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Forces Shaping Trade: The WTO, Trade Agreements, and Market Integration

By C. Parr Rosson III

International trade is of major importance to US agriculture, with exports accounting for 25% of all harvested acres and nearly one third of farm cash receipts in most years. Since March 2000, the members of the World Trade Organization (WTO) have been engaged in negotiations to reform agricultural and trade policies among all 148 members. Furthermore, the WTO Dispute Settlement Body issued findings against the US cotton program and export credit guarantees in March 2005. Additionally, the United States has implemented eight trade agreements and is now negotiating eight others. The Central American Free Trade Agreement–Dominican Republic (CAFTA-DR) is presently being considered by the US Congress and will likely be voted upon this summer. In addition, the North American Free Trade Agreement (NAFTA), implemented in 1994, has spurred market integration among businesses and communities in Canada, Mexico, and the United States.

This issue of *Choices* provides an overview of these major forces, emphasizing the present status of each, prospects for the outcomes and likely implications for the future of US farm and trade policies. Progress and prospects for a successful Doha Round of multilateral trade negotiations are examined. Although WTO negotiations have been tenuous at times, some progress has been made. The Doha Work Program, agreed to in July 2004, provides that export subsidies must be eliminated and that total allowable trade-distorting domestic support must be reduced 20% in the first year of implementation. The elimination of export subsidies alone would be significant, absent other reforms.

The WTO cotton case against the United States, DS-267, is discussed, along with an overview of the findings and implications for US farm programs and trade policy. The Step 2 component of the program was ruled to be in violation of WTO rules along with export credit guarantee programs. It is likely that the process to bring both of these programs into compliance must begin by July 1, 2005. Restrictions on planting fruits and vegetables on program acres were ruled to render direct payments to US producers out of compliance with WTO Green Box criteria. Marketing loan payments and other major program payments were also ruled to depress prices and cause damage to cotton farmers in Brazil. These and other elements of the case are examined and discussed.

With a congressional vote on CAFTA-DR likely this summer, the trade agreement article examines the major provisions of the agreement, the likely impacts on US agriculture, and prospects for the future. Costa Rica, El Salvador, Dominican Republic, Guatemala, Honduras, and Nicaragua are members of this regional trade agreement. Although CAFTA-DR has modest near-term potential, its long-term prospects depend on income growth, development of infrastructure, and economic growth in the region.

Despite the discovery of bovine spongiform encephalopathy (BSE), outbreaks of avian flu, numerous antidumping petitions, and other disruptions to trade, North American agricultural markets are more closely integrated

Articles in this Theme:

than in the past. Although many attribute this to NAFTA, evidence indicates that the trend toward developing a single agricultural market began in the mid-1980s, as US companies invested in feedlots and packing facilities in Canada. Greater market integration, however, has exacerbated the negative impacts of recent animal disease outbreaks and called into question the extent to which deep integration will continue in North America.

Contributors to these articles were Timothy Josling, Darren Hudson, Jaime Malaga, John Robinson, Mickey Paggi, Lynn Kennedy, Fumiko Yamazaki, and Flynn Adcock.

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The WTO Agricultural Negotiations: Progress and Prospects

By Tim Josling

In the wee hours of August 1, 2004, the assembled trade negotiators in Geneva agreed to a framework for the continuation of the Doha Round of trade negotiations, the first under the auspices of the World Trade Organization (WTO).[1] Although it is somewhat behind the schedule envisaged when the talks were launched in November 2001, the agreement has at least kept the Doha Round alive and at best renewed hopes of a successful outcome.

A key part of the Framework Agreement was an accord on the way forward for the agricultural talks.[2] The agricultural component of the Doha Round has been a long time in the making. Talks started five years ago, in March 2000, as mandated by the Uruguay Round Agreement on Agriculture. Completing the negotiations has proved difficult. The world of agricultural trade negotiations is significantly more complex now that in the late 1980s, when the Uruguay Round was at a similar stage. Many more countries are taking an active part in the talks, both adding to the constraints and contributing new demands. Moreover, the impact of the stronger legal provisions of the WTO, relative to its predecessor the General Agreement on Tariffs and Trade (GATT), adds additional burdens on those negotiating new rules and reduction schedules for agricultural trade. This article discusses the main issues that are under negotiation in the agricultural talks and the prospects for success.

Although the framework, discussed below, was a necessary step in the agricultural talks, it did not signal the start of the final phase of the negotiations. The next step is to move to an agreement on how, by how much, and when cuts in tariffs and subsidies should be made (known as the *modalities*).[3] The essential disagreements among countries still remain, but they have been channeled into decisions on specific parameters, such as the depth of tariff cuts and reductions in domestic support. Importantly, this has ruled out discussion of many issues that were not included in the framework.

The main question now before the negotiators is how to move from the Framework Agreement to a modalities document in time for ministers to give their approval to it at the next ministerial meeting in Hong Kong in December 2005. Should that (optimistic but still possible) timetable hold, the year 2006 would be taken up by countries translating the agreed modalities into draft schedules of tariff cuts and subsidy reductions. A final end to the Doha Round could come in early 2007, making the process just a few months shorter than the previous round.

Several aspects of this round make it rather different from the Uruguay Round that ended a decade ago. First, the agricultural and food sector has "gone global" in the past decade. This has been fuelled by the explosive growth in supermarkets in developing countries and by the steady lengthening of supply chains in developed countries as retailers compete on price, quality, and choice. Second, input industries have continued to consolidate and cross borders, as have processing and transportation sectors.

1. *See WTO, Doha Work Programme: Decision Adopted by the General Council on 1 August 2004, WT/L/579. This document is sometimes called the July Framework, as it was largely negotiated in that month.*
2. *This agricultural framework is Annex A of the Framework Agreement.*
3. *The first attempt at a Modalities Draft was made by the then chairman of the Agricultural Committee Stuart Harbinson in February 2003. The document was ahead of its time, as countries were not ready to commit to the level of detail that it contained. Instead, the decision was taken to start with the framework to be agreed by the Cancun Ministerial. The July Framework essentially completes the work of the Cancun Ministerial.*

This has given rise to concerns about competition and the role of farmers in contract-driven agriculture. Third, much more agricultural trade is now in high-value-added goods, with the market for undifferentiated commodities relatively static (though still important). Profit margins in value-added products have continued to lure producers and processors. As a result of these trends, the aspects of the agricultural trade system that have dominated the debate for several decades—protective tariffs on temperate-zone foodstuffs and generous subsidies to producers where market prices were deemed inadequate—must now share attention with overly restrictive health and safety regulations and obtrusive intellectual property protection.

The country dynamics in the agricultural trade talks have changed along with the issues. The GATT was essentially dominated by developed countries: Many developing countries belonged to the GATT, but numerous opt-out provisions meant that their impact on the negotiating decisions was minimal. In the Uruguay Round, the negotiations could in effect only be concluded when the EU and the United States reached agreement among themselves (as they did at Blair House in November 1992). A similar attempt to develop a joint position in August 2003, just before the Cancun Ministerial, met a very different fate, as Brazil, India, China, and seventeen other countries objected strongly to the US-EU proposal and tabled their own plan for curbing subsidies and cutting tariffs. The G-20, as the group is known, has essentially taken the lead in the agricultural talks (particularly on subsidies) since that time, and the Framework Agreement gives them the possibility (if they can maintain their cohesion and credibility as a negotiating force) of achieving much of what they have sought.

So what is on the table in Geneva? The main features of the Framework Agreement for agriculture are given in Table 1. Negotiations have focused on the three pillars of the Uruguay Round Agreement on Agriculture, market access (tariffs and tariff quotas, along with safeguards), export competition (export subsidies and similar measures), and domestic support (farm subsidies paid or prices supported inside the border).

Improving market access is politically essential for an agreement, as is appropriate for trade talks aimed at opening up markets in developed and developing countries. Eliminating export subsidies is a cherished aim of several exporters and has been endorsed by all countries including those that would have to make significant adjustments.[4] Curbing domestic support is somewhat less essential in improving trade opportunities but has taken on a symbolic significance beyond its commercial impact. Competing exporters consider that US farm programs enable farmers to sell below production costs; developing country governments claim that such subsidies deny their farmers of a chance to make a living. Policies in the developed countries are in any case moving in the direction of being less trade-distorting, as a by-product of improving the targeting of farm payments at home, but they will be anxious to gain some concessions from developing countries at the bargaining table for such changes.

The Framework Agreement specifies that conditions of market access be improved by means of significant tariff cuts, using a tiered formula that imposes higher percentage cuts on items with higher levels of current tariffs. This attempt at harmonization, if applied consistently and with substantial cuts, would also create new trade opportunities. It could also significantly reduce the tariff "overhang" (between applied and bound tariffs) and the "water" in the tariff (the extent to which a tariff can be reduced before imports are competitive). However, the Framework Agreement would allow all countries to shelter some farm commodities (designated as *sensitive products*) from sharp cuts in tariffs, with the option of increasing tariff-rate quotas (TRQs) in these products to have an equivalent effect on improving market access.[5] If the TRQs are not expanded enough, much of the benefit of the tariff cuts could be lost. The agreement does, however, allow for a tariff cap to be imposed; this could apply some constraints to the continued protection of sensitive products.[6]

For many countries, opening up markets brings concerns about import surges and other disruptions of the domestic market. The Uruguay Round Agreement included a *special agricultural safeguard* (SSG), a mechanism that allowed for temporary tariff increases in response to price drops or import surges for some products, mainly in developed countries.[7] The fate of the SSG is still

4. *The EU is by far the greatest user of direct export subsidies, whereas the United States has programs in export credit and food aid that contain potential subsidy elements; Canada sells wheat abroad through a state trading agency that also is deemed to distort competition. Elimination of the subsidy element of these programs would have a relatively small impact on trade but remove a glaring exception to WTO rules and a continued irritant to trade relations.*

Table 1. Summary of the main agricultural provisions of the WTO Framework Agreement.

Market access	
Tariff cuts	•Substantial improvement in market access through tariff reductions from bound rates. •Single approach for all countries: tiered formula to ensure progressivity. Types of reduction commitments within bands and number of bands to be negotiated. •Role of a tariff cap to be evaluated. •Designation of an "appropriate number" of sensitive products, which would be subject to a mix of tariff cuts and TRQ expansion.
Tariff rate quotas	•Reduce in-quota tariffs and improve administration (as part of balance of concessions). •Some TRQ expansion for all sensitive products.
Safeguards	•Future of special agricultural safeguard (SSG) under negotiation. •Establish new special safeguard mechanism (SSM) for developing countries.
Special and differential treatment for developing countries	•Proportionately less tariff reductions for developing countries, with longer implementation period. •Developing countries may designate special products on criteria of "food and livelihood security," which would be subject to more flexible treatment. •Fullest possible liberalization of trade in tropical products and alternatives to illicit narcotic crops by developed countries.
Other	•Tariff escalation reduced by formula to be agreed upon. •Erosion of preferences to be addressed using Harbinson Para 16 as reference.
Export competition	
Export subsidies	•Eliminate export subsidies by a credible end date. •Schedule and modalities of reductions to be agreed.
Export credits	•Eliminate export credits, guarantees, and insurance programs with repayment period of more than 180 days.
Food aid	•Eliminate food aid that is not in conformity with disciplines to be agreed. Disciplines will be aimed at preventing commercial displacement. •Other food aid issues (role of international organizations, humanitarian and development issues, and provision of aid in grant form) will be discussed in negotiations.
State trading enterprises	•Eliminate trade-distorting practices of state trading enterprises. •Further negotiation on issue of use of monopoly powers.
Special and differential treatment for developing countries	•Longer implementation periods for reductions and elimination. •Developing countries to continue to benefit from Article 9.4 exceptions. •Appropriate provisions for export credits in line with Decision on Least Developed and Net Food-Importing Countries. •Developing countries to receive special consideration in negotiation of disciplines on STEs. •Ad hoc temporary financing arrangements relating to exports to developing countries may be agreed in exceptional circumstances.
Export restrictions	•Strengthen disciplines on export prohibitions and restrictions.
Domestic support	
Overall trade-distorting support	•Move to harmonize trade-distorting support (TDS) in developed countries (total AMS plus *de minimis* plus Blue Box levels) by use of tiered formula: greater efforts to reduce support by countries with higher TDS payments. •Reduce overall trade-distorting support substantially: downpayment (20%) in first year.
Amber Box	•Reduce total aggregate measures of support (AMS) substantially by use of tiered formula: greater efforts to reduce support by countries with higher Amber Box payments. •Cap product-specific AMS levels at historical averages. •Reductions in total AMS should lead to product-specific reductions.
Blue Box	•Redefine to include payments with production limiting requirement and those with no production required: include payments based on fixed areas and yields and headage as well as payments based on less than 85% of base production. •Cap payments to 5% of agricultural production from start of implementation period.
Green Box	•Review Green Box criteria and improve surveillance and monitoring.
***De minimis* level**	•Negotiate the reduction of the level of *de minimis* support.
Special and differential treatment for developing countries	•Developing countries have longer implementation periods. •Developing countries have lower reduction coefficients and higher *de minimis* levels. •Developing countries retain the use of Article 6.2, allowing extra scope for domestic program.

Note. Data from author's compilation based on WTO, Doha Work Programme: Decision Adopted by the General Council on 1 August 2004, WT/L/579 (2004).

under negotiation. The Framework Agreement does, however, call for the introduction of a *special safeguard mechanism* (SSM) for developing countries, with the aim of giving these countries some contingent protection and encourage them to lower tariffs.

On export subsidies, the Framework Agreement is more clearly defined. The Framework Agreement calls for the negotiation of a credible date for eliminating export subsidies and similar export aids, though that date may be several years away. A key provision is that there is parallel treatment for the export subsidy component of export credits (long time periods and below-market interest rates) and of state trading exporters (low-interest loans and government underwriting of losses). Food aid is to be disciplined to avoid disruption of commercial trade flows. Export taxes and restrictions are also to be subject to tighter rules. If an ambitious but feasible date can be set for the removal of export subsidies, the trade system for agricultural products will at last come into line with that for manufactured goods, where export aids have been banned for 40 years.

Negotiations on domestic support touch closest to home, as they circumscribe the ability of domestic legislatures to use particular farm policy instruments. Domestic support (i.e., that not given at the border, through tariffs or export assistance) is classified under the WTO Agreement on Agriculture as falling into three "boxes." *Amber Box* policies are those deemed to be the most trade-distorting and include deficiency payments and other producer subsidies. *Blue Box* policies are also potentially trade-distorting, but as they include supply restrictions, they are considered less likely to harm other countries. *Green Box* payments are those subsidies that are not related to current price or output and are therefore considered minimally trade-distorting.[8] In addition to the boxes, subsidies up to a fixed proportion of the value of production (5%) can be given in product-specific support, and another similar proportion can be given in non-product-specific support (de minimis payments).

The Framework Agreement calls for a harmonization of levels of trade-distorting domestic support (TDS) and substantial cuts in the individual components of this TDS—the total aggregate measure of support (AMS) or Amber Box payments, the Blue Box, and the *de minimis* levels. The TDS would be reduced progressively, with higher levels coming down by a greater percentage. A downpayment of a 20% cut in the first year would be followed by annual cuts. The Blue Box criteria would be modified to include payments on fixed acres and yields but not linked to production cuts, and the total Blue Box would be limited to 5% of the value of production. Green Box definitions would not change, and there would be no restrictions on this (minimally trade-distorting) support. However, tighter scrutiny (along with the implementation of the outcome of the cotton panel) could yet cause some adjustments in Green Box policies.

