# Unfinished Business? The WTO's Doha Agenda

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*edited by* **Will Martin and Aaditya Mattoo**

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# U.S. Anti-dumping: Much Ado about Zeroing

CHAD P. BOWN AND THOMAS J. PRUSA[1]

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

Consequently, a dispute settlement process that improved on both the timeliness and enforceability of dispute decisions was one of the major goals of the Uruguay Round. In many respects, the WTO DSU does represent a significant advance over the toothless GATT system.[3] However, frustrations remain. In theory, the new system induces compliance by increasing the possibility that plaintiffs will obtain the right to levy compensatory/retaliatory tariffs against defendants who do not adjust their policies. In reality, compliance has, on occasion, continued to be a problem. Countries continue to argue about what

[1]The authors thank James Durling, Valerie Ellis and Edwin Vermulst for useful discussions. The chapter also benefited from useful comments by Will Martin, Petros Marvoidis, Niall Meagher, Mike Moore, William Nye, Hylke Vandenbussche and Deborah Winkler.

[2]The need to reach consensus also affected how panels constructed their rulings, as the three panelists knew that their report also had 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.

[3]Hudec (1999) refers to the increasingly legalised WTO dispute settlement as one of 'jurist's jurisprudence' when compared with the GATT system's 'diplomat's jurisprudence' (Hudec 1970). Jackson (1997) and Hoekman and Kostecki (2009, Chapter 5) also provide useful discussions of the evolution of the GATT and WTO dispute systems. Bown (2009) emphasises the implications of WTO dispute settlement for developing countries.

constitutes compliance, and half measures can delay even 'compensatory' tariffs for years.[4]

While the GATT dispute system was damaged by its failure in highly prominent cases, the shortcomings of the WTO DSU are most apparent in a series of seemingly minor disputes involving the esoteric practice of zeroing in anti-dumping investigations. Zeroing refers to the practice of replacing the actual amount of dumping that yield negative dumping margins 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. Zeroing drops transactions that have negative margins and, hence, increases the overall dumping margins and the resulting size of the applied anti-dumping duty. As we will show, zeroing makes it extremely difficult for a firm to avoid dumping. This makes zeroing a major irritant to exporters while being highly desired by import-competing industries.

Over the past decade, the WTO AB has heard more than a dozen disputes involving zeroing, and, *each* time, has found that the practice violates the WTO Anti-dumping Agreement (ADA).[5] The first zeroing case was initiated by India in 1998 against the EC (*EC – Bed Linen*).[6] All but one of the remaining cases has involved the United States as a respondent. The EC changed its anti-dumping procedures after losing at the WTO and no longer 'zeros'. The United States, by contrast, has not yet fully complied with the WTO decisions and many WTO AB cases involving the United States' zeroing practice remain unresolved.

The WTO's current inability to resolve the zeroing issue is reminiscent of the enforcement problems that plagued the GATT dispute system. While the DSU may be working more or less as designed, is the zeroing issue a first indication that the WTO DSU must be reformed? Put differently, is zeroing an

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[4]Wilson (2007) notes that the respondent country has eventually brought itself into compliance in the vast majority of WTO disputes that have resulted in adverse panel and Appellate Body rulings. Bown and Pauwelyn (2010) provide a collection of research examining the WTO dispute settlement process for the roughly dozen cases over the 1995–2007 period that resulted in at least a period of non-compliance and, thus, WTO Article 22.6 arbitration rulings that authorised formal retaliation by the complainants. Examples of such disputes include *Brazil – Aircraft Subsidies (Canada)*, *Canada – Aircraft Subsidies (Brazil)*; *EC – Bananas (Ecuador)*; *EC – Bananas (US)*; *EC – Hormones (Canada)*; *EC – Hormones (US)*; *US – Anti-dumping Act of 1916 (EC)*; *US – Continuing Dumping and Subsidy Offset Act (Byrd Amendment) (Brazil, Canada, Chile, EC, India, Japan, Korea, Mexico)*; *US – Foreign Sales Corporations (EC)*; *US – Internet Gambling (Antigua and Barbuda)*; and *US – Upland Cotton (Brazil)*.

[5]At least four more cases involving zeroing are pending AB decisions.

[6]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), who examine the zeroing issues in *US – Stainless Steel (Mexico)*.

issue that could be better resolved through multilateral negotiations? If so, who should be at the negotiating table and what is at stake?

This chapter presents a positive analysis seeking to provide some perspective on the zeroing issue. How did we get here? What exactly is zeroing? Why was the EC able to stop zeroing, while the United States was not? Are developing-country exporters also exposed to zeroing? To date, zeroing disputes have been dominated by developed countries, not only on the respondent side, but also on the complainant side. Should we expect a blizzard of zeroing complaints filed by developing countries? Even if the disputes fail to arise, is there evidence that zeroing impacts exports from developing countries as much as those from developed countries? Finally, we will try to get a better sense of zeroing's importance. Is it a 'big' issue? Or perhaps is this whole mess over zeroing (with apologies to William Shakespeare) much ado about nothing?

Anticipating our conclusions, we find that a unique set of characteristics have conspired to make zeroing such a bothersome issue. The WTO legislative history and technical nature of the zeroing violation likely contribute to the United States' feeling that its current policy is in compliance. The United States' retrospective duty collection system complicates the task of complying with the WTO AB decisions. By contrast, the prospective nature of the EC's duty collection system made zeroing a much less economically important issue, which explains why it was relatively easy for the EC to comply.

Any U.S. intransigence cannot alone explain why zeroing consumes so much of the WTO dispute settlement caseload, which thus serves to heighten the political sensitivity to the issue. The United States has anti-dumping duties on thousands of companies, on hundreds of separate products, and on more than 50 different WTO members. Given that the United States 'zeros' in *every* anti-dumping margin review calculation, the scope of the potential violation is enormous. The WTO AB could become a full-time zeroing body.[7]

The rest of this chapter proceeds as follows. Section 2 provides a discussion of the economic relevance of the zeroing issue in the context of the U.S. anti-dumping caseload. In Section 3 we more formally introduce anti-dumping and zeroing, and we identify how key factors such as export price volatility are likely to accentuate the impact of zeroing on the calculation of dumping margins. Section 4 then reviews the WTO dispute settlement caseload over the zeroing issue. We describe in detail the United States' retrospective system for assessing anti-dumping margins and the impact that this has on zeroing in Section 5. Section 6 focuses on the existing evidence of impact of the zeroing

[7]It also should be mentioned that the AB may have inadvertently exacerbated the issue of a high volume of zeroing-related cases through its initial choice of addressing zeroing in a piecemeal fashion. Bown and Sykes (2008) describe the implications of the AB's narrow and iterative approach to ruling on zeroing, comparing it with a more expansive approach that might have clarified the full scope of permissibility and impermissibility of zeroing across all of the procedures of the anti-dumping process in which it might be used.

methodology on dumping margins. Section 7 provides our own empirical evidence into the question of zeroing's impact, and we find that zeroing is as likely to impact the anti-dumping margins on developing-country exports (which has typically not been brought forward to WTO dispute settlement) as anti-dumping margins on developed economy exports (which has frequently been brought to the DSU). Finally, Section 8 concludes.

## 2 THE ECONOMIC RELEVANCE OF ZEROING

Whether zeroing is a 'big' or 'small' issue depends on one's perspective as well as recognition of the likely policy alternatives in a world without zeroing. We begin by discussing some factors that suggest that zeroing is a major trade issue.

### *2.1 Scope: Number of Cases*

In Figure 14.1 we provide one measure of U.S. anti-dumping activity. Here we plot the number of products affected by U.S. anti-dumping actions since 1990.[8] The solid line depicts the stock of products under order, while the dashed line shows the number of new products being investigated in each year. As shown, the U.S. Department of Commerce (USDOC) currently has orders on more than 400 products. The dashed line reveals that about 75 products are subject to new investigations each year, though with fluctuations that are broadly consistent with macroeconomic fluctuations (Knetter and Prusa 2003). This means that, in addition to the large stock of products that have been 'zeroed', many new additional WTO zeroing violations probably occur each year.

Moreover, given that most products are exported by multiple firms and by multiple countries, these numbers are probably a lower bound on the number of potential zeroing complaints. This raises the real possibility that the United States (and the WTO AB) could potentially be confronted with hundreds of zeroing disputes.

### *2.2 Scope: Countries Affected*

Despite a dispute settlement history that has mainly entailed industrialised countries challenging the United States' use of zeroing in anti-dumping cases, there is every reason to believe that zeroing is just as important for developing-country exporters. First, developing countries are increasingly affected by U.S. anti-dumping. In Figure 14.2 we report the stock of U.S. anti-dumping measures in effect for each year from 1990 through 2009. In this chart we include information for both the products and the exporting country.

[8] In this figure we follow the common practice of using the eight-digit tariff line to define what constitutes a product.

