How Different Are Safeguards from Antidumping? Evidence from US Trade Policies Toward Steel

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30 January 2004
Preliminary and Incomplete Draft:
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Abstract

How do the trade impacts of a safeguard measure - which is statutorily designed to follow the most-favored-nation (MFN) principle - compare to explicitly discriminatory measures such as antidumping? We address this question empirically by examining the trade effects of the 2002 US safeguard on steel imports and comparing this with the impact of other US trade remedies on steel imports in the 1990s. We first estimate a fixed-effects model on a dynamic panel of product-level US steel imports over 1991-2003 and examine the potential discriminatory impact on foreign-produced steel of the 2002 "MFN" safeguard that used relatively new tools in the policymakers' arsenal: country and product exclusions. A unique data set on the excluded products allows us to document the sizable impact on trade of both forms of preferential treatment. We also exploit higher-frequency data to examine potential differences in the *timing* of the foreign export response to policies of differential treatment. Using quarterly data, we find that while developed country exporters respond more quickly when granted an exclusion, the developing-country exporters' response is more persistent. Finally, while we find the full effect of the 2002 safeguard policy with country and product exclusions to be quite discriminatory, our results also highlight an important similarity between safeguards and preferential trade agreements (PTAs). Relative to antidumping measures, country and product exclusions from a safeguard allow the protection-imposing country to *target* preferential treatment more effectively toward specific foreign countries, much like a PTA, or even more narrowly toward a specific foreign firm. Thus costly *trade diversion* could be an even greater concern with a safeguard than with explicitly discriminatory protection such as antidumping.

JEL No. F13
Keywords: MFN, Product Exclusions, Country Exclusions, Safeguards, Antidumping

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‡ I gratefully acknowledge financial support from a Perlmutter Fellowship and Mazer Award at Brandeis University. Thanks to Gloria Sheu, Teresa Power and Renee Bowen for outstanding research assistance. All remaining errors are my own.

1 Introduction

In March 2002, the United States government implemented a highly controversial policy of safeguard protection for the domestic steel industry under Section 201 of the US trade law. The aggregate trade impact was a nearly 14% reduction in the value of US steel imports in the year following the safeguard in the product categories affected by the policy, eliminating over $700 million worth of trade relative to the previous year. In contrast, in steel product categories that were not targeted by the safeguard, steel imports increased by nearly 12% over the same time period, increasing imports in non-targeted categories by $1.5 billion.[1]

While the aggregate trade impact of the 2002 steel safeguard is impressive in its own right, the full trade impact is perhaps masked by the perception that the safeguard policy is automatically applied so as to follow the GATT/WTO's most-favoured-nation (MFN) principle. One important way through which the safeguard policy tool is statutorily distinct and perhaps economically preferable from antidumping (AD) or countervailing duty (CVD) laws, is that these "unfair trade" laws apply protection to imports from only one country per petition, thus allowing for the discriminatory treatment of trading partners, while the safeguard law is supposed to apply to all imports, irrespective of the source country.[2] In a second-best world where the implementation of some import protection is inevitable, economists frequently argue that an MFN safeguard may be preferable because the use of AD and CVD measures allows for discrimination across export sources which can lead to *trade diversion*, or the sourcing of products from higher cost producers, thus inducing the welfare losses initially identified by Viner (1950).

Nevertheless, while the safeguard statute has the economic appeal of being less discriminatory than these other forms of import protection that have more frequently been utilized, the nondiscriminatory nature of the implementation of the *actual* safeguard in the 2002 steel case is quite suspect. First, the US exempted several import exporting countries from the safeguard altogether. Second, the US solicited and granted hundreds of specific product exclusion requests to foreign exporting firms. Thus while overall imports of steel products in affected categories decreased by 14% in the twelve months following the safeguard, the magnitude of the import reduction was likely to be far from uniform across export sources. Indeed, steel sources from excluded countries or of excluded products were likely to see their imports actually *increase*, because after the safeguard was imposed they continued to

[1] Author's calculations based on a comparison of US import data for April 2001 through March 2002 and April 2002 through March 2003 for steel products in the US Harmonized Tariff Schedule of Chapters 72 and 73 only that were hit and not hit with the March 2002 safeguard.

[2] This is not the only distinction between SG and AD/CVD - see also fair trade versus unfair trade, no discretion versus discretion, compensation versus no-compensation, etc.

face both low rates of import protecion *and* less fierce competition from other foreign rivals that were negatively affected by the safeguard. Thus, non-excluded sources now not only faced a competitive disadvantage relative to US steel producers, but also relative to other foreign producers as well.

This paper first investigates the size and the nature of the discriminatory treatment across export sources within and across the steel product categories that were affected and unaffected by the 2002 safeguard. We use a panel of 10-digit HTS US imports of steel products over the 1991-2003 period to investigate whether the implementation of the safeguard had a discriminatory impact. We combine the trade data with detailed information on the products affected by the safeguard, as well as the country exclusions and a unique data set of excluded products derived directly from firm-specific petitions filed with the US Department of Commerce. We then compare the pattern of discrimination across countries and products associated with the 2002 safeguard to the explicitly discriminatory earlier acts of protection that the US steel industry received in the 1990s through its appeal to ADDs, CVDs, Suspension Agreements, and other trade restricting measures.