Impacts on individual developed countries would vary, with significant policy changes needed in the operation of both US and EU farm programs and some modification to Japanese programs.[9] The change in the Blue Box definition would accommodate countercyclical payments under current US programs, and the downpayment would be feasible without too immediate reductions. Significant AMS cuts would limit payments under some other programs, as the United States is approaching its current AMS ceiling ($19.1 billion). The EU has recently moved many of its payments into line with Green Box criteria, and so would be able to live with steep cuts

5. *Tariff-rate quotas (reduced tariffs for specified quantities of imports) were introduced in the Uruguay Round as a way of ensuring some degree of market access for products formerly subject to nontariff import barriers (quotas and licenses, as well as minimum import prices). Many of these products will also be on the lists of sensitive products in the current round. The Framework Agreement mentions the reduction of in-quota tariffs as part of the achievement of a balanced result, but it confines the expansion of TRQs to the sensitive products.*
6. *Developing countries successfully pushed for the creation of a category of "special products" that would be subject to lower levels of tariff cuts.*
7. *The SSG has been available only for products where protection was converted from nontariff to tariff barriers in the Uruguay Round; this took place predominantly in developed countries.*
8. *Green Box payments include direct payments based on historical yields and acreage, or animal numbers, as well as the provision of public goods such as research and extension.*
9. *The United States, Japan, and the EU account for most of the domestic support notified to the WTO. However, other developed countries, such as Norway and Switzerland, have an active interest in the extent of further constraints on domestic support.*

in TDS and AMS. Japan has also shown flexibility in modifying the details of its domestic programs, though with little impact so far on its overall level of protection.

The players in the WTO game include the EU and the United States, of course, although the traditional conflict in agricultural matters between the transatlantic partners is muted. The Cairns Group of fourteen small and medium-sized farm exporters, led by Australia, which was active in the Uruguay Round, has played a minor role in the Doha talks since the Cancún Ministerial. Even the "Quad" (the United States, the EU, Japan, and Canada), who for years acted as an informal executive for the GATT and WTO negotiations, has lost some of its significance. Of increased stature in the talks is the G-20 (mentioned above), who agree on the importance of eliminating export subsidies and curbing developed country subsidies but have somewhat divergent internal views on opening up developing-country markets.

Several other groups have emerged. The G-90—countries with special access into the EU market as well as many of the LDCs—was formed at about the time of the Cancún Ministerial. This group of countries is concerned that they will be asked to watch their preferences being eroded in the European market but would be unlikely to reap comparable benefits in other areas. The G-10—developed country importers with high levels of protection—was formed to counter what they saw as an alliance of exporters (including the EU) pushing for greater market access and lower domestic support than their own political system could accept. Finally, the July package was brokered by a "nongroup" comprising the United States, the EU, Brazil, India, and Australia, known as the Five Interested Parties (FIPS), who agreed on the need to keep the talks going even if they disagreed on the details.

So, if these groups stay together, the dynamic of the talks will reflect the tensions within and between these groups. The G-20 is pressuring the EU and United States to make significant cuts in domestic support but will have to concede significant tariff cuts if a balanced outcome is to be reached. The ability of countries such as Brazil to persuade India to go along with deep tariff cuts will be crucial both for the deal with the United States and the EU but also to expand south-south trade—an objective of the Latin American negotiators. The G-90 will be keen to limit the cuts in tariffs in the EU and the United States for products such as sugar and bananas where their preferences are particularly significant, although compensation schemes could blunt some of this opposition. Overuse of the special products option by developing countries, particularly those with relatively competitive agricultural sectors, would weaken their bargaining power in other areas of the talks. The G-10, of reluctant but not poor importers, will be under extreme pressure from domestic constituencies to resist the sharp cuts in tariffs implied by the tiered formula. However, the potential use of the sensitive product category could help them to accept inevitability and open up their markets to competition.[10] The G-10 will also be keen to keep flexibility in domestic support, as many of them regard national farm programs as part of the social and economic fabric of rural life. The issue of whether the sensitive products option is a minor refinement to allow a balanced agreement or a deal-breaking loophole that undermines the impact of tariff cuts in major commodities and markets will be only be resolved by hard bargaining on the details.

Is there the political will for a deal? To have any realistic chance of agreeing on a modalities document at Hong Kong, negotiators will have to have a fairly complete draft of a Modalities Agreement by late summer. Although this timetable may seem somewhat optimistic for a round that has yet to pick up any political momentum, there are reasons to think that many countries may wish to settle soon rather than delay further. The expiry of the US 2002 Farm Bill gives the best chance for other countries to steer the course of US policy back to the path set in 1996, when payments were essentially decoupled from production and current prices, and the government relaxed its attempts to control supply and handle surpluses. A farm bill negotiated in the context of a stalled round would not be so restrained. The need for renewal of Trade Promotion Authority will also add urgency to the discussions.[11] Across the Atlantic, the necessity for further

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10. For these countries, the main reason to reach an agreement is the benefits that they can get from the nonagricultural aspects of the negotiations. The depth of cuts in farm tariffs are therefore linked with the agreement to cut tariffs in other sectors in the nonagricultural market access (NAMA) negotiations and that in services. Keeping this balance is a challenge for negotiators in the run-up to the Hong Kong Ministerial.

11. Extension of TPA is needed in June 2005, although this is considered more likely to be approved than the reauthorization needed after the expiry of TPA in 2007.

reforms in the EU's Common Agricultural Policy will increase, as the budgetary pressures from enlargement will intensify as Bulgaria, Romania, and Croatia join around 2007 and as talks continue with Turkey. In addition, increased pressure for policy modifications from WTO dispute settlement decisions—particularly those related to cotton and sugar—could be enough to energize the trade talks in the next two years. If changes are to be made to bring a program into compliance with WTO rules, why not get some credit for those changes at the bargaining table?

Countries do have an alternative option to agreeing to a deal on agriculture in the WTO. There has been an increased tendency for countries to negotiate regional trade agreements, with most WTO members now belonging to a regional group. But such talks are not ideal venues for removing trade impediments in agriculture, and there is a tendency to omit sensitive farm products in order to reach an agreement. Domestic policy curbs are not easily included in such talks, as that would give an advantage to other competitors, and export subsidies from third countries could still disrupt markets even if such subsidies are banned within the free trade zone. Therefore, the option for exporting developing countries, in particular, looks less attractive. Even importing developing countries may find that pressures to open up markets are no less relentless in regional agreements: They will have to reduce their trade barriers to partner countries that will often include competitive supplies of the good in question. So, although the regional talks may receive a boost from a stalled Doha Round, the outcome may be less comprehensive and just as difficult to achieve.

The Doha Round agricultural talks are important in the long-run development of agricultural trade. The opportunity to build upon the Uruguay Round rules for agriculture and reduce tariffs sharply is not to be passed up lightly. Unless the modalities become watered down with large loopholes for sensitive and special products, the reductions in tariffs should translate into real market access opportunities. Significant cuts in trade-distorting subsidies are in the cards and will put relatively tight constraints on farm policies. In addition, to have finally eliminated export subsidies would of itself be a welcome and long-overdue step in improving the functioning of the agricultural trade system.

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Regional Trade Agreements and Implications for US Agriculture: The Case of CAFTA-DR

By Mechel S. Paggi, P. Lynn Kennedy, Fumiko Yamazaki, and Tim Josling

At present the United States is actively engaged in twelve bilateral and five regional trade agreements or initiatives (Table 1). These agreements are designed to provide the United States with additional access to foreign markets and help foster positive relationships with trading partners. Among these is the Dominican Republic–Central American Free Trade Agreement (CAFTA-DR). Given the current debate on CAFTA-DR in the US legislature and the likelihood that the United States will negotiate future similar trade agreements, this paper is intended to provide an overview of CAFTA-DR and discuss its potential implications for US agriculture and agribusiness. The paper will also discuss implications for US imports by focusing on the case of the US sugar industry.

Overview of the Agreement

The United States and five Central American countries—Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua—began negotiations for a Central American Free Trade Agreement (CAFTA) on January 27, 2003. President Bush notified the US Congress of his intent to enter into the CAFTA on February 13, 2004. If approved by Congress, CAFTA would most likely take effect in late 2005. Negotiations were concluded on March 15, 2004 that would fully integrate the Dominican Republic into the CAFTA, creating a Dominican Republic–Central American Free Trade Agreement (CAFTA-DR). In addition, negotiations are underway with Panama (Hornbeck, 2005).

The CAFTA-DR is intended to help enhance economic growth and improved living standards in the Central American region by reducing and eliminating barriers to trade and investment. CAFTA-DR converts the nonreciprocal and discretionary benefits that these countries get from the Generalized System of Preferences (GSP) and the Caribbean Basin Initiative (CBI) into permanent and reciprocal access to the US market. Though covering all trade, the agricultural component is one of the most important aspects of the agreement. The key to the agricultural agreement is market access, with relatively few provisions in the areas of export subsidies and sanitary and phytosanitary regulations. Domestic subsidies are not covered by the agreement.

The CAFTA-DR will create improved market opportunities for US agricultural products and related goods and services. Agricultural trade barriers in the Central American countries are higher than those for manufactured goods. The average bound tariff rates on US agricultural products entering CAFTA-DR vary by country from 35% in Honduras to 60% in Nicaragua. Although the applied rates are lower, in the range of 11–13%, they are not permanent and can be increased to the bound level without consultation with trading partners.

The role of CAFTA-DR is to reduce these high tariff rates to levels that will allow a freer flow of goods and services with the United States. CAFTA-DR locks in the lower applied rates for many products and ensures permanent US access to the market. However, the short-term impact on US exports of the CAFTA-DR may be modest, as the terms of the agreement are phased in over time, and for some commodities the commitments are backloaded. This means that the negotiated adjustments are postponed until some future date.[1]

Increased market access for Central American goods to the United States will also be a consequence of CAFTA-DR. However, the impact is likely to be limited, as most CAFTA-DR countries have had permanent duty-free access to the US market since the late 1960s under the

GSP and, since the 1980s, under provisions of the Caribbean Basin Initiative (CBI) and the Caribbean Basin Economic Recovery Act (CBERA) that implements the CBI. Approximately 99% of CAFTA-DR exports already enter the US market duty free. Duties are paid only on over-quota imports as part of the US tariff-rate quota regimes for sugar, dairy, cotton, meats, and peanuts.

The essence of a free trade agreement is to open up markets to greater access from partner countries. Given that most CAFTA-DR products already enter the United States duty free, the majority of US producers will not be harmed by increased imports. On the other hand, the opening up of new markets in the Central American region promises much in the way of benefits to US agriculture. However, these expectations must be tempered by the realities of the current level of economic development of the countries in the region. Of the CAFTA-DR partner countries, only Costa Rica and the Dominican Republic have incomes over $5,000 per person. Although US producers will benefit in the short term, additional future benefits will accrue as these economies expand.

Strong Trade History

United States trade with CAFTA-DR countries has exhibited strong growth over the last decade. Total US merchandise exports to CAFTA-DR increased 74% from 1995 to 2004, reaching $15.7 billion in the latter year (including the Dominican Republic). US merchandise imports increased by 91% during the same period to $17.7 billion (United States International Trade Commission [USITC], 2005). US agricultural exports to CAFTA-DR countries increased 56%, from $1.09 billion to $1.71 billion over the same period, while US agricultural imports from the region have grown by 23%, from $2.01 billion to $2.47 billion (United States Department of Agriculture Foreign Agricultural Service [FAS], 2005). The trade deficit reflects the production of tropical products in Central America for the US market that exceeds their current purchases of temperate and Mediterranean goods from the United States.

Coarse grains, wheat, rice, soybean meal, tobacco, and other intermediate goods are major US exports to the CAFTA-DR countries. In 2004, these products accounted for 59% of US agricultural exports to the region. Wheat, soybeans, and rice are the major grain exports. Animal fats, poultry meat, and dairy products are the major animal and animal products exports. The major consumer-ready exports to CAFTA-DR are prepared fruits and vegetables, poultry meat, dairy products, snack foods, red meats, and fresh fruit. Although

Table 1. Current regional and bilateral free trade agreements involving the United States.

Country/agreement	Date/status
Israel	1985 (agricultural agreement 1996–2001)
Canada	1986 (grandfathered into NAFTA)
NAFTA (Mexico & Canada)	1994
Jordan	2001
Singapore	2004
Chile	2004
Australia	2005
CAFTA (Costa Rica, Honduras, Nicaragua, El Salvador, Guatemala)	Negotiations concluded January 2004; awaiting submission of implementing legislation to US Congress
Dominican Republic (added to CAFTA)	Negotiations concluded March 2004; awaiting submission of implementing legislation to US Congress
Panama (to be added to CAFTA)	Negotiations began April 2004
Morocco	Negotiations concluded in March 2004; implementation legislation passed US Congress; awaiting ratification by Moroccan Parliament
Bahrain	Negotiations concluded in May 2004; awaiting submission of implementing legislation to US Congress
SACU (South African Customs Union: Botswana, Namibia, Lesotho, Swaziland, South Africa)	Negotiations began in June 2003
Thailand	Negotiations began in June 2004
Colombia, Ecuador and Peru	Negotiations began in May 2004
Bolivia	Expected to join Colombia, Ecuador, and Peru talks later
Oman	Notification to Congress of intent to negotiate, November 2004
United Arab Emirates	Notification to Congress of intent to negotiate, November 2004

Note. Data from Office of the United States Trade Representative (2005) and public statements.

1. *A more detailed overview of the agricultural provisions of the agreement can be found at the website: http://www.ustr.gov/assets/Document_Library/Fact_Sheets/2004/asset_upload_file793_5328.pdf.*

bulk commodities account for the largest share of US exports, intermediate and consumer-ready products are becoming more prominent in CAFTA-DR countries (FAS, 2005).

Bananas and other fresh fruit, coffee, sugar, processed vegetables and fruit, and seafood are the major US imports from CAFTA-DR, accounting for 85% of US agricultural imports from the region in 2004. Bananas and plantains, avocadoes, pineapples, melons, fresh citrus, berries, okra, squash, tomatoes, fresh or frozen carrots, and various types of peas are among the most important fruit and vegetable imports from the Central American region (USDA/FAS). Given the trading history of the Dominican Republic and Central America with the United States, solidifying and increasing market access through CAFTA-DR will serve to strengthen trade relations and improve the economic welfare of each signator.

The Impacts of CAFTA-DR

The key provisions in CAFTA-DR, as with most other trade agreements, are those that increase market access. US producers will be better able to sell into markets that reduce tariff barriers and others will have greater access to the US market. Along with tariff cuts come other aspects of market access: relaxation or reassignment of tariff-rate quotas (or their introduction when negotiated as a part of the agreement); trade remedies such as safeguards that limit market access in times of import surges; and other conditions that affect the cost of selling into a foreign market or that influence the costs of others selling into the US market.

CAFTA-DR countries already have preferred access for a wide range of goods under the CBI and also under the GSP. The impact of CAFTA-DR on these countries will be to grant them wider access, at least for sensitive products that have been excluded from the other market access schemes. They will, in effect, catch up with Mexico in term of access into the US market, except in one or two sectors such as sugar.

With respect to market access in the CAFTA-DR countries, US goods gain preference relative to those countries that do not have a free trade arrangement with CAFTA-DR members. This means that competitiveness is affected by the current trade agreements that these countries have with other countries. US suppliers would move (over a transition period) from supplying at most-favored-nation tariffs to having duty-free access. The advantage of this depends on which other suppliers already enjoy such privileges.