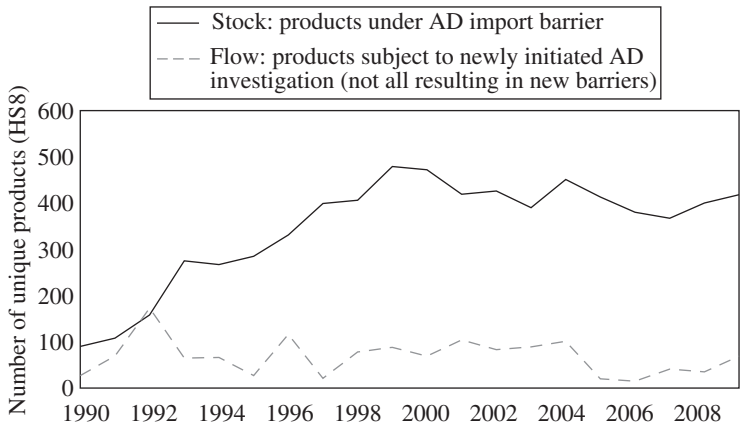


**Figure 14.1:** *Stock and flow of U.S. anti-dumping measures, 1990–2009.*
*The stock is computed on a yearly basis as the number of eight-digit HS products subject to U.S. preliminary and/or final anti-dumping measures. The flow is computed on a yearly basis as the number of eight-digit HS products subject to U.S. anti-dumping investigations, some of which may not result in a duty. Since the data rely on the HS system, the stock does not reflect any imposed or removed anti-dumping measures that were imposed before 1988 under the annotated Tariff Schedule for the United States product classification system.*
*Source: compiled by the authors from Bown (2010a).*

We divide the exporting countries into three groups: developed countries, China, and other (non-China) developing countries.[9] The information in Figure 14.2 indicates that over 60% of the stock of products covered by U.S. anti-dumping orders in place between 2006 and 2009 were on exports sourced from developing countries, more than doubling the share of total products affected at the onset of the WTO in 1995. The stock of measures affecting developing-country exports has been increasing over time, as exports from many emerging economies have continued to expand.[10] Looking forward, it is reasonable to think that this emerging pattern of anti-dumping measures

[9]We separate China due to the heavy incidence of anti-dumping cases brought against it (Bown 2010c).

[10]Note that it is notoriously difficult to compute estimates of the incidence of trade barriers such as anti-dumping. Thus, here we address this not by attempting to construct a measure in value terms but instead by examining the count of eight-digit HS and exporter combinations subject to U.S. anti-dumping measures. On a value-weighted basis, it is likely that a larger share of the incidence of the stock of U.S. anti-dumping activity falls on developed-economy exports, given the larger dollar values associated with their trade. It should also be noted that, while the United States frequently uses anti-dumping to restrict imports from middle-income economies such as Brazil, China, India, Indonesia, South Africa, Thailand and Turkey, the United States has typically not used anti-dumping to restrict imports sourced from low-income economies, with the exception of Vietnam.

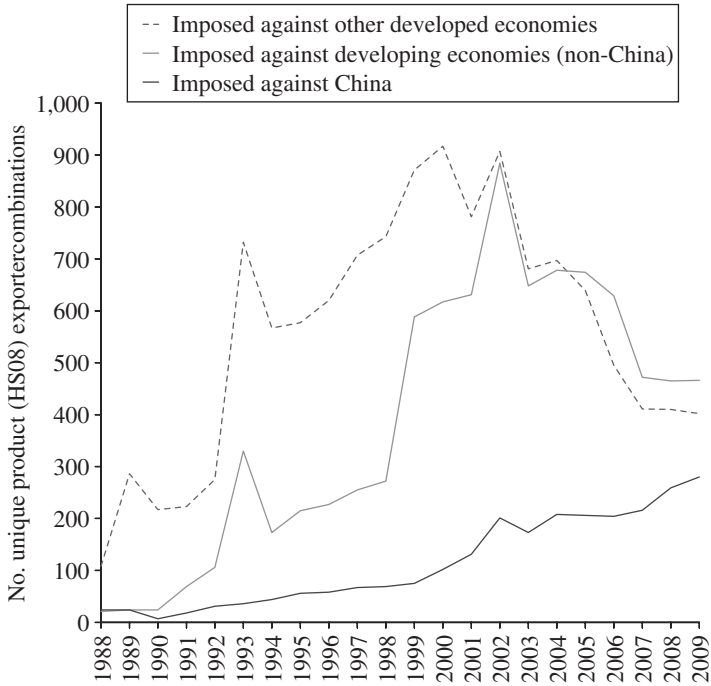


**Figure 14.2:** *The stock of U.S. anti-dumping measures imposed and in place, 1990–2009.*

*The stock is computed on a yearly basis as the number of eight-digit HS product-exporter combinations subject to U.S. preliminary and/or final anti-dumping measures. Since the data relies on the HS system, the stock does not reflect any imposed or removed anti-dumping measures that were imposed before 1988 under the annotated Tariff Schedule for The United States product classification system.*

*Source: compiled by the authors from Bown (2010a).*

involving developing countries will also be seen in the pattern of zeroing complaints at the WTO AB. Although developing countries have currently only filed a few complaints challenging the practice, if the United States continues its non-compliance stance, there will, in all likelihood, be more and more zeroing cases against the United States, especially given that the AB's position towards zeroing is well established.

### *2.3 Impact and Incidence*

To date, the best evidence we have suggests that, were the United States to stop zeroing, perhaps as much as half of all U.S. anti-dumping measures would be removed and the duties in the other cases would fall significantly. Our analysis also suggests that dumping margins calculated and, hence, duties imposed on developing countries are as likely to be affected by zeroing as

those imposed on developed countries. As we will explain, zeroing punishes suppliers with export price variation in particular. We collect import pricing data for a number of the biggest anti-dumping disputes over the past decade (many of which were the basis for WTO zeroing complaints) and review the price volatility for developed and developing countries. We find that developing countries have about the same price variation and, hence, their anti-dumping duties are likely to be similarly affected by zeroing.

While zeroing is likely to impact developing-country exporters and may lead to escalating tensions through WTO dispute settlement, there are other factors suggesting that zeroing may be less important than the above discussion indicates.

### *2.4 Anti-dumping and WTO AB*

First, when it comes to dispute settlement, a broad and general point is simply that WTO disputes over anti-dumping are highly likely to continue to occur for reasons that have nothing to do with zeroing. Bown (2009, p. 80) estimates that, over the 2001–8 period, more than 30% of the entire WTO dispute initiation caseload involved challenges to just two policies: anti-dumping or countervailing duties, anti-dumping's sister 'unfair trade' policy.[11] Because much of this caseload of WTO anti-dumping disputes confronted other countries' (and not the United States') use of anti-dumping, it was not intended to address the specific issue of zeroing. Even if there were no disputes involving zeroing, a large fraction of the WTO AB's workload would still involve anti-dumping and countervailing duty issues.

There are a number of reasons why WTO disputes challenging anti-dumping frequently occur. Perhaps the most important explanation is the simple fact that the basic use of anti-dumping import restrictions has increased over time and across the WTO membership (Prusa 2001).[12] Dozens of economies now

[11]Only 15% of the dispute caseload during the WTO's first six years in existence (1995–2000) related to anti-dumping or countervailing duties. While a large share of the DSU caseload does involve challenges to many countries' use of anti-dumping, this is not to imply that most imposed anti-dumping measures get challenged through the DSU. In fact, it is quite the opposite. Bown (2009, p. 82) estimates that fewer than 7% of the total WTO membership's anti-dumping investigations that resulted in (more than 1600) imposed measures over the 1995–2008 period faced formal challenges through dispute settlement. Nevertheless, this figure is much higher for the United States; Bown and Crowley (2010) note that almost 21% (27 out of 130) of the U.S. anti-dumping measures imposed against WTO members over the 1997–2006 period were challenged through formal dispute settlement, including a number via the zeroing cases we describe below.

[12]Bown (2009) discusses a number of other reasons that contribute to anti-dumping being a frequent subject of WTO disputes, including the transparency of the policy and the fact that anti-dumping does not require political coordination of adversely affected firms and, hence, has fewer free-rider problems than those facing exporting firms subject to many other sorts of trade barriers.

have in place thousands of anti-dumping orders, and they are imposed and removed with great frequency. Nevertheless, it is unlikely that anti-dumping will go away any time soon, as most of the largest WTO members have adopted the policy and appear to appreciate its flexibility, for better or for worse. This is especially apparent in light of the global economic crisis of 2008–10 in which many WTO members increased their use of the policy (Bown 2010b), and yet this increased anti-dumping activity did not result in a massive and global protectionist backlash.

### *2.5 Trade Cost*

Despite anti-dumping frequently being used in the United States, the total value of trade affected by anti-dumping (let alone zeroing) may be relatively small.[13] Furthermore, any single country subject to U.S. anti-dumping actions is likely to have a similar fraction of its exports affected. In many cases the elimination of zeroing would just reduce the margin, not eliminate the order, which means the impact of zeroing on the amount of trade affected is considerably smaller than the impact of anti-dumping. The small dollar value involved is one likely reason why the spectre of retaliation has apparently not induced the United States to alter its policy.

### *2.6 The Alternative Policy*

Suppose that zeroing were eliminated and this policy change resulted in significantly less use of anti-dumping by the United States. Would this mean that U.S. imports would be subject to much less protection? Perhaps not. More likely is that some new type of protection would emerge. What would be the alternative to anti-dumping? Given that countries appear to desire access to flexibility with their trade policy and the historical evidence of episodes in which there is 'some' political-economy need for some form of discretionary import protection, anti-dumping may be less worrisome economically than many other scenarios that might emerge.

## 3 ANTI-DUMPING AND ZEROING: THE THEORY

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

[13] The issue is unresolved and two recent papers even provide different interpretations of the estimated impact of anti-dumping on trade flows. Vandenbussche and Zanardi (2010) argue that the costs of anti-dumping are larger than generally recognised because it depresses overall bilateral trade, whereas Egger and Nelson (forthcoming) provide evidence that the impact on overall trade is small.

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 anti-dumping remedies should be implemented.[14] Of particular relevance for our discussion, the ADA states that the anti-dumping duty can be no greater than the calculated dumping margin. In the 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 whether there is a right to levy the duty and also the size of the duty.

