COMMODITY POLICY COMPATIBILITY
WITH FREE TRADE AGREEMENTS

Daniel A. Sumner and Daniel G. Hallstrom

ISSUES AND APPROACH

Agricultural trade negotiations have been especially complicated and controversial. Complications arise because, in addition to border measures such as import barriers and export subsidies, nations employ a mind-boggling array of internal agricultural subsidies and regulations. Among the important issues encountered during negotiations, and in their aftermath, is the compatibility of internal programs with the legal and economic implications of the trade agreement. Free trade agreements do not necessarily require commitments on internal commodity subsidies and regulations, but such agreements may imply economically that certain policies are not sustainable.

There are several types of compatibility problems that arise with internal commodity programs under free trade. First, a program may be unsustainable for financial reasons. A program designed to transfer funds from the treasury may have acceptable budget costs with import limits, but these costs may explode when trade is allowed. Second, a program may contain price or other guarantees that simply fail to be feasible in the face of imports. A program may promise outcomes that are not economically possible unless imports can be controlled. Third, a subsidy or internal regulatory program may be feasible and have relatively low budget costs, but violate the free trade agreement itself by implicitly blocking importation through economic means. Fourth, for exporters, domestic commodity programs may act as effective export subsidies, and thus be incompatible with free trade agreements on legal grounds. Note, compatibility problems three and four may lead to trade disputes rather than internal inconsistencies.

The relationships between trade agreements and internal commodity programs may be dealt with in two ways. First, international negotiations may develop binding commitments on internal subsidies and regulations. This was the approach taken in negotiating the Uruguay Round Agreement for agriculture of the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) (URA). Because certain internal programs were seen to have trade effects, an attempt was made to draw up
binding commitments to limit the scope of such programs. A second approach is to focus the trade agreement itself on border measures and let the incompatibility with free trade apply pressure on the internal programs. Such pressure may be through direct budget or economic implications, or through legal means such as nullification and impairment clauses, or antidumping and countervailing duties cases.

Two polar case solutions to the compatibility question may be mentioned to set the stage. The first solution is to abandon opening the borders at all. If the domestic commodity programs seem to be absolutely incompatible with open markets, the free trade agreement may simply leave that commodity out. This approach was taken for several supply-managed commodities in Canada's agreements with the United States, Mexico and Chile. A second solution is to go far beyond the free trade agreement and harmonize internal commodities policies (and perhaps adopt common border policies as well). The European Union (EU) has moved a substantial way down this path.

This paper continues as follows. The next section contains an analysis of how free trade affects the domestic economics of common commodity program types. We lay out the simple analytics of stylized commodity programs and show how the familiar results are affected by the introduction of free trade. This section includes a discussion of how compatibility issues, with respect to common farm programs, were addressed in NAFTA and the URA. The third section uses the example of free trade among states in the United States to consider further when policies that vary geographically are compatible with open borders. In particular, we examine the incompatibility of federal and state dairy policy and the pressure for a kind of harmonization. The next section presents an argument for letting border pressures discipline internal programs rather than including commitments on internal support in trade agreements. A concluding section draws implications for the trade agreements and for nations domestic policy reforms.

THE SIMPLE ANALYTICS OF COMMODITY PROGRAM COMPATIBILITY WITH FREE TRADE

This section uses a series of familiar commodity policy models to focus our discussion on how particular types of commodity programs are affected by opening up international markets. We show how the impacts of policies such as price supports, marketing quotas and direct payment programs may be affected by free trade. In the discussion that follows, we analyze the effects of a free trade agreement on welfare, budget costs, and other policy objectives under a variety of stylized commodity programs (as in McCulla and Josling, 1985).

These programs are examined using a series of figures that illustrate the economic impact of free trade on a country that has a particular commodity program in place. Commodity program cases considered are:

1. A production subsidy which is sufficient to exclude imports;
(2) a production subsidy under which some imports flow under free trade;
(3) a price support;
(4) a production quota which is held fixed in response to imports;
(5) a production quota which is adjusted when free trade is introduced; and
(6) direct payments unrelated to current output.

