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The Use of Economics in WTO Appellate Body Decisions

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Abstract

While WTO disputes involve legal rights and obligations, economics often can help the Appellate Body (AB) make sense of the dispute and the implications of ambiguous language in the Agreements. This paper reviews three examples of where the economics could have provided a clearer basis for the AB's decision. I begin by looking at the question of whether countervailing duties can continue to be imposed subsequent to privatization of state-owned enterprises. I next review the question of how antidumping margins are calculated and whether the zeroing methodology is consistent with the fair comparison requirement. Finally, I examine the question of whether the simultaneous application of antidumping and countervailing duties on imports from non-market economies constitutes double remedy. In each of these examples I argue that standard economic theory provides the basis for clear and logic interpretation of the relevant WTO provisions.

Keywords

Non-recurring subsidies; zeroing; double remedy; countervailing duties; antidumping.

1. Introduction[*]

One of the Uruguay Round's more notable achievements was the establishment of the WTO Dispute Settlement Understanding (DSU). When the Uruguay Round negotiations were initiated in 1986 there was a growing consensus that the original GATT dispute settlement system was ineffective (Hudec, 1993). Compliance was a key failing of the old system; GATT contracting countries either blocked or simply ignored the findings of Panels.[1,2]

In this paper, however, I address another frustration with the Appellate Body (AB): namely, the reluctance of the AB to embrace economics in their decision-making. On the one hand, the reluctance is understandable. The WTO Agreements are legal documents and many, if not most, of the disputes AB involve legal interpretation of statutes and provisions. Typically AB members are trained as lawyers. In fact, to my knowledge no AB member has been formally trained as an economist (PhD). Relying on legal analysis is the AB's "comfort" zone. Moreover, to many non-economists, economic theories are obtuse, often arbitrary, and overly theoretical. Some of these criticisms are valid. A lot of advanced economic theory is highly abstract. Applying such theories to WTO disputes would be a fool's errand.

On the other hand, there are many disputes where standard economic and statistical theory would dramatically clarify what is really happening in the market and facilitate the impact of the allegedly inconsistent policies. In most disputes there is simply no need to turn to the latest articles in the *American Economic Review* or *Econometrica*. Rather, referring to undergraduate and master's level textbook would provide strong justification for legal interpretations. My argument is not that economic theory should displace legal analysis and interpretation; rather, why not augment the legal analysis with economic theory? Why is it acceptable to turn to the Oxford dictionary for the definition of "non-recurring" but not acceptable to turn to Paul Samuelson's classic introductory economics textbook to clarify the difference between "sunk" costs and "variable" costs?

In this paper I discuss three examples of where very standard economic analysis would have greatly improved the WTO AB's decisions. I begin by looking at the question of whether countervailing duties can continue to be imposed subsequent to privatization of state-owned enterprises. I next review the question of how antidumping margins are calculated and whether the zeroing methodology is consistent with the fair comparison requirement. Finally, I examine the question of whether the simultaneous application of antidumping and countervailing duties on imports from non-market economies constitutes double remedy. In each of these examples I argue that standard economic theory provides the basis for clear and logic interpretation of the relevant WTO provisions.

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[*] I owe a large debt to all participants in the American Law Institute's annual WTO Case Law research project, especially Henrik Horn and Petros Mavroidis. I would also like to thank Edwin Vermulst and Chad Bown for many useful discussions. The paper additionally benefitted from comments by Niall Meagher, Michele Ruta, and Jasper Wauters. All remaining errors are my own.

[1] The need to produce consensus also affected how Panels constructed their rulings as the three panelists knew that their report had also to be accepted by the losing party in order to be adopted. Accordingly, there was an incentive to rule not solely on the basis of the legal merits of a complaint, but to aim for a "diplomatic" solution by crafting a compromise that would be acceptable to both sides.

[2] This was particularly problematic and embarrassing for high profile trade disputes involving both the United States and the European Communities, e.g., bananas, beef hormones, and even tuna-dolphin. The failure to resolve these prominent disputes undermined the credibility of the GATT dispute process.

2. Non-Recurring Subsidies and Privatization

During the 1980s and 1990s the United States Department of Commerce (USDOC) imposed countervailing duties (CVDs) on a wide variety of steel products imported from many countries around the world. In many of these cases the imposition of these duties were based on a determination that foreign producers had benefited from countervailable subsidy programs that were "non-recurring" (e.g., subsidies to help companies build new capacity, update equipment, etc. but not lower labor or other variable input costs).

Over the years, many of these formerly state-owned enterprises were privatized. The European Community believed that privatization extinguished any effect of the previously granted non-recurring subsidies. After all, the enterprises were privatized and the assets were sold at arm's length and for fair market prices. Any value to subsidies would be reflected in the value of the firm. Consequently, the new owner would have paid for the subsidy in the purchase price and therefore could have benefitted from the subsidy. However, despite the change in ownership the USDOC repeatedly ruled that the benefits of the subsidies traveled to the successor companies and therefore could continue to be countervailed.

The European Community initiated two WTO disputes involving the question of whether privatization extinguishes the benefits from non-recurring subsidies. [3] It must be recognized, however, that the issues is relevant for many countries who embraced privatization over the past several decades (e.g., Brazil, Mexico, India, Canada, etc.).

In both disputes the WTO AB found the US's practice inconsistent with the WTO Agreement. In the first dispute (*Lead and Bismuth Steel*) the WTO AB ruled quite strongly that privatization at arm's length and for fair-market value will always necessarily extinguish the remaining portion of any benefit from a prior non-recurring subsidy paid to a previously existing state-owned enterprise. In the second (and more expansive) privatization-CVD dispute (*Countervailing Measures*) the AB softened its stance a bit and stated that privatization "may result in extinguishing the benefit" and that there is a "rebuttable presumption" that a benefit ceases to exist after such a privatization. In this latter decision, the AB put the burden on the US to show that the effects of the subsidy were not reflected in the market price paid for the assets and that there were continuing benefits. Yet, the AB provided no example of when this might or might not be the case. Frustratingly, the AB shied away from explicitly embracing economics in making what, at its core, is fundamentally an economic question.

2.1 USDOC's approaches to assessing the impact of a change of ownership

In a series of CVD cases USDOC had applied either the "gamma method" or the "same-person method" in assessing the impact of a change of ownership on the continued existence of a benefit from a countervailable subsidy. The European Community challenged the legality of these methods.

Under the gamma method, the USDOC applied an "irrebuttable presumption" that the benefits from a non-recurring subsidy remain in existence for the entire useful life of the assets purchased with benefit of a subsidy. The USDOC did not undertake any inquiry into whether and to what extent a non-recurring subsidy continued to benefit the producers during the useful life of the assets. Rather, when confronted with a change of ownership, the USDOC simply allocated the subsidy benefit between seller and purchaser to match the fraction of the assets that had been transferred.

