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# India: The Use of Temporary Trade Barriers

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While India did not use antidumping, safeguards, and countervailing measures (temporary trade barriers) prior to 1992, it subsequently came to become the WTO system's dominant user of those policies. Using detailed product-level data from the World Bank's *Temporary Trade Barriers Database* from 1992-2009, we first study India's use of temporary trade barriers over time, and across products, sectors and targeted countries, to then establish changes in previous patterns that may have taken place during the global economic crisis of 2008-2009. We find that there has been an increase in the *stock* of products subject to antidumping measures during 1992-2009. Moreover, the percentage of tariff line products affected by an antidumping measure increased during the recent global recession, from 1.82% in 2007 to 4.03% in 2009, and the evidence suggests that such increase is larger than would be predicted by the observed pre-crisis trend. We also find a shift in the incidence of India's antidumping policy towards China and other developing countries in recent years. Furthermore, another dimension along which India's antidumping protection increased during 2008-9 was via the failure to remove policies that were imposed prior to the global economic crisis and were supposed to be terminated during the crisis under the five-year 'Sunset Review' limit. There was also an increase in India's use of global safeguard investigations as well as China-specific safeguards during the global economic crisis. However, the process of tariff liberalisation continued during such period, and it is possible that India's use of temporary trade barriers might have helped it move in that direction.

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## 1 Introduction

India implemented a significant unilateral trade liberalisation reform as part of an arrangement with the International Monetary Fund requested in 1991, following a balance of payments crisis. With the reform, the import-weighted average tariff decreased from 87.0% in 1990-1 to 24.6% in 1996-7. The sharpest tariff reductions took place from 1991 to 1992, and while India had not used the WTO-permitted ‘contingent’ forms of import protection such as antidumping, safeguards, or countervailing measures before, it initiated its first antidumping investigation in 1992 and it went on to become the WTO system’s foremost user of antidumping policies by 2001. India also initiated its first safeguard investigation in 1997.

In this paper we examine India’s use of antidumping, safeguards, and countervailing measures—jointly referred to as temporary trade barriers—from 1992 to 2009, making use of detailed product-level data from the World Bank’s Temporary Trade Barriers Database (Bown, 2010a). We also study the use of such policies during the global recession years of 2008-9 and compare it to trends from previous years. We focus on whether there have been important changes regarding not only India’s aggregate use of temporary trade barriers, but also their incidence across products, sectors and targeted countries, as well as the amount of time that these ‘temporary’ measures stay in place, and the relationship between their use and India’s WTO commitments regarding applied tariffs.

Although India’s financial sector was not overexposed to subprime lending and was thus able to avoid the direct effect of the global financial crisis, its economy was severely affected by the worldwide recession.<sup>1</sup> As shown in Figure 1, India’s growth in GDP per capita decreased from 8.2% in 2007 to 3.7% in 2008. Moreover, exports and imports decreased sharply in 2009, in contrast to previous periods of economic contraction such as 1997 and the early 2000s. During the recent recession there was also considerable attention in the media about a potential trade war with China due to India’s extension of its ban on imports of Chinese dairy products and the imposition of a temporary ban on imports of Chinese toys in 2009, as well as the large number of antidumping investigations initiated against China over a variety of products (including steel and textiles) in 2008-9.<sup>2</sup> This raises the question of whether India’s ‘protectionism’ changed during the global economic crisis.

We first provide information on the behavior of India’s aggregate and product-level use of antidumping—both the ‘flow’ of new investigations as well as the ‘stock’ of measures in place—over time.

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<sup>1</sup> See, for example, Bajpai (2010).

<sup>2</sup> See, for example, *The Times of India* (2009a, 2009b), and *Hindustan Times* (2009).

While the flow data indicate that the annual share of 8-digit Harmonized System (HS) products subject to a new antidumping investigation reached a peak of 2.10% in 2007, the stock measure in particular allows us to infer that the product coverage of antidumping policies has increased during 1992 through 2009. Moreover, the percentage of products affected by antidumping measures as well as the percentage of India's import value with antidumping measures in place experienced a sizeable increase during the recession years of 2008 and 2009. Using data at the tariff line (8-digit HS) product level, we find that the percentage of products subject to antidumping measures increased from 1.82% in 2007 to 4.03% in 2009, and that this increase is larger than what the pre-crisis trend would predict.

Our next contribution is to examine the use of antidumping policy by sector. Almost half of India's antidumping investigations were initiated by the chemicals sector, and the other main users of antidumping have been plastics/rubber, machinery/electrical, metals, and textiles. Those sectors also have the largest number of antidumping initiations worldwide. Furthermore, those were the top five users of antidumping in India during the global recession of 2008-9, and most of them display an increasing trend in the percentage of sectoral import value affected by antidumping measures since 1992. Finally, those main users of antidumping also account for an important fraction of India's import value—37% for the 1992-2009 period—which indicates that antidumping policy may have economically important effects in India.

We then study the countries that are affected by India's antidumping policies. China was the most frequent target of Indian antidumping (in terms of both investigations and measures imposed), and the average size of the antidumping import restriction against China is also the highest of any targeted country. This bias in the incidence of antidumping policy against China accelerated during 2008-9. More broadly, the share of investigations targeting developing countries increased from 48% in 1992-2007 to 71% in 2008-9, while the share of imports from those countries remained fairly stable.<sup>3</sup> The shift in incidence towards China and other developing countries over time is also observed with regards to the stock of product-exporter combinations that are affected by an antidumping measure. In 1997, 53% of India's stock of antidumping measures affected developed countries, 22% affected China, and 24% affected other developing countries. In contrast, by 2009 only 25% of the stock of measures was imposed against developed countries, while 39% was imposed against China and 36% against other developing countries.

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<sup>3</sup> The share of imports from China did exhibit a substantial increase, as we detail in Section 3.3.

This result is consistent with Bown's (2010b) argument that antidumping is increasingly a 'South-South' phenomenon.<sup>4</sup>

We also find that there are several instances in which, after having imposed an antidumping measure in a previous year, India imposed new antidumping measures against different exporters of the same product in subsequent years. We also provide some evidence (subject to the available data) that in an important number of those cases the newly affected exporting countries had not exported the product to India in the years preceding the initial investigation. These results suggest that *trade diversion* has played an important role in leading to additional use of antidumping policy. They might also mean that India is using antidumping policy as a form of import protection not conditional on the actual presence of dumping.

We then examine the actual duration of India's antidumping measures. According to the WTO's Antidumping Agreement, a 'Sunset Review' process should take place after five years of the imposition of a measure, and the measure should be removed unless it is determined that its removal would be likely to generate injury due to renewed dumping. We find that 60% of the measures imposed were removed after no more than five years. Moreover, antidumping measures in the chemical sector and measures against China both tend to last longer than the average. In addition, we find that another dimension through which antidumping protection increased during the global economic crisis of 2008-9 was via the failure to remove policies imposed prior to the crisis that were supposed to be terminated during the crisis under the five-year limit.

Another issue we consider is potential evidence that India used antidumping to increase import restrictions to levels that would otherwise violate the rules of the WTO system. For example, if India were to have increased its applied tariff rate instead, how often would that result in a violation of its WTO commitments? We find some evidence consistent with that argument, and we also provide additional evidence of a shift in India's antidumping protection towards developing countries during the recent global recession.

Although antidumping has been the dominant temporary trade barrier in India, we also examine other relatively substitutable forms of temporary import protection. We begin by characterizing India's use of global safeguards over time and we find that although the largest number of safeguard investigations was initiated during the global economic crisis of 2008-9, most of them did not result in the imposition of

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<sup>4</sup> Bown (2010b) performs a cross-country examination of the use of temporary trade barriers over time, and he uses product data at the 6-digit HS level. We use more disaggregated tariff line data at the 8-digit HS product level for India.

a final safeguard measure. We also provide information regarding the sectors with higher safeguard activity as well as the number of products affected. The chemical sector is, again, India's major user of safeguard measures. Next, we describe India's use of China-specific safeguards as well as countervailing measures. There was an increase in the use of China-specific safeguards during the recent global economic crisis that has affected various imported products. India has only initiated one countervailing measure investigation so far, which took place in 2009 and also targeted China.

Our final contribution is to study whether the alternative forms of temporary trade barriers have been used across similar products and/or sectors. Overall, we find that while there is not much overlap of different temporary trade barriers over the same (8-digit HS) products, there is substantial overlap regarding the sectors that use those policies; and those features of the use of temporary trade barriers have not changed much during the global recession years. We also examine the interaction between the use of temporary trade barriers and applied import tariffs. Moreover, we relate our results to those of Bown and Tovar (2011), which studies the link between India's tariff liberalization reform and its subsequent use of antidumping and safeguard policies over 2000-2002.

The rest of the paper is organised as follows. In the next section we provide an overview of India's trade liberalisation experience. Section 3 examines India's use of antidumping. Section 4 describes the use of other temporary trade barriers by India, including global safeguards, China-specific safeguards, and countervailing measures. In Section 5, we examine the interaction among alternative temporary trade barriers, as well as their interaction with most-favored nation applied tariffs. We conclude in Section 6.

## **2 India's Unilateral Trade Liberalisation**

India was one of the initial 23 Contracting Parties to the 1947 General Agreement on Tariffs and Trade that laid the groundwork for the post-World War II, rules-based trading system (Irwin, Mavroidis, and Sykes, 2008). It was one of the key proponents seeking major exceptions to basic WTO rules that limited the use of quantitative restrictions and tariffs.

Between 1947 and the late 1980s, India followed an inward-oriented development strategy. It was characterised by import protection, complex industrial licensing requirements, significant intervention in financial markets and government ownership of heavy industry (Cerra and Saxena, 2002). International trade was significantly restricted by high tariffs and non-tariff barriers, which included import licensing,

state monopoly of some imports and exports ('canalisation'), government purchases that favored domestic producers, and restrictions on imports by intermediaries.

A combination of external shocks in the late 1980s and early 1990s led to larger macroeconomic imbalances. Increased import costs due to high oil prices, a decrease in remittances from Indian workers because of the conflict in the Middle East, weak demand in export markets, a deterioration of the fiscal position and the current account deficit, high external debt, and rising political uncertainty led to a loss of confidence by investors and capital outflows. The loss of international reserves continued and ended in a severe balance of payments crisis.<sup>5</sup>

In August 1991, India requested a stand-by arrangement from the International Monetary Fund. Among the conditions for the arrangement was that India had to implement major structural reforms, including trade liberalisation, financial sector reform and tax reform.

Before the reform, in 1990-1, the import-weighted average of tariffs was 87%, the simple average was 128%, and some tariffs were over 300%. Moreover, non-tariff barriers (especially quantitative restrictions) affected imports of 65% of all products and 90% of manufactures (Srinivasan, 2001). The subsequent reform package included a significant reduction in the average level as well as the dispersion of tariffs. The maximum tariff fell from 355% in 1990-1 to 150% in 1991-2, and to 30.8% by 2002-3. The weighted average tariff decreased from 87% in 1990-1 to 24.6% in 1996-7, although it then gradually increased to reach 38.5% in 2001-2. The increase coincided with a significant lifting of quantitative restrictions (Narayanan, 2006), and it was possible because India's tariff bindings from the Uruguay Round were set at much higher levels than the applied rates (Srinivasan, 2001).<sup>6</sup> The simple average tariff rate fell from 128% in 1990-1 to 34.4% in 1997-8. It then increased to 40.2% in 1998-9 but continued decreasing after that. In 2002-3, the simple and weighted averages of tariffs were 29% (Narayanan, 2006).

As reported by Topalova (2004), there was a sharp decrease in tariffs in most industries from 1991 to 1992—the sharpest reduction in average tariffs and their dispersion took place from 1991 to 1992. Quantitative restrictions on most imports have been eliminated. In 1991, most quantitative restrictions on intermediate and capital goods were removed, and the list of goods subject to quantitative restrictions was reduced significantly (although it was still long) to include mainly consumer goods and agricultural

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<sup>5</sup> See Cerra and Saxena (2002) for a discussion of the factors that led to the crisis.