In each figure we show only two countries; the country with the domestic policy upon which we focus is labeled “home”, the other country is labeled “foreign”. For simplicity, we examine cases in which there is no trade initially and only the home country has an internal commodity program. In the figures, \(D_t\) corresponds to foreign demand and \(D_h\) corresponds to foreign demand; \(S_t\) is foreign supply and \(S_h\) is home supply. The excess supply for the foreign country is \(E_t = S_t - D_t\).

The first commodity program considered is a per unit production subsidy of \(\nu\). In Figure 1, autarky equilibrium price and quantity in the foreign country is shown as \((p_{hn}, q_{hn})\). Autarky price in the home country is determined by the intersection of the subsidy-included supply curve \(S_h\), with \(D_h\). At this point, production is \(q_{hn}\); consumer price is \(p_{hn}\) and producer price is \(p_{hn} + \nu\).

![Figure 1. Production Subsidy (Case 1)](image-url)
Now let us open the border and allow imports. Since imports from the foreign country to the home country must compete with the consumer price in the home country, the effect of free trade upon the autarky equilibrium depends upon the sign of the excess supply $E_i$ at $p_{bh}$. In the first case illustrated, the production subsidy $v$ has depressed the home consumer price so much that the foreign country would actually be an importer if the border was opened ($p_{h} < p_{bh}$). In this case, opening the border places no direct pressure on the operation of the domestic program in the home country. If exports from the home country to foreign market were allowed with no complaint, the effective demand in the home country would be $D_h + F$. The price to consumers in the home market would rise and the quantity consumed would rise to include exports.

However, since $p_{h}$ is below cost of production, trade flowing in this direction could be ruled as dumping and subject to import restrictions in the foreign country. Assuming that the countervailing duties imply no exports from home to foreign, “free trade” will have no effect upon the autarky equilibrium. However, there is a clear conflict between free trade and the production subsidy, since the subsidy implicitly blocks exports from the foreign country to the home country by lowering the home market consumer price.

To see the impact the home production subsidy has on the foreign country, note that with no subsidy and free trade, price would be $p^*$. The production subsidy causes an increase in consumer surplus in the foreign country of $I$, but producer surplus is lower by $I+K$. Therefore, the subsidy in the home country imposes a loss in potential welfare in its partner country equal to $K$. By implicitly blocking trade, the subsidy results in a reduction in welfare for the foreign country relative to what it would be able to achieve with no commodity program in place in the home country. Of course home country welfare is also lower, at least as conventionally measured.

In Figure 2, the home country still uses a production subsidy of $v$. However, $E_i$ is now greater than zero at $p_{h}$. Therefore, even with the subsidy, there will be imports into the home country. With a free trade agreement, but with the subsidy remaining in place, the equilibrium price of $p^*$ is determined by the intersection of $S_{bh}$ and $D_h$. With the free trade agreement, home production falls from $q_{bh}$ to $q_{wtr}$ and imports are $q_{bh} - q_{wtr}$. As imports enter into the home country, both producer and consumer prices fall. With trade, home producer surplus is lower compared to autarky by $A+B$, and home consumer surplus is higher by $C+D+E+F+G$. As illustrated, the net gain in home welfare caused by free trade is $F+G$.

In addition to the changes in producer and consumer surplus, free trade affects the budgetary costs of the subsidy program. Since we are assuming for now that the per unit subsidy remains the same with free trade, there is a reduction in budgetary costs of $\nu(q_{bh} - q_{wtr})$. Finally, note that with free trade, market price in the foreign country increases from $p_{h}$ to $p^*$ which results in a loss to foreign consumers, a gain to foreign producers, and a net foreign welfare gain shown by area $J$.

When the initial production subsidy is not so large as to depress the home country price beyond the point that eliminates all trade, both countries experience a net increase in the sum of producer and consumer surplus from a free trade agreement. In addition, budgetary costs of the subsidy are lower. Of course, the production subsidy remains an implicit trade barrier and might be subject to a nullification and impairment case. While
production subsidies are often discussed, such pure programs are not often used. Even the U.S. deficiency payment scheme did not constitute this sort of stylized program. The budgetary cost of such a program would have been prohibitive, so the United States used base rules and land idling to contain costs. The net result was output that likely differed little from the no subsidy equilibrium (Sumner, 1995a; ERS, 1996; Smith and Glauber, 1996 and; Young and Westcott, 1996).

