

# Countervailing Duties, Antidumping Tariffs, and the Byrd Amendment: A Welfare Analysis\*

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**Abstract** This paper determines the effect that offset payments under the Continued Dumping and Subsidy Offset Act (CDSOA also known as the “Byrd Amendment”) have on tariff levels that are lobbied for by U.S. producer groups. We derive the optimum antidumping tariff that would maximize the welfare of producers receiving CDSOA offset payments. We compare and contrast this newly derived “optimal antidumping tariff” (that maximizes the sum of producer surplus and tariff revenue) with the optimal revenue tariff (that maximizes tariff revenue alone) and the optimal welfare tariff (that maximizes the sum of consumer surplus, producer surplus, and tariff revenue). We find that prior to the CDSOA, U.S. producers would always lobby for prohibitive tariffs that maximize producer surplus. However, under the CDSOA, producers will, in most cases, lobby for a tariff that is not prohibitive but is still higher than the optimal revenue or optimal welfare tariffs.

*Keywords:* Tariffs, antidumping duties, countervailing duties, welfare, Byrd Amendment

*JEL Classification:* F13, D60, K33

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## Introduction<sup>1</sup>

U.S. antidumping laws, in a form that resembles the current version, began with the Antidumping Act of 1921 and was part of the Emergency Tariff Act of that year. This early law “...contains all the elements of what we now recognize as antidumping: that duties may be imposed if the exporter’s sales price is less than the foreign market value, that foreign costs of production may be calculated if the foreign market value is not ascertainable, that the dumping must be related to injury suffered by the domestic industry, that higher import duties are the appropriate remedy, etc.” (Irwin, 2004). Antidumping cases became used as early as the late 1930s but most domestic industries filed only single petitions at that time that targeted imports of a particular product from a particular country. In addition, most injury rulings were not granted until the early 1970s. By the mid 1980s, the majority of cases filed received an injury determination of one kind or another (Irwin, 2004). The number of antidumping cases increased throughout the 1990s, but the early 2000s witnessed an alarming jump in the number of antidumping cases. The large increase in the number of such cases in the early 2000s was, for the most part, spurred by a significant change in the way that collected duties are now disbursed.

On October 28, 2000, the 106<sup>th</sup> U.S. Congress passed the agriculture spending bill, Public Law 106-387. The Continued Dumping and Subsidy Offset Act (CDSOA) was attached as amendment Title X by Senator Robert Byrd of West Virginia as part of the Agriculture, Rural Development, Food and Drug Administration and Related Agencies Appropriations Act of 2001. The CDSOA amended Title VII of the Tariff Act of 1930 by adding a new section 754 that instructs the U.S. Commissioner of Customs to collect certain antidumping and countervailing (ADCV) duties and place them in a clearing account. Once entries are liquidated, the money is transferred to a special account from which they are distributed to affected domestic producers who petition for qualifying expenditures. The distributions are known as “the continued dumping and subsidy offset.” (Patterson, 2003)

The so-called “Byrd Amendment” effectively empowers producers and processors, who successfully petition the U.S. government to impose ADCV duties on competing imports, to keep the proceeds of those tariffs. In addition, there is a grandfather clause that allows these groups to collect the tariff revenue from certain ADCV duties that were implemented prior to the CDSOA (King, 2002). Previously, the collected tariff revenues accrued to the general Treasury (eBearing.com). For a company to be eligible for payouts, it must prove that it successfully litigated an antidumping or countervailing duty case against a specific industry in a specific country. If eligible, a company shares all past and future collected ADCV duties with the other original litigating companies. Companies that did not participate in the original antidumping or countervailing duty case do not receive any of the collected funds.

The CDSOA was originally authored by Senator DeWine (Ohio) but failed to gather significant support due to questions of its legality under World Trade Organization (WTO) and North American Free Trade Agreement (NAFTA) rules. However, Senator Byrd championed the CDSOA as a way to support the local steel industry. He indicated that the General Accounting Office had determined that the program would cost no more than \$38 million and would primarily benefit U.S. steel manufacturers (eBearing.com). In fact, however, the CDSOA paid out \$230 million to 900 claimants in 2001, \$329 million to 1200 claimants in 2002, and \$190 million to 1494 claimants in 2003 (Table 1).<sup>2</sup> Of that amount, the two bearing manufacturers in Senator Byrd’s neighborhood, Timken and Torrington (who merged in 2003), received \$81 million in 2001, \$126 million in 2002, and \$92 million in 2003, while most other steel companies received negligible payments. Agricultural products, including, pasta, pineapple, crawfish, mushrooms, garlic, salmon, pistachios, cut flowers, honey, sugar, orange juice, and apple juice also received payments, totaling approximately \$20 million in each of the three years since the Byrd Amendment was enacted.