<sup>6</sup> India imposed bindings on 62% of the tariff lines of industrial products. Before the Uruguay Round, only 3% of tariff lines had bindings (National Board of Trade, 2005).

products.<sup>7</sup> The Uruguay Round agreement, signed in 1994, required the elimination of quantitative restrictions and India's quantitative restrictions expired on 1 April 2001.<sup>8</sup>

As a result of the reforms, total trade as a percentage of GDP increased from an average of 13% in the 1980s to almost 19% in 1999-2000. The volume of exports and imports has also increased significantly since the early 1990s (Topalova, 2004). Lastly, and importantly, the first antidumping case was initiated in 1992.

### 3 India's Use of Antidumping

India introduced legislation on antidumping in 1985, and it was subsequently reformed to conform with obligations after 1995. In 1998, a separate division—the Directorate-General of Anti-dumping and Allied Duties—was created within the Department of Commerce, which had more staff and dedicated resources to manage antidumping complaints and recommend antidumping duties. Narayanan (2006) also reports that in the 1990s the government frequently and publicly informed the domestic industries about the availability of antidumping (and safeguard) measures. Duties are levied by the Ministry of Finance.<sup>9</sup>

#### 3.1 Antidumping Investigations and Measures

Table 1 documents the year-by-year data on India's antidumping use between its first case initiated in 1992 just after the commencement of the trade liberalisation reforms (1991) through 2009.<sup>10</sup> As India started the process of trade liberalisation, the use of antidumping took off, and it presented an increasing trend until 2002. There is a decrease in the number of initiations in 2003 and 2004, but an increase thereafter until 2008. In conjunction with the spread of the global economic crisis, India initiated 54 antidumping cases in 2008 and another 32 during 2009.<sup>11,12</sup>

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<sup>7</sup> According to estimates by the World Bank, the share of imports from all sectors included in their study and covered by non-tariff barriers decreased from 95% in 1988-9 to 62% in 1998-9, and to 24% in 1999-2000 (Srinivasan, 2001).

<sup>8</sup> A small number of quantitative restrictions permitted under Articles XX and XXI of the GATT remain on grounds of health, safety and moral conduct (Narayanan, 2006).

<sup>9</sup> On the requirements to initiate an investigation as well as the timeline for the findings and imposition of duties, see for example Aggarwal (2002) and National Board of Trade (2005).

<sup>10</sup> Indian antidumping data is taken from the Temporary Trade Barriers Database (Bown, 2010a). The working paper accompanying the database describes the detailed data, but in short, the data for India was taken directly from what the Directorate General of Antidumping and Allied Duties in the Ministry of Commerce publicly reported in *The Gazette of India* [http://commerce.nic.in/ad\\_cases.htm](http://commerce.nic.in/ad_cases.htm).

<sup>11</sup> During the period covering 1995 to 2009, India was the top initiator of antidumping cases, followed by the US, the EU, Argentina and South Africa. India also had the highest number of antidumping measures imposed.



In addition to the data on new industry demands for antidumping protection, Table 1 also presents a breakdown over time of the number of investigations begun each year that resulted in the imposition of new import restrictions. Of the 588 investigations started during 1992-2009, 420 or 71% have resulted in the imposition of new definitive trade barriers. Excluding 2009, for which some data on final measures is not yet available, that share increases to 74%. A lack of evidence of dumping was found in only 26 cases and no injury was found in 42 cases. Only 16 cases were withdrawn or terminated. The main implication of these figures is that not only is the number of Indian antidumping initiations high, but the vast majority of cases result in the imposition of new trade barriers.

The combined information on the large number of Indian antidumping cases and the high frequency with which they result in new and definitive import restrictions raises a number of basic questions about the economic scale of this particular form of import protection. For example, despite the 2003-6 relative drop in frequency of newly initiated investigations, by other measures the scope of antidumping protection steadily increased throughout the *entire* 1992-2009 period. Consider Figure 2a, which, instead of simply using the number of investigations as its unit of observations, measures antidumping use by the percentage of imported 6-digit HS products affected. Figure 2a uses this share of imported 6-digit HS product subject to antidumping to plot both the flow of new investigations over time, as well as the stock of imposed antidumping measures.<sup>13</sup> It is clear that even though there was a decline in the number of new investigations over the 2003-6 period, a likely contributor to this was the stock of antidumping measures already in place resulting from earlier (pre-2003) investigations, which continued to climb through 2009. If imports are already being restricted by trade barriers, there is a reduced need for new antidumping investigations.

The figure also shows a significant increase in the percentage of 6-digit HS products affected by antidumping measures in the recession years of 2008 and 2009, which almost doubled from 3.10% in 2007 to 5.91% in 2009. We can ask whether this observed increase could have been predicted by the trend observed in previous years. Consistent with the results of Bown (2010b), we find that if we regress the 1992-2007 data on the percentage of 6-digit products affected by an antidumping measure on a linear time trend and use the estimated coefficient to predict such percentage for 2009, the difference between the

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<sup>12</sup> As we discuss in more detail below, in 2009 India started to use more aggressively other substitutable forms of contingent protection aside from antidumping, including global safeguards (see also Table 1), China-specific safeguards, and even countervailing ('anti-subsidy') measures.

<sup>13</sup> We use the year in which the first measure was imposed, even if it was a preliminary measure.

actual and predicted values (5.91% versus 5.00%) is not large enough to conclude that there was a substantial shift away from the previous trend in 2008-9.

Since the effect of antidumping protection on a given product depends on the level of Indian imports that are affected by it, we also use another measure that exploits data at the bilateral level on whether imports of a given product from a certain exporting country are affected by antidumping. Figure 2b thus shows the percentage of non-oil import value with new antidumping initiations and antidumping measures in force. This measure is based on equation (2) of Bown (2011). Again, there is an increasing trend in the stock of products affected by antidumping measures, which reached its peak covering 3.24% of India's import value in 2009. In this case we also find that the predicted share for 2009 based on a linear time trend (3.66) does not differ much from the observed one (3.24).

In Figure 2c we exploit import data at the tariff line level (available since 2000) to report the percentage of imported 8-digit HS products subject to new antidumping initiations and measures in force from 2000 to 2009. The pattern is very similar to that shown in Figure 2a; in both cases the *flow* of initiations reaches its peak in 2007 but the *stock* of products affected by measures continues to increase through 2009. In 2009, 4.03% of India's 8-digit HS imported products were affected by antidumping measures.<sup>14</sup> Moreover, we find that the percentage of 8-digit HS products affected by an antidumping measure in 2009 predicted by the linear time trend is substantially lower than the actual one (2.46 versus 4.03, respectively). Thus, using the more disaggregated data we *do* find some evidence that India's observed pattern of protectionism in 2009 was larger than predicted by historical trends.<sup>15</sup> The difference in the results relative to those using data at the 6-digit HS product level is likely due to the increase over time in the number of 8-digit HS products within a 6-digit HS product that are affected by antidumping.<sup>16</sup>

### 3.2 The Use of Antidumping by Sector

Table 2 details the incidence of India's antidumping use by taking a different approach of reporting the number of initiations by each 2-digit HS sector. The most frequent user of antidumping has been the

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<sup>14</sup> India has imported approximately 10,000 products at the 8-digit HS level annually in the last five years in our data (2005-9).

<sup>15</sup> This also holds if we increase the number of observations by using the average ratio of the percentage of 8-digit HS products affected by an antidumping measure to the corresponding percentage of 6-digit HS products affected (from 2000 to 2007) to proxy for the percentage of 8-digit HS products affected by an antidumping measure from 1992-9 (by applying such ratio to the corresponding percentage at the 6-digit HS level). In that case, the predicted percentage for 2009 is 2.36.

<sup>16</sup> We do not report the analogous of Figure 2b at the 8-digit HS level since import data at that level is only available since 2000, which implies that we do not have the value of imports before the earliest initiation affecting each product, and we would have to use import values that have already been affected by antidumping and would therefore provide a less accurate assessment.

chemicals industry, with almost half of all Indian initiations during this time period. Put differently, India's chemicals sector alone initiated more antidumping cases during this period than the combined sectors of any other individual WTO member aside from the US, the EU and Argentina. Not surprisingly, the decline in new antidumping initiations in India between 2003-6 is partially explained by a decrease in the number of initiations by the chemicals sector, which fell by more than 60%, from an average of 31 new cases per year between 1999 and 2002 to an average of only 12 new cases per year between 2003 and 2006. Other sizeable users of Indian antidumping include plastics/rubbers, machinery/electrical, metals, and textiles; combined with chemicals, they are also the five sectors with most antidumping initiations worldwide (WTO, 2010a).<sup>17</sup> Textiles had 13 initiations in 2005 alone, coinciding with a restructuring of the global textile and apparel market with a phase-out of the Multi-Fibre Arrangement (MFA) and the end of textile quotas under the WTO's transitional Agreement on Textiles and Clothing (ATC). The 24 initiations in the metals sector in 2008 (after almost no new antidumping activity in the previous five years) correspond to steel products and took place in November and December, coinciding with the heightening of the global recession. Finally, we note that the top users of antidumping during the global economic crisis of 2008-9 are also the same five sectors that constitute the main antidumping users in India since 1992. Bown and Tovar (2011) provide evidence that the variation of India's use of antidumping across sectors (in the early 2000s) is related to India's tariff liberalisation reform implemented in the 1990s, and that it also responds to political-economy motives according to the predictions of the Grossman and Helpman (1994) model.

How sizeable are imports in these manufacturing sectors that populate India's use of antidumping? Over the period 1992-2009, the dominant antidumping user, chemicals, accounted for 10% of all Indian imports, reaching almost 15% in some years. Other major users of antidumping are also large importers, including machinery (17%) and metals (7%). Note that the importance of imports in these sectors to the Indian economy is likely to be underestimated if the level of imports in those sectors is lower than it would be under the counterfactual that India had not used antidumping. Figure 3 shows the number of initiations by year for each of the five main antidumping-user sectors, as well as the value of imports and percentage of India's imports that they represent in 2000-2009. Some of those sectors (chemicals, textiles, and metals) experienced a decrease in imports in 2009 (Figure 3b), and India's total imports also fell due to the recession. Figure 3c shows that the *percentage* of imports of metal products increased significantly from

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<sup>17</sup> This is also true if Indian initiations are excluded from the world total.

2003 to 2007 (from 4.7% to 7.8%) despite the use of antidumping in the preceding years, which may also help explain the large number of initiations in this sector in 2008 that we mentioned previously.

We also examine the share of 4-digit HS products that were affected by an antidumping initiation *within* each of the 2-digit HS sectors that are the main antidumping users. Between 1992 and 2009, 34% of the 4-digit HS products in the chemical sector were affected by an antidumping initiation at some point. Similarly, 30% of the 4-digit HS products in the plastics/rubbers sector and 14% of the 4-digit HS products in the machinery/electrical sector were affected. Metals and textiles exhibit smaller shares of affected products, of 8% and 6%, respectively. This pattern in terms of the 2-digit HS sectors with more/fewer 4-digit products affected by antidumping is broadly similar during the 2008-9 recession period.

To examine the potential impact of antidumping protection across sectors in more detail, Figure 4 shows the percentage of India's non-oil import value affected by antidumping in each of the five main-user sectors, including both the flow of new investigations over time and the stock of imposed antidumping measures, computed using bilateral import data at the 6-digit HS level as described in the previous section. Each sector presents an increasing trend in the stock of imports affected by antidumping protection except metals. As already mentioned, metals experienced a decrease in antidumping initiations from 2003 to 2007, but due to the spike in initiations in 2008, there was a subsequent large increase in the stock of affected imports of metal products in 2009. The other sectors—with the exception of chemicals—also show a sizeable increase in the percentage of affected imports in 2009, which may be related to the global recession.

### **3.3 Countries Affected by India's Use of Antidumping**

In this section, we study how India's use of antidumping varies across its trading partners. Are some exporting countries more likely to be targeted with antidumping than others? Table 3 illustrates the Indian use of antidumping by its twenty most frequently named foreign targets, with these targets broken down into developing versus developed country categories. The table also breaks down the sample period into two sub-periods: 1992-2007 and 2008-9.

India has named forty countries (counting all the EU members as only one country). As shown in Table 3, the country most frequently named was China (130 times), followed by the EU (88), South Korea (45), Taiwan (42), and Thailand and Japan (32 each).