Consider the case of fresh grapes. Costa Rica imported approximately $3.9 million of fresh grapes in 2001. Over 70% of Costa Rica's fresh grape imports were supplied by the United States, followed by Chile with 27%. On October 18, 1999, Central America and Chile signed a free trade agreement. Thus, Chile enjoys duty free status for its fresh grape exports to Costa Rica. In this example, CAFTA-DR enhances US competitiveness relative to exporters such as Chile who previously enjoyed duty-free access. For trade in fruits, vegetables, and nuts, the USITC estimates that US imports will decline by 1.84% and US exports will increase by 14.23% after full implementation of CAFTA-DR.

The Implications of CAFTA-DR for the US Sugar Industry

Implementation of the CAFTA-DR would allow an immediate expansion of the sugar and sugar-containing product imports into the United States from CAFTA-DR partners. This increase is in addition to their current access to the US sugar market. The duty-free tariff rate quota would initially increase by 109 thousand metric tons (tmt), increasing to 153.14 tmt over a 15-year phase-in with an increase of 2,000 metric tons each year thereafter. The additional market access is limited to either the specified amount or the net trade surplus for each country, whichever is smaller (USITC, 2004).

In addition to this agreement on market access for sugar, several related provisions were included in the agreement. The United States may provide compensation to its CAFTA-DR partners in place of the additional duty-free tariff-rate quota (TRQ) access. At the same time, although the United States is able to use certain price-based safeguard measures against sugar and sugar-containing product imports from other suppliers, the CAFTA-DR agreement does not allow the United States to use these measures against its CAFTA-DR partner countries (USITC, 2004).

The impact of additional US sugar imports on domestic raw sugar prices was estimated by Kennedy and Roule (2004) as a decrease from a base price of 20.66 cents per pound. As expected, the expansion of the US TRQ import levels resulted in a modest rise in world sugar prices. As shown in Table 2, the estimated impact of an additional 100 tmt alone—approximately the amount of additional imports allowed in the first year of the proposed CAFTA-DR agreement—would result in a reduction in US raw sugar prices of 0.63 cents per pound. In this scenario, domestic consumption, referred to in its raw sugar equivalent,

Table 2. Changes in prices and quantities resulting from alternative US market access scenarios.

Additional imports from 2003/04 base (tmt)	Domestic price (¢/lb)	World price (¢/lb)	Beet production (tmt)	Cane production (tmt)	US consumption (tmt)
Base	20.66	7.43	4,416	3,716	8,946
100	20.03	7.44	4,370	3,700	8,984
150	19.73	7.44	4,347	3,693	9,003
500	17.71	7.46	4,190	3,637	9,141
1,000	15.13	7.49	3,972	3,558	9,344
2,000	10.96	7.56	3,560	3,401	9,775
3,089	7.63	7.63	3,148	3,233	10,284

would increase by approximately 38 tmt, while beet and cane production would decrease by approximately 62 tmt.

In addition to the welfare impacts associated with changes in production and consumption, there will also be both job creation and reduction. The US sweetener industry has stated that it would stand to lose jobs as a result of increased imports. At the same time, sweetener-using industries have stated that they would likely increase their employment (USITC, 2004).

The combined impact of additional free trade agreements, such as the North American Free Trade Agreement, allowing for further increases in sugar importation into the United States, was estimated to be much greater. With a 500 tmt increase in US sugar imports, estimated world raw sugar prices increase slightly to 7.46 cents per pound, a less than 1% change from the base price. With a 3,000 tmt increase in US sugar imports, estimated world raw sugar prices increase to 7.62 cents per pound, an approximate 2.59% increase from the base price. However, these additional sugar imports resulted in a substantial decline in the US raw sugar price. A 500 tmt increase in US sugar imports was estimated to cause the US raw sugar price to drop below the loan rate to 17.71 cents per pound. A 3,000 tmt increase in sugar imports was estimated to cause the US raw sugar price to drop to world price levels of 7.86 cents per pound.

The tendency is that increased sugar imports will cause downward pressure on domestic prices in the absence of government intervention. When the government does intervene, as it currently does through the use of a nonrecourse loan, increased imports will increase the cost of maintaining the sugar program. As the US sugar industry faces increased pressure from the world market, the government faces the dilemma of how it can continue to support the sugar industry in light of the increased expense.

Additional Implications

CAFTA-DR is a reflection of current trade policy of the United States, emphasizing the negotiation of bilateral trade agreements leading to freer trade with regional partners as well as keeping up the traditional support for further liberalization of the multilateral trade regime. The goal of the bilateral agreements with countries in the hemisphere is an eventual Free Trade Area of the Americas (FTAA).

The predominant feature of the CAFTA-DR itself is that most of the adjustment will fall on the Central American countries and the Dominican Republic; the United States has granted liberal access for exports from these countries for many years, whereas the United States has not had free access onto their markets. Tariffs on agricultural goods into these markets are still high, even though generally well below the rates bound in the WTO. The United States has insisted that reductions towards free access start from these applied rather than the higher bound rates. However, this does not mean that US exporters of farm products will be immediate gainers from the CAFTA-DR. The Central American markets are too small to be a lucrative prize for US business and agriculture. Moreover, access will only come over time. For some sensitive commodities, including agricultural goods, long transition periods of up to twenty years have been negotiated.

Adjustment costs in the United States are likely to be minimal. As a result, trade remedies are less central to the FTAA from the viewpoint of the United States. Surges of imports from the Central American region are unlikely, and any market growth will be a result of the increasing sophistication of exporting firms in the region rather than the changes in trade barriers. Accordingly, trade remedy arrangements are unlikely to be used, in contrast to the situation with Mexico a decade ago, when imports under NAFTA of some products increased rapidly. However, import surges are of concern to the countries of Central America and the Dominican Republic. The trade remedies specified in the CAFTA-DR complement the long transition period and the gradual expansion of tariff-rate quotas.

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The WTO Cotton Case and US Domestic Policy

By Darren Hudson, C. Parr Rosson III, John Robinson, and Jaime Malaga

Once in a while, an event comes along that portends to reshape agricultural policy. Brazil's complaint in the World Trade Organization (WTO) against the United States on domestic support for cotton, export credit guarantees, and export subsidies could be one such event. (For background on the WTO, the dispute resolution process, and the specifics of the cotton case, see the Economic Research Service, http://www.ers.usda.gov/briefing/wto/, and Mercier, 2004). The initial ruling, however, was a mixed bag. The WTO dispute resolution panel did rule in favor of Brazil on most key points, and the appellate body report, released March 3, 2005, mostly confirmed the initial panel's rulings. The result of both could have serious implications for US farm policy.

The cotton case, or Dispute Settlement (DS) 267, has received considerable national and international attention. Whereas most agricultural issues (with the exception of bovine spongiform encephalopathy [BSE]) are, at best, relegated to the business section of the newspaper, the cotton case has been front-page news. Many popular press publications, including *The New York Times* and *The Wall Street Journal*, have made the case that the US government has exploited subsistence farmers around the world by lavishing subsidies on US cotton farmers. US cotton interests and some farm organizations have countered that as the 2002 farm bill was being developed, assurances were given to US policy makers that the farm bill provisions were compliant with WTO rules. In the world of international trade policy, however, nothing is assured. Many provisions within agreements are subject to interpretation. Here, we attempt to draw out the key complaints, findings, and economic arguments underlying the case and explore some implications for future directions in US farm policy.

The Key Complaints

To be successful, Brazil first had to establish that US subsidies exceeded agreed-upon limitations set in 1992. Brazil successfully argued that US production flexibility contract payments (PFCPs) and direct payments (DPs) were not eligible to be classified in the non-trade-distorting Green Box category due to planting restrictions on fruits and vegetables. The 1996 and 2002 Farm Bills restrict planting of fruits and vegetables on base acres,[1] which, the Brazilians argued, effectively ties direct payments to current production. The WTO panel ruled in favor of Brazil on this point, meaning that PFCPs and DPs were counted as Amber Box for this case. This finding, along with several others, meant that the United States had exceeded agreed-upon 1992 subsidy limits and was not entitled to Peace Clause protection, thus opening the door for Brazil to argue the remainder of its complaints. However, more importantly, this seemingly innocuous technical point may have more major long-run implications for US policy, which we discuss later in this article.

Brazil challenged four primary components of US agricultural policy. First, US domestic support for cotton causes "serious prejudice"[2] to Brazilian producers by depressing or suppressing the world price of cotton and results in a larger US share of the world cotton market. Second, US export credit guarantees are an export subsidy. Third, the Step 2 payments are both an export subsidy and an import substitution policy.[3] Finally, tax credits/deferrals given for cotton to US exporters amount to an export sub-

1. *Specifically, planting fruits and vegetables on base acres affects payments.*
2. *Serious prejudice occurs when a subsidy (a) displaces or impedes exports or imports, (b) results in significant price undercutting, suppression, or lost sales, or (c) results in an increase in the subsidizing country's market share.*

sidy. The United States attempted to limit the scope of the complaint to cotton, but Brazil successfully argued to include all other commodities in the argument related to export credit programs as well.

Ultimately, many of Brazil's claims hinged on the assertion that US cotton policies bestow excessive subsidies and depress world prices. This claim is important from a public relations perspective, because it is consistent with claims made by international watchdog groups (such as Oxfam and others) that US farm policy depresses world prices and has had significant adverse consequences for subsistence farmers in developing and less developed countries, where approximately 75% of the world's cotton is grown.[4] The United States provided some evidence that cotton prices actually increased by nearly 100% from 2001 to 2003, which hardly makes for good evidence of price depression. Further, a study by Texas Tech University in January 2004, using a world textile/cotton model, concluded that the elimination of all cotton subsidies by the United States will cause a short-term international cotton price increase of only 2.14% and that the price effects of such policy will quickly dissipate as other countries increase their production (Pan, Mohanty, Ethridge, & Fadiga, 2005).

Key Findings

Given the Peace Clause determination mentioned above, the WTO panel ruled on each claim in Brazil's case.[5] First, the panel found that export credit guarantees were export subsidies. For unscheduled commodities such as cotton and soybeans, these export subsidies are prohibited and must be removed. For scheduled commodities such as rice, the panel found that export credit guarantees were subsidies; inclusion of these in subsidy calculations meant that the United States had exceeded subsidy limits in several of the years in question. Despite this finding, however, the panel found that guarantees for both scheduled and unscheduled commodities did not constitute circumvention of US WTO reduction commitments. Additionally, the panel found that Brazil had failed to establish that tax credits to exporters were export subsidies.

Most importantly, the WTO panel found that key elements of the 1996 and 2002 farm programs, such as the marketing loan, countercyclical payments, market loss assistance, and Step 2, caused significant price suppression and serious prejudice to Brazil over the 1999–2002 period. However, the panel failed to find compelling evidence that US support programs would cause serious prejudice over the 2003–2007 period. Conversely, the panel found that other support programs, such as production flexibility contract payments, direct payments, and crop insurance, did not cause serious prejudice to Brazil. Interestingly, the panel did not rule on the issue of market share, because it could not agree on a sufficient definition of market share.

Step 2 payments to domestic users of cotton were ruled to be subsidies that favor the use of US cotton over imported goods. Step 2 payments to exporters are subsides contingent upon export performance and are therefore inconsistent with WTO rules. The Step 2 provisions must be modified or eliminated by July 1, 2005 for the United States to comply with obligations in the WTO. The Step 2 program has long been a popular tool in the US cotton program. However, from the WTO ruling one can clearly see that the Step 2 program has been successfully targeted by Brazil and must be significantly changed to remain in compliance.

In sum, the WTO panel found sufficient evidence to call for an immediate end to export credit guarantees (in their present form) and the Step 2 payments. The panel further found that these subsidies, or the effects of these subsidies, caused serious prejudice to Brazil and must be eliminated. Interestingly, however, the panel did not provide an indication of the *degree* of serious prejudice (i.e., the magnitude of the economic damage). Thus, the original ruling suggests that there are many issues related to US domestic agricultural

3. *The Step 2 payment is part of a three-step competitiveness program for US cotton. Because US cotton is often higher priced than world market prices, the Step 2 program paid the difference between world prices and US prices to both exporters and domestic users (we are, of course, simplifying the mechanics). The contention is that this program allowed exporters to sell cotton at prices consistent with world market prices and allowed domestic users to purchase US cotton at world market prices.*
4. *This amount is the percentage of world production outside of the United States, Australia, and the European Union.*
5. *The panel ruled on all major points except for the issue of increased market share. The lack of a ruling on increased market share is immaterial because it was ultimately not necessary for Brazil's case. There were numerous rulings and findings in the case, but we focus on the key elements here for clarity.*

policy that are to be considered in the future if the United States wishes to remain in compliance with WTO rules.

Both the United States and Brazil appealed different parts of the decision, but the appellate findings, released on March 3, 2005, upheld most of the relevant points in the initial panel's findings. Although some provisions of US farm policy will need to be changed in order to comply with the rulings, the implications for other program components are less clear—the panel provided no real guidance as to *what* must be changed or *how* it must be changed to be in compliance.

Policy Options and Consequences

There are a number of options available to the United States as a result of this decision. First, the United States can bring farm policy into full compliance with the rulings of the WTO. This approach requires some modification of the export credit guarantee and Step 2 programs by July 1, 2005, with other programs to be addressed in the near future. If Brazil is satisfied with the July 1 outcome, the process will end. However, if Brazil believes the United States has not complied with the ruling, Brazil can request the formation of a compliance panel, which will reexamine the steps taken by the United States. Thus, whatever is done by the United States must be accepted by Brazil and is subject to WTO review.

Second, the United States can partially comply by modifying some policies and compensating Brazil for maintaining other selected policies. The United States could comply with part of the ruling—Step 2 and export credit guarantee modifications, for example—but arbitrate with Brazil over compensation for marketing loan payments and countercyclical payments. This option would no doubt cause some countries to be less than satisfied, might undermine the effectiveness of the WTO, and could delay or derail progress in the Doha round of WTO negotiations currently underway. Brazil could impose tariffs, not necessarily on cotton or agricultural products, in amounts consistent with damages caused by the US policies.[6] Brazil is not obligated to place tariffs and must gain approval from the WTO for products and tariff rates. Although the WTO encourages that like products be dutied, this suggestion is not a requirement—possibly opening the door to industrial goods.

Finally, the United States could opt not to comply at all with the decision, in which case Brazil will be allowed to retaliate by imposing punitive tariffs on Brazilian imports of US products. Although this approach would reduce some US exports, imposing punitive tariffs would also raise the cost of imports to Brazilian consumers. More important, however, this option would almost certainly undermine the effectiveness of the WTO, reduce the ability of the United States to lead trade liberalization efforts, and stall or completely negate progress in Doha. If the United States took the position of complete noncompliance, Brazil would be more likely to seek compensation, because Brazil would view the US position as inflexible (not to mention illegal according to WTO rules).

Is Compliance the Likely Outcome?