It did not take long for U.S. trading partners to react vigorously against the CDSOA, especially those partner countries that were specifically targeted for ADCV duties by U.S. producers. On July 21, 2001, Australia, Brazil, Chile, the European Communities, India, Indonesia, Japan, Korea, and Thailand requested that the WTO form a panel to investigate the CDSOA with respect to U.S. obligations under Article 18.1 of the WTO Antidumping Agreement (AD) and Article 32.1 of the WTO Agreement on Subsidies and Countervailing Measures (SCM). The WTO formed a panel on September 10, 2001, and on September 16, 2002, the panel found against the U.S. on the CDSOA payments and recommended that the CDSOA be repealed (U.S. Department of State). On October 18, 2002, the U.S. appealed the ruling to the WTO Appellate Body, but on January 16, 2003, the Appellate Body confirmed that the CDSOA was incompatible with WTO rules (Lamy, 2003). In January 2004, the EU and other nations

asked for WTO permission to take retaliatory action against the U.S. because of its failure to repeal the amendment.

In the initial WTO complaint, the complaining parties argued that the CDSOA is a specific action against dumping and subsidization that is not in accordance with either the AD or SCM agreement and that it undermines the requirements that dumping and countervailing duty investigations not proceed unless supported by at least 25% of domestic producers. The WTO panel determined that offset payments to domestic producers adversely affect the competitive relationship of dumped/subsidized goods with domestic producers and that the offset payments provide a financial incentive to domestic producers to file and support investigations and in so doing would increase the number of rulings against dumping or subsidies (WTO Panel). Hence, the CDSOA is inconsistent with both the AD and SCM agreements under the WTO.

In this paper, we determine the effect that offset payments under the Continued Dumping and Subsidy Offset Act (CDSOA also known as the “Byrd Amendment”) have on tariff levels that are lobbied for by U.S. producer groups. We derive the optimum antidumping tariff that would maximize the welfare of producers receiving CDSOA offset payments. We compare and contrast this newly derived “optimal antidumping tariff” (that maximizes the sum of producer surplus and tariff revenue) with the optimal revenue tariff (that maximizes tariff revenue alone) and the optimal welfare tariff (that maximizes the sum of consumer surplus, producer surplus, and tariff revenue). The optimal revenue tariff and optimal welfare tariffs are well-known results from welfare analysis in international trade (e.g., Schmitz and Schmitz, 1994) and are used as a benchmark for comparisons of tariff levels, tariff revenue, and total welfare resulting from an optimal antidumping tariff.

The rest of this paper proceeds as follows. We begin with further discussion of the Byrd Amendment and then provide empirical evidence regarding ADCV tariffs placed on specific agricultural products. We then introduce a two-country partial equilibrium model for a large importing country, and derive quantity supplied, quantity demanded, and quantity exported as functions of the specific tariff level and the parameters of the domestic supply, domestic demand, excess supply, and excess demand curves. We then derive the optimal revenue tariff for this model and use it as a basis to derive both the optimal antidumping tariff and the optimal welfare tariff. These relationships are utilized in order to compare and contrast tariff levels, welfare, and import revenue across the three tariff regimes. Finally, conclusions are drawn.

## **The Byrd Amendment**

The CDSOA went into effect in 2001 and was controversial from its inception. President Clinton signed the “Act” but asked Congress to revisit and repeal the CDSOA before adjournment; however, Congress did not act. In industries that receive protection from imports under U.S. ADCV duty laws, ineligible companies for CDSOA payouts complain that eligible companies receive an unfair advantage derived from the subsidies. Small companies complain that their industry is harmed by unfair imports but they do not have the money to hire expensive lawyers to litigate ADCV cases (eBearing.com). The U.S. Treasury Department’s budget report states that the CDSOA allows “double dipping” because eligible companies not only receive protection from imports through increased import prices due to ADCV tariffs but now also receive corporate subsidies from the collected ADCV revenues (Thomas, 2003).

In 2001, there were nine food-industry antidumping (AD) and four food-industry countervailing duty (CV) cases for which companies received tariff revenues under the CDSOA. In 2002, food-industry AD cases in which companies received payouts increased to 12 while food-industry CV cases remained at four. By 2003, there were 15 AD cases and six CV cases in the food industry (Table 1).