The investigations against China represented more than one-fifth of the total number of India's antidumping investigations, and China was also the country targeted with the highest number of measures (109). In addition, in almost all (89%) of the investigations against China a measure was imposed. Furthermore, in 50% of the investigations against China, it was the only country named in the investigation. That share is much larger than for the other main targeted countries. Put differently, and while this is not shown in the table, in 53% of all product-level investigations, one of the named countries was China. These trends of targeting China in particular during the post-2001 period especially are quite typical to almost all of the antidumping-using countries in the WTO system (Bown, 2010c; Prusa, 2010).<sup>18</sup> In addition, the last column in Table 3 shows the mean antidumping margin by country, which suggests that the mean *size* of the antidumping import restriction is highest against China as well.<sup>19</sup> Moreover, the share of investigations against China increased from 21% in 1992-2007 to 30% in the global recession years of 2008-9. The share of product-level investigations involving China also increased, from 50% in 1992-2007 to 76% in 2008-9.

Among the main targeted countries, the share of investigations against China, Thailand, Malaysia, and Japan, particularly, show an important increase in 2008-9. The share of measures imposed against Thailand and Taiwan also increased during those two years. Are these increases associated with increases in imports coming from those countries in particular? Table 3 shows that the share of imports from China almost doubled in 2008-9 relative to the previous period; however, the share of imports from the other aforementioned countries remained stable or even fell. In addition, the share of investigations targeting developing countries increased from 48% in 1992-2007 to 71% in 2008-9, while the share of imports from those countries stayed roughly the same.

Figure 5a shows the number of 8-digit HS product-exporter combinations that are affected by an antidumping initiation over time. We divide the affected exporting countries into three groups: developed countries, China, and other developing countries. As shown, the number of product-exporter

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<sup>18</sup> Although India considers China to be a non-market economy country, it has adopted a policy whereby if it is shown that market conditions prevail for some firms subject to an investigation, the authorities are able to grant market-economy treatment. However, Kumaran (2005) notes that only in very few cases such market economy treatment was granted to individual exporters from China.

<sup>19</sup> The computation of the mean antidumping margin uses data on the final dumping margin calculations, which are reported in ad valorem terms. The mean is taken over the minimum and maximum final dumping margin levels that are reported and correspond to different targeted exporting firms of a given product (and country). We describe this in more detail in Section 3.5. Although there is a requirement that the antidumping duty should not exceed the dumping margin, Kumaran (2005) explains how under certain circumstances in India the antidumping duty may end up being higher than the dumping margin.

combinations targeted by new Indian antidumping initiations more than tripled in 2008 relative to 2007 in the case of other developing countries—while it fell in the case of China and developed countries—and although it decreased in 2009, it was still higher than in 2007.

In Figure 5b, we show the *percentage* of 8-digit HS product-exporter combinations imported from developed countries, China, and other developing countries that are affected by a new antidumping initiation over time.<sup>20</sup> The increase in the number of combinations of 8-digit HS products and other developing country exporters targeted by new antidumping initiations in 2008 from Figure 5a was associated with an increase in the percentage of product-exporter combinations imported from the same group of countries that are affected by Indian antidumping in the same year.

It is also important to examine the stock of 8-digit HS product-exporter combinations that are affected by an Indian antidumping measure for each exporting country category. Figure 6a presents the number of such combinations while Figure 6b displays the percentage of imported combinations from each country category subject to Indian antidumping protection. Regarding the former, there has been a shift in the incidence of antidumping protection towards China and other developing countries in recent years. In 2006, the number of products imported from China and affected by an antidumping measure started to exceed the number of product-exporter combinations that are imported from antidumping-affected *developed* countries. Analogously, in 2002, the number of product-exporter combinations that are imported from other developing countries and affected by an antidumping measure began exceeding the corresponding number of combinations with a developed exporter source. In 1997, for example, 53% of India's stock of antidumping measures affected developed countries, 22% affected China, and 24% affected other developing countries. By 2009, only 25% of India's stock of antidumping measures was imposed against developed countries, whereas 39% was imposed against China and 36% against other developing countries.

A similar trend is observed regarding the percentage of the stock of product-exporter combinations subject to an antidumping measure affecting each country category in Figure 6b. In particular, the percentage of products imported from China subject to an antidumping measure presents a significant increase in 2008-9.<sup>21</sup> While in 2007 3.65% of products imported from China were affected by an

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<sup>20</sup> When counting the total number of 8-digit HS product-exporter combinations, we exclude suppliers that account for less than 1% of a given 8-digit HS product's imports per year.

<sup>21</sup> A sizeable increase is also found by comparing the prediction for that percentage based on a linear time trend regression versus the observed one, either at the 6-digit or 8-digit HS product level.

Indian antidumping measure, by 2009 that had risen to 7.45%. The percentage of combinations of products and other developing country exporters affected reached a peak of 3.21% in 2009. Although the percentage of analogous combinations with a developed exporter source also reached its peak in 2009, it remained below 1%.

With the information from Table 3 we can calculate the percentage of Indian imports coming from each of the previous country categories. From 1992-2007, 54% of India's imports came from developed countries, 6% from China, and 39% from other developing countries. In 2008-9, 53% of India's imports were exported by developed countries, 11% by China, and 37% by other developing countries. Therefore, while an increase in the share of imports from China is associated with the increasing incidence of antidumping protection against that country, the share of imports from other developing countries actually decreased slightly whereas the incidence of Indian antidumping increasingly concentrated on those countries.

The economic issue of trade diversion is another issue that arises because of India's use of antidumping and non-MFN treatment. Can it help us understand the multitude of occasions in which India has imposed new antidumping measures against different sources of the same product, year-after-year? There are 129 different 8-digit HS products for which, after having initiated an antidumping investigation in a previous year, India initiated a new investigation in the same product against different exporting countries. These products represent 14% of the total number of products with antidumping initiations. Moreover, in 84 (65%) of those cases a final measure was imposed. Since import data at the 8-digit HS product level is only available since 2000, we cannot determine which exporting countries were new entrants into India's market for a given affected product. We can only say that in 72 out of those 129 (8-digit HS) products for which India initiated a subsequent antidumping investigation in the same product against a different exporting country, the newly affected exporting country had not previously exported to India since 2000.<sup>22</sup> Gulati, Malhotra, and Malhotra (2005) study antidumping policy in the vitamin-C industry in India and find that, although antidumping effectively restricted imports from the countries named to be dumping, new countries started exporting the good to India after the petition was filed, and this trade diversion in turn led to new antidumping investigations and measures. Our results also suggest that trade diversion has played an important role in leading to additional use of antidumping policies.

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<sup>22</sup> We cannot rule out that the country could potentially have exported that product to India before 2000.

This result suggests that antidumping measures may be used as a form of protection regardless of whether dumping is actually taking place, and it could help explain the large use of antidumping by India. It also raises the question of why India did not use global safeguards that can be imposed on an MFN basis instead of antidumping in those cases, since safeguards can apply to all countries and thus would help prevent surges in imports from new exporters. On the other hand, this could help explain why India has begun to increase its use of global safeguard measures in 2008-9, which we discuss in Section 4.

### 3.4 The Duration of Antidumping Measures

In this section we examine the actual duration of Indian antidumping policy's temporary acts of import protection. The WTO's Antidumping Agreement mandates a 'Sunset Review' process under which countries are supposed to investigate whether removal of the antidumping measures after five years will likely lead to a recurrence of injury caused by renewed dumping; if not, the imposed antidumping measures should then be removed.

Consider how India's actions relate to the spirit of the WTO rules in this area. We focus on antidumping measures imposed *prior* to 2005, so that the five-year period has elapsed sufficiently for the Sunset Review process to be potentially meaningful. First, we find that 60% of the imposed measures had their import restrictions removed within the basic five-year limit stipulated by the Sunset Review process. For all measures that have subsequently had the import restrictions removed, the average period for which measures stay in force is 4.3 years.

As Figure 7a illustrates, the most common (modal) duration period is five years, with 58 cases; followed by four years, with 56 cases; three years, with 24 cases; and six years, with 17 cases. Overall, 98 cases had measures revoked *before* five years, while in 21 cases *with measures already revoked* they lasted more than five years. The minimum duration of measures was one year (4 cases) and the maximum for cases that have been removed is 12 years. In addition to the cases included in Figure 7a, there are 83 cases with measures imposed before 2005 which have not yet been removed, and thus have lasted *more than* five years but for which we do not know exactly how many years they will be in place.<sup>23</sup>

Figure 7a also allows us to break out the typical duration of measures imposed in the chemicals sector, the most frequent user of antidumping in India. There we find that 52% of all measures are

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<sup>23</sup> We measure the duration for all cases in years, that is, we do not consider in which month in a given year a measure was revoked. In that sense our figures are approximations.



removed within five years, lower than the corresponding percentage over all measures. Moreover, for the measures imposed before 2005 that have subsequently been removed, the mean duration of measures in that sector is 4.4 years, which is slightly above the average over all measures. There were 26 measures lasting five years; 37 measures stayed in place for less than five years; and 13 measures lasted more than five years. There have been 45 measures imposed before 2005 that have lasted longer than five years and have yet to be removed, which are not pictured. Combined, this evidence indicates that antidumping measures in the chemicals sector are more likely to become ‘quasi-permanent’ protection.

While not pictured in Figure 7a, we can also examine whether there is a differential treatment with respect to measures imposed against China, the country most targeted by India’s antidumping. Here we find that the average duration of measures is 4.9 years, which is also higher than the overall average. Of the measures imposed prior to 2005 that have subsequently been removed, there were 12 measures against China that stayed in force less than five years; 15 lasted five years; and 4 remained in force more than five years. In addition, 21 measures were imposed before 2005 that have lasted longer than five years and have yet to be removed. Overall, there is some evidence that Indian antidumping measures imposed against China tend to last longer.

Next, we examine whether, over time, the measures that were imposed five or more years ago have or have not been removed. Figure 7b displays the yearly behavior of the percentage of measures imposed five or more years ago that are not removed *even though the five year limit of the Sunset Review process has elapsed*. Interestingly, after a decrease in this percentage taking place each year between 2003 and 2007, there was an increase in 2008 and 2009. This suggests that another dimension through which antidumping protection increased during the global recession is via the failure to *remove* policies that were imposed prior to the crisis and were supposed to be terminated during the crisis under the five-year period limit.

We also calculated the percentage of measures that were imposed *exactly* five years ago (and thus came up for Sunset Review) and were removed each year.<sup>24</sup> This percentage actually shows a decreasing trend since 2005; and although it increased in 2008, it fell again in 2009. Therefore, even though in 2009 India was less likely to remove previously imposed antidumping measures that came up for Sunset Review, this seems consistent with previous trends and might not be directly related to the global economic crisis.

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<sup>24</sup> Cadot, de Melo, and Tumurchudur (2008) provide a rigorous analysis of the effect that the introduction of the Sunset Reviews into the WTO system has had on the duration of antidumping measures in several countries.

### 3.5 Imposed Antidumping Measures and WTO Tariff Bindings

For most economists, antidumping is not a policy that is well-grounded in economic theory. Because the main legal definitions of dumping – whether it be international price discriminatory or pricing below average costs, even temporarily – can be rational, profit-maximizing behavior of firms without necessarily any predatory intent (and there is no required evidence for predation found in antidumping laws), the policy itself may be viewed as little more than import protection that governments offer to industries on a contingent basis. Therefore, suppose we adopt the view of treating antidumping as merely one (of many potential) form of import protection. Then, a basic question is, do governments use antidumping to raise import barriers to levels that would not otherwise be possible under the rules of the WTO system? More precisely, if India did not implement the new protection in the form of antidumping measures but instead simply raised its applied tariff rate by the same amount, how frequently would doing so result in a violation of its commitments?<sup>25</sup> The counterfactual that we adopt in this particular application of examining whether India is complying with WTO rules is to imagine that it would otherwise impose the same level of protection that it is currently imposing via antidumping, but simply by raising its applied tariff by that amount instead of using an antidumping measure.

