

# The Impact of Tariff Hikes on Firm Exports\*

Facundo Albornoz

Irene Brambilla

Emanuel Ornelas

June 24, 2019

## Abstract

We study how unexpected increases in import tariffs affect firm export behavior. We identify our results from a sudden removal of American preferential tariffs applied on Argentine imports under the Generalized System of Preferences, which reflected American retaliation to an unrelated dispute over intellectual property between the two countries. Critical for identification, the tariff hike affected a third of Argentine exports enjoying preferential access in the American market, but did nothing to the other two thirds. We find that the higher tariffs reduced export participation of affected Argentine firms in the US market, whereas resilient exporters dealt with the cost increase by reshuffling their export baskets away from the products whose tariffs increased. Interestingly, those effects carry over third markets: after the policy shock, affected firms selling to the US were less likely to export to other markets and, if they did, they moved their export basket there in the same direction they shifted it in the American market. Those findings reveal the nuanced consequences of tariff preferences on exporting firms, highlighting that their effect tend to spill over other products and other markets through changes in within-firm product composition.

**Keywords:** Tariffs; GSP; exporting firms; multiproduct firms; third-market effects

**JEL classification:** F13, F14, F55, F63, O19, O24

[PRELIMINARY]

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\*Albornoz: University of Nottingham and CONICET-IIIEP; facundo.albornoz@nottingham.ac.uk. Brambilla: UNLP and CONICET; irene.brambilla@econo.unlp.edu. Ornelas: Sao Paulo School of Economics-FGV, CEPR, CESifo and CEP; eaornelas@gmail.com. We thank Lorenzo Caliendo, Amit Khandelwal, Eduardo Morales, Feodora Teti, seminar participants at the Inter-American Development Bank, University of Melbourne, Monash University and Moscow International Economics Workshop, and especially Andrés Rodríguez-Clare for very helpful comments and suggestions.

# 1 Introduction

How do sudden increases in import tariffs affect firm export behavior? What is their impact on firms' export basket composition? Does a tariff change in a market influence firm exports to other markets? We answer those questions in a context that allows us to credibly identify those effects. We find that tariff hikes of specific products reduce firm export market participation but have little effect on the aggregate foreign sales of resilient exporters. This happens because of the reshuffling of products within firms. Interestingly, firms affected by the tariff hike adjust their behavior in a similar way also with respect to other markets, even though tariffs did not change there.

Our context is that of the General System of Preferences (GSP). Since the 1970's, all signatories of the General Agreement on Tariffs and Trade (GATT, which in 1995 became the World Trade Organization) have been formally allowed to offer nonreciprocal trade preferences to developing countries. Whilst those preferences represent a blatant exception to GATT's principle of nondiscrimination,<sup>1</sup> they have become pervasive; currently, all developed countries have their own GSP program.

In this paper, we exploit a dispute between the US and Argentina over the rules and the enforcement of foreign intellectual property rights in Argentina—in particular, the application of a patent law to pharmaceuticals. It resulted in the US suspending preferences on around a third of Argentina's exports that benefited from GSP on over 100 different products, most unrelated to pharmaceuticals, in mid-1997. As a result, some Argentine products previously enjoying duty-free entry in the American market started to face higher export costs associated with the (most-favored-nation) import tariffs. On average, import tariffs on the affected manufactured goods increased by 3.9 percentage points for Argentine exporters. That exogenous increase in tariffs (from the perspective of the Argentine firms) provides a rare opportunity to identify the causal effect of country-specific tariffs hikes on export outcomes at the firm level.

Comparing the reactions of the firms affected by the suspension with the behavior of firms whose products were unaffected by tariff changes, we find that the tariff increase induced some firms to stop exporting to the American market altogether. Among those that continued to serve the US, there is only weak evidence that the total volume of their exports fell. This is explained by

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<sup>1</sup>Specifically, GATT's Article I states that members cannot discriminate across sources of imports. Article XXIV permits discrimination but only under reciprocal liberalization in the context of free trade areas and customs unions.

a rearrangement of products within firms, away from suspended goods and toward non-suspended ones. Those findings show, on one hand, that tariffs can be a deterrent of firms' foreign market participation. On the other hand, more resilient exporters are able to partially circumvent the tariff increases through (potentially inefficient) shift of resources across products. Effectively, this indicates firm-level *product substitutability within a market*—implying that, to increase exports of a product, the firm needs to decrease its foreign sales of other products. This suggests the presence of diseconomies of scope at the firm-market level.

Probably even more surprising is the finding that essentially all the results obtained for the American market carry through to third markets, *where there was no policy change* regarding imports from Argentina. Those effects are often (but not always) smaller than the corresponding effects in the US market, but are estimated precisely. Moreover, they are largely restricted to the firms for which sales of suspended products in the US were relatively important in their overall exports. Those results relay important evidence about how firms define their product scope. In particular, they indicate firm-level *product complementarity across markets*—implying that, if the cost of exporting a certain product to a market rises, firms will cut down exports of that product not only to that market but also to markets where export costs did not change. This suggests the presence of increasing returns at the firm-product level. To our knowledge, those are entirely new findings not only in the literature exploring the effects of GSP, but also in the broader literature on the export behavior of multiproduct firms.

Of course, our findings are drawn from a specific trade policy change, and one needs to be cautious before generalizing the conclusions to other settings. Nevertheless, it is worth noting that our environment provides a rather clean opportunity to infer the causal effects of tariff changes on firm behavior. Most existing studies rely either on across-the-board programs of unilateral liberalization or sweeping liberalization in the context of free trade agreements.<sup>2</sup> By design, those tariff changes are endogenous. Moreover, they usually shift the whole spectrum of tariffs. Both features impose a series of identification challenges. In our case, the tariff increase in the American market is certainly exogenous for the affected Argentine firms. And while the products were surely chosen non-randomly by the US government, we find no evidence that the product selection reflected pre-shock trade growth or levels. In fact, while some products were relatively important

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<sup>2</sup>See, for example, the survey by Goldberg and Pavcnik (2016).

in the context of Argentina’s GSP, others were not—interestingly, some were not even exported by Argentina to the US right before the shock. The finding that pre-shock trade flows levels and growth do not explain the product selection may reflect the fact that American imports from Argentina under GSP are tiny from the US’s perspective.

It is also worth noting that the policy shock we exploit shares some interesting resemblances to the recent American tariff changes. First, and most obviously, the market affected directly is the same: the US. Second, unlikely what is commonly observed in most related studies, tariffs increase rather than decrease. Additionally, the tariff hikes happen on a discriminatory basis, being targeted at specific countries (here, just Argentina). Fourth, only a set of products are affected; that is, it is not an across-the-board change in tariffs, as is often the case. Finally, in both cases the policy shock was relatively sudden and unanticipated (or at least not fully anticipated, in the case of Trump’s tariffs).

We contribute to three different but interconnected research agendas. First, our results shed light on how firm export strategies are affected by changes in exporting costs. We can interpret the unexpected removal of preferential status as an exogenous (from the firms’ perspective) increase in the variable costs of exporting, which allows us to understand how product-country specific variable export costs affect export decisions of other products and to other destinations. In that sense, we join a burgeoning literature on export dynamics at the firm level. Most of that literature focuses on the effects of sunk and fixed costs (e.g. Arkolakis, 2016; Impullitti, Irarrazabal and Opromolla, 2013; Das, Roberts and Tybout, 2007; Morales, Sheu and Zahler, 2018; Albornoz, Fanelli and Hallak, 2016). We offer a complementary perspective on how changes in variable export costs affect export decisions, including at the extensive margin of trade.

Within the broader literature on firm export strategies, more recently some authors have looked at how changes in demand or in export costs in one market affect firm sells to other markets. Defever and Ornelas (2019) study how the elimination of quotas on some textile and clothing products in the US and the EU in 2005 affected Chinese exports of those products to other markets. Interestingly, despite their completely different context, they also find a positive third-market effect at the extensive margin, but no third-market effect at the intensive margin. In contrast, Almunia, Antràs, Lopez-Rodriguez and Morales (2018) study the reaction of Spanish firms to the Great Recession and find a seemingly antagonistic effect: due to the slump in the domestic market, firms

redirected sales to foreign markets. There are several differences in the two contexts that could explain the seemingly contradictory results. More generally, what those results reveal is that the consequences of a policy (or demand) shock can be best viewed at the *firm*, not the firm-market, level.

Second, our results are informative to the growing literature on multi-product firms emphasizing product-mix reallocation as a source of productivity gains at the firm level. A common finding in that literature is that both tougher market competition and general trade liberalization tend to induce firms to concentrate on their best-performing products. That, in turn, tends to increase firm productivity.<sup>3</sup> More recently, Mayer, Melitz and Ottaviano (2016) look at the effects of demand shocks as the force behind productivity-enhancing changes in the product mix. Their main finding is that positive demand shocks induce firms to skew their exports towards their best-performing products.

In our setting, product-mix reallocation is driven instead by asymmetric changes in tariffs. Whether that implies Argentinean exporters concentrating their productive efforts on their best-performing products or moving away from their original core competencies depends on which products are hit by the cancellation of preferential market access. In contrast with the prevailing modeling assumptions of the literature, our results show that the identity of the best-performing product(s) is highly sensitive to variable trade costs. In fact, a higher tariff on a product induces some firms to start exporting other products, suggesting some type of decreasing returns to scope at the firm-market level: fewer exports of a product to a market makes it worthwhile to export other products to that market. Furthermore, we find that the induced reallocation and the switches in core products also manifest in third markets. Again in contrast to the received literature, this points to possible increasing returns to scale at the *firm-product* level, since there were no changes in trade costs to those markets. Overall, those results reveal a novel channel through which tariffs can affect productivity at the firm level.

Third, we contribute to the understanding of the effects of nonreciprocal preferences. The formal goal of GSP is to foster export-led growth in developing economies through preferential access to large, high-income markets. Naturally, a pre-condition for export-led economic growth is the growth

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<sup>3</sup>For differing modeling strategies, see Eckel and Neary (2010), Bernard, Redding and Schott (2011), Dhingra (2013) and Mayer, Melitz and Ottaviano (2014).

of exports themselves. But how effective is GSP in promoting exports from developing countries? After decades of implementation, it is surprising that we do not have a consensus even about the aggregate trade effects of GSP, although there is growing evidence that nonreciprocal preferences tend to (mildly) promote trade at the product level.<sup>4</sup> In fact, as pointed out by Ornelas (2016), there has not been yet any estimate of how nonreciprocal preferences affect firm-level behavior.<sup>5</sup> Filling that gap, our results indicate that nonreciprocal preferences can provide opportunities for firms to enter high-income markets and gain export experience, which is a condition for those countries to diversify their production and improve aggregate productivity. However, firms also exploit variation in preferential tariff rates to acquire export rents through changes in their export basket composition, possibly mitigating aggregate effects for their economies through that adjustment.

In the next section we detail the institutional setting of the policy shock and provide evidence that it affected exports at the product level. In section 3 we develop the firm-level analysis toward the United States. In section 4 we provide a similar analysis, but toward third countries. We discuss the implications of our results in section 5 and conclude in section 6.