In some cases, the same company that received payouts under an antidumping case also received payouts under a countervailing duty case. For example, eligible U.S. pasta firms shared \$17.5 million, \$4.7 million, and \$1.7 million under the antidumping case A-475-818 in 2001-2003, respectively. They also shared \$2.5 million, \$2.5 million, and \$0.4 million under countervailing duty case C-475-810 in 2001-2003. In the antidumping case A-540-843, canned pineapple/Thailand, one company, Maui Pineapple, received the entire revenue of \$1.8 million in 2001, \$0.5 million in 2002, and \$5.4 million in 2003 (Table 1).

In fiscal year 2002 and 2003, crayfish firms receive the largest food-industry CDSOA payouts. A list of the specific crayfish firms, the amounts claimed, amount paid, and allocation shares for 2002 and 2003 are provided in Table 2. In aggregate, crayfish firms claimed amounts of \$35.4 million and \$39.6 million in 2002 and 2003. However, they actually received \$7.5 million and \$9.8 million in those two years. One firm, Atchafalaya Crawfish Processors, received 14 percent of all crawfish payments disbursed under the CDSOA in fiscal year 2003.

Prior to the CDSOA, it was in the best interest of U.S. producers who compete in industries that face the possibility of substantial foreign imports to lobby for a prohibitive tariff (at a level that does not allow competing imports into the country) in order to raise the domestic price that they receive for their goods. On the other hand, it is in the best interest of the U.S. government in the large country case to impose either an optimal welfare tariff (that maximizes the combination of consumer welfare, producer welfare, and tariff revenue) or an optimal revenue tariff (that maximizes tariff revenue). In what follows, we show that under the CDSOA, producers that receive offset payments will not always lobby for a prohibitive tariff. However, they will still lobby for a tariff that is always above both the optimal welfare tariff and the optimal revenue tariff.

### Derivation of Optimal Tariffs

In order to derive and compare the optimal antidumping tariff, the optimal revenue tariff, and the optimal welfare tariff, we consider the following system of equations that represent the supply, demand, and excess demand curves for a particular product in the United States along with the excess supply curve for the foreign market (i.e., the rest of the world). To make the solution tractable, we assume that each of these equations is linear and that the U.S. and foreign markets are competitive. This system can be viewed as a linear approximation to the actual underlying behavioral relationships,

$$\begin{aligned}
 P_D &= a + bQ_D \\
 P_S &= \alpha + \beta Q_S \\
 P_{ED} &= c + dI \\
 P_{ES} &= \gamma + \delta I
 \end{aligned}
 \tag{1}$$

in which  $P$  is the price,  $Q_S$  is the quantity supplied by the U.S.,  $I$  represents U.S. imports from the foreign market, and  $Q_D$  is the quantity demanded, which equals the quantity supplied ( $Q_S$ ) plus imports ( $I$ ).<sup>3</sup> If we introduce a specific tariff  $T$ , then  $T$  drives a wedge between the excess demand and excess supply curves. In equilibrium, the following relationship must hold:

$$P_{ED} - P_{ES} = T. \quad (2)$$

Inserting the relationships for  $P_{ED}$  and  $P_{ES}$  and solving for imports ( $I$ ) yields:

$$I = \frac{T + \gamma - c}{(d - \delta)}. \quad (3)$$

The equilibrium U.S. price is derived by inserting equation (3) into the excess demand curve ( $P_{ED}$ ), which yields:

$$P = c + \frac{d(T + \gamma - c)}{(d - \delta)}. \quad (4)$$

Finally, the U.S. quantity supplied in equilibrium can be derived by inserting equation (4) into the supply curve (1):

$$Q_S = \frac{(c - \alpha)}{\beta} + \frac{d(T + \gamma - c)}{\beta(d - \delta)}. \quad (5)$$

Equations (3-5) give the equilibrium quantity imported, the U.S. price, and the quantity supplied as functions of the specific tariff  $T$  and the parameters of the various supply and demand equations. These relationships can be used to find the equilibrium tariff under various tariff regimes.

As a base of reference, we first derive the optimal revenue tariff (ORT) in terms of the parameters of the various supply and demand equations. We then derive the optimal antidumping tariff (ANT) as a function of the underlying optimal revenue tariff. Finally, we derive the optimal welfare tariff (OWT) and compare and contrast the three.