Under the same-person method, the USDOC conducted a two-step test to assess the continued existence of a benefit from prior subsidization. First, the agency decided whether the post-privatization

[3] *US – Imposition of Countervailing Duties on Certain Hot-Rolled Lead and Bismuth Carbon Steel Products Originating in the United Kingdom* (WT/DS138) and *US –Countervailing Measures Concerning Certain Products from the European Communities* (WT/DS212).

entity is the "same legal person" as that which received the subsidy prior to privatization. To render this assessment, the USDOC considered whether there was a continuity of general business operations, a continuity of production facilities, a continuity of assets and liabilities, and a retention of personnel. If, based on these criteria, the USDOC concluded that the privatization created no new legal person, it automatically concluded that the benefit from the subsidy still exists irrespective of the price paid by the new private owners for the assets of the state-owned enterprise. If the privatization created a new legal person, then the benefits of the original subsidy were considered to have been extinguished.

The AB found the gamma method inconsistent with the Agreement on Subsidies and Countervailing Measures (SCM Agreement) in both the *Lead and Bismuth Steel* and *Countervailing Measures* disputes. The AB also found same-person method inconsistent in the *Countervailing Measures* dispute.

2.2 What does economics have to add to this analysis?

The non-recurring subsidy disputes are perhaps the clearest example of where economic theory could have aided the AB's decision-making. There are two key ideas that the AB never fully flushed out in their analyses. First, in what sense do subsidies which distort variable costs differ from (non-recurring) subsidies which distort fixed costs? Is there a differential impact on market outcomes? Do competing firms suffer injury under both types of subsidies? Second, does the SCM Agreement distinguish between privatization's effect on the new owners and the effect on the market?

Grossman and Mavroidis (2003, 2004) persuasively argue that standard microeconomic theory addresses these questions. Grossman and Mavroidis (2003) discuss the *Lead and Bismuth Steel* dispute and conclude that the AB ruled incorrectly that a change in ownership of assets at fair market value provides per se evidence of an absence of subsidy and argued instead that a better approach was as a 'but for' test for continuing injury from a non-recurring subsidy. According to Grossman and Mavroidis (2003, 2004) the authorities in the importing country should periodically review whether its domestic producers of like products are suffering harm relative to what would be their economic condition but for the prior non-recurring subsidy.

Grossman and Mavroidis (2004) disagree with the AB's finding that a change in ownership at fair-market prices provides a rebuttable presumption that a subsidy no longer exists. Their argument is quite simple and hinges on a clear understanding of the economic concept of a sunk cost. Standard microeconomic theory states that the price at which a profit-maximizing enterprise acquires an asset will <u>not</u> affect its subsequent production and pricing decisions.
Grossman and Mavroidis (2004) give an example to highlight their argument. Suppose an art dealer misjudges the public appeal of a painting and pays US$1000. The dealer may seek to recoup a market return on his investment, but if collectors are willing to pay only US$500 for the painting, the dealer would be well advised to sell at that price.

By comparison, consider another dealer who acquires a similar painting for US$100. If this second dealer is a profit maximizer, he will not sell the painting for US$120 and be satisfied a "fair-market" return on his investment. Instead, he will hold out for the full US$500 that collectors are willing to pay. As Grossman and Mavroidis correctly point out, the dealer who acquires an asset for US$1000 and the other who acquires one for US$100 – if they are both profit maximizers – will indeed follow similar pricing strategies. Once the dealers have purchased the paintings, the amount they paid for the assets become <u>sunk</u> costs and as such have no bearing on subsequent, profit-maximizing behavior.

Grossman and Mavroidis extend the example to a firm that acquires assets in a privatization of a state-owned enterprise. This firm will maximize profits by producing up the point where the marginal revenue from the last unit of output is just equal to the marginal cost. Assuming the marginal cost of

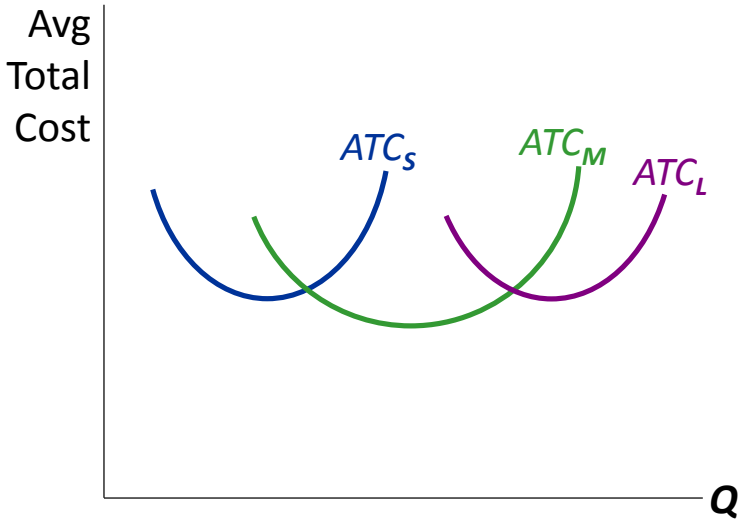
production is not affected by the price paid for machinery and equipment, the profit-maximizing behavior will not be affected by the price paid for those assets.[4]

Grossman and Mavroidis then point out, however, that the firms competing with privatized firm will likely be affected by privatized firm's output. For example, if the non-recurring subsidy caused the plant capacity to be, say, 10 million tons/year rather than, say, 3 million tons/year, the market price will likely be affected. Even if the privatized firm only finds it optimal to operate at 6 million tons/year (i.e., the arm's length market price will not value the extra 4 million tons/year of capacity) the market supply will be greater than if the non-recurring subsidy had never been offered (which I assume would mean the plant would only be producing 3 million tons/year). Thus, Grossman and Mavroidis argue that the authorities must examine the actual market situation on a case-by-case basis to determine the extent of injury.

In product markets that are highly competitive, it is unlikely the non-recurring subsidy will affect the total quantity supplied in the market and this makes it more likely there are no lingering effects of the subsidy post-privatization. In this case, the question is whether the extra volume (due to the newly privatized firm) is absorbed by other foreign producers or by domestic producers. On the other hand, in less competitive product markets the non-recurring subsidy may well induce more total quantity supplied and therefore injury is more likely to be experienced.

I note that Grossman and Mavroidis' argument is quite general. In many cases, in fact, the non-recurring subsidy will imply lower costs (and hence lower prices) for the enterprise. This would induce the enterprise to sell more product due to lower costs. In Figure 1 I depict a standard diagram of a firm's capacity decision. In this figure the firm can choose a plant of three different sizes: small, medium, and large. Without the non-recurring subsidy the firm might opt for a plant of size "S". With the subsidy, however, the firm might opt to choose a plant of size "M". As a result, the subsidized firm would have lower per-unit costs (the bottom of the "U" shaped average cost curve is lower with curve "M" than with curve "S"). This would imply there is an additional avenue for injury to the competing domestic industry.