## 2 The policy shock and its product-level impact

The American GSP has been in place since January 1976. It currently offers duty-free access on over 3,500 tariff lines to 121 countries. Although often significant for the exporting countries, the imports entering the US under GSP (\$21.2 billion in 2017, [https://ustr.gov/sites/default/files/gsp/GSP by the numbers February 2018.pdf](https://ustr.gov/sites/default/files/gsp/GSP%20by%20the%20numbers%20February%202018.pdf)) correspond to less than one percent of total American imports. The program specifies 15 criteria that a developing country must meet to qualify—respect internationally recognized worker rights, provide intellectual property protection, combat child labor,

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<sup>4</sup>There are mainly two branches of the literature estimating the trade effects of nonreciprocal preferences. One relies on country-level gravity estimations to evaluate the aggregate effect of the preferences—e.g., Herz and Wagner (2011), Gil-Pareja et al. (2014) and Ornelas and Rittel (2018)—with conflicting results due to data and methodological issues, as well as the treatment of heterogeneity. The other estimates the trade effects of specific nonreciprocal agreements at the product level—e.g. Frazer and Van Biesebroeck (2010) study the African Growth and Opportunity Act; Hakobyan (2017a, 2017b) exploits, respectively, periods in which the American GSP program expired (to be later reinstated) and the suspension of country-product pairs from the program when exports to the US increased “too much”; Gnutzmann and Gnutzmann-Mkrtchyan (2017) study the EU’s withdrawal of GSP preferences from Belarus in 2007; Garred and Kwon (2017) assess the expansion of unilateral preferences in OECD economies since the late 1990s. Those studies generally find positive, but relatively small, effects of preferences on exports of beneficiaries.

<sup>5</sup>In independent work in progress, Teti (2018) studies how the Andean Trade Preferences Act—a program that gives better access to the American market for firms from Bolivia, Colombia, Ecuador and Peru—affected firm-level exports to the US and find positive effects for Peruvian firms.

etc. Countries that do not meet those criteria may be taken out, permanently or provisionally, fully or partially, from the recipients' list. The trade policy shock we exploit is one of such partial suspensions.

Specifically, on April 15, 1997, the US government partially withdrew duty-free treatment offered to Argentina under GSP. The decision followed a conflict between the two countries regarding the application of patent laws to pharmaceutical production in Argentina. As a consequence, several products exported from Argentina to the US, which had previously benefited from free entry under GSP, lost the preferential treatment and began to incur import tariffs.<sup>6</sup> That unilateral change in trade policy provides a sizeable variation in export variable costs, exogenous from the perspective of the affected Argentine firms, which saw the duties on some of their products rise from zero to the Most Favored Nation (MFN) tariff in the American market.

Table 1 clarifies the importance of the suspended products in Argentina's exports to the US. It shows exports from Argentina to the US in 1996, the year before the suspension. Out of 1340 8-digit products that were exported, 583 were eligible for the American GSP program, amounting to US\$388 million of exports entering the US free of duty. That value corresponds to 17 percent of total Argentine exports to the US in that year. The (simple) average MFN tariff of the eligible products was 3.7 percent. The tariff preference was claimed in 90% of the eligible exports. The vast majority of those exports were in manufacturing (the bottom panel of the table), on which we focus.

In 1997, 123 products were suspended from GSP (120 of them in manufacturing). Of those products, 91 recorded positive exports in 1996; the remaining suspended products were simply not exported by Argentina to the US in 1996. We provide in the Appendix the list of suspended products. There are pharmaceutical goods; products from related industries, like chemicals; but also many other goods from entirely different industries, like agriculture, apparel and furniture. In terms of export value, products suspended in 1997 account for 5.5% of total exports and for 32.5% of GSP exports from Argentina to the US in 1996. The average MFN tariff of the suspended products was 3.6 percent, very close to the average MFN tariff of all products eligible for preferences. The figures are very similar if we consider only manufacturing products.

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<sup>6</sup>See Blanchard and Hakobyan (2015) for a rich account of the potential and the observed discretion exercised by the US government when deciding eligibility of countries, products and country-product pairs. As they stress, the system is far from a 'generalized' system.

Importantly, the policy shock was largely unanticipated by the Argentine firms. To recover the timeline of the patent dispute and its escalation to the partial GSP suspension, we have searched, using a variety of key terms, through the main daily newspaper in Argentina, *La Nacion*. The controversy started in December of 1995, but at that point it was restricted to the suitability of Argentina’s new patent law, which was challenged by US authorities—apparently under the pressure of American pharmaceutical multinationals. The US government raised the possibility of taking the case to the WTO but never did it (according to some Argentine authorities, because the US anticipated losing it). Without the backing of a favorable WTO resolution, the options for trade sanctions were limited. The possibility of suspending Argentina from GSP was then raised on January 1997. At first, the US indicated a suspension of 50% of the products, although it ended up including fewer than that. We also note that there was no presumption that the suspension would be revoked any time soon. In fact, the suspended products were never granted preferential treatment in the American market again. In the Appendix we provide a more detailed account of the events leading to the policy shock.

Now, the rationale for the choice of products was not made public and remains unclear. First, we note that, while exports under GSP were significant for Argentina (17% of their total exports to the US), from the American perspective they were very small, corresponding to 0.05 percent of its total imports in 1996. If we consider only the products suspended, their share in American total imports in 1996 was less than 0.02 percent. Since those shares are tiny, it is plausible that the choice of products to suspend by the American government was not directly linked to their importance in the American market.

To verify whether that was indeed the case, we seek to ‘predict’ which products were suspended based on pre-1997 import levels and import growth. We also include the level of the MFN tariff in our estimation, since it is plausibly a variable that the American policymakers may consider when deciding which products should have their tariff rates reversed to the MFN rates. The equation we estimate is

$$I(SUSP)_i = \beta_1 \Delta M(96/93)_i + \beta_2 M96_i + \beta_3 MFN_i + \phi_{HS4} + \varepsilon,$$

where  $M96_i$  denotes American imports of good  $i$  in 1996,  $\Delta M(96/93)_i$  represents the growth of imports of good  $i$  between 1993 and 1996,  $MFN_i$  indicates good  $i$ ’ MFN tariff rate, and  $\phi_{HS4}$

represents fixed effects at the 4-digit level. The sample is composed of all GSP products exported by Argentina to the US between 1993 and 1996.

Table 2 shows the results. Since in principle the decision to include a product can be based on overall imports or on imports from Argentina alone, columns 1-3 consider overall imports into the US, whereas columns 4-6 consider only imports coming from Argentina. In columns 3 and 6, we use the log of 1996 imports instead of its level. Regardless of the specification, there is no indication that those were key factors in the decision to suspend a product. Hence, the rationale for the selection of products seems to have been based on factors unrelated to the economic variable on which we focus on—exports as a dependent variable, and the size of the preference withdrawn as a of the key element defining the magnitude of the treatment.

Before getting to the firm-level analysis, we investigate the impact of the policy shock on product-level exports from Argentina to the US. To do so, we use USITC data from 1996 to 1999, leaving aside 1997, the year where the suspension was implemented. We calculate product-level export shares of manufactured goods to the US from Argentina and investigate how the suspension affected them. Specifically, we estimate the following regression specification:

$$sh_{it} = \alpha SUSP_i \times POST_t + \phi_i + \phi_t + \epsilon_{it}, \quad (1)$$

where  $i$  indexes products and  $t = 1996, 1998-1999$  indexes period, where we aggregate the post-suspension years to have a single period both before and after the shock. The dependent variable  $sh_{it}$  corresponds to the share of 8-digit product  $i$  in total manufacturing exports from Argentina to the US in period  $t$ :  $sh_{it} \equiv M_{it} / \sum_k M_{kt}$ , where  $M_{it}$  denotes American imports of product  $i$  from Argentina in period  $t$ . In turn,  $SUSP_i$  is an indicator taking the value of one for suspended products and zero otherwise, while  $POST_t$  is an indicator taking the value of one when  $t = 1998-1999$ . The  $\{\phi\}$  variables correspond to product and year fixed effects.

Now, one concern with specification (1) is that there may be shocks that affect all foreign sales of suspended products in the American market. For that reason, it is useful to also consider imports from markets other than Argentina in the regression. We therefore estimate as well the following

triple-difference specification:

$$sh_{imt} = \alpha SUSP_{im} \times POST_t + \phi_{im} + \phi_{it} + \phi_{mt} + \epsilon_{imt}, \quad (2)$$

where we keep the same definitions as in (1) but now add a third dimension by also considering exports from the rest of the world (*ROW*) to the US. Specifically, the dependent variable  $sh_{imt}$  now corresponds to the share of 8-digit product  $i$  in total manufacturing exports of market  $m$  to the US in period  $t$ :  $sh_{imt} \equiv M_{imt} / \sum_k M_{kmt}$ , where  $M_{imt}$  denotes American imports of product  $i$  from market  $m$  in period  $t$ , where  $m = \textit{Argentina}, \textit{ROW}$ . The indicator  $SUSP_{im}$  takes the value of one for suspended products when  $m = \textit{Argentina}$  and zero otherwise. In turn, the  $\{\phi\}$  variables now correspond to product-origin, product-year and origin-year fixed effects.

Under the assumption that *ROW* exports to the US are not directly affected by the GSP suspension of Argentine preferences in the American market, the triple-difference coefficient  $\alpha$  gives us the effect of the suspension on the relative Argentine sales of those products to the US. Or put differently, it gives us the extent of the relative loss of importance (if  $\alpha < 0$ ) of those products in Argentina's exports to the American market. It has an analogous interpretation in the double-differences specification.

Table 3 shows the results. We consider four samples: only imports from Argentina (columns 1 and 2), following specification (1), and imports from both Argentina and *ROW* (columns 3 and 4), following specification (2). Columns 1 and 3 consider all products with strictly positive imports from Argentina before and after 1997. Columns 2 and 4 restrict the sample to products granted GSP to Argentina in 1996.

The results indicate that the suspension of GSP preferences reduced the importance of the affected products in Argentina's export basket to the US. Specifically, on average the suspension reduced the share of a product in Argentina's exports between 13 percent (when we consider all products) and 42 percent (when we consider only GSP products). Although the average share of a single suspended product in Argentina's exports pre-1997 is obviously small (0.19% among all products, 0.23% among GSP products), in relative terms the changes are large. Those findings are broadly consistent with the results of other detailed product-level analyses of the concession of nonreciprocal preferences, as discussed in the introduction.

Observe that the results with the double and triple differences are very similar. The purpose of the triple-difference (relative to the double-difference) is to control for product-specific American import demand shocks. Since the results are very similar, they suggest that on average the suspended products were subject to about the same type of demand shocks as other products, so that is not what drives the changes in Argentina’s exports basket. With that result in mind, in our empirical strategy for the firm-level analysis we concentrate on the double-difference approach.

### **3 Firm-level analysis**

#### **3.1 Data**

The analysis in section 2 shows that the suspension from the American GSP program reduced relative Argentine exports to the US of the affected products. A concern is that, even if exports fall at the product level, they may not change as much at the firm level. This could happen if firms could easily substitute exports across products or markets. In that case, GSP would be mostly a device that increases rents for the exporters enjoying the preferences, possibly generating misallocation of resources in their countries, rather than an engine for export-led growth, as its formal justification in the GATT purports. We therefore move now to the firm-level analysis, to investigate how Argentine firms reacted to the policy shock.

Our primary source of data is Argentina’s customs data, which contain information on the universe of Argentine export transactions. The dataset covers every firm-product-destination export combination. Each record contains the firm’s unique tax code; the exported good, identified at the 8-digit level using the Nomenclatura Comun del Mercosur (NCM); the destination; and the value and quantities exported. From the United States International Trade Commission (USITC) we have information on preferences granted to Argentina in the American market at the 8-digit level using the Harmonized Tariff Schedule of the United States (HTSUS); on claimed GSP imports; and on American MFN tariffs.