First, consider the optimal revenue tariff. The objective of the optimal revenue tariff is to maximize tariff revenue with respect to the tariff. However, since tariff revenue is simply equal to the specific tariff ( $T$ ) multiplied by equilibrium imports ( $I$ ) this problem can be written mathematically as:

$$MAX_T \left\{ TR = \frac{T(T + \gamma - c)}{(d - \delta)} \right\} \quad (6)$$

which makes use of equation (3). The optimal revenue tariff ( $T_{ORT}$ ) is found by taking the derivative of equation (6) with respect to the specific tariff ( $T$ ), setting it equal to zero, and solving for  $T$ . The derivative of equation (6) with respect to  $T$  is:

$$\frac{\partial TR}{\partial T} = \frac{2T + (\gamma - c)}{(d - \delta)} = 0. \quad (7)$$

After simplification, the optimal revenue tariff becomes:

$$T_{ORT} = \frac{(c - \gamma)}{2}. \quad (8)$$

Hence, the optimal revenue tariff is always exactly one half of the distance between the intercepts of the excess demand curve and the excess supply curve.

Now, consider the optimal antidumping tariff defined as the tariff that maximizes the sum of producer surplus and tariff revenue. The tariff revenue ( $TR$ ) is the same as in equation (6). Producer surplus for U.S. producers (as defined by Just, Hueth, and Schmitz, 1982) is equal to the area above the supply curve, bounded by the domestic price.<sup>4</sup> Since the supply curve is linear, producer surplus is:

$$PS = \frac{1}{2} Q_s (P - \alpha). \quad (9)$$

However, the quantity supplied ( $Q_s$ ) can be written in terms of  $P$ ,  $\alpha$ , and  $\beta$  as:

$$PS = \frac{(P - \alpha)^2}{2\beta}. \quad (10)$$

The optimal antidumping tariff is derived by making use of equation (4) to get the price in terms of the specific tariff ( $T$ ), and maximizing the sum of producer surplus and tariff revenue. This can be written as:

$$MAX_T (TR + PS) = \frac{T(T + \gamma - c)}{(d - \delta)} + \frac{1}{2\beta} \left[ (c - \alpha) + \frac{d(T + \gamma - c)}{(d - \delta)} \right]^2. \quad (11)$$

Taking the derivative of (11) with respect to  $T$  and setting it equal to zero yields:

$$\frac{\partial(TR + PS)}{\partial T} = \frac{2T + (\gamma - c)}{(d - \delta)} + \frac{d(c - \alpha)}{\beta(d - \delta)} + \frac{d^2(T + \gamma - c)}{\beta(d - \delta)^2} = 0. \quad (12)$$

Solving for equation (12) with respect to  $T$  and rewriting yields:

$$T_{ANT} = \frac{c - \gamma}{2} - \frac{d}{2} \left( \frac{c - \alpha}{\beta} + \frac{d(T + \gamma - c)}{\beta(d - \delta)} \right) \quad (13)$$

The first term is simply equal to the optimal revenue tariff (equation 8). The second term can be rewritten using the fact that:

$$Q_S = \frac{c - \alpha + dI}{\beta} = \frac{c - \alpha}{\beta} + \frac{d(T + \gamma - c)}{\beta(d - \delta)} \quad (14)$$

Hence, the optimal antidumping tariff becomes:

$$T_{ANT} = T_{ORT} - \frac{d}{2} Q_S \quad (15)$$

Since  $d$  is the slope of the excess demand curve,  $d$  is always negative which implies that the optimal antidumping tariff ( $T_{ANT}$ ) is always greater than the optimal revenue tariff ( $T_{ORT}$ ). Now, consider the optimal welfare tariff, defined as the tariff that maximizes the sum of tariff revenue, producer surplus, and consumer revenue. Tariff revenue ( $TR$ ) comes from equation (6) while producer surplus was found in equation (10). Consumer surplus for U.S. consumers (as defined by Just, Hueth, and Schmitz, 1982) is equal to the area below the demand curve, bounded by the domestic price. Since the demand curve is linear, consumer surplus is:

$$CS = \frac{1}{2} Q_D (a - P). \quad (16)$$

However, the quantity demanded ( $Q_D$ ) can be written in terms of  $P$ ,  $a$ , and  $b$  using equation (1), so that consumer surplus becomes:

$$CS = -\frac{(P - a)^2}{2b}. \quad (17)$$

Using equations (4), (6), (10), and (17), the optimal welfare tariff ( $T_{OWT}$ ) can be derived by maximizing the sum of tariff revenue, producer surplus, and consumer surplus with respect  $T$ :

$$\begin{aligned} MAX_T (TR + PS + CS) = & \frac{T(T + \gamma - c)}{(d - \delta)} + \frac{1}{2\beta} \left[ (c - \alpha) + \frac{d(T + \gamma - c)}{(d - \delta)} \right]^2 \\ & - \frac{1}{2b} \left[ (c - a) + \frac{d(T + \gamma - c)}{(d - \delta)} \right]^2. \end{aligned} \quad (18)$$