Figure 1 – Example of Impact of Sunk Costs



[4] As I discuss below, even if marginal cost is affected, the impact will work in the direction of injuring the competing domestic industry.

2.3 Concluding Comments on Non-recurring Subsidies

The AB tends to be very textual in its decisions, often citing dictionary definitions when parsing what a particular phrase or clause might mean for the specific case. By comparison, the AB is extremely hesitant to refer to even basic economic theory when assessing the validity of parties' claims and assertions. In the non-recurring subsidies disputes, the reluctance to use economics to clarify the difference between subsidies to sunk costs and subsidies to variable costs significantly contributed to a muddled, arguably incorrect, AB decision.

3. Zeroing

Over the past 15 years the WTO AB has heard more than twenty disputes involving zeroing and each time has found that the practice violates the WTO Antidumping Agreement (ADA).[5] This section provides a positive analysis seeking to provide some perspective on the zeroing issue. What exactly is zeroing? What does economics say about the legitimacy of zeroing? Is the AB's position consistent with economic theory?

3.1 What is Zeroing?

If a company exports a product at a price lower than the price it normally charges in its own home market, it is said to be "dumping" the product. If in addition the dumped imports are found to be causing, or threatening to cause, material injury to the competing domestic industry the WTO ADA allows governments to take action against dumping. The ADA contains rules that define how antidumping (AD) remedies should be implemented.[6] Of particular relevance for this discussion, the ADA states that the antidumping duty (ADD) can be no greater than the calculated dumping margin. In simplest terms a dumping margin of, say, 5%, means that on average the export price is 5% lower than the average home market price. The size of the dumping margin is therefore crucial, determining both if there is a right to levy the duty and also the size of the duty.

In the process of computing the ADD a government must aggregate the results of comparisons between the normal value and export prices. Hundreds or even thousands of individual transactions are aggregated to produce a single ADD. The ADA provides rules for how such calculations should be done. Zeroing refers to one particular step in the calculation. Zeroing is the practice of replacing the actual amount of dumping that yield negative dumping margins (i.e., export transactions for which the export price exceeds the calculated normal value) with a value of zero prior to the final calculation of a weighted average margin of dumping for the product under investigation with respect to the exporters under investigation. Because the zeroing method drops transactions that have negative margins, it has the effect of increasing the overall dumping margins.[7]

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5 An incomplete list of disputes involving zeroing includes *US-Shrimp (Viet Nam)* (WT/DS404/AB/R), *US-Use of Zeroing (Korea)* (WT/DS402/AB/R), *US-Stainless Steel (Mexico), Article 21.5* (WT/DS344/AB/R), *US-Carrier Bags (Thailand)* (WT/DS383/AB/R), *US-Orange Juice (Brazil)* (WT/DS382/AB/R), *US-Zeroing (Japan), Article 21.5* (WT/DS322/AB/R), *US-Zeroing (EC), Article 21.5* (WT/DS294/AB/R), *US-Continued Zeroing (EC)* (WT/DS350/AB/R), *US-Shrimp (Thailand)* (WT/DS343/AB/R), *US-Stainless Steel (Mexico)* (WT/DS344/AB/R), *US-Shrimp AD Measure (Ecuador)* (WT/DS335/AB/R), *US-Zeroing (Japan)* (WT/DS322/AB/R), *US-Softwood Lumber AD Final (Canada), Article 21.5* (WT/DS264/AB/R), *US-Zeroing (EC)* (WT/DS294/AB/R), *US-Softwood Lumber AD Final (Canada)* (WT/DS264/AB/R), *US-Corrosion-Resistant Steel Sunset Review (Japan)* (WT/DS244/AB/R), *EC-Pipe Fittings (Brazil)* (WT/DS219/AB/R), and *EC-Bed Linen (India)* (WT/DS141/AB/R).

6 Blonigen and Prusa (2003) provide a survey of the economic research literature on antidumping.

7 There are two zeroing methods, simple and model. For purposes of this paper, the discussion focuses only on simple zeroing. Readers interested in details of both methods should consult Prusa and Vermulst (2009).

In practice zeroing is much easier to understand than the formal definition suggests. In Table 1 I present an example of a foreign firm's home and export sales in a given month.[8] I assume that the data in Table 1 represent net prices for separate transactions on a series of dates in the month of September.[9] To keep the example as simple as possible I will assume that each transaction is for the same volume, i.e., one unit. Governments compute dumping margins on a weighted average basis, but for the purposes of this example, the introduction of different quantities on different dates just serves to complicate the computations.

As seen, prices vary from transaction to transaction in both markets. As is often the case in the real world, on some dates the export price is below the home market price, on others the export price is above the home market price and occasionally, the same price is charged in both the markets.
Under ADA rules a government can calculate the difference in price on a transaction-by-transaction basis and then compute the weighted average of these price differences, i.e., the individual export transactions are compared with the individual domestic transactions made at or at about the same date as the export transactions concerned.[10]

In column (4) of Table 1 I compute the difference for each comparable transaction. Accordingly, for some comparisons the difference is positive (which means dumping) and for other comparisons it is negative. When I sum the weighted price differences I find that for all comparable transactions the cumulative difference is zero. Said differently, the dumping amount (35) for the two transactions with positive dumping is exactly equal to the amount (-35) for the five transactions with negative dumping. In this example, as long as the dumped and the non-dumped export transactions are allowed to offset each other, the conclusion using the transaction-to-transaction method will be that there is zero dumping.

As clean and simple as the above calculations are, the US has had a long practice of not computing the margins as described. Instead, in the process of the transaction-to-transaction comparisons the US employs the practice of zeroing. In this example, and in fact in most "real world" cases, the use of zeroing leads to dramatically different margins. To see this, in column (5) of Table 1 I have computed the difference for each comparable transaction using zeroing. Each of the five negative margins is set to zero. In this example, the amount of dumping is 35, which implies a dumping margin of 3.9% (35 divided by the total export value of 900 = 0.039).[11]

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8 Example is drawn from Prusa and Vermulst (2009).

9 Net prices are the exporter's prices following a series of adjustments. For example all expenses incurred to promote, sell, store, and transport the products are deducted from both export price and domestic price. In addition, various other adjustments, such as level of trade and accounting for physical differences are made.

10 There are three common methods for calculating dumping margins: (i) a weighted average-to-weighted average comparison, (ii) a transaction-to-transaction basis, and (iii) a weighted average-to-transaction comparison. Zeroing has been used in all methods. For simplicity, I will discuss zeroing in the context of the transaction-to-transaction approach. Prusa and Vermulst (2009) discuss all three methods.

11 I note that this approach as adopted by the US does however include all comparable transactions in the denominator (even though it zeroes many transactions in the numerator).