One difficulty is that the NCM and HTSUS product classifications do not match at the 8-digit level. For that reason, we work at the 6-digit level, since at that level of aggregation both systems adopt the harmonized system (HS) of classification. Another difficulty is that there was a change in the HS classification in 1996. We follow the concordance methodology used by the United Nations

Trade Statistics (available at <https://unstats.un.org/unsd/trade/classifications/correspondence-tables.asp>) to make the correspondence. Overall, 24 percent of the products suspended were affected by the reclassification in one way or another.

The dataset spans 1994 to 2001, so it allows us to observe Argentine firm-level exports both before and after the partial cancellation of GSP in the American market. Since the policy took place in the middle of 1997, we eliminate 1997 from the analysis, so that the periods before and after the shock are clearly defined.

Table 4 shows the average share of suspended, GSP and non-GSP products across firms before and after the policy shock. In Panel A, we consider only exports to the US. Suspended goods lose importance in the export baskets of Argentine firms after 1997, whereas non-GSP goods become more relevant. In Panel B we show equivalent results for Argentine exports to the rest of the world, but using the sample of firms that exported to the US before 1997—and therefore could have been affected by the shock. Interestingly, and despite the absence of similar policy changes in the rest of the world, we observe an analogous pattern there, albeit the magnitudes are smaller.

Before we start the firm-level analysis, a natural concern is whether the firms affected by the suspension were growing at a different pace relative to other Argentine exporters. If that were the case, our results could capture a pre-suspension trend that persisted after the suspension.

We answer that question in Table ???. We look at pre-1997 export growth (between both 1995 to 1996 and 1994 to 1996). In the table, “suspended firms” are those that exported at least one suspended product to the US in 1996, whereas non-suspended “GSP firms” are those that exported GSP-eligible goods but not suspended ones to the US in 1996. As the t-test on the equality of means indicates, there is no statistical difference between the export growth of firms affected and unaffected by the suspension. Hence, those results indicate that our findings do not reflect pre-shock trends in the affected firms.

## 3.2 Benchmark specification

Our benchmark specification has the following form:

$$y_{jt} = \beta_1 SUSP_j \times POST_t + \phi_j + \phi_t + \{D_{jt}\} + \epsilon_{jt}, \quad (3)$$

where  $j$  indexes firms and  $t$  indexes years. It includes firm ( $\phi_j$ ) and year ( $\phi_t$ ) fixed effects. It also includes firm-year dummies for firm sizes ( $\{D_{jt}\}$ ), distinguishing among firms below median export size, between the 50th and 75th percentiles, and above the 75th percentile. We cluster standard errors at the firm level. The dependent variable  $y_{jt}$  varies across specifications, corresponding to different measures of exports—a dummy to identify export participation, the log of export values, or export shares of various types.

The key independent variable is the difference-in-differences interaction  $SUSP_j \times POST_t$ . The variable  $POST_t$  captures the timing of the policy shock, corresponding to a dummy that is one from 1998 onwards and zero otherwise. In turn,  $SUSP_j$  captures the firm exposure to the suspension. Its definition is tricky, because a firm can export both products that had preferences suspended and products that either never had preferential treatment or had it throughout the whole sample period. Furthermore, simply looking at whether a firm exported a product that had its preferential treatment revoked disregards heterogeneity in the value of that preferential treatment. Accordingly, we use different definitions for  $SUSP_j$  under different samples, as follows:

- D1. The average share, from 1994 to 1996, of suspended products in total firm exports to the US, where the sample includes all firms that exported to the US before 1997.
- D2. Same definition as in D1, but restricting the sample to firms for which at least 80% of export value to the US prior to 1997 was of products that received preferences under GSP; we term them “GSP firms.”
- D3. Average MFN tariff of suspended products, calculated as

$$\sum_{t=1994}^{1996} \sum_i (MFN_{it} \times sh_{ijt} \times I_i) / 3,$$

where  $MFN_{it}$  denotes the American MFN tariff rate for product  $i$  in year  $t$ ,  $sh_{ijt}$  is the share of product  $i$  in firm  $j$ 's exports to the US in year  $t$ , and  $I_i$  is an indicator for whether product  $i$  was suspended in 1997.

- D4. Same definition as in D3, but with the sample defined in D2.

Definition D1 is the most intuitive: the greater the share of products suspended in a firm's

exports to the US, the more exposed it were to the policy shock. By contrast, definition D3 allows for different intensities of treatment even for firms that exported the same share of suspended products before 1997. It is designed to capture the value of the lost preferential treatment. For example, if a firm exported mostly products that were suspended but whose MFN tariffs were minuscule, then the loss of preferential treatment should be meaningless. Definition D3 would capture that lack of importance, unlike the simpler definition D1. Conversely, if a firm exported products that were suspended and whose MFN tariffs were very high, then the policy shock would presumably have a meaningful impact on its behavior even if the share of those products in its total American exports were relatively small. Again, definition D3 would capture the importance of that lost preference, unlike definition D1

Definitions D2 and D4 are analogous to definitions D1 and D3, respectively, but restrict the sample to firms that are heavy exporters of products that receive GSP treatment in the US. Since those GSP firms may be the most relevant with respect to the policy shock, both as treatment and as control, it is worthwhile to have specifications that focus on them.

### 3.3 Main results

The core of the analysis is the American market. In Table 6 we consider both the extensive and the intensive margins at the firm level. Columns (1) to (4) correspond to definitions D1 to D4. In panels A and B, the dependent variable is a dummy indicating whether firm  $j$  exports to the US in year  $t$ . Panel A follows the structure of regression (3), whereas Panel B splits  $POST_t$  by year to identify possible differential effects over time. For both the full and the GSP samples, the suspension has a precisely estimated negative effect on the probability of exporting to the American market. In terms of magnitudes, if a firm exported only suspended products to the US prior to 1997, then on average the suspension would reduce the probability that this firm would export to the US after 1997 by three percentage points. This compares to a baseline probability of exporting to the US after 1997 of  $X$  p.p. The effect is larger (in absolute value), the greater the tariff increase due to the suspension. When we allow for differential effects by year (Panel B), the level of significance of individual years drops, as expected, but the results show that the effect is spread over time and long-lasting, suggesting that the affected firms do not recover even four years after the removal of preferences.

In Panel C, we focus on the intensive margin effect, so the dependent variable is the log of exports of firm  $j$  to the US. We consider all firms that export in at least one year before the policy shock and one year after it, aggregating firm exports over all years before and all years after the shock. This allows for a flexible definition of intensive margin that accounts for firms that export consistently but not every year.<sup>7</sup> In that specification the difference-in-differences coefficient is not estimated precisely, except when we consider only GSP firms in column (2), where there is mild statistical evidence that the suspension decreased the volume of sales of exporting firms to the American market.

Put together, the results in Table 6 indicate that the suspension of tariff preferences had an important negative effect at the extensive margin of Argentine firms exporting to the US, but a much less clear effect at the intensive margin. This lack of a strong intensive margin effect may reflect intra-firm product reallocation, to which we now turn.

In Table 7 we look at within-firm substitution patterns between suspended and non-suspended products. The samples in each column are the same used in the equivalent columns of panels A-B of Table 6. But since Table 7 investigates precisely substitution patterns within firms, using pre-suspension shares in the regression would not be adequate. Accordingly, in columns 1 and 2 the key independent variable is simply  $POST_t$ , rather than its interaction with  $SUSP_j$ .<sup>8</sup> In columns 3 and 4 we keep the weighted average MFN tariff interacted with  $POST_t$  to capture whether the effect varies with the extent of the lost preferential treatment.

In Panel A we find that the share of suspended products in the export baskets of Argentina's firms toward the US drops significantly after the shock, especially for the firms shipping mostly GSP products, for which the share drops on average by 18 percentage points. Moreover, the effect is greater when the loss of preferences is more valuable. In line with that result, Panel B shows that the probability that a firm will export a suspended product decreases, and decreases by more for GSP firms and when the loss of preferences is more valuable. Panel C shows that it is not only a matter of dropping affected products; firms also add non-suspended goods to their export baskets to the US after the shock. In absolute value, however, this positive effect is about half the size

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<sup>7</sup>We obtain similar results when we consider every year of the sample (except 1997) and keep a balanced panel that includes only firms that export every year in the sample. We also consider a specification similar to Panel C but further conditioning on positive exports in the year 1996. Results are in Table A2 in the Appendix.

<sup>8</sup>We nevertheless show, in Table A3 of the Appendix, results using  $SUSP_j \times POST_t$  as the main independent variable. Results are qualitatively similar.

of the direct effect on affected products shown in Panel B. On the whole, then, Table 7 indicates that the loss of tariff preferences induces firms to rearrange their baskets of products sold in the American market: suspended products tend to be dropped while non-suspended ones are added.

To investigate the validity of our results, we estimate a ‘falsification exercise’ where we replicate Tables 6 and 7, but changing the period to the pre-shock years. Specifically, we compare the years 1994-1995 with a ‘false’ post-shock period of 1996.<sup>9</sup> Table 8 shows, first, the equivalent of Panels A and C of Table 6. It shows in its lower part the equivalent of Panels A to C of Table 7.

The results for the extensive margin are not statistically significant. The intensive margin results do show a negative effect, but not for the GSP firms. And the within-firm substitution results do not show any significant effect except for one of twelve estimated parameters. Hence, the results from the falsification exercise confirm that nothing special was happening with the firm-level exports of suspended products before the 1997 policy shock.

### 3.4 Product hierarchy within firms

Another way of looking at firms’ product basket adjustment is to consider whether the policy shock affected product hierarchy within firms. We do so in Table 9, where we consider the probability that a product is the firm’s ‘core product’ (Panel A); the probability that it is one of the firm’s ‘top 2’ products (Panel B); and the probability that it is one of the firm’s ‘top 3’ products (Panel C). Those product definitions consider the rank order of sales to the US in a year. Panels A, B and C condition on a firm exporting on average at least 2, 3 and 4 products, respectively, to the US during 1994-1996. As that analysis is at the firm-product level, the variable *SUSP* is defined as a dummy at the product level. Similarly, in columns (3) and (4), we use the MFN tariffs of the suspended products directly. We include firm-product fixed effects, in addition to year fixed effects.

In line with the substitution between suspended and non-suspended products observed in Table 7, Table 9 shows that the suspension generally reduces the probability that a product would feature prominently within a firm’s export basket to the US, regardless of the definition. Again, this effect is more prominent for the ‘GSP firms.’ It is also greater when the margin of preference lost is larger.

Hence, those results further confirm that the change in variable export costs induced firms to rearrange the product composition of their export baskets to the US. Specifically, products whose

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<sup>9</sup>In Table A4 in the Appendix we compare instead 1994 with 1995-1996. Results are similar.

tariffs increased were downgraded within firms' product hierarchies with respect to their sales to the American market.

### 3.5 Heterogeneous effects

Presumably, the effects of the tariff hikes may be heterogeneous across firms. In Tables 10 and 11 we investigate whether the effects of the suspension vary systematically across firms according to the number of products they exported to the US in 1994-1996.<sup>10</sup> Table 10 is the analog of Table 6 (Panels A and B) and of Table 7 (Panels C and D). The only difference is that we now add an interaction of the differences-in-difference variable with the log of the number of products exported by the firm to the US in 1994-1996.

