

**SUMMARY OF THE THESIS**

**“ANTI-DUMPING: INDIAN EXPERIENCE AND COMPARATIVE PERSPECTIVE”**

SUBMITTED

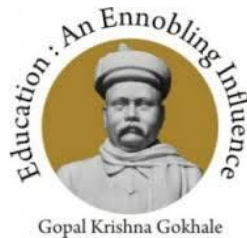
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BY

***NARESH R BODKHE***

UNDER THE GUIDANCE OF

***PROF. RAJAS PARCHURE***

DIRECTOR,

**GOKHALE INSTITUTE OF POLITICS AND ECONOMICS, PUNE**

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## **I. Introduction:**

The traditional measures of protectionism such as tariffs and quotas have declined sharply after the World Trade Organization and at the same time use of the new protectionist measures such as antidumping duty, countervailing duty, Voluntary Export Restraint etc. has gone up manifolds. WTO members cannot raise their tariffs since it is bound by WTO. Therefore, protectionist pressure is often seen through the rampant use of neo-protectionist measures under the label of contingent protection or 'WTO'-legal protection such as antidumping, anti-subsidy (CVD), and safeguard tariffs. Bown (2009) has observed that the WTO member countries have become more active in using trade remedy measures, particularly in the wake of the global economic crisis. The governments of these countries have responded to domestic protectionist pressures by imposing import restrictions during global economic crisis as shown by Evans and Sherlund (2006). After the inception of WTO, contingent protection has evolved into a global phenomenon with an increasing number of countries adopting contingent protection laws and making use of them. The bulk of contingent protection, however, falls on the instrument of anti-dumping. Between 1995 and 2014, the number of anti-dumping accounted for 86.22 per cent of the total of the three main contingent measures used (AD, CVD and Safeguards). The share of CVD remained as small as 6.8 per cent. Safeguard have been the least frequently used measures with their share being only 5.14 per cent over this period. Among the trilogy of trade remedy regimes- countervailing duty, safeguard measures and antidumping actions- antidumping actions are by far the remedy of choice. By the end of 1989, twenty eight countries had adopted antidumping laws. Nearly 1200 actions were initiated between July 1980 and June 1988. Four countries actions accounted for 97.5per cent of all actions : 30per cent were taken by producers in the United States, 27per cent brought in Australia, 22per cent in Canada and 19per cent in EU. Since the early eighties, the number of countries that adopted an AD law has nearly doubled. While 37 countries had such laws in 1980, this number increased to 93 countries by the end of 2000 (Zanardi, 2004a). The extent of AD proliferation during the period (1980- 2000) is most by developing countries. It does not seem to be confined to any particular region but includes developing countries from Asia, Latin America and Eastern Europe (Vandenbussche and Zanardi 2009). After the formation of the WTO in 1995 the use of antidumping measures has increased surprisingly. A novelty in this context is that developing countries like India and China have overtaken the developed

countries users, as mentioned earlier, such as the EU and US, as the largest users. This new development leads to interesting questions particularly with respect to the use of the antidumping instrument by large developing countries. This thesis is an attempt to study the Indian experience of using antidumping measures from legal and economic aspects as well.

## **I. Review of Literature**

There are several studies on the issue of dumping and antidumping. The first comprehensive study on the issue was done by Jacob Viner in 1921. Then others have worked on this issue. Most of the early studies are theoretical and legal. The empirical studies are mostly available since late eighties onwards. They studies have estimated the trade effects of antidumping on imports and even bilateral trade. Some studies have also estimated the welfare losses and the cost of dumping for the country as whole. US trade commission has calculated the trade effects using sophisticated computing models such as CGE and econometric tools.