Table 1 – An Example of Zeroing

(1) Sales date	(2) Export transaction	(3) Home Mkt transaction	(4) Difference: No Zeroing	(5) Difference: Zeroing
2-Sep	75	90	15	15
4-Sep	75	95	20	20
8-Sep	95	95	0	0
10-Sep	100	95	-5	0
12-Sep	105	95	-10	0
16-Sep	105	105	0	0
18-Sep	110	105	-5	0
20-Sep	115	110	-5	0
24-Sep	120	110	-10	0
Wtd Avg. Price	100	100		
Dumping Value			0	35
Dumping Margin			0.0%	3.9%

Four important insights are gleaned from this example. First, zeroing can never lower the margin. Zeroing only drops negative margins. Second, zeroing treats some foreign prices as if they were something different than they actually were. On both September 12th and 16th the foreign firm charged $105 but a government using zeroing could treat the September 12th price as if it were just $95. Third, zeroing is driven by price variation over the sample period. If the foreign firm charged exactly the same price for all transactions then zeroing would not matter.[12] Fourth, zeroing can be the difference between no dumping (or a *de minimis* margin) and a positive dumping margin; i.e., whether an antidumping duty is applied at all.

I elaborate on the last two insights in Figure 2 and Figure 3. In Figure 2 I provide examples of hypothetical pricing data where zeroing does <u>not</u> change the ADD. In the figure I provide two different pricing scenarios over a 12 month period. In both cases I assume the foreign firm's home market price is constant at $100.[13] In Scenario A (dashed line, square markers) I consider a case when the foreign firm always charges an export price higher than $100. There is month-to-month variation but there is no dumping in any month. In Scenario B (dash-dot line, triangle markers) I depict the polar opposite situation. In this case the foreign firm always charges a lower export price than the comparable home market price. In this case the month-to-month pricing variation does not generate any potential offsetting margins.

[12] This statement can be generalized to account for "model" zeroing zeroing (Prusa and Vermulst, 2009).

[13] Alternatively, $100 could be the average home market price over the period.

Figure 2 – Examples of Export Pricing When Zeroing Does Not Change Dumping Margin

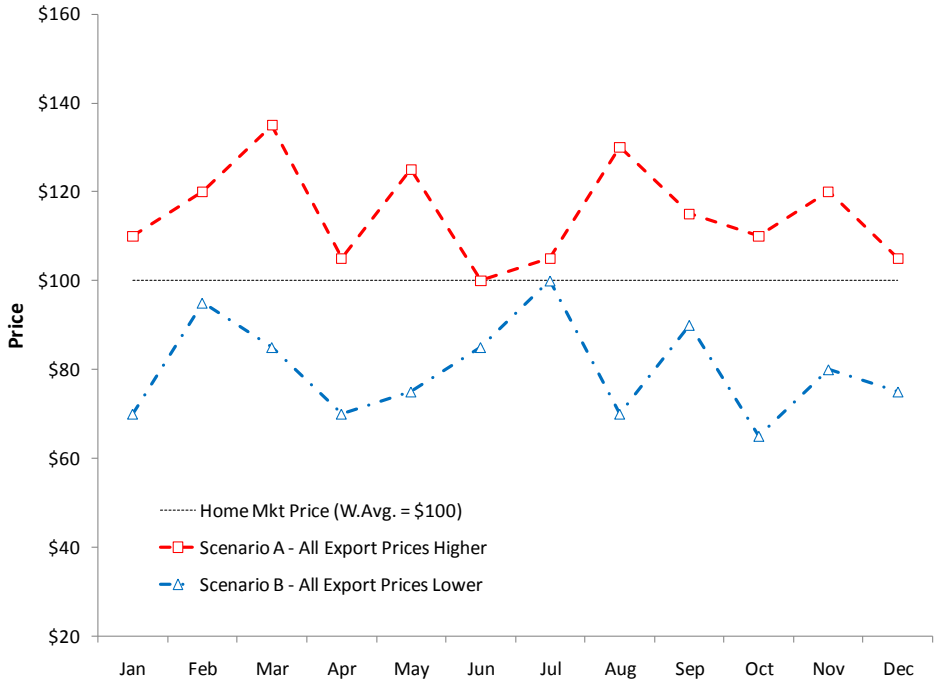
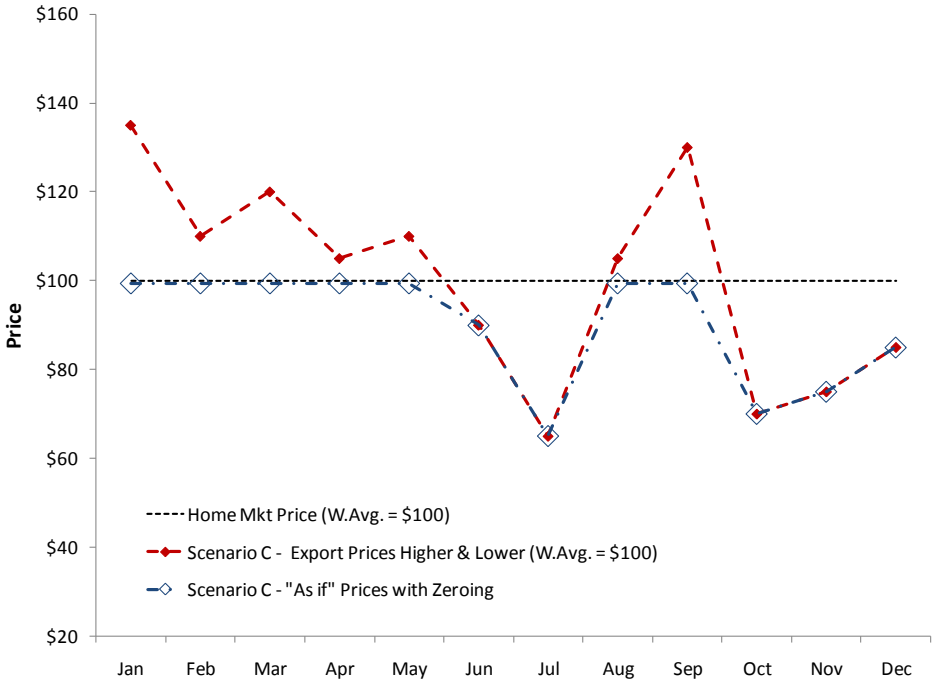


Figure 3 depicts the more typical situation. I again assume the foreign firm's home market price is constant at $100. I now assume that in some months the foreign firm's export price is above $100 and in other months below $100. The firm's actual export prices are depicted by the dashed line and solid diamond markets.[14] With zeroing the government treats the foreign firm's prices as if they instead looked like dashed-dotted line with hollow diamond markers. In January, for example, a government practicing zeroing would act as if the foreign firm's price were $100 instead of $135.