In the process of computing the anti-dumping duty, 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 anti-dumping duty. 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 yields negative dumping margins (*ie* 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.[15]

In practice, zeroing is much easier to understand than the formal definition suggests. In Table 14.1 we present an example of a foreign firm's home and export sales in a given month.[16] We assume that the data in Table 14.1 represent net prices for separate transactions on a series of dates in the month of September.[17] To keep the example as simple as possible, we will assume that each transaction is for the same volume, *ie* one unit. Governments compute dumping margins on a weighted-average basis, but, for the purposes of our illustration, the introduction of different quantities on different dates just serves to complicate the computations, and needless complication is a primary reason why anti-dumping is so misunderstood.

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

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[14]Blonigen and Prusa (2003) provide a survey of the economic research literature on anti-dumping.

[15]There are two zeroing methods: simple and model. For purposes of this chapter, we limit our discussion to simple zeroing. Readers interested in the fine details of both methods should consult Prusa and Vermulst (2009).

[16]The example is drawn from Prusa and Vermulst (2009).

[17]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.

**Table 14.1:** *An example of zeroing.*

| Sales date | Export transaction | Home market transaction | Difference: no zeroing | Difference: zeroing |
|---|---|---|---|---|
| 2 September | 75 | 90 | 15 | 15 |
| 4 September | 75 | 95 | 20 | 20 |
| 8 September | 95 | 95 | 0 | 0 |
| 10 September | 100 | 95 | −5 | 0 |
| 12 September | 105 | 95 | −10 | 0 |
| 16 September | 105 | 105 | 0 | 0 |
| 18 September | 110 | 105 | −5 | 0 |
| 20 September | 115 | 110 | −5 | 0 |
| 24 September | 120 | 110 | −10 | 0 |
| Weighted-average price | 100 | 100 | | |
| Dumping value | | | 0 | 35 |
| Dumping margin | | | 0.0% | 3.9% |

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, *ie* the individual export transactions are compared with the individual domestic transactions made at or at about the same date as the export transactions concerned.[18]

In column 4 of Table 14.1 we 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 we sum the weighted price differences we find that, for all comparable transactions, the cumulative difference is zero. Put 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 United States has long had a practice of not computing the margins as described. Instead, in the process of the transaction-to-transaction comparisons, the United States

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

employs the practice of zeroing. In our example, and, in fact, in most 'real world' cases, the use of zeroing leads to dramatically different margins. To see this, in the last column of Table 14.1 we have computed the difference for each comparable transaction using zeroing. Each of the five negative margins is set to zero. In our example, the amount of dumping is 35, which implies a dumping margin of 3.9% (35 divided by the total export value of 900 equals 0.039).[19]

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 are. On both 12 and 16 September the foreign firm charged $105, but a government using zeroing could treat the 12 September 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.[20] Fourth, zeroing can be the difference between no dumping (or a *de minimis* margin) and a positive dumping margin, *ie* whether an anti-dumping duty is applied at all.

We elaborate on the last two insights in Figures 14.3 and 14.4. In Figure 14.3 we provide examples of hypothetical pricing data where zeroing does *not* change the anti-dumping duty. In the figure we provide two different pricing scenarios over a 12-month period. In both cases we assume that the foreign firm's home market price is constant at $100.[21] In Scenario A (solid line, circular markers) we 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 (dashed line, square markers) we 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.

Figure 14.4 depicts the more typical situation. We again assume that the foreign firm's home market price is constant at $100. We now assume that, in some months, the foreign firm's export price is above $100 and, in other months, it is below $100. The firm's actual export prices are depicted by the black dashed line and circular markers.[22] With zeroing, the government treats the foreign firm's prices as if they instead looked like the grey dotted line with

[19]We note that this approach as adopted by the United States does, however, include all comparable transactions in the denominator (even though it zeroes many transactions in the numerator).

[20]This statement can be generalised to account for 'model' zeroing (Prusa and Vermulst 2009).

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

[22]As with the example given in Table 14.1, without zeroing the actual export prices in Figure 14.4 would generate no dumping margin.

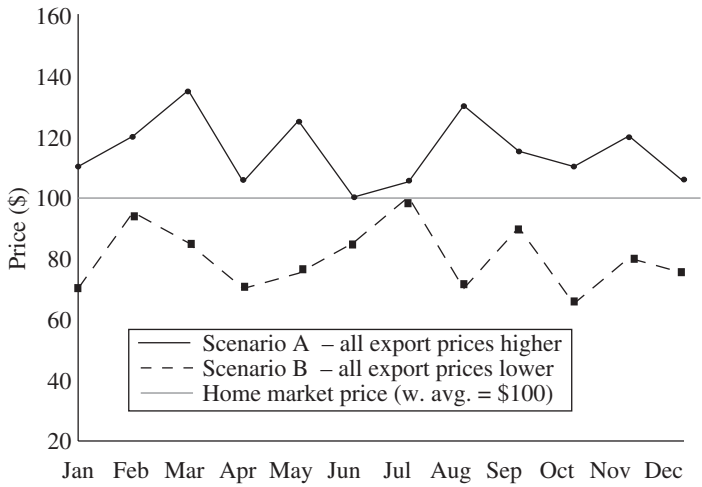


**Figure 14.3:** *Examples of export pricing when zeroing does not change dumping margin.*

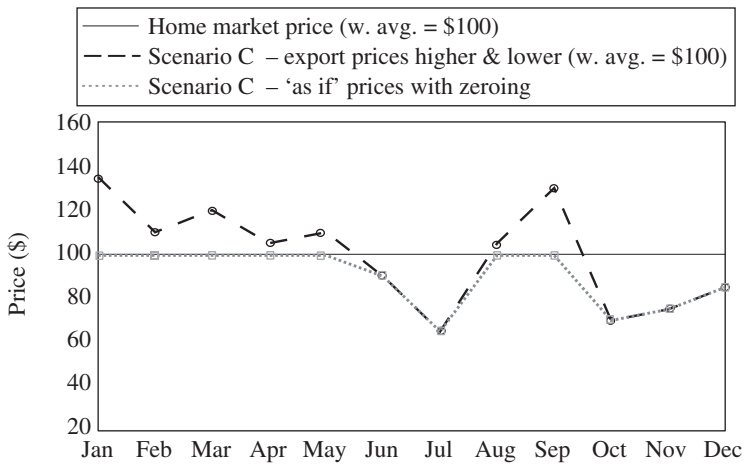


**Figure 14.4:** *Example of export pricing when zeroing alters dumping margin.*

square markers. In January, for example, a government practicing zeroing would act as if the foreign firm's price were $100 instead of $135.

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 very 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.

Price variation significantly affects the extent to which zeroing impacts the dumping margin. All else being equal, zeroing will have a larger impact for products with greater price variation. To see this, we will now compute dumping margins across distributions with different variation but holding the average price constant.[23] We assume the average *export* price is \$100 in each scenario.

We begin by supposing that export prices are uniformly distributed between $p^{\text{low}}$ and $p^{\text{high}}$.[24] In the first scenario we will assume that the weighted-average *home* market price is \$100.[25] Hence, if there was no zeroing, the anti-dumping margin would be 0%. With zeroing, however, prices greater than \$100 will be treated as if they were just \$100. The extent of the zeroing impact depends on how much prices are adjusted: the greater the variation, the greater the adjustment. In Figure 14.5 we show the dumping margins as a function of different levels of price variation. The solid line depicts the anti-dumping duty with zeroing. As shown, price deviation of as little as 5% will generate margins in excess of the *de minimis* level.[26]

In the second scenario we consider a starker example of the impact of zeroing. Here we assume the weighted-average home market price is \$90. In other words, in this scenario the average export price (\$100) *exceeds* the home market price by 11%. Yet, as depicted by the dashed line, with zeroing a moderate amount of price deviation will again generate significant anti-dumping margins.

In the third scenario we consider a more extreme case when the weighted-average home market price is \$75. In this scenario the average export price (\$100) *exceeds* the home market price by 33%. However, zeroing combined with price deviation will nonetheless generate anti-dumping margins.

Two lessons emerge from these three scenarios. First we see that the greater the degree of over-selling (*ie* the bigger the difference between the average export price and the average home market price) the greater the required price

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[23]Nye (2009) also points out that price volatility affects the zeroing distortion.

[24]For a uniform distribution the average price is $(p^{\text{high}} - p^{\text{low}})/2$ and the standard deviation is $(p^{\text{high}} - p^{\text{low}})/12^{1/2}$.

[25]For simplicity, assume one unit is sold at each transaction.

[26]For administrative reviews the United States imposes a *de minimis* margin of 2%.

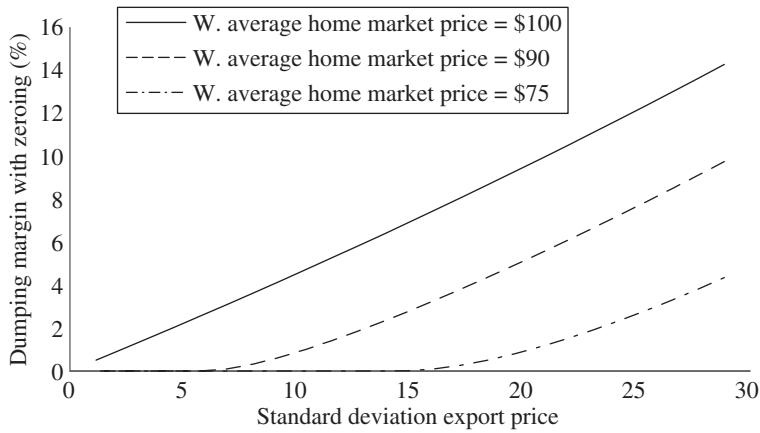


**Figure 14.5:** *Export price variation and zeroing (uniform distribution).*

variation before non-*de minimis* anti-dumping margins are created. Second, despite substantially higher export prices, zeroing can produce positive dumping.