There have been several attempts to study the trade effects of antidumping measures. The Lichtenberg and Tan (1994) were probably the first to study the trade effects of antidumping in United States. The study estimated AD effects on aggregate imports i.e. the import from all the countries and found that the AD measures reduces the imports. But their study neglected trade diversion, the most important dimension of antidumping measure. Staiger and Wolak (1994) studied this phenomenon very extensively. They used disaggregated data and investigated the initiation effect, suspension effect and withdrawal effect of AD investigation on imports and domestic production for AD initiations in US from 1980 to 1985. They found substantial initiation effects on the imports from subject countries. But they did not find any withdrawal effects. However they found evidence of import diversion. Krupp and Pollard (1996) also studied the trade effects of AD initiations in the Chemical industry of US from 1976 to 1988. They said a significant drop in imports of during initiation period. Prusa (1997) found the protection offered by AD law significantly offsets imports from a named country and so gets diverted to unnamed countries. Prusa (2001) in his later study covered 700 cases filed in US between 1980 and 1994 and used product level data. He found a strong evidence of significant trade destruction effects on imports from named countries, harassment effect and trade diversion effect to unnamed countries. Konings et al. (2002) assessed the trade effects of 246 antidumping investigations initiated by the EU during 1985 to 1990. But they found no significant evidences of import diversion and so concluded that the AD policy was more

effective in Europe than perhaps in the US. Brenton (2001) found that AD measures in the EU reduce imports from targeted countries, and trade was diverted to other suppliers in the EU and to non-targeted suppliers in the rest of the world. Bown and Crowley (2003) emphasize a other possible impact of AD protection, which they call “trade deflection.” By this they mean that the countries subject to an AD investigation may shift their sales to other markets to make up for the lost market in the original importing country. Egger and Nelson (2007) also provided empirical evidence suggesting that AD duties negatively affect trade volume and welfare, using a gravity model. Park (2009) empirically evaluated the effects of China’s AD measures on trade and demonstrated that AD protection has significant trade-depressing and trade-diverting effects.

Besedes and Prusa (2016) examine the impact of AD on the ability of a named supplying country to maintain any market presence. They found that AD investigations often drive export suppliers entirely out of the market. Using U.S. AD case information along with highly disaggregated product-level quarterly export data they have estimated the hazard of exports to the U.S. ceasing and found that AD increases the likelihood of exit by more than 50 percent. They conclude that over the past two decades more than one-quarter of AD duties have exceeded 100 per cent *ad valorem* it may not be entirely surprising that many AD affected countries are unable to continue to export to the United States.

Gunnar Niels (2003) has contributed to the empirical literature on antidumping policy, in particular in the ‘new’ or emerging antidumping users. He has found evidence that antidumping measures in Mexico have significant trade destruction effects on the named countries—both in import volume and import value terms. Overall, an affirmative outcome in an antidumping investigation tends to cause a structural decrease in import value from the named country (or countries) by 73 per cent on an average (which can be broken down into a volume decrease by 81 per cent and a price increase by 42 per cent—although in particular the price data should be interpreted with care). These orders of magnitude are not out of line with other studies for the USA and EU. Trade destruction effects in Mexico are particularly strong for antidumping measures against non-US imports, against developing countries and against the processed food, textile and rubber industries. The study has not found any evidence of trade diversion, i.e., imports from the non-named countries have no statistical relationship with the imposition of antidumping measures.

There are few studies on the effectiveness of Indian AD policy. Ganguli (2008) studied empirically the effect of Indian AD policy on trade flows from other countries for 285 AD petitions filed in India during 1992-2002. He has used product level import data at six digit HS codes. He demonstrated that imports from targeted countries fall significantly and it gets diverted to unnamed countries. Aradhna Aggarwal (2010) has assessed the trade effects of anti-dumping (AD) duties levied on 177 (8-digit) products by India during the period 1994 to June 2001. She finds that the investigation effects of AD actions are not substantial. The imposition of AD duties restrains trade (both volume and value) and raises import prices. While trade effects start dissipating in subsequent years, import prices from both named and unnamed countries rise significantly in the post-duty years. The developing trade partner countries suffer significant import losses when named. However, the trade destruction effect is insignificant for developed countries. Even though the unit value of their imports rises, there is no evidence of decline in trade from these countries.