The first two panels show possible heterogeneous effects of the shock across firms at the intensive and extensive margins. Interestingly, the results show that differences between single and multiproduct firms are not statistically significant, suggesting that they were similarly negatively affected at the extensive margin, and similarly unaffected at the intensive margin.

Panel C shows instead that the effect of the shock on the probability of dropping suspended products is greater, the more products the firm exported to the US prior to the shock. This reflects the flexibility of multiproduct firms in adjusting their export basket after product-specific cost shocks. Finally, the last panel shows that the probability of exporting non-suspended products increases by less for multiproduct firms than for single-product ones. This is not surprising: the shock ought to affect the probability of exporting a non-suspended product by less if the firm already exports many products.

In Table 11 we carry out a similar analysis for the impact of the shock on within-firm product hierarchy, allowing the effects to vary according to the number of products exported by the firm prior to the policy shock. As the table shows, there is virtually no differential effect for multiproduct firms.

### 3.6 Summary of results

Hence, we find that the elimination of tariff preferences has a negative effect on multiple dimensions of the extensive margin. First, some firms stop exporting altogether to the US because of the

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<sup>10</sup>Results are very similar if we split firms by their pre-shock volume of exports to the US.

additional variable costs. Interestingly, this lower export participation affects single-product and multi-product exporters alike.

Second, within firms that remain serving the American market, there is significant product substitution. As the trade cost of some products increases, firms shift the composition of their export basket away from those products and toward others whose trade cost has not changed. Moreover, firms are more likely to drop products that have lost preferential tariff treatment and to add products that did not incur such a cost increase. Those effects are larger for multi-product firms. We also observe that the policy shock caused a change in the rank order of products within firms' export baskets. Specifically, a product is less likely to remain the 'core' product of a firm if its tariff preference is removed.

On the other hand, we find that the policy shock did not generate large firm-level intensive margin effects. That is, if a firm keeps exporting to the US after the tariff hike, it does not change its export volume in a significant way. This implies that firms were largely able to offset the cost of the tariff hikes by reshuffling products within their export baskets to the US.

## 4 Third markets

Having documented the impact of the US tariff increase on Argentina's exports to the American market, we now shift the focus to third markets—that is, markets where policy did not change, but which are also served by Argentine firms. The underlying question is whether the policy-induced change in export behavior to a large market has implications for a firm export behavior also in other foreign markets.

We proceed analogously to our analysis of the effects in the American market. Thus, in Table 12 we consider Argentine firms that exported to markets other than the US before the shock and to the US at some point during our sample period (so they could have been affected in some way by the policy shock). The goal is to see the effects of the suspension on their aggregate exports to non-US markets. Panels A-B consider extensive and intensive margin effects, as in Table 6. Panels C-E consider within-firm product substitution, as in Table 7.

The results in Panel A show that firms that are more exposed to the suspension of preferential treatment in the American market also become less likely to export to other markets. Moreover,

this third-market effect is larger when the preferential margin enjoyed before the shock is higher. This effect is also larger for firms whose exports are more concentrated on GSP products. Hence, there is a positive externality to other markets; since the shock is negative (a reduction of market access), it affects negatively also export participation in the rest of the world. Conversely, as in the US, there is no identifiable effect at the intensive margin for *ROW* either (Panel B).

Results in panels C-E are also very similar to those in Table 7: because of the tariff increase in the American market, affected firms substitute non-suspended products for suspended ones in their export baskets even to markets where policy did not change. In general, the magnitude of the impact is lower for exports to the rest of the world than to the US (where the tariff hikes actually happened), but the direction and the precision of the estimates are similar.<sup>11</sup> This is plausible, since policy changed only in the latter.

Which are the firms that drive the third-market effects? Presumably, the answer should depend on how important the exports of the affected products to the US were for the firm. For those that exported only a tiny value of suspended products to the US, the shock will have a correspondingly tiny effect on their global sales. Therefore, they are unlikely to make much adjustments to their export baskets toward other markets. The effect we observe should, as a result, stem from the firms for whom sales of suspended products to the US were more meaningful.

To verify whether that hypothesis is correct, we split firms based on their “exposure” to the shock. Using the ratio (exports of suspended products to the US in 1996/total exports in 1996) as our index, we define “low US share” as the 25th percentile of that index. The results are in Tables 13 and 14. Results are largely consistent: the third-country impact of the suspension in the US is larger for firms for which the US is relatively important.

Table 15 is the analog of Table 9 for third markets. Again, the results go in the same direction as those for the American market: being suspended lowers the probability that a good will feature prominently within firms’ export basket to non-US markets.

[mention/discuss tables on heterogeneous results.]

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<sup>11</sup>Table A5 in the Appendix shows similar results for Panels C, D and E using  $SUSP \times POST$  instead of  $POST$ . Tables A6 and A7 in the Appendix consider heterogeneous effects across firms in markets other than the US, depending on how many products a firm exports. They are the analogs of tables 10 and 11, respectively. Again, the results across the two sets of tables are very similar, reinforcing the evidence that the shocks affected the behavior of firms similarly in the American market and in other destinations.

Tables A8, A9, A10 in the Appendix are analogous to Table 12, but we consider different groups of destinations: Latin America, Europe and OECD countries outside the Americas and Asia, and Asia, respectively. The goal is to investigate whether the effects for *ROW* are driven by specific markets—for example, those that are economically more similar to the US (like Europe) or geographically closer to Argentina (Latin America).

At the extensive margin, the policy shock in the US had no identifiable effect on exports to Asia and Latin America, but a clear negative effect on exports to Europe and other OECD economies. This shows that the positive third-market effect for the rest of the world identified in Table 12 is driven by the reaction of firms exporting to markets similar to the US. Again, intensive margin effects are mute, for all destinations. Interestingly, the within-firm shift toward non-suspended products is observed in all markets, although the effects are larger for Europe and Latin America than for Asia (yet note that there are also significantly fewer Argentine firms exporting to Asia than to the other destinations). Those results show that the policy shock in the US affected the decision of Argentine firms to export to other destinations similar to the US, while affecting firms' product composition in virtually every market.

## 5 Discussion

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### 5.1 Implications for understanding the consequences of GSP

Despite the apparent benefit to poorer countries from the preferential access to larger markets, a central criticism of GSP is that, because the preferences are nonreciprocal, they do not induce the recipient countries to liberalize their own markets. When the domestic market remains protected, import-competing sectors remain oversized, preventing the expansion of the export sectors. Accordingly, the preferences may yield rents to existing exporters but fail as a development strategy, the ultimate (formal) goal of GSP. Furthermore, since the preferences are offered non-reciprocally, the 'donor' countries have significant discretion over the choice of products and for how long the preferences will be in place. As a result, rich countries often offer preferential access to develop-

ing countries in products and sectors where the latter do not have comparative advantage, being therefore of little use. And even when the preferences are in sectors where developing countries do possess comparative advantage, they may still be ineffectual if potential exporters are reluctant to incur the cost to start exporting when they face a benefit that can be withdrawn at any time (Bagwell and Staiger, 2014; Ornelas, 2016). Hence, in theory it is difficult to establish how important GSP is as a springboard for growth in developing countries. The verdict is necessarily empirical. However, most existing empirical studies are at very aggregate levels and yield inconclusive, contrasting results.

To avoid many of the problems faced by the aggregate analyses, one needs to move to the firm level to fully understand how/whether GSP affects the export performance of beneficiary countries. Furthermore, to infer causality one needs plausibly exogenous variation in GSP status. This is what we offer in this paper. Our study is the first to provide evidence of the effects of nonreciprocal preferential treatment on exports from developing countries at the firm level. The institutional environment suits the requirement described above because we can observe how Argentine firms reacted to the sudden withdrawal of GSP status on some (but not other) products, for reasons unrelated to the exports of those products.

We find that nonreciprocal preferences can be an effective policy instrument to stimulate foreign market entry, in line with the goals of GSP. However, since the preferences are selective across products, they induce firms to shift their export focus to the favored goods at the expense of the non-selected ones. This suggests that for perennial exporters the preferences may serve as a source of extra rents but have little, if any, effect on the aggregate productivity of the beneficiary countries. Furthermore, similar effects are observed also in third markets, indicating that preferences to one market can have global consequences through their effect on within-firm product composition. Those findings have implications for the assessment of the merits of nonreciprocal preferences not only for Argentine firms, but also for firms from other developing countries receiving similar preferences.

## 6 Concluding remarks

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We offer a particularly clean identification strategy for the analysis of the firm-level consequences of tariff changes.

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Our findings have implications for modeling and understanding how firms choose their export baskets across countries and the factors that affect those choices.

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Table 1: Argentine Exports to the US. USITC data, 1996

	All Products (1)	GSP Products (2)	Suspended Products (3)
<b>All Products</b>			
Value (millions of 1996 USD)	2278.4	388.1	126.1
Number of 8-digit products	1340	583	91
Percentage of total exports		17.0%	5.5%
Percentage of GSP exports			32.5%
GSP claimed		90.0%	95.4%
Average MFN tariff	2.4%	3.7%	3.6%
<b>Manufacturing</b>			
Value (millions of 1996 USD)	1987.2	373.3	118.9
Number of 8-digit products	1235	556	88
Percentage of total exports		18.8%	6.0%
Percentage of GSP exports			31.8%
GSP claimed		93.8%	96.8%
Average MFN tariff	2.4%	3.8%	3.9%

Notes: Data from USITC.

Table 2: Selection of Suspended Products

	(1) RoW	(2) RoW	(3) RoW	(4) Argentina Only	(5) Argentina Only	(6) Argentina Only
Import Growth $_{i,96-93}$	0.113 (0.0942)	-0.249 (0.248)	-0.259 (0.253)	-0.00182 (0.0154)	2.76e-05 (0.0282)	-0.0333 (0.0413)
ln(Imports) $_{i,96}$			0.0317 (0.0601)			0.0549 (0.0481)
mfn $_i$	0.935 (1.039)	1.963 (4.685)	2.056 (5.384)	1.087 (1.140)	2.089 (3.943)	0.499 (3.428)
Imports $_{i,96}$	-0.480 (0.780)	2.440 (3.528)		12.24 (14.23)	4.409 (13.59)	
Constant	0.0873 (0.0603)	0.124 (0.237)	0.0397 (0.418)	0.105** (0.0465)	0.0731 (0.152)	0.304 (0.200)
HS4 Product Fixed Effects		yes	yes		yes	yes
Observations	138	138	138	138	138	138
R-squared	0.026	0.885	0.882	0.010	0.871	0.883

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

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Table 3: Change in the Share of Suspended Products

	Double Difference		Triple Difference	
	All products (1)	GSP products (2)	All products (3)	GSP products (4)
$SUSP \times POST$	-0.025** (0.011)	-0.097*** (0.037)	-0.021* (0.012)	-0.088*** (0.034)
Observations	1738	874	3476	1748
Number of products	869	437	869	437
Average share (%)	0.19	0.23	0.19	0.23
Year effects	Yes	Yes		
Product effects	Yes	Yes		
Year-origin effects			Yes	Yes
Product-year effects			Yes	Yes
Product-origin effects			Yes	Yes

Notes: Regressions at the 8-digit product level. Data from USITC between 1996 and 1999, excluding 1997. Dependent variable: share of 8-digit product in total manufacturing exports of source country  $m$  to the US, with  $m = \{\text{Argentina}\}$  in double difference, and  $m = \{\text{Argentina, rest of the world}\}$  in triple difference.  $SUSP$ : binary variable that takes the value of one for products that were suspended from the GSP in 1997 and originated from Argentina.  $POST$ : binary variable that takes the value of one for the years 1998-1999. Columns (1) and (3): sample of all products with strictly positive exports from Argentina before and after 1997. Columns (2) and (4): sample of all products granted GSP in 1996 and with strictly positive exports from Argentina before and after 1997. Average share is the average share of suspended products in 1996, defined between 0 and 100.

