WTO Subsidy Rules and Tariff Liberalization: Evidence from Accession of China

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Abstract

Recent years have seen an increasing concern regarding the subsidy practices of WTO members around the world. The WTO regulates its members' subsidies by defining subsidies that are permissible, as well as by providing means to retaliate against subsidies of partner countries if these subsidies hurt one's interest. These subsidy rules might, however, have an unintended effect. As both subsidies and tariffs are substitute instruments of protection, tighter subsidy rules might lead to a decrease in the pace of tariff liberalization. In this paper we present first empirical evidence in support of this prediction. Using the case of China's accession to the WTO in 2001 as a case study, we show that China's accession to the WTO was associated with a relative increase in its tariffs for products that faced a higher threat of retaliation against subsidies. We also show that the increases in tariff were larger in products with higher potential costs imposed by retaliation.

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1 Introduction

Are WTO accessions necessarily associated with a reduction in tariffs? A casual answer to this question inarguably is, Yes. However, once we look more carefully the answer is slightly difficult. Rose (2004b) looks at varying measures of trade restrictiveness and finds that there is not much difference in trade policies of member and nonmember countries. Still we do tend to associate WTO accessions with a decrease in tariffs. In this paper we highlight a channel through which WTO accession would actually lead to an *increase* in tariffs. In particular, we show that the WTO rules on Subsidies and Countervailing Measures (SCM) that aims to curb the "distortionary" subsidy practices of the member countries, can have an unintended effect of hindering tariff liberalization.

The underlying idea is as follows. The WTO Agreement on Subsidies and Countervailing Measures (SCM) are binding to all members at the time of accession. The SCM agreement prohibits the use of certain subsidies (e.g. export subsidies), while other subsidies (such as production subsidies) are actionable i.e., other member countries can take retaliatory actions against the subsidizing member. Since tariffs and subsidies are substitute instruments of protection, by making providing subsidies difficult, they make protection through other means such as tariffs more attractive.

Given the well-known efficiency of subsidies over tariffs, WTO rules that discourage subsidies are quite puzzling (see Bhagwati & Ramaswami (1963), for example). In fact, Bagwell & Staiger (2006) write, "..when viewed in the light shed by the existing theoretical literature on domestic subsidies in trading economies, attempts to discipline the use of production subsidies appear misguided, if they simply redirect government interventions toward the use of second-best instruments of intervention such as tariffs..." (page 1).

Similarly, the 2006 WTO World Trade Report recognizes the importance of

the issue but states "..The extent to which stronger subsidy rules have inhibited commitments to reduce tariffs is obviously an empirical matter in respect of which we have no evidence..." (page 196). In this paper we provide first empirical evidence that shows that the WTO subsidy rules and the associated channel we highlight can have a strong effect on tariffs.

It is important to understand the link between production subsidies and tariffs as they are among the most widely used instruments of trade policy. However, despite several theoretical papers discussing the optimal levels of production subsidies and tariffs, there are relatively few empirical studies that focus on this issue. Mitra, Thomakos & Ulubasoglu (2004) study the determinants of tariffs (protection) and production subsidies (promotion) using Turkish industry-level data and find that the mix of protection versus promotion is inversely related to the ratio of their respective dead weight losses. , on the other hand, Ederington & Minier (2006) look at the aggregate cross-country data to explore the determinants of the choice of tariffs over subsidies. However, to the best of our knowledge there are no existing evidence of any impact on tariffs due to a change in subsidies, or vice versa, that can highlight a substitution relationship.

The WTO accession and the SCM agreement provide a natural setting to implement our tests.[1] The SCM agreement is binding to every country at the

[1] The WTO Agreement on Subsidies and Countervailing Measures (SCM) defines subsidies and describes a set of rules that discipline both the use of subsidies and the actions that other members can take against subsidies. Any financial contribution from the government, or its agent, in the form of a direct transfer or grant, or acts which unfairly decrease the costs of domestic producers by providing incentives such as low interest loans, low priced raw materials or inputs such as water or electricity, or forgoing tax revenues etc. are considered to be subsidies in the sense of this agreement.

Subsidies are classified into: prohibited subsidies and actionable subsidies. Subsidies that are based on export performance or encourage use of domestic goods over imports fall into the category of prohibited subsidies. The second category – actionable subsidies – refers to those 'specific' subsidies that adversely affect or cause injury to the domestic industry of any member government.

According to the SCM rules if the bilateral negotiations between the subsidizing country and another country which is hurt by the subsidies fails, the members can complain against the subsidizing member in the WTO's Dispute Settlement Body (DSB). Alterna-

time of its accession. However, according to the agreement not every subsidy is automatically banned. The members are free to provide certain subsidies to its producers as long as it does not adversely affect the other members. Hence, it is at the discretion of other member countries whether to retaliate against a subsidized product or not. For those products that do not face any perceived threat of retaliation against subsidies, we should not have any substitution effect on tariffs of the acceding country. However, there would be a substitution towards tariffs in those products that face a positive threat of retaliation. Hence, we can use a difference-in-difference approach to test our hypothesis.

We test our hypothesis using China's accession to the WTO in December 2001. In order to implement our test an important task is to identify a proxy for the "threat of retaliation". According to the WTO rules, existing members can retaliate against another member country's use of subsidies either by imposing a Countervailing Duty (CVD) on the imports of the subsidized product, or by going to the Dispute Settlement Body (DSB) of the WTO. However, in reality CVD duties are much more frequently used means to retaliate as compared to the DSB, hence we focus on the countervailing duties as a means to retaliation.[2]

The idea that CVDs are used to deter subsidies is not new. According to sev-

tively, member governments are allowed to unilaterally retaliate against the subsidizing member by imposing a countervailing duty on the subsidized imports if the subsidy hurts their interests. Note that, the WTO also provides for dispute settlement mechanisms, which a member government could resort to if it believes that it has been treated unfairly by another member, or if it believes that its trading partner's actions are not consistent with the SCM rules. Hence, these rules put a lot of discipline on a member country's use of subsidies, as well as the retaliatory actions available to its trading partners. (Source: Legal texts - Agreement on Subsidies and Countervailing Measures, Understanding the WTO) http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm8_e.htm#subsidies)

[2] While there are some high profile subsidy cases that involved dispute settlement body of WTO (eg. Boeing-Airbus etc.) the use of DSB in subsidy cases is relatively rare. Taking the most liberal definition of the use of WTO DSB in context of subsidies (i.e., whenever GATT article VI or XVI or any of the SCM articles is mentioned in the dispute) and even looking at the very first request for formation of panel (irrespective of the outcome and/or whether the request was later retracted), out of the total 311 Dispute Settlement Cases since the inception of the WTO to July, 2004 Australia, Canada, EU and US (the four countries used in the empirical analysis in this paper) were a complainant only in 27 cases. Out of this there were only 8 cases that dealt with another member giving a subsidy.

(Source - WTO website and the WTO Dispute Settlement Database by Horn & Mavroidis (2006)).

eral scholars, the primary role of the CVD is to act as a deterrent against 'unfair' subsidy practices of the member governments. Along these lines Hoekman & Kostecki (1995) note, "..There are two possible rationales for responding to foreign subsidies *via CVD*. The first *rationale, that it is used* to offset injurious effects of such policies on domestic industries, ..has little economic merit. The *second rationale*, that *the CVD is used to restrict* imports of products that have benefited from unfair government assistance, ..as a means of inhibiting the use of such measures, has greater economic merit." (page 332, *italics added*).[3]

Looking at the countervailing duty actions taken in the WTO, we see that some products and industries have been targeted much more frequently than others (eg. steel). Furthermore, the existing empirical evidence suggests that variables such as political economic strengths of the industry are very important in determining whether it will be successful in getting a countervailing duty imposed on its counterparts in the subsidizing country. Since these political economy factors are relatively persistent, past retaliations can help in predicting future actions. Hence, we use past countervailing duties imposed by some of China's major trade-partners (against members other than China) to derive a proxy for the perceived "threat of retaliation" faced by China when it entered the WTO.

To be precise, we construct a product level dataset on Countervailing Duties imposed by Australia, Canada, the EU, and the US – four of the heaviest users of countervailing duty measures and also major trade partners of China (that together account for approximately fifty percent of China's trade) – between 1995 and 2001 i.e. since the inception of the WTO to the accession of China to the WTO, by using their WTO notifications and official government publications. To the best of our knowledge, this is the first empirical study to use detailed six-digit product level countervailing duty data for a broad set of

[3] Also see Deardorff & Stern (1987).

countries. We look at the impact of the threat of retaliation faced by Chinese industries at the time of the country's accession to the WTO. Thus, this paper also contributes to relatively scant, though growing, empirical literature on the impact of retaliation by a trading partner on a country's trade policy.[4]

Our results show that there was a relative increase in China's tariffs, as it acceded to the WTO, for products that faced a positive probability of getting retaliated against. This adverse impact on tariffs is not only statistically but also economically significant. According to our most conservative estimates, as China entered the WTO there was a relative increase in its tariffs of at least 0.5 percentage points (about 9%) for those products that faced a threat of retaliation against subsidies compared to those that did not. Furthermore, we show that the impact of the threat of retaliation was higher in sectors with higher exports – precisely the sectors in which the cost due to retaliation would also be high.[5] In fact, according to our estimates, while for those sectors that did not face a threat of retaliation a 1% increase in exports would lead to a 1.2% *decrease* in tariffs, the same 1% increase in exports would result in a 3% *increase* in tariffs for sectors that faced a threat of retaliation.