Next, we also present estimates from higher frequency (e.g., quarterly) trade data to investigate the dynamics of the response to trade policy in foreign steel exports. Interestingly, we find differential impacts in the response of exporters to receiving exclusions. While specific product exclusions seem to lead to an immediate (within quarter) increase in steel imports (suggesting these things may be sitting at the docks), the country exclusions to developing countries were perhaps a surprise, and thus were met with a 2 quarter lag before there was an increase.

Furthermore, by taking advantage of the higher frequency trade data and investigating the US AD/CVD measures on steel implemented over 1992-2003, we find evidence consistent with the earlier results of Staiger and Wolak (1994). That is, we find differential trade effects of "process filers" versus "outcome filers" consistent with the "investigation effect" that is distinct from the effect of AD/CVD investigations that result in the impositions of duties or the termination through a suspension agreement.

Furthermore, we investigate the price effects of the discriminatory safeguard policy in order to assess whether there is evidence that the country and product exclusions are consistent with the trade effects being trade *diverting* or the switching from one lower cost foreign supplier prior to the safeguard to another, different, higher cost foreign supplier after the implementation of the safeguard.

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2 Institutional Background

Following the 2002 US decision to implement safeguard protection, there has been a substantial backlash *not only* the expected rancor from domestic, steel-consuming industries and foreign exporting firms and their governments, but also from public policy experts, legal scholars and economists, many of whom have argued in favor of the use of the US safeguard law for such occasions. One obvious concern is the question of the consistency of the initial application of the safeguard measure with the USs international obligations at the World Trade Organization (WTO). Affected trading partners have questioned whether the safeguard measure was justified in this instance, due to the lack of a substantial increase in imports and thus the absence of a clear link between any industry injury and increased imports. Many countries were also concerned that the March 2002 application of the measure exempted a substantial set of foreign exporters and thus questioned whether the initial application of the policy was on a nondiscriminatory (i.e., most-favored-nation) basis as international rules require.

An additional issue of substantial concern in this particular application of the safeguard law is the new role undertaken by the United States Trade Representative (USTR) through its solicitation of "product exclusions" ex post, i.e. after the protection was applied. The US law requires that, when requested, the International Trade Commission (ITC) conduct a Section 201 investigation into whether the US industry had been injured due to an increase in imports. The ITC completed its investigation and transmitted a report to President Bush on December 19, 2001, which recommended that the President impose quantitative restrictions and tariff protection on 16 out of 33 different steel product categories that it had been asked to investigate. After the Bush Administration made its final decision to apply safeguard protection to the domestic steel industry on March 5, 2003, the USTR continued to solicit requests from domestic steel consumers and foreign steel producers allowing them to apply to have their product "excluded" from the safeguard policy. Since March 2002, over two thousand product exclusion requests were considered by the USTR, and over 500 requests were accepted. Thus, many of the foreign products initially subject to higher levels of tariff protection implied by the original March safeguard application are no longer subject to higher duties or more stringent quantitative restrictions. While this may appear to be a positive development for those interested in liberalizing trade and reducing the impact of administered protection, the full implication of these product exclusions may not be so innocuous.[3]

[3]Bown and McCulloch (forthcoming a, b) investigate a related question of whether earlier (1995-2000) safeguard actions undertaken by the US and other WTO members have a discriminatory impact across export sources. The focus of these papers, however, is whether safeguard-applying countries have used specific, codified legal exceptions to the principle of nondiscrimination written into the WTO Agreement on Safeguards to apply safeguards protection in a

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3 Data and Estimation

3.1 Econometric Models

3.2 Basic empirical model

To investigate the questions of interest, we develop the following reduced-form specification for the quantity of US imports from country i of product h at time t

$$m_{iht} = \alpha_i + \gamma_h + \beta_1' \tau_{iht} + \beta_2' \tau_{jht} + \beta_3' X_{it} + \beta_4' m_{iht-1} + \epsilon_{iht} \tag{1}$$

where m_{iht} denotes the quantity of imports of h into i at time t, τ_{iht} denotes a US trade remedy against imports of h from i at time t, τ_{jht} denotes a US trade remedy against imports of h from $j \neq i$ at time t and X_{it} are covariates to control for either exporting country-specific cost shocks (e.g., exchange rate changes, productivity changes, changes in domestic subsidy policies, etc.), or changes in US aggregate demand over time that may affect US imports as well. Absent are any product-level control variables, which we omit given our concentration on only *steel* products in our estimation exercise.[4]

3.3 Estimation strategy

There are two problems to address in estimating equation 1. First, the autocorrelation of m_{iht} implies that least squares estimation of 1 yields biased estimates. Second, in a short panel, the number of parameters to be estimated (α_i and γ_h) increases with the number of countries and commodities. Thus, α_i and γ_h cannot be consistently estimated.

Following Arellano and Bond (1991), we address both of these problems by estimating the first difference of (1) and instrumenting for the lagged change in imports with the lagged level. Taking the first lag of (1) and subtracting this from (1) yields the basic estimating equation:

discriminatory way. The approach here is different in its additional focus on product exclusions, which were neither a feature of the earlier safeguard actions, nor a recognized WTO-consistent exception to the nondiscrimination rule.