There are at least three reasons for the United States to comply with the WTO rulings. First, as stated above, compliance sends a clear signal that the United States still intends to lead the trade liberalization agenda, thus providing substantial support to the Doha Development Agenda in the WTO negotiations. In fact, cursory observation of past WTO cases involving the United States suggests that the United States tends to comply with WTO rulings. Second, with respect to the Peace Clause determination, the United States is vulnerable to further litigation in cotton now that it has been established that subsidy reduction commitments were exceeded.[7] Although compliance will not completely insulate US farm programs from further litigation, compliance may make arguments of serious prejudice violations less valid

6. *Given the WTO panel's reluctance to provide an estimate of the economic damages in its initial ruling, these would have to be determined before tariffs could be placed. This begs the question of just how large the damages actually are. If one takes the Pan et al. (2005) study at face value, it would appear that the economic damages are relatively small (around 3%).*

7. *It should be noted that because the Peace Clause expired in 2003, all countries can now move straight to arguments about serious prejudice in other commodities without establishing Peace Clause violations first. The critical element here is that because the WTO panel deemed many US programs as trade distorting, they may have set a precedent that encourages other countries to seek remedy in the WTO. That process is very expensive, however, which may limit the number of suits brought against the United States.*

and nearly moot in multilateral negotiations.

Perhaps a more compelling reason is the potential for retaliatory tariffs. Figure 1 shows that cotton is the largest US agricultural export to Brazil. Of course, Brazil may choose to place tariffs on US cotton if compliance is not offered. However, as Figure 2 shows, agriculture is only a small portion of overall exports to Brazil, and Brazil is not obliged to place tariffs on cotton. In computers, for example, even a small tariff on this high-volume, low-margin industry could significantly damage US sales.

Brazil likely does not want to increase consumer prices by placing tariffs on key consumer goods. Moreover, political pressure from potentially affected industries in the United States will likely mount as well. Thus, US compliance seems the most likely course of action.

Conclusions

The WTO case has focused attention and debate on the future direction of US farm policy. Although budgetary pressures have been mounting, Congress has so far not taken action to reduce the overall level of support to US agriculture, but farm program payments are seen as vulnerable nonetheless (Conley, 2005). At the same time, some farm groups (such as the National Corn Growers Association) have signaled a desire to move from supporting farm incomes to providing incentives for value-added product production (Tolman, 2005). The budgetary path in the short run is uncertain, but the WTO decision has provided ammunition for proponents of farm subsidy reductions and has provided longer-term political cover for politicians who would like to reduce farm support for budgetary or other reasons.

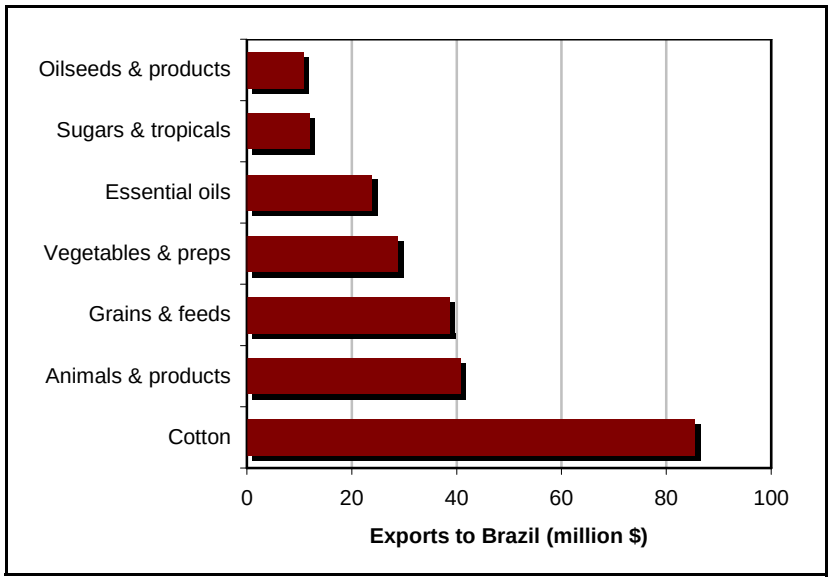

Figure 1. US agricultural exports to Brazil, 2004.

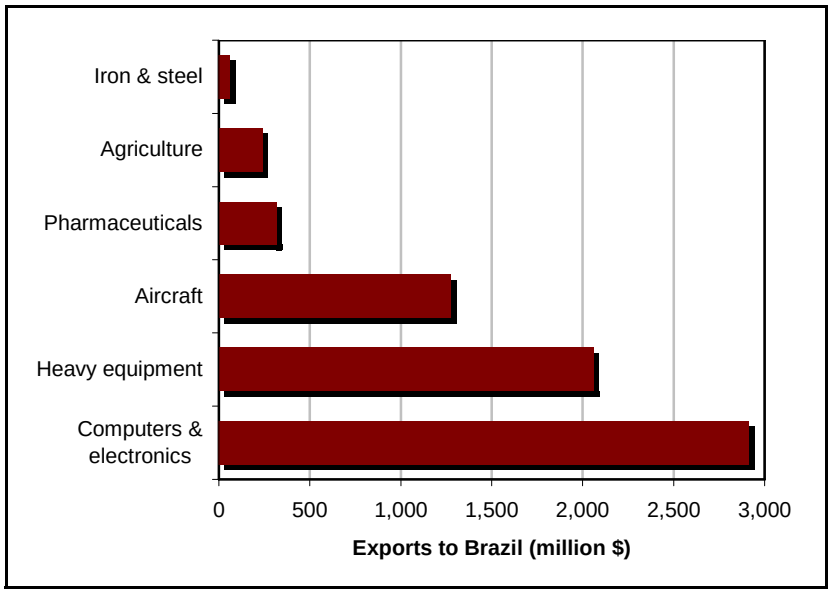

Figure 2. US product exports to Brazil, 2004.

The WTO decision will not likely lead to a reduction in the overall level of farm program payments by itself, but may lead to a diversion out of traditional commodity payments into programs that can be deemed non-trade-distorting. If the United States is successful in arguing for a continuation of the Blue Box program in the Doha Development Agenda of trade negotiations and can move programs such as the PFCPs and countercyclical payments into that category, it will solve the short-term problem of Amber Box subsidy limit violations. However, any negotiated reductions in the aggregate measure of support (AMS) in the Doha Round will necessarily lead to overall reductions in total support. Any AMS reduction does not derive directly from the cotton case, but the

findings of the cotton case certainly draw direct attention to the level of domestic support in the United States.

One clear signal sent by the results of DS 267 is that safety-net programs employing countercyclical components are under close scrutiny and likely to be unacceptable in the future. If this is the case, the countercyclical programs could be challenged by other countries and for other crops, even if these programs are modified and survive. This finding also raises the question of whether countercyclical payments will be allowed in the new Blue Box being negotiated in the Doha Development Agenda noted above.

The WTO looms large in the next fall bill debate. Although some farm groups are attempting to downplay the potential impact of the WTO cotton ruling on the future of farm policy, one must question how Congress will be able to ignore compliance issues and the costs of noncompliance as a new farm policy is formulated. Clearly, export subsidies will have to be eliminated, and export programs of any kind will be closely scrutinized to ensure compliance. More important is the fate of farm program payments. The US Trade Representative has clearly linked reductions in domestic support to market access to developing country markets in the Doha negotiations. Given that the United States is currently at or near agreed-upon subsidy limits in the current WTO, any additional reductions in the AMS negotiated through the Doha Round will necessitate overall reductions in farm program payments. Thus, discussion of which "box" payments go into may become only an interesting sideline discussion, with the more relevant issue being the total payments received by farmers.

US farm policy is formed in a dynamic setting. Agriculture is becoming an ever-shrinking share of the US federal budget; demographic trends make the population further removed from the farm and rural life. As international problems and goals consume more time and money, agriculture will increasingly become the residual claimant for federal resources. Agriculture may increasingly become the carrot for the United States to use in trade negotiations, because agriculture is a larger relative share of the economy of developing and less developed countries.

Although US agricultural tariffs are already among the world's lowest, its trade-distorting domestic farm support ranks near the top, along with the European Union and Japan. The farm programs of all three countries may be targets of challenge in the future. A successful conclusion to the Doha Round would likely mitigate this outcome, whereas failure in Doha will almost certainly ensure a future fraught with litigation.

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Food Chain Disruptions and Trade: The Importance of North American Market Integration

By C. Parr Rosson III and Flynn J. Adcock

Background

Since the mid-1980s, the pace of North American food market integration has rapidly accelerated. This was due in part to Mexico entering the General Agreement on Tariffs and Trade (GATT) in 1986, followed by the Canada-US Trade Agreement (CUSTA) in 1989 and the North American Free Trade Agreement (NAFTA) in 1994. The North American food distribution system has become characterized by a well-integrated, efficient, and low-cost supply chain designed to deliver food and agricultural products safely and just in time across the continent. Spurred by CUSTA and NAFTA, agricultural trade and investment in North America have surpassed many expectations. The future of this system in its present form, however, has been challenged by the threat of agroterrorism and recent animal disease outbreaks.

The September 11, 2001, terrorist attacks on the United States resulted in closed borders and uncertainty about the prospects for resuming trade and raised serious doubt about how the United States might respond to another attack or similar event. In the aftermath of the attacks, questions were raised about the vulnerability of the US food supply to intentional contamination and the safety of the US animal and plant populations.

Since then, the United States has implemented legislation to consolidate government agencies to increase security and efficiency. The 2002 Bioterrorism Act was designed to give the Food and Drug Administration more time and information to evaluate the likely risk posed by firms shipping foods to the US market. Despite these changes, the vulnerability of the US food chain, and indeed the integrity of the entire North American food distribution system, remains a concern.

Nearly 90% of US citizens live in food-secure households (United States Department of Agriculture Economic Research Service, 2005). Events that limit the physical availability of food or increase its cost to consumers could disrupt the food chain and reduce the overall level of US food security. There is general consensus that a potential threat to US food security is the intentional contamination of the food supply to cause illness, death, or economic loss. Other factors that could cause disruption to the North American food chain include regulatory changes, such as mandatory country-of-origin labeling (MCOOL), and the use of available trade remedy laws, such as the filing of antidumping and countervailing duty petitions.

This paper reviews developments in North American food market integration and their importance to the US food system. Using the cases of beef cattle, beef, hogs, and pork as examples, implications for trade, foreign direct investment, and food security are examined. How consumers, policy makers, and regulatory authorities respond to these and subsequent events will shape the future and degree of market integration in North America and ultimately US food security.

US-NAFTA Agricultural Trade

The growth in US agricultural trade with NAFTA partners, although well documented, is worthy of mention. US agricultural exports to Mexico have nearly doubled to $8.5 billion since NAFTA was implemented in 1994, while exports to Canada have increased more than fourfold, reaching $10 billion in 2004. Since 1980, agricultural exports to NAFTA partners have expanded 250%. US agricultural imports have also grown, with imports from Mexico more than doubling to $7.3 billion and imports from Canada expanding almost fourfold to $11.5

billion. Agricultural imports from NAFTA trading partners have increased nearly 800% since 1980. In 2004, the United States had an agricultural trade surplus of $1.2 billion with Mexico and a trade deficit of $1.5 billion with Canada.

Also noteworthy is the relative importance of both countries as markets and suppliers. US agricultural exports to NAFTA have increased from about 12.5% of the total in 1989 to 29.7% of total in 2004. The share of US agricultural imports from NAFTA has grown from 23.7% to 34.6% during the same period. As a practical matter, NAFTA now accounts for about one third of US agricultural exports and imports, as opposed to 16% in 1989 and 11% in 1980. The rapid and significant growth in agricultural trade is one of the major contributing factors to the higher degree of market integration within North America.

NAFTA represents a diverse market for commodities as well as high-value products. Nearly two thirds of all US agricultural exports to Mexico are either consumer-ready products or intermediate goods that require some processing before use. Major consumer goods include boxed beef, broilers, pork, and other processed foods. Intermediate goods include powdered milk and vegetable oils. The rest are bulk commodities such as corn, rice, grain sorghum, soybeans, and cotton. When considering US agricultural products to Canada, nearly three fourths are consumer-oriented products and almost 20% are intermediate.

US agricultural imports from Canada and Mexico are composed of 80% consumer-oriented products. Vegetables, fruits, beef, pork, snack foods, and beverages account for the majority of this trade. Seventeen percent of US agricultural imports from NAFTA are intermediate products, with a third to a half of these being live cattle and hogs. Less than 10% are bulk commodities.

Implications of Food Chain Disruptions for Market Integration

The prospects of bioterrorism, coupled with a rash of animal disease outbreaks and continued concerns about the safety of imported foods, have led many to question whether the North American food chain may have reached the highwater mark of market integration. The following indicates that this may not be the case.

North American Cattle and Beef

Cattle and beef have become one of the most highly traded and deeply integrated sectors in the North American market. About 99% of all cattle imported by the United States come from Canada and Mexico, and 98% of all US cattle exports go to those same countries (Figure 1). An average of 821,000 Mexican cattle has come to US pastures and feedlots each year since 1970. Almost all Mexican cattle entering the US market are of stocker/feeder weight. Canada normally ships more than one million head of fed cattle for slaughter to the United States annually. In addition, more than $2.2 billion in beef and beef products are traded among NAFTA partners annually, representing one third of all North American beef trade. The discovery of bovine spongiform encephalopathy (BSE) in Canada and the United States, however, drastically altered some of these relationships.

When BSE was discovered in Canada in May 2003, the international market for Canadian beef and beef cattle closed. The United States, which imported nearly 1.7 million head of Canadian fed steers in 2002 and a half million prior to the discovery in 2003, could no longer rely on those cattle to process. The US market for live Canadian cattle, which was scheduled to reopen March 7, 2005, remains closed due to an injunction filed to stop the implementation of this regulation. Canadian beef, banned by the United States for three months in 2003, is now imported in boneless form and from cattle less than 30 months of age. While awaiting the reopening of the US market for live cattle to reopen, investment in the Canadian beef packing industry has increased, and slaughter capacity is increasing.

Japan, South Korea, Mexico, and Canada accounted for 90% of US beef exports before BSE, and exports represented 9.6% of US beef production. The impact of BSE in the United States, caused in part by the immediate closure of all foreign markets to US beef, was a 20% drop in live cattle prices over a four-day period coupled with a 17% decline in feeder cattle prices. Prices rebounded, however, and set a record high during the summer of 2004. Rapid price recovery was attributed to several factors, including quick action by the USDA to reassure consumers that the US meat supply was safe; low beef supplies because the US was at a low point in the cattle cycle; prohibitions on importing Canadian cattle; and an upswing in domestic consumer demand for meat, driven in part by changes in diet.

Canada and Mexico have reopened their borders to US boneless beef from cattle less than 30 months of age, which currently account for 84% of US beef exports. Although US beef exports have resumed, they are at only 17% of pre-BSE levels and will not recover

until Japan and South Korea again allow US beef (Figure 2).

Foreign direct investment (FDI) in North America contributed to increased market integration as well. US FDI in Canadian agriculture expanded from $1.7 billion in 1985, reaching $5.8 billion in 1999. Since then, however, it has fallen to $4.5 billion in 2001. For Mexico the trend was much the same, with US FDI reaching $4.7 billion in 1998, dropping the next year, and recovering to $4.5 billion in 2001.

Within Canada, much of the growth in FDI has been in additional feeding and beef packing capacity as firms have focused on exporting beef instead of cattle in the post-BSE business environment. With 80% of the cattle feeding and packing industry located in the provinces of Alberta and Saskatchewan, those regions are of key importance in assessing the direction of the Canadian cattle industry. The number of cattle on feed (Alberta/Saskatchewan) was 974,403 in April 2005. This is 23% more than one year ago and only 20,000 head below pre-BSE levels. At the same time, the cattle herd was reported to be 15.1 million head, higher than at any time since at least 1960. Cattle marketed reached 203.3 thousand head for the same period—28% above 2004 and the highest since 2000.