In order to test the validity of our results we perform several sensitivity and robustness exercises. We also show that these results are robust to alternative specifications, sample sizes and outliers. In one of the interesting counterfactual exercises to confirm that the results indeed are due to the threat of retaliation and not due to some underlying unobservables, we show that we do not get the

[4] For papers dealing with retaliation on country's trade policy, see Feinberg & Reynolds (2006), Blonigen & Bown (2003) and Prusa & Skeath (2005). Note however that both Blonigen & Bown (2003) and Prusa & Skeath (2005) look for retaliation at the country level. While Feinberg & Reynolds (2006) looks at the individual HS section level retaliation, that is still very broad compared to our product or industry specifications. Also note that all these papers deal with anti-dumping duties, whereas here we focus on CVD duties.

[5] In our case the relevant threat of countervailing duty is the threat of CVD being imposed by China's trade partners on imports of subsidized Chinese products. Hence, for any given level of CVD duty, the losses to Chinese producers will be higher the higher its exports of that product.

same results if we use the sample years before China entered the WTO.

The rest of the paper is structured as follows. Section 2 outlines our empirical strategy and describes the rationale for adopting this strategy. Section 3 gives a description of the data. Section 4 presents the main empirical results of the paper. Section 5 provides results of other extensions of the model and robustness tests. Section 6 concludes.

2 Empirical Strategy

2.1 Countervailing Duties and Existing Evidence

In order to motivate our strategy of looking at the past retaliation to get a proxy for the threat of retaliation, it is instructive to look at the CVD duties used in the WTO by its members, and some of the existing empirical literature in the area, before moving on to discuss our methodology.

First, in order to be able to provide a suitable proxy for retaliation we need to understand what elicits retaliation against subsidies. Hence, we look at the existing literature that deals with the determinants of CVD from the point of view of the country imposing the duty. Marvel & Ray (1995) focus on the determinants of countervailing duties in the US from 1980-1993, and observe that the "same protectionist forces" that lead to anti-dumping duty also give rise to the countervailing duties. Similarly, Baldwin & Steagall (1994) show that besides the economic variables indicating injury to the domestic industry a number of other factors are also responsible for a positive CVD outcome (imposition of duty). Though, they note that economic variables are more important in the CVD cases as compared to the AD cases. Finger, Hall & Nelson (1982) and Hansen (1990) combine both Anti-Dumping Duty (AD) and CVD together and conclude that political economy variables are important determinants of these

types of protection. Similarly, in one of the recent studies using US ITC decisions on antidumping and countervailing duties, Hansen & Prusa (1997) find both economic and political variables to be important.[6]

Thus, whether a CVD will be imposed depends on factors such as political economy variables of the country that is hurt by subsidization. Since, these factors are likely to be exogenous to the political economic factors of the country whose subsidy decisions we want to study, we can use the CVD measures imposed by its major trading partners (against other countries) to get the expected probability of getting hit by CVD in an industry if the acceding country engages in subsidization.

Table 1 provides a sectoral breakdown of the CVD duties imposed during 1995-2004 as reported in WTO statistics on subsidies and countervailing measures.[7] The WTO reports these data based on the semi-annual notifications of the members. In this table each countervailing duty order in a sector against a given country is counted once though every order may contain several products. As we can see from the pattern of countervailing duties, some industries are much more likely to be targeted by CVDs than others. For example the Steel industry (HS section XV) alone accounts for almost 40% of the total new CVD measures between 1995-2004. On the other hand, there are some industries widely known to be the recipient of subsidies, like Paper and Pulp (HS section X) or Footwear and Umbrellas (HS section XII), which did not have a single new measure imposed during this period.[8]

The simple correlation between the CVD measures imposed by the US and

[6] While most of these studies relate to the US there have been some studies related to EU and Australia with similar conclusions.

[7] Source: (source- SCM gateway, WTO) http://www.wto.org/english/tratop_e/scm_e/scm_e.htm

[8] That some industries are targeted more frequently than others, has also been noted elsewhere. For example, Chu & Prusa (2004) note that, while most of the three-digit (ISIC) Chinese manufacturing industries have been targeted by anti-dumping duty, four sectors - Chemical, Machinary & Equipment, Textile and Basic Metals - account for 80 percent of all cases.

the EU, two major users of CVD duties is very high (0.66). Classifying countries into groups of developed and developing countries, we again find that the correlation between the CVD measures imposed by the two groups is 0.68, indicating that similar set of industries have been targeted by the CVD by different countries. Thus, it shows that some products are much more likely to be target of CVD than others. Industries which have been frequent targets of the CVD are expected to have a higher probability of being retaliated against.[9] Hence, for those industries where the probability of a countervailing duty being imposed is higher, we would expect the protection in the acceding country to switch towards using less efficient means - such as tariffs.

An anecdotal evidence in support of our strategy relates to the paper and pulp industry. As mentioned earlier, there has not been a single incidence of positive countervailing duties in this industry between 1995-2004. Thus, according to our hypothesis we should see subsidies being used in this industry in China, as our strategy predicts low probability of getting hit by a countervailing duty based on past CVD activities. According to a recent report prepared by American Forest & Paper Association (June 2004) and draft statement of US-China Joint Commission on Trade Working Group on Structural Issues (May 2004), this indeed seems to have taken place in China. The report mentions, as one of its key findings, plans by the central government to provide subsidies to this industry through a number of financial and tax incentives.[10]

[9] Past CVD duties give a picture about the probability of CVD being imposed not only because it gives an idea about the political strength of the industry in the partner country, but also because a number of studies have shown, a) the trend of industries filing for relief in the same products where the duty was imposed earlier and b) the higher probability of finding a positive outcome if a duty had been in place in past. For example, Blonigen (2006) suggests that the past experience in filing for AD petitions helps the firms to lower the cost of petitions as well as affects the likelihood of successful outcomes.

[10] (Source-https://www.bipac.net/afpa/pdf/China_Key_Findings6-3-04.pdf, http://ia.ita.doc.gov/download/us-china-jcctwg/comments/afpa-jcctwg-cmt.pdf

Note that, recently after a long gap of not applying a countervailing duty against a non market economy, the first countervailing duty initiated by the commerce department is on imports from paper industry of China.

Note that, this may also just reflect the fact that all countries are subsidizing in this sector and so if one uses a CVD against another it will also face CVDs on its own exports. This again is consistent with our approach that not all sectors that use subsidies would automatically face a retaliation. Hence, there exists a differential probability of retaliation for different products even if they all use subsidies; which is what we exploit in the empirical strategy.

3 Data

Since the four traditionally heavy users of countervailing duties – Australia, Canada, the EU[11] and the US – are also some of the main trading partners of China, we use countervailing data from these countries. We take the countervailing duties in force information from the semi-annual reports submitted to WTO SCM committee by these four countries for the period 1995-2001. Since, these semi-annual reports only state the names (and the date in force) of the cases (broad category) and not the actual products involved, the information about the products on which these countervailing duty were imposed was taken from respective government publications for each of the four countries. For the US, the information regarding the products involved in a given case was taken from various issues of the *Federal Register*. For the European Union, the relevant information is regularly published as council regulations in the *Official Journal*. For Canada the product codes involved were taken from the *Canada Border Service Agency*'s Dumping and Subsidy information section (for some cases the information came from the *Canada Gazette* and the *Canada International Trade Tribunal).* Finally, for Australia the corresponding product codes were taken from the *Australian Customs Service's* Dumping and Countervailing

[11] The EU is considered to be a single partner for our case comprising of the 15 countries before its enlargement in 2004.

Duties status reports.

Since, the most disaggregated level at which the product codes are consistent across countries is at the six digit level of Harmonized Schedule (HS6), we do our analysis at this level. The data on bilateral imports for these four countries were taken from COMTRADE database at the HS6 digits from 1993-2003. Import and export data for China are also from the same source. In addition the data on tariffs from 1996-2003 at the HS6 digits were taken from TRAINS database.[12]

The data on the manufacturing industries in China was taken from various issues of the *China Statistical Yearbook* (published annually by China Statistical Bureau). The information on manufacturing industries is at the two digit level of Chinese industrial classification (39 mining and manufacturing industries). This industrial classification is based on the three-digit ISIC classification, though it is sometimes more detailed than that (Source - United Nations Statistics Division).[13] In order to get the concordance between HS6 digits and Chinese industrial codes, the concordance table between six digit HS products and four digit ISIC industries (about 80 manufacturing industries) from WITS software (World Bank) was used. Hence, the six digit trade and tariff data were concorded to the four digit ISIC industries, which were then matched into different Chinese industrial codes.

The average (applied) tariff levels in China for the years 2000 and 2003 for Chinese two digit industries are given in Table 2.[14] There is a lot of variation in average tariffs even at this level of aggregation both before and after accession to the WTO. Some industries have very high tariffs as compared to others (e.g., Tobacco processing, Beverage manufacturing, Textile and garment industries).[15]

[12] Tariff information for 2002 for China was not available.

[13] http://unstats.un.org/unsd/cr/ctryreg/ctrydetail.asp?id=191, http://www.oecd.org/dataoecd/32/24/33982319.pdf)

[14] These are simple unweighted averages.

[15] Note that for tobacco industry the standard deviation for tariffs in 2000 is zero i.e. all six digit product categories belonging to this industry had the same high rate of tariff.