[4]Similar estimation equation to Prusa (2001) who only looked at AD cases for a different time period, only at yearly data, and separated out targeted and non-targeted exporters into separate data sets for the estimation so the estimates are not comparable. See also Konings, Vandenbussche and Springael (2001) that apply Prusa's approach to AD cases in the European Union.

$$\Delta m_{iht} = \beta_1' \Delta \tau_{iht} + \beta_2' \Delta \tau_{jht} + \beta_3' \Delta X_{it} + \beta_4' \Delta m_{iht-1} + \Delta \epsilon_{iht} \quad (2)$$

After first differencing, direct estimation of (2) yields biased coefficients because the lagged difference of imports ($m_{iht-1} - m_{iht-2}$) is correlated with the error term ($\epsilon_{iht} - \epsilon_{iht-1}$). To address this, we take an instrumental variables approach, and instrument for Δm_{iht-1} with $\ln(\mathrm{m}_{iht-2})$.

Furthermore, in lieu of explanatory variables for non-policy related control variables that may affect US imports of product h from country i at time t, we use country-time specific fixed effects in ΔX_{it}.

3.4 Data

3.4.1 Trade Data

To estimate the model, we use product-level data on US imports of steel at the 10-digit Harmonized Tariff System (HTS) level, which is thus captured in chapters 72 or 73. Import data for the US at the 10-digit HTS level is available from the US International Trade Commission's *DataWeb* data base for the years 1989-2003.[5] Given the need to instrument with $ln(m_{iht-2})$, this allows us to estimate equation (2) a dynamic panel on US import data from 1991-2003.

The first set of estimation that we will be done for *yearly* data on product-level US steel imports. Nevertheless, below we will also utilize higher-frequency, *quarterly* data (also available from *DataWeb*) in some specifications in order to examine the timing of the export response to the imposition of trade remedies as well as the duration of the persistence that the imposition of a remedy has within a given year.

3.4.2 Policy Data

This paper will investigate the potentially differential effects of various instruments of protection affecting steel imports into the US during the 1991-2003. We have collected detailed product-level changes in trade policies associated with antidumping and countervailing duty investigations, the removal of AD and CVD orders after revocation orders or sunset reviews, the imposition of suspension agreements and the imposition and removal of acts of safeguards protection.

The information regarding the implementation and removal of AD or CVD measures or suspension agreements is available from the US *Federal Register*, and public documents made available at either the USITC or the Department of Commerce's official websites. We have collected data on the dates of preliminary dumping or subsidy and injury determinations, final dumping or subsidy and injury

[5]See http://dataweb.usitc.gov/, last access date of 30 January 2004.

determinations, the size of the duties imposed in either preliminary or final affirmative decisions, the 10-digit HTS products investigated and being subject to preliminary and/or final duties, the dates of and HTS 10-digit products subject to revocation orders where imposed duties were removed, and the foreign countries whose exports were directly affected by all of these policy changes.

Much of the data for the safeguards cases is also publicly available from either the *Federal Register* or the ITC's official website. The US President imposed safeguards protection over various 10-digit HTS products in the steel industry on three occasions during the 1991-2003 period: Circular Welded Pipe in 2000, Steel Wire Rod in 2000, as well as the broad-based set of 'Steel' products affected by the March 2002 policy. In each case, the 10-digit HTS products as well as any *excluded* countries are made publicly available in the Presidential Proclamation announcing the safeguard policy.

The one important piece of policy information that is not readily available from electronically available sources for the 2002 safeguard is the actual *products* excluded from the safeguard. *Descriptions* of the products excluded from the safeguard are publicly available from the USTR's website; however, this information is not useful when trying to systematically match up excluded products to the 10-digit HTS coded import data used in the estimation of our model. Information on the 10-digit HTS codes of the excluded products is available in the actual surveys that petitioners had to fill out to request that their product be excluded. Such petitions are publicly available, though the data had to be manually transcribed from hard copy surveys available in the International Trade Administration's 'Central Records and Subsidy Library' in the Department of Commerce in Washington, DC.

4 Empirical Results

4.1 Results using indicators for trade policy actions

Table 1 presents results for our first estimation of equation (2) where we use *indicators* for our policy variables. Consider first specification (1) in which the dependent variable the *yearly* growth rate of the quantity of imports of product h from country i. The top rows of explanatory variables contain estimates for the first set of variables of interest, i.e. those related to the March 2002 steel safeguard. The effect of the imposition of the safeguard is negative, as expected, with the safeguard leading to a 16 percentage point reduction in export growth for 10-digit products that were hit. The estimated impact for the products from US PTA members that were excluded (Canada, Mexico, Israel and Jordan) is positive, though it is not statistically different from zero in this specification. On the other hand, a developing countries whose 10-digit product was excluded saw its exports increase by 37.4 percentage points in 2002. Finally the specific HTS-10 product exclusions that were announced on a

product-by-product basis led to an increase in imports of 26.2 percentage points in 2002.