[14] As with the example given in Table 1, without zeroing the actual export prices in Figure 3 would generate no dumping margin.

Figure 3 – Example of Export Pricing When Zeroing Alters Dumping Margin



As these examples show, zeroing makes it extremely difficult for a firm to avoid dumping. In January through May the foreign firm was making pricing decisions with no knowledge that those prices would be treated as something far different by the investigating foreign government. Unless a firm's export prices are always high or low (relative to some home market benchmark) zeroing combined with price variation will generate dumping margins. Moreover, the reasons for the price variation – seasonality, exchange rates, variations in freight costs over time, etc. – are irrelevant. In some cases, the product could be sold pursuant to a long-term contract which might mean no price variation and hence zeroing might not matter. In other cases, the product could be sold on a spot basis which could mean heightened price variation.

3.2 The WTO's Long History with Zeroing

As discussed in Prusa and Vermulst (2009, 2011) and over the past 15 years more than 20 disputes have involved zeroing. According to Bown and Prusa (2011) zeroing has been the subject of more than almost 20% of all WTO AB reports and they conjecture that the WTO Appellate Body has likely devoted more time to zeroing than any other single issue in the WTO.

The first zeroing case was initiated by India in 1998 against the European Community (*EC – Bed Linen*). [15] All but one of the remaining cases has involved the US as respondent. The European Community (EC) changed its antidumping procedures after losing at the WTO and no longer "zeros." The US, by contrast, long delayed bringing its AD statute into compliance. In fact, a number of WTO AB cases involving the US' zeroing practice remain unresolved.

The Panel and AB have a long and somewhat tortured history with zeroing. First, there has been some tension between the Panels and the AB. At least twice the Panels have sent mixed messages about zeroing. In two cases, *US - Stainless Steel (Mexico)* and *US - Zeroing (Japan)*, the Panel ruled

[15] Janow and Staiger (2003) and Grossman and Sykes (2006) provide an analysis of a variety of legal-economic issues associated with the first zeroing dispute of *EC – Bed Linen*. See also Crowley and Howse (2010) which examines the zeroing issues in *US – Stainless Steel (Mexico)*.

that zeroing in original investigations was inconsistent but zeroing in review proceedings was consistent.[16] The Panels' rationale hinged on their reading of Article 2.4.2 of the AD Agreement which states that

> the existence of margins of dumping *during the investigation phase* shall normally be established on the basis of a comparison of a weighted average normal value with a weighted average of prices of all comparable export transactions or by a comparison of normal value and export prices on a transaction-to-transaction basis. A normal value established on a weighted average basis may be compared to prices of individual export transactions if the authorities find a pattern of export prices which differ significantly among different purchasers, regions or time periods, and if an explanation is provided as to why such differences cannot be taken into account appropriately by the use of a weighted average-to-weighted average or transaction-to-transaction comparison. (*emphasis added*)

The Panels agreed with the US' contention that the phrase "during the investigation phase" limits the applicability to the original investigation not to any type of review proceeding. However, in both cases the AB overturned the Panel and found that zeroing was inconsistent in both original investigations and reviews.[17]

Second, the nature of the WTO's jurisprudence has likely contributed to the number of disputes. The practice of the Panels and AB has typically been to craft very narrow determinations in the attempt to reduce accusations of "judicial activism" and thus not limit infringement on member countries' sovereign rights. As a result, important issues are often left unaddressed for "judicial economy" which opens the door for the respondent country to limit the applicability of a ruling. What the AB intended their decision to mean is often unclear until essentially the same issue is brought to the WTO DSU again (and again!). With respect to zeroing, the judicial economy exercised by the AB in the initial cases meant that many issues (i.e., alternative methods of zeroing, appropriate use during different stages in a case) were not discussed. This allowed the US to interpret the early rulings very narrowly and resulted in more cases being filed (Bown and Sykes, 2008).

Any ambiguity stemming from the AB's piecemeal approach to decision-making should now be resolved in light of the recent decisions against zeroing. The first few cases challenging zeroing made claims just against the use of zeroing in original investigations as applied in specific cases. However, more recent cases – *US - Continued Zeroing (EC)*, *US - Zeroing (Japan)*, and *US - Zeroing (EC)* – the complainants made very expansive claims against the practice. The WTO AB's decisions now imply that the practice of zeroing is inconsistent except under exceptional circumstances.

3.3 The Impact of Zeroing on Margins and Duties

Bown and Prusa (2011) review academic studies and the numerous WTO AB reports in order to get an accurate measure of the impact of zeroing on margins. In the large majority of the cases for which data is available to allow the computation of the counterfactual "what if there were no zeroing" they find the AD margin was entirely driven by zeroing. That is, without zeroing there would have been no margin. Overall, they report the average the impact of zeroing is to increase the dumping margin by 12.3 percentage points.

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[16] Adding more confusion, in *US - Continued Zeroing (EC)* the Panel stated their sympathy with the US position but determined zeroing inconsistent only because of prior AB rulings.

[17] The WTO AB has repeatedly determined that allowing zeroing in reviews but not in original investigations would lead to unequal treatment between prospective and retrospective duty systems. In the prospective system (used by most WTO members) the dumping margin is established on the basis of the original investigation. In the retrospective system used by the US the dumping margin calculated in the initial investigation only establishes the deposit rate. The actual dumping margin is established during an administrative review. If the US's position held, then a country with a retrospective system would be able to zero but a country with a prospective system (like the EC) would not.

3.4 Using Economics to Assess Whether the AB Got Zeroing Right

The US' position relies heavily on three facts. First, the ADA does not explicitly prohibit zeroing. According to the US, a dumping margin based on a price comparison with zeroing can be considered "fair comparison." Second, zeroing is a calculation method that the US has long used. Therefore, the fact that zeroing was not explicitly prohibited in the Uruguay Round's ADA must mean that zeroing was tacitly considered consistent. Third, Article 2.4.2 of the ADA refers only to the calculation of margins "during the investigation phase". Therefore according to the US even if the AB found zeroing to be prohibited in the original investigations it was not possible to extend that prohibition to the review proceedings.

Prusa and Vermulst (2009) argue that indeed there is some ambiguity if the AB were to restrict itself to solely a language analysis. What exactly is the temporal limitation on the scope of Article 2.4.2? This is a question that neither the Panels nor the AB have ever adequately clarified in the many zeroing reports.

Prusa and Vermulst (2009) argue that economic analysis clearly implies that zeroing does not satisfy the "fair comparison" test. They argue that at a fundamental level, the economic problem of zeroing is that it conflicts with well-established econometric methods for producing unbiased estimates. Without a redrafting of the language governing the scope of the analysis, the claim that zeroing produces an unbiased comparison seems dubious and perhaps downright disingenuous.