The third set of columns in this table refers to the (absolute) change in tariffs within this period.[16]

The average tariff rates in China have gone down with accession to WTO (from 17% to 11% ad valorem rate). However, the changes in tariff rates have not been uniform across industries, and range from reductions as low as 1 percentage point to as high as 27 percentage points. In fact, while for the paper industry the average tariff rates have fallen from 14.9% to about 7.4% (a reduction of 49%), for chemical fiber industry – an industry with roughly equal initial tariff rates – the tariffs have gone down from 14.9% to 9.1% (a reduction of only 39%). Note that, in light of our earlier observations, this is exactly what we expected to find. Paper industry, an industry with relatively few instances of countervailing duties, will have a higher reduction in tariffs than another industry like chemical fiber, where a number of countervailing duties have been imposed in past, as subsidies can no longer be given to the chemical producers freely.[17]

4 Baseline Model

4.1 Empirical Methodology

The reduced form equation for tariff rates in China can be written as

$$\tau_{jt} = \alpha_j + \alpha_t + \beta \Pr(Retaliation)_{jt} + \gamma Y_{jt} + \upsilon_{jt} \tag{1}$$

where α_j and α_t are product and year specific factors, and Y_{jt} is a vector of other variables leading to the imposition of tariffs. $\Pr(Retaliation)$ is zero for all products before the country signs the agreement. However, once the coun-

[16] A list of the main variables used in this study along with their source and summary statistics is given in Table A1.

[17] Note, as mentioned earlier, the US paper and pulp association has alleged that China engages in rampant subsidization.

try becomes a part of the WTO there is a positive probability of retaliation if the country engages in subsidization.[18] Furthermore, this probability of retaliation might differ across industries depending on the product and the political economic characteristics of the trading partners.

We assume the expected probability of retaliation for any product j to be given by

$$\Pr(Retaliation)_{jt} = (a_t + cCVD_j) * WTO_t \tag{2}$$

where WTO_t is an indicator that takes the value one when the country is a member of the WTO (and hence the SCM agreement), and is zero otherwise. Similarly, CVD_j is an indicator that takes the value one if at least one of the above four trading partners of China had imposed a countervailing duty against another WTO member for that product during 1995-2001. A priori, we expect that $c \geqslant 0$.

Thus, if we take the time difference of (1), taking a period before and after accession we can write it as,

$$\Delta\tau_j = \alpha + \beta cCVD_j + \gamma Z_j + \varepsilon_j \tag{3}$$

where $\alpha = (\alpha_t - \alpha_{t-1}) + \beta a_t$ and $Z_j = \Delta Y_j$ is a vector of other variables which affect changes in tariff rates.[19] This transformation into the difference form has the advantage that all unobserved time-invariant product-specific effects are being controlled for in the regression.[20]

[18] All that we need is that the probability of retaliation against subsidies go up with accession. Note that, while in principle countries can retaliate against subsidies of other non-WTO member countries by invoking their domestic laws these instances are less frequent. For example, between 1980-2004 the US has used CVD against non-WTO member countries only about 15% of the time; and only three times since the inception of the WTO. (Source- Global Antidumping Database by Chad Bown)

[19] In order to minimize any possible problems due to endogenity of regressors, we use the controls from a year before the initial year in the dependent variable.

[20] This transformation ensures that even if there are country specific factors that make some country a more likely target than others, it will not bias our estimates. Also, even if the probability of retaliation prior to accession in non-zero we can still be confident in our

According to our main hypothesis there will be a relative increase in tariffs in sectors that face a higher threat of retaliation, ceteris paribus. Thus we expect the coefficient (βc) to be positive. Note that we are taking change in tariffs i.e. $\Delta\tau$ = tariff after accession-before accession, thus a positive coefficient on CVD_j indicates a relative increase in tariffs.[21]

The most obvious covariate that one should control for is the initial level of tariffs, as the amount of the change in tariffs is likely to depend on the initial tariff level (Baldwin (1985)). However, it is not immediately clear what the sign of the coefficient of initial tariffs should be. On the one hand, because the outcome of WTO negotiations generally takes the form of a given percentage reduction in *average* tariff levels, we would expect the reduction in tariffs to be higher for the industries where the initial tariff rate is higher. This would also be true if we think of accession to the WTO as a commitment device by the benevolent government; in this case, the government can use the WTO to credibly commit to reducing tariffs and hence we would expect the tariff reductions to be larger in sectors where prior to accession tariff reductions were not possible due to some sociopolitical factors. On the other hand, if tariffs were a result of lobbying, a high initial tariff would indicate the political (bargaining) power of that group and hence we would expect this group to be successful in getting lower cuts.

4.2 Results

Table 3 reports the regression results of the baseline model as given by (1). The first column reports the results when we regress the change in tariffs on CVD

estimates as long as the increase in probability of retaliation with WTO accession is not systematic.

[21] Since CVD duties are targeted at subsidized exports, these will be effective as a retaliation tool only if China exports in that sector. However, this is not a constraint for us, as there is a lot of bilateral trade even at the HS six digit level. According to our sample, out of a total of 4776 products that China traded with the world during 1999 there were only about 132 products where China engaged in one way trade i.e. it only imported or exported.

and the tariffs in year 1999. We can see that not only is the coefficient on CVD positive and statistically significant at one percent level, but it is economically significant as well. According to these estimates, there was a relative increase of 0.8 percentage points (or about 14%) in tariffs for products that faced a CVD in the past. Also, the coefficient on initial tariff is negative and significant implying that products that had a high initial tariff were faced with higher reductions as China joined the WTO.

Since tariffs will not decrease any further if they were zero to begin with, the next column reports the results of a regression where we add a dummy indicating whether the product had positive tariffs in 2000. The products with zero tariff might share a common unobserved characteristics and ignoring it might bias our results (Limão (2006)). Our results remain unchanged even after inclusion of this dummy. In the next column we account for the fact that while the SCM agreement regulates both industrial and agricultural subsidies, there are special rules in the WTO relating to the agricultural products. Therefore, in the third column we restrict the sample size to products belonging to the mining and manufacturing industries. As we can see from the table, the qualitative results remain unchanged, even though the value of the coefficient in the restricted sample is slightly lower.

In all these regressions in order to control for the level of pre-existing tariffs, we included tariffs in 1999, one year prior to the initial year in the dependent variable, in order to minimize any correlation with the dependent variable by construction. However, if the same political economy variables that give rise to tariffs in 1999 also affect the change in tariffs, omitting them would lead to biased and inconsistent coefficients. Hence, in column four we include additional variables that can explain the level of tariffs as suggested in the literature. (see Gawande & Krishna (2003) for a recent survey)

Our results do not change qualitatively even after inclusion of these variables. Note that, while the coefficient on CVD is now significant only at 10 percent level of significance, the size of the coefficients has increased compared to the case with only initial tariff as control.[22]

Finally, in the last column of Table 3, we use an instrumental variables approach to tackle the potentially endogeneity of pre-accession level of tariffs. We use a) the average of year 1999 applied tariffs of four countries with similar levels of per capita income as China – Brazil, India, Indonesia and South Africa[23] – and b) the applied tariff of Taiwan in the year 1999 as instruments for China's tariff in 1999. The idea is the following: since before accession China is relatively free to choose its tariff level (at least theoretically), it will set tariffs according to its comparative advantage and political economy factors. Hence, its tariff level and structure is likely to be similar to countries with similar stages of development. At the same time, because these countries are not big trade partners of China, they will not have much say in the negotiated reduction in Chinese tariffs, hence, the proposed instruments will not be correlated with the dependent variable.[24] In Table A2 we can see that the 1999 tariff levels in these countries and that of China are indeed strongly positively correlated. Again, the results from the IV regression are similar to the ones we got earlier.[25]

Thus, according to the regressions reported in Table 3, there is an evidence

[22] In this as well as all the following specifications where industry level data is used as explanatory variables the reported standard errors allow for clustering at the industry level.

[23] These were chosen such that the average percapita income over these countries was similar to the average per capita income of China.

[24] Note that, Taiwan *is* one of the major trade partners of China. However, it was not a member of the WTO during the period of analysis and hence did not participate in tariff negotiations with China. Dropping Taiwan and using only the average tariffs for the other four countries leaves the results unchanged.

[25] Note that we are using applied tariff rates for these countries, and moreover an average over them, thus there is even fewer chance that the instrument only reflects a negotiated agreement with other countries such as US. Furthermore, the simple correlation between chinese tariff and any of the other developing countries included is only around (0.4-0.5), however the correlation is 0.7 when we take the average over these countries hence indicating that the results are not driven by any single one of these countries.

of a relative increase in tariffs for products that faced a threat of retaliation. In the next set of tables we provide results of important counterfactual exercises. In order to check that the results derived earlier are due to retaliation, and not to some unobserved industry characteristics that *happen to be* correlated with the CVD indicator, we conduct the following two counterfactual exercises.

4.3 Counterfactual exercises

If the results are truly driven by the threat of retaliation, then retaliation should not have the same effect *even before* China joined the WTO. In Table 4a we replicate the regressions in Table 3, but instead of using time period 2000-2003 we use the period 1997-2000, before China joined the WTO in 2001. Thus, in these regressions, the dependent variable is the change in tariffs between 1997 and 2000 and is regressed on similar controls as in Table 3. As we can see from the results reported in Table 4a, the coefficient on CVD is no longer positive for any of the specifications. In fact, in almost all cases the coefficient is negative and significant, indicating a relative decrease in tariffs for these products. These results indicate that if indeed there are some omitted characteristics that are correlated with the CVD variable, they would lead to a downward bias in our earlier estimates.

Another potential concern with the evidence provided in Table 3 is that it could be driven by sectoral shocks that affected tariffs for these products around the world, and our proxy for retaliation is just picking up that effect i.e., these effects are not related to the accession to the WTO. In order to verify that the effect we identify is indeed a threat of retaliation related to WTO accession, we look at the tariff changes during the same period for the four developing countries mentioned earlier – Brazil, Indonesia, India and South Africa.