In specification (1), we also include control variables for the 2001 and the 2002 periods for 10-digit HTS products that the USTR ordered the ITC to investigate under the safeguard request. We would expect imports of all investigated products to increase during the period after the investigation. Without controlling for this phenomenon in the estimation, our earlier estimates for the impact of the safeguard policy would not be taking into account the extraordinary export increase in investigated products attempting to make it into the US market before the anticipated safeguard went into effect. Indeed, a 10-digit product under investigation in 2001 saw its imports increase by 20.0 percentage points in 2001 and then decrease by 7.2 percentage points in 2002, though this latter estimate is not statistically different from zero.

The middle section of the table reports estimates for AD/CVD trade policies imposed at other points in the 1990s. Interestingly, the impact of an AD/CVD imposed in year t on a 10-digit product is stronger than for the 2002 safeguard, as the AD/CVD imposition leads to an export reduction of 73.6 percentage points in year t. This is likely because AD/CVDs are targeted to specific suppliers and are also much higher (frequently prohibitive), while the 2002 safeguard tariffs were all under 30%. We will attempt to control for the differentils in applied duty rates in the next section.

We also present estimates for the impact of AD/CVD imposed in $t-1$ on the growth of imports in t. The effect is still negative, though smaller. As we will show in a last table of estimates below, this is likely picking up the impact of duties imposed late in the year $t-1$ whose thus trade effect is not fully captured without inclusion of the year t trade data.

Finally, the next set of variables of AD/CVD imposed on imports from j (but not i) are expected to capture the *positive* impact that the imposition of duties on a foreign rival but not imports from country i has on i's imports. The effect is positive, though it turns out not to be robust across specification for year t. On the other hand, there is some evidence that there may perhaps be a lag in the response to the preferential treatment: a duty imposed by the US against j in $t-1$ is associated with a 8.9 percentage point increase in imports from i (now receiving preferential treatment) in year t.

In these specifications we also include control variables for other policies that we do not report here: the imposition and removal of preliminary duties, indicators for AD/CVD investigations that were terminated without even the imposition of duties, the imposition of suspension agreements, as well as the removal of AD/CVDs through revocation orders and sunset reviews.[6]

In specification (2) we use data series on the US *value* of imports instead of quantities. In speci-

[6]Estimates for the impacts of some of these variables are presented below and are nevertheless available from the author by request.

fications (3) and (4) instead of using the log growth rate measure in defining the dependent variable, we use the Davis and Haltiwanger (1992) approach which allows to include data on a significant number of entering and exiting exporters in the data set.[7] The estimation results are fairly robust to these alternative specifications, where we are able to include many additional observations from the baseline sample.

4.2 Results using duty rates for trade policy actions

In table 2 we interact most of the different trade policy indicators in the last section with the level of applied duties to control for the substantial heterogeneity in the applied rates of protection across policies.

Estimates from column (1) of table 2 suggest that such interaction greatly sharpens the impact of the policies. A 1% tariff under the 2002 safeguard is associated with 0.7 percentage point reduction in imports. PTA members excluded from a 1% tariff under the safeguard would see their exports increase by 2.0 percentage points, excluded developing countries saw their exports increase by 2.8 percentage points, and specific excluded products were associated with a 1.2 percentage point increase in exports. As the duty rate in the safeguard was in some cases as high as 30%, these are sizable effects.

Nevertheless, again the estimates of the impact of an AD/CVD imposition are larger, which is again not surprising given that an AD/CVD is targeted against a specific foreign country or set of foreign countries, while the safeguard is more broadly based, affecting more countries.

In this section we also interact the AD/CVD against country j indicator with a measure of pre-imposition of the AD/CVD market share of all country 'j's in a given 10-digit HTS code that were hit with the safeguard, to control for the proportion of the market that has been affected by the measure. The theory is that the more of the market that has been affected by the AD/CVD, the larger the expected export growth of the non-targeted countries. While the estimates for these variables are positive, they are statistically insignificant for the most part.

4.3 Results comparing the 2002 Safeguard with the set of 1992-1993 AD/CVD actions

Table 3 shows the similarity between the imposition of the 2002 steel safeguard and the set of AD/CVDs imposed by the steel industry in 1992-1993, during the last 'wave' of AD/CVD use by steel. The specifications are identical to those presented in table 1, specification (1), with the addition

[7] Note that we do not include exporters that appear to be entering or exiting because of the addition or subtraction of a particular 10-digit HTS code from the tariff schedule of the US.

that we separate out the 1992-1993 AD/CVD actions from the AD/CVD actions taking place in other years.

The negative effects on trade for countries hit with the policies are quite similar (-16.8 percentage points for the 2002 safeguard, -20.4 percentage points for the 'nearly MFN' 1992-1993 AD/CVDs) and also for those countries that were not hit with the policies, with a within-year effect of a 22.0 to a 36.5 percentage point increase.

4.4 Results examining the timing in the export response to discriminatory policies

In table 4 we substitute quarterly data for the yearly data to investigate the timing of the export response to the differential treatment offered even within the safeguards and AD/CVD policies. Note that the table presents results from one regression, with the columns now representing the impact of the explanatory variable's policy on that particular quarter's growth of product level exports of h from country i.