Another potential disruption to the North American beef market is the MCOOL provision in the 2002 US Farm Bill. This provision required muscle cuts of beef and pork, fruits, vegetables, peanuts, and seafood products sold in US grocery stores to be labeled as to country of origin beginning October 1, 2004. Implementation for all but seafood was delayed until 2006. There are two issues associated with this regulation. The first issue was the belief that US consumer preference for US beef would decrease US consumption or price of beef from Canadian and Mexican cattle. Second, the need to put all countries on the label might cause processors to decrease their use of foreign cattle so that only US would be used, thereby negating the need for multiple sources on the label. The MCOOL provision, however, has only been enforced for seafood products as a result of funding being withheld by the US Congress for enforcement for other products. There is also proposed legislation to make MCOOL voluntary instead of mandatory.

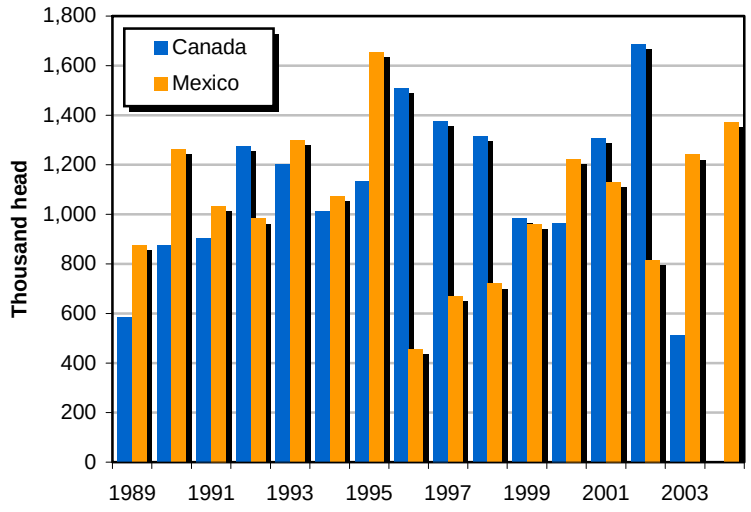

Figure 1. US cattle imports, 1989–2004.
Note. Data from USDA ERS (2005).

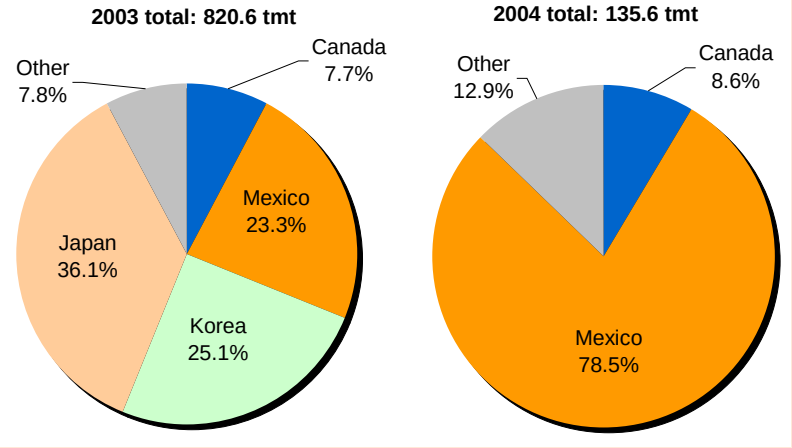

Figure 2. US beef exports, 2003 and 2004.
Note. Data from USDA FAS (2005c).

North American Hogs and Pork

During 2004, NAFTA countries traded 2.5 million metric tons (mmt) of pork, 30% of which occurred within NAFTA (Figure 3). This represents approximately the same percentage of intra-NAFTA pork trade as in 1993, although the magnitude of the trade increased by 243%, reaching 733 thousand metric tons (tmt) in 2004. Although this does not signify an increase in intra-NAFTA trade, it does show that as

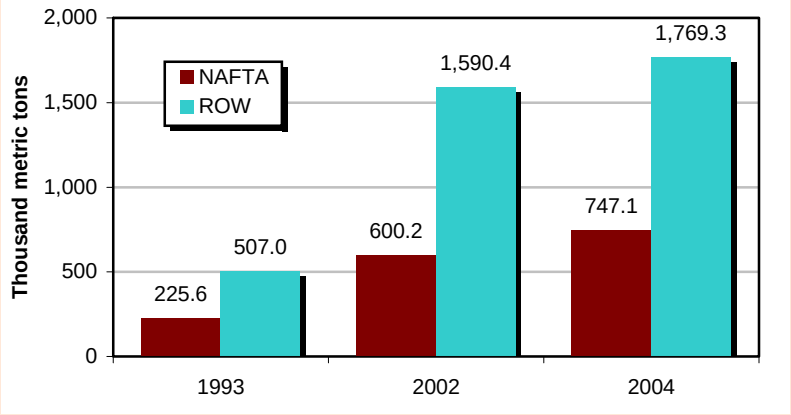

Figure 3. Intra-NAFTA and ROW pork trade.
Note. Data from USDA FAS (2005b) and CanFax (n.d.).

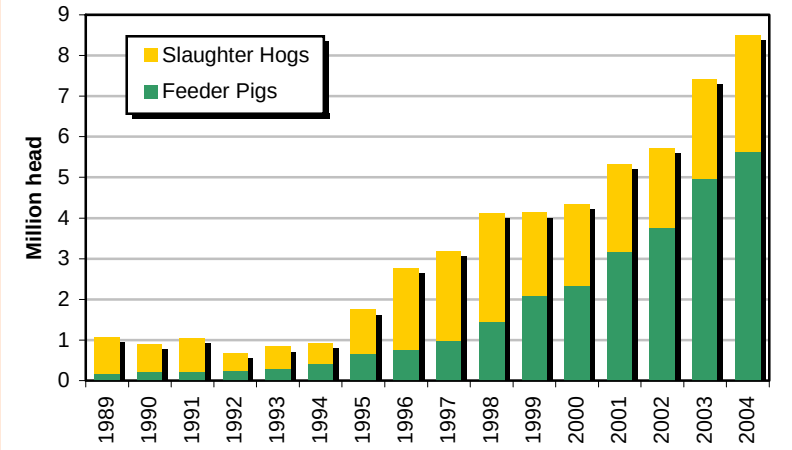

Figure 4. US swine imports from Canada, 1989–2004.
Note. Data from USDA ERS (2005).

the overall volume of NAFTA pork trade increased, the intra-NAFTA relationship has remained strong. Accounting for much of the increase in total pork trade among NAFTA countries are US imports from Canada, up 118% from 1993 to 2004, and US exports to Mexico and Canada, up 598% and 680%, respectively, over the same period.

When examining the live hog trade, one major change is the increase in US imports. Since the implementation of CUSTA, Canadian exports of live hogs to the United States have grown from 1.1 million head in 1989 to 8.5 million head in 2004, accounting for all but a few hundred head of US hog imports (Figure 4). Most of this increase has occurred since 1995, when exports were 1.7 million head. Since that time, Canadian exports of fed hogs to the United States has grown 485%, from 1.1 million head to 2.9 million head. Even more dramatic growth has occurred in US imports of feeder pigs from Canada, from 700,000 head in 1995 to 5.6 million head in 2004. The main reason for the large increase in US feeder pig imports is limited hog finishing capacity in Canada when compared to advances in farrowing capacity and efficiency, partially due to strict environmental regulations in Canada.

Since 1994, US hog exports to Mexico have been as erratic as they were prior to NAFTA (albeit at a higher level), particularly since 1998, when exports reached a seven-year high of 207,900 head. Most US hog exports to Mexico have been for slaughter, averaging 86% of the total since the implementation of NAFTA. In 1992, 1997, and 2002, slightly more than one half of US hog exports to Mexico were for breeding. US hog exports to Mexico during 2004 were 138,775 head and accounted for 80% of US exports. Other US hog exports, particularly those to China, Hong Kong, Japan, and Korea, are mainly breeding stock.

The potential for food chain disruption has taken a different form in North American hog and pork trade. The large increase in US hog imports from Canada prompted many in the US pork industry to suspect that Canada was shipping hogs to the United States at a price that was less than fair value (LTFV). In March 2004, the National Pork Producers Council filed a case with the US International Trade Commission (ITC) and the US Department of Commerce (DOC) alleging injury to the US pork industry from these imports. This was the second case filed by the US industry since 1998. Although the DOC agreed that these hogs were entering the United States at LTFV, the ITC concluded that this did not cause "material injury" to the US industry and that the establishment of the US industry had not been "materially retarded." Had there been a finding of material injury or retardation to the industry, an antidumping compensatory tariff would likely been imposed on the importation of Canadian hogs, potentially causing disruption in the US pork market.

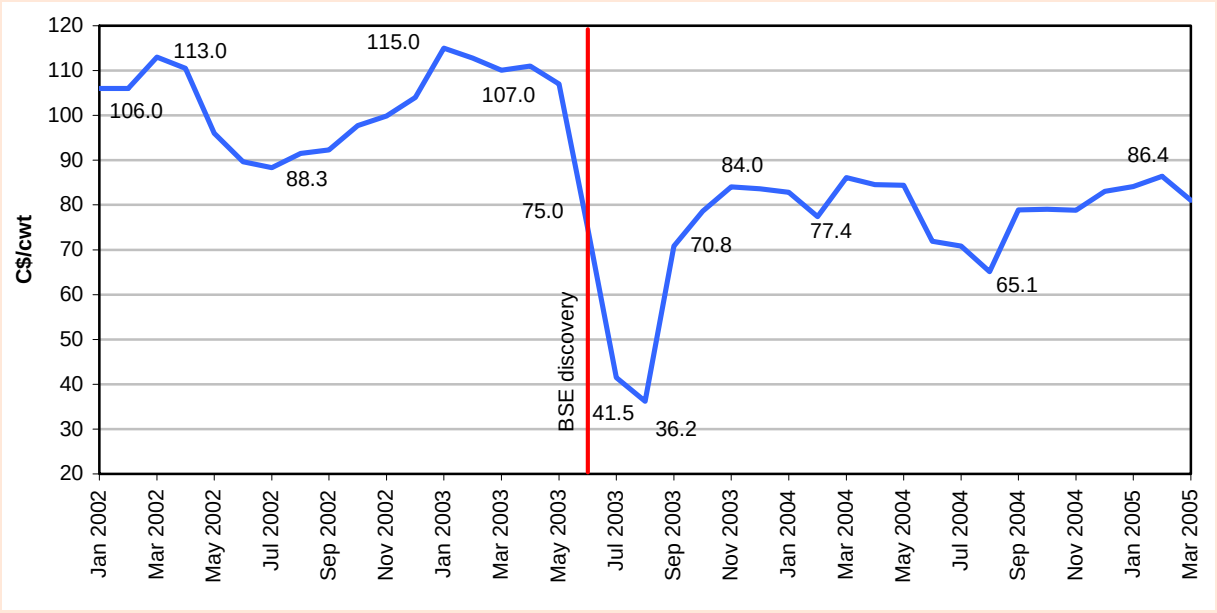

Figure 5. Alberta, Canada direct sale steer prices, midmonth midpoint, January 2002 to March 2005.
Note. Data from Alberta Agriculture, Food and Rural Development (2005).

Just a year before the US case against Canada, the Mexican pork industry initiated an antidumping case against the imports of pork from the United States. This followed an antidumping case filed by the Mexican industry in 1999 against US slaughter hogs. The hog case resulted in a compensatory duty of $0.351/kg imposed on Mexican imports of US hogs effective October 2000 through May 2003. The pork case, however, ended in May 2004 with no compensatory duties being levied. However, an investigation of imports of US pork hams was initiated immediately following the broader pork case. The final determination on this case has not yet been announced.

What these hog and pork cases indicate is that when combined with animal health, food safety, and other regulatory issues such as MCOOL, there are many potential disruptions to the North American meat food chain. Furthermore, only a few examples have been highlighted here. In pork and hogs, there is also concern about MCOOL, and there are animal health issues. By the same token, there have been antidumping and countervailing duty cases filed in the North American beef cattle industry, by the United States against Canada and Mexico, and by Mexico against the United States. Thus far, however, only the case of North American BSE has caused major disruptions.

The Case of BSE in North America: A Closer Look at Trade Issues and Implications

The short-run industry response to BSE was to concentrate trade and resources within the North American food chain. Although Canadian steer prices initially fell 65% after the Canadian BSE case in May 2003, they have since recovered most of their value, reaching the high $80s (Canadian) in February 2005 before dropping to the low $80s in March (Alberta Agriculture, Food and Rural Development, 2005; Figure 5). Prices also appear to be exhibiting more normal seasonal patterns as well. Price recovery stems from two major market factors. First, consumers did not panic when BSE was found and continued to purchase beef. Second, as soon as the US market was reopened to Canadian beef, meat packers specialized in the export of boneless beef from cattle less than 30 months of age in order to comply with US regulations, thereby increasing the demand for cattle. The value of mature Canadian cows fell by 75% and is still struggling to recover.

US beef exports fell from 820 tmt in 2003 to a mere 136 tmt in 2004. Export prospects for 2005 are not much better, as companies wait for Japan to reopen its market to US beef. Cattle prices did decline in late 2003 and early 2004 but soon recovered their value.

Although beef imports were lower in 2003 due to less Canadian product, overall US imports of beef rose in 2004, with Uruguay setting a record for shipments to the United States with 99,000 tons. Larger supplies of beef also arrived from Australia and New Zealand. The majority

of this beef was classified as frozen, boneless trimmings and about 90% lean. It was used to blend with US beef in order to obtain an 80% lean product used for ground meat in grocery and fast food businesses. US imports of Mexican cattle also rose in 2004, reaching 1.37 million head. Imports of Canadian cattle remain banned as of this writing.

It is less clear what may happen over the long run, and much depends on when (or whether) the US market for Canadian cattle reopens and US beef sales to Japan and South Korea resume. What is clear, however, is that Canadian feedlot placements have increased and packing capacity is increasing. Should this trend continue, US imports of Canadian beef will increase, and Canada will be well positioned to respond to market opportunities as more markets for beef reopen. It also appears that Canadian hog exports are set to continue, unless US antidumping or countervailing action slows them. More hogs will likely mean less Canadian pork, a trend that appears to have started in 2003.

In the United States, the cattle herd appears set to rebuild. As this occurs, less imports of beef from Uruguay are likely, especially since it appears higher valued than imported beef from Canada, Australia, or New Zealand. Australia and New Zealand have also responded to market opportunities in Japan in the absence of US beef. About 60% of Australian beef exports went to Japan in 2004, accounting for 47% of Japan's beef imports. Australian feedlots were expected to reach 77% of capacity in late 2004, with a growing share of the beef destined for Japan over the next two years (USDA, 2005a).

US exports of pork and poultry likely will outpace beef during 2005, especially if Japan and South Korea do not open by summer. The US beef industry is set to respond, however, and will attempt to regain lost market share in both countries. Reliance on a larger number of export markets may emerge as a viable long run strategy as exports resume. Spreading market risk across more countries appears to be one way to somewhat mitigate the negative impacts of disease outbreaks and unforeseen events and is likely a sound marketing strategy for the long term.

Mexico appears to be in a cattle herd rebuilding phase. Capital availability and high interest rates may retard achievement of expected gains in herd replacement, especially for smaller ranchers. As long as US cattle prices remain strong, Mexico will respond with increased exports of feeder calves, likely exceeding one million head for the third consecutive year in 2005. It is also likely that some Mexican businesses will consider expanding feedlots and packing plants to avoid animal disease outbreak issues.