While applied tariffs in these countries also declined during this period on

an average by about 2 percentage points, there exists a lot of variation. For example, over this period tariffs on Sorbitol increased by 18 percentage points in Brazil but decreased by 5 and 5.8 percentage points in India and Indonesia, respectively. Similarly, India increased its applied tariffs on Ski suits by 16 percentage points whereas, Brazil decreased its tariff on this product by 3 percentage points. A simple correlation between the *change* in tariffs for these countries and China does not show any relationship, with the correlation varying between -0.07 for India to about 0.16 for Indonesia and South Africa. This is in sharp contrast to a very high positive correlation observed earlier, between the *levels* of applied tariffs for 1999 among these countries and China.[26]

The results of this counterfactual exercise are reported in Table 4b. The first column reproduces the results from column 1 of Table 3 for comparison. In column 2 of this table we include the average change in tariffs for these four developing countries as an additional control variable. Not only the coefficient on the threat of retaliation is still positive and significant at 1% level, the size of the coefficient is also similar. As an alternative strategy, in the third column we regress the average change in tariffs for these countries by using a similar specification – our measure of threat of retaliation and the level of tariffs for these countries in 1999. As expected, the threat of retaliation is no longer significant. Thus, the evidence in Table 3 along with these counterfactual exercises make a strong case for the validity of our hypothesis.

[26] The change in tariffs for Brazil, Indonesia and Taiwan is calculated as tariff in 2003-2000. For India and South Africa the tariff change is between 2001 and 2004. Correlation for change in tariffs is given in Table A3.

5 Cost of Retaliation and Robustness

5.1 Interaction Model

While the earlier model gives us the average effect of the probability of getting hit by a countervailing duty on the change in tariff, in order to see whether this is indeed due to retaliation one needs to go further. More specifically, the threat of retaliation will only be important if the cost due to retaliation is also high. If the cost imposed by retaliation is negligible, the threat will not have any effect in the way a country chooses its policies.

For China the cost of retaliation would be higher in sectors where it has higher exports. Thus we expect the threat of retaliation to be more effective when China's exports in that sector are also high. In order to test this hypothesis we write our second specification by modifying (3) as

$$\Delta\tau_j = \alpha + \beta cCVD_j + \lambda Exp_j + \delta cCVD_j * Exp_j + \gamma Z_j + \varepsilon_j \tag{4}$$

where Exp_j indicates China's exports of product j (as a measure of cost of retaliation) and $CVD_j * Exp_j$ is the interaction between the threat and the cost of retaliation. Here the coefficient of interest is δ which we expect to be positive. A positive δ would mean that the effect of retaliation on relative increase in tariffs is higher when exports are also high. Furthermore, we should also expect $(\beta + \delta Exp_j)$ (the marginal effect of threat of retaliation) to be positive.

The coefficient on exports, λ (our proxy for cost of retaliation), is also interesting in its own right. The coefficient λ measures the average effect of an increase in exports on the change in tariffs when there is no threat of retaliation. We expect this coefficient to be negative, i.e., sectors with higher exports will see a relative decline in tariffs. According to the literature there are at least two channels through which this effect may work : a) when the export sector is large

(the country has a comparative advantage), it is less dependent on protection in the home market, and b) other countries will be more successful in negotiating a decline in tariffs, if there does not exist a powerful domestic import competing lobby demanding protection.

In Table 5 we present the results for the interaction model. In the first column we report the results where we use China's exports to the four trading partners listed earlier as proxy for the threat of retaliation.[27] The interaction term is positive and significant at the one percent level, indicating that the threat of retaliation is more effective when the associated costs are higher. This result remains unchanged when we restrict the sample to the industrial sector, add other political economy variables, use alternative measure of cost of retaliation (use China's exports to the world instead of to the four sample partners), or use instrumental variable estimation. The results for these specifications are reported in columns 2-5 of Table 5. According to the results in column 1, for products with average exports the impact of retaliation is 3% higher as compared to those with zero exports.[28]

Note also that the coefficient on exports is negative and significant in almost all cases, as expected. Thus, for those industries that do not expect to be retaliated against, higher exports are associated with a larger decline in tariffs. In contrast, for industries with a positive threat of retaliation the coefficient in exports is positive. The evidence from the regression reported in the first column suggests that for products that do not face any retaliation, a 1% increase in mean

[27] Note that using the post-accession level of exports could lead to inconsistent estimates, since post-accession exports will be endogenous to the changes in tariffs if the goods are close substitutes. Hence, we use exports values for year 1999 that are more likely to be exogenous to the changes in tariffs between 2000-2003.

[28] Note that COMTRADE only reports data for products where positive exports (or imports) were recorded. Hence, if we do not observe exports in our sample, it could mean either that the data is missing or that there were no exports. In the results shown here we only look at the non-missing exports as reported in our data source. However, the results remain unchanged if we make the other extreme assumption and treat all missing observations as cases of zero exports.

exports leads to 1.2% decrease in tariffs. However, for those products that face a retaliation against subsidy a 1 % those products that face a retaliation against subsidy a 1 % increase in mean exports will lead to a 3 % *increase* in tariffs.

Table 6 reports the results from a counterfactual exercise using pre-accession data, as earlier. These regressions use specifications similar to those in Table 5, but use the 1997-2000 sample. Again, if earlier results were not due to accession, but rather, to some other omitted characteristics, we should expect to see similar signs on the coefficients. As we can see from the results, the coefficient on the interaction term is negative and insignificant for all the specifications, which further supports our findings.

5.2 Predicted Probability Model

The above two approaches give equal weights to the products where the countervailing duty was imposed by only one country as compared to that when it was imposed by all countries. Thus, the above models only give us the average effect for those products which face a positive threat of retaliation versus those which do not. Hence, as our third strategy we follow a two step procedure. First we predict the probability of CVD in a given industry i by using bilateral, out-of-sample data, and then use this predicted probability by plugging it in (3) in place of CVD. These predicted probability would give us the measure of the Chinese government's expectation of the threat of retaliation in any given industry at the time of China's accession to the WTO.

In order to predict the probability that a CVD would be imposed if the government decides to use subsidies, we use panel information on past countervailing duty actions by the four users of CVDs in our sample. While we use a number of different specifications, the basic equation to be estimated in the first

stage, using stacked data for all four countries in our sample, can be written as

$$CVD_{jict} = \pi_i + \varpi_c + \varpi_t + \theta W_{jict} + \epsilon_{jict} \tag{5}$$

where CVD_{jict} is a binary variable that equals one if the country c had imposed a CVD duty against one or more of its trading partners for any product j of industry i at a given time t, and is zero otherwise. We include industry dummies (two digit Chinese industry codes), π_i, for industries that had a positive countervailing duty imposed in at least one of the products in the given period. Thus, dummies for only those industries that had previously been retaliated against were included in the regression.[29]

An alternative way to interpret π_i is as $(\varpi_i * I_i)$ where ϖ_i is the full set of industry dummies and I_i is an indicator that indicates whether that industry has been targeted by a CVD in the past. Thus we can treat industries with zero observed CVD as the omitted category, and π_i can be interpreted as the average probability of getting hit by a CVD relative to the industries which never got retaliated against. Here ϖ_c and ϖ_t are the full set of country and time dummies respectively. and W_{jict} refers to other possible determinants of CVD duty. As shown in section (2.1), according to the existing empirical literature, the main determinants of the imposition of CVD are either the industry-specific political economy factors or country- and time-specific factors like real exchange rates.[30] The idea here is that once these other variables and time and country specific

[29] Otherwise it doesn't make sense for an industry to have a predicted probability of retaliation based on past CVD if the observed instances of CVD are zero. Another reason why we want to include only industry dummies with at least one CVD duty in the specification (but include all observations) is to make the regression results between linear probability and logit estimations comparable. Note that Logit and Probit can not estimate the group dummies if the outcome is the same for all observations belonging to that group (see for example, Caudill (1987)).

[30] Apart from studies mentioned earlier that suggested the political economy determinants of AD and CVD duties, Mah (2003) has shown that the imposition of countervailing duties in US is positively correlated with macroeconomic variables such as growth rates. Similarly, Knetter & Prusa (2003) have shown positive relationship between antidumping filings and macroeconomic variables like real GDP growth and real exchange rates.

factors are accounted for, the industry dummies π_i will capture the factors specific to an industry that make it a more or less likely target of CVDs. Thus the estimated coefficient of industry dummies from the model gives the average probability of imposition of CVD on a product belonging to that industry.

In the next step we use these predicted industry coefficients from the first stage as the probability of retaliation. Thus we estimate an equation similar to (4), except that instead of the CVD_j indicator we use the predicted coefficients from the first stage. Thus step 2 involves the following regression,

$$\Delta\tau_{ji} = \alpha + \beta c\hat{\pi}_i + \lambda Exp_j + \delta c\hat{\pi}_i * Exp_j + \gamma Z_j + \varepsilon_j \tag{6}$$

where $\hat{\pi}_i$ is the estimated industry effects measures from the first stage. Note that, since the probability of retaliation is based on an estimated regressor it will be measured with error and so we have to take this into account when interpreting our results. In order to correct for this problem we use the method outlined in Gawande (1997) and Gawande & Bandopadhyay (2000).[31]

The first stage results are presented in Table A4. Since the dependent variable (CVD_{jict}) is binary, we use both the linear probability model and the logit specification to estimate the above equation.[32] The first three specifications belong to the linear probability model, while the next three use the logit model.