The impact of the 2002 safeguard and much of the exclusions is immediate - either affecting the within-quarter or the next quarter's growth of exports to the US dramatically. The exception is for the case of the developing country exclusions, which are not felt until 2 quarters after the policy was imposed. Unlike the other effects, the impact on the developing countries appears more persistent, increasing export growth also in $t+3$ and then further in $t+4$. [Speculation: for the safeguard being imposed variables, the effect in $t+4$ may be picking up a reduction as exporters wait until $t+5$ where there is a step down in the applied duty rate at the one year anniversary of the March 2002 policy.]

We can also use the quarterly data to compare the within-year impacts of *different* outcomes of AD/CVD investigations to investigate the Staiger and Wolak (1994), "investigation effect", "harassment effect," and "withdrawal effect." The estimates for the quarterly data do suggest evidence consistent with the earlier Staiger and Wolak results estimated from a different model on a different sample of data and using only yearly data - there is a negative impact of an AD/CVD investigation only (i.e., not resulting in even preliminary duties) on imports, consistent with the "harassment effect" and the impact is larger for HTS 10-digit products hit with preliminary duties whose duties were removed, than with products hit with preliminary and final duties. Indeed, it appears that once the preliminary duties are removed in the cases that are terminated without a final affirmative determination, HTS 10-digit product exports return to their original level in roughly 3 quarters...

4.5 Results for price effects

To be written...[8]

5 Conclusion

How do the trade impacts of a safeguard measure - which is statutorily designed to follow the most-favored-nation (MFN) principle - compare to explicitly discriminatory measures such as antidumping? We address this question empirically by examining the trade effects of the 2002 US safeguard on steel imports and comparing this with the impact of other US trade remedies on steel imports in the 1990s. We first estimate a fixed-effects model on a dynamic panel of product-level US steel imports over 1991-2003 and examine the potential discriminatory impact on foreign-produced steel of the 2002 "MFN" safeguard that used relatively new tools in the policymakers' arsenal: country and product exclusions. A unique data set on the excluded products allows us to document the sizable impact on trade of both forms of preferential treatment. We also exploit higher-frequency data to examine potential differences in the *timing* of the foreign export response to policies of differential treatment. Using quarterly data, we find that while developed country exporters respond more quickly when granted an exclusion, the developing-country exporters' response is more persistent. Finally, while we find the full effect of the 2002 safeguard policy with country and product exclusions to be quite discriminatory, our results also highlight an important similarity between safeguards and preferential trade agreements (PTAs). Relative to antidumping measures, country and product exclusions from a safeguard allow the protection-imposing country to *target* preferential treatment more effectively toward specific foreign countries, much like a PTA, or even more narrowly toward a specific foreign firm. Thus costly *trade diversion* could be an even greater concern with a safeguard than with explicitly discriminatory protection such as antidumping.

There are many interesting questions for future research.

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Table 1: Yearly Estimates with Indicators for Policy Variables

Explanatory Variables	**Dependent Variable:** Import Growth Rate $_{iht}$ Quantity: $\Delta \ln(m_{iht})$ (1)	**Dependent Variable:** Import Growth Rate $_{iht}$ Value: $\Delta \ln(vm_{iht})$ (2)	**Dependent Variable:** Zeros-Corrected Import Growth Rate $_{iht}$ (to capture effects of entering/exiting exporters) Quantity (3)	**Dependent Variable:** Zeros-Corrected Import Growth Rate $_{iht}$ (to capture effects of entering/exiting exporters) Value (4)
2002 Steel SG Policy Variables				
2002 SG Policy Imposed $_{ht}$ x Not Excluded Indicator $_{iht}$	-0.160 [b] (0.063)	-0.182 [a] (0.054)	-0.179 [a] (0.042)	-0.189 [a] (0.041)
PTA Country Exclusion from 2002 SG $_{ht}$	0.275 (0.222)	0.106 (0.193)	0.156 (0.140)	0.097 (0.136)
Developing Country Exclusion from 2002 SG $_{ht}$	0.374 [a] (0.134)	0.444 [a] (0.116)	0.138 [c] (0.085)	0.168 [b] (0.082)
Product Exclusion from 2002 SG $_{ht}$	0.262 [a] (0.084)	0.203 [a] (0.074)	0.182 [a] (0.061)	0.145 [b] (0.059)
2001 Indicator for a 10-digit HTS product under the June 2001 USTR SG Investigation Order	0.200 [a] (0.046)	0.088 [a] (0.034)	0.061 [c] (0.030)	0.044 (0.028)
2002 Indicator for a 10-digit HTS product under the June 2001 USTR SG Investigation Order	-0.072 (0.050)	-0.135 [a] (0.037)	-0.077 [b] (0.033)	-0.084 [a] (0.030)
Other US Trade Policy Variables on Steel, 1991-2002				
AD/CVD Policy Imposed $_{iht}$	-0.736 [a] (0.064)	-0.750 [a] (0.055)	-0.532 [a] (0.036)	-0.551 [a] (0.035)
AD/CVD Policy Imposed $_{iht-1}$	-0.322 [a] (0.074)	-0.231 [a] (0.063)	-0.350 [a] (0.042)	-0.317 [a] (0.041)
AD/CVD Policy Imposed $_{iht-2}$	-0.014 (0.071)	-0.093 (0.060)	-0.081 [c] (0.045)	-0.092 [b] (0.044)
AD/CVD Policy Imposed $_{jht}$	0.053 [c] (0.031)	-0.061 [b] (0.025)	-0.023 (0.020)	-0.065 [a] (0.019)
AD/CVD Policy Imposed $_{jht-1}$	0.089 [a] (0.032)	0.115 [a] (0.026)	0.018 (0.020)	0.050 [a] (0.020)
AD/CVD Policy Imposed $_{jht-2}$	-0.066 [b] (0.032)	-0.093 [a] (0.027)	-0.064 [a] (0.022)	-0.060 [a] (0.021)
Controls for AD/CVD Petitions Initiated Only, AD/CVD Petitions Resulting in Preliminary Duties Only, Imposition of 2000 Circular Welded Pipe SG or 2000 Steel Wire Rod SG (and country exclusions), Imposition of Suspension Agreements, Removal of AD/CVD Tariffs after Revocation of Orders or Sunset Reviews*	Yes	Yes	Yes	Yes
Other Control Variables				
$\ln(m_{iht-2})$	-0.050 [a] (0.003)	-0.066 [a] (0.002)	--	--
Zeros-Corrected Import Growth Rate $_{iht-2}$	--	--	-0.056 [a] (0.004)	-0.057 [a] (0.004)
ΔX_{it} : Country and Time Fixed Effects [number of fixed effects]	Yes [855]	Yes [885]	Yes [941]	Yes [971]
Observations	65449	69294	86585	91308
R^2	0.04	0.05	0.04	0.04