Table 4: Share of exports of Argentinean firms

	1994-1996	1997-2001	% change
<b>Panel A: Exports to the US</b>			
Suspended goods	31.2%	26.3 %	-15.7%
16.13GSP goods	47.4%	45.2%	-4.6%
Non-GSP goods	52.6%	54.8%	4.1%
<b>Panel B: Exports to the Rest of the World</b>			
Suspended goods*	17.8%	16.5%	-7.2
11.84GSP goods	40.7%	40.5%	-0.5
Non-GSP goods	59.3%	59.5%	0.4

Notes: \*: "Suspended" considers only firms that sell at least one suspended product between 1994-1996.

Table 5: Pre-suspension comparison of firms

	Suspended firms			Non-suspended GSP firms			Difference	
	Mean	Std.Dev.	Obs.	Mean	Std.Dev.	Obs.	Diff	SE
Import Growth $_{i,96-95}$	0.22	0.042	1,538	0.29	0.037	2,148	-0.07	0.127
Import Growth $_{i,96-94}$	0.07	0.057	1,188	0.08	0.048	1,656	-0.01	0.067

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Notes: Table compares the level of exports and 1996 and export growth between 1995 and 1996, to the US and to the World, of two groups of firms depending on whether they were affected by the change in policy of 1997: suspended firms and non-suspended firms. Suspended firms are defined as those that exported at least one suspended product prior to 1997. Non-suspended firms correspond to all other firms in the sample. GSP firms are defined as those with more than 80 percent of exports under GSP in 1994-1996. Columns (1) and (4) report the mean, columns (2) and (5) the standard deviation, and columns (3) and (6) the number of observations for the two groups of firms. Column (7) reports the difference in means (difference between columns 1 and 4) and column (8) the standard error of the difference.

Table 6: Firm-level exports to the US

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
<i>SUSP</i> × <i>POST</i>	−0.03*** ( 0.01)	−0.03** ( 0.01)	−0.44*** ( 0.14)	−0.41** ( 0.17)
Observations	26136	6632	26136	6632
Firms	3267	829	3267	829
<b>Panel B: Probability of exporting</b>				
<i>SUSP</i> × 1998	−0.02 ( 0.01)	−0.03+ ( 0.02)	−0.45** ( 0.19)	−0.51** ( 0.22)
<i>SUSP</i> × 1999	−0.03** ( 0.01)	−0.02 ( 0.01)	−0.40** ( 0.19)	−0.20 ( 0.22)
<i>SUSP</i> × 2000	−0.03*** ( 0.01)	−0.03** ( 0.02)	−0.38+ ( 0.21)	−0.32 ( 0.25)
<i>SUSP</i> × 2001	−0.02+ ( 0.01)	−0.03** ( 0.02)	−0.52*** ( 0.15)	−0.62*** ( 0.17)
Observations	26136	6632	26136	6632
Firms	3267	829	3267	829
<b>Panel C: Log exports</b>				
<i>SUSP</i> × <i>POST</i>	−0.21 ( 0.19)	−0.51+ ( 0.27)	0.08 ( 2.49)	−2.28 ( 3.04)
Observations	2962	728	2962	728
Firms	1481	364	1481	364

Notes: Regressions at the firm-year level. Data from Argentine customs. Dependent variable: indicator variable for positive firm exports to the US (Panels A and B) and log total firm export value to the US (Panel C). Treatment variable: initial firm share of suspended products in total exports during 1994-1996 (columns 1 and 2) and firm weighted average MFN tariff of suspended products during 1994-1996 (columns 3 and 4), both interacted with a *POST* indicator that is equal to one after 1997. Suspended products are those suspended from GSP from Argentina in 1997. Sample: All firms with positive exports to the US in 1994-1996 (Columns 1 and 3) and firms with more than 80 percent of exports under GSP in 1994-1996 (Columns 2 and 4). Panel C collapses time periods into before and after 1997 and keeps firms with strictly positive exports in both time periods. All regressions include firm and year fixed effects, and firm-year dummies for firm size as controls. Standard errors are clustered at the firm level.

Table 7: Firm-level exports of suspended and non-suspended products to the US

	Post binary variable		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Share of suspended products</b>				
<i>POST</i>	-0.06*** ( 0.00)	-0.18*** ( 0.01)		
<i>SUSP</i> × <i>POST</i>			-2.98*** ( 0.24)	-2.57*** ( 0.23)
<b>Panel B: Probability of exporting at least one suspended product</b>				
<i>POST</i>	-0.08*** ( 0.01)	-0.21*** ( 0.02)		
<i>SUSP</i> × <i>POST</i>			-3.18*** ( 0.25)	-2.52*** ( 0.23)
<b>Panel C: Probability of exporting at least one non-suspended product</b>				
<i>POST</i>	0.04*** ( 0.00)	0.12*** ( 0.01)		
<i>SUSP</i> × <i>POST</i>			1.94*** ( 0.21)	1.78*** ( 0.22)
Observations	26136	6632	26136	6632
Firms	3267	829	3267	829

Notes: Regressions at the firm-year level. Data from Argentine customs. Dependent variable: firm share of suspended products in total exports (Panel A); indicator variable for positive exports of suspended products (Panel B); indicator variable for positive exports of non-suspended products (Panel C). Treatment variable: *POST* indicator variable for years after 1997 (Columns 1 and 2) and firm weighted average MFN tariff of suspended products during 1994-1996 interacted with the *POST* dummy (Columns 2 and 4). Suspended products are those suspended from GSP from Argentina in 1997. Sample: All firms with positive exports to the US in 1994-1996 (Columns 1 and 3) and firms with more than 80 percent of exports under GSP in 1994-1996 (Columns 2 and 4). All regressions include firm and year fixed effects, and firm-year dummies for firm size as controls. Standard errors are clustered at the firm level.

Table 8: Falsification exercise: 1994-1995 vs. 1996

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
<i>SUSP</i> × <i>POST</i>	-0.05 ( 0.04)	-0.02 ( 0.05)	-0.32 ( 0.56)	-0.25 ( 0.66)
Observations	9801	2487	9801	2487
Firms	3267	829	3267	829
<b>Panel C: Log exports</b>				
<i>SUSP</i> × <i>POST</i>	-0.50*** ( 0.13)	-0.21 ( 0.16)	-3.23+ ( 1.78)	0.50 ( 2.19)
Observations	2055	515	2055	515
Firms	1077	265	1077	265
<b>Panel A: Share of suspended products</b>				
<i>POST</i>	$4.3e^{-04}$ ( 0.01)	$3.8e^{-03}$ ( 0.02)		
<i>SUSP</i> × <i>POST</i>			-0.05 ( 0.33)	0.25 ( 0.25)
<b>Panel B: Probability of exporting at least one suspended product</b>				
<i>POST</i>	0.04*** ( 0.01)	0.02 ( 0.02)		
<i>SUSP</i> × <i>POST</i>			-0.56 ( 0.35)	-0.28 ( 0.36)
<b>Panel C: Probability of exporting at least one non-suspended product</b>				
<i>POST</i>	0.01 ( 0.01)	0.01 ( 0.02)		
<i>SUSP</i> × <i>POST</i>			0.44 ( 0.61)	0.39 ( 0.64)
Observations	5261	1325	5261	1325
Firms	3267	829	3267	829

Notes: Regressions at the firm-year level analogous to Tables 6 and 7 for the years 1994 to 1996. The treatment is artificially defined as the suspension having taken place at the beginning of 1996, so that 1994 and 1995 are the pre-treatment years and 1996 is the post treatment year.

Table 9: Product hierarchy within firms, US market

	Suspension dummy		Tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of being core</b>				
$SUSP \times POST$	-0.01 ( 0.01)	-0.04** ( 0.02)	-0.06+ ( 0.03)	-0.12+ ( 0.07)
Observations	90165	20920	67287	16500
Firm-products	16438	3815	12444	3081
<b>Panel B: Probability of being top 2</b>				
$SUSP \times POST$	-0.02** ( 0.01)	-0.06*** ( 0.02)	-0.10** ( 0.05)	-0.05 ( 0.10)
Observations	71287	15797	52791	12565
Firm-products	12892	2867	9671	2325
<b>Panel C: Probability of being top 3</b>				
$SUSP \times POST$	-0.02+ ( 0.01)	-0.05** ( 0.02)	-0.16** ( 0.06)	-0.07 ( 0.12)
Observations	61997	13928	45734	11043
Firm-products	11166	2490	8342	2012

Notes: Regressions at the firm-product level (6 digits). Data from Argentine customs. Dependent variable: indicator variable for core product (Panel A); indicator variable for top 2 product (Panel B); indicator variable for top 3 product (Panel C). Treatment variable: indicator variable for suspended products after 1997 (columns 1 and 2); and MFN tariff for suspended products after 1997 (columns 3 and 4). Sample: All firms with positive exports to the US in 1994–1996 (columns 1 and 3) and firms with more than 80 percent of exports under GSP in 1994–1996 (columns 2 and 4). Panel A conditions on exporting more than one product, Panel B conditions on exporting at least three products, and Panel C conditions on exporting at least 4 products, all on average during 1994–1996. All regressions include firm-product and year fixed effects, and firm-year dummies for firm size as controls.

Table 10: Firm-level exports to the US, single and multiproduct firms

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
<i>SUSP</i> × <i>POST</i>	-0.03** ( 0.01)	-0.02 ( 0.01)	-0.34+ ( 0.19)	-0.37+ ( 0.21)
<i>SUSP</i> × <i>POST</i> × <i>NPROD</i>	-0.00 ( 0.01)	-0.01 ( 0.01)	-0.14 ( 0.13)	0.01 ( 0.14)
Observations	26136	6632	26136	6632
Firms	3267	829	3267	829
<b>Panel B: Log Exports</b>				
<i>SUSP</i> × <i>POST</i>	-0.06 ( 0.26)	-0.44 ( 0.33)	2.23 ( 3.71)	-0.95 ( 4.23)
<i>SUSP</i> × <i>POST</i> × <i>NPROD</i>	-0.23 ( 0.18)	-0.12 ( 0.19)	-2.83 ( 2.31)	-1.91 ( 2.37)
Observations	2962	728	2962	728
Firms	1481	364	1481	364
	Post binary variable		Average tariff increase	
	<b>Panel C: Probability of exporting at least one suspended product</b>			
<i>POST</i>	-0.07*** ( 0.01)	-0.19*** ( 0.02)		
<i>POST</i> × <i>NPROD</i>	-0.04*** ( 0.01)	-0.05*** ( 0.01)		
<i>SUSP</i> × <i>POST</i>			-2.66*** ( 0.30)	-2.25*** ( 0.26)
<i>SUSP</i> × <i>POST</i> × <i>NPROD</i>			-0.84** ( 0.41)	-0.49 ( 0.37)
Observations	26136	6632	26136	6632
Firms	3267	829	3267	829
<b>Panel D: Probability of exporting at least one non-suspended product</b>				
<i>POST</i>	0.04*** ( 0.00)	0.14*** ( 0.01)		
<i>POST</i> × <i>NPROD</i>	-0.01*** ( 0.00)	-0.05*** ( 0.01)		
<i>SUSP</i> × <i>POST</i>			2.89*** ( 0.29)	2.73*** ( 0.28)
<i>SUSP</i> × <i>POST</i> × <i>NPROD</i>			-1.54*** ( 0.19)	-1.71*** ( 0.22)
Observations	26136	6632	26136	6632
Firms	3267	829	3267	829

Notes: Analogous to Tables 6 and 7 with the treatment variable also interacted with the log number of products exported by the firm to the US in 1994-1996 (*NPROD*).