Taking the derivative of (18) with respect to  $T$  and setting it equal to zero yields:

$$\begin{aligned} \frac{\partial (TR + PS + CS)}{\partial T} = & \frac{2T + (\gamma - c)}{(d - \delta)} + \frac{d(c - \alpha)}{\beta(d - \delta)} + \frac{d^2(T + \gamma - c)}{\beta(d - \delta)^2} \\ & - \frac{d(c - a)}{b(d - \delta)} - \frac{d^2(T + \gamma - c)}{b(d - \delta)^2} = 0 \end{aligned} \quad (19)$$

After simplification, using the relationship in equation (14) and the fact that quantity demanded equals quantity supplied plus imports, the optimal welfare tariff can be rewritten as a function of the optimal revenue tariff (8):

$$T_{OWT} = T_{ORT} + \frac{d}{2}I \quad (20)$$

where  $I$  is the import level from equation (3). Since  $d$  is the slope of the excess demand curve, which is always negative, the optimal welfare tariff is always smaller than the optimal revenue tariff, as one would expect. We can also make use of equations (15) and (20) to relate the optimal antidumping tariff to the optimal welfare tariff. Hence, the three types of tariffs are related in the following fashion:

$$\begin{aligned} T_{ANT} &= T_{ORT} - \frac{d}{2}Q_S \\ T_{OWT} &= T_{ORT} + \frac{d}{2}I \\ T_{ANT} &= T_{OWT} - \frac{d}{2}Q_D \end{aligned} \quad (21)$$

Certain observations can be made at this point. First, since the optimal revenue tariff (8) is always equal to one-half of the slope of the excess demand curve minus the slope of the excess supply curve, then the optimal revenue tariff is never prohibitive. Furthermore, since the optimal welfare tariff is always less than the optimal revenue tariff, the optimal welfare tariff is never prohibitive. However, it could be the case that the optimal antidumping tariff is prohibitive. In order to explore this further, equation (21) needs to be expanded in terms of the parameters of the supply and demand equations alone. Making use of (3), (5), (8), and (21), the three different tariffs, ranked from lowest to highest become:

$$T_{OWT} = \frac{\delta(c - \gamma)}{(2\delta - d)}. \quad (22)$$

$$T_{ORT} = \frac{(c - \gamma)}{2}. \quad (23)$$

$$T_{ANT} = \frac{(c - \gamma)(\beta(d - \delta) + d^2) - d(c - \alpha)(d - \delta)}{2\beta(d - \delta) + d^2} \quad (24)$$

Any tariff  $T$  that is equal to or greater than the difference between the intercept of the excess demand and the intercept of the excess supply curves ( $c - \gamma$ ) must be prohibitive. Hence, the optimal antidumping tariff is prohibitive for cases in which the right-hand side of equation (24) is greater than or equal to  $(c - \gamma)$ .

## Welfare and Revenue Comparisons

The above tariff regimes are further illustrated in Figure 1 in which S and D in the left-hand panel represent the supply and demand curves and ES and ED in the right-hand panel represent the excess supply and excess demand curves. First, consider the optimal antidumping tariff. The optimal antidumping tariff is the tariff that maximizes the sum of tariff revenue and producer surplus (which measures the actual welfare of producers that receive payments under the Byrd Amendment). In the figure, the optimal antidumping tariff is represented by  $(p_1 - \pi_1)$  where  $p_1$  is the domestic price under the optimal antidumping tariff and  $\pi_1$  is the resulting equilibrium world price under the optimal antidumping tariff. Tariff revenue under the optimal antidumping tariff is given by area  $(HIKNR)$  and producer surplus under the optimal antidumping tariff equals area  $(ABC)$ . So total producer welfare equals  $(HIKNR + ABC)$ .

The optimal revenue tariff in Figure 1 is  $(p_2 - \pi_2)$  in which  $p_2$  is the domestic price under the optimal revenue tariff, and  $\pi_2$  is the resulting equilibrium world price. Tariff revenue under the optimal revenue tariff (area  $IJKLNO$ ) is always larger than the tariff revenue under the optimal antidumping tariff, but producer surplus  $AB$  is always lower under the optimal revenue tariff. Furthermore, since the sum of tariff revenue and producers surplus is maximized under the antidumping tariff, it must be the case that  $CHR > JLO$ . Furthermore, aggregate social welfare (the sum of producer surplus, consumer surplus, and tariff revenue) is always larger under the optimal revenue tariff, when compared to the optimal antidumping tariff by an amount equal to area  $(FJLO - HR)$ .