## **II. Research Questions**

In the backdrop discussed in the earlier section, this study tries to investigate the following research questions:

1. What are the recent trends and patterns in the proliferation of AD measures?
2. Who is targeted by whom?
3. What sectors are targeted by whom?
4. How was India's experience of AD policy?
5. What are the major issues in domestic AD legislations and practices among the major AD users?
6. What do the Dispute Settlement Body's panel reports reveals?
7. Who has misused or misinterpreted the WTO's Antidumping Agreement?
8. What are the trade effects on the import volume, import value and unit value of the overall imports of the dumped goods?

9. What are the trade effects on the import volume, import value and unit value of the different commodity groups?
10. What are the trade effects of AD policy on import from Named and Unnamed countries?
11. Is there a trade diversion from Named countries to Unnamed countries due to imposition of antidumping duty?

### **III. Objectives**

To answer the above mentioned research questions, the study has been focused on the following objectives:

1. To study the trends and patterns in the proliferation of antidumping measures among the WTO members and a comparative perspective.
2. To study the antidumping laws and procedures of selected AD users and their consistencies and compatibility with the WTO AD laws.
3. To study the trade effects (signalling effects, initiation effects, duty imposition effect and actual duty effects) of Indian antidumping policy on imports of 'affected' sectors involved in the dumping investigations.
4. To study the trade effects of Indian AD policy on the imports from named and unnamed countries and also to check the possibility of trade diversion effect from named to unnamed countries.
5. To study the industry specific trade effects of AD policy by HS classification and further aggregated classification on 'use' basis.

### **IV. Hypothesis**

The set of hypothesis given below have been formulated on the basis of the previous empirical studies and theoretical works available in the literature. The present work has intended to study these hypotheses.

1. Antidumping has proliferated after the establishment of WTO. The use of AD measures by old /traditional users have been reciprocated by their counterparts (New Users) and that lead to surged in AD use.

2. There are several possible and potential areas of inconsistent provisions w.r.t. antidumping agreement.
3. The antidumping petitions, irrespective of their outcome, reduce aggregate import volume, total value of imports and raise unit value of the subject goods i.e. there is a duty effect along with significant signalling and initiation effects.
4. Reduction in the overall imports of subject goods from named countries has compensated by the increased imports from the unnamed countries and so there is a significant trade diversion effect of AD.
5. Trade effects of AD policy across various commodity groups and industries (classified on the used basis and HS group) are diverse.

## **V. Methodology and data Description**

To infer and test the hypotheses and answer the abovementioned research questions, the following methods and techniques have been applied:

The data used in this study have been compiled from various secondary sources. To carry out the analysis of trends and patterns in the proliferation of antidumping measures by WTO member countries, data have been compiled from WTO antidumping database and other respective national authorities. For the analysis of legal discourse of the antidumping measures, we have used actual DSB Panel reports and WTO case law along with the domestic legislations of the respective countries. Till date there have been 113 requests for consultation to the Dispute Settlement Body of WTO. Around fifty requests have been resolved by DSB and some are still in consultations. The empirical analysis that is intended in the chapter 5 and chapter 6 is based on the methodology that is previously established and used by the Thomas Prusa (1999, 2004), Brenton (2001), Konings et al (2001), Ganguli (2008) and many others.

In order to carryout empirical analysis, we have used the Anti-Dumping (AD) database developed by Bown (2010) to collect the details of the dumping cases i.e date of initiation, date of duty imposition, AD duty imposed, type of product, country, final duty imposed etc.

The empirical analysis that is intended in the thesis is based on the methodology that is previously set and used by the Thomas Prusa (1999, 2004), Brenton (2001), Konings et al (2001), Ganguli (2008) and many others. The AD database developed by Bown (2010) has been referred to compile the details of the dumping cases (date of initiation, date of duty

imposition, AD duty imposed, type of product, and country, final duty imposed etc.). For the empirical analysis of trade effects of AD, 95 antidumping case from India's major targets (China, US, EU, Thailand, Malaysia, Indonesia, Korea and Japan) having involved in more than ten AD cases initiated between 2003 and 2014 are selected. Total 142 products were involved in these 95 cases. Some initiations/cases have more than one countries (named countries) and sometimes more than one commodities involved. The named countries in each investigation are treated as an independent case so that country wise and region wise trade effects can be assessed separately. Some cases have been dropped due to unavailability of data. To get the rich panel, the time series data was constructed for each of the product involved in these cases.