Table 11: Product hierarchy within firms, US market, single and multiproduct firms

	Suspension dummy		Tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of being core</b>				
$SUSP \times POST$	-0.01 ( 0.01)	-0.04 ( 0.04)	-0.07 ( 0.07)	-0.33** ( 0.16)
$SUSP \times POST \times NPROD$	0.00 ( 0.01)	-0.00 ( 0.02)	0.01 ( 0.02)	0.11+ ( 0.06)
Observations	90165	20920	67287	16500
Firm-products	16438	3815	12444	3081
<b>Panel B: Probability of being top 2</b>				
$SUSP \times POST$	-0.03 ( 0.02)	-0.12+ ( 0.07)	-0.26** ( 0.13)	-0.39 ( 0.35)
$SUSP \times POST \times NPROD$	0.00 ( 0.01)	0.03 ( 0.03)	0.07+ ( 0.04)	0.15 ( 0.12)
Observations	71287	15797	52791	12565
Firm-products	12892	2867	9671	2325
<b>Panel C: Probability of being top 3</b>				
$SUSP \times POST$	-0.03 ( 0.03)	-0.01 ( 0.10)	-0.54*** ( 0.18)	-0.38 ( 0.47)
$SUSP \times POST \times NPROD$	0.01 ( 0.01)	-0.02 ( 0.04)	0.15*** ( 0.05)	0.13 ( 0.17)
Observations	61997	13928	45734	11043
Firm-products	11166	2490	8342	2012

Notes: Analogous to Table 9 with interactions at the firm level defined as in Table 10.

Table 12: Firm-level exports to non-US markets

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
$SUSP \times POST$	-0.04** (0.02)	-0.07*** (0.02)	-0.62*** (0.23)	-0.89*** (0.26)
Observations	21024	5216	21024	5216
Number of firms	2628	652	2628	652
<b>Panel B: Log exports</b>				
$SUSP \times POST$	0.08 (0.12)	-0.14 (0.17)	0.70 (1.89)	-1.06 (2.10)
Observations	3434	856	3434	856
Firms	1717	428	1717	428
	Post binary variable		Average tariff increase	
<b>Panel C: Share of suspended products</b>				
$POST$	-0.05*** (0.01)	-0.16*** (0.02)		
$SUSP \times POST$			-1.47*** (0.26)	-1.23*** (0.27)
<b>Panel D: Probability of exporting at least one suspended product</b>				
$POST$	-0.10*** (0.01)	-0.23*** (0.02)		
$SUSP \times POST$			-2.20*** (0.27)	-1.54*** (0.29)
<b>Panel E: Probability of exporting at least one non-suspended product</b>				
$POST$	0.01*** (0.001)	0.07*** (0.01)		
$SUSP \times POST$			0.75*** (0.17)	0.59*** (0.19)
Observations	21024	5216	21024	5216
Firms	2628	652	2628	652

Notes: Regressions at the firm-year level. Data from Argentine customs. Dependent variable: indicator variable for positive firm exports to non-US destinations (Panel A); log total firm export value to non-US destinations (Panel B); share of suspended products in total exports to non-US destinations (Panel C); indicator variable for positive exports of suspended products to non-US destinations (Panel D); indicator variable for positive exports of non-suspended products to non-US destinations (Panel E). Treatment variables vary by column and by panel in a manner analogous to tables 6 and 7. Sample: All firms with positive exports to the US sometime during 1994-1996 (columns 1 and 3); columns 2 and 4 additionally condition on more than 80 percent of non-US exports accounted for products under US GSP during 1994-1996.

Table 13: Firm-level exports to non-US markets

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A1: Probability of exporting - low US share</b>				
<i>SUSP</i> × <i>POST</i>	0.02 (0.02)	0.04 (0.03)	0.04 (0.23)	0.19 (0.25)
Observations	6528	1600	6528	1600
Number of firms	816	200	816	200
<b>Panel A2: Probability of exporting - high US share</b>				
<i>SUSP</i> × <i>POST</i>	-0.06*** (0.02)	-0.12*** (0.03)	-0.93*** (0.30)	-1.38*** (0.34)
Observations	14496	3616	14496	3616
Number of firms	1812	452	1812	452
<b>Panel C1: Share of suspended products - low US share</b>				
<i>POST</i>	-0.05 (0.06)	-0.07 (0.08)		
<i>SUSP</i> × <i>POST</i>			-0.80 <sup>+</sup> (0.47)	-0.48 (0.47)
Observations	1376	368	1376	368
Number of firms	172	46	172	46
<b>Panel C2: Share of suspended products - high US share</b>				
<i>POST</i>	-0.18*** (0.06)	-0.17*** (0.05)		
<i>SUSP</i> × <i>POST</i>			-0.83*** (0.32)	-0.45 (0.35)
Observations	3368	1976	3368	1976
Number of firms	421	247	421	247

Notes: Regressions at the firm-year level. Data from Argentine customs. Dependent variable: indicator variable for positive firm exports to non-US destinations (Panel A); log total firm export value to non-US destinations (Panel B); share of suspended products in total exports to non-US destinations (Panel C); indicator variable for positive exports of suspended products to non-US destinations (Panel D); indicator variable for positive exports of non-suspended products to non-US destinations (Panel E). Treatment variables vary by column and by panel in a manner analogous to tables 6 and 7. Sample: All firms with positive exports to the US sometime during 1994-1996 (columns 1 and 3); columns 2 and 4 additionally condition on more than 80 percent of non-US exports accounted for products under US GSP during 1994-1996.

Table 14: Firm-level exports to non-US markets

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel D1: Probability of exporting at least one suspended product - low US share</b>				
<i>POST</i>	-0.17** (0.07)	-0.05 (0.10)		
<i>SUSP</i> × <i>POST</i>			-1.57** (0.79)	0.03 (0.78)
Observations	1376	368	1376	368
Number of firms	172	46	172	46
<b>Panel D2: Probability of exporting at least one suspended product - high US share</b>				
<i>POST</i>	-0.14*** (0.07)	-0.12+ (0.07)		
<i>SUSP</i> × <i>POST</i>			-1.02*** (0.35)	-0.76** (0.38)
Observations	3368	1976	3368	1976
Number of firms	421	247	421	247
<b>Panel E1: Probability of exporting at least one non-suspended product - low US share</b>				
<i>POST</i>	0.02 (0.03)	0.05 (0.05)		
<i>SUSP</i> × <i>POST</i>			0.30 (0.27)	0.36 (0.33)
Observations	1376	368	1376	368
Number of firms	172	46	172	46
<b>Panel E2: Probability of exporting at least one non-suspended product - high US share</b>				
<i>POST</i>	0.11***	0.12***	(0.24)	(0.29)
<i>SUSP</i> × <i>POST</i>			0.43+ (0.24)	0.11 (0.29)
Observations	3368	1976	3368	1976
Number of firms	421	247	421	247

Notes: Regressions at the firm-year level. Data from Argentine customs. Dependent variable: indicator variable for positive firm exports to non-US destinations (Panel A); log total firm export value to non-US destinations (Panel B); share of suspended products in total exports to non-US destinations (Panel C); indicator variable for positive exports of suspended products to non-US destinations (Panel D); indicator variable for positive exports of non-suspended products to non-US destinations (Panel E). Treatment variables vary by column and by panel in a manner analogous to tables 6 and 7. Sample: All firms with positive exports to the US sometime during 1994-1996 (columns 1 and 3); columns 2 and 4 additionally condition on more than 80 percent of non-US exports accounted for products under US GSP during 1994-1996.

Table 15: Product hierarchy within firms, non-US markets

	Suspension dummy		Tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of being core</b>				
$SUSP \times POST$	-0.00 ( 0.00)	-0.01** ( 0.00)	0.00 ( 0.01)	-0.01 ( 0.03)
Observations	388285	96488	251509	64771
Firm-products	54868	13643	35863	9253
<b>Panel B: Probability of being top 2</b>				
$SUSP \times POST$	-0.00 ( 0.00)	-0.01** ( 0.01)	-0.01 ( 0.02)	-0.02 ( 0.04)
Observations	376838	93247	243301	62473
Firm-products	52852	13076	34406	8846
<b>Panel C: Probability of being top 3</b>				
$SUSP \times POST$	-0.00 ( 0.00)	-0.01** ( 0.01)	-0.03 ( 0.02)	-0.03 ( 0.05)
Observations	365570	90991	235145	60761
Firm-products	50930	12654	33002	8520

Notes: Regressions at the firm-product level (6 digits). Data from Argentine customs. Dependent variable: indicator variable for core product in non-US destinations (Panel A); indicator variable for top 2 product in non-US destinations (Panel B); indicator variable for top 3 product in non-US destinations (Panel C). Treatment variables and sample vary by column as in Table 12. All regressions include firm-product and year fixed effects, and firm-year dummies for firm size as controls.

## Appendix

### Timeline of news on suspension

**17 December 1995: First article mentioning the conflict on patents and the possibility of sanctions.** The Argentine government declared that the law was compatible with GATT but the US demanded stronger recognition of property rights for pharmaceuticals. Ambassador Granillo Ocampo explains that the patent law was the only conflict Argentina had with the US and dismisses the possibility of trade sanctions.

Furthermore, the new patent law was voted by the Argentine Congress and approved with unanimity, so the government had its hands effectively tied. That helps to explain why the government, which was otherwise completely aligned with the US, did not respond to the US pressures.

**8 January 1997: The possibility of GSP suspensions related to the conflict on patents.** Enrique Mansilla, the chief of the chamber of exporters, says in an interview that he expected strong pressures from the US in the near future. The article mentions that the potential punishment was the removal from GSP. This possibility was mentioned, according to the article, in the *Journal of Commerce*, which stated that President Clinton would adopt that decision in the “next week,” although there is no indication on how the suspension would be implemented.

The article also mentions that another mechanism considered by the US was the introduction of a clause on property rights in the ongoing discussions about the creation of a Free Trade Area of the Americas.

**15 January 1997: First indication that the suspension was going to be the removal of 50% of the products receiving preferences under GSP.** The article came out after the formal communication on the suspension by the US Administration. It mentions that the cause of the suspension is the patent law on pharmaceuticals. The expectation was that the loss for Argentina would be about US\$ 20 million dollars.

The article also mentions that the pressures on Argentina were lobbied for by a chamber of US pharmaceutical multinational firms and that, according to Argentinean officers, the unilateral sanction was demonstrated that the Argentinean law was compatible with the GATT.

Moreover, the fact that the sanction included only half of GSP-eligible products was taken as a surprise and was quite hard to understand by the Argentinean authorities.

The timeline expected on January 15 was that the US would select the products to be suspended in a month. On February 14, the products would be announced. And on April 1st the sanction would take place.

**Subsequent weeks: Substantial political activity trying to convince the Clinton Administration not to implement the sanction.** Those attempts, nevertheless, did not bear fruit.