Since it is best to use data at the tariff line (8-digit HS) level to examine this question, we focus on the 2004-9 period, given that data on applied tariffs at such level of disaggregation is only available since 2004. Although most Indian antidumping measures are imposed as specific duties while applied tariffs and tariff bindings are ad valorem, we have data on the final dumping margin calculations, which are reported on ad valorem terms. In some cases the margin is reported at the level of the exporting firm within an investigated country, but in other cases it is only reported as a *range* of values of new trade barriers facing the exporters of that product in a given investigated country. Therefore, for each antidumping case we report both the lowest and highest firm-specific antidumping margins corresponding to a given targeted country. While admittedly a very facile approach, when viewed from the perspective of this particular counterfactual, there is some evidence that India is indeed following the rules of the WTO system. As Table 4 indicates, if we use the highest antidumping margin, then in 420 of the 529 instances (79%) in which India imposed antidumping measures on a foreign firm's exports of a given product, the size of the

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<sup>25</sup> Alternative and more legalistic approaches to evaluating whether a country is following the basic rules on antidumping would be to evaluate whether there was sufficient economic evidence of injury caused by dumping, and whether the size of the imposed measures was based on the size of evidence of the dumping margin. Such an approach requires access to data well beyond the scope of this study.

new import restriction was larger than the difference between the product's applied tariff and the product's tariff binding. A tariff binding is the limit over which India has agreed under the WTO not to raise its tariff—also referred to as the 'tariff overhang'. If we use the lowest antidumping margin, the number of instances in which the imposed antidumping measure was larger than the tariff overhang is lower but still sizeable.<sup>26</sup> The table breaks down this further into two sub-periods, 2004-7 and 2008-9, and shows that there has been a decrease in the percentage of cases in which the antidumping measure exceeds the tariff overhang; however, considering the highest antidumping margins, the percentage of cases in which the imposition of a tariff of equal size would have led to a violation of India's WTO commitments is still high in the later sub-period.

Table 4 also shows similar information for the subset of antidumping measures imposed against developing countries only. During 2004-9, in 93% of the cases in which India imposed antidumping measures on a developing country's exports of a given product, the size of the new import restriction was larger than the tariff overhang corresponding to the same product (using the highest antidumping margin), which is higher than for the whole sample over the same period. Moreover, while this percentage between 2004 and 2007 was similar to the percentage for the whole sample (90% in both cases), in 2008-9 the percentage of cases in which the antidumping measure exceeded the tariff overhang was much larger for developing countries (97%) than for all countries combined (70%). This is consistent with the finding in Section 3.3 that the incidence of India's antidumping protection has shifted towards developing countries during the 2008-9 global recession. Although we do not report similar information corresponding to antidumping measures applied against imports from China only, we find that in essentially *all* instances the highest antidumping margin exceeded the tariff overhang both in 2004-7 as well as in 2008-9.<sup>27</sup>

Finally, Table 4 also reports equivalent information for the chemicals sector. In 2004-7, the percentage of cases in which the antidumping margin on chemical products was larger than the corresponding tariff overhang was higher than the total for all sectors; nonetheless, that percentage fell in 2008-9 and became fairly similar to the one for the whole sample of products. Thus, along this dimension there does not seem to be a shift in the incidence of antidumping protection towards chemicals in the latter period.

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<sup>26</sup> Of course, this also conditions on the size of the Indian antidumping measure as being exogenous, and it also ignores the fact that the antidumping measure can be foreign-firm specific and thus is not equivalent to raising an applied tariff, which must be done on a most-favored nation basis.

<sup>27</sup> The percentage of cases in which the lowest antidumping margin imposed against Chinese firms exceeded India's tariff overhang decreased in 2008-9 relative to 2004-7, however.

## 4 India's Use of Safeguards and Countervailing Measures

While antidumping is India's most frequently utilised temporary trade barrier, there are other relatively substitutable forms of import protection that are in use. In this section we examine three other examples that India has resorted to, including global safeguards, transitional China-specific safeguards associated with China's 2001 WTO accession, and countervailing measures for anti-subsidy policies.

### 4.1 Global Safeguards

India's domestic law dealing with the implementation of the Agreement of Safeguards was enacted under Section 8B and Section 8C of the Customs Tariff Act, 1975. The procedures were outlined in the Customs Tariff (Identification and Assessment of Safeguard Duty) Rules, 1997, and Customs Tariff (Transitional Products Specific Safeguard Duty) Rules, 2002.<sup>28</sup> A Director General of Safeguards (DGS) under the Department of Revenue of the Ministry of Finance was appointed to receive the petitions and conduct the investigations required for the imposition of a safeguard duty. The DGS should then submit its findings to the Central Government.<sup>29</sup>

India initiated its first safeguard investigation in 1997. Between 1995 and 31 October 2010, India initiated the most (26) safeguard investigations of the entire WTO membership.<sup>30</sup> As Table 1 again illustrates, 11 of the 26 investigations taking place between 1997 and 2009 resulted in the imposition of definitive safeguard import restrictions. In only one case during that period no injury was found, and five cases were terminated. Interestingly, 11 out of the 26 investigations were initiated between 2008 and 2009 in the midst of the global economic crisis (two in 2008 and nine in 2009), but 8 of those did not result in the imposition of a final safeguard measure. Furthermore, in 5 out of the 26 cases most or all developing countries were exempt from the application of safeguards.

The most frequent sectoral user of safeguards has been chemicals, with 14 initiations. As noted before, the chemicals sector was also India's most frequent user of antidumping. Moreover, the WTO reports that since 1995 chemical products were the most frequent subject of safeguards (investigations and

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<sup>28</sup> Section 8C regulates the imposition of safeguard duties on any product imported from China for which increased imports are causing or threatening to cause 'market disruption' to the domestic industry.

<sup>29</sup> For more details about the applications, investigations and timelines, see the Directorate General of Safeguards' website: <http://dgsafeguards.gov.in>.

<sup>30</sup> It was followed by, Jordan (15), Turkey (15) Chile (12), Indonesia (12) and the USA (10). Moreover, India imposed the most safeguard measures during the same period (along with Turkey).

measures) in the world (WTO, 2010b). The second most active sector in India was wood and wood products (4 safeguard initiations), and a handful of other industries have also initiated investigations, including vegetable products, foodstuffs, plastics/rubbers, textiles, and metals. Each of these industries, with the exception of vegetable products, also initiated antidumping cases. Overall, 198 different 8-digit HS codes have been investigated under India's global safeguard activity between 1997 and 2009.

#### **4.2 China-specific Safeguards**

As part of China's terms of accession to the WTO in 2001, the existing members of the WTO were granted access to an additional 'Chinese safeguard' policy instrument that could be used to implement new and discriminatory import restrictions against China without any evidence of unfair trade (dumping or illegal subsidies), but only a surge in Chinese imports, and would last during a transitional period until 2014.

Before 2009, India initiated an investigation under this policy only once – a 2002 investigation of 'industrial sewing machine needles' that did not result in the imposition of final import restrictions. Amidst the global economic crisis, however, as Table 5 illustrates, India initiated five China-specific safeguard investigations in 2009, over a variety of imported products. In two cases a final measure was imposed, in one case no injury was found, and two cases were withdrawn. Overall, 35 different 8-digit HS products have been the subject of a China-specific safeguard investigation by India.

#### **4.3 Countervailing Measures**

In January 2009, India initiated its first (and only, as of December 2010) countervailing measure investigation to deal with foreign use of WTO-inconsistent subsidies. As Table 5 illustrates, somewhat not surprisingly, it was a case initiated against China and over a product in the chemicals sector (sodium nitrite). The case was withdrawn.

### **5 The Interaction of Temporary Trade Barriers**

In this section we describe whether and how the alternative temporary trade barriers interact with both one another and with India's applied tariffs.

We begin by asking whether the products that were the subject of safeguard initiations between 1992 and 2009 were also subject to antidumping investigations at some point during the same period. We

find that 39% of the 8-digit HS products that initiated a safeguard investigation had also been subject to an initiated antidumping investigation at some point. Thus, although there is some degree of overlap between both types of policies across products, there is also a substantial percentage (61%) of cases in which safeguard investigations were used in products never affected by antidumping. Are there instances in which a product is subject to both an antidumping and a safeguard measure *at the same time*? This turns out to be very uncommon. There was only one 8-digit HS product subject to both types of measures in 1999 and one in 2000, as well as four products affected by both measures in 2004. These findings would seem more consistent with a relationship of ‘substitutability’ between both types of policies.

Regarding China-specific safeguards, the product with the investigation initiated in 2002 was also subject to an antidumping investigation initiated in 1998 against China and three other countries, but after a preliminary antidumping measure was imposed, the final decision was negative. Six out of the 34 (8-digit HS) products that were subject to a China-specific safeguard investigation in 2009 also had antidumping initiations, and antidumping measures were imposed against China (and two other countries) in 2004 and 2008. These cases suggest some examples of which industries were attempting to obtain *additional* protection on the same products; however, in each of those instances, the China-specific safeguard investigation was either withdrawn or there was a negative decision.

Finally, the product subject to the (later on withdrawn) countervailing measure investigation was not subject to any antidumping or global safeguard initiation. Overall, and particularly on the basis of India’s actual imposition of measures, these findings seem again consistent with the previous statement that the temporary trade barriers exhibit more of a relationship of substitutability, and that they are typically not used on the same products.

Although there does not seem to be substantial overlap of different temporary trade barriers over the same 8-digit HS products, we can also examine whether there is overlap over the same *sectors*. Are the same sectors the main users of all types of policies (with different products within a sector generally using different policies as previously found)? Table 6 presents information on the use of the most commonly utilised policies—antidumping, global safeguards and tariffs—across 2-digit HS sectors.

Consider the use of antidumping and safeguards first. There is substantial overlap in terms of the sectors that use those policies. For example, there are 12 sectors that initiated an antidumping investigation at some point between 1992 and 2009, and 7 sectors with a safeguard investigation over the same period. Out of the 7 safeguard-user sectors, 6 *also* used antidumping. We also find that this relationship has not

changed much during the global recession years. In 2008-9, eight sectors initiated an antidumping investigation and four sectors initiated a safeguard investigation. All those four sectors were also users of antidumping over the same period. In addition, overall, the chemicals sector was the main user of both policies.

The last two columns of Table 6 show the average applied tariffs at the 8-digit HS level (available since 2004, as noted earlier) by sector, with the mean applied tariff over all products reported at the bottom of the table.<sup>31</sup> As shown, the five sectors that were the main users of antidumping and safeguards (chemicals, plastics/rubbers, textiles, metals, and machinery/electric) did *not* have tariffs higher than the overall mean across all products. This is true both across the whole sample period (1992-2009), as well as during the global economic crisis (2008-9). Similarly, the sectors with average tariffs above the overall mean were not major antidumping users and did not use safeguards at all. In order to interpret these findings it is important to take into account India's tariff liberalisation reform. Bown and Tovar (2011) study the relationship between India's reductions in applied tariffs associated with its unilateral trade liberalisation (described in Section 2) and the subsequent reapplication of antidumping (and safeguard) import restrictions. They show that the products that Indian industries demanded and received new antidumping import restrictions over 2000-2002 were those that had (pre-1991 liberalisation) higher tariffs and which had undergone larger tariff reductions (see Figure 2 from Bown and Tovar, 2011). They also provide a formal set of regression-based approaches and present significant, product-level evidence that the tariff reform itself is associated with subsequent resort to Indian use of antidumping.<sup>32</sup> Finally, Table 6 also shows that the lower average tariffs for 2008-9 relative to the previous years suggest that India was able to continue with its process of tariff liberalisation even in the midst of the global economic crisis.<sup>33</sup> It is possible that the use of temporary trade barriers may have helped India continue such a path.<sup>34</sup>

Therefore, we conclude that the alternative forms of import restrictions were mostly used by similar sectors, with some substitutability across the policies (formally examined by Bown and Tovar, 2011) and with different products within a sector generally making use of different temporary trade barriers.

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<sup>31</sup> Since tariff data is not available for 2006, we use the average of the applied tariffs in 2005 and 2007 for that year.

<sup>32</sup> Vandebussche and Zanardi (2010) estimate a gravity model for a group of countries and find that the trade decrease resulting from India's antidumping policy is of the same magnitude as the trade increase that resulted from its earlier trade liberalisation.

<sup>33</sup> The tariffs also fell relative to 2007.