Econometricians have spent decades thinking carefully about bias and consistency in data analysis. They obsessively worry about the accuracy of inference because of outliers. At some level, the justification for zeroing is the need to properly account for outliers. Advocates of zeroing argue that (1) it is the low-price transactions that really cause the injury and (2) in order to accurately capture the impact of the low-price transactions one has to discard the high-price transactions. But such an approach violates basic econometric principles.

By analogy, suppose one is trying to determine if women earn lower wages than comparable men. To answer this question, one might collect data on a large set of men and women, and then match them up according to known characteristics (age, type of job, tenure, highest education level, etc.) Then, after adjusting for these factors to create comparable men and women, one might compare the wages for each matched pair—or more likely compare the weighted average difference in wages. Whatever the precise statistical approach taken, ordinary least squares, quantile regression, Tobit, etc., the econometrician would include all observations.

In the context of this example, zeroing would imply that the econometrician discard all observations where a woman received a higher wage than her comparable man; then, after dropping these observations, the econometrician would rerun the statistical analysis with only matched pairs that involved the woman making the same or less wage than her comparable man. It would come as no surprise that such an approach would indeed show that women make less than men. Whether one normalized the implied wage differences by the total sample size or by only those in the reduced sample would hardly matter to the core issue—the validity of the inference. Further, even including all matched pairs in the normalization step (whereby the econometrician computes the percentage wage difference) would not justify dropping a set of observations because the guiding principle for dropping the matched pair is intimately related to the question that the econometrician is trying to answer.

Any person doing such a "data mining" procedure would be subject to severe professional ridicule, and the results would be ignored as biased. The same conclusion must apply to the method of zeroing. A method that can only serve to raise margins and can never lower a margin seemingly has a clear motive—to generate margins so duties can be imposed on exporters. Zeroing can render a large number of actual export transaction prices moot for they are treated as if they were made at lower prices than they actually were. Given that the objective of the accounting exercise is to ascertain

whether the exporter has sold at an unfair low price, zeroing has the effect of lowering the exporter's measured price.

The notion that, without zeroing, authorities cannot adequately assess the impact of certain low-priced transactions is false. Econometricians have developed a large body of work precisely to measure accurately the impact of outliers on the statistic of interest. None of these methods truncate or "throw away" just positive outliers.

3.5 Concluding Comments on Zeroing

The long-running zeroing controversy highlights many of the current frustrations with the WTO dispute system. The WTO struggled mightily to resolve the zeroing issue, eerily reminiscent of the enforcement problems that plagued the GATT dispute system. From the time it was known that the AB had deemed zeroing to be inconsistent, it took the United States more than a decade to bring its practice into compliance. The US' strong resistance to changing its policy and the inability for complainants to impose effective retaliation certainly contributed to the length of the controversy. But, part of the problem surely also lies with the AB's inability to clearly delineate why zeroing was incompatible with the notion of fair comparison. Had the AB incorporate economic theory and standard econometric practice in its decisions the earliest zeroing reports it would have more definitively explained why zeroing is WTO inconsistent and likely lead to a quicker resolution of the issue.

4. Double Remedy

In March 2007 US Department of Commerce (USDOC) reversed its long-standing policy subsidies to producers in a non-market economy (NME) country were not countervailable within the meaning of the countervailing duty statute evolved NMEs such as China and Viet Nam. Since the policy change the USDOC still treats both of these countries as NMEs for anti-dumping (AD) purposes but it also identifies, measures and countervails subsidies. In the last few years the US has imposed simultaneous anti-dumping duties (ADDs) and countervailing duties (CVDs) in more than 20 cases, all but one involving China.

In *United States – Definitive Anti-dumping and Countervailing Duties on Certain Products from China*[18] China challenged the US' new policy and claimed the US was ignoring its obligations under the Agreement on Subsidies and Countervailing Measures (SCM Agreement). An important claim in the dispute involved "double remedies," sometimes referred to as "double counting." In this claim China argued that in various investigations the application of both ADDs and CVDs on the same products from China created a situation where the same instance(s) of subsidization was offset twice.

The US made a two-fold rebuttal. First, the WTO distinguishes between export subsidies – where double remedies are presumed and where offsets are provided by the US (in either market or non-market economy situations) – and domestic subsidies, where no such analysis is required. In other words, the US argued there was no legal basis for a double remedies claim. Second, even if there were a basis for a claim no evidence existed that such double remedies in fact were occurring.

The WTO AB found that Article 19.3 of the SCM Agreement did contain a requirement to <u>not</u> impose double remedies. However, in a missed opportunity the AB failed to recognize that the *economic rationale* for banning simultaneous AD and CVD for an export subsidy applies equally well to domestic subsidies when the US' NME methodology is used to compute normal value. The AB

[18] *United States – Definitive Anti-dumping and Countervailing Duties on Certain Products from China.* Panel Report, WT/DS379/R (adopted March 25, 2011), modified by Appellate Body Report, WT/DS379/AB/R (adopted March 25, 2011) [hereinafter *US–AD and CVD (China)*].

only concluded that double remedies are "likely" to occur and refrained from putting "likely" into context. I now review how a careful use of economics applied to the specific cases and methods underlying this dispute (i.e., issues specific to the US' methods) would have allowed the AB to make a more properly reasoned decision.

4.1 Simultaneous Use of Antidumping and Countervailing Duty

4.1.1 Price Effects of export and domestic subsidies

The fact that simultaneous imposition of ADD and CVD may lead to double remedies has been recognized by the GATT signatories from the outset. Article VI:5 GATT provides that "no product…shall be subject to both anti-dumping and countervailing duties to compensate for the same situation of dumping or export subsidization." The fact that Article VI:5 GATT notes the impermissibility of double remedies in the context of export subsidies but not domestic subsidies was a key element of the US' legal argument.

The following two examples clarify why the GATT distinguishes between export and domestic subsidies. First, consider an example where a producer receives an export subsidy of US$5/unit; she sells in her domestic market at US$100 and for export at US$95; the effect of the export subsidy is to lower the export price by US$5. Article VI:5 implies that the investigating authorities could either impose an ADD of US$5 or a CVD of US$5; however, it could not impose both because that would amount to double remedies.

One can criticize Article VI:5 on the grounds that it abstracts from what the recipient of the subsidy actually does with the money and/or, more generally, that it ignores the fungibility of money. More formally, Article VI:5 embodies two very specific assumptions about the pass-through of the export subsidy: (i) the export subsidy is completely passed-through to the export price and (ii) none of the export subsidy is passed-through to the home market price. Despite the questionable empirical validity of the pass-through assumptions, the explicit link between the act of exporting and the receipt of an export subsidy appears to be the basis for limiting the scope of Article VI:5 to export subsidies.