Table A1: List of Suspended Products

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03037700	Sea bass, frozen, excluding filets, other meat portions, livers and roes
04049010	Milk protein concentrates
07032000	Garlic, fresh or chilled
16041610	Anchovies, whole or in pieces but not minced, in oil, in airtight containers, th
17011110	Cane sugar, raw, in solid form, w/o added flavoring or coloring, subject to add.
28054000	Mercury
28139050	Sulfides of nonmetals, excluding carbon disulfide and sulfides of arsenic or pho
28323010	Sodium thiosulfate
28399000	Silicates and commercial alkali metal silicates, excluding those of sodium and p
28413000	Sodium dichromate
28415000	Chromates and dichromates except of sodium, potassium, lead or zinc; peroxochrom
28433000	Gold compounds
28491000	Calcium carbide
28500050	Hydrides, nitrides, azides, silicides and borides other than of calcium, titaniu
29021100	Cyclohexane
29051200	Propan-1-ol (Propyl alcohol) and Propan-2-ol (isopropyl alcohol)
29051300	Butan-1-ol (n-Butyl alcohol)
29052250	Acyclic terpene alcohols, other than geraniol and isophytol
29061400	Terpineols
29141200	Butanone (Methyl ethyl ketone)
29141300	4-Methylpentan-2-one (Methyl isobutyl ketone)
29157000	Palmitic acid, stearic acid, their salts and esters
29171450	Maleic anhydride, except derived in whole or in part from benzene or other aroma
29182150	Salicylic acid and its salts, not suitable for medicinal use
29182210	O-Acetylsalicylic acid (Aspirin)
29182250	Salts and esters Of O-acetylsalicylic acid
29291015	Mixtures of 2,4- and 2,6-toluenediisocyanates
29329990	Nonaromatic heterocyclic compounds with oxygen hetero-atom(s) only, nesoi
29334030	Pesticides of heterocyclic compounds with nitrogen hetero-atom(s) only, cont. a
29339055	Aromatic or modified aromatic analgesics, etc., affecting the CNS, of heterocycl
32099000	Paints and varnishes based on synthetic polymers or chemically modified natural
33011910	Essential oils of grapefruit
33019010	Extracted oleoresins consisting essentially of nonvolatile components of the nat
33021010	Mixtures of odoriferous substances, mixtures with a basis of these substances, u
33021020	Mixtures of or with a basis of odoriferous substances, used in the food or drink
33029010	Mixtures of or with a basis of odoriferous substances, used in other than the fo
33030030	Perfumes and toilet waters, containing alcohol
33042000	Eye make-up preparations
33049950	Beauty or make-up preparations & preparations for the care of the skin, excl. m
33051000	Shampoos
33059000	Preparations for use on the hair, nesoi
33072000	Personal deodorants and antiperspirants
33074900	Preparations for perfuming or deodorizing rooms, including odoriferous preparati
34011110	Castile soap in the form of bars, cakes or molded pieces or shapes
35040050	Peptones and their derivatives; protein substances and their derivatives, nesoi;
35069900	Prepared glues and other prepared adhesives, excluding adhesives based on rubber
37011000	Photographic plates and film in the flat, sensitized, unexposed, of any material
37021000	Photographic film in rolls, sensitized, unexposed, for X-ray use; of any materia
37061030	Sound recordings on motion-picture film of a width of 35 mm or more, suitable fo
37079032	Chemical preparations for photographic uses, nesoi

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Notes: List of products with suspended preferences in 1997.

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38220050	Composite diagnostic or laboratory reagents, nesoi
39019090	Polymers of ethylene, nesoi, in primary forms, other than elastomeric
39021000	Polypropylene, in primary forms
39022050	Polyisobutylene, other than elastomeric, in primary forms
39029000	Polymers of propylene or of other olefins, nesoi, in primary forms
39039050	Polymers of styrene, nesoi, in primary forms
39044000	Vinyl chloride copolymers nesoi, in primary forms
39061000	Polymethyl methacrylate, in primary forms
39069050	Acrylic polymers (except plastics or elastomers), in primary forms, nesoi
39073000	Epoxide resins in primary forms
39076000	Polyethylene terephthalate in primary forms
39079900	Polyesters nesoi, saturated, in primary forms
39091000	Urea resins; thiourea resins
39095050	Polyurethanes, other than elastomeric or cements, in primary forms
39139020	Polysaccharides and their derivatives, nesoi, in primary forms
39219050	Nonadhesive plates, sheets, film, foil and strip, nonflexible, nesoi, of noncell
39239000	Articles nesoi, for the conveyance or packing of goods, of plastics
40111010	New pneumatic radial tires, of rubber, of a kind used on motor cars (including s
42010060	Saddlery and harnesses for animals nesi, (incl. traces, leads, knee pads, muzzle
43031000	Articles of apparel and clothing accessories, of furskins
43039000	Articles of furskin, nesi
44101100	Waferboard, including oriented strand board, of wood
44101900	Particle board and similar board of wood, other than waferboard
44111100	Fiberboard of a density exceeding 0.8 g/cm <sup>3</sup> , not mechanically worked or surface
48025210	Writing paper, weighing 40 g/m <sup>2</sup> to 150 g/m <sup>2</sup> , cont. n/o 10% by weight total fibre
69109000	Ceramic (o/than porcelain or china) sinks, washbasins, baths, bidets, water clos
70071100	Toughened (tempered) safety glass, of size and shape suitable for incorporation
71141160	Articles of silver nesoi, for household, table or kitchen use, toilet and sanita
72022150	Ferrosilicon containing by weight more than 55% but not more than 80% of silic
72023000	Ferrosilicon manganese
73089095	Iron or steel, structures (excluding prefab structures of 9406) and parts of str
73159000	Iron or steel, parts of chain (other than articulated link chain)
74091150	Refined copper, plates, sheets and strip, in coils, with a thickness over 0.15mm
74092100	Copper-zinc base alloys (brass), plates, sheets and strip, in coils
74199950	Copper, articles nesoi, not coated or plated with precious metal
79011100	Zinc (o/than alloy), unwrought, containing o/99.99% by weight of zinc
79011250	Zinc (o/than alloy), unwrought, o/than casting-grade zinc, containing at least 9
82072000	Interchangeable dies for drawing or extruding metal, and base metal parts thereo
84099150	Parts nesi, used solely or principally with spark-ignition internal-combustion p
84099199	Parts nesi, used solely or principally with spark-ignition internal-combustion p
84099991	Parts nesi, used solely or principally with the engines of heading 8408, for veh
84139190	Parts of pumps, nesi
84223090	Machinery for filling,closing,sealing, capsuling or labeling bottles, cans, boxe
84314910	Parts suitable for use solely or principally with the machinery of heading 8426,
84714937	ADP printer units, nesoi, entered with the rest of a system
84716057	Assembled ADP printer units, nesoi, incorporating at least certain mechanisms, n
84775100	Machinery for molding or retreading pneumatic tires or for molding or otherwise
84792000	Machinery for the extraction or preparation of animal or fixed vegetable fats or
84803000	Molding patterns
84813020	Check valves of iron or steel for pipes, boiler shells, tanks, vats or the like

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Notes: Continuation of Table A1

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84818030	Taps, cocks, valves & similar appliances for pipes, boiler shells, tanks, vats
84818090	Taps, cocks, valves & similar appliances for pipes, boiler shells, tanks, vats
84819030	Parts of hand operated and check appliances for pipes, boiler shells, tanks, vat
85030065	Stators and rotors for electric motors & generators of heading 8501, nesi
85243100	Pre-recorded discs for laser reading systems, reproducing phenomena other than s
85243200	Pre-recorded discs for laser reading systems, reproducing sound only
85245210	Pre-recorded magnetic video tape recordings of a width exceeding 4 mm but not ex
85246000	Pre-recorded sound or other similar recorded phenomena, recorded on cards incorp
85249100	Pre-recorded media, nesoi, with recordings of phenomena other than sound or imag
85249940	Pre-recorded media of sound or other similar recorded phenomena, nesoi
85369000	Electrical apparatus nesi, for switching or making connections to or in electric
85389080	Other parts nesi, suitable for use solely or principally with the apparatus of h
87086080	Pts. & access. of mtr. vehic. of 8701, nesoi, of 8702, and of 8704-8705, non-dr
87087060	Pts. & access. of mtr. vehicc of 8701, nesoi, and of 8702-8705, pts. & access.
87089980	Pts. & access., nesoi, of motor vehicles of 8701, nesoi, and 8702-8705
87169050	Parts of trailers and semi-trailers and vehicles, not mechanically propelled, ne
90039000	Parts of frames and mountings for spectacles, goggles or the like
90189010	Mirrors and reflectors used in medical, surgical, dental or veterinary sciences,
91131000	Watch straps, watch bands and watch bracelets, of precious metal or of metal cla
91132060	Parts of watch bracelet of base metal, whether or not gold- or silver-plated, va
94032000	Furniture (o/than seats) of metal nesoi, o/than of a kind used in offices
94035090	Furniture (o/than seats) of wood (o/than bentwood), of a kind used in the bedroo
94036080	Furniture (o/than seats & o/than of 9402) of wooden (o/than bentwood) nesoi

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Notes: Continuation of Table A1

Table A2: Firm-level exports to the US; intensive margin

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Log exports – year by year</b>				
$SUSP \times POST$	-0.15 ( 0.13)	-0.30 ( 0.19)	-0.22 ( 1.70)	-1.74 ( 2.21)
Observations	2496	600	2496	600
Firms	312	75	312	75
<b>Panel B: Log exports – before and after</b>				
$SUSP \times POST$	-0.21 ( 0.19)	-0.51 <sup>+</sup> ( 0.27)	0.08 ( 2.49)	-2.28 ( 3.04)
Observations	2962	728	2962	728
Firms	1481	364	1481	364
<b>Panel C: Log exports – before and after, conditional on 1996</b>				
$SUSP \times POST$	-0.26 ( 0.16)	-0.49** ( 0.23)	1.00 ( 2.22)	-1.72 ( 2.73)
Observations	2310	556	2310	556
Firms	1155	278	1155	278
<b>Panel D: Log exports – before and after</b>				
$SUSP \times POST \times YEARLY$	0.06 ( 0.19)	0.00 ( 0.26)	1.91 ( 2.21)	3.02 ( 2.62)
$SUSP \times POST \times NONYEARLY$	-0.30 ( 0.24)	-0.67** ( 0.31)	-0.62 ( 3.26)	-4.12 ( 3.76)
Observations	2962	728	2962	728
Firms	1481	364	1481	364

Notes: Compare with Table 6, Panel C. The table shows different sample specifications for estimating the effect of the change in policy on firm log exports. In Panel A observations are year by year and the sample is a balanced panel of firms that export to the US in every year in the sample. In Panel B we aggregate firm exports over the periods 1994-1996 and 1998-2001, as in Table 6, and condition on exporting to the US in the year 1996. Panel C uses the same sample as in Table 6, and adds an interaction with an indicator variable that is equal to one for firms that export to the US in every year during the sample ( $YEARLY = 1$ ,  $NONYEARLY = 0$ ).