The trade data i.e. import value (in US dollar) and import quantity has been compiled from COMTRADE database constructed by the United Nations Conference on Trade and Development (UNCTAD). The import data have been compiled at 6 digit HS product classifications for the period of 1999 to 2014 so as we get a window of four years before (t-4) and after (t+4) the initiation of the case. The year of initiation of the case has been set as the base year  $t_0$ .

So, now we have a pool of 142 items involved in 95 cases. In the pool, eight cases (15 items) were not affirmative in the final outcome and 87 cases (127 items) were affirmative and so the final antidumping duty was imposed on them, which was ad valorem duty.

The trade effects are assessed for import value, import quantity and unit value separately. The unit values series is obtained by dividing import value by the import quantity. There is a problem of measuring trade effects of antidumping actions based on annual trade data because it correspond to calendar years and not to the actual period of the investigation<sup>1</sup>. We have tried to analyze the trade effects by various groups of industries and group of countries. Following tables provide basic information about the clusters and frequency of the observations.

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<sup>1</sup> The annual trade data follows the calendar period, whereas the AD case could be initiated at any point in time during the calendar year.



<b>Table 1.3 : Frequency distribution of observations by Countries</b>			
<b>Country</b>	<b>Frequency of obs.</b>	<b>Percent</b>	<b>Items</b>
China	538	40.85	58
E U	190	14.43	20
Korea	135	10.25	15
U S	124	9.42	14
Japan	106	8.05	11
Thailand	91	6.91	10
Indonesia	74	5.62	8
Malaysia	59	4.48	6
<b>Total</b>	<b>1317</b>	<b>100</b>	<b>142</b>

Source: Author's calculations are based on the sample data explained in the previous section

<b>Table 1.4: Frequency distribution of observations by Level of Development</b>			
<b>Groups</b>	<b>Frequency of obs.</b>	<b>Percent</b>	<b>Items</b>
Emerging	762	57.86	82
Developed	555	42.14	60

Source: Author's calculations are based on the sample data explained in the previous section

<b>Table 1.4 : Classification of commodities based on their use</b>		
<b>Group of Commodities</b>	<b>Frequency of obs.</b>	<b>Per cent</b>
Intermediate	927	70
Capital	243	18
Basic	147	11
<b>Total</b>	<b>1317</b>	<b>100</b>

Source: Author's calculations are based on the sample data explained in the previous section

<b>Table 1.6 : Classification by HS Based Industries</b>		
<b>HS based Groups commodities</b>	<b>Frequency of obs.</b>	<b>Per cent</b>
Chemicals	626	47.53
Machines	218	16.55
Plastics	152	11.54
Base Metals	147	11.16
Textiles	90	6.83
Cement, Ceramic, Glass	34	2.58
Vehicles other than railways and trams etc.	25	1.9
Minerals	16	1.21
Papers	9	0.68
<b>Total</b>	<b>1317</b>	<b>100</b>

Source: Author's calculations are based on the sample data explained in the previous section

## **VI. Econometric model specifications**

As explained above, the dataset used for the econometric analysis is a pooled data of 95 antidumping cases initiated in the period 2003-2014 by Indian authorities. The data has been truncated so as to get minimum nine annual observations for each investigation, four years before the initiation, the year of initiation itself, and four years after the year of initiation. This has allowed to estimate trade effects of both duty imposition and initiation of investigation on dependent variables, i.e., import value, import quantity and unit value of imports from both named and non-named countries.