[31] Gawande (1997) follows the methodology suggested by Fuller (1987) for correcting the error-in-variables. The main idea is to treat the difference in the variance of the estimated coefficients and the mean of the measurement error variance as an estimate of the true measurement error. Thus, whenever the variance of the estimated coefficient exactly equals this value it can be treated as one measured without error and otherwise can be scaled up or down according to the following formula,

$$\tilde{\pi}_i = \overline{\hat{\pi}} + \frac{\left(\sigma^2_{\hat{\pi}} - \overline{\hat{\sigma}^2_e}\right)}{\hat{\sigma}^2_{ei}} \left(\hat{\pi}_i - \overline{\hat{\pi}}\right) \tag{7}$$

where, $\tilde{\pi}_i$ = corrected coefficient for industry i, $\hat{\pi}_i$ = estimated coefficients from the first stage, $\overline{\hat{\pi}}$ = mean of the estimated coefficients, $\sigma^2_{\hat{\pi}}$ = sample variance of the estimated coefficients, $\hat{\sigma}^2_{ei}$ = estimated measurement error for a given coefficient (variance of the estimated coefficient for industry i), and $\overline{\hat{\sigma}^2_e}$ = mean of the estimated measurement errors.

[32] These regressions report odds ratios in case of logit specifications.

In both specifications, the first regression includes only the industry dummies as regressors, whereas the second specification also includes country, as well as the time dummies. Finally, the third regression also includes some other variables that might help explain the CVD – the Herfindahl share of exporters, the number of exporters and the growth of imports in that product category. We see that results are very similar across the two models. In fact, the lowest correlation between the coefficients from different specifications is 0.94 between column (3) (full specification in the linear probability model), and the odds ratios from column (5) (the regression with only industry, country and year dummies in case of logit specification).[33] In what follows, we use the coefficients from column (2) as a measure of the predicted probability of retaliation in an industry in the second step.

The second stage results are reported in Table 7. We again see that the coefficient of interest, the interaction between the probability of retaliation and the cost of retaliation, is positive and significant across all specifications. Furthermore, the signs and significance of other variables are also similar. Thus, we can conclude that the threat of retaliation is more effective when the cost of retaliation is also high.[34]

5.3 Additional Robustness tests

In addition to the robustness tests discussed earlier, we conduct a number of additional robustness tests to check the validity of our results. While one set of robustness tests deal with the robustness of results to the selected sample, the other set looks at whether the results are sensitive to the presence of outliers in

[33] Besides these we also estimated specifications that control for yearXcountry specific factors to control for country specific shocks which did not necessarily coincide with a global shock. The coefficients on industry dummies again remain similar. Table A5 lists simple correlation across the different specifications.

[34] As the first stage estimates are very precise, we get the same qualitative results if we do not use any correction.

the data. Table 8 reports the results for some of these robustness exercises for the first specification in the interaction model.[35] Columns (1) and (2) report results where the sample is constrained to include only the manufacturing sector, and only those industries where at least one of the products had been a target of the CVD in the past, respectively. Column (3) reports results for a regression where, instead of using data from 1999, which is likely to be correlated with 2000, we go further back and use the first year in our sample (1996) for which the data is available. We see that the results are not sensitive to any of these alternative specifications.

The next three specifications try to rule out the possibility that our results are driven by potential outliers in the data. The first of these regressions uses median regression, which is less sensitive to the presence of outliers. In the second specification the observations which were detected as outliers using the Hadi criterion were dropped. The final specification uses an alternative technique to minimize the sensitivity of results to outliers in the export data. According to this strategy, we create dummies that categorize exports depending on whether they take a value below, above or fall between the 33rd and the 66th percentile. If our hypothesis is correct, we should expect the interaction terms on the highest category dummy to be positive. According to the results in Table 8 the coefficients on the interaction terms for the *hi* dummy (exports higher than 66th percentile) is positive and significant. Hence, the earlier results are robust to the presence of outliers.

6 Conclusion

This paper shows that the WTO rules on subsidies affect the extent of tariff liberalization at the time of accession**.** Several papers have tried to measure the

[35] Other robustness results are available but not reported to conserve space.

impact of GATT/WTO accession, however, the results have been mixed. In one of the important contributions to this literature, Rose (2004a) finds that there is a negligible impact of the GATT/WTO membership on a country's trade volume or a country's trade policy (Rose (2004b)). Since then, several papers have tried to explore this seemingly puzzling result. Subramanian & Wei (2007), for example, point out that, while a significant impact of the GATT/WTO membership does not seem to exist for developing countries, the membership has increased trade for the industrial countries. Similarly, Tomz, Goldstein & Rivers (2007) argue that, once we also take into account the countries that had the same rights and obligations as members, even though they were not members of the GATT formally, membership seems to have increased the volume of international trade.

While these papers have tried to explore the impact of WTO membership on a country's volume of trade, the question of whether WTO membership affects the acceding country's trade policy is still relatively unexplored. By providing evidence in support of our main hypothesis, we fill this gap in the literature. In particular, in this paper we provide robust evidence that accession to the WTO and the associated threat of retaliation against subsidies had an impact on the level of its tariffs as China joined the WTO. Showing that the WTO SCM rules hinder tariff liberalization is especially important and timely given the fact that the WTO World Trade Report (2006), which focuses on subsidies and the associated role by the WTO, recognizes the importance of this question but admits that there are no existing studies with evidence to this effect so far.

In this paper we focus just on the impact on tariffs. However as the tariffs are decreasing worldwide, we might see a substitution towards even less efficient non-tariff barriers. Hence, as countries negotiate on reducing subsidies in the ongoing Doha round, one should be careful that they are not merely replaced (in whole or in part) by other means of protection.

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Table 1: Sectoral Distribution of CVD Measures By Reporting Member (01/01/95 - 30/06/04)

Reporting Member / HS Sectors	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*	*IX*	*XI*	*XV*	*XVI*	Total
Argentina	0	1	1	2	0	0	0	0	0	0	0	4
Australia	0	0	0	1	0	0	0	0	0	0	0	1
Brazil	0	5	0	0	0	0	0	0	0	0	0	5
Canada	0	0	0	1	0	0	0	0	0	6	0	7
Chile	2	0	0	0	0	0	0	0	0	0	0	2
Costa Rica	0	0	1	0	0	0	0	0	0	0	0	1
European Community	1	0	0	0	0	2	5	0	4	7	2	21
Mexico	0	0	0	0	0	0	0	0	0	7	0	7
New Zealand	0	0	0	4	0	0	0	0	0	0	0	4
Peru	0	1	1	1	0	0	0	0	0	0	0	3
South Africa	0	0	0	0	0	0	1	0	1	2	0	4
United States	1	1	0	2	4	1	1	1	0	32	1	44
Venezuela	0	0	0	1	0	0	0	0	0	0	0	1
Total	4	8	3	12	4	3	7	1	5	54	3	104

The sectors refer to one digit Harmonized Schedule sectors.
Source: www.wto.org

The list of Sectors as classified in the Harmonized Schedule (HS)

Section	Description
I	Live animals; animal products
II	Vegetable products
III	Animal or vegetable fats; prepared edible fats; animal or vegetable waxes
IV	Prepared foodstuffs; beverages, spirits and vinegar; tobacco
V	Mineral products
VI	Products of the chemical or allied industries
VII	Plastics and articles thereof; rubber and articles thereof
VIII	Raw hides and skins, leather, travel goods, handbags and similar containers;
IX	Wood and articles of wood; manufactures of straw; basket ware and wickerwork
X	Pulp of wood; paper and paperboard and articles thereof
XI	Textiles and textile articles
XII	Footwear, headgear, umbrellas, feathers and articles made therewith; etc.
XIII	Articles of stone, plaster, cement; ceramic products; glass and glassware
XIV	Natural or cultured pearls, precious or semi-precious stones, jewellery; coin thereof;
XV	Base metals and articles of base metal
XVI	Machinery and mechanical appliances; electrical equipment; parts thereof;
XVII	Vehicles, aircraft, vessels and associated transport equipment
XVIII	Instruments, apparatus; clocks and watches; musical instruments; parts and accessories thereof
XIX	Arms and ammunition; parts and accessories thereof
XX	Miscellaneous manufactured articles
XXI	Works of art, collectors' pieces and antiques

Note: The names of the industries are abbreviated for brevity. See the source for complete list of products in each sector.
source: www.wto.org

Table 2: Average Tariff in (Chinese) Two Digit Manufacturing Industry

		2000		2003		Change		
Chi2digit	Industrial Name	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Coef. Var.
13	Food Processing	29.44	23.26	19.79	13.93	9.74	11.91	0.82
14	Food Manufacturing	28.11	19.21	18.34	8.22	9.11	16.30	0.56
15	Beverage Manufacturing	57.38	15.59	29.70	16.18	26.99	15.77	1.71
16	Tobacco Processing	65.00	0.00	45.80	15.59	22.00	16.49	1.33
17	Textile Industry	21.62	7.63	13.65	5.69	7.99	4.90	1.63
18	Garments and Other Fiber Products	26.72	2.99	19.43	2.34	7.34	2.03	3.62
19	Leather, Furs, Down and Related Products	20.56	6.10	18.22	4.16	6.36	4.00	1.59
20	Timber Processing, Bamboo, Cane, Palm Fiber and St	12.06	6.24	5.65	3.82	6.34	3.62	1.75
21	Furniture Manufacturing	19.68	4.42	10.24	5.12	9.44	5.92	1.59
22	Papermaking and Paper Products	14.85	8.80	7.44	4.96	7.32	5.11	1.43
23	Printing and Record Medium Reproduction	18.11	6.58	9.52	3.44	8.59	3.22	2.66
24	Cultural, Educational and Sports Goods	16.27	3.93	15.23	3.52	1.05	1.56	0.67
25	Petroleum Processing and Coking	8.94	3.36	7.30	2.13	1.67	1.74	0.96
26	Raw Chemical Materials and Chemical Products	10.80	6.14	7.96	6.36	3.38	4.35	0.78
27	Medical and Pharmaceutical Products	9.60	2.03	4.39	1.00	5.18	1.60	3.24
28	Chemical Fiber	14.89	2.81	9.11	2.02	5.77	2.42	2.39
29	Rubber Products	15.75	6.65	12.45	4.95	3.89	3.55	1.10
30	Plastic Products	19.41	3.66	13.23	5.43	6.18	3.48	1.78
31	Nonmetal Mineral Products	17.48	8.24	13.73	6.09	3.99	4.89	0.82
32	Smelting and Pressing of Ferrous Metals	9.23	4.28	5.69	3.07	3.55	2.56	1.39
33	Smelting and Pressing of Nonferrous Metals	7.18	3.47	5.07	2.29	2.38	2.07	1.15
34	Metal Products	13.99	5.16	11.44	4.53	2.65	2.96	0.89
35	Ordinary Machinery	15.16	5.95	9.98	4.88	5.16	3.49	1.48
36	Special Purpose Equipment	12.46	3.82	7.72	3.05	4.73	3.74	1.26
37	Transport Equipment	23.76	23.10	14.10	12.62	9.50	12.24	0.78
40	Electric Equipment and Machinery	17.18	7.37	11.39	7.92	5.83	4.40	1.33
41	Electronic and Telecommunications Equipment	16.78	10.24	10.11	10.17	7.39	5.03	1.47
42	Instruments, Meters, Cultural and Office Machinery	16.10	5.92	10.15	7.01	5.95	4.33	1.37
	Total	17.15	11.53	11.44	7.86	5.78	6.47	0.89