Table A3: Firm-level exports of suspended and non-suspended products to the US; additional results

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Share of suspended products</b>				
<i>SUSP</i> × <i>POST</i>	-0.27*** ( 0.01)	-0.28*** ( 0.01)	-2.98*** ( 0.24)	-2.57*** ( 0.23)
<b>Panel B: Probability of exporting at least one suspended product</b>				
<i>SUSP</i> × <i>POST</i>	-0.29*** ( 0.01)	-0.27*** ( 0.01)	-3.18*** ( 0.25)	-2.52*** ( 0.23)
<b>Panel C: Probability of exporting at least one non-suspended product</b>				
<i>SUSP</i> × <i>POST</i>	0.19*** ( 0.01)	0.21*** ( 0.02)	1.94*** ( 0.21)	1.78*** ( 0.22)
Observations	26136	6632	26136	6632
Firms	3267	829	3267	829

Notes: Compare with Table 7. In columns 1 and 2 the treatment variable is the initial firm share of suspended products in total exports during 1994-1996 interacted with a Post indicator variable as in Table 6, and unlike Table 7, where the treatment variable is a Post indicator variable.

Table A4: Falsification exercise: 1994 vs. 1995-1996

	Suspension dummy		Tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of being core</b>				
$SUSP \times POST$	$-1.3e^{-03}$ ( $7.1e^{-03}$ )	$-0.02$ ( $1.4e^{-02}$ )	$-0.01$ ( $3.7e^{-02}$ )	$-0.01$ ( $8.3e^{-02}$ )
$SUSP \times POST \times NPROD$	$-1.2e^{-04}$ ( $1.8e^{-03}$ )	$1.9e^{-03}$ ( $3.8e^{-03}$ )	$4.5e^{-03}$ (0.01)	$-2.4e^{-03}$ (0.02)
Observations	388285	96488	251509	64771
Firm-products	54868	13643	35863	9253
<b>Panel B: Probability of being top 2</b>				
$SUSP \times POST$	$-0.01$ ( 0.01)	$-0.04^{**}$ ( 0.02)	$-0.11^{**}$ ( 0.05)	$-0.08$ ( 0.11)
$SUSP \times POST \times NPROD$	$2.2e^{-03}$ ( $2.3e^{-03}$ )	$0.01^{+}$ ( 0.01)	$0.03^{**}$ ( 0.01)	$0.02$ ( 0.03)
Observations	376838	93247	243301	62473
Firm-products	52852	13076	34406	8846
<b>Panel C: Probability of being top 3</b>				
$SUSP \times POST$	$-0.02$ ( 0.01)	$-0.06^{***}$ ( 0.02)	$-0.19^{***}$ ( 0.07)	$-0.12$ ( 0.14)
$SUSP \times POST \times NPROD$	$4.3e^{-03}$ ( $2.8e^{-03}$ )	$0.02^{***}$ ( 0.01)	$0.05^{***}$ ( 0.02)	$0.03$ ( 0.04)
Observations	365570	90991	235145	60761
Firm-products	50930	12654	33002	8520

Notes: Regressions at the firm-year level analogous to Tables 6 and 7 for the years 1994 to 1996. The treatment is artificially defined as the suspension having taken place at the beginning of 1995, so that 1994 is the pre-treatment year and 1995 and 1996 are the post treatment years.

Table A5: Non-US exports

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Share of suspended products</b>				
<i>SUSP</i> × <i>POST</i>	−0.14*** ( 0.02)	−0.15*** ( 0.02)	−1.47*** ( 0.27)	−1.19*** ( 0.27)
<b>Panel B: Probability of exporting at least one suspended product</b>				
<i>SUSP</i> × <i>POST</i>	−0.20*** ( 0.02)	−0.15*** ( 0.02)	−2.22*** ( 0.28)	−1.43*** ( 0.30)
<b>Panel C: Probability of exporting at least one non-suspended product</b>				
<i>SUSP</i> × <i>POST</i>	0.07*** ( 0.01)	0.08*** ( 0.02)	0.76*** ( 0.17)	0.59*** ( 0.19)
Observations	19344	4840	19344	4840
Firms	2418	605	2418	605

Notes: Compare with Table 12, Panels C, D, E. In columns 1 and 2 the treatment variable is the initial firm share of suspended products in total exports during 1994-1996 interacted with a Post indicator variable unlike Table 12 in which the treatment variable is a Post indicator variable.

Table A6: Firm-level exports to non-US markets, single and multiproduct firms

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
$SUSP \times POST$	-0.03 <sup>+</sup> ( 0.02)	-0.05 <sup>**</sup> ( 0.03)	-0.30 ( 0.25)	-0.58 <sup>+</sup> ( 0.31)
Observations	12808	2968	12808	2968
Number of firms	1601	371	1601	371
<b>Panel B: Log exports</b>				
$SUSP \times POST$	0.08 ( 0.21)	-0.22 ( 0.30)	-0.10 ( 2.65)	-2.73 ( 3.31)
Observations	2068	480	2068	480
Firms	1034	240	1034	240
	Post binary variable		Average tariff increase	
<b>Panel C: Share of suspended products</b>				
$POST$	-0.06 <sup>***</sup> ( 0.01)	-0.19 <sup>***</sup> ( 0.02)		
$SUSP \times POST$			-1.42 <sup>***</sup> ( 0.35)	-0.88 <sup>***</sup> ( 0.34)
<b>Panel D: Probability of exporting at least one suspended product</b>				
$POST$	-0.11 <sup>***</sup> ( 0.01)	-0.26 <sup>***</sup> ( 0.03)		
$SUSP \times POST$			-1.82 <sup>***</sup> ( 0.37)	-1.18 <sup>***</sup> ( 0.38)
<b>Panel E: Probability of exporting at least one non-suspended product</b>				
$POST$	0.03 <sup>***</sup> ( 0.01)	0.08 <sup>***</sup> ( 0.02)		
$SUSP \times POST$			0.98 <sup>***</sup> ( 0.26)	0.59 <sup>**</sup> ( 0.29)
Observations	12808	2968	12808	2968
Firms	1601	371	1601	371

Notes: analogous to Table 10 for non-US destination markets.

Table A7: Firm-level exports to non-US markets, single and multiproduct firms: top products

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
$SUSP \times POST$	0.01 ( 0.03)	-0.01 ( 0.05)	0.02 ( 0.56)	-0.15 ( 0.72)
Observations	5656	1112	5656	1112
Number of firms	707	139	707	139
<b>Panel B: Log exports</b>				
$SUSP \times POST$	0.42 ( 0.34)	-0.26 ( 0.54)	6.14 ( 4.51)	5.37 ( 7.02)
Observations	784	144	784	144
Firms	392	72	392	72
	Post binary variable		Average tariff increase	
			All firms	GSP firms
<b>Panel C: Share of suspended products</b>				
$POST$	-0.02** ( 0.01)	-0.06** ( 0.03)		
$SUSP \times POST$			-1.80** ( 0.72)	-1.64** ( 0.80)
<b>Panel D: Probability of exporting at least one suspended product</b>				
$POST$	-0.03*** ( 0.01)	-0.08** ( 0.03)		
$SUSP \times POST$			-1.87** ( 0.74)	-1.89** ( 0.83)
<b>Panel E: Probability of exporting at least one non-suspended product</b>				
$POST$	0.01+ ( 0.01)	0.03 ( 0.02)		
$SUSP \times POST$			1.15** ( 0.54)	1.24+ ( 0.66)
Observations	5656	1112	5656	1112
Firms	707	139	707	139

Notes: analogous to Table 11 for non-US destination markets.

Table A8: Exports to Latin America

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
$SUSP \times POST$	0.01 ( 0.01)	-0.00 ( 0.02)	-0.16 ( 0.20)	-0.32 ( 0.23)
Observations	16536	4216	16536	4216
Number of firms	2067	527	2067	527
<b>Panel B: Log exports</b>				
$SUSP \times POST$	0.15 ( 0.13)	-0.09 ( 0.19)	1.33 ( 1.89)	0.16 ( 2.21)
Observations	2876	716	2876	716
Firms	1438	358	1438	358
	Post binary variable		Average tariff increase	
<b>Panel C: Share of suspended products</b>				
$POST$	-0.06*** ( 0.01)	-0.15*** ( 0.02)		
$SUSP \times POST$			-1.19*** ( 0.28)	-1.13*** ( 0.29)
<b>Panel D: Probability of exporting at least one suspended product</b>				
$POST$	-0.12*** ( 0.01)	-0.24*** ( 0.02)		
$SUSP \times POST$			-1.98*** ( 0.29)	-1.33*** ( 0.31)
<b>Panel E: Probability of exporting at least one non-suspended product</b>				
$POST$	0.03*** ( 0.01)	0.08*** ( 0.02)		
$SUSP \times POST$			0.81*** ( 0.21)	0.74*** ( 0.22)
Observations	16536	4216	16536	4216
Firms	2067	527	2067	527

Notes: analogous to Table 12 but considering only exports to Latin America.

Table A9: Exports to Europe and other OECD countries

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
$SUSP \times POST$	-0.02 ( 0.02)	-0.04 <sup>+</sup> ( 0.02)	-0.25 ( 0.24)	-0.54 <sup>+</sup> ( 0.30)
Observations	12808	2968	12808	2968
Number of firms	1601	371	1601	371
<b>Panel B: Log exports</b>				
$SUSP \times POST$	0.07 ( 0.20)	-0.22 ( 0.29)	0.08 ( 2.51)	-1.52 ( 3.10)
Observations	2068	480	2068	480
Firms	1034	240	1034	240
	Post binary variable		Average tariff increase	
<b>Panel C: Share of suspended products</b>				
$POST$	-0.07*** ( 0.01)	-0.20*** ( 0.02)		
$SUSP \times POST$			-1.41*** ( 0.34)	-0.84** ( 0.33)
<b>Panel D: Probability of exporting at least one suspended product</b>				
$POST$	-0.12*** ( 0.01)	-0.28*** ( 0.03)		
$SUSP \times POST$			-1.80*** ( 0.36)	-1.09*** ( 0.36)
<b>Panel E: Probability of exporting at least one non-suspended product</b>				
$POST$	0.03*** ( 0.01)	0.09*** ( 0.02)		
$SUSP \times POST$			0.98*** ( 0.26)	0.60** ( 0.29)
Observations	12808	2968	12808	2968
Firms	1601	371	1601	371

Notes: analogous to Table 12 but considering only exports to Europe and other OECD countries.

Table A10: Exports to Asia

	Share of suspended products		Average tariff increase	
	All firms (1)	GSP firms (2)	All firms (3)	GSP firms (4)
<b>Panel A: Probability of exporting</b>				
$SUSP \times POST$	0.02 ( 0.03)	-0.02 ( 0.04)	-0.22 ( 0.49)	-0.48 ( 0.60)
Observations	5656	1112	5656	1112
Number of firms	707	139	707	139
<b>Panel B: Log exports</b>				
$SUSP \times POST$	0.46 ( 0.36)	-0.47 ( 0.55)	5.57 ( 4.71)	2.63 ( 6.26)
Observations	784	144	784	144
Firms	392	72	392	72
	Post binary variable		Average tariff increase	
<b>Panel C: Share of suspended products</b>				
$POST$	-0.02*** ( 0.01)	-0.07*** ( 0.02)		
$SUSP \times POST$			-1.82*** ( 0.70)	-1.67** ( 0.75)
<b>Panel D: Probability of exporting at least one suspended product</b>				
$POST$	-0.04*** ( 0.01)	-0.10*** ( 0.03)		
$SUSP \times POST$			-1.91*** ( 0.71)	-1.83** ( 0.78)
<b>Panel E: Probability of exporting at least one non-suspended product</b>				
$POST$	0.01** ( 0.01)	0.04*** ( 0.02)		
$SUSP \times POST$			1.17** ( 0.54)	1.30** ( 0.64)
Observations	5656	1112	5656	1112
Firms	707	139	707	139

Notes: analogous to Table 12 but considering only exports to Asia.