Now consider the optimal welfare tariff represented by  $(p_3 - \pi_3)$  in which  $p_3$  is the domestic price, and  $\pi_3$  is the resulting equilibrium world price. Aggregate social welfare under the optimal welfare tariff is always larger than aggregate social welfare under the optimal antidumping tariff by an amount equal to area  $(FGLM - HINR)$ . However, tariff revenue under the optimal welfare tariff (area  $KLM$ ) could be larger or smaller than tariff revenue under the optimal antidumping tariff (area  $HIKNR$ ).

In order to compare tariff revenue under the optimal antidumping tariff with that of the optimal welfare tariff, it is helpful to make use of the fact that the antidumping tariff can be rewritten in terms of the optimal welfare tariff (21) and that imports can be rewritten in terms of the specific tariff and the parameters of the supply and demand equations through (3). Therefore, the optimal antidumping tariff can be rewritten as:

$$TR_{ANT} = TI = \left( T_{OWT} - \frac{d}{2} Q_D \right) \left( \frac{T_{OWT} - \frac{d}{2} Q_D + \gamma - c}{(d - \delta)} \right). \quad (25)$$

Equation (25) can be rewritten as:

$$TR_{ANT} = T_{OWT} \left( \frac{T_{OWT} + \gamma - c}{d - \delta} \right) - \left( \frac{d}{d - \delta} Q_D \right) \left( T_{OWT} - \frac{d}{4} Q_D - T_{ORT} \right). \quad (26)$$

However, the first expression on the right-hand side of the equal sign is simply equal to the tariff revenue under the optimal welfare tariff ( $TR_{OWT}$ ). Hence, this equation can be rewritten as:

$$TR_{ANT} = TR_{OWT} + K \left( T_{OWT} - \frac{d}{4} Q_D - T_{ORT} \right). \quad (27)$$

where  $K = -\frac{d}{d-\delta} Q_D$  is always positive (since  $d$  is always negative and  $\delta$  is always positive).

Making use of (21) one more time, the above equation becomes:

$$TR_{ANT} = TR_{OWT} + \frac{Kd}{2} \left( I - \frac{Q_D}{2} \right). \quad (28)$$

Since  $d$  is always negative, tariff revenue under the optimal antidumping tariff is larger than under the optimal welfare tariff if imports are less than one-half of domestic demand. In other words, if foreign imports comprise a small percentage of domestic consumption, tariff revenue under the optimal antidumping tariff will be larger than under the optimal welfare tariff. On the other hand, if foreign imports comprise a large percentage of domestic consumption, tariff revenue under the optimal antidumping tariff will be smaller than under the optimal welfare tariff.

### Conclusions, Limitations, and Future Research

The Continued Dumping and Subsidy Offset Act of 2000 empowers producers and/or processors, who successfully petition the U.S. government to impose antidumping tariffs or countervailing duties, to keep the proceeds of those tariffs. This introduces incentives for producers to lobby the government to impose antidumping or countervailing duties that are higher than would otherwise be optimal from the viewpoint of societal welfare, but can still be lower than prohibitive levels. We have shown that under the CDSOA, it is in producers' best interests to lobby for an "optimal antidumping tariff" that maximizes producer welfare (the sum of producer surplus and tariff revenue). This tariff will always be higher than the optimal welfare tariff (the sum of consumer surplus, producer surplus, and tariff revenue) that maximizes aggregate social welfare in the U.S. It will even be higher than the optimal revenue tariff that would maximize tariff revenue accruing to the government treasury.

We also compared tariff revenue and producer welfare under the optimal antidumping tariff, the optimal revenue tariff, and the optimal welfare tariff. We showed that tariff revenue is always largest under the optimal revenue tariff but that producer welfare is always largest under the optimal antidumping tariff. Tariff revenue under an optimal antidumping tariff may be larger or smaller than under the optimal welfare tariff. If producers successfully lobby for an optimal antidumping tariff under the CDSOA, tariff revenue under the optimal antidumping tariff will be larger than under the optimal welfare tariff (the tariff that is optimal from society's standpoint) in those cases when foreign imports comprise a small percentage of domestic consumption. On the other hand, if foreign imports comprise a large percentage of domestic consumption, tariff revenue under the optimal antidumping tariff will be smaller than under the optimal welfare tariff.

