewhat decoupled because producers receive only the higher of the market price or loan rate for another unit of production. However, farmers are aware that they must strive for ever higher current yields and acreages of crops because at some time in the future historic programme yields and acreages will be updated. Also, PFC payments, emergency market loss assistance, and related “decoupled” payments (presumably

<sup>2</sup>According to Young, *et al.* the U.S. was utilising only 45 percent of its WTO-permitted AMS ceiling, but Hart and Babcock (2001, p. 3) estimated that the ceiling was exceeded in 1999 and 2000. Emergency supplemental assistance payments may be classified as amber box because they were provided by Congress to offset low farm prices. They signal to producers that some minimal level of returns are assured, hence farmers can produce with assurance that an economic safety net will avoid penalty of low economic returns. Another successful WTO multilateral trade agreement would reduce amber box programmes (Aggregate Measure of Support or AMS) by another 20 percent or more.

independent of prices and production) in fact are coupled—to the land. The operator does not retain payments if he/she leaves the land. For that reason, commodity programmes tend to keep farms in crops (rather than shifting land to grazing and forest), and programme benefits are capitalised into rents and land prices.

As benefits of commodity programmes or trade liberalisation are bid into rents and land prices, the most rapid farm redistribution of income and wealth is from renters to landowners. Rented land accounted for 45 percent of farmland in 1999 [U.S. Department of Agriculture (2001), p. 23]. A majority of land is farmed by operators who rent-in at least part of their land. A survey of professional farm managers indicated that PFC payments were almost immediately captured by landowners and reflected in rental rates and land values [U.S. Department of Agriculture (2001), p. 23]. Expected future benefits from government payments accounted for 11 percent of land value in 1990–97 and 25 percent of land value in 1998–2001 [U.S. Department of Agriculture (2001), p. 25].

Results indicated that an end to government payments would reduce crop land values by 15–20 percent in the nation but by up to 69 percent in Northern Plains—an area that has relied heavily on such payments for income. It follows that even if aggregate net farm income were as high or higher with liberalised trade, and with an end to reliance on current loan deficiency payments, insurance subsidies, and output-increasing incentives of direct payments that reduce farm income, some regions such as the Plains and Southeast would be worse off. Considerable marginal land in such regions would be shifted to grass and trees.

The federal government in a bidding war between Democratic and Republican parties for control of Congress and the Presidency have elevated income of farm households to successive all-time records in each of the years 1996–2001 [U.S. Department of Agriculture (2001), p. 25]. Benefits are quickly being lost to renters and new landowners through increased output and capitalisation. Government is creating a culture of dependency of farmers on taxpayers. Farmers contend they must have government subsidies because farm receipts are low, but an equally valid and unstated conclusion is that receipts are low because government subsidies raise output and lower receipts. Farmers will not easily be able to descend from the high income pedestal on which government has placed them without serious financial injury. The injury could be less if cushioned by rising world commodity prices under trade liberalisation, as noted in the next section.

### **GAINS FROM ENDING AGRICULTURAL TRADE DISTORTIONS**

The U.S. has much to gain from multilateral freer trade in agriculture in part because our agricultural tariffs average 12 percent as compared to an industrial-country average of approximately 45 percent [Burfisher (2001), p. 10]. Agricultural product tariffs of our major farm markets average much higher: Canada 24 percent, the EU 21 percent, and Japan 33 percent [Wainio, *et al.* (2001)].



As shown in Table 2, agricultural market distortions such as tariffs and subsidies reduce world agricultural prices by approximately 12 percent and reduce global real income by \$31 billion in the short run, and to \$56 billion in the long run—the latter accounting for cumulative benefits from greater savings, investment, and productivity [Diao, *et al.* (2001)]. Estimated benefits to the U.S. from agricultural free trade totalling \$6.6 billion in the short-run (static) scenario constitute 21 percent of global benefits. Benefits to the U.S. in the long run—recognising direct and indirect impacts on saving, investment, and productivity—total \$13.3 billion in the 15th year after liberalisation, or 24 percent of world benefits. If annual benefits of that level are maintained in perpetuity and discounted at 5 percent, the present value of all future benefits of free agricultural trade total \$266 billion to the U.S. and \$1.13 trillion to the world.