**Figure 2. Production Subsidy (Case 2)**

The next commodity program considered is a price support that is operated in conjunction with a subsidy to consumers of the amount necessary to clear the market. In Figure 3, the support price is fixed at $p_{hs}$. The government does not acquire stocks with this policy; in order to clear the market of excess output, it must offer a subsidy to consumers of $c$. Consumer price is $p_{hs} - c$, and the policy is a transfer from taxpayers to both the producers and the consumers of the commodity. In a very stylized way, this illustrates the broad policy that Mexico pursued for corn prior to NAFTA and the introduction of the PROCAMPO program.

With free trade, but maintaining the price support, home country producer price remains $p_{hs}$ and output remains $q_{hs}$. Commodity will flow into the home country until the
free trade equilibrium price of \( p^*_s \) is reached. This price is determined by the intersection of the total supply curve in the home country \((q_{hs} + E_f)\), with the demand curve, \( D_h \).

Since producers price and output in the home country remain constant, the free trade agreement does not change producer surplus. It does cause an increase in consumer surplus in the home country of \( A + B + C \). There is also an increase in budgetary costs of \( A + B \) because the per unit consumer subsidy increases by \((p_{hs} - c) - p^*_s\) for the domestic quantity \( q_{hs} \). In the foreign country, free trade causes a net welfare gain of \( E \).

![Graph showing free trade equilibrium](image)

**Figure 3. Price Support**

The free trade agreement makes the domestic price support and consumer subsidy harder to maintain because the budget cost increases. At the same time, consumer support for the combined program is mitigated because low priced imports are available, making their gain from the subsidy less obvious. With the price support and domestic subsidy, there is also potential for trade dispute. In this case, home country output is unaffected by imports. This implies an extra loss in foreign country producer surplus compared to a production subsidy.

An alternative price support policy would be for the home government to support the price of the commodity at \( p_{hs} \) by purchasing any excess supply at this price and either storing
it, or disposing of it in some way that does not affect the market price. Under this policy both producer and consumer price is \( p_{hs} \) and quantity consumed falls from \( q_{hs}^0 \) to \( q_{hs} \). With free trade, and such a high price in the home country, exports from the foreign country will be \( E_1(p_{hs}) \). As illustrated, the home government will be committed to purchasing \( (q_{hs} + E_1(p_{hs})) \cdot q_{hs} \) of the commodity.

With this policy there definitely is no longer a trade conflict. In the foreign country, net welfare gain from free trade is \( E_1 \cdot E_1 \), which is much larger than it would be in the absence of the home country program. However, free trade has resulted in an increase in budgetary costs in the home country which may not be sustainable.

Figure 4 illustrates a production or marketing quota which remains constant under free trade. The quota in the home country is set at \( q_{hs} \) which in autarky would result in the quota constrained price in the home country, \( p_{hs} \), and quota rents of \( A + B \). With free trade, market price in the home country will fall to \( p_1^* \). At \( p_1^* \), consumer surplus in the home country increases by \( A + C + D \), and quota rents decrease by \( A \). Thus, free trade causes distributional effects, but there is an increase of total welfare in the home country of \( C + D \). With this policy, the producer gains in the foreign country from a free trade are larger than they would be in the absence of the quota. By restricting production, the quota drives up the free trade agreement price and allows additional exports. With a constant production or marketing quota in an importing country there will be no trade conflict with the exporter, but the quota rents in the home country decline drastically.