Summary and Conclusions

The degree of dependence on trade is an obvious and important variable in determining just how much of an impact an animal disease outbreak or other food chain event will have on trade. Maintaining consumer confidence in science and the integrity of the North American food chain is absolutely critical. It also remains to be seen whether the high degree of integration in the beef cattle industry, specifically among the United States and Canada, will return if the US border is reopened to Canadian cattle. US reliance on Mexico for an ever-growing number of feeder cattle seems to be well established. The question is whether Mexico can sustain these exports over an extended period of time and still rebuild the cattle herd. The discovery of BSE in Mexico would not only be devastating for Mexican cattle producers, but also for Southwestern feedlots, packing plants, and ranchers.

Now that there is increased integration in North American agriculture, adverse events have the potential to create larger disruptions than in the past. BSE is a case in point. Whether North America will return to the previous path of integration in the beef industry, or whether this integration takes a new path as the Canadian beef processing industry grows and focuses on exporting beef, is a crucial issue. As the duration of a disruption grows, the opportunity to return to the pre-BSE levels of trade seems to be slipping away. Protectionist sentiment, coupled with rent seeking, appears to have garnered the attention of policy makers and could derail continued market integration well into the future.

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Farmers and Social Security Reform

By James L. Novak, Paul Gentle, Patricia Duffy, and Alison Keefe

For several years, reports from the Trustees of the Social Security system have warned us that at the current rate of benefits and given the current age structure of our population, the Social Security system will go broke sometime between 2038 and 2042. To address Social Security Trustees' concerns, President Bush, in his postelection speech, reported that one of the legacies of his administration would be to reform the Social Security system. Farm operators tend to be older, on average, than people in other populations, meaning that changes in Social Security would more likely be of near-term concern to them. Although there is still considerable debate on whether reform is necessary or desirable, this article reports on what a changed Social Security system might look like, and how changes in the system might affect farmers' need for additional savings.

Social Security Today

Trustees of the Social Security system are appointed to oversee the four separate funds that make up the current Social Security Trust Fund Account. These funds are *Social Security* (Old Age and Survivors Insurance, OASI), *Disability Insurance* (DI), Medicare's *Hospital Insurance* (HI), and *Supplementary Medical Insurance* (SMI). OASI is what most people consider when they talk about Social Security retirement income.

Social Security is a pay-as-you-go system (sometimes called "pay-go"). It was designed so that current workers pay for the benefits of current retirees out of taxes. Payroll and self-employment taxes, premiums, and other income are deposited to trust fund accounts. Retirement and disability benefits and administrative costs are paid from the OASI and DI funds. Trust funds not used in the current year are invested in government bonds. When the bonds reach maturity or are needed, they are cashed to pay benefits. According to the Social Security Administration, the nominal interest rate earned on OASI and DI funds in 2004 was 4.3% (OASDI Trustees, 2005).

Proposals for Reform

Many proposals for fixing the Social Security system have been drafted over the past years. These can be summarized as follows:

- keep the current system (OASDI) intact and maintain or raise existing benefits;
- keep the current system intact but reduce benefits;
- change to a regulated two-tiered retirement system, which includes reducing current OASI benefits and making up the difference with a Personal Savings Account (PSA);
- develop a regulated PSA system, eliminate SS benefits entirely, and provide a PSA invested in securities but regulated by the government; or
- eliminate the Social Security system and allow the private sector to handle retirement.

In 2001, the final report of the President's Commission to Strengthen Social Security (2001) listed three voluntary proposals for reforming the Social Security system. The President's recent proposal for reform comes largely from this Commission's study. The idea behind all three proposals is that Social Security benefits would be lowered but made up for ("offset") using a worker's own *Personal Savings Account* (PSA). PSA funds are to be invested and are to earn an interest rate guaranteed to exceed inflation. A retirement annuity would be paid from these funds based on the individual's life expectancy and contributions to his or her own PSA. Benefits from individual savings are projected by the 2001 Commission to be higher or to at least equal to those received under the current Social Security system.

Under the Commission's first proposal, a *Two Percent Personal Account* would result in expected benefits that would exceed (by approximately 12%) those received under the current (2001) Social Security system. This proposal establishes a PSA with voluntary contributions of 2% of taxable wages. Invested funds would be com-

pounded at a guaranteed rate of 3.5% above inflation.

The Commission's second proposal is called the *Voluntary Progressive Personal Account*. This proposal establishes voluntary personal accounts without raising taxes or requiring worker contributions above what is currently required. Features of this program include:

- voluntary contributions of 4% of "redirected payroll taxes" from the OASI trust fund to a PSA, with PSA contribution limits of $1,000 annually;
- contributions are to compound earnings at an interest rate of 2% above inflation;
- the $1,000 contribution limit would be adjusted upward for annual inflation; and
- OASI benefits would be indexed to price inflation rather than national wage growth.

Social Security benefits payments will be offset by payments from the workers' individual personal accounts. According to the Presidential Commission, total benefits are expected to at least equal the OASI benefits received (as measured by 2001 income). Under this plan, additional Social Security benefits would be paid to low-pay, high-risk workers. The minimum Social Security benefit payable to 30-year minimum wage earners would be at a rate of 120% of the poverty level.

The third proposal deals with *Voluntary Add-On Accounts with Matches from Payroll Taxes*. This proposal "carves out" a part of the payroll tax and invests that amount in PSAs. This proposal is designed to preserve Social Security benefits (as calculated in 2001) by allowing workers to contribute voluntarily an additional 1% of wages to a PSA. Features of this proposal are:

- The 1% would be matched by 2.5% of a worker's payroll taxes up to a maximum of $1,000 annually;
- contributions would be compounded at 2.5% above inflation, with the maximum contribution indexed by inflation; and
- refundable tax credits would be given for the add-on contribution.

Under this plan, scheduled Social Security benefits would be offset by payments from workers' personal accounts. Minimum benefit of 100% of poverty level would be guaranteed for 30-year workers and 111% of the poverty level would be guaranteed for 40-year workers. Any benefits received from the Social Security system would be modified by adjusting the growth rate for future changes in life expectancy, decreasing early retirement benefits, increasing benefits for delayed retirement, and reducing the benefits for those with higher incomes.

So What's the Downside?

If all of this sounds good, what's the downside? Concern has been expressed about the cost of implementing the personal savings account system. The cost of funding and regulating such a system, independent of the contributions required by the workers, has been estimated by at least one source to be an additional $25–50 per person per year, on top of what the current system costs, which is about $16 per person per year (Hill, 2000). A Congressional Budget Office report (Walliser & Becker, 1999) estimates PSA administrative costs (based on Chilean and Argentinean PSA experience) at about $50 per contributing worker per year—similar to the cost experienced by US employer-sponsored pension plans.

Legislated minimum guarantees may be of particular value in the case of limited-resource farmers or for farmers with financial difficulties. A potential PSA fund accumulation problem for farmers in particular is that they may have years of minimum or no contributions because of farm operating losses. Farm profits contribute to the size of fund an individual can accumulate. The longer contributions are in a fund, the more time they can compound and potentially accumulate into a larger nest egg on which to draw during the retirement years.

Issues such as the definition of emergencies (natural disasters, health emergencies, etc.), which would allow for early withdrawal, would need to be worked out. Other questions include: If participants outlive their PSAs, should the system continue paying benefits? If individuals mismanage their portfolios, what should be done?

Investment Policy

An excellent article on the marginal effects of four proposals for restoring long-run actuarial solvency to the Social System looked at "including the establishment of private accounts, providing for Trust Fund investment in private securities, using General Fund revenues, and changing the benefit structure of Social Security" (Lyon & Stell, 2000, p. 473). Their finding is that a one-step process of contributing 2% of payroll taxes to a PSA (at the historic 3% rate of return earned on long-term bonds) would not fix the system. Additional measures, such as a transfer of funds from the General Fund or earning higher rates of return (6%), are required to balance the sys-

tem. Restoring solvency to the system as it currently exists requires such measures as including newly hired state and local workers in the system, raising the Normal Retirement Age, and increasing the contributions and benefits base to 90% of covered wages.

With regard to private investments, a portfolio of 40% bonds and 60% stocks has been suggested for Personal Savings Accounts (Liu, Rettenmaier, & Wang, 2001; Lyon & Stell, 2000). At least one opponent to stock market investment, John Mueller, expressed concern over its volatility (Mueller, 1997). Liu et al. (2001) point out that the higher interest rate earned in the market is largely a risk premium. The relative riskiness of alternative investments would certainly need careful weighing in any move to a PSA-type system.

Farmer Savings Needed to Replace Social Security?

Table 1 shows the accumulated savings needed to provide $775, $979, and $1,327 monthly annuities to replace average age 62, 65, and 70 Social Security benefits, respectively, for an individual born in 1936 and who earned the national average wage for the past 35 years. Although it is unlikely that there is a farmer who earned exactly the national average wage rate for the past 35 years, these numbers are provided to show the approximate retirement fund necessary to replace Social Security on average. For example, on average, a $152,000 nest egg would be required (at a 2.5% real rate of return on investment) to replace a $775 Social Security monthly annuity with a PSA annuity.

Seventy to eighty percent of pre-retirement earnings has been estimated to provide a retiree with his or her pre-retirement standard of living. Shipman states that to achieve a 70% income replacement at retirement, "one's portfolio would have to earn an annual real rate of return of 5.7%" (p. 1). Table 1 shows that a 6% return on investments would require retirement funds of $110,893 to pay $775 per month, $129,128 to pay $979 per month, and $143,502 to pay $1,327 per month. Additional family savings would be required to replace Social Security annuities for both a husband and wife. At Normal Retirement Age, spousal annuities are currently 50% of the primary earner's annuity. Family earnings are subject to maximum limits. Higher earnings on investment would reduce the size of the fund required for retirement.

Table 1. Savings required to provide a monthly annuity equal to average earned social security benefits ($).

		Investment portfolio rate of return				
Retirement age	**Monthly annuity ($)**	**2.5%**	**3.5%**	**4.5%**	**5.5%**	**6%**
62 (early retirement)	775	152,000	138,166	126,197	115,678	110,893
65 (normal retirement)	979	170,500	156,725	144,753	134,052	129,128
70 (delayed retirement)	1,327	176,583	166,125	156,510	147,661	143,502

Note. Assumes a person will live to age 83.

Care Needed In Redesigning the System

There is significant discussion about the cost of implementing a dual retirement system and whether any cost savings would result from such changes. Farmers who participate in the Social Security system would be subject to the same impact as the general population of self-employed if the benefits formula were changed. In 1998, 150,000 limited-resource farmers had household incomes of $9,924 and current assets of $6,790. This group of farmers is relatively poor (19.1% of national average income) and would expect a significant impact from Social Security changes. However, farmer retirees are not generally totally dependent on Social Security. According to a USDA Economic Research Service study of retired farmers, farm rental, value of farm products consumed, and CRP are listed as sources of retirement income (Hoppe, 1996). Total household income was listed as 88% of the national average income (Hoppe et al., 2001). Two problems identified by ERS with farm assets as a source of retirement funding is the relatively fixity of real estate assets and that partnership arrangements may complicate conversion of wealth to a liquid form (Hoppe et al., 2001).

Alternatives to reforming the Social System include raising payroll taxes, cutting benefits, and eliminating tax cuts. Although reform is mostly targeted to younger wage earners, changes to the tax system will affect nonretired as well as retired farmers.

According to the Trustees and others, if the system is to be "fixed," an early fix is preferred. According to the 2003 Trustees report, "To the extent that changes are delayed or phased in gradually, greater adjustments in scheduled benefits and revenues would be required" (Social Security and Medicare Boards of Trustees, 2003, p. 1).

Clearly, changes to the system should be designed with care and with adequate safeguards for farm as well as nonfarm participants. Potential savings problems of farmers and

other self-employed individuals, like accounting for low or negative income years, health problems, and accidents, should be factored into the reform equation. Anything less would result in more insecurity than the current debate provides over the future of Social Security.

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The Business of an Agricultural "Way of Life"

By Steven C. Blank

In an earlier *Choices* article, Blank (2002) argued that a majority of America's farms and ranches are "hobby farms" that represent a lifestyle choice more than a commercial business. In answering the question "Is agriculture a 'way of life' or a business?", Blank concluded that:

> Agriculture is both a way of life and a business. It is a way of life to, possibly, all participants, but it is a business to only some. Large-scale "commercial farms" clearly act like businesses. Many of those farm operators may also view their business as a desirable way of life. On the other hand, "rural residence farms" are hobbies that operators must subsidize with earnings from off-farm sources. (p. 29)

This article takes the analysis a step further by posing a second explanation for why farmers are willing to subsidize their family farm. It abandons the naive view, often expressed by farm advocates, that rural residents are only in it for the lifestyle. That gross underestimate of farm owner-operators' business savvy is replaced with a modern view of the big picture.

The Never-Ending Debates

In agricultural policy debates, farm advocates have often used the "way of life" argument to support their claim that production agriculture in general and family farms in particular need to be protected in various ways—such as subsidization through direct and indirect government payments. However, many things in agriculture are not what they seem. The net farm income totals reported by the United States Department of Agriculture (USDA) overstate the profitability of agricultural production while they understate the profitability of being a farm owner-operator. The overstatement comes in the form of direct government transfers to agriculture that in some recent years have been nearly half the total net farm income reported by the USDA (2005). The understatement comes from the income data's focus on only farm/ranch production related activities, ignoring other sources of income. Of these two misrepresentations of American agriculture's big picture, the understatement is far more important. It leads to the perception that an agricultural way of life is one of poverty for most farmers, thus providing a justification for government support.

However, if things down on the farm are so bad, why do farmers stay in agriculture, and why has the number of farms with annual sales of less than $10,000 increased since 1992, while total farm numbers continue to decline? As Blank noted, the reverse migration from cities to small farms observed over the past decade suggests that more Americans want to pursue a rural lifestyle (Deller, Tsai, Marcouiller, & English, 2001). But is that all there is to it?

The debate over why farmers stay dates back many decades and is typified by Brewster's (1961) hypothesis that farmers willingly accept lower returns than other investors because of the lifestyle benefits derived from farming. This view often leads to a mistaken interpretation of the fact that most farmers are part-timers. The misinterpretation usually made is that farmers seek off-farm income simply to enable them to pursue their lifestyle choice. However, a second possible explanation for why farmers stay is implied by the results of Blank, Erickson, Moss, and Nehring (2004), who found that farmers' wealth comes from capital gains, not production income. This leads to the proposition that many owner-operators may be real estate investors using off-farm income to help them stay on the farm until they choose to capture their capital gains. This implies that farmers, like all investors, have a desire to build wealth, which is consistent with the view that owner-operators see agriculture as a business.

Table 1. Average rates of return by region, 1960–2002.

	ROA from current income	ROA from capital gains	Total ROA	SD of total ROA	Total ROE	SD of total ROE
Northeast	-0.03	2.56	2.54	3.65	2.24	4.38
Lake States	1.82	2.13	3.95	6.22	3.53	8.15
Corn Belt	3.13	1.06	4.18	7.83	3.86	9.57
Northern Plains	3.97	0.83	4.80	6.57	4.57	8.37
Appalachia	2.58	1.45	4.04	4.59	3.86	5.52
Southeast	5.50	1.92	7.42	4.48	7.90	5.50
Delta	4.62	-0.02	4.60	6.58	4.34	8.42
Southern Plains	1.87	0.71	2.58	4.92	2.27	5.88
Mountain	2.67	1.24	3.90	5.51	3.78	6.88
Pacific	5.41	0.97	6.39	4.95	6.84	6.57
AK & HI	2.93	1.92	4.85	5.26	4.92	5.80
US total	3.04	1.26	4.30	5.26	4.12	6.60

Note. ROA—return on assets; ROE—return on equity; SD—standard deviation of the time series.