Table 2  
*Annual Welfare Impacts from Elimination of Global  
Agricultural Tariffs and Subsidies*

	Static Resource Allocation Gains <sup>a</sup>	Static Plus Dynamic Benefits from Investment Growth Plus Productivity Gains <sup>b</sup>
	(Billion 1997 US Dollars)	
<b>World</b>	<b>31.1</b>	<b>56.4</b>
<b>Developed Country Group</b>	<b>28.5</b>	<b>35.2</b>
Australia and New Zealand	1.6	3.5
Canada	0.8	1.4
EFTA	1.7	0.2
European Union	9.3	10.6
Japan and Korea	8.6	6.2
United States	6.6	13.3
<b>Emerging and Developing Country Group</b>	<b>2.6</b>	<b>21.3</b>
China	0.4	2.2
Latin America	3.7	6.1
Mexico	-0.2	1.6
Other Asian Countries	1.5	5.1
South African Countries	0.3	0.8
Rest of the World	-3.1	5.4

Source: Diao, *et al.* (2001).

<sup>a</sup>Static gains refer to the annual gains due to removing distortions to production and consumption decisions.

<sup>b</sup>Dynamic gains include effects related to cumulative increases in savings, investment, and productivity over a 15-year post-reform period. Dynamic welfare impacts are the annual level about 15 years after reform.

Although a few developing countries are worse off with trade because they are food importers who will pay higher prices for imports with liberalisation, gains far exceed losses for most countries. Thus the foundation for an agreement providing freer trade appears to exist (Table 2).

A general rule is that the principal costs of trade distortions are borne by the countries that practice them [Tweeten (1992), p. 279]. This principle is supported by data in Table 3, indicating the impact on world agriculture commodity prices from eliminating policy distortions. Distortions are divided into three types: (1) tariffs, (2) domestic supports such as price supports and supply management, and (3) export subsidies.

Together, the EU and the U.S. accounted for 51 percent of the static and 42 percent of the long-term dynamic potential gains from trade (Table 3). The two entities together accounted for 52 percent of the world price distortions, noted in Table 3.

Table 3

*Effects on World Agricultural Prices of Eliminating Agricultural Policy Distortions, by Country and Policy*

Elimination of:	World <sup>a</sup>	U.S.	EU	Japan/ Korea	LDCs
	(Percent Change from Base Price)				
All Policies	11.6	1.8	4.4	1.5	2.3
Tariffs	6.0	0.7	1.5	1.4	2.3
Domestic Support	3.6	0.9	2.0	0.2	b
Export Support	1.5	0.1	0.9	b	0.0

Source: Diao, *et al.* (2001).

<sup>a</sup>Numbers do not sum to row and column totals because only selected countries are included and there are interactions among policies.

<sup>b</sup>Not applicable, no policy in use.

Multilateral market liberalisation, according to Diao, *et al.* (2001) potentially could raise world agricultural trade prices by 11.6 percent, of which over half comes from eliminating tariffs (especially used by importers, notably in developing countries), nearly one-third comes from eliminating domestic supports especially prominent (80 percent) in the U.S. and the EU, and nearly one-sixth comes from ending export subsidies especially prominent in the EU (Table 3).

In the long-run, full liberalisation could increase the real value of U.S. agricultural exports by 19 percent, and agricultural imports by 9 percent, according to Burfisher (2001, p. 7.). Hence, it would markedly improve the nation's balance of payments. At issue is how such gains would be divided.

Table 4 from Diao, *et al.* (2001) shows estimated gains in world prices by commodity, resulting from elimination of all policy distortions. Gains for wheat (18.1

percent), other grains (except rice, 15.2 percent), sugar (16.4 percent), and livestock products (22.3 percent) exceed the world price average gain of 11.6 percent. Gains are especially large for sugar and livestock prices with global tariff removal, and in wheat and other grains with developed country (OECD) subsidy removal. Gains are less for individual commodities from global export subsidy removal.