<sup>34</sup> However, there are other possible explanations for those findings as well that we are not ruling out here, and further research would be needed to distinguish among them.

## 6 Conclusion

In this paper we first examine the behavior of India's use of temporary trade barriers (antidumping, safeguards, and countervailing measures) over time, to then study any changes regarding their use that may have occurred during the global economic crisis of 2008-9. We rely on detailed product level data from 1992 to 2009 from the World Bank's Temporary Trade Barriers Database (Bown, 2010a).

We find that the stock of products subject to an antidumping measure has increased from 1992 through 2009. Furthermore, the percentage of tariff line (8-digit HS) level products subject to an antidumping measure increased significantly during the crisis, from 1.82% in 2007 to 4.03% by 2009, and such an increase exceeds what would be predicted based on the observed trends from previous (pre-crisis) years.

We also find that the sectors that are the main users of antidumping policy in India—chemicals, plastics/rubber, machinery/electrical, metals, and textiles—are also the major antidumping user sectors worldwide. This pattern regarding the sectoral use of antidumping also prevailed during the global recession of 2008-9. Moreover, those sectors account for an important share of India's import value, which suggests that the effects of the use of antidumping protection in India may be economically important.

Regarding the exporter incidence of India's antidumping use, China was the most frequent target of Indian antidumping as well as the recipient of the highest average antidumping barriers. During 2008-9, this bias in the incidence of antidumping policy against China increased. The share of investigations affecting developing countries more generally also increased from 48% in 1992-2007 to 71% in 2008-9, even though the share of imports from those countries stayed roughly the same. This increasing incidence in India's antidumping use against China and other developing countries over time is also seen with respect to the stock of product-exporter combinations that are affected by an antidumping measure. These results are consistent with the findings of Bown (2010b), and suggest a pattern of substantial discrimination that may be important to examine further in light of the WTO's most-favored nation principle.

Furthermore, we find that an additional dimension through which India's antidumping protectionism increased during the global economic crisis of 2008-9 was via the failure to remove policies



imposed in the years preceding the crisis that were supposed to be terminated during the crisis under the five-year ‘Sunset Review’ limit.

We also provide some evidence consistent with the possibility that India may have used antidumping policy to increase import restrictions to levels that would otherwise violate the rules of the WTO system, as well as with the possibility that the use of temporary trade barriers might have helped India continue its process of tariff liberalisation in the midst of the global economic crisis. However, those are only some among a number of possible alternative explanations behind the observed patterns, and further research is needed to draw definitive conclusions.

Although antidumping is the major temporary trade barrier used by India, we also examine India’s use of other forms of temporary import protection. We find an increase in the number of global safeguard investigations initiated during the 2008-9 global economic crisis, as well as in India’s use of China-specific safeguards.

Finally, we find that although there is not much overlap in terms of different temporary trade barriers being used over the same (8-digit HS) products, there is substantial overlap regarding the sectors that use such barriers, both before and during the global recession years of 2008-9.

Even though our focus in this paper has been on temporary trade barriers, it is possible that India may have used other forms of trade barriers during the global economic crisis. For example, in November 2008, some steel products were placed into the ‘restricted’ list of imported goods, and in 2009 the government imposed a licensing requirement on imports of electrical energy as well as an increase in the minimum support prices for several cereals. There were also some increases in applied tariffs (although the average applied tariffs fell, as reported earlier). For instance, in November 2008 a 20% tariff was imposed on imports of soybean oils, as well as a 5% tariff on several iron and steel products.<sup>35</sup> Therefore, further research would be needed to examine the use of other forms of import restrictions in more detail and establish any changes that may have occurred in the crisis years.

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<sup>35</sup> See Global Trade Alert (2010). The restrictions on imports of steel products were lifted in January 2010, and the tariff on soybean oils was removed in April 2009.

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Table 1: India's Antidumping and Global Safeguard Initiations and Outcomes: 1992-2009

	Antidumping							Global Safeguards			
	Initiations	Prelim. Measure	Final Measure	No Dumping	No Injury	Term. or Withdrawn	Missing	Initiations	Final Measure	No Injury	Term. or Withdrawn
1992	5	5	5	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0
1994	7	1	7	0	0	0	0	0	0	0	0
1995	6	6	5	0	0	1	0	0	0	0	0
1996	21	21	18	0	0	0	0	0	0	0	0
1997	13	12	13	0	0	0	0	1	1	0	0
1998	28	19	18	3	5	2	1	5	3	0	1
1999	63	51	49	9	9	2	3	3	2	0	0
2000	41	29	32	0	0	0	4	2	1	0	0
2001	77	62	62	4	6	1	0	0	0	0	0
2002	77	67	56	3	4	1	8	2	1	1	0
2003	45	12	26	7	14	4	1	1	0	0	0
2004	20	9	9	0	4	1	4	1	1	0	0
2005	25	18	19	0	0	1	5	0	0	0	0
2006	30	15	30	0	0	0	0	0	0	0	0
2007	44	23	32	0	0	0	0	0	0	0	0
2008	54	33	32	0	0	3	0	2	1	0	0
2009*	32	31	7	0	0	0	24	9	1	0	4
<b>Total</b>	<b>588</b>	<b>414</b>	<b>420</b>	<b>26</b>	<b>42</b>	<b>16</b>	<b>50</b>	<b>26</b>	<b>11</b>	<b>1</b>	<b>5</b>

Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a). \*Information on *final* decisions and measures for some of the antidumping initiations and one global safeguard initiation in 2009 is still not available.

**Table 2: India's Antidumping Initiations by Sector and Year: 1992-2009**

	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	Total	% of Total Initiations, 92-09	% of Imports, 92-09
Animal & Animal Products	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0.16	0.05
Vegetable Products	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	3.44
Foodstuffs	0	0	0	0	0	0	0	0	2	5	1	0	0	0	0	0	0	0	8	1.32	0.44
Mineral Products	0	0	0	1	0	2	0	0	2	0	3	1	0	0	0	3	0	2	14	2.31	35.06
Chemicals & Allied Industries	1	0	6	2	5	3	7	29	26	28	41	24	10	4	11	24	10	14	245	40.36	9.50
Plastics/Rubbers	4	0	2	0	2	5	8	9	3	13	0	10	4	8	8	0	4	10	90	14.83	2.34
Raw Hides, Skins, Leather, & Furs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.26
Wood & Wood Products	0	0	0	0	3	0	0	4	0	1	1	5	0	1	0	0	5	0	20	3.29	2.09
Textiles	0	0	0	0	3	0	5	9	4	12	1	2	2	13	0	0	6	2	59	9.72	1.78
Footwear/Headgear	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0.16	0.07
Stone/Glass	0	0	0	0	0	0	0	0	0	2	2	3	2	0	0	0	1	0	10	1.65	15.24
Metals	0	0	0	3	0	4	3	11	3	5	17	0	0	0	1	0	24	0	71	11.70	6.57
Machinery/Electrical	0	0	0	0	8	0	5	0	1	11	10	0	6	0	9	20	4	6	80	13.18	16.65
Transportation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	0.49	4.29
Miscellaneous	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	5	0.82	2.22
<b>Total</b>	<b>5</b>	<b>0</b>	<b>8</b>	<b>6</b>	<b>21</b>	<b>14</b>	<b>28</b>	<b>63</b>	<b>42</b>	<b>77</b>	<b>81</b>	<b>45</b>	<b>24</b>	<b>26</b>	<b>30</b>	<b>47</b>	<b>56</b>	<b>34</b>	<b>607</b>	100.00	100.00

Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a).

Table 3: India's Use of Antidumping (AD) by Targeted Exporting Country: 1992-2009

Exporting country target		Antidumping investigations (share of total)	Investigations resulting in measures (share of target country's investigations) <sup>a</sup>	Only country named in investigation (share of target country's investigations)	Share of India's import market (rank)	Mean AD Margin <sup>b</sup>
<b>Rank<sup>c</sup></b>	<b>Developing/ transition economies 1992-2009</b>					
1	China	13 (0.22)	109 (0.89)	65 (0.50)	0.08 (2)	114.41
6	Thailand	32 (0.05)	22 (0.76)	0 (0.00)	0.01 (24)	64.53
8	Indonesia	23 (0.04)	18 (0.78)	2 (0.09)	0.02 (16)	61.56
10	Malaysia	19 (0.03)	13 (0.72)	0 (0.00)	0.02 (13)	37.83
11	Russia	19 (0.03)	13 (0.72)	1 (0.05)	0.01 (20)	76.90
13	Iran	10 (0.02)	6 (0.60)	1 (0.10)	0.03 (10)	97.01
14	Brazil	9 (0.02)	9 (1.00)	0 (0.00)	0.01 (26)	68.56
15	South Africa	9 (0.02)	6 (0.67)	0 (0.00)	0.02 (17)	65.63
16	Ukraine	9 (0.02)	3 (0.33)	1 (0.11)	0.00 (28)	70.87
18	UAE	7 (0.01)	5 (0.71)	1 (0.14)	0.05 (5)	97.03
19	Turkey	6 (0.01)	5 (0.83)	0 (0.00)	0.00 (36)	47.84
	Other developing	27 (0.05)	20 (0.80)	5 (0.19)	0.21	46.17
	<b>Total developing</b>	<b>30 (0.51)</b>	<b>229 (0.80)</b>	<b>76 (0.25)</b>	<b>0.46</b>	<b>86.47</b>
	<b>1992-2007</b>					
1	China	10 (0.21)	94 (0.90)	53 (0.51)	0.06 (3)	
6	Thailand	22 (0.04)	16 (0.73)	0 (0.00)	0.01 (23)	
8	Indonesia	20 (0.04)	16 (0.80)	1 (0.05)	0.02 (14)	
10	Malaysia	14 (0.03)	11 (0.79)	0 (0.00)	0.02 (12)	
11	Russia	16 (0.03)	12 (0.75)	1 (0.06)	0.01 (19)	
13	Iran	8 (0.02)	6 (0.75)	1 (0.13)	0.02 (15)	
14	Brazil	9 (0.02)	9 (1.00)	0 (0.00)	0.01 (26)	
15	South Africa	7 (0.01)	5 (0.71)	0 (0.00)	0.02 (16)	
16	Ukraine	8 (0.02)	3 (0.38)	1 (0.13)	0.00 (31)	
18	UAE	7 (0.01)	5 (0.71)	1 (0.14)	0.04 (6)	
19	Turkey	5 (0.01)	5 (1.00)	0 (0.00)	0.00 (39)	
	Other developing	19 (0.04)	16 (0.84)	4 (0.21)	0.24	
	<b>Total developing</b>	<b>23 (0.48)</b>	<b>198 (0.83)</b>	<b>62 (0.26)</b>	<b>0.46</b>	
	<b>2008-2009</b>					
1	China	26 (0.30)	15 (0.83)	12 (0.46)	0.11 (2)	
6	Thailand	10 (0.12)	6 (0.86)	0 (0.00)	0.01 (23)	
8	Indonesia	3 (0.03)	2 (0.67)	1 (0.33)	0.02 (15)	
10	Malaysia	5 (0.06)	2 (0.50)	0 (0.00)	0.02 (16)	
11	Russia	3 (0.03)	1 (0.50)	0 (0.00)	0.01 (20)	
13	Iran	2 (0.02)	0 (0.00)	0 (0.00)	0.04 (6)	
14	Brazil	0 (0.00)	0 --	0 --	0.01 (27)	
15	South Africa	2 (0.02)	1 (0.50)	0 (0.00)	0.02 (18)	
16	Ukraine	1 (0.01)	0 (0.00)	0 (0.00)	0.00 (32)	
18	UAE	0 (0.00)	0 --	0 --	0.07 (4)	
19	Turkey	1 (0.01)	0 (0.00)	0 (0.00)	0.01 (31)	
	Other developing	8 (0.09)	4 (0.67)	1 (0.13)	0.15	
	<b>Total developing</b>	<b>61 (0.71)</b>	<b>31 (0.67)</b>	<b>14 (0.23)</b>	<b>0.47</b>	

(continued)

Table 3 (continued)