Figure 4. Production or Marketing Quota
In order to see more clearly the effect that import competition can have upon quota rents, Figure 5 depicts an alternative policy in which the quota quantity is adjusted in response to the free trade agreement. Autarky equilibrium will be the same as in Figure 4, with home country price of $p_h$ and quota rents of $A+B+C$. In this case, under a free trade agreement, rather than leave the quota fixed and allow imports to expand to take the additional market, the home country expands its production quota to $q_{hn}$. Price falls to $p_h$, which is enough to preclude imports. Now, compared to the case where the quota remains constant, there is an increase in consumer surplus of $A+D$, and an increase in producer surplus of $F$. However, free trade has resulted in a decrease in quota rents from $A+B+C$ to $D+E$. The net effect on producers is $(E+1F)-(A)$ which is assumed to be negative, or the quota would have been expanded without a free trade agreement.

![Figure 5. Production or Marketing Quota (Quota adjusts to eliminate imports)](image)

Under the adjusted home country quota policy, the foreign equilibrium with free trade is the same as under autarky because exports remain zero. The foreign country suppliers, who presumably pressured for free trade would see no benefit. The losers with free trade are the holders of quota who would see the value of their quota rents decrease. If the result is obvious prior to the agreement the home country producer lobby would argue vigorously against free trade for their industry. Foreign exporters would be indifferent and consumers in the two countries would be split. Home country consumers will argue for free trade, not because they would benefit from trade, but because a free trade agreement would force domestic policy adjustment. Some argue that this case may approximate what would happen
because they would benefit from trade, but because a free trade agreement would force domestic policy adjustment. Some argue that this case may approximate what would happen if the Canadian dairy market were opened to imports from the United States (Barichello and Romain, 1996; Meilke, Sarker and LeRoy, 1996; and Veeman and St. Louis, 1996. See also Moschini and Meilke, 1997 and Alston and Spriggs, 1996).

The last commodity program considered is a direct payment to producers that is not tied to current production. Since these direct payments do not alter economic incentives on the margin, the equilibrium adjustments when trade is introduced are the same as they would be in the absence of the program. In Figure 6, direct payments are represented by area D. The autarky equilibrium is at price $p_{ha}$ and quantity $q_{ha}$ in the home country, and price $p_{f}$ and quantity $q_{f}$ in the foreign country. With free trade, the equilibrium price decreases to $p^*$, production increases in the foreign country, and falls in the home country. The policy has had no effect on equilibrium adjustments to free trade or welfare. Of course, if payments demand production of a particular crop or have other ties to output, then we are back to the cases illustrated in Figures 1 and 2.

The variety of policies that could be examined in this way is long and tedious. We might mention such programs as subsidized crop insurance (which is similar to a production subsidy) and subsidies tied to land set asides. As a final example, we will consider a policy of price discrimination practiced in conjunction with price pooling or blend pricing.

![Figure 6. Direct Payment](image-url)
AN EXAMPLE OF U.S. DAIRY PROGRAM COMPATIBILITY WITH TRADE AMONG U.S. STATES

For the most part, agricultural trade among the states and regions of the United States is open. The major exception is the case of milk for fresh use which is regulated by federal and state marketing orders. The federal marketing orders regulate milk sold within particular geographic boundaries, and limit incentives for arbitrage from milk that is not regulated in that jurisdiction. As a part of the implementation of the FAIR Act of 1996, the boundaries are changing and the number of orders is being reduced dramatically to between 10 and 14 (Cox and Sumner, 1996a; ERS, 1996).

California is the only major dairy production area that does not participate in the federal milk marketing order system. Instead, California maintains its own milk marketing order which predates the federal system. In the FAIR Act, California was invited to join the federal system with the assurance that it could maintain state borders as the federal order region, and that it could maintain its market-share quota program. The incentive for California to join the federal system provides a lesson in farm policy compatibility and harmonization.

Both the federal and California milk marketing orders maintain price discrimination such that milk used for fresh products receives a price differential above milk used for manufactured products. The revenue from all milk sales are placed in order-wide revenue pools and distributed back to producers, irrespective of how the milk from any specific farm was actually used. In the federal system, the rents earned from price discrimination in each order are distributed back to producers equally as a weighted average pool price. The average and marginal per unit price received by producers uses sales of fresh and manufactured products from milk in that order as weights, and the order-specific price of each end use class of milk. In California the procedure is similar except that the pool revenue is distributed back to individuals based on their ownership of pool quota (Sumner and Wolf, 1996). Currently producers receive $1.70 per hundredweight of quota from the pool before the rest of the revenue is distributed.