Now contrast this example with the following which involves a countervailable domestic subsidy of US$7. Suppose investigating authorities observe a domestic market price of US$93 and an export price of US$89. In addition, suppose investigating authorities (could) determine that without the domestic subsidy the domestic market price would have been US$100 and the export price would have been US$96. Under these circumstances, the proper trade remedy would involve both an ADD of US$4, which would eliminate the price differential, and a CVD of US$7, which would restore the prices to what they would be without the domestic subsidies. Like the previous example, this example embodies very specific (and again perhaps empirically invalid) assumptions about pass-through of the subsidy; notably, the domestic subsidy is assumed to symmetrically and completely pass-through to both the export price and the home market price.[19]

These examples make it clear that the economic logic behind Article VI:5 GATT hinges on the pass-through effects of domestic and export subsidies being different. One type of subsidy (export subsidy) is presumed to affect the export price (after all, it is contingent on export) and have little impact on the normal value while the other type of subsidy (domestic subsidy) is believed to affect the export price and normal value comparably.

[19] The US' CVD statute requires the USDOC to treat the entire subsidy as a benefit, even if it is not fully passed-through to the prices. Said differently, US CVD rules assume complete pass-through of the subsidy and do not require the USDOC to measure pass-through in a typical CVD investigation.

4.1.2 Pass-Through

In practice, however, the economic effects of export and domestic subsidies are likely to be far murkier. Export subsidies may well affect home market prices. Similarly, it is not hard to imagine a situation where, for example, a domestic subsidy has a large effect on the home market price but a small impact on the export price. An enormous economics literature has examined pass-through both theoretically and empirically over the past two decades and there is overwhelming evidence that pass-through is neither complete nor symmetric.[20] Even weak forms of the "law of one price," which follows from an assumption of symmetric pass-through, are rejected in empirical study after empirical study.[21] Economists have repeatedly found that pass-through will not typically be symmetric across destination markets. The robust empirical finding is that a cost shock will result in a price change of *x*% to one market but of *y*% to another market. Market structure, technology, upstream and downstream cost conditions, market share, the nature and duration of cost shocks and product differentiation have all been found to affect pass-through.

4.2 Pass Through and the Double Remedy

It appears that the AB failed to appreciate that specific provisions in US statutes imply the calculated pass-through will be essentially the same as the pass-through assumed in Article VI:5 GATT. Specifically, the US' methods result in a *domestic* subsidy having price pass-through effects similar to that which Article VI:5 GATT implicitly assumes occurs with an *export* subsidy. US AD NME methods entirely eliminate the impact of domestic distortions (including any subsidization) on the normal value side; hence subsidies can only pass-through to the export price. Therefore, double remedies will definitely occur under US procedures.[22]

If the AB had recognized and embraced this economic logic, it could have narrowly crafted its report by using the underlying logic of Article VI:5 GATT in support of a finding that the simultaneous use of AD and CVD under US methods is always inconsistent under the NME method. This strong but narrow approach would have allowed the AB to make a definitive statement about double remedies but to limit the scope of the determination to just the US NME methodology.
On the other hand, the AB seemed to recognize that, in general, double remedies and pass-through are fundamentally empirical questions. The empirical literature has shown that pass-through is rarely 100% and rarely 0%. How much of a domestic subsidy passes-through to the home market price and how much passes-through to the export price is something an investigating authority should measure and then make adjustments for. I believe this latter interpretation is the most logical way to interpret the AB's decision and explanation.

4.3 Pass Through and the Methods for Calculating Normal Value

4.3.1 Methods for Calculating Normal Value

The pass-through issue is complicated by the fact that the ADA provides for four alternative methods for calculating the normal value in a dumping determination, the home market method, the constructed value method, the third market method, and the NME method. Pass-through of a domestic subsidy may vary depending on the method used. Moreover, at the time when a firm sets its prices it does not

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[20] *See* Froot and Klemperer (1989); Knetter (1993, 1994); Goldberg and Knetter (1997); McCorriston, Morgan and Rayner (1998); Karp and Perloff (1989); McCorriston, Morgan and Rayner (2001); Campa and Goldberg (2005).

[21] *See* Rogoff (1996); Froot, Kim and Rogoff (2001).

[22] At the time of this WTO proceeding, US statutes prohibited the USDOC from making any adjustments to its calculated CVD to account for pass-through issues. Whether the statutory changes enacted subsequent to this case are sufficient to satisfy the WTO AB will likely be the subject of future WTO disputes.

know what method would be used if it were to later find itself subject to an anti-dumping investigation. This uncertainty further dims the prospect of empirically observing symmetric pass-through.

In broad terms, the dumping margin is calculated as

$$ADD \quad = \quad P_{normal\_value} - P_{exp}^{US}(C_{Home}(s), s)$$

where home market costs are denoted as C_{Home} and the subsidy is denoted s. The computation of P_{normal_value} varies by the specific method used. That is,

$$\begin{aligned}
ADD &= P_{Home}(C_{Home}(s), s) - P_{exp}^{US}(C_{Home}(s), s) && \text{if home market method} \\
ADD &= P_{Home}^{CV}(C_{Home}(s), s) - P_{exp}^{US}(C_{Home}(s), s) && \text{if constructed value method} \\
ADD &= P_{exp}^{3rd_mkt}(C_{Home}(s), s) - P_{exp}^{US}(C_{Home}(s), s) && \text{if third country method} \\
ADD &= P_{Home}^{CV}\left(C_{surrogate}\right) - P_{exp}^{US}(C_{Home}(s), s) && \text{if NME method}
\end{aligned}$$

The domestic subsidy may take the form of direct cash support by the government or subsidized loan terms. The subsidy can also affect the costs of production, say by offering the firm(s) lower electricity rates, lower input costs, etc. This latter type of subsidy is referred to as the provision of goods or services at less than adequate remuneration (LTAR).

Under the home market method for determining normal value an investigating authority would compare the home market price (P_{Home}) with the export price (P_{exp}^{US}). The examples in the preceding subsection were based on this method. Economic theory implies that both prices depend on the costs and therefore both prices should experience some pass-through of the subsidy.

Under the US' constructed value approach the normal value home market price (P_{Home}^{CV}) is calculated using a cost-plus approach. The USDOC first determines how much of each factor of production is needed to produce the good and then values each input using information on prices in the home market. For example, if a case involved a product from Japan, the US would use Japanese home market prices for labor, the raw materials needed to produce the product, electricity, etc., of the producer concerned when constructing the cost of the product. In addition, the USDOC will add a markup for selling, general, and administrative expenses and profits. However, the constructed value method will not necessarily fully purge the subsidy distortion from either the normal value or the export prices because home market costs can be affected by the domestic subsidy which in turn can affect both prices. Moreover, I expect asymmetric pass-through with the constructed value approach. The reasoning is that the pass-through of the subsidy to the normal value is via a fixed-coefficient function which imposes a specific relationship between the subsidized inputs and the price. The pass-through to the normal value will not depend on other factors that economic theory tells us affects pass-through (e.g., the elasticity of demand). By contrast, pass-through of the subsidy to the export price will depend on pass-through elasticity which depends on many factors such as market structure, the firm's share in the export market, technology, etc. I would not expect two such very different approaches to produce the same pass-through elasticity.