Notes: Subscripts i, j are exporting countries, h is an HTS 10-digit product in Chapter 72 or 73, and t is a year. In parentheses are White's heteroskedasticity-consistent standard errors corrected for clustering on the variable defined as the country and year fixed effect. Superscripts a, b and c denote variables statistically different from zero at the 1, 5 and 10 percent levels, respectively. * Estimates suppressed and available from the author upon request.

Table 2: Yearly Estimates with Tariff Rates for Policy Variables

	Dependent Variable: Import Growth Rate $_{iht}$		**Dependent Variable:** Zeros-Corrected Import Growth Rate $_{iht}$ (to capture effects of entering/exiting exporters)	
Explanatory Variables	Quantity: $\Delta \ln(m_{iht})$ (1)	Value: $\Delta \ln(vm_{iht})$ (2)	Quantity (3)	Value (4)
2002 Steel SG Policy Variables				
2002 SG Tariff Imposed $_{ht}$ x Not Excluded Indicator $_{iht}$	-0.716 [b]	-1.005 [a]	-0.904 [a]	-0.978 [a]
	(0.307)	(0.275)	(0.198)	(0.194)
PTA Country Exclusion from 2002 SG $_{ht}$ x Tariff $_{ht}$	1.984 [c]	1.363	1.705 [a]	1.549 [b]
	(1.059)	(0.856)	(0.652)	(0.625)
Developing Country Exclusion from 2002 SG $_{ht}$ x Tariff $_{ht}$	2.758 [a]	3.277 [a]	1.518 [a]	1.725 [a]
	(0.679)	(0.607)	(0.411)	(0.400)
Product Exclusion from 2002 SG $_{ht}$ x Tariff $_{ht}$	1.237 [a]	1.172 [a]	0.869 [a]	0.754 [a]
	(0.414)	(0.374)	(0.298)	(0.289)
2002 SG Quota Imposed $_{ht}$ x Not Excluded Indicator $_{iht}$	-0.059	-0.090	0.148	0.238
	(0.262)	(0.254)	(0.249)	(0.238)
Country or Product Exclusion from 2002 SG $_{ht}$ x Quota $_{ht}$	0.322	0.410	-0.233	-0.275
	(0.527)	(0.502)	(0.626)	(0.636)
2001 Indicator for a 10-digit HTS product under the June 2001 USTR SG Investigation Order	0.184 [a]	0.061 [c]	0.039	0.025
	(0.045)	(0.032)	(0.029)	(0.026)
2002 Indicator for a 10-digit HTS product under the June 2001 USTR SG Investigation Order	-0.082 [c]	-0.132 [a]	-0.078 [b]	-0.083 [a]
	(0.049)	(0.036)	(0.032)	(0.030)
Other US Trade Policy Variables on Steel, 1991-2002				
AD/CVD Tariff Imposed $_{iht}$	-2.520 [a]	-2.417 [a]	-1.768 [a]	-1.767 [a]
	(0.218)	(0.191)	(0.106)	(0.104)
AD/CVD Tariff Imposed $_{iht-1}$	-1.395 [a]	-1.222 [a]	-1.246 [a]	-1.199 [a]
	(0.288)	(0.234)	(0.133)	(0.131)
AD/CVD Tariff Imposed $_{iht-2}$	0.065	-0.059	-0.095	-0.121
	(0.202)	(0.176)	(0.149)	(0.147)
AD/CVD Policy Imposed $_{jht}$ x Pre-Policy Import Market Share $_{jh}$	0.118	0.013	0.058	0.020
	(0.079)	(0.065)	(0.045)	(0.044)
AD/CVD Policy Imposed $_{jht-1}$ x Pre-Policy Import Market Share $_{jh}$	0.116	0.134 [b]	0.024	0.069
	(0.072)	(0.062)	(0.044)	(0.043)
AD/CVD Policy Imposed $_{jht-2}$ x Pre-Policy Import Market Share $_{jh}$	-0.156 [b]	-0.235 [a]	-0.171 [a]	-0.177 [a]
	(0.067)	(0.059)	(0.044)	(0.044)
Controls for AD/CVD Petitions Initiated Only, AD/CVD Petitions Resulting in Preliminary Duties Only, Imposition of 2000 Circular Welded Pipe SG or 2000 Steel Wire Rod SG (and country exclusions), Imposition of Suspension Agreements, Removal of AD/CVD Tariffs after Revocation of Orders or Sunset Reviews*	Yes	Yes	Yes	Yes
Other Control Variables				
$\ln(m_{iht-2})$	-0.050 [a]	-0.066 [a]	--	--
	(0.003)	(0.002)		
Zeros-Corrected Import Growth Rate $_{iht-2}$	--	--	-0.056 [a]	-0.056 [a]
			(0.004)	(0.004)
ΔX_{it} : Country and Time Fixed Effects	Yes	Yes	Yes	Yes
[number of fixed effects]	[855]	[885]	[941]	[971]
Observations	65449	69294	86585	91308
R^2	0.04	0.05	0.04	0.04