Since the data constructed for the analysis is a dynamic panel, the dynamic panel data model proposed by Arellano and Bond has been considered. Considering all the econometric problems that may be faced in the use of Fixed Effect and Random effect models, Arellano and Bond has proposed the two step system generalized method of moment (GMM) instrumental panel estimator. To capture the lag effect of AD policy, the model has considered lagged values of the dependent variables in all the three cases i.e. import value, import quantity and

unit value of imports. Three separate models have been estimated for three dependent variables. The estimated equations could be expressed in the following general form:

$$y_{it} = \alpha_1 y_{i,t-1} + \alpha_2 y_{i,t-2} + x'_{it} \beta + u_{it} \quad \text{-----(1)}$$

Here,  $y_{it}$  is the dependent variable and it takes three different variables (i.e. import value, quantity and unit value) in three distinct models. In all the three models  $y_{i,t-1}$  and  $y_{i,t-2}$  are the lagged values of the dependent variable. The  $\alpha_1$  and  $\alpha_2$  are scalars and  $\beta$  is a  $K \times 1$  vector. The  $x'_{it}$  is the  $1 \times K$  vector of explanatory variables. The year dummies (i.year) have been incorporated in the model as a control variable for de-trending. It is assumed that the error  $u_{it}$ , follows one-way error component model as follow.

$$u_{it} = \mu_i + v_{it} \quad \text{-----(2)}$$

Where,  $\mu_i \sim \text{i.i.d.}(0, \sigma_\mu^2)$  and  $v_{it} \sim \text{i.i.d.}(0, \sigma_v^2)$  are independent of each other and among themselves. The cross-section is identified by the case ID and the time-series by the annual observations on import trade before and after the AD initiation i.e. initiation year.

Since  $y_{it}$  is a function of  $\mu_i$ , the lagged dependent variable  $y_{i,t-1}$  is also a function of  $\mu_i$ . Therefore,  $y_{i,t-1}$  a right hand regressor in above equation is correlated with the error term. This makes the ordinary least squares (OLS) estimator biased and inconsistent even if the  $v_{it}$  are serially uncorrelated. The standard way of estimating above type of equation via the fixed-effects (FE) estimator eliminates  $\mu_i$ , but the FE estimators will be biased and potential inconsistent since  $y_{i,t-1}$  will be correlated with the FE-transformed residual by construction. A similar problem exists for the second lag ( $y_{i,t-2}$ ) of the dependent variable.

Arellano and Bond (1993) put forward a two –step GMM estimator that gives consistent estimates, assuming there is no second order serial correlation among the errors. To obtain consistent estimate of  $\alpha_1$ ,  $\alpha_2$  and  $\beta$ , we can take a first difference of the above equation to eliminate the individual country-specific effect  $\mu_i$  which gives the following equation:

$$y_{it} - y_{i,t-1} = \alpha_1(y_{i,t-1} - y_{i,t-2}) + \alpha_2(y_{i,t-2} - y_{i,t-3}) + (x'_{it} - x'_{i,t-1})\beta + (v_{it} - v_{i,t-1}) \dots$$

(3)

The model suffers by construction from the correlation between the  $y_{i,t-1}$  and  $y_{i,t-2}$  and the transformed residuals  $(v_{it} - v_{i,t-1})$ , consequently we must estimate the transformed equation with instrumental variable. There are multiple moment conditions that can be exploited to derive instruments. For all time periods, both  $y_{i,t-3}$  and lagged values of  $x'_{it}$  are valid instruments. Arellano and Bond (1991) argue that additional instruments can be obtained if one utilizes the orthogonality conditions that exist between lagged values of  $y_{it}$  and the disturbances  $v_{it}$  (Ganguli 2008).