Wealth is the Key

A business has the objective of increasing the wealth of owners. For most small and mid-sized farms, owners' wealth is reduced by the production losses they incur most years, on average; thus, they are often labeled as "hobby farms" (Mishra, El-Osta, Morehart, Johnson, & Hopkins, 2002). However, if you understand the full definition of wealth, you know that production income is only one source.

Three types of income (or economic gains) contribute to wealth: profits from farm output, off-farm income, and capital gains on assets. Total wealth (W) is usually expressed as equity at time t. Changes in wealth during a time period ending at t (ΔW_t) equal farm income ($FInc$) plus off-farm income ($OFInc$) plus capital gains (ΔK) minus consumption (C), or $\Delta W_t = FInc_t + OFInc_t + \Delta K_t - C_t$.

Capital gains are simply the change in value of a farmer's capital from one period to the next: $K_t - K_{t-1}$. Capital gains are only realized if the asset is sold. However, lenders will usually loan a farmer up to some specific portion of the market value of assets, referred to as the *loan-to-value* ratio. Thus, some portion of unrealized capital gains can be immediately converted into cash and used to acquire other assets. In this regard, capital gains—even unrealized gains—immediately improve a farmer's ability to borrow, and thus they aid in financing a larger operation, which presumably will increase the growth in wealth.

So, how are agricultural producers doing in generating income to build wealth? The 2002 Census of Agriculture (USDA, 2004) reports that 53.3% of all farms generated a net *loss* for the year, although the average household earnings from farming activities for that year were $3,473 (USDA, 2005). Clearly, this amount is not sufficient to support a family—it does not exceed household consumption cost. Thus, relying on this source of income only would result in annual reductions in household wealth.

So, why continue to farm? Although income from farming activities is low, on average, if it is still positive, it helps operators cover (at least part of) their ownership costs. As an investment, farming has generated a positive return for American farmers. The first column of Table 1 shows the average return on assets (ROA) received by producers in the different regions of the country, plus the average for the United States, over the 1960–2002 period. It shows that over the long run, American agriculture has generated a 3.04% average return on assets used in production activities. That provides some incentive to continue investing in the business.

What about capital gains? Farmland has historically represented about 75% of assets held by farm households (USDA, 2000). Therefore, the ROA from capital gains reported in the second column of Table 1 are primarily from farm real estate. Agricultural land prices are the result of assessments of a parcel's value by both agricultural and nonagricultural markets (Drozd & Johnson, 2004; Plantinga, Lubowski, & Stavins, 2002), and many of those factors are out of the control of the farm owner. Therefore, farmland values vary much more than do the val-

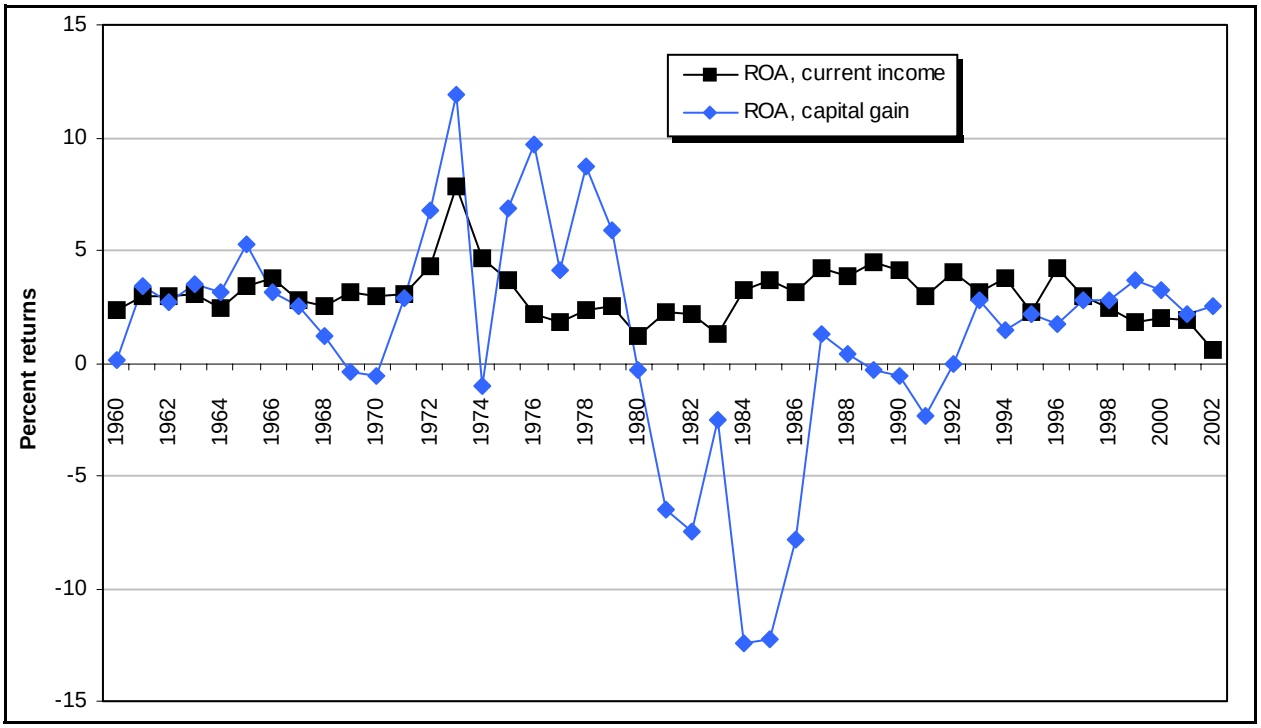

Figure 1. US agriculture's returns on assets, 1960–2002.

ues of other agricultural assets, but they have generated an average return on those assets of 1.26% annually for owners over the 1960–2002 period. The volatility of the two sources of returns is apparent in Figure 1. What is also apparent is that returns from capital gains have been higher than returns from current production income for most of the past decade. What is not apparent is the relative scale of the contributions to owner wealth that are made by capital gains.

As it turns out, capital gains have increased owner-operators' wealth more than have farming profits, on average, in many years. For example, in 2002 the Census of Agriculture found that the estimated market value of farm real estate was $1.145 trillion dollars. Assuming that the long-run national average rate of return from capital gains of 1.26% (shown in Table 1) was earned on the real estate gives a conservative estimate of $14.4 billion for capital gains in agriculture for 2002. That total equals $6,777 in capital gains earned for the year by each of the 2,128,739 farms reported in the Census. The actual capital gain rate reported for 2002 was 3.18% (USDA, 2005), which gives an estimate for average capital gains of $17,078 per farm—nearly five times as much as the average amount of farm income per household. Therefore, capital gains are relatively much more important in building farm owner-operator wealth, even though they look relatively minor when reported as in Table 1. In addition, the distribution of capital gains is likely to be weighted more heavily toward small lifestyle farms (that are more often closer to cities) than to large commercial farms (that are usually farther from urban areas). In other words, it is expected that small farms are earning above-average rates of capital gain, thus improving owner-operator wealth faster for lifestyle farms because of the "urban influence" on land values in their location (USDA, 2000).

Finally, it should be clear that farm income must be augmented by off-farm income to cover the cost of living for most farm households. Even if capital gains could all be realized each year, combining the long-run annual average of $6,777 in capital gains with the low average earnings from farm activities ($3,473 in 2002) gives an average farm household income of only $10,250 per year—far below the poverty line for a family of four. Therefore, off-farm income is a necessity for most farmers. Is this an indicator of poverty?

Apparently not. Farmers are doing better than the rest of us, on average. The average off-farm earnings of farm households in 2002 was $62,285, with lifestyle farms averaging much more than that and large farms averaging much less (USDA, 2005). Combining this figure with the $3,473 average earnings from farming activities gives a total income

of $65,757, which was 13.7% higher than the US average household income of $57,852 for that year. This means that farm households may be building wealth faster than other Americans, on average.

So, who wants to argue that the agricultural "way of life" needs government subsidies?

A Growing Investment

Agriculture is a way of life to rural residents, but it is a business to all its investors, including absentee owners. Large-scale farms clearly act like profit-maximizing businesses. On the other hand, most smaller farms are lifestyles that provide owners with deductions to write off against their taxable earnings from off-farm sources while gaining wealth in the form of capital gains. In other words, all farmers are pursuing both lifestyle and business goals. This can be more easily understood if we describe farm and ranch owner-operators as investors and wealth builders like all businesses.

A business that builds wealth primarily from capital gains is an investment firm. In many cases, a farm is a passive investment that does not interfere with the owner's ability to work off-farm. The Census shows that 54.8% of all farmers reported working off-farm at some time during 2002, with the share being higher for small farms and lower for large farms, as expected. Even more telling is that 39.1% of farmers reported working off-farm 200 days or more during the year. That is virtually full-time employment! No wonder farmers earned more money per household off-farm during 2002 than the average American household earned in total. This indicates that farm owners are a talented group and are valued by the labor market, on average, more highly than average Americans are. Therefore, the business savvy of farmers should no longer be underestimated.

Many farmers are smart investors who have taken "moving to the suburbs" one step further and have found wealth. The direction of causality in the migration from cities to small farms is unclear. Do rising rural real estate values cause the migration, or does migration raise farm real estate values? Or are both explanations working in a circular fashion?

Clearly, the answers vary across the country. For example, the regional results in Table 1 show that farms in the Northeast and Lake States derive a majority of their long-run returns from capital gains, which have outperformed returns from agricultural production as an investment. The reverse has been true in the Delta region. Thus, the relative portions of "farms" in a region that might be called "investment firms" will differ across locations.

What is a "Farm"?

The discussion to this point has raised questions about whether all operations currently defined as "farms" by the American government truly deserve that label and the government support that comes with it. This article offers the proposition that many owner-operators may be real estate investors using off-farm income to help them stay on the farm until they choose to capture their capital gains. If this description fits an operation, it can be argued that the household is more accurately portrayed as an investment firm, even if they are enjoying an agricultural way of life. For these firms, the business motivating their rural way of life has little to do with real agriculture.

"Real" farms and ranches make a real effort to support their household on earnings from agricultural activities. This means making household labor allocations with the primary objective of producing agricultural output, rather than viewing agriculture as the residual market for excess labor in the household. When more household labor is allocated off the farm than is allocated to agricultural activities, the operation is primarily a real estate investment firm, not a farm.

However, care must be taken when trying to distinguish between real farms and investment firms. Sometimes farmers act very much like investors in their business decisions, but they have very different motives. For example, it has often been observed that farmers reinvest most farm income into their operations. This raises the question: Do farmers reinvest out of economic necessity, or are they making investments in expanding their farms to increase their long-run wealth derived from increased capital gains? It might appear that any investment made with capital gains in mind indicates that the person is not a real farmer. However, farm real estate investments play a very important role in the life of real farmers: providing current farmers with a retirement "nest egg." With no other source of income, most real farmers need to capture their farmland capital gains to be able to retire from the business that has been their life. Ultimately, differences in the nature of investments made in a farm will indicate whether the household is operating like a real farm or an investment firm. A farmer makes investments that raise the value of the operation as a "working farm." An investment firm makes investments that raise the real estate value of the operation.

Some investments can raise both values.

Policy Implications

Policies aimed at protecting an agricultural "way of life" are outdated and badly in need of replacement by programs that are based on an understanding of the true business objectives of those living in rural America. The country needs a modern definition of what constitutes a "farm" and an agricultural policy with differential treatment of farms across scale ranges with regard to policy benefits. Also, care must be taken in land-use policies so as not to hurt those people who have served the country as agricultural producers.

At present, at least 53% of farms lose money each year, on average, and focus much of their attention and household labor off-farm. This raises the question of whether those operations should be considered "farms" and receive agricultural policy benefits. It does not make good business sense for the country to have taxpayers subsidize these real estate investors. Yet current subsidies include income tax breaks and direct government payments to farm owners totaling billions of dollars each year. The fact that a lot of money goes to large farms and/or absentee owners adds fuel to the argument that much of agricultural policy is no longer accomplishing its original goals of providing an economic "safety net" for those people producing our country's food supply.

Land-use policy now holds the future of American agriculture. The lifestyle-driven reverse migration from cities to rural areas has several economic impacts on American agriculture. It creates demand for agricultural parcels that can be developed; thus, it increases the price of farmland in at least two ways (Drozd & Johnson, 2004). First, farmland with potential for development serves two markets (rural and urban) and is valued at its "highest and best use," which is the urban value. Second, each time land leaves agriculture there is a new delineation of the urban fringe, thus causing an outward ripple in land prices reflecting the new pattern of development potential. This can raise the value of current farmers' retirement "nest egg" but can also make it more difficult for new farmers to enter the profession. On the other hand, if land-use policy tries to keep land in agriculture through zoning (for example), it can hurt real farmers. Without the freedom to capture the development value of their farmland, many farmers will lose most of their expected retirement funds.

Thus, policy-makers need to understand the composition of real farmers' wealth and the effects of any proposed legislation before undertaking a much-needed overhaul of agricultural programs. The country would be better served by investments in "real" farms, rather than in "lifestyle" operations housing real estate investment firms in rural locations.

For More Information

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Beef Packers' Captive Supplies: An Upward Trend? A Pricing Edge?

By Clement E. Ward

Captive supplies in fed cattle procurement have been a major concern and divisive issue in the beef industry for nearly two decades. The issue has sparked lawsuits, protracted debates among cattlemen, and research by agricultural economists.

Issues related to captive supplies contributed to producer support for the Livestock Mandatory Reporting Act, which required packers to report considerable detail regarding their livestock purchases to the United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS). Alleged "sweetheart deals" offered to selected large feedlots by large packers were thought to unfairly harm smaller cattle feeders. Limited data and information on how packers procured fed cattle were believed to hinder cattle feeders in price discovery. As a result, there was a push to move from voluntary to mandatory price reporting.

Implementation of the Livestock Mandatory Reporting Act began in April 2001. One immediate effect of the act was to create new data series on prices and quantities of fed cattle procurement, some of which pertain to captive supplies. New data in the first three years since mandatory price reporting (MPR) began provide insightful information regarding packer procurement (and cattle feeder marketing) methods.

Captive Supplies Before Mandatory Price Reporting

Captive supplies are slaughter livestock that are committed to a specific buyer (meatpacker) two weeks or more in advance of slaughter. The three most common captive supply methods are marketing/purchasing agreements, forward contracts, and packer feeding. A common element of these procurement methods is that packers have a portion of their slaughter needs purchased two weeks to several months prior to the livestock being slaughtered. A key issue is whether captive supplies can be used as leverage by packers to pay lower prices for fed cattle purchased in the cash market.

Official data on captive supplies are from the USDA Grain Inspection, Packers and Stockyards Administration (GIPSA, 2002, 2004). GIPSA began requiring packers in 1988 to report monthly procurement of fed cattle by captive supply methods. In 1994, AMS began reporting data on non-cash-market shipments of fed cattle. This series, called *additional movement*, became a proxy for some people regarding the extent of captive supplies. However, although it included shipments of cattle that constituted captive supplies, it also included shipments of cattle priced by methods not defined as captive supplies.