It remains an empirical question as to how the actual tariff levels established as a result of ADCV cases compare to the optimal tariffs derived in this paper. Future research could proceed by estimating the elasticities associated with the products that receive protection under U.S. antidumping and countervailing duty laws and comparing the optimal tariff levels to the actual levels that currently exist. For example, Galloway et al. estimate that the presence of outstanding ADCV orders in the U.S. represents an aggregate net welfare cost (across all cases) of as high as \$3.95 billion in 1993. However, research along these lines is difficult to undertake for a variety of reasons. AD and CV cases generate ad valorem rates that could readily be converted into specific tariffs. However, it may be the case that AD orders can not be accurately modeled as simple ad valorem tariffs. The margins that are determined by the U.S. Department of Commerce (USDOC) are based on calculating the percentage difference between the foreign firm's U.S. price and its domestic price. Furthermore, these duties are often adjusted by the USDOC from year-to-year (Galloway *et al.*, 1999).

The fact that the duties in AD cases can be subject to subsequent adjustment in future years leads to the possibility of various types of strategic behavior on the part of foreign firms. Blonigen (2002) shows that there is a positive significant statistical relationship between the number of antidumping cases facing foreign firms and the instances of foreign direct investment by those firms into the U.S., especially for more developed countries. This form of tariff-jumping is just one strategic reaction by foreign firms facing duties by the U.S. There also exists the possibility of retaliation by foreign firms in the form of countervailing duties (Blonigen and Bown, 2001). Moreover, the foreign firm may raise its U.S. price after an initial antidumping ruling in order to have those duties lowered or removed in subsequent reviews by the USDOC (Galloway *et al.*, 1999). Strategic behavior on the part of foreign firms as reactions to ADCV duties could be incorporated into future analysis.

The estimated cost of litigating ADCV cases in the U.S. ranges from \$250,000 to \$1,000,000. It can be argued that a portion of the tariff revenue collected by litigating producers under the Byrd Amendment is simply used to offset that cost of litigation and that it does not affect the underlying cost structures facing producers. This may be true in instances where risk does not enter into the analysis. However, if risk were to be introduced into the model, the additional tariff revenues may lower the marginal cost of production and effectively shift the supply curve outward, inducing an even further increase in supply.

Finally, Anderson and Schmitt (2003) suggest that the recent proliferation of AD cases may result from a natural progression from the earlier use of tariffs only, to the use of quotas following liberalization and then finally to the use of antidumping laws when quotas have been jointly tariffed. That is, the emergence of antidumping duties may be a result of moving from a non-cooperative regime of setting trade barriers to a more cooperative regime instigated by the more recent rounds of trade negotiations that finally led to the formation of the WTO and that the gradual replacement of trade tools has also been accompanied by a reduction in the number of sectors affected by non-tariff barriers.

As a closing note, President Bush's budget for fiscal year 2004 called for a repeal of the CDSOA. However, in spite of this and the WTO ruling, on February 4, 2003, 67 U.S. senators signed a letter requesting that the President resist the WTO action and maintain the CDSOA. As of May 4, 2004, the CDSOA has still not been repealed.

## Footnotes

1. The authors would like to thank Lynn Kennedy for his comments on an earlier draft of this paper, which was presented at a conference entitled "International Agricultural Trade Disputes: Case Studies in North America" that was held in San Antonio, Texas in March 2003.
2. In addition to the \$190 million already disbursed for 2003, there is an extra \$50 million earmarked for disbursement pending the outcome of a court case that still has not been settled as of March 1, 2004. There were also some negative disbursements for FY2003 which were a result of refunds to importers as a result of reliquidations or court cases (U.S. Department of Homeland Security, 2004).
3. While it is theoretically possible to derive the intercept of the excess demand curve ( $c$ ) and the slope of the excess demand curve ( $d$ ) as a function of the underlying parameters of the domestic supply and demand curves, it would not contribute to the analysis presented here. In fact, it would make it much more difficult to simplify the relationships among various tariff regimes that are derived below.
4. Of course, in cases where the supply curve is inelastic, the intercept is actually negative for a linear supply curve. Therefore, technically, the measure of producer surplus used in this paper should be adjusted by subtracting the area of the triangle bounded by the horizontal axis and the intercept. However, since we are concerned with only comparing the producer surplus across different tariff specifications that yield positive prices, the area below the horizontal axis always cancels out.