Notes: Subscripts *i, j* are exporting countries, *h* is an HTS 10-digit product in Chapter 72 or 73, and *t* is a year. In parentheses are White's heteroskedasticity-consistent standard errors corrected for clustering on the variable defined as the country and year fixed effect. Superscripts a, b and c denote variables statistically different from zero at the 1, 5 and 10 percent levels, respectively. * Estimates suppressed and available from the author upon request.

Table 3: Comparing the 2002 Safeguard with the 1992-1993 AD/CVD Implementation

Dependent Variable: Quantity Import Growth Rate $_{iht}$, $\Delta \ln(m_{iht})$

Explanatory Variables

2002 Steel SG Policy Variables	
2002 SG Policy Imposed $_{ht}$	
x Not Excluded Indicator $_{iht}$	-0.168 [a]
	(0.063)
PTA Country Exclusion from 2002 SG $_{ht}$	0.266
	(0.223)
Developing Country Exclusion from 2002 SG $_{ht}$	0.365 [a]
	(0.134)
Product Exclusion from 2002 SG $_{ht}$	0.248 [a]
	(0.084)
2001 Indicator for a 10-digit HTS product under the June 2001 USTR SG Investigation Order	0.205 [a]
	(0.045)
2002 Indicator for a 10-digit HTS product under the June 2001 USTR SG Investigation Order	-0.075
	(0.050)
Other Steel Policy Variables	
Controls for AD/CVD Petitions Initiated Only, AD/CVD Petitions Resulting in Preliminary Duties Only, Imposition of 2000 Circular Welded Pipe SG or 2000 Steel Wire Rod SG (and country exclusions), Imposition of Suspension Agreements, Removal of AD/CVD Tariffs after Revocation of Orders or Sunset Reviews*	Yes
Other Control Variables	
ln (m_{iht-2})	-0.050 [a]
	(0.003)
ΔX_{it} : Country and Time Fixed Effects	Yes
[number of fixed effects]	[855]
Observations	65449
R^2	0.04

1992-1993 Steel AD/CVD Policy Variables	
AD/CVD Policy Imposed $_{iht}$	
x Indicator for t = 1992 or 1993	-0.204 [c]
	(0.106)
AD/CVD Policy Imposed $_{iht-1}$	
x Indicator for t = 1992 or 1993	-0.565 [a]
	(0.136)
AD/CVD Policy Imposed $_{iht-2}$	
x Indicator for t = 1992 or 1993	0.184
	(0.119)
AD/CVD Policy Imposed $_{jht}$	
x Indicator for t = 1992 or 1993	0.220 [a]
	(0.074)
AD/CVD Policy Imposed $_{jht-1}$	
x Indicator for t = 1992 or 1993	-0.039
	(0.077)
AD/CVD Policy Imposed $_{jht-2}$	
x Indicator for t = 1992 or 1993	0.063
	(0.067)
Non-1992-1993 Steel AD/CVD Policy Variables	
AD/CVD Policy Imposed $_{iht}$	
x Indicator for $t \neq$ 1992 or 1993	-0.962 [a]
	(0.079)
AD/CVD Policy Imposed $_{iht-1}$	
x Indicator for $t \neq$ 1992 or 1993	-0.288 [a]
	(0.087)
AD/CVD Policy Imposed $_{iht-2}$	
x Indicator for $t \neq$ 1992 or 1993	-0.083
	(0.089)
AD/CVD Policy Imposed $_{jht}$	
x Indicator for $t \neq$ 1992 or 1993	-0.037
	(0.039)
AD/CVD Policy Imposed $_{jht-1}$	
x Indicator for $t \neq$ 1992 or 1993	0.144 [a]
	(0.039)
AD/CVD Policy Imposed $_{jht-2}$	
x Indicator for $t \neq$ 1992 or 1993	-0.093 [b]
	(0.040)

Notes: Subscripts i, j are exporting countries, h is an HTS 10-digit product in Chapter 72 or 73, and t is a year. In parentheses are White's heteroskedasticity-consistent standard errors corrected for clustering on the variable defined as the country and year fixed effect. Superscripts a, b and c denote variables statistically different from zero at the 1, 5 and 10 percent levels, respectively. * Estimates suppressed and available from the author upon request.