Chi2digit = Chinese 2 digit industries. The tariffs with zero initial tariffs were dropped before calculating these averages. Simple average of the six digit HS tariff data from TRAINS.
Source: Authors calculation

Table 3: Baseline Model - Effect of Probability of Retaliation on Change in Tariff

Dependent Variable = (Tariff 2003 - Tariff 2000)	(OLS)	(OLS)	(OLS)[a]	(OLS)[b]	(IV)
CVD	0.822***	0.814***	0.578***	0.899*	0.523**
	[0.242]	[0.241]	[0.224]	[0.475]	[0.231]
Pre-accession tariff	-0.422***	-0.424***	-0.398***	-0.435***	-0.352***
	[0.019]	[0.019]	[0.018]	[0.036]	[0.022]
Positive tariffs		1.489***			
		[0.289]			
Total output				-0.007**	
				[0.003]	
Total capital				0.016*	
				[0.009]	
Number of firms				0.146*	
				[0.073]	
Share of state owned enterprises				-0.025	
				[0.017]	
Labor productivity				1.139	
				[0.677]	
Capital labor ratio				-0.583	
				[0.568]	
ln(Import from rest of the world)				-0.356***	
				[0.094]	
Constant	1.432***	0.000	1.098***	0.274	0.247
	[0.279]	[0.000]	[0.260]	[1.197]	[0.370]
Observations	4659	4659	4350	4087	4442
Adj R^2	0.48	0.48	0.49	0.55	0.48
Partial R^2					0.396
Test of Excluded Instrument, p					0.000
Overidentification, Hansen J test, p					0.162

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

CVD is an indicator that takes value one if a countervailing duty (CVD) has been imposed between 1995-2001 in that product by any of the four trading partners of China – Australia, Canada, EU and US against any existing WTO member, and zero otherwise. Positive tariffs is a dummy that takes the value one if the tariffs were positive (not zero) in year 2000 to begin with, and zero otherwise. All other regressors are from year 1999.

a) Restricts sample to products belonging to industrial sector (mining and manufacturing industries).

b) Clustered at industry level as the political economy controls are available only at the aggregate industry level.

Instrumented variable: Pre-accession tariff (tariff in China for year 1999)

Instruments used: (i) avg_tariff - Average tariff in year 1999 of four developing countries with similar per capita income as of China - Brazil, India, Indonesia and South Africa - and (ii) tariffTWN - tariff in 1999 for Taiwan.

The test of excluded instruments reports the test for relevance of the instruments in the corresponding first stage regression. The associated value of the F-statistics is F(2, 4438) = 355.26. Additionally both the Anderson-canonical correlations likelihood-ratio test statistic and the Cragg-Donald statistics suggest that the equation is identified (p-val 0.00). The first stage centered R^2 is 0.41.

Table 4a: Counterfactual 1 for the Baseline Model – Using Pre-Accession Sample

Dependent Variable = (Tariff 2000 - Tariff 1997)	(OLS)	(OLS)	(OLS)[a]	(OLS)[b]	(IV)
CVD	-1.724***	-1.727***	-1.634***	-1.119*	-1.618***
	[0.197]	[0.197]	[0.195]	[0.654]	[0.167]
Pre-accession tariff	-0.030***	-0.030***	-0.033***	-0.019	-0.065***
	[0.003]	[0.003]	[0.002]	[0.012]	[0.006]
Positive tariffs		0.401***			
		[0.086]			
Total output				-0.004	
				[0.003]	
Total capital				-0.003	
				[0.013]	
Number of firms				0.049*	
				[0.025]	
Share of state owned enterprises				0.038*	
				[0.019]	
Labor productivity				0.115	
				[1.348]	
Capital labor ratio				0.484	
				[0.997]	
ln(Import from rest of the world)				0.103*	
				[0.057]	
Constant	0.386***	0.000***	0.358***	-1.441	1.188***
	[0.083]	[0.000]	[0.063]	[0.908]	[0.159]
Observations	4872	4872	4539	4441	4683
Adj R^2	0.05	0.05	0.10	0.16	0.04
Partial R^2					0.415
Test of Excluded Instrument, p					0.000
Overidentification, Hansen J test, p					0.00

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

CVD is an indicator that takes value one if a countervailing duty (CVD) has been imposed between 1995-2001 in that product by any of the four trading partners of China – Australia, Canada, EU and US against any existing WTO member, and zero otherwise. Positive tariffs is a dummy that takes the value one if the tariffs were positive (not zero) in year 1997 to begin with, and zero otherwise. All other regressors are from year 1996.

a) Restricts sample to products belonging to industrial sector (mining and manufacturing industries).

b) Clustered at industry level as the political economy controls are available only at the aggregate industry level.

Instrumented variable: Pre-accession tariff (tariff in China for year 1996)

Instruments used: (i) avg_tariff - Average tariff in year 1996 of four developing countries with similar per capita income as of China - Brazil, India, Indonesia and South Africa - and (ii) tariffTWN - tariff in 1996 for Taiwan.

The test of excluded instruments reports the test for relevance of the instruments in the corresponding first stage regression. The associated value of the F-statistics is F(2, 4679) = 427.47. Additionally both the Anderson-canonical correlations likelihood-ratio test statistic and the Cragg-Donald statistics suggest that the equation is identified (p-val 0.00). The first stage centered R^2 is 0.42.

Table 4b: Counterfactual 2 for the Baseline Model – Using Average Change in Tariffs for Similar Countries during the Sample Period (2000-2003)

Dependent Variable = (Tariff 2000 - Tariff 1997)	(OLS)	(OLS)[a]	(OLS)[b]
CVD	0.822***	0.728***	0.019
	[0.242]	[0.235]	[0.083]
Pre-accession tariff	-0.422***	-0.433***	-0.087***
	[0.019]	[0.020]	[0.004]
Change in Average Tariffs (BRA, IDN, IND, ZAF)		-0.351***	
		[0.091]	
Constant	1.432***	0.995***	-0.435***
	[0.279]	[0.265]	[0.067]
Observations	4659	4622	4792
Adj R^2	0.48	0.50	0.22

Robust standard errors in brackets * significant at 10%; ** significant at 5%; *** significant at 1%

a) Includes average change in tariff between 2000 and 2003 for four developing countries - Brazil, South Africa, India & Indonesia.
b) The dependent variable is the change in average tariffs of the above countries between 2000 and 2003. The pre-accession tariff is average tariff for these countries for 1999.

Table 5: Interaction Model - Effect of Retaliation Depends on the Cost of Retaliation

Dependent Variable = (Tariff 2003 - Tariff 2000)	(OLS)	(OLS)[a]	(OLS)	(OLS)[b]	(IV)
CVD	0.484*	0.149	0.556**	0.556	0.223
	[0.283]	[0.241]	[0.253]	[0.477]	[0.263]
Pre-accession tariff	-0.391***	-0.359***	-0.414***	-0.401***	-0.331***
	[0.025]	[0.019]	[0.020]	[0.029]	[0.024]
Export to the world			-0.186***		
			[0.047]		
CVD X Export to the world			0.408***		
			[0.099]		
Export to Sample Partners[c]	-0.377***	-0.391***		-0.254***	-0.395***
	[0.102]	[0.107]		[0.065]	[0.110]
CVD X Export to Sample Partners	0.630***	0.662***		0.359*	0.607***
	[0.231]	[0.239]		[0.197]	[0.228]
Total output				-0.009***	
				[0.003]	
Total capital				0.020**	
				[0.009]	
Number of firms				0.143*	
				[0.076]	
Share of state owned enterprises				-0.024	
				[0.018]	
Labor productivity				1.203*	
				[0.690]	
Capital labor ratio				-0.650	
				[0.561]	
ln(Import from rest of the world)				-0.337***	
				[0.094]	
Constant	1.181***	0.699**	1.394***	0.072	0.163
	[0.371]	[0.286]	[0.296]	[1.210]	[0.396]
Observations	3911	3708	4498	3516	3813
Adj R^2	0.43	0.43	0.47	0.50	0.43
Partial R^2					0.457
Test of Excluded Instrument, p					0.000
Overidentification, Hansen J test, p					0.446

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

a) Restricts sample to products belonging to industrial sector (mining and manufacturing industries).
b) Clustered at industry level as the political economy controls are available only at the aggregate industry level.
c) China's total exports to Australia, Canada, EU and US.
Instrumented variable: Pre-accession tariff (tariff in China for year 1999)
Instruments used: (i) avg_tariff - Average tariff in year 1999 of four developing countries with similar per capita income as of China - Brazil, India, Indonesia and South Africa - and (ii) tariffTWN - tariff in 1999 for Taiwan.
The test of excluded instruments reports the test for relevance of the instruments in the corresponding first stage regression. The associated value of the F-statistics is F(2, 3807) = 306.25. Additionally both the Anderson-canonical correlations likelihood-ratio test statistic and the Cragg-Donald statistics suggest that the equation is identified (p-val 0.00). The first stage centered R^2 is 0.48.
For details on other variables please see earlier tables.