The positive relationship between price variation and zeroing is quite general. In Figure 14.6 we depict dumping margins with zeroing for three different distributions of export prices: uniform, normal, and bimodal normal. As with the first scenario in Figure 14.5, we restrict the export prices so that the average is $100; this means there would be a zero dumping margin without zeroing. As shown, this is not the case with zeroing. For all three distributions the dumping margin increases with the pricing variation.

There are two key observations to be made from this discussion. First, export characteristics that are associated with *greater* price variation will tend to be more seriously affected by zeroing. These characteristics could be associated with the product (*eg* seasonality, volatile input prices), the exporting firm or industry (*eg* more or less competitive), or the exporting country (*eg* exchange rate regime).

Second, volatility will play a significant role in assessing whether zeroing is as relevant for developing countries as it has been for developed countries. As we will discuss in the following section, to date, most of the WTO cases involving zeroing have been initiated by developed countries. One possible explanation for this is that zeroing does not affect developing-country exports. Later in the chapter we review export price volatility, and our results suggest this is probably not the case. Consequently, the lack of zeroing cases involving developing countries is most likely explained by other reasons (*eg* unwillingness to increase trade tensions with the United States, inexperienced legal staff, *etc*).

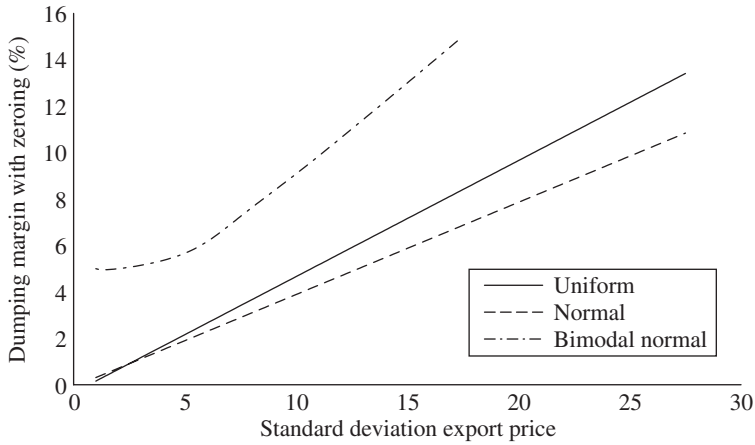


**Figure 14.6:** *Export price variation and zeroing (across distributions).*

## 4 WORLD TRADE ORGANIZATION DISPUTES INVOLVING ZEROING

There are four stages in the WTO dispute resolution system.[27] The first is the consultation phase, where the two complaining and respondent countries meet and attempt to negotiate a resolution. If they are unable to do so, they can request a 'panel' to hear the evidence (the second phase). Other WTO members with an interest in the dispute can join the process at this stage as an 'interested third party'. The panel hears the evidence and issues a legal ruling. If either of the primary countries is unhappy with any aspect of the panel's rulings, it can appeal the case to the WTO's AB (the third phase). After reviewing the case and hearing arguments from the parties, the AB will issue its final decision. At that point, if a country's policy has been found to be in violation of its WTO obligations, it is supposed to bring its policy into compliance. If the complaining party is unhappy with the compliance, it can request a compliance panel to rule on whether the respondent country has actually lived up to the AB's rulings (the fourth phase). If it has not, the AB can authorise the complainant to retaliate against the respondent, usually in the form of higher tariffs.

In Table 14.2 we list all WTO AB disputes that have involved zeroing. Between the first zeroing dispute of 1998 and early 2010, of the more than 260 disputes initiated during that time period, nearly 20 disputes have involved zeroing.[28] Furthermore, while 60% of all WTO disputes are resolved at the

[27]For a detailed description of the legal process, see Mavroidis (2007, pp. 398–445).

[28]Five of the cases are pending AB decisions. Zeroing was only a minor issue in several disputes. However, in most of the aforementioned disputes zeroing was the focal issue being adjudicated.

consultation phase, this has not been the case for any zeroing disputes. As a result, zeroing accounts for a greater share of panel and AB time than the above statistics suggest. Zeroing has been the subject of more than 13% of all WTO panel investigations (phase 2) and almost 20% of all WTO AB reports (phase 3). It is quite likely that the WTO AB has devoted more time to zeroing than any other single issue in the WTO.

The number of separate panel and AB decisions that have found the practice of zeroing to be inconsistent with the ADA is noteworthy. By our accounting, there have been at least 22 separate decisions finding the practice of zeroing to be inconsistent with the ADA (11 panel, 11 AB). Several comments about these decisions are warranted.

First, there has been some tension between the panels and the AB. The panels have sent mixed messages at least twice about zeroing. In two cases, (*US – Stainless Steel* (*Mexico*) and *US – Zeroing* (*Japan*)), the panel ruled that zeroing in original investigations was inconsistent but zeroing in review proceedings was consistent.[29] The panels' rationale hinged on their reading of Article 2.4.2 of the ADA, 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 with 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.

The panels agreed with the United States' 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 zeroing to be inconsistent in both original investigations and reviews.

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 United States, the dumping margin calculated in the initial investigation only establishes the deposit rate. The actual dumping margin is established during an

[29] Adding more confusion, in *US – Continued Zeroing (EC)*, the panel stated their sympathy with the U.S. position but determined zeroing to be inconsistent only because of prior AB rulings.

**Table 14.2:** *World Trade Organization jurisprudence on zeroing.*

| Case | Dispute | Year initiated | Third parties | Panel | AB |
|---|---|---|---|---|---|
| *US – Shrimp (Vietnam)* | 404 | 2010 | — | — | — |
| *US – Use of Zeroing (Korea)* | 402 | 2009 | Japan | — | — |
| *US – Stainless Steel (Mexico)*, Article 21.5 | 344 | 2009 | — | — | — |
| *US – Carrier Bags (Thailand)* | 383 | 2008 | Argentina, Chinese Taipei, EC, Japan, Korea | Y | — |
| *US – Orange Juice (Brazil)* | 382 | 2008 | Argentina, Chinese Taipei, EC, Japan, Korea, Thailand | — | — |
| *US – Zeroing (Japan)*, Article 21.5 | 322 | 2008 | China, Chinese Taipei, EC, Hong Kong (China), Korea, Mexico, Norway, Thailand | Y | Y |
| *US – Zeroing (EC)*, Article 21.5 | 294 | 2007 | Chinese Taipei, India, Japan, Korea, Mexico, Norway, Thailand | Y | Y |
| *US – Continued Zeroing (EC)* | 350 | 2006 | Brazil, Chinese Taipei, China, Egypt, India, Japan, Korea, Mexico, Norway, Thailand | Y | Y |
| *US – Shrimp (Thailand)* | 343 | 2006 | Brazil, Chile, China, EC, India, Japan, Korea, Mexico, Vietnam | Y | N/A |
| *US – Stainless Steel (Mexico)* | 344 | 2006 | Chile, China, EC, Japan, Thailand | Y/N | Y |
| *US – Shrimp Anti-dumping Measure (Ecuador)* | 335 | 2005 | Brazil, Chile, China, EC, India, Japan, Korea, Mexico, Thailand | Y | N/A |
| *US – Zeroing (Japan)* | 322 | 2004 | Argentina, China, EC, Hong Kong (China), India, Korea, Mexico, New Zealand, Norway, Thailand | Y/N | Y |
| *US – Softwood Lumber Anti-dumping Final (Canada)*, Article 21.5 | 264 | 2005 | China, EC, India, Japan, New Zealand, Thailand | Y | Y |
| *US – Zeroing (EC)* | 294 | 2003 | Argentina, Brazil, China, Chinese Taipei, Hong Kong (China), India, Japan, Korea, Mexico, Norway | Y | Y |
| *US – Softwood Lumber Anti-dumping Final (Canada)* | 264 | 2002 | EC, India, Japan | Y | Y |
| *US – Corrosion-Resistant Steel Sunset Review (Japan)* | 244 | 2002 | Brazil, Chile, EC, India, Korea, Norway | N | Y |
| *EC – Pipe Fittings (Brazil)* | 219 | 2000 | Chile, Japan, Mexico, United States | Y | Y |
| *EC – Bed Linen (India)* | 141 | 1998 | Japan, Korea, United States | Y | Y |

'—' indicates unavailable/pending. 'N/A' indicates cases where the panel's zeroing decision was not appealed to the AB.

*Source:* compiled by the authors from information on the WTO website.

administrative review. If the United States' 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.

Second, the nature of the WTO's jurisprudence has likely contributed to the number of disputes. The practice of the panels and the AB has typically been to craft very narrow determinations in an 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 (*ie* alternative methods of zeroing, appropriate use during different stages in a case) were not discussed. This allowed the United States 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, in 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.

The number of countries complaining about the practice is also noteworthy. In Table 14.3 we list the number of countries who have either initiated a WTO dispute involving zeroing (*ie* the 'complainant') or have filed supporting briefs as interested third parties. In total, 19 countries have been involved in zeroing disputes, 10 as complainant parties.