Table 4: Quarterly Estimates to Investigate the Timing of the Impact of the 2002 Safeguard and other Use of Trade Remedies

	Dependent Variable: Zeros-Corrected Import Growth Rate of the Value of Imports $_{iht}$ (to capture effects of entering/exiting exporters)				
Explanatory Variables	**Within Quarter *t***	**Quarter *t+1***	**Quarter *t+2***	**Quarter *t+3***	**Quarter *t+4***
2002 Steel SG Policy Variables					
March 2002 SG Tariff Imposed $_{ht}$ *x* Not Excluded Indicator $_{iht}$	NA*	-3.015 [a] (0.225)	0.444 [c] (0.244)	0.017 (0.237)	-1.308 [a] (0.248)
March 2002 Announcement of PTA Country Exclusion from SG $_{ht}$ *x* Tariff $_{ht}$	NA*	1.510 [c] (0.894)	-0.220 (0.958)	-2.316 [b] (0.924)	0.502 (0.951)
March 2002 Announcement of Developing Country Exclusion from SG $_{ht}$ *x* Tariff $_{ht}$	NA*	0.303 (0.597)	2.662 [a] (0.568)	1.365 [b] (0.555)	1.532 [a] (0.520)
March 2002 Announcement of Product Exclusion from SG $_{ht}$ *x* Tariff $_{ht}$	NA*	1.557 [b] (0.656)	0.074 (0.608)	-0.700 (0.646)	1.022 [b] (0.520)
Ex Post Announcement of Product Exclusion from SG $_{ht}$ *x* Tariff $_{ht}$	0.780 [a] (0.281)	0.156 (0.276)	-0.011 (0.347)	-0.038 (0.369)	-1.050 [b] (0.507)
March 2002 SG Quota Imposed $_{ht}$ *x* Not Excluded Indicator $_{iht}$	NA*	-1.256 [a] (0.224)	0.462 (0.396)	0.605 (0.376)	-0.826 [b] (0.388)
March 2002 Announcement of Country or Product Exclusion from SG $_{ht}$ *x* Quota $_{ht}$	NA*	2.867 [a] (0.242)	0.839 [b] (0.411)	-0.804 [b] (0.383)	-0.937 [b] (0.394)
Ex Post Announcement of Product Exclusion from SG $_{ht}$ *x* Quota $_{ht}$	-0.278 (0.411)	-0.320 (0.383)	0.485 (0.394)	-0.552 [a] (0.108)	--
June 2001 Indicator for a 10-digit HTS product under the USTR SG Investigation Order $_{ht}$	0.015 (0.361)	-0.200 [a] (0.031)	-0.019 (0.031)	-0.076 [b] (0.031)	0.010 (0.037)
Other US Trade Policy Variables on Steel, 1991-2002					
AD/CVD investigation $_{iht}$ resulting in final imposition of duties *x* Tariff $_{iht}$	-1.642 [a] (0.128)	-1.122 [a] (0.161)	-0.488 [a] (0.167)	0.321 [c] (0.171)	-0.015 (0.171)
AD/CVD investigation $_{iht}$ resulting in preliminary duties but terminated/withdrawn before imposition of final duties *x* Tariff $_{iht}$	-1.381 [a] (0.137)	-0.992 [a] (0.178)	0.529 [a] (0.191)	0.961 [a] (0.163)	0.368 [b] (0.165)
AD/CVD investigation $_{iht}$ terminated/withdrawn without duties	-0.064 (0.091)	-0.293 [a] (0.093)	0.019 (0.101)	0.121 (0.101)	0.244 [a] (0.092)
Suspension Agreement Imposed $_{iht}$	-0.771 [a] (0.141)	-0.831 [a] (0.188)	0.401 (0.270)	-0.197 (0.287)	0.377 (0.236)
AD/CVD investigation $_{jht}$	0.018 (0.062)	-0.094 (0.058)	0.080 (0.056)	0.032 (0.054)	0.012 (0.053)
Other Control Variables					
Controls for Imposition of 2000 Circular Welded Pipe SG or 2000 Steel Wire Rod SG (and country exclusions), Removal of AD/CVD Tariffs after Revocation of Orders or Sunset Reviews	Yes				
Zeros-Corrected Import Growth Rate of the Value of Imports $_{iht-2}$	-0.041 [a] (0.003)				
ΔX_{it} : Country and Time Fixed Effects [number of fixed effects]	Yes [3739]				
Observations	257589				
R^2	0.04				

Notes: Subscripts *i, j* are exporting countries, *h* is an HTS 10-digit product in Chapter 72 or 73, and *t* is a year. In parentheses are White's heteroskedasticity-consistent standard errors corrected for clustering on the variable defined as the country and quarter, year fixed effect. Superscripts a, b and c denote variables statistically different from zero at the 1, 5 and 10 percent levels, respectively. * Within-quarter estimates for the March 2002 steel safeguard omitted from the estimation because the policy went into effect at the very end of the first quarter, on March 20, 2002.