Table 6: Counterfactual for the Interaction Model – Using Pre-Accession Sample

Dependent Variable = (Tariff 2000 - Tariff 1997)	(OLS)	(OLS)[a]	(OLS)	(OLS)[b]	(IV)
CVD	-1.864***	-1.829***	-1.710***	-1.254*	-1.565***
	[0.203]	[0.203]	[0.203]	[0.632]	[0.202]
Pre-accession tariff	-0.035***	-0.039***	-0.031***	-0.022	-0.077***
	[0.003]	[0.003]	[0.003]	[0.014]	[0.006]
Export to the world			-0.049*		
			[0.029]		
CVD X Export to the world			-0.031		
			[0.115]		
Export to Sample Partners[c]	0.097**	0.128***		0.135	0.246***
	[0.042]	[0.044]		[0.088]	[0.073]
CVD X Export to Sample Partners	-0.028	-0.047		-0.085	-0.065
	[0.151]	[0.152]		[0.132]	[0.156]
Total output				-0.004	
				[0.003]	
Total capital				-0.002	
				[0.013]	
Number of firms				0.045*	
				[0.023]	
Share of state owned enterprises				0.040*	
				[0.020]	
Labor productivity				0.093	
				[1.465]	
Capital labor ratio				0.499	
				[1.060]	
ln(Import from rest of the world)				0.120*	
				[0.061]	
Constant	0.408***	0.458***	0.429***	-1.288	1.370***
	[0.080]	[0.082]	[0.089]	[0.925]	[0.136]
Observations	3940	3729	4644	3729	3862
Adj R^2	0.10	0.12	0.06	0.19	0.05
Partial R^2					0.442
Test of Excluded Instrument, p					0.000
Overidentification, Hansen J test, p					0.00

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

a) Restricts sample to products belonging to industrial sector (mining and manufacturing industries).
b) Clustered at industry level as the political economy controls are available only at the aggregate industry level.
c) China's total exports to Australia, Canada, EU and US.
Instrumented variable: Pre-accession tariff (tariff in China for year 1996)
Instruments used: (i) avg_tariff - Average tariff in year 1996 of four developing countries with similar per capita income as of China - Brazil, India, Indonesia and South Africa - and (ii) tariffTWN - tariff in 1996 for Taiwan.
The test of excluded instruments reports the test for relevance of the instruments in the corresponding first stage regression. The associated value of the F(2, 3856) = 399.64. Additionally both the Anderson-canonical correlations likelihood-ratio test statistic and the Cragg-Donald statistics suggest that the equation is identified (p-val 0.00). The first stage centered R^2 is 0.46. Note that the Shea partial R^2 reported above is the same as the squared partial correlation between the excluded instruments and the endogenous regressor when there is a single endogenous regressor. For details on other variables please see earlier tables.

Table 7: Predicted Probability Model

Dependent Variable = (Tariff 2003 - Tariff 2000)	(OLS)	(OLS)[a]	(IV)
Pr(Retaliation)[b]	-0.022	-0.051	-0.021
	[0.059]	[0.051]	[0.050]
Pre-accession tariff	-0.357***	-0.386***	-0.334***
	[0.036]	[0.039]	[0.049]
Export to the world		-0.244***	
		[0.059]	
Pr(Retaliation) X Export to the world		0.127***	
		[0.044]	
Export to Sample Partners[c]	-0.467***		-0.470***
	[0.106]		[0.108]
Pr(Retaliation) X Export to Sample Partners	0.167***		0.162***
	[0.051]		[0.050]
Constant	0.726	1.117	0.312
	[0.600]	[0.664]	[0.773]
Observations	3708	4228	3635
Adj R^2	0.43	0.48	0.43
Partial R^2			0.521
Test of Excluded Instrument, p			0.00
Overidentification, Hansen J test, p			0.405

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1% All regressions account for clustering at industry level as the probability of retaliation is predicted at the aggregate industry level.

a) Restricts sample to products belonging to industrial sector (mining and manufacturing industries).

b) Pr(Retaliation) is the predicted coefficient on the industry dummies from the first stage regression - $CVD_{jict} = \pi_i + \varpi_c + \varpi_t + \theta W_{jict} + \varepsilon_{jict}$; where $\pi_i = \varpi_i * I_i$ where ϖ_i is the full set of industry dummies and I_i is an indicator that indicates whether that industry has been targeted by a CVD in the past.

The results from the first stage regression are given in Table A1. Table A2 shows simple correlation between coefficients from different specifications. Here we use the coefficients from the first stage regression using the Linear Probability model, where CVD is regressed on industry, country and time dummies.

c) China's total exports to Australia, Canada, EU and US.

Table 8: Robustness Exercises for the Interaction Model

	Robustness to Sample			Robustness to outliers		
Dependent Variable = (Tariff 2003 - Tariff 2000)	(OLS)	(OLS)	(OLS)[d]	(OLS)	(OLS)	(OLS)
CVD	0.149	0.123	-0.723	-0.027	-0.761	-0.766
	[0.681]	[0.687]	[0.828]	[0.213]	[0.529]	[0.554]
Pre-accession tariff	-0.359***	-0.366***	-0.194***	-0.326***	-0.292***	-0.362***
	[0.036]	[0.037]	[0.033]	[0.007]	[0.024]	[0.034]
Export to Sample Partners[a]	-0.391***	-0.367***	-0.348	-0.334***	0.426	
	[0.099]	[0.096]	[0.255]	[0.082]	[0.993]	
CVD X Export to Sample Partners	0.663***	0.641***	0.991***	0.900***	6.399***	
	[0.225]	[0.227]	[0.292]	[0.163]	[1.367]	
Mid-Total-Export[b]						0.096
						[0.332]
Hi-Total-Export[c]						0.004
						[0.433]
CVD X Mid-Total-Export						0.528
						[0.682]
CVD X Hi-Total-Export						2.366***
						[0.651]
Constant	0.702	0.876	-0.789	0.160	-0.344	0.639
	[0.607]	[0.621]	[0.694]	[0.136]	[0.369]	[0.538]
Observations	3640	3448	3569	3911	3408	3708
Adj R^2	0.42	0.43	0.29		0.42	0.43

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

The first column refers to the case where the sample is restricted to include products belonging to manufacturing industries only. The second column includes only those industries which were targeted by a countervailing duty imposed by Australia, Canada, EU or US in at least one of the products belonging to that industry. In the third column we use 1996 as the pre-accession year for data on tariffs as well as exports. The fourth column reports form median regression. In the fifth column we drop observations identified as being associated with an outlier based on the Hadi criterion. Finally, the sixth regression includes dummy variables that indicate whether the export value falls between the 33rd and 66th percentile (Mid-Total-Exports), or above the 66th percentile (Hi-Total-Exports).

a) China's total exports to Australia, Canada, EU and US. b) An indicator that takes the value one for those observations with the export values lying between 33rd and 66th percentile, and zero otherwise. c) Indicator variable with value one if the exports lie above the 66th percentile and zero otherwise. d) In all specifications, except here where the relevant year is 1996, the data on pre-accession tariff and exports belong to year 1999.

Table A1: Data Appendix - Source and Explanations

Variable	Year	Obs	Mean	Std. Dev.	Min	Max	Source/Description
CVD	---	5442	0.13	0.34	0	1	Own calculation using notifications to WTO and government publications
Tariff	1996	4989	23.73	16.79	0.00	121.60	Applied ad valorem tariffs in China from TRAINS
Tariff	1999	4989	17.18	12.20	0.00	121.60	"
Tariff	2000	4972	17.03	12.21	0.00	121.00	"
Tariff	2003	5027	11.33	8.03	0.00	68.00	"
Change in tariff[a]	---	4685	-5.70	7.07	-111.60	45.00	Calculated as Chinese Tariff in 2003 - Tariff in 2000
Export to the world	1996	4767	0.31	1.15	0.00	27.89	China's exports to the rest of the world from COMTRADE
Export to the world	1999	4801	0.40	1.58	0.00	47.99	in 100 million USD
Export to Sample Partners	1996	4038	0.12	0.58	0.00	15.15	China's exports to selected partner countries from COMTRADE
Export to Sample Partners	1999	4153	0.19	0.96	0.00	36.97	in 100 million USD
Political Economy Variables[b]							
Total output	1996	4655	322.25	181.04	0.72	570.32	Various Issues of China Statistical Yearbook
Total output	1999	4433	365.90	190.23	16.46	704.22	in 100 million USD
Total capital	1996	4655	104.56	58.60	0.13	300.00	Various Issues of China Statistical Yearbook
Total capital	1999	4433	131.45	74.43	11.72	427.71	in 100 million USD
Number of firms	1996	4655	20.41	12.08	0.13	61.89	Various Issues of China Statistical Yearbook
Number of firms	1999	4433	7.31	3.81	0.08	14.37	in 1000 units
Share of state owned enterprises	1996	4655	34.13	17.52	6.23	98.09	Calculated as (value added of total industry / value added of state owned enterprises)*100
Share of state owned enterprises	1999	4433	40.84	18.43	6.49	99.86	from China Statistical Yearbook (various issues)
Capital labor ratio	1996	4655	1.24	0.44	0.19	4.40	Calculated as (total assets / employment) in the industry
Capital labor ratio	1999	4433	2.16	0.82	0.19	5.79	from China Statistical Yearbook (various issues)
Labor productivity	1996	4655	1.59	0.63	0.26	5.40	Calculated as (total output / employment) in the industry
Labor productivity	1999	4433	3.01	1.14	0.58	8.64	from China Statistical Yearbook (various issues)
ln(Import from rest of the world)	1996	4854	-3.82	2.70	-18.42	3.55	log of China's imports from the rest of the world from COMTRADE
ln(Import from rest of the world)	1999	4883	-3.65	2.68	-15.05	3.84	in 100 million USD

a) In the counterfactual exercise we also use change in tariffs between 1997 and 2000 which is calculated in a similar way.

b) All political economy variables except ln(Import) are available at Chinese two digit industry level and were matched into HS6 product codes. The means reported here are at the HS level. Rest of the variables is at HS6 digit product level.