## 5 THE UNITED STATES RETROSPECTIVE SYSTEM AND THE IMPACT OF ZEROING

Despite the ongoing cases against it, the United States argues that it has complied with the WTO AB rules and that its practice is now consistent with the ADA. The United States contends that it has brought its policy into compliance in response to the initial WTO AB decisions against zeroing. In January 2007 the USDOC decided to stop zeroing in original investigations. The USDOC has not agreed, however, to stop zeroing in reviews. This raises the question—why would the United States only take half-measures when resolving this trade issue? We believe the answer is inextricably tied to the retrospective duty assessment system using by the United States.

Compare the EC and U.S. response to the WTO AB's decisions regarding zeroing. As a general rule, no WTO member happily accedes to dispute

**Table 14.3:** *Economies involved in WTO jurisprudence on zeroing.*

| | Number initiated | Number of third party |
|---|---|---|
| Argentina | — | 4 |
| Brazil | 2 | 5 |
| Canada | 2 | — |
| Chile | — | 5 |
| China | — | 8 |
| Chinese Taipei | — | 6 |
| EC | 3 | 10 |
| Ecuador | 1 | — |
| Egypt, Arab Rep. of | — | 1 |
| Hong Kong (China) | — | 3 |
| India | 1 | 9 |
| Japan | 3 | 13 |
| Korea | 1 | 11 |
| Mexico | 2 | 8 |
| New Zealand | — | 2 |
| Norway | — | 6 |
| Thailand | 1 | 8 |
| United States | — | 2 |
| Vietnam | 1 | 1 |

*Source:* compiled by the authors from information on the WTO website.

settlement decisions that go against their existing policies. However, when the EC's zeroing practice was found to be inconsistent with the WTO ADA, it fairly quickly changed its procedures to eliminate zeroing. When the United States' zeroing methodology was found to be inconsistent, the United States has been unable (or unwilling) to fully change its procedures.

The duty assessment systems in the EC and U.S. partly explain why they responded differently to the WTO rulings. Under the prospective duty assessment system used by the EC (and all other WTO members), the exporter is assigned a duty calculated on past pricing data and the duty applies to future transactions. By contrast, under the U.S. retrospective system, the anti-dumping duty imposed at the end of the original investigation only constitutes an estimate of the future liability. The actual payment of anti-dumping duties will depend on the calculations made in the course of the annual administrative or duty-assessment reviews.

Under either system, zeroing will serve to increase margins. It is fair to say that import-competing industries in both the EC and the United States want zeroing because it serves to inflate the size of margins and, hence, leads to the imposition of larger import restrictions that shield them from foreign competition. The difference, however, is that the impact of zeroing is amplified when used in a retrospective system. Hence, the cost of eliminating

zeroing in the United States is greater, thereby increasing U.S. reluctance to abolish the practice.

The retrospective system adds an element of uncertainty that is not present in the prospective system. Under a prospective system, an importer purchasing from an exporter under an anti-dumping order will know the exact size of its extra duty. Under a retrospective system, on the other hand, an importer purchasing from an exporter under an anti-dumping order only has an estimate of its extra duty. It is conceivable that the uncertainty could have as big an impact as the margin itself. Suppose, for instance, that the exporter is subject to a 5% duty and that duty exactly (or nearly) offsets her cost advantage relative to 'non-subject' suppliers, *ie* exporters which sell the same product in the U.S. market but that were not confronted with (subject to) the U.S. anti-dumping duty. An importer might be unwilling to purchase from the exporter under order because of the possibility of a higher liability once the administrative review is conducted. While uncertainty is inherent in the retrospective system, zeroing greatly compounds the phenomenon. As shown in Figure 14.4, the importer can have numerous purchases made during the period of review that are treated by the USDOC as if they were conducted at a different price than they actually were. This makes importers even more reluctant to purchase from subject exporters.

As a result, U.S. import-competing industries are much more opposed to eliminating zeroing than EC import-competing industries were. In turn, their strong opposition to reform makes it difficult for the USDOC to stop zeroing. Put differently, the current U.S. compliance—stopping zeroing in original investigations—is essentially costless. The *de minimis* dumping margin in original investigation is 0.5%. In other words, if the home market price is $100 and the export price is $99.49, then the case will be allowed to proceed. However, when the administrative review is conducted, the exact same transactions would result in a larger dumping margin because of zeroing. Thus, the real economic impact of zeroing—both in terms of the margin imposed and the uncertainty surrounding that margin—is driven by the *review* stage.

## 6 THE IMPACT OF ZEROING ON MARGINS AND DUTIES

We now turn beyond the theory to the empirical question of the impact of zeroing on anti-dumping margins.[30] Obtaining an accurate measure of the impact of zeroing on margins is difficult. The fundamental problem is that the USDOC uses firm-level pricing in both the home and export markets to calculate margins. What we would like to do is compute the counterfactual

[30] An important effect of zeroing is the additional uncertainty created for importers buying from subject suppliers. We know of no empirical evidence on this latter impact, so we will just focus on how zeroing affects the size of the margin.

'what if there were no zeroing?' and then compare the counterfactual margin with the actual margin with zeroing. The calculation of this counterfactual requires access to confidential firm-level pricing data, and that is something we do not have. We do, however, have results from previous studies that did have access to such data and were able to perform the counterfactual exercise.

We begin by reviewing the result from what we believe is the only published study of zeroing that utilises the same firm-level data as USDOC. We then examine evidence of the impact of zeroing as contained in submissions to the WTO AB where countries submit the results of the counterfactual calculations.

### *6.1 Firm-Level Evidence*

The only published firm-level analysis of the impact of zeroing is contained in a series of papers by the Cato Institute (Lindsey and Ikenson 2002a,b; Ikenson 2004). Lindsey and Ikenson were able to get 18 firms from 5 different countries to share the exact pricing data they had submitted to the USDOC as part of their dumping investigations. The determinations covered 14 original investigations and 4 administrative reviews. For each of these determinations, Lindsey and Ikenson used the USDOC's own dumping calculation computer programs. They first recreated the dumping margins determined by the USDOC. They then altered those programs to gauge the effect of zeroing on margins. They state that

> using actual case data and the DOC's dumping calculation computer programs, it was possible to calculate the actual effects of zeroing in these particular cases. In 17 of the 18 determinations, the dumping margin was inflated by zeroing. In 5 of the cases, the overall dumping margin would have been negative. On average, the dumping margins in the 17 cases would have been 86.41% lower if zeroing had not been employed.
>
> Ikenson (2004, p. 2)

Due to confidentiality issues, Lindsey and Ikenson are unable to report the actual size of the original dumping margin. As a result we are unable to determine how great the 86% reduction is: it could imply a change in the actual dumping margin of 2, 20 or even 50 percentage points. While we do not know the identity of the individual firms, we do know what cases were involved (*eg* stainless steel bar from Germany) and we know the 'all others' duty reported for each case.[31] Using the 'all others' duty we estimate that the Lindsey and Ikenson estimate of an 86.41% reduction due to zeroing implies that the *average* impact of zeroing is at least 17.50 percentage points, *ie* a change in the margin of dumping from 20.2% to 2.7%.

Lindsey and Ikenson's results with respect to reviews are particularly noteworthy. Their results confirm that zeroing has a particularly powerful

[31]We note that the 'all others' rate often does not necessarily correspond to any individual firm's duty but is better thought of as the average margin for all firms involved in the case.

impact at the review phase. They had access to case data for just four review calculations and, in each instance, they found the margin to be *entirely* driven by zeroing. That is, without zeroing, there would have been no margin. Their results are consistent with the idea that firms subject to anti-dumping orders make an effort to comply with the dumping order but are ultimately bedevilled by the distortion created by zeroing: transactions that they thought would be treated as occurring at one price were assigned a lower price by USDOC, which, in effect, creates margins.

### *6.2 Evidence from WTO Dispute Documents*

While the Lindsey and Ikenson study is compelling, it involves a small sample of firms. We have also reviewed the WTO disputes for evidence on the impact of zeroing. We found reports of the impact of zeroing in the public documents for only three cases: *US – Stainless Steel (Mexico)* (dispute 344); *US – Zeroing (Japan)* (dispute 322); and *US – Zeroing (EC)* (dispute 294). From these three disputes we have information on the impact of zeroing for 74 separate margin calculations.

The tabulation of the findings is given in Table 14.4. For each margin calculation, we report the name of the product under investigation, the name of the company subject to the investigation, and the anti-dumping duty as calculated by the USDOC (inclusive of zeroing). For original investigations this is the final anti-dumping duty for each firm, while for administrative reviews this is the duty margin actually imposed by USDOC. In the final column we report the results of the counterfactual exercise: what the margin would have been if zeroing were not performed. Given the individual firms' sensitivities about revealing confidential pricing information, in many cases we do not know the exact 'what if no zeroing?' margin. Instead, the public documents often simply report 'lower', 'negative', or *de minimis*. 'Lower' simply means the margin would have been lower but would have still been above the *de minimis* level; 'negative' means the margin would have been negative (*ie* no dumping); *de minimis* means the margin would be positive but sufficiently small to be considered zero. In either of these latter two cases, the case would have been terminated (if an original investigation) or no duties would have been paid (if an administrative review).

In Table 14.5 we summarise the information reported in Table 14.4. Without zeroing, the dumping margin would have been lowered in 30 instances, and the margin would have been eliminated (*ie* a zero margin) in 42 instances. Put differently, more than half of the cases submitted to the WTO would have no dumping but for the practice of zeroing.

One needs to be cautious in extrapolating the statistics from the WTO AB cases to all U.S. anti-dumping activity. There are two reasons why we are concerned that there is a possible selection issue that might result in the WTO AB evidence overstating the impact of zeroing. First, the cases submitted

to the WTO may have been selected precisely because they were particularly egregious examples of zeroing. While we have no evidence for this, it is nevertheless a concern given the complainants' desire to submit the most compelling cases to the WTO.