Exporting country target	Antidumping investigations (share of total)		Investigations resulting in measures (share of target country's investigations) <sup>a</sup>		Only country named in investigation (share of target country's investigations)		Share of India's import market (rank)		Mean AD Margin <sup>b</sup>	
<b>Rank<sup>c</sup></b>	<b>Developed economies</b>									
	<b>1992-2009</b>									
2	European Union	88	(0.15)	70	(0.80)	7	(0.08)	0.15	(1)	72.8
3	South Korea	45	(0.08)	37	(0.84)	4	(0.09)	0.03	(9)	46.5
4	Taiwan	42	(0.07)	34	(0.83)	5	(0.12)	0.01	(21)	73.7
5	Japan	32	(0.05)	19	(0.68)	5	(0.16)	0.03	(8)	84.2
7	USA	28	(0.05)	22	(0.79)	1	(0.04)	0.07	(3)	74.7
9	Singapore	23	(0.04)	17	(0.77)	0	(0.00)	0.03	(12)	62.7
12	Hong Kong	10	(0.02)	8	(0.80)	0	(0.00)	0.02	(18)	84.9
17	Saudi Arabia	7	(0.01)	3	(0.50)	0	(0.00)	0.05	(4)	62.0
20	Canada	5	(0.01)	3	(0.60)	0	(0.00)	0.01	(22)	74.6
	Other developed	8	(0.01)	4	(0.57)	2	(0.25)	0.15		36.2
	<b>Total developed</b>	<b>288</b>	<b>(0.49)</b>	<b>217</b>	<b>(0.78)</b>	<b>24</b>	<b>(0.08)</b>	<b>0.54</b>		<b>64.6<sup>d</sup></b>
	<b>1992-2007</b>									
2	European Union	84	(0.17)	69	(0.82)	6	(0.07)	0.16	(1)	
3	South Korea	41	(0.08)	35	(0.85)	3	(0.07)	0.03	(11)	
4	Taiwan	39	(0.08)	32	(0.82)	5	(0.13)	0.01	(20)	
5	Japan	26	(0.05)	19	(0.73)	5	(0.19)	0.04	(7)	
7	USA	27	(0.05)	21	(0.78)	1	(0.04)	0.07	(2)	
9	Singapore	22	(0.04)	17	(0.77)	0	(0.00)	0.03	(10)	
12	Hong Kong	9	(0.02)	7	(0.78)	0	(0.00)	0.01	(18)	
17	Saudi Arabia	5	(0.01)	3	(0.60)	0	(0.00)	0.04	(5)	
20	Canada	5	(0.01)	3	(0.60)	0	(0.00)	0.01	(22)	
	Other developed	5	(0.01)	3	(0.60)	2	(0.40)	0.15		
	<b>Total developed</b>	<b>263</b>	<b>(0.52)</b>	<b>209</b>	<b>(0.79)</b>	<b>22</b>	<b>(0.08)</b>	<b>0.54</b>		
	<b>2008-2009</b>									
2	European Union	4	(0.05)	1	(0.25)	1	(0.25)	0.12	(1)	
3	South Korea	4	(0.05)	2	(0.67)	1	(0.25)	0.03	(10)	
4	Taiwan	3	(0.03)	2	(1.00)	0	(0.00)	0.01	(24)	
5	Japan	6	(0.07)	0	(0.00)	0	(0.00)	0.02	(13)	
7	USA	1	(0.01)	1	(1.00)	0	(0.00)	0.07	(3)	
9	Singapore	1	(0.01)	0	--	0	(0.00)	0.02	(14)	
12	Hong Kong	1	(0.01)	1	(1.00)	0	(0.00)	0.02	(19)	
17	Saudi Arabia	2	(0.02)	0	(0.00)	0	(0.00)	0.06	(5)	
20	Canada	0	(0.00)	0	--	0	--	0.01	(26)	
	Other developed	3	(0.03)	1	(0.50)	0	(0.00)	0.16		
	<b>Total developed</b>	<b>25</b>	<b>(0.29)</b>	<b>8</b>	<b>(0.50)</b>	<b>2</b>	<b>(0.08)</b>	<b>0.53</b>		

Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a) and COMTRADE.

<sup>a</sup> Excludes cases initiated in 2009 that have not ended yet (and thus information on final measures is still not available). <sup>b</sup> Mean antidumping margin only shown for 1992-2009 since there are not enough observations per country in the data for the 2008-9 period to make any meaningful comparisons or inferences. <sup>c</sup> Targeted country's rank in the total number of initiations over 1992-2009. <sup>d</sup> For consistency, this table only allows for one 'EU' entry for each product-specific investigation.



**Table 4: India's Antidumping Measures and WTO Tariff Bindings: 2004-2009**

	2004-2009		2004-2007		2008-2009	
	Lowest firm-specific AD margin	Highest firm-specific AD margin	Lowest firm-specific AD margin	Highest firm-specific AD margin	Lowest firm-specific AD margin	Highest firm-specific AD margin
<b>All observations</b>						
Total number of 8-digit HS product observations	524	529	245	245	279	284
Number of observations with AD margin > tariff overhang (share)	223 (0.43)	420 (0.79)	204 (0.83)	221 (0.90)	19 (0.07)	199 (0.70)
Number of observations with AD margin ≤ tariff overhang (share)	301 (0.57)	109 (0.21)	41 (0.17)	24 (0.10)	260 (0.93)	85 (0.30)
<b>Developing countries</b>						
Total number of 8-digit HS product observations	378	383	187	187	191	196
Number of observations with AD margin > tariff overhang (share)	172 (0.46)	358 (0.93)	159 (0.85)	168 (0.90)	13 (0.07)	190 (0.97)
Number of observations with AD margin ≤ tariff overhang (share)	206 (0.54)	25 (0.07)	28 (0.15)	19 (0.10)	178 (0.93)	6 (0.03)
<b>Chemicals</b>						
Total number of 8-digit HS product observations	353	353	91	91	262	262
Number of observations with AD margin > tariff overhang (share)	92 (0.26)	268 (0.76)	78 (0.86)	88 (0.97)	14 (0.05)	180 (0.69)
Number of observations with AD margin ≤ tariff overhang (share)	261 (0.74)	85 (0.24)	13 (0.14)	3 (0.03)	248 (0.95)	82 (0.31)

Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a).

Notes: Based on observations with non-missing antidumping margin and tariff overhang; observations are exporting country-product pairs. Tariff overhang calculated as the difference between the country's bound tariff rate and its MFN applied tariff rate at the 8-digit HS level the year of the imposition of the antidumping measure, computed from India's tariff data available in WITS.

**Table 5: India's Use of China-specific Safeguards and Countervailing Measures: 2002-2009**

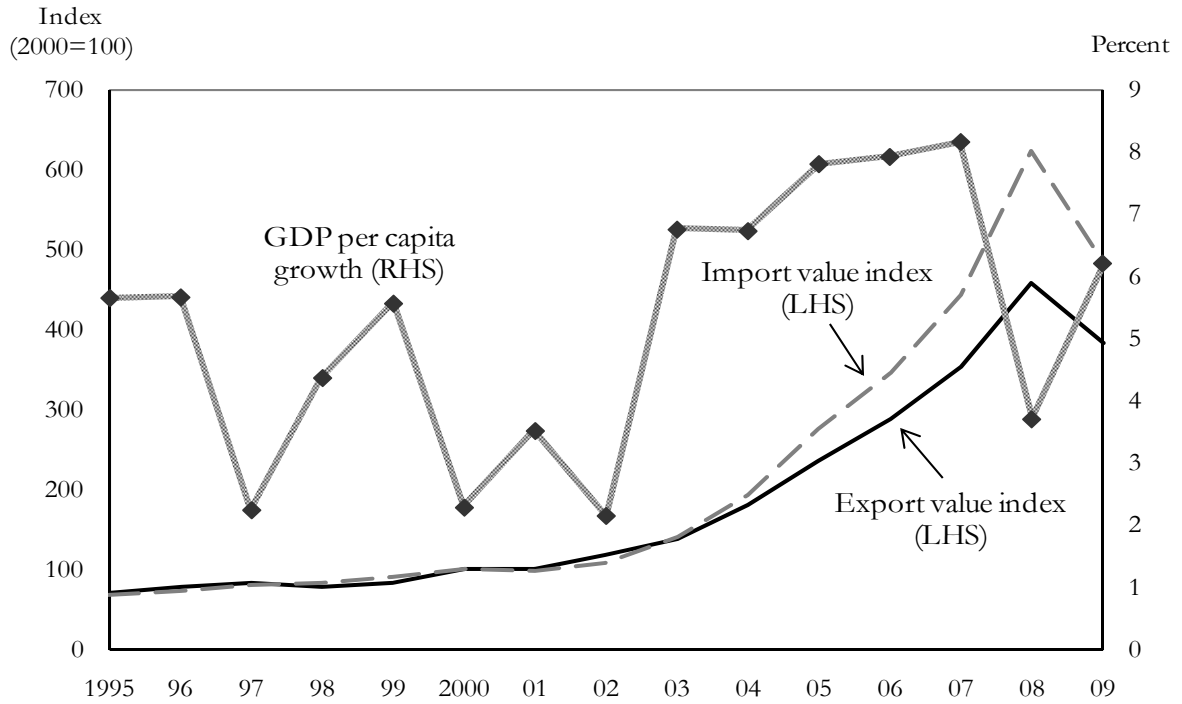
<b>Policy</b>	<b>Product and investigated country</b>	<b>Number of 8-digit HS products</b>	<b>Year of Initiation of Investigation</b>	<b>Outcome of investigation</b>
1. China safeguard	Industrial Sewing Machine Needles from China	1	2002	Despite affirmative final injury determination, no final measure imposed
2. China safeguard	Soda Ash from China	3	2009	Final measures imposed in November 2009
3. China safeguard	Aluminum Flat Rolled Products and Aluminum Foil from China	19	2009	Final measures imposed in June 2009
4. China safeguard	Nylon Tyre Cord Fabric from China	2	2009	Withdrawn by industry
5. China safeguard	Front Axle Beam/Steering Knuckle & Crankshaft of Medium and Heavy Commercial Vehicles from China	8	2009	Negative injury decision
6. China safeguard	Passenger Car Tyres from China	2	2009	Withdrawn by industry
7. Countervailing measures	Sodium Nitrite from China	1	2009	Withdrawn by industry

Source: Temporary Trade Barriers Database (Bown, 2010a).

**Table 6: India's Temporary Trade Barriers and Tariffs by Sector: 1992-2009**

Sector	1992-2009		2008-2009		2004-2009	2008-2009
	AD Initiations	SG Initiations	AD Initiations	SG Initiations	Average Applied Tariff	Average Applied Tariff
Animal & Animal Products	4	0	0	0	30.8	30.5
Vegetable Products	0	2	0	0	42.9	36.1
Foodstuffs	7	1	0	0	48.5	45.3
Mineral Products	10	0	0	0	11.0	5.6
Chemicals & Allied Industries	235	14	24	5	14.9	8.8
Plastics/Rubbers	82	2	14	0	15.2	9.6
Raw Hides, Skins, Leather, & Furs	0	0	0	0	12.0	7.5
Wood & Wood Products	19	4	5	3	13.8	9.2
Textiles	59	1	8	1	14.8	9.7
Footwear/Headgear	0	0	0	0	15.2	10.0
Stone/Glass	9	0	1	0	14.9	9.4
Metals	70	2	24	2	15.7	7.0
Machinery/Electrical	66	0	9	0	12.7	7.2
Transportation	2	0	1	0	33.8	29.7
Miscellaneous	5	0	0	0	14.0	8.8
<b>Total</b>	<b>568</b>	<b>26</b>	<b>86</b>	<b>11</b>	<b>18.8</b>	<b>13.3</b>

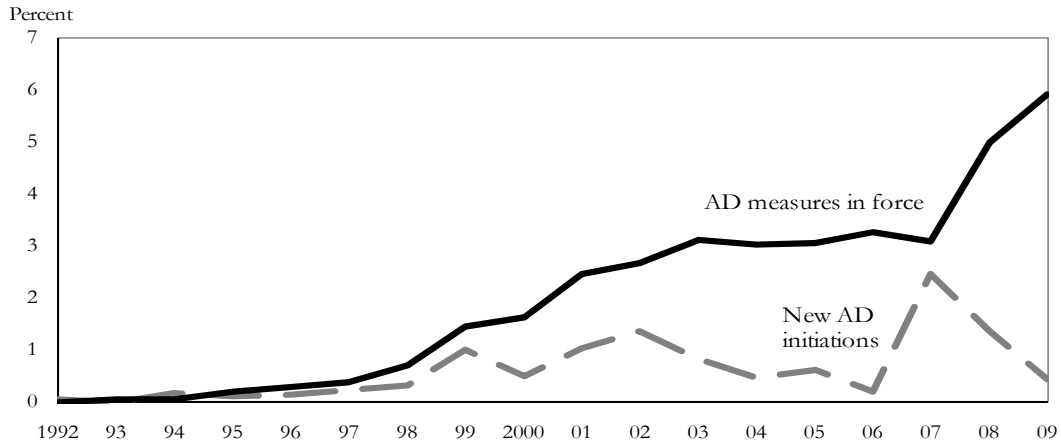
Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a) and WITS.