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Table 1. CDSOA FY 2001 – 2003 Disbursements for Food Products (1000\$)

Case Number	Case Name	FY2001	FY2002	FY2003	TOTAL
A-475-818	Pasta/Italy	17,533	4,674	1,730	23,938
A-570-848	Crawfish tail meat/China	-	7,469	9,764	17,233
A-549-813	Canned pineapple/Thailand	1,792	531	5,395	7,718
C-475-819	Pasta/Italy	2,480	2,528	379	5,387
A-533-813	Preserved mushrooms/India	171	2,155	1,326	3,652
A-351-605	Frozen concentrated orange juice/Brazil	-	1,175	0	1,176
A-560-802	Preserved mushrooms/Indonesia	83	443	524	1,050
A-570-831	Fresh garlic/China	25	536	342	903
A-337-803	Fresh Atlantic salmon/Chile	-	173	644	817
A-337-804	Preserved mushrooms/Chile	-	-	170	170
A-403-801	Fresh and chilled Atlantic salmon/Norway	46	59	18	123
C-403-802	Fresh and chilled Atlantic salmon/Norway	18	29	7	54
C-507-601	Roasted in-shell pistachios/Iran	-	-	42	42
A-301-602	Fresh cut flowers/Columbia	33	-	-	33
A-570-851	Preserved mushrooms/China	-	20	12	32
A-570-863	Honey/China	-	-	29	29
C-408-046	Sugar/EU	8	17	0	26
C-489-806	Pasta/Turkey	7	9	8	24
A-489-805	Pasta/Turkey	11	4	-	15
A-570-855	Non-frozen apple juice concentrate/China	-	1	6	8
A-507-502	Raw in-shell pistachios/Iran	-	-	5	5
A-357-812	Honey/Argentina	-	-	0	0
C-357-813	Honey/Argentina	-	-	0	0
	Food Total	22,209	19,824	20,402	62,434
	Grand Total	231,202	329,871	190,247	751,320

Source: U.S. Customs Service.

Table 2. CDSOA Disbursements for Crawfish Tail Meat from China, FY2002-2003  
Antidumping Case Number A-570-848 (1000\$)

Claimant	Amount Claimed		Amount Paid		Allocation Share	
	2002	2003	2002	2003	2002	2003
Atchafalaya Crawfish Processors	3,758	5,550	793	1,367	10.6	14.0
Seafood International Distributors	3,347	4,266	707	1,051	9.5	10.8
Catahoula Crawfish	2,937	3,694	620	910	8.3	9.3
Prairie Cajun Wholesale Seafood Dist.	2,449	2,980	517	734	6.9	7.5
Bayou Land Seafood	1,990	2,553	420	629	5.6	6.4
Basin Crawfish Processors	0	2,407	0	593	0.0	6.1
Acadiana Fishermen's Co-Op	1,508	2,366	318	583	4.3	6.0
Crawfish Enterprises, Inc. (CPA)	1,892	1,976	399	487	5.3	5.0
Bonanza Crawfish Farm	1,482	1,867	313	460	4.2	4.7
Riceland Crawfish	1,517	1,669	320	411	4.3	4.2
Cajun Seafood Distributors	1,511	1,651	319	407	4.3	4.2
Randol's Seafood & Resturant (CPA)	1,445	1,419	305	349	4.1	3.6
Choplin Seafood	999	1,127	211	278	2.8	2.8
Carl's Seafood	1,037	1,035	219	255	2.9	2.6
Sylvester's Processors	1,036	1,012	219	249	2.9	2.6
Blanchard Seafood, Inc (CPA)	990	881	209	217	2.8	2.2
Harvey's Seafood	783	823	165	203	2.2	2.1
Louisiana Premium Seafoods	771	609	163	150	2.2	1.5
Schexnider Crawfish	0	555	0	137	0.0	1.4
Phillips Seafood	450	443	95	109	1.3	1.1
C.J.'s Seafood & Purged Crawfish	1,773	324	374	80	5.0	0.8
Arnaudville Seaford	171	185	36	46	0.5	0.5
Teche Valley Seafood	225	183	48	45	0.6	0.5
A&S Crawfish	330	61	70	15	0.9	0.2
Clearwater Crawfish Farm	0	11	0	3	0.0	0.0
L.T. West	1,126	0	238	0	3.2	0.0
Louisiana Seafood	947	0	200	0	2.7	0.0
Bellard's Poultry & Crawfish	502	0	106	0	1.4	0.0
Becnel's Meat & Seafood	324	0	68	0	0.9	0.0
Lawtell Crawfish Processors	80	0	17	0	0.2	0.0
TOTAL for A-570-848	35,380	39,648	7,469	9,764		

Source: U. S. Customs Service

(CPA) indicates member of the Crawfish Processors Alliance.

Figure 1. Optimal Antidumping, Revenue, and Welfare Tariffs