Second, the cases chosen for WTO appeal might have lower margins and, thus, be more likely to have a zero margin if the practice of zeroing ceased. There is some evidence that this is the case. Using information from Bown (2010a), we compared the dumping margins for cases that were the basis for WTO zeroing complaints with all other U.S. anti-dumping cases. The average margin for cases not brought to the WTO is 62.6%, while the average margin for cases that have been the basis for WTO zeroing complaints is 36.2%.[32] This does not mean that the practice of zeroing has not affected the margins in the other cases, but it does suggest that the margins for most cases are not entirely driven by zeroing. It also suggests that countries choose to file WTO appeal on cases where it is more likely that the elimination of zeroing could mean *de minimis* margins and the removal of anti-dumping duties altogether.

The more robust finding is that the impact of zeroing is to increase the dumping margin. In Table 14.6 we use the WTO disputes and calculate the impact on the margin due to zeroing. On average, dumping margins would have been 12.3 percentage points lower. While this is smaller than the Lindsey and Ikenson study estimates, we note that it is greater than the average margin (10.5%) for these cases. This is again compelling evidence that zeroing has a large and significant impact on margins.

If we focus solely on the WTO cases in Table 14.4 that involve administrative reviews, we have a sample of 45 dumping margins. Of this sample, the margin would have been eliminated in 35 of the 45 cases if zeroing were not employed. If one is willing to assume that this is a representative statistic for other cases, the evidence from the current WTO jurisprudence suggests that about 75% of review margins would be eliminated but for zeroing. This is consistent with the Cato study which also found the impact of zeroing at the review phase to be particularly significant.

We again urge caution in applying the WTO AB statistics to the overall sample of U.S. anti-dumping cases. As discussed above, the margins for cases brought to the WTO AB are generally lower than those for other cases. It may simply be the case that the low-margin cases give the complaining country the 'biggest bang for the buck' and, therefore, that they are more likely to result in WTO challenges.[33]

Moreover, given that non-challenged cases tend to have higher margins, it is uncertain what the impact of zeroing is on the trade volumes. That is, suppose that the United States stopped zeroing in all cases. The elimination of zeroing may result in lower margins but nevertheless have little impact on trade. This

[32]The difference is statistically significant at the 1% level.

[33]Bown (2005) argues that this selection issue applies more generally in WTO disputes.

**Table 14.4:** *World Trade Organization disputes: reported impact of zeroing (case by case).*

| Case number | Case name | Company | Anti-dumping duty (with zeroing) (%) | Anti-dumping duty (without zeroing)[a] |
|---|---|---|---|---|
| DS294: No. 1 | (OI) Certain hot-rolled carbon steel flat products from the Netherlands | Corus Staal BV | 2.59 | Negative |
| DS294: No. 2 | (OI) Stainless steel bar from France | Ugine-Savoie Imphy | 3.90 | Negative |
| | | Aubert & Duval S.A. | 71.83 | Lower |
| DS294: No. 3 | (OI) Stainless steel bar from Germany | BGH | 13.63 | Lower |
| | | Einsal | 4.17 | *De minimis* |
| | | EWK | 15.40 | Lower |
| | | KEP | 33.20 | Lower |
| DS294: No. 4 | (OI) Stainless Steel Bar from Italy | Acciaierie Valbruna Srl /Acciaierie Bolzano D.p.A. | 2.50 | Negative |
| | | Acciaiera Foroni SpA | 7.07 | Lower |
| | | Rodacciai S.p.A. | 3.83 | Lower |
| | | Cogne Acciai Speciali Srl | 33 | N/A |
| DS294: No. 5 | (OI) Stainless steel bar from the United Kingdom | Corus Engineering Steels | 4.48 | Negative |
| | | Crownridge Stainless Steel, Ltd/ Valkia Ltd and Firth Rixson Special Steels, Ltd | 125.77 | N/A |
| DS294: No. 6 | (AR) Industrial nitrocellulose from France | Bergerac NC | 3.26 | Lower |
| DS294: No. 7 | (AR) Industrial nitrocellulose from the United Kingdom | Imperial Chemical Industries | 3.06 | Negative |
| DS294: No. 8 | (AR) Stainless steel plate in coils from Belgium | ALZ NV | 3.84 | Negative |
| DS294: No. 9 | (AR) Certain pasta from Italy | Pastificio Guido Ferrara S.r.L. | 1.25 | Lower |
| | | Pastificio Antonio Pallante S.r.L. | 1.78 | Lower |
| | | PAM S.r.L. | 4.10 | *De minimis* |
| DS294: No. 10 | (AR) Certain pasta from Italy | Pastificio Garofalo S.p.A. | 0.55 | Lower |

**Table 14.4:** *Continued.*

| Case number | Case name | Company | Anti-dumping duty (with zeroing) (%) | Anti-dumping duty (without zeroing)[a] |
|---|---|---|---|---|
| DS294: No. 11 | (AR) Stainless steel sheet strip in coils from Italy | Acciai Speciali Terni SpA | 0.66 | Negative |
| DS294: No. 12 | (AR) Stainless steel sheet strip in coils from Italy | Acciai Speciali Terni SpA | 5.84 | Negative |
| DS294: No. 13 | (AR) Granular polytetrafluoroenthylene resin from Italy | Ausimont SpA | 2.15 | Lower |
| DS294: No. 14 | (AR) Granular polytetrafluoroenthylene resin from Italy | Ausimont SpA | 12.08 | Lower |
| DS294: No. 15 | (AR) Stainless steel sheet and strip in coils from France | Ugine | 3.00 | Negative |
| DS294: No. 16 | (AR) Stainless steel sheet and strip in coils from France | Ugine | 1.44 | Negative |
| DS294: No. 17 | (AR) Stainless steel sheet and strip in coils from Germany | KTN | 2.61 | Negative |
| DS294: No. 18 | (AR) Stainless steel sheet and strip in coils from Germany | TKN | 4.77 | Negative |
| DS294: No. 19 | (AR) Ball bearings from France | SKF France SA and Sarma | 8.51% | Negative |
| DS294: No. 20 | (AR) Ball bearings from Italy | SKF Industrie SpA | 3.70% | Negative |
| DS294: No. 21 | (AR) Ball bearings from United Kingdom | FAG Italia SpA<br>NSK Bearings Europe Ltd<br>Barden Corporation U.K. | 1.42%<br>16.87%<br>3.87% | Negative<br>Negative<br>Negative |
| DS294: No. 22 | (OI) Stainless steel wire rod from Sweden | Fagersta Stainless AB | 5.71% | Negative |
| DS294: No. 23 | (OI) Stainless steel wire rod from Spain | Roldán SA | 4.73% | Lower |

**Table 14.4:** *Continued.*

| Case number | Case name | Company | Anti-dumping duty (with zeroing) (%) | Anti-dumping duty (without zeroing)[a] |
|---|---|---|---|---|
| DS294: No. 24 | (OI) Stainless steel wire rod from Italy | Cogne Acciai Speciali Srl | 12.72% | Lower |
| DS294: No. 25 | (OI) Stainless steel wire rod from Belgium | ALZ | 3.84% | Lower |
| DS294: No. 26 | (OI) Stainless steel sheet and strip in coils from France | Usinor | 9.38% | Lower |
| DS294: No. 27 | (OI) Stainless steel sheet and strip in coils from Italy | Acciai Spaciali Terni SpA | 11.23% | Lower |
| DS294: No. 28 | (OI) Stainless steel sheet and strip in coils from the United Kingdom | Avesta Sheffield | 14.84% | Lower |
| DS294: No. 29 | (OI) Certain cut-to-length carbon-quality steel plate from France | Usinor | 10.41% | Lower |
| DS294: No. 30 | (OI) Certain cut-to-length carbon-quality steel plate from Italy | Palini and Bertoli SpA | 7.85% | Lower |
| DS294: No. 31 | (OI) Certain pasta from Italy | Italpasta<br>La Molisana<br>Liguori<br>Pagani | 21.34%<br>14.78%<br>12.41%<br>18.30% | Lower<br>Lower<br>Lower<br>Lower |
| DS322: No. 1 | (OI) Certain cut-to-length carbon-quality steel plate products from Japan | Kawasaki Steel Corporation | 10.58% | Lower (9.46%) |
| DS322: No. 2 | (AR) Tapered roller bearings, four inches or less in outside diameter, and components thereof, from Japan | Koyo Seiko Co., Ltd | 14.86% | Negative (−1.27%) |

**Table 14.4:** *Continued.*

| Case number | Case name | Company | Anti-dumping duty (with zeroing) (%) | Anti-dumping duty (without zeroing)[a] |
|---|---|---|---|---|
| DS322: No. 3 | (AR) Tapered roller bearings and parts thereof, finished and unfinished, from Japan | NTN Corporation | 17.58% | Negative (−6.01%) |
| DS322: No. 4 | (AR) Tapered roller bearings and parts thereof, finished and unfinished, from Japan | Koyo Seiko Co., Ltd | 17.94% | Lower (13.32%) |
| DS322: No. 5 | (AR) Ball bearings and parts thereof from Japan | NTN Corporation | 6.14% | Negative (−25.15%) |
| DS322: No. 6 | (AR) Cylindrical roller bearings and parts thereof from Japan | NTN Corporation | 3.49% | Negative (−25.24%) |
| DS322: No. 7 | (AR) Spherical plain bearings and parts thereof from Japan | NTN Corporation | 2.78% | Negative (−26.06%) |
| DS322: No. 8 | (AR) Ball bearings and parts thereof from Japan | Koyo Seiko Co., Ltd | 10.10% | Negative (−5.51%) |
| | | NTN Corporation | 9.16% | Negative (−15.21%) |
| | | NSK Ltd | 4.22% | Negative (−20.76%) |
| DS322: No. 9 | (AR) Cylindrical roller bearings and parts thereof from Japan | Koyo Seiko Co., Ltd | 5.28% | Negative (−11.70%) |
| | | NTN Corporation | 16.26% | Negative (−8.08%) |
| DS322: No. 10 | (AR) Spherical plain bearings and parts thereof from Japan | NTN Corporation | 3.60% | Negative (−10.31%) |
| DS322: No. 11 | (AR) Ball bearings and parts thereof from Japan | NSK Ltd | 6.07% | Negative (−18.78%) |
| | | Asahi Seiko Co., Ltd | 2.51% | Negative (−26.83%) |
| | | NTN Corporation | 9.34% | Negative (−12.17%) |