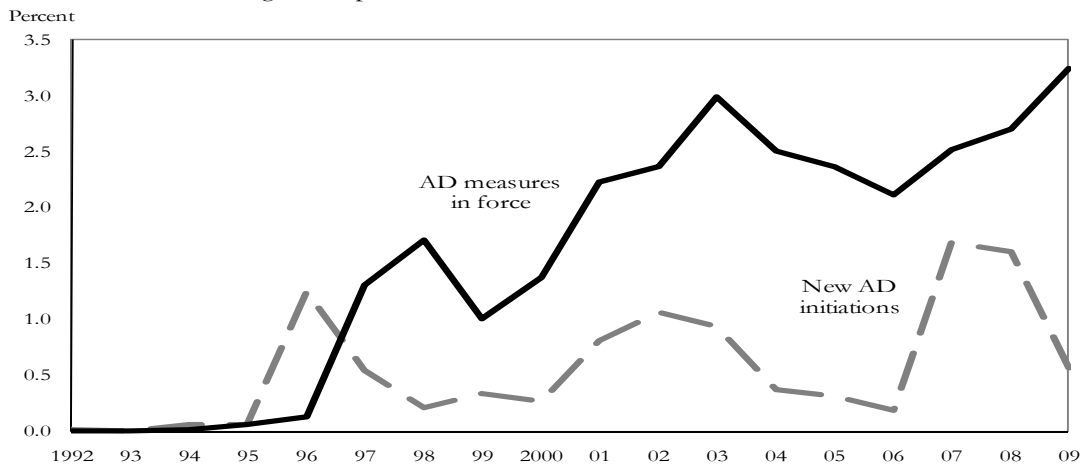
Source: World Bank's World Development Indicators.

**Figure 1: India's Exports, Imports, and Growth in GDP per capita: 1995-2009**

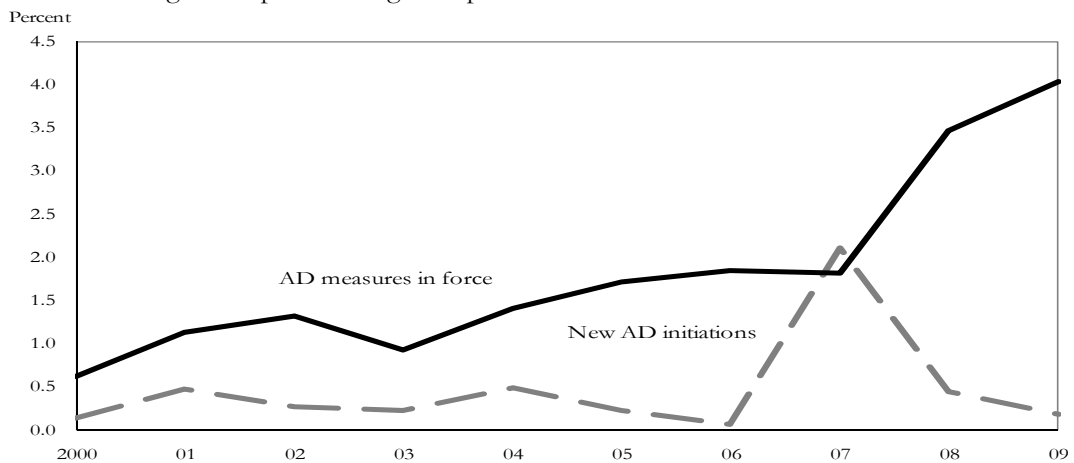
a. Percentage of imported 6-digit HS products with new AD initiations and AD measures



b. Percentage of import value with new AD initiations and AD measures\*



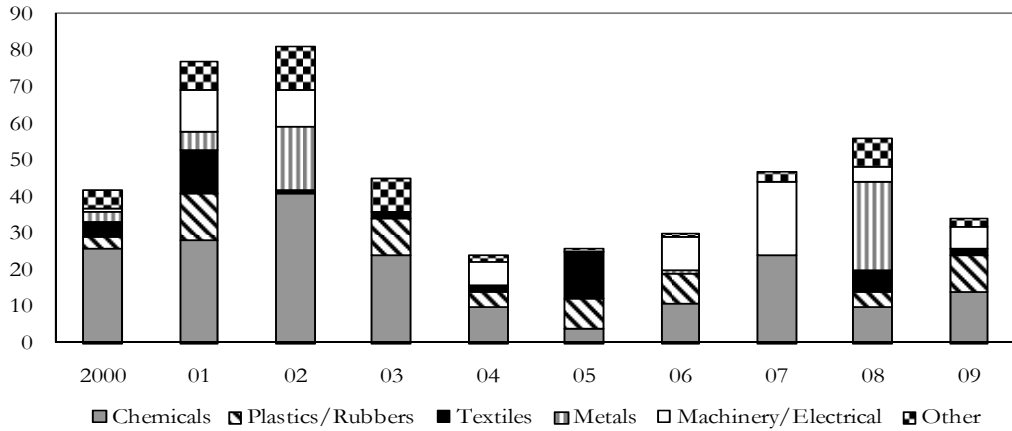
c. Percentage of imported 8-digit HS products with new AD initiations and AD measures



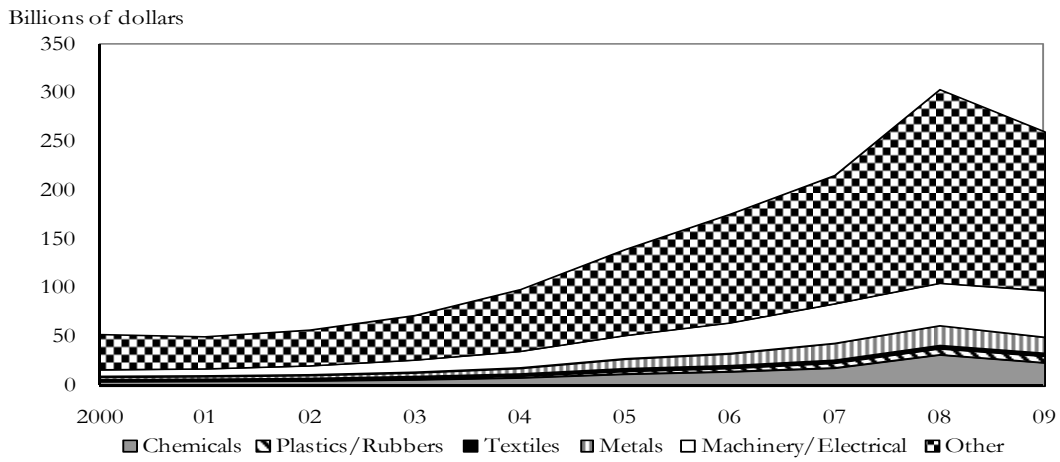
Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a). \*Figure 2b uses data at the 6-digit HS level.

**Figure 2: India's Use of Antidumping (AD)**

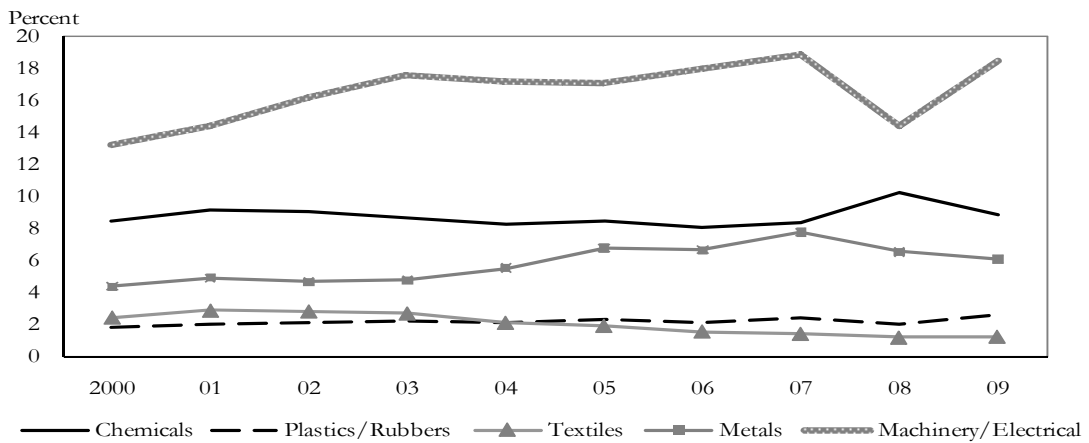
a. Antidumping initiations by sector



b. Import value by sector

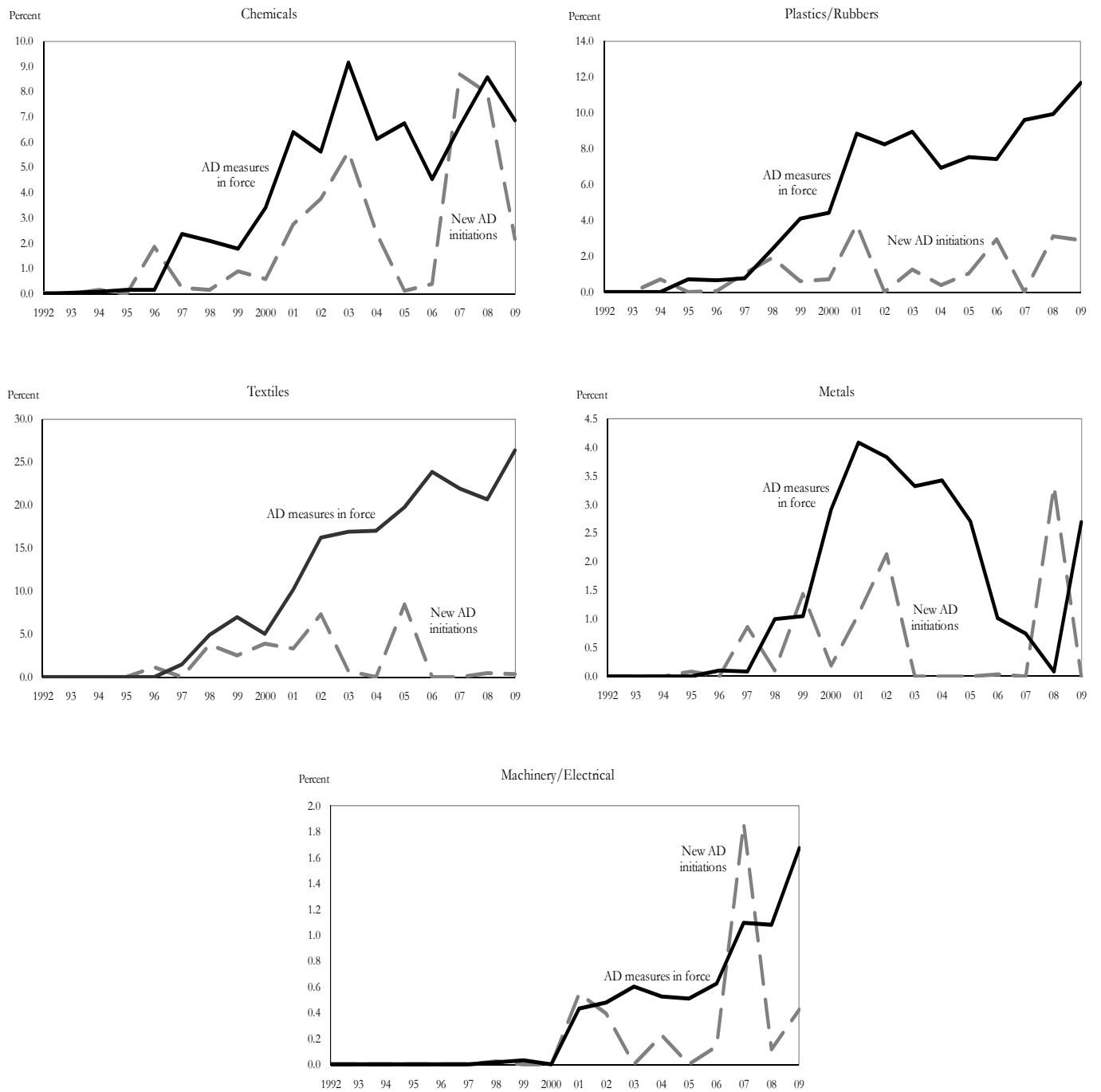


c. Percentage of import value by sector



Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a) and WITS.