Captive Supplies After Mandatory Price Reporting[1]

Annual Averages

Negotiated pricing on average over the three-year period accounted for 46.1% of fed cattle marketing (Figure 1). In 2003, negotiated pricing represented the majority of fed cattle procurement (53.9% of the total). Formula pricing averaged 43.3% of fed cattle procurement for the three-year period and was the most used procurement method in 2001 and 2002. However, it declined sharply to 34.0% in 2003. According to cattle feeders who responded to a 2002 survey in Iowa, Nebraska, Kansas, and Texas, most formula price arrangements are tied to the cash market—either a quoted market price or a plant average price (Schroeder, Ward, Lawrence, & Feuz, 2002).

1. *In this article, year 2001 refers to April 2001 to March 2002, 2002 refers to April 2002 to March 2003, and 2003 refers to April 2003 to March 2004. Data for this article were compiled by the Livestock Marketing Information Center from AMS reports. See more detail in Ward (2004a, 2004b).*

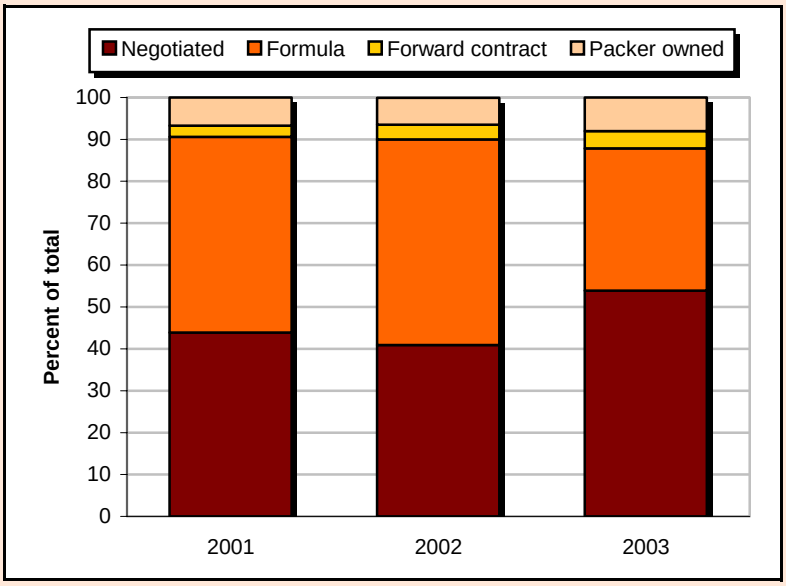

Figure 1. Average annual percentage of fed cattle purchases by procurement method since mandatory price reporting, April 2001 to April 2004.

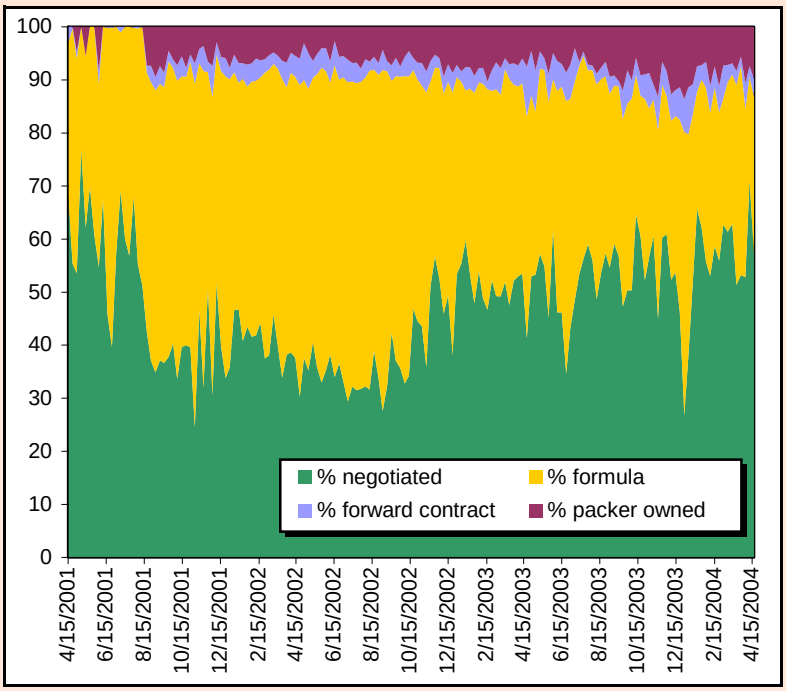

Figure 2. Average annual percentage of fed cattle purchases by procurement method since mandatory price reporting, April 2001 to April 2004.

Forward contracting, which consists mostly of basis contracts between packers and cattle feeders, represented a small percentage of fed cattle procurement each year. Forward contracts averaged 3.5% of packers' procurement for the three years. Packer ownership of livestock, one of the most discussed components of captive supplies and a frequent target for legislative reform, accounted for 7.1% of total fed cattle procurement on average for the three years.

Weekly Dynamics

Figure 2 shows the weekly percentage of negotiated, formula-priced, forward-contracted, and packer-owned trades for the first three years since MPR began. For any given week, the percentage of negotiated pricing was as low as 24.5% and as high as 76.9%. Generally, negotiated pricing can be interpreted as cash market pricing. Formula pricing also varied widely from week to week, ranging from 22.1% to 64.8%.

For the other two procurement methods, there was considerable week-to-week variation, but the variation was of a much smaller magnitude. The range for forward contracts was 0.2–9.4%, and the range for packer-owned cattle was 2.6–13.6% of total fed cattle procurement. Week-to-week variation in negotiated trades and formula-priced trades is extensive, both on a percentage basis and in absolute volume traded. At times over the three years, formula pricing exceeded negotiated trades, and at times, the reverse occurred. The exact reason for the variation or apparent tradeoff between these two pricing methods is not clear.

Forward contracting was the least used pricing alternative over the three years. Basis contracts are dependent on the expected cash minus futures market basis, supply-demand market conditions, and the willingness of both sides to contract and take an appropriate position in the futures market. Prior to MPR, there were no weekly data on the extent of packer ownership of fed cattle, only the annually reported figures released later by GIPSA. The extent of packer feeding was reasonably stable over the three years, ranging in most weeks between 5% and 10% of total procurement but exceeding 10% on occasion in 2003.

Estimating Captive Supplies

MPR has generated additional information on packer procurement, but it is difficult to compare AMS data with GIPSA data. What is the true extent of captive supplies? Some might argue that captive supplies constitute the sum of formula pricing, forward contracting, and packer-owned procurement by packers. For two of the three categories (forward contracting and packer ownership), this argument is seemingly clear, though there could be exceptions. For formula pricing, the argument is much less clear. Many formula-priced trades are associated with supply contracts or marketing agreements. Many of those agreements allow feeders to determine the delivery date for fed cattle one to three weeks prior to harvest, either alone or in conjunction with the participating packer.

For purposes here, I assume that three types of procurement methods (formula-priced transactions, forward contracts, and packer ownership of fed cattle) comprise captive supplies. This set of procurement methods effectively establishes a near-maximum extent of captive supplies from the weekly MPR data. Combining data reported earlier, captive supplies accounted for 56.1% of fed cattle procurement in 2001, 59.0% in 2002, and 46.1% in 2003. Although the level of captive supplies no doubt concerns some, there is no apparent upward trend in the percentage based on the first three years of MPR data.

Pricing Method Data from Mandatory Price Reports

Additional information is available since mandatory price reporting began for negotiated pricing, formula pricing, and forward contract pricing of fed cattle. Price data are not reported for packer-owned cattle, because those cattle are transferred internally from one business area of the company (cattle feeding) to another (slaughter-fabrication).

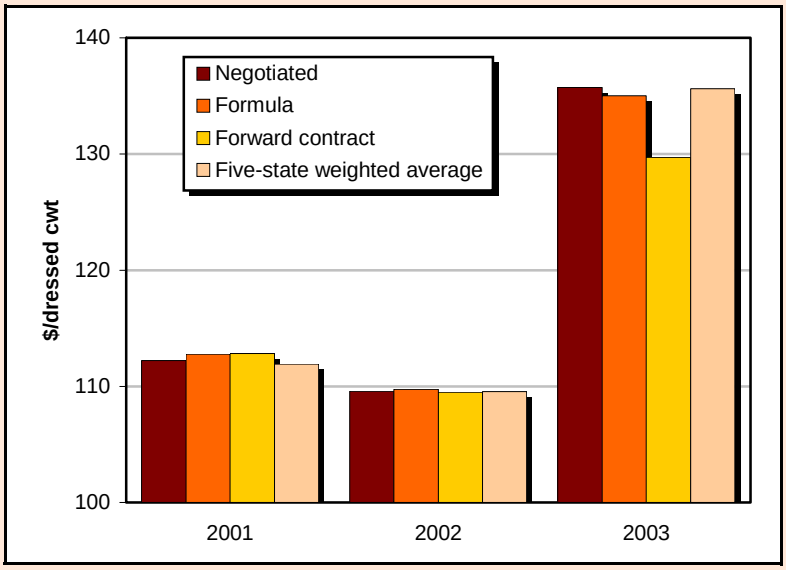

Figure 3. Average annual price of fed cattle purchases by procurement method since mandatory price reporting, April 2001 to April 2004.

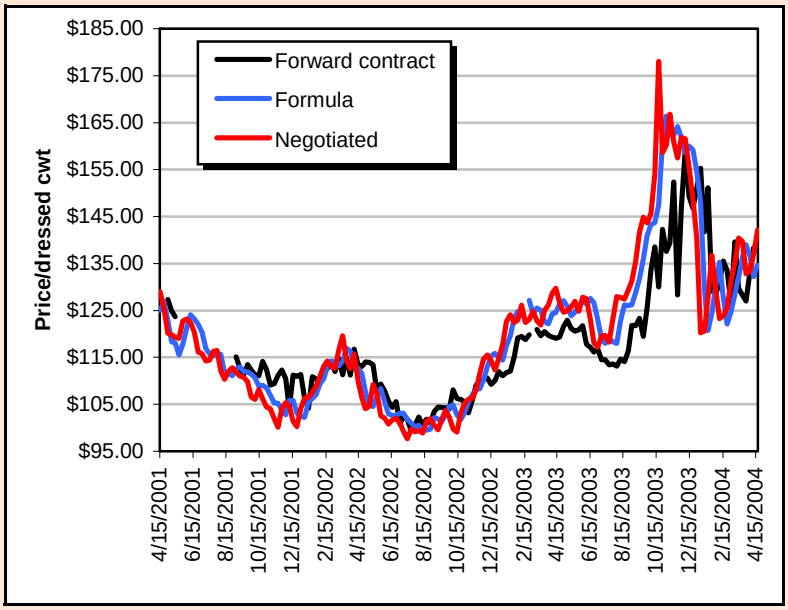

Figure 4. Weekly negotiated, formula, and forward contract dressed steer prices since mandatory price reporting, April 2001 to April 2004.

Summary of Prices

Price comparisons are on a dressed weight basis, and the five-state weighted average price includes prices for all grades of fed cattle purchased from several major cattle-feeding states (Texas-Oklahoma, Kansas, Nebraska, Colorado, and Iowa-So. Minnesota). It could be argued that the five-state weighted average price is the most comprehensive and representative of market conditions in the cash market. Here,

the five-state weighted average steer price is used as the base or standard for comparing prices reported by procurement methods.

Negotiated prices for the three years together averaged $0.14/cwt above the five-state weighted average price (Figure 3). On an annual basis, negotiated prices averaged as little as $0.04/cwt higher than the five-state average in 2002 to as much as $0.29/cwt in 2001. Formula prices averaged higher than other pricing methods or the five-state average in some years and lower in others. For the three-year average, formula prices were $1.43/cwt higher than the average for forward contracts and $0.07/cwt higher than average negotiated prices.

Forward contract prices varied the most relative to other pricing methods. They were $0.06–0.91/cwt higher than comparison prices in 2001. However, in 2003, forward contract prices were $6.02/cwt below negotiated prices and $5.31/cwt below formula prices. This large price difference is likely related to the nature of pricing basis contracts.

One of the major concerns with some producers is whether there are special "sweetheart deals" between packers and feedlots. Given the annual average prices reported here, although sweetheart deals may exist, there is no significant advantage on average with formula prices relative to other procurement methods or the more broadly reported five-state weighted average price.

Comparison of Negotiated, Formula, and Forward Contract Prices

Comparing each of the price series for pricing methods to the broader weighted average price is important to identify similarities and differences. In a comparison of weekly weighted average dressed steer prices versus negotiated prices for the three years since MPR began (not shown here; see Ward, 2004a), there appears to be no distinguishable difference between prices.

One of the major concerns for many supporters of MPR was the presumed favorable relationship of formula prices relative to negotiated prices. Figure 4 compares weekly negotiated prices, formula prices, and forward contract prices for the first three years of MPR. Because the weighted average dressed steer price was indistinguishable from negotiated prices, we compare formula prices and forward contract prices graphically with reported negotiated prices. Between formula prices and negotiated prices, there is a noticeable difference in many weeks. Do those who formula price receive preferential prices? The answer appears to be yes—sometimes—and no—sometimes.

Recall that the price difference on average between negotiated and formula prices was just a few cents per hundredweight and favored formula prices two of the three years. A partial explanation may be gleaned from Figure 4. Negotiated prices tend to be lower than formula prices on a declining market. Conversely, formula prices tend to trail negotiated prices on a rising market. Many base prices in grids are formula prices tied to last week's cash market—either a reported cash market price quote or the average cost of fed cattle at the packer's plant where the cattle will be harvested. Therefore, a closer relationship is expected between this week's formula prices and last week's negotiated prices, compared with this week's negotiated prices and this week's formula prices.

A comparison of forward contract prices with negotiated prices shows that forward contract prices deviate sharply from negotiated prices in some weeks. With basis contracts, packers bid a futures market basis in the month fed cattle are expected to be harvested, and cattle feeders can pick the fed cattle price anytime before delivery of the cattle. Thus, cattle feeders determine when the futures market contract price has peaked for the expiration month just after the cattle will be harvested. As a result, this week's reported forward contract prices may or may not be closely aligned with this week's negotiated prices.

Summary observations can be made regarding the above comparisons. First, prices for the three procurement methods track each other relatively closely in general. Each is generally representative of broad market conditions but not of what might be affecting prices within and between weeks. However, less reliance should be placed on forward contract prices as an indicator of current market conditions compared with either negotiated or formula prices.

Second, no single pricing method has been consistently higher or lower than any other. This seems especially important, given the concerns regarding captive supply prices versus cash market prices. Neither of the two pricing methods typically associated with captive supplies is consistently above cash market prices. However, there appears to be differences associated with rising or declining prices that could be important in choosing one marketing method over another.

Final Assessment

Is there more information available on the volume of captive supplies since mandatory price reporting? Yes. The extent of captive supplies can be

tracked now with weekly data. Although the data do not present an exact picture of captive supplies, most would likely conclude the new information is insightful and an improvement.

Moreover, more price information by procurement method is available since mandatory price reporting was established. This availability enables tracking prices by procurement method and making comparisons that were not previously possible.

One final comment is appropriate. It bears repeating that the data on captive supplies using the AMS mandatory price reports does not match exactly the definition GIPSA has used for captive supplies. Thus, although there is both more timely and more information on captive supplies from mandatory price reports, caution must be exercised in using the AMS data to estimate the exact extent of captive supplies.

For More Information

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