It is apparent from Table 4 that all U.S. major crops (except fruits and vegetables) and livestock could benefit from higher world prices associated with multilateral trade and commodity programme liberalisation. Other things being equal, an 11.6 percent increase in the price of agricultural commodities would raise farming receipts, averaging \$193.2 billion annually for 1998-2000, by \$22.4 billion. In the same three-year period, that potential gain exceeds the annual value of all direct payments (including loan deficiency payments) averaging \$16.0 billion, or Commodity Credit Corporation outlays averaging \$20.5 billion [U.S. Department of Agriculture (2001), p. 58].

Table 4

*Increase in World Prices Resulting from the Elimination of All Policy Distortions, By Commodity and Policy*

Commodity	Full Policy Elimination	Global Tariff Removal	OECD Domestic Subsidy Removal	Global Export Subsidy Removal
	(Percent)			
Wheat	18.1	3.4	12.0	2.0
Rice	10.1	5.9	2.4	1.5
Other Grains	15.2	1.4	12.2	0.6
Vegetables and Fruits	8.2	4.9	-0.1	3.0
Oil and Oilseeds	11.2	3.1	7.8	0.1
Sugar	16.4	10.9	1.6	3.3
Other Crops	5.6	4.2	1.2	0.1
Livestock and Products	22.3	12.2	5.5	3.1
Processed Foods	7.6	4.8	1.8	1.0

*Source:* Diao, *et al.* (2001).

It is apparent that the economic gains to U.S. farmers from home (see Table 1) and abroad potentially could compensate producers for government payment losses from commodity programme (and trade) liberalisation. But other farm problems such as economic instability would remain and might intensify.

I have contended that instability arising from markets, governments, and nature is the major economic problem facing commercial agriculture. Based on estimates individually for feed grains, soybeans, wheat, and aggregate farm output since 1950 in the United States, the coefficients of variation by decades and

commodities were greater for exports than for domestic utilisation or for production [Tweeten (1999)]. However, system variation as measured by the variation in stock requirement came mainly from domestic production and utilisation because quantities of the latter two sources of variation dominated export quantities. For 16 of 20 situations (four commodities, each for five decades), exports were positively correlated with domestic production. It follows that exports typically helped to dispose of a large domestic supply and hence to stabilise commodity prices. In only 2 of the 20 cases did exports overshadow domestic utilisation and production as sources of variation in the commodity market system [Tweeten (1999)].

### OTHER ISSUES

This final section notes a fundamental difference between the impact of trade liberalisation on U.S. farmers under the (1) pre-1996 and (2) post-1996 farm bill provisions. Prior to the 1996 farm bill that ended the set-asides, the farmer depended heavily on supply restrictions to raise commodity prices and incomes. Excess production capacity removed from markets by government averaged about 6 percent of farm output in the 1950s, 1960s, and early 1980s [see Tweeten (1989)]. Thus liberalisation of international trade and commodity programmes under the pre-1996 policies would *reduce* farm receipts and government payments more than would farm receipts rise with higher world prices (see Table 5). However, because *overall* net gains to the U.S. public were a positive \$4 billion per year, consumers and taxpayers potentially could compensate U.S. farmers to make all parties (consumers, farmers, taxpayers) better off.<sup>3</sup>

The situation is quite different under the 1996-type farm bill as noted earlier. Because farm output exceeds rather than falls short of competitive equilibrium output, it follows that trade liberalisation attended by an end to trade-distorting domestic commodity programmes raises rather than reduces farm receipts as output falls with an inelastic demand in the short run. Thus the 1996 farm bill places the U.S. in a better position to promote freer trade without damaging farm income. And if financial assistance to farmers is needed during a transition to freer trade, direct payments as under the 1996 bill are more acceptable to the WTO than are the pre-1996 programme instruments to assist farmers.