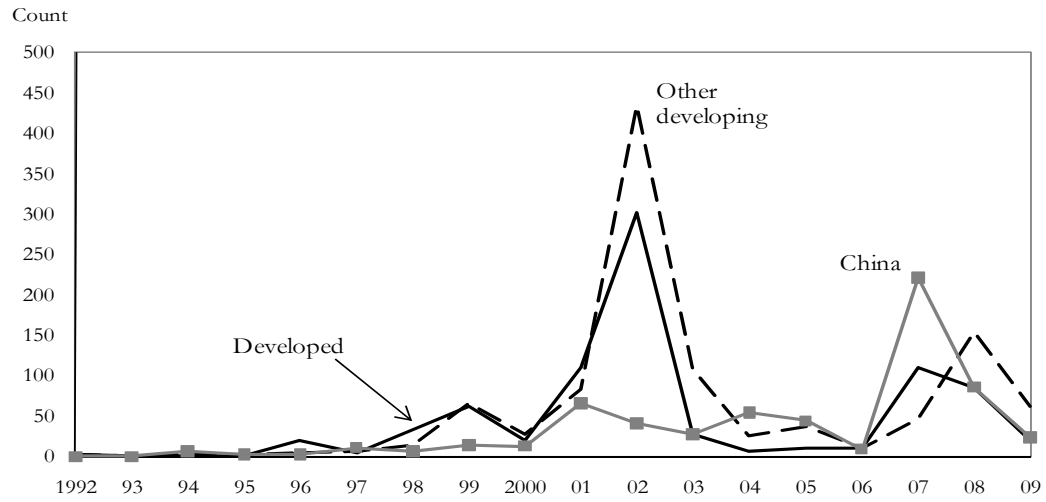
Figure 3: India's Use of Antidumping and Imports by Sector: 2000-2009



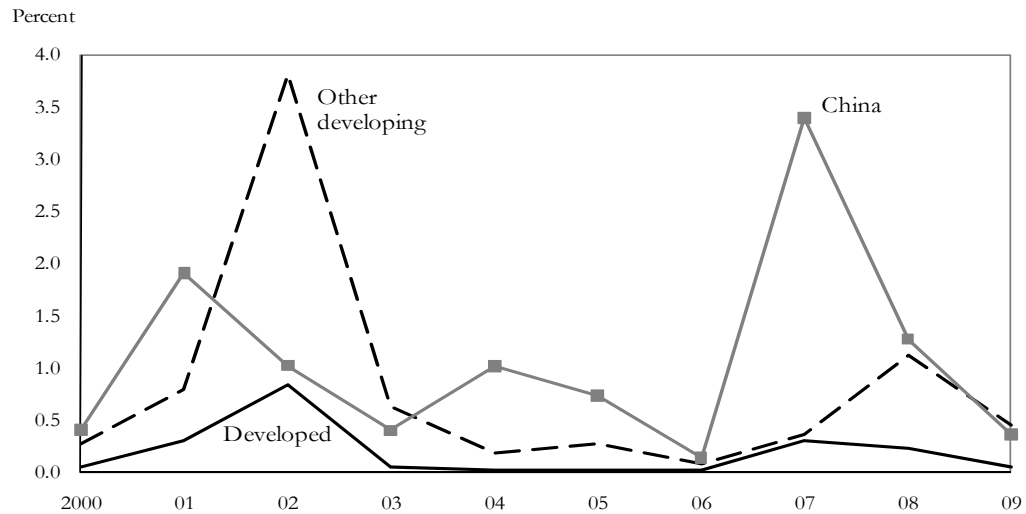
Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a) and WITS. This figure uses data at the 6-digit HS level.

**Figure 4: Percentage of India's Import Value Affected by Antidumping by Sector: 1992-2009**

a. Number of 8-digit HS product-exporter combinations with AD initiations



b. Percentage of imported 8-digit HS product-exporter combinations with AD initiations

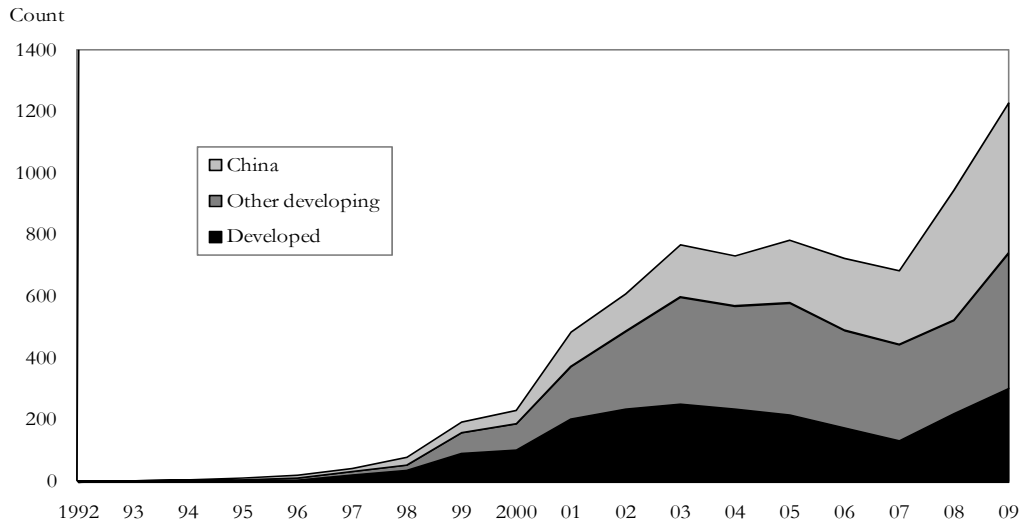


Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a) and WITS.

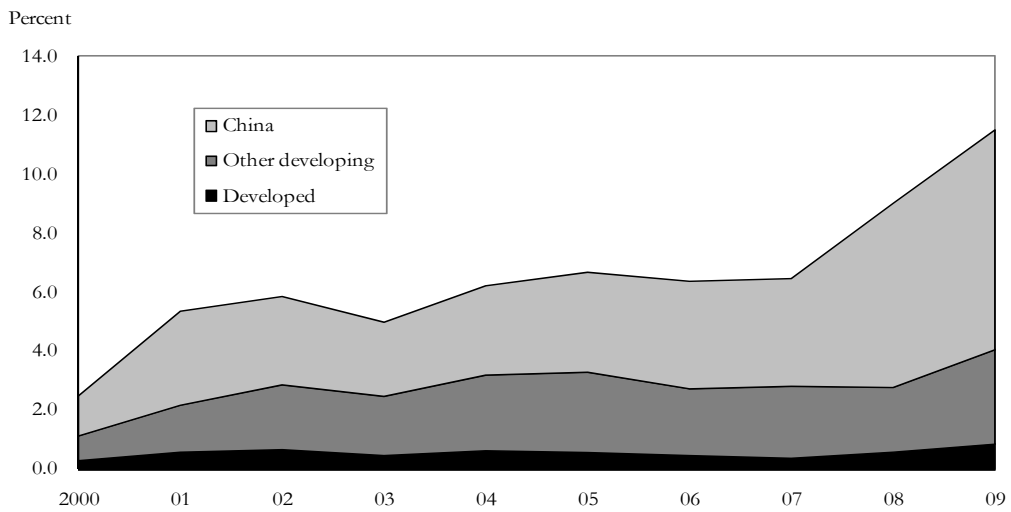
**Figure 5: India's Antidumping Investigations by Targeted Country**



a. Number of 8-digit HS product-exporter combinations with AD measures in force



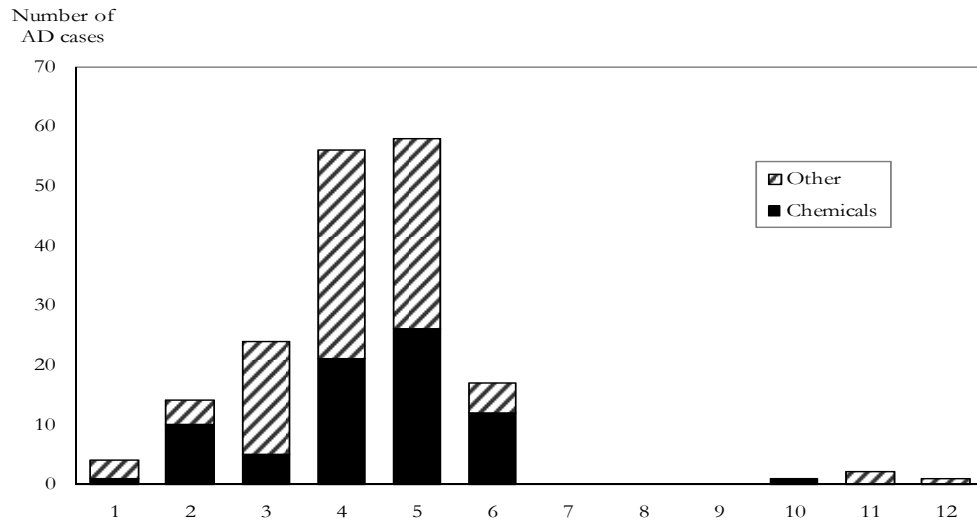
b. Percentage of imported 8-digit HS product-exporter combinations with AD measures in force



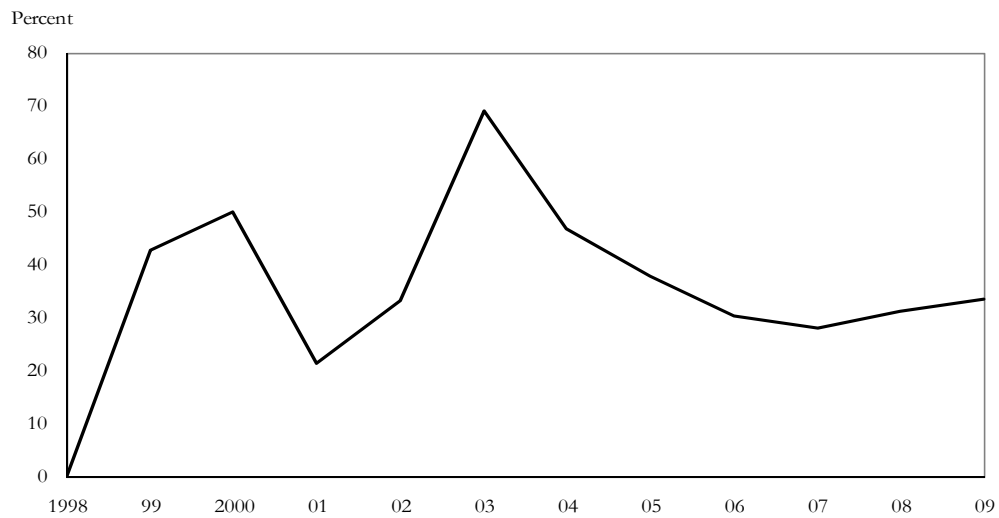
Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a) and WITS.

**Figure 6: India's Antidumping Measures by Targeted Country**

a. Duration of measures (in years)



b. Percentage of measures imposed five or more years ago that are not removed



Source: Author's calculations using data from Temporary Trade Barriers Database (Bown, 2010a).

**Figure 7: Duration of Antidumping Measures in India**