Table A2: Correlation in tariffs across countries in 1999

	China	Brazil	India	Indonesia	South Africa	Taiwan	Average Tariff[a]
China	1.00						
Brazil	0.47	1.00					
India	0.37	0.23	1.00				
Indonesia	0.59	0.38	0.37	1.00			
South Africa	0.46	0.33	0.30	0.43	1.00		
Taiwan	0.53	0.24	0.22	0.45	0.38	1.00	
Average Tariff	0.66	0.59	0.67	0.83	0.72	0.47	1.00

Correlation in applied tariff rates of Brazil, India, Indonesia, South Africa and Taiwan at HS6 digit product level in year 1999.
a) The average is calculated by averaging over tariffs of Brazil, India, South Africa and Taiwan.

Table A3: Correlation in change in tariffs across countries (2000-2003)

	China	Brazil	India	Indonesia	South Africa	Taiwan	Average Tariff[a]
China	1.00						
Brazil	0.02	1.00					
India	-0.08	-0.21	1.00				
Indonesia	0.16	-0.02	0.17	1.00			
South Africa	0.16	0.04	-0.02	0.15	1.00		
Taiwan	-0.02	0.01	-0.02	0.00	-0.01	1.00	
Average Tariff	0.10	0.19	0.67	0.69	0.41	-0.02	1.00

Correlation in change in applied tariff rates of Brazil, India, Indonesia, South Africa and Taiwan at HS6 digit product level. The change in tariffs for Brazil, Indonesia and Taiwan is calculated as (tariff in 2003-tariff in 2000). For India and South Africa the tariff change is between 2001 and 2004.
a) The average is calculated by averaging over change in tariffs of Brazil, India, South Africa and Taiwan.

Table A4: First Stage Regression to Get Predicted Probability

Dependent Variable = CVD	Linear Probability			Logit		
Food Processing	0.014***	0.019***	0.020***	0.014***	0.105***	3.436***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.014]	[0.528]
Food Manufacturing	0.015***	0.021***	0.017***	0.016***	0.112***	2.315***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.015]	[0.371]
Beverage Manufacturing	0.012***	0.018***	0.015***	0.012***	0.084***	3.715***
	[0.004]	[0.005]	[0.005]	[0.004]	[0.036]	[1.645]
Textile Industry	0.023***	0.029***	0.029***	0.024***	0.184***	4.185***
	[0.001]	[0.002]	[0.001]	[0.001]	[0.010]	[0.330]
Garments and Other Fiber Products	0.016***	0.022***	0.017***	0.017***	0.118***	1.822***
	[0.001]	[0.002]	[0.002]	[0.002]	[0.010]	[0.212]
Leather, Furs, Down and Related Products	0.038***	0.044***	0.040***	0.040***	0.328***	7.165***
	[0.005]	[0.005]	[0.005]	[0.005]	[0.046]	[1.083]
Furniture Manufacturing	0.001	0.007***	0.002	0.001***	0.006***	0.147*
	[0.001]	[0.001]	[0.001]	[0.001]	[0.006]	[0.148]
Papermaking and Paper Products	0.000	0.006***	0.006***	0.000***	0.002***	0.068***
	[0.000]	[0.001]	[0.001]	[0.000]	[0.002]	[0.068]
Raw Chemical Materials and Chemical Products	0.002***	0.008***	0.008***	0.002***	0.011***	0.314***
	[0.000]	[0.001]	[0.001]	[0.000]	[0.002]	[0.063]
Medical and Pharmaceutical Products	0.003**	0.009***	0.010***	0.003***	0.022***	0.797
	[0.001]	[0.002]	[0.002]	[0.001]	[0.009]	[0.348]
Chemical Fiber	0.005***	0.011***	0.011***	0.005***	0.036***	1.005
	[0.001]	[0.001]	[0.001]	[0.001]	[0.009]	[0.259]
Rubber Products	0.005***	0.011***	0.010***	0.005***	0.035***	0.703
	[0.002]	[0.002]	[0.002]	[0.002]	[0.013]	[0.260]
Plastic Products	0.006***	0.012***	0.009***	0.006***	0.042***	0.969
	[0.002]	[0.002]	[0.002]	[0.002]	[0.014]	[0.341]
Nonmetal Mineral Products	0.008***	0.014***	0.013***	0.008***	0.058***	1.445*
	[0.001]	[0.002]	[0.002]	[0.001]	[0.010]	[0.277]
Smelting and Pressing of Ferrous Metals	0.133***	0.136***	0.085***	0.153***	1.851***	19.428***
	[0.004]	[0.004]	[0.004]	[0.006]	[0.107]	[1.761]
Smelting and Pressing of Nonferrous Metals	0.010***	0.016***	0.016***	0.010***	0.068***	1.911***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.011]	[0.343]
Metal Products	0.004***	0.010***	0.008***	0.004***	0.024***	0.476***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.005]	[0.102]
Ordinary Machinery	0.003***	0.009***	0.008***	0.003***	0.022***	0.540***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.004]	[0.108]
Special Purpose Equipment	0.004***	0.010***	0.009***	0.004***	0.027***	0.912
	[0.001]	[0.001]	[0.001]	[0.001]	[0.006]	[0.218]
Transport Equipment	0.002**	0.007***	0.006***	0.002***	0.011***	0.328***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.004]	[0.136]
Electric Equipment and Machinery	0.002***	0.008***	0.004***	0.002***	0.012***	0.134***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.005]	[0.068]
Instruments, Meters, Cultural and Office Machinery	0.001***	0.007***	0.005***	0.001***	0.008***	0.179***
	[0.000]	[0.001]	[0.001]	[0.000]	[0.003]	[0.070]
Other manufacturing	0.000	0.006***	0.004***	0.000***	0.001***	0.026***
	[0.000]	[0.001]	[0.000]	[0.000]	[0.001]	[0.026]
herfindahl - share of exporters using import values			0.003***			0.030***
			[0.001]			[0.003]
no of exporters for that hs category			0.000***			0.995**
			[0.000]			[0.002]
growth_import			0.000			1.044
			[0.001]			[0.097]
growth_import2			-0.003***			0.766***
			[0.000]			[0.050]
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country Fixed Effects	No	Yes	Yes	No	Yes	Yes
Observations	130988	130988	127196	130988	130988	127196
R-squared	0.07	0.11	0.07			
no of parameters	23	32	36	23	32	36

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%
Only those industry dummies were included for which at least one product was hit by a CVD duty in the past. Odds ratios reported in the case of Logit.

$CVD_{jict} = \pi_i + \varpi_c + \varpi_t + \theta W_{jict} + \varepsilon_{jict}$; where, $\pi_i = \varpi_i * I_i$ where ϖ_i is the full set of industry dummies and I_i is an indicator that indicates whether that industry has been targeted by a CVD in the past.

Table A5: Correlation between the Industry Coefficients from First Stage Regressions

	Eq 1	Eq 2	Eq 3	Eq 4	Eq 5	Eq 6	Eq 7	Eq 8	Eq 9	Eq 10
Eq 1	1									
Eq 2	0.9999	1								
Eq 3	0.9792	0.9802	1							
Eq 4	0.9999	1.0000	0.9802	1						
Eq 5	0.9790	0.9801	0.9998	0.9801	1					
Eq 6	0.9996	0.9993	0.9734	0.9993	0.9732	1				
Eq 7	0.9912	0.9902	0.9472	0.9901	0.9465	0.9946	1			
Eq 8	0.9896	0.9899	0.9885	0.9899	0.9889	0.9861	0.9693	1		
Eq 9	0.9919	0.9909	0.9487	0.9908	0.9480	0.9951	1.0000	0.9704	1	
Eq 10	0.9898	0.9901	0.9883	0.9902	0.9887	0.9864	0.9698	1.0000	0.9708	1

Simple correlation between the coefficients (odds ratio for Logit) from alternative first stage regressions.
Eq1-Eq5 = Coefficients from Linear Probability; Eq6-Eq10 = Odds Ratios from corresponding Logit Specifications. Dependent Variable = CVD (varies by product, time, country). Takes value 1 if one of the four countries imposed a countervailing duty for that product in that year. Regressors included: Eq1 = industry dummies only, Eq2 = Eq1+ country and year dummy, Eq3 = Eq2+ Number of exporters, Herfindahl index of exporters, growth of imports, square(growth of imports), Eq4 = Eq2+yr*ctry dummy, Eq5 = Eq3+year*country dummy. In all specifications industry dummies are only included if at least one product in that industry was hit by a countervailing duty in the sample period. Excluded categories: Industries with no retaliation, Australia,1995.