A final issue considered in this analysis is the difference in benefits to the U.S. farmers and the public at large for the U.S. only (unilateral) versus global (multilateral) trade liberalisation. For lack of comprehensive recent results, the economic implications of unilateral and multilateral agricultural trade liberalisation are shown for the U.S. and other entities for 1989 (Table 5). It is widely conceded that the Uruguay Round of trade negotiations brought considerable reform (shift from non-tariff barriers to tariffs) but little trade liberalisation. Some reforms such as an end to U.S. set-asides and large export subsidies since 1989 distort some numbers in

<sup>3</sup>Includes only static, first-round gains. Consideration of all indirect benefits could nearly double the static benefits according to the results in Table 2.

Table 5

*Annual Benefits from Trade Liberalisation, Late 1980s<sup>a</sup>*

Country or Region <sup>b</sup>	Unilateral Liberalisation				Multilateral Liberalisation			
	PS	CS	GS	NB	PS	CS	GS	NB
	(\$ Million)							
Australia	-133	-3	150	14	581	-361	150	370
Canada	-1,533	75	1,812	354	-617	-703	1,812	492
EC	-15,280	15,808	4,069	4,597	-12,337	12,162	4,069	3,894
Japan	-14,080	16,418	2,263	4,601	-13,292	14,154	2,263	3,125
U.S.	-11,434	763	13,392	2,721	-7,642	-3,167	13,392	2,583
W. Europe (Non-EC)	-3,057	3,576	269	788	-2,567	2,881	269	583

Source: Makki, *et al.* (1994, p. 24).

<sup>a</sup>PS, producer surplus; CS, consumer surplus; GS, government savings; and NB, net benefits (PS + CS + GS). These latter net benefits underestimate total deadweight gains from liberalisation because they do not include indirect effects and savings from reduced lobbying and programme administration.

<sup>b</sup>All world countries were included in the trade model used to calculate Table 5. To save space, however, only the major traders' results are reported.

Table 5 when applied to the conditions in year 2001. In particular, as noted earlier, liberalisation benefits to U.S. consumers would be less, and to taxpayers and producers more, under the 1996 farm bill. Nonetheless, the direction if not the magnitudes in Table 5 provide a useful point of departure for examining the impact of unilateral versus multilateral liberalisation of farm markets in the 21st century.

Some notable conclusions from Table 5, many consistent with the results reported earlier in this paper, are as follows:

- All major countries, regions, and the world gain under either unilateral or multilateral trade (and commodity programme) liberalisation. Net benefits (NB) are comprised of producer surplus (PS), plus consumer surplus (CS), plus government (taxpayer) surplus (GS).
- Net gains (NB) from unilateral and multilateral liberalisation tend to be about equally large. Large countries or regions with major trade/commodity programme distortions tend to gain the most from unilateral liberalisation, whereas countries or regions with relatively few price distortions and relatively large agricultural sectors tend to gain the most from multilateral liberalisation. Rodney Tyers and Kym Anderson also show that unilateral liberalisation benefits liberalising countries although multilateral liberalisation benefits domestic producers more [see World Bank (1986), pp. 128–131].
- For every country or region, producers gain more (or lose less) from multilateral than from unilateral liberalisation (Table 5). Thus producers have a major stake in the success of multilateral liberalisation.
- Producers in most countries receive more income with no liberalisation than with unilateral or multilateral liberalisation. Consumers far outnumber producers in every country, hence the losses per producer tend to be larger than gains per consumer with liberalisation. Each producer as a big loser is motivated to organise with others for political action, to stop reform. Those producers tend to be more than a match for large numbers of complacent consumers in the political arena, even though overall gains to consumers far exceed the losses to producers from liberalisation. Thus market distortions remain because they benefit producers; but consumers, taxpayers, and the public at large tend to be better off with unilateral or multilateral liberalisation. As pointed out earlier, the situation has changed since 1996, so that American farmers can gain directly from freer trade, especially if provided adjustment assistance during a transition period.
- Compensation by taxpayers and consumers for losses to producers can help to resolve the welfare-reducing strategic behaviour of producers described above. Given the net economic benefits (deadweight gains) available from liberalisation, decoupled direct payments can be provided to producers to

make them as well off, or better off, with liberalisation rather than without, while leaving a net benefit for the rest of the society.