**Table 14.4:** *Continued.*

| Case number | Case name | Company | Anti-dumping duty (with zeroing) (%) | Anti-dumping duty (without zeroing)[a] |
|---|---|---|---|---|
| DS322: No. 12 | (AR) Ball bearings and parts thereof from Japan | NTN Corporation | 4.51% | Negative (−25.99%) |
| | | NSK Ltd | 2.68% | Negative (−29.90%) |
| DS322: No. 13 | (AR) Ball bearings and parts thereof from Japan | Koyo Seiko Co., Ltd | 5.56% | Negative (−10.83%) |
| | | NTN Corporation | 2.74% | Negative (−25.86%) |
| | | NSK Ltd | 2.46% | Negative (−29.61%) |
| DS344: No. 1 | (OI) Stainless steel from Mexico | ThyssenKrupp Mexinox S.A. de C.V. | 30.85% | Lower |
| DS344: No. 2 | (First AR) Stainless steel from Mexico | ThyssenKrupp Mexinox S.A. de C.V. | 2.28% | Negative |
| DS344: No. 3 | (Second AR) Stainless steel from Mexico | ThyssenKrupp Mexinox S.A. de C.V. | 6.15% | Lower (1.83%) |
| DS344: No. 4 | (Third AR) Stainless steel from Mexico | ThyssenKrupp Mexinox S.A. de C.V. | 7.43% | Lower (4.96%) |
| DS344: No. 5 | (Fourth AR) Stainless steel from Mexico | ThyssenKrupp Mexinox S.A. de C.V. | 5.42% | Lower (1.54%) |
| DS344: No. 6 | (Fifth AR) Stainless steel from Mexico | ThyssenKrupp Mexinox S.A. de C.V. | 2.96% | Negative |

[a]This column indicates what would have been the outcome if zeroing were not applied; 'lower' simply means the margin would have been lower; 'negative' means the margin would have been negative (*ie* no dumping) and as a result the case would have been terminated (for original investigations) or no duties would have been paid (for administrative reviews). '*De minimis*' means the margin is too small to be subject to an order. 'OI' indicates original investigation whereas 'AR' indicates administrative review.

*Source:* compiled by the authors from the public documents submitted as part of each AB dispute; case information available from the WTO website.

**Table 14.5:** *World Trade Organization disputes: reported impact of zeroing (summary).*

| | |
|---|---|
| Dumping margin lower | 30 |
| Dumping margin eliminated | 42 |
| Dumping margin change 'N/A' | 2 |
| Total cases | 74 |

*Source:* compiled from the information in Table 14.4.

**Table 14.6:** *World Trade Organization disputes: change in margin due to zeroing (percentage point change).*

| | Median (%) | Mean (%) |
|---|---|---|
| Cases where dumping margin was lowered but not eliminated | 3.9 | 3.3 |
| Cases where dumping margin was eliminated | 7.2 | 13.3 |
| All cases | 4.8 | 12.3 |

*Source:* compiled from the information in Table 14.4.

would be the case, for instance, if the computed margin without dumping was still quite high. Suppose a firm has a dumping margin with zeroing of 80% and that its margin without zeroing was 35%. It is not likely that a margin of 35% would result in a significantly different volume of imports than a margin of 80%: a duty can easily be prohibitive at 35%.

## 7 LIKELY IMPACT OF ZEROING ON DEVELOPING COUNTRIES

Until relatively recently, most of the WTO disputes over zeroing had been dominated by cases initiated by developed-economy complainants such as EC, Japan and Canada. While there have been a few cases involving developing-country complainants, zeroing was a side issue in many of these cases.[34]

Since 2008, however, a growing number of developing countries such as Vietnam, Korea, Thailand and Brazil have initiated zeroing complaints at the WTO. Can we expect other developing countries to join the fray? The answer seems to be yes. First, the United States applies its practice of zeroing against all subject import suppliers. Every developing country with products subject to U.S. anti-dumping orders has had zeroing applied. Second, as Figure 14.2 indicates, there are many developing-country exports subject to current U.S. anti-dumping orders. This means that there are many cases that could be the basis for a WTO complaint. Third (and perhaps the most compelling reason

[34]Disputes 206, 335, 343 and 345 all contained zeroing complaints but they were primarily about other procedures.

why one should expect more zeroing cases), the WTO AB's views on zeroing are now well established. As discussed above, numerous decisions have been made against zeroing. Moreover, the most recent WTO decisions have clearly established the general inconsistency of zeroing and have responded to all criticisms by panels of the early zeroing decisions. Given these decisions, it is hard to see how the United States could win any zeroing dispute at the WTO. This reality is likely to embolden other countries to initiate their own actions against the United States.

The key unknown is the extent to which zeroing has a different impact on developed- versus developing-country margins. If zeroing has a smaller impact on developing countries, then arguably there is a smaller benefit to be gained from filing a costly WTO dispute. This might be the case, for instance, if developing-country prices are consistently low or consistently high (as shown in Figure 14.3). In these cases, even though zeroing is technically applied to the pricing data, it may not have any influence (or only a small impact) on the margin. It could also be the case that import prices for developing countries were subject to less volatility than those for developed countries. As shown in Figure 14.5, if this were the case, then, all else being equal, zeroing will have less of an impact on the anti-dumping duty for countries with less price variation. In these situations, developing countries will have a smaller stake in a WTO dispute and, hence, will be less compelled to initiate a dispute. Finally, and as discussed in the last section, it may also be the case that the counterfactual dumping margins applied in the absence of zeroing might still be so high that the applied U.S. anti-dumping duty is still prohibitive; that is, *de facto*, there is no positive trade-enhancing effect of eliminating zeroing from the dumping calculation.[35]

This discussion suggests that it is possible that both the benefits and costs of WTO disputes may differ for developing countries, and we might not see a lot of developing-country-initiated zeroing disputes as a result. Because the failure to initiate a dispute is not clear evidence that there has been no harm, whether or not the U.S. zeroing process is also likely to adversely impact developing-country exporters is therefore an important empirical question.

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[35]Moreover, as Bown (2009) notes, in general, the cost relative to benefits for developing countries to challenge the United States at the WTO might be higher than for developed countries. Nevertheless, this does not appear to be much of an issue for potential developing-country complainants when the trade barrier at issue is the trading partner's use of anti-dumping, of which there are many disputes. Indeed, Bown (2009, Table 6.6) points out that, with access to the Advisory Centre on WTO Law—which provides DSU legal assistance to developing-country clients—there have been a number of disputes in which the imposed anti-dumping measure being challenged was restricting less than $3 million of trade per year.

For our purposes, we limit ourselves to the question of whether zeroing has a significant effect on any potential duty imposed on developing countries. To get a sense of the possible extent of zeroing's impact on developing countries, we gathered U.S. import data for some of the most prominent products subject to U.S. anti-dumping-duty scrutiny over the past decade.[36] Two factors influenced what products we included in our sample. First, we wanted to capture cases that were economically 'important' for developing countries and were in products most likely to be subject to anti-dumping examination. Second, we wanted to focus on products where we had strong independent evidence that there had been a WTO zeroing violation. With respect to the first criterion, we included cases where there was both significant anti-dumping activity and also substantial import supply by developing countries. With respect to the second criterion, we included products for which there already had been WTO disputes.

Once we selected the products to review, we then calculated the monthly price variation over the 12 months of the year prior to the filing of the case, a time generally used by the USDOC in its anti-dumping-duty calculations. Products were identified at the Harmonized Tariff Schedule (HTS) ten-digit level. To assist in comparability across the various products, we normalised the prices for each HTS product so that the mean price for each HTS product was 1 for the sample period. With that normalisation we then computed the pricing variation over the period.

We used the World Bank's country classification guide to divide countries according to their development status (World Bank 2010). We group countries designated by the World Bank as 'low income' and 'lower-middle income' as *low income* and those designated 'upper-middle income' and 'high income' as *high income*.[37]

We can use a regression analysis to test for the statistical significance of the difference in price variation. The ordinary least-squares results for a linear specification are given in Table 14.7. We also control for whether a supplying country was subject to the investigation in these regressions. For each product, suppliers fall into one of four categories: subject high income; subject low income; non-subject high income; and non-subject low income. All parameters are measured relative to the subject-high-income countries; *ie* the economies filing the zeroing disputes against the United States at the WTO. In specification A we include just the basic controls; in specification B we attempt to control for the possible correlation between price variation and price levels by also controlling for the general level of prices. In this specification 'low prices' (respectively, 'high prices') correspond to exporters with prices at least

[36] A list of cases included in the analysis is given in Appendix 14.1.

[37] Most countries in our sample that we call 'low income' fall under the World Bank's 'lower-middle income' category.