Given the regionalization of pricing policy, even under the federal system the price for milk in fresh use differs by region. For example, the price of fluid milk is higher in the Southeast than it is in the Upper Midwest. In addition, utilization by end-use class differs by region. Milk in the Upper Midwest is used mostly for manufactured products whereas milk in the Southeast is used mainly for fresh products. Under federal law and regulation this system is maintained and arbitrage is restricted, though not without considerable regional strife within the industry (Cox and Sumner, 1996a; Cox and Sumner, 1996b).

The restrictions on arbitrage under the federal milk marketing orders have been protected under U.S. law even though restriction of trade among states is generally prohibited by the Interstate Commerce Clause of the U.S. Constitution. So whereas arbitrage between Wisconsin and Florida is restricted by law, California is not allowed to restrict arbitrage associated with its price policy. In the past, two factors reduced the pressure on California’s milk marketing order. First, being geographically isolated from other major milk producing...
regions has meant transport costs were relatively high. Second, California has maintained lower milk prices than neighbor states. In general, each class price and the blend price in California has been below that available in other markets.

It turns out however, this is not enough to remove the incentive for arbitrage. Under the federal order, a producer in Arizona would receive the blend price in the local federal order. That blend price is likely to be above the blend price in California, but below the California class 1 price paid by bottlers of fresh milk. If the difference between the California class 1 price and the Arizona blend price is higher than the transport cost, there is an incentive for arbitrage. Notice that this is a purely policy created arbitrage. Cost of production may be lower in California. Yet as long as the class 1 price in California is above the average price in Arizona, there are incentives for class 1 milk to flow from Arizona into California.

The result of this arbitrage in California is a substantial decline in producer revenues with little benefit for consumers. The milk from out of state flows only into the high price uses so the “imported” milk reduces the share of fresh uses in the weighted average price received by California producers. It is unlikely that the arbitrage could be restricted without California joining the federal milk marketing order system, which is cumbersome and less efficient than the California program.

Consider the effect of creating a California federal milk marketing order. First, milk from Arizona that was shipped to California would now be priced under the California order. These producers, who as yet have no California pool quota, would receive the lowest of the California blend prices, which is below the blend price they would receive in Arizona. With policy harmonization, the result would be that no trade would flow, and the California producers would have a more cumbersome and less efficient program. This case is similar to the U.S.-Canada dairy example discussed in the second section. This case also shows how policy harmonization, or at least having a common jurisdiction, can reduce trade and reduce policy efficiency.

THE DESIGN OF FREE TRADE AGREEMENTS: BORDER MEASURES VERSUS INTERNAL MEASURES

Previous sections have shown that domestic commodity programs have important trade effects that may make them incompatible with free trade agreements. One approach to dealing with such programs is to include internal support disciplines directly into the trade agreement. Internal commodity programs may be made compatible with a free trade agreement by simply including disciplines on such programs directly into the agreement. This was the approach taken in the Uruguay Round agreement, whereas NAFTA does not attempt to discipline internal subsidies directly.

There seems to be broad acceptance of including internal subsidy programs in trade agreements. Failure to include internal supports has been seen as a reason agricultural trade
reform was so limited in previous GATT rounds; NAFTA is also seen as lacking for this reason. We argue that such a position is mistaken. Such provisions are (1) unnecessary; (2) unworkable; and (3) positively counterproductive (Sumner, 1996).

Based on our discussion above there are two major reasons to focus trade agreements on border measures, as opposed to internal agricultural support measures. First, as we have seen in the second section, reducing trade barriers and export subsidies makes trade distorting internal subsidy programs much harder to sustain. This means that the benefits of dealing directly with internal subsidies and barriers in the trade agreement may add little. When faced with open borders the policies disciplined would have relatively little scope for effect, or would be prohibitively expensive. The benefits of internal support provisions of trade agreements are likely to stimulate little reform for a second reason. As a matter of practical fact, such provisions are unlikely to be workable. This means that a series of complex provisions may be agreed to but little real policy will be affected. In this case, something is not better than nothing. Third, basic GATT articles and other trade law already include provisions that can be used to limit production subsidies; including provisions on internal supports in a trade agreement risks a reduction in furthering the effectiveness of those provisions.