- Compensation to producers may be essential to negotiate more liberal trade and commodity policy in the short and intermediate run (the latter shown in Table 5). Payments cannot be justified in the long run, however. One reason is that government (taxpayers) and consumers are only withdrawing the previous good fortune (income support) they generously bestowed on producers. A second reason is that gains from protection are lost to producers anyway, in the long run. They are lost through a strong supply-response-increasing-output and lowering price, a demand response causing substitution of products for the protected product, and, finally, the bidding of programme benefits into land values, rents, or production quotas. Thus benefits of programmes are lost to renters and the new generation of landowners.

### CONCLUSIONS

The Federal Agricultural Improvement and Reform (FAIR) Act of 1996 and related policy changes in the 1990s brought fundamental reforms compatible with freer domestic and foreign markets. Chief among these were a shift from coupled deficiency payments to decoupled Production Flexibility Contract payments, an end to set-aside (supply management), and less engagement of government in commodity stock accumulation and export subsidies. These moves were consistent with the WTO “green box” freer trade policy.

Unfortunately, measures also were taken in FAIR and subsequent legislation that added to “amber box” outlays and, indeed, threatened the Uruguay Round commitment to reduce trade-distorting policies. Converting commodity price support to recourse loans while ending all but administrative cost subsidies to crop insurance would go far to liberalise grain, oilseed, and cotton policies. Shifting dairy, peanut, sugar, and tobacco to similar programmes would further position the U.S. farm policy for free trade.

Unilateral or multilateral liberalisation of trade could be attended by an end to U.S. commodity programmes or, more likely, by a shift to decoupled payments. The 1996 FAIR Act provides a convenient platform of direct payments that can be targeted as deemed necessary to cushion adjustments of farmers to freer domestic and international markets. Unilateral termination of commodity programmes including direct payments totalling \$23 billion, or 42 percent of net cash farm income in year 2000 [U.S. Department of Agriculture (2001), p. 55], would appear to be traumatic to producers. However, reduction of transition payments could be offset (for farm income) by rising farm commodity prices and receipts resulting from (1) less farm output attending lower loan rates and crop insurance subsidies, and (2) world farm commodity price-enhancement from freer global trade.

It is tempting to return to target-price deficiency payment schemes to provide countercyclical support to farmers. A problem is that such supports would encourage farm production when the market is telling farmers to produce less. Another problem is that such support could increase instability in net farm income. Net income rather than price is the “bottom line” for farmers. Low farm prices tend to attend high farm output, providing the “self-insurance” of more stable farm receipts. Thus the unintended consequence of stabilising prices “countercyclically” could be to increase variation in gross and net farm income as well as to provide incentives for excessive output and thereby a return to supply management.

Most small farmers rely on off-farm income to alleviate the severe economic instability problem in agriculture. Large farmers can afford to deal with risk using the plethora of private risk management tools available to them. If public involvement in risk management is unavoidable, instability in agriculture can be dealt with at low taxpayer cost, using modest inducements (matching a portion of savings with subsidies) by government for farmers to accumulate income in favourable years for use in years of lower income. The Internal Revenue Service could administer such a programme at low administrative cost. Of course, other risk management subsidies would have to be ended if an IRA-type financial asset stabilisation plan is to bring order to a government risk management programme currently in disarray.

Finally, environmental problems of agriculture have “public goods” properties that the market alone will not address. The government has a long tradition of helping farmers deal with environmental problems through programmes such as the Natural Resources Conservation Service, the Wetlands and Conservation Reserve programmes, conservation compliance requirements, and the Environmental Quality Incentive Programme. Such programmes could be strengthened—with reforms discussed elsewhere [Tweeten and Zulauf (1997)].

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