**Table 14.7:** *Ordinary least-squares regression: month-to-month variation in prices, by supplying country.*

| | A | B |
|---|---|---|
| Subject, low income | −0.164 | 0.026 |
| | [0.122] | [0.802] |
| Non-subject, high income | 0.379 | 0.331 |
| | [0.000]*** | [0.000]*** |
| Non-subject, low income | 0.197 | 0.341 |
| | [0.070]* | [0.001]*** |
| 'Moderate' prices | | 0.297 |
| | | [0.000]*** |
| 'High' prices | | 1.174 |
| | | [0.000]*** |
| Constant | 1.070 | 0.608 |
| | [0.000]*** | [0.000]*** |
| Observations | 1,948 | 1,948 |
| Adjusted $R^2$ | 0.021 | 0.105 |

$p$-values are shown in square brackets. '*', '**' and '***' denotes significance at the 10%, 5% and 1% levels, respectively.

30% below (respectively, above) the average for the product. The third category ('moderate prices') denotes export prices within 30% of the average price. In specification B moderate- and high-price suppliers are measured relative to low-price suppliers.

The table reveals several interesting insights. First, let us focus solely on the subject suppliers that were confronted with U.S. anti-dumping. The results indicate that there is no statistically significant difference in price variation for low-income and high-income countries. In specification A the estimate is negative and in specification B the estimate is positive. In both specifications the parameter estimates are statistically insignificant. This is important because it suggests that price volatility for developing countries is comparable with that of developed countries, at least with respect to the products in our sample. What does this mean for zeroing? Given that many products in our sample were the basis for WTO zeroing disputes, we know that zeroing has affected the margins for developed countries in the sample. All else being equal, the similarity in price volatility makes it likely that zeroing has affected the margins and duties that the United States imposes on *developing* countries. Thus, even though developing countries did not initiate the WTO disputes, they are quite likely to be affected by zeroing in the same way as the developed countries that did initiate the disputes. Put differently, the results suggest that the lack of WTO activity is not a sign that zeroing is less relevant for developing countries.

Second, both specifications show that price volatility for non-subject suppliers is higher than for subject suppliers. The parameter estimates are

statistically significant in both specifications. This suggests that the spectre of zeroing also looms over non-subject countries. While they were not investigated in these cases, their price variation is greater than for firms that were investigated, which makes it likely that zeroing would also have affected their dumping margins.[38]

Third, in specification B, we control for the suppliers' export price levels. This is an attempt to capture some of the insights from our earlier discussion about the impact of price levels on zeroing. While the estimates clearly show that higher volatility is associated with higher price levels, the main results with respect to subject and non-subject suppliers are consistent across both specifications.

Overall, the results from this analysis indicate that developed and developing countries have comparable price volatility. Thus, although developing countries have not yet initiated many WTO disputes about zeroing, the pricing evidence suggests that their margins have been similarly affected by zeroing.

## 8 CONCLUDING COMMENTS

Zeroing has emerged as a particularly irksome issue for all affected parties. For the United States, the numerous negative decisions fuel the belief in Congress that the WTO is biased and lessens U.S. support for the WTO. For U.S. trading partners, the United States' unresponsiveness to the zeroing decisions sends a signal that compliance is voluntary, and this effectively erodes the legitimacy of the WTO. At one level, the WTO's current inability to resolve the zeroing issue echoes of the enforcement problems that eroded support for the GATT dispute system in the 1980s.

The evidence suggests a real possibility that developing countries will also soon begin filing WTO complaints over the United States' use of zeroing. First, WTO AB has now a long series of decisions striking down virtually all use of zeroing.[39] This makes it far more likely that a developing country will prevail in a dispute against the United States. Second, the evidence indicates that the elimination of zeroing significantly reduces the anti-dumping margin. This means there is the potential for a large economic return to the filing dispute.

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[38]One potential explanation for why the non-subject countries were not investigated is that they were not 'dumping'. However, without any information on home market prices, we cannot infer whether these suppliers are selling at less than fair value.

[39]The AB decisions suggest that zeroing in response to 'targeted dumping' is consistent with the WTO. What constitutes 'targeted dumping' is unclear. Recent actions by USDOC seem to indicate that the United States will try to use this exception in order to continue zeroing (*eg* zeroing was applied in the final determination of sales at less than fair value in a recent case involving polyethylene retail carrier bags from Taiwan (China), 75 Fed. Reg. 14569, March 26, 2010).

Third, the empirical evidence implies that developing countries' export prices are at least as volatile as developed countries. This makes it likely that zeroing has affected developing-country margins and, thus, the size of anti-dumping duties that their exporters face. Fourth, at this point in time, there is no clear sign that the United States is ready to stop zeroing. This means that the WTO violations will remain unless pursued by the affected developing countries.

All signs, therefore, point towards more WTO cases and more strain on the system. However, we do not believe that the zeroing problem will be the ruin of the WTO DSU. The WTO dispute mechanism is, to a large extent, 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. As of early 2010, several cases are in, or have just finished, the Article 21.5 compliance phase of the DSU. As specified by the WTO agreement, complainant parties will probably soon have the right to retaliate against U.S. trade to offset the damage due to zeroing.

Much to the frustration of the other WTO members, the retaliation value is likely to be quite small for most instances of violation. For most countries and most products, the value of trade subject to anti-dumping orders is quite small. Even if half the orders are removed, the dollar value of current WTO decisions against the United States is probably insufficient to spur action by Congress. While zeroing is consuming a large amount of AB time, the reality is that it might be too small a violation to induce a difficult policy change.

The resolution to the zeroing issue may well be that the retaliatory claims against the United States—likely including many by developing countries—will have to continue to amass until the impact is sufficient enough to spur the USDOC to change its policy. In effect, the large number of zeroing cases at the AB is one indicator that it is a small issue economically.

Nevertheless, for the WTO itself, the growing number of very similar, unimplemented decisions against a prominent and powerful member challenge the stature of the institution. If the WTO cannot resolve something as simple as zeroing, how can any of its members hope that the AB can help resolve truly complicated and politically charged issues like genetically modified organisms, intellectual property standards, agriculture reform, labour standards or border tax adjustments for climate change? From this perspective, it is in the WTO's best interests to see that the zeroing conflict is resolved sooner rather than later.

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## 9 APPENDIX

**Table A14.1:** *U.S. anti-dumping cases used in price variation analysis.*

| Product | Case ID (Bown 2010) |
|---|---|
| Ball bearings | USA-AD-391a, USA-AD-392a, USA-AD-393a, USA-AD-394a, USA-AD-399a |
| Brass sheet/strip | USA-AD-317 |
| Certain frozen and canned warmwater shrimp and prawns | USA-AD-1063, USA-AD-1064, USA-AD-1065, USA-AD-1066, USA-AD-1067, USA-AD-1068 |
| Chlorinated isocyanurates | USA-AD-1083 |
| Citric acid and certain citrate salts | USA-AD-1151, USA-AD-1152 |
| Cold-rolled carbon steel products | USA-AD-829, USA-AD-830, USA-AD-831, USA-AD-832, USA-AD-833, USA-AD-834, USA-AD-835, USA-AD-836, USA-AD-837, USA-AD-838, USA-AD-839, USA-AD-840 |
| Cold-rolled steel products | USA-AD-964, USA-AD-965, USA-AD-966, USA-AD-967, USA-AD-968, USA-AD-969, USA-AD-970, USA-AD-971, USA-AD-972, USA-AD-973, USA-AD-974, USA-AD-975, USA-AD-976, USA-AD-977, USA-AD-978, USA-AD-979, USA-AD-980, USA-AD-981, USA-AD-982, USA-AD-983 |
| Corrosion-resistant carbon steel sheet | USA-AD-617 |
| Cut-to-length carbon steel plate | USA-AD-815, USA-AD-816, USA-AD-817, USA-AD-818, USA-AD-819, USA-AD-820, USA-AD-821, USA-AD-822 |
| Cylindrical roller bearings | USA-AD-391c, USA-AD-392c, USA-AD-393c, USA-AD-394c, USA-AD-399c |
| Granular polytetrafluoroethylene resin | USA-AD-385 |
| Hot rolled carbon steel flat products | USA-AD-806, USA-AD-807, USA-AD-808 |
| Hot-rolled carbon steel products | USA-AD-898, USA-AD-899, USA-AD-900, USA-AD-901, USA-AD-902, USA-AD-903, USA-AD-904, USA-AD-905, USA-AD-906, USA-AD-907, USA-AD-908 |
| Industrial nitrocellulose | USA-AD-443 |
| Nitrocellulose | USA-AD-96 |

**Table A14.1:** *Continued.*

| Product | Case ID (Bown 2010) |
|---|---|
| Oil country tubular goods | USA-AD-1000, USA-AD-1001, USA-AD-1002, USA-AD-1003, USA-AD-1004, USA-AD-1005 |
| Oil country tubular goods | USA-AD-992, USA-AD-993, USA-AD-994, USA-AD-995, USA-AD-996, USA-AD-997, USA-AD-998, USA-AD-999 |
| Pasta | USA-AD-734 |
| Purified carboxymethylcellulose | USA-AD-1084, USA-AD-1085, USA-AD-1086, USA-AD-1087 |
| Spherical plain ball bearings | USA-AD-394e |
| Stainless steel bar | USA-AD-913, USA-AD-914, USA-AD-915, USA-AD-918 |
| Stainless steel plate in coils | USA-AD-788 |
| Stainless steel sheet and strip | USA-AD-797, USA-AD-798, USA-AD-799, USA-AD-802 |
| Steel concrete rebar | USA-AD-878 |
| Tapered roller bearings | USA-AD-343 |