Under the third country method the export price of the like product to an appropriate third country is used for the normal value. As with the home market method, standard microeconomic theory predicts that both prices – the export price to the third country ($P_{exp}^{3rd\_mkt}$) and to the complaining market (P_{exp}^{US}) – will be affected by pass-through of the domestic subsidy via distorted input costs and/or direct subsidization.

The non-market economy method is the final approach. The ADA gives importing countries significant discretion in the calculation of normal value of products exported from NMEs. As with the constructed value method, the USDOC gathers information on the company's "factors of production" – the physical quantities of all the inputs used in producing the merchandise. However, in the NME method the USDOC values those inputs on the basis of prices in a *surrogate* country. The normal

value ($P_{Home}^{CV,surrogate}$) is therefore a cost-based normal value derived from company-specific factors of production combined with *surrogate country prices* of those factors. At least in the US, surrogate countries are market economies judged to be at a level of economic development similar to that of the NME country in question.[23] The USDOC only chooses surrogate costs which are deemed to be fairly traded. Thus, under the US' NME procedures a non-market economy's domestic subsidization program should have no effect on the constructed normal value. However, I acknowledge that subtle nuances in the precise constructed costs and specific input pricing data might mean the NME constructed value is not fully neutered of the domestic subsidies. Even so, there can be no doubt that the US approach results in a considerably muted (if any) impact of the subsidies on the normal value. By contrast, NME's domestic subsidization programs will have a more direct effect on the export price (P_{exp}^{US}) via distorted input costs and direct subsidization.

4.3.2 Pass-Through and Normal Value

The double remedies problem hinges on whether the impact of a domestic subsidy (which is being offset by a CVD) is also partially or fully captured by the ADD. For the home market and third country methods if the subsidized firm passes through the subsidy symmetrically to all measured prices, then double counting will not occur and the imposition of concurrent AD and CVD duties will not offset the subsidization twice. For these methods, double remedies do not depend on full pass-through but symmetric pass-through.

This, however, is not the case for AD margins using the NME method. The USDOC's NME approach means the main avenue, and in all likelihood the only avenue, for the subsidy to influence the dumping margin is the export price. Therefore, double remedies are inevitable to some extent unless a given export subsidy has had zero impact on the export price – any difference between the NME normal value and the export price is already corrected by the ADD, at least to the extent that there has been pass through to the export price. The objective of the US' surrogate country methodology is to calculate the price of the product, as if it would have been produced and/or sold unsubsidized by a producer in a market economy, *i.e.,* under normal market conditions without government interference, the resulting normal value would normally be an unsubsidized price. The process of constructing the normal value for a NME should therefore purge all subsidies. Given that the subsidy has already been taken into account when calculating the dumping margin, a concurrent CVD will generate double remedies. USDOC NME procedures therefore virtually guarantee that double remedies will occur.

Article VI:5 GATT disallows simultaneous use of AD and CVD for export subsidies based on a presumption that the export subsidy will only affect the export price – when in fact within the firm money is fungible and hence it is possible an export subsidy could affect the home market price too. I believe the economic basis for Article VI:5 GATT applies equally to the US NME methodology because domestic subsidies are essentially purged from the first term of the AD duty, $P_{Home}^{CV}\left(C_{surrogate}\right)$, and are allowed to fully pass-through to the second term, $P_{exp}^{US}(C_{Home}(s), s)$,

$$ADD \quad = \quad P_{Home}^{CV}\left(C_{surrogate}\right) - P_{exp}^{US}(C_{Home}(s), s)\ .$$

The implicit assumption of Article VI:5 GATT is the attenuated ability of an export subsidy to pass-through to the normal value. Likewise, by selecting a "market economy" surrogate country, the logic of the US NME methodology is designed to result in little or no ability for domestic subsidies in the NME to pass-through to the normal value. Moreover, the US' countervailing duty statute required the

[23] Other WTO members, such as the EU, do not require the surrogate country to be at a level of economic development similar to the NME under investigation.

CVD duty to be equal to the full value of the calculated benefit (i.e., prohibited any adjustment in light of pass-through or other considerations).[24]

Therefore, the economic logic behind Article VI:5 GATT and the economic implications of US NME methods are the same. Given the particulars of the US' procedure, Article VI:5 GATT could have been the basis for a strong definitive finding that the US practice was inconsistent. The AB instead opted for a more cautious approach. The AB concluded that "double remedies were 'likely' to occur in cases where NME methodology is used to calculate the margin of dumping" and permitted the US to pursue implementation by focusing on *how much* double counting occurs.[25] The AB seemed to understand that if an investigating authority were to make adjustments to account for such double-counting then the two remedies could be used simultaneously. Depending on the specific procedures such adjustments may resolve the double remedies' issue.

4.4 Concluding Comments on Double Remedy

At one level the AB's decision to focus on measurement seems like a reasonable compromise. It suggests that the AB was unhappy with the US' overly simplistic approach and also that it was cautiously deferring to the possibility of a need for both remedies (maybe because the measurement exercise is so complex). In my view, however, the AB would have been much more on point if it had clearly explained why there might still be a need for CVD when the US' NME method fully purges the constructed normal value of all domestic distortions, including domestic subsidies, at least under the US' factors of production test. The most obvious approach would have been to base its judgment on the lack of pass-through to the NME normal value.

Further, the AB may have inadvertently set the stage for additional double remedies claims. What if affected countries can measure and document the extent of double remedies under other methods for calculating normal value? It seems improbable that the WTO would allow double remedies under some methods for calculating normal value but not under the NME method. This dispute establishes that the burden is on the investigating authorities to ensure that double remedies are not being imposed regardless of the method for calculating normal value.

5. Conclusion

In many respects the WTO Dispute System is one of the great successes of the Uruguay Round. It is huge improvement over the previous dispute system. To a large extent, the WTO dispute mechanism is working as designed. While complainant parties have every reason to be frustrated with the pace of compliance, the WTO dispute settlement process was designed to proceed at a somewhat ponderous pace.

Moreover, all indications point towards more WTO cases and more strain on the system. Twenty-seven new complaints were filed in 2012 alone. Many of the pending cases involve issues far more complicated than zeroing or non-recurring subsidies/privatization. Truly complicated and politically charged issues like genetically modified organisms, intellectual property standards, agriculture reform, labor standards, or border tax adjustments for climate change are all on the AB's horizon. The AB would be well served by using economics in its deliberations.

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[24] The US Congress recently changed the statute to allow USDOC to make adjustments.

[25] *US–AD and CVD (China)* AB, para. 541.

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