We developed the first point in some detail in the previous sections. Border barriers and export subsidies are sometimes required in order to make internal programs feasible. If the border measures are themselves removed or reduced, the trade effects of the internal subsidies are themselves limited. Further, many trade distorting internal subsidies have been reformed in recent years, either through pressures from trade agreements (as in Mexico) or as a part of a larger reform process with little or no attention to trade agreements (as in the United States).

One way to examine the workability of disciplines on internal supports is to consider the evolution and implementation of the internal support provisions in the Uruguay Round Agreement. The Uruguay Round Agreement for agriculture devotes more space to internal support than to either of the border measures. The result of this effort is a text that imposes no serious commitments on any of the largest agricultural traders, and a text that has had zero effect on agricultural trade. The reasons for this result are not accidental. First, domestic subsidy programs occur with such variety and have such complex effects (many of which have very little to do with trade) that it is literally impossible to create effective, enforceable policy commitments in the context of a multilateral agreement. There are just too many individual policies to discipline each policy individually, and the idea of using an index of trade effects of policies has proven illusory. For example, there is no policy index that measures trade impact exclusive of changing market conditions which are beyond the control of the country making a commitment. Second, aggregation of policies into an index tends to ignore their differential trade impacts and may encourage more trade distorting policies in preference to less distorting policies. For example, the definition of programs classified U.S. crop disaster assistance into a green category, when it has encouraged planting on marginal land and thus increased U.S. production and exports. Alternatively, the deficiency payment program, which probably reduced production and export of grains, was not considered green under URA provisions. Third, with such complexity it is easy to build
deliberate loopholes into the text so that internal programs in major negotiating nations remain undisciplined in fact.

Of course even politicians and trade lawyers recognize that domestic commodity programs can reduce imports or increase exports. In trade agreements, a country’s interests are expressed, almost exclusively, in terms of the value of net exports rather than as national income, or producer and consumer surplus, so any policy that tends to increase net exports (that is, any policy that either expands exports or constrains imports) is a candidate for trade sanctions. For many years this economic logic was formally incorporated in international trade law in several ways without specific text disciplining domestic programs directly. The GATT and national trade policies both have provisions to discipline production subsidies of other countries that were considered detrimental to industry interests. GATT articles VI (on antidumping and countervailing duties), XVI (on subsidies) and XXIII (on nullification and impairment) all deal with attempting to limit the use of policy measures that have a detrimental impact on the trade interests of other countries, even when there has not been an explicit GATT agreement on the particular policy measure.

Given these other provisions, international negotiations and agreements on internal support are not irrelevant; we argue that they are positively harmful to progress in agricultural liberalization. By including text on internal supports in a multilateral agreement, the ability to use WTO provisions related to nullification and impairment is weakened. Including explicit internal support commitments in a trade agreement may make it more difficult to use the other legal remedies. Countries with distorting internal subsidies may now argue that they are complying with an explicit agreement when they maintain subsidies that impair border measure concessions. Further, by diverting attention away from border measures, including internal support in the negotiating process reduces the amount of progress made on the policies that block imports or subsidize exports directly.

SUMMARY

This paper has explored a variety of ways that domestic commodity programs may be incompatible with a free trade agreement. We show in general that if a policy creates an incentive for arbitrage, the policy may be unsustainable after trade reform. We also show that if the policy blocks the economic forces of free trade it may be vulnerable to countervail or to nullification and impairment cases. In some cases, a free trade agreement may even be incompatible with a program because no trade flows after the agreement. Finally, we argue that, given the economic and legal forces that make many trade distorting programs incompatible with elimination of border barriers and export subsidies, there is little reason to include disciplines on internal commodity programs in trade agreements. In fact, we argue that the attempt to include such disciplines weakens free trade agreements.
REFERENCES