Arellano and Bond (1991) proposed a test for the null hypothesis of no second-order serial correlation between the errors of the first-differenced equation. The importance of this test arises because the consistency of the GMM estimator relies on the condition that  $E[\Delta v_{it}, \Delta v_{i,t-1}] = 0$ . This hypothesis is true if the  $v_{it}$  are not serially correlated or follow a random walk. Under the latter situation, both OLS and GMM of the first-differenced version of (1) are consistent and Arellano and Bond (1991) suggest a Hausman-type test based on the difference between the two estimators. Additionally, they suggest Sargan's (1958) test of over-identifying restrictions. However, a "robust" version of the Arellano–Bond test has been used and that assumes heteroskedastic errors, and hence do not report the Sargan test statistic.

*The Fundamental model Specifications used for the estimations is as follow*

$$\ln x'_{it} = \alpha_1 \ln y_{i,t-1} + \alpha_2 \ln y_{i,t-2} + \alpha_3 d_{ini} + \alpha_4 d1_{ini} + \alpha_5 d1_{aduty} + \alpha_6 d2_{aduty} + \alpha_7 d3_{aduty} + \alpha_8 d4_{aduty} + \alpha_9 i.year + \varepsilon_{it}$$

The dependent variable  $\ln x'_{it}$  takes three different values in the three different models i.e. the log of value of imports, the log of quantity and the log of unit value in respective models for case  $i$  at time  $tk$  ( $k = 0, 1, \dots, 5$ ). The time has been normalized in such a way that the dummy  $d_{ini}$  refers to the period of the initiation of the case and  $d1_{ini}$  to the period of investigation which is the first year after initiation, while dummies  $d1_{aduty}$ ,  $d2_{aduty}$ ,  $d3_{aduty}$  and  $d4_{aduty}$  refer to the years following the outcome of the case (after the duty imposition) and assumes value 1 for that particular year and 0 otherwise. Theoretically, we expect to obtain

negative effects of antidumping policy on the import of product  $i$  for the named countries and a positive effect for unnamed countries (implying the incidence of *trade diversion* from named country to the unnamed countries). The explanatory variables on the right-hand side of above equation include the two immediate lags of the value of imports prior to the initiation of the case, in period  $t-1$  and  $t-2$ , respectively. The reason for inclusion of these lags as independent variable is to control for the size effects of initial imports and to capture the progress of imports prior to an antidumping initiation. To capture the duty effects, I have incorporated another explanatory variables, i.e. interaction dummy of actual duty and the year dummies ( $d1\_duty*ln\_f\_ad\_duty$ ). These terms capture the staggered effect of the duty in the years following the initiation of a case. Thus, for example, for each case  $i$ , the term ( $d1\_duty*ln\_f\_ad\_duty$ ) equals the value of the duty if the year is  $t = 1$ , while it is zero in all other years. Finally, we include calendar year dummies ( $I. Year$ ) in the estimation to control for macroeconomic trends. This could be relevant if firms are more likely to file a petition during recessions, when dumping and injury are more likely to be demonstrated.

Separate equations are estimated for import value, quantity and unit value, named and unnamed countries, emerging and developed countries and also for the different groups of cases as used based classification i.e. consumer goods, intermediate goods, basic goods and capital goods and HS classification based industries such as base-metals, papers, chemicals and plastics, textiles and minerals etc.. The variable  $d\_ini$  is a dummy that takes the value of 1 for the year of initiation for each case. This variable tests for the harassment effect of antidumping investigations.

## **VII. Findings and Discussion**

### **1. Chapter III:**

The surge of contingent protection measures as a set is also attributed to the tariff reduction which was an important issue during the process of multilateral trade negotiations which have forced WTO members to reduce the tariff and other quantitative restrictions on trade. Average applied tariffs have declined from 35 per cent in 1995 to 3 per cent in 2013. It is evident that the uses of contingent protections such as countervailing duty, antidumping duty and safeguard measures have amplified dramatically after 1995. The initiations of contingent protection in four years increased significantly from 169 in 1995 to 415 in 1999 which more than the double.

Out of total contingent measures initiations, antidumping initiations accounts for 86per cent and countervailing duty and safeguards both together contribute only 14per cent. In all 4757 AD initiations have been filed till the end of 2014.

While WTO member countries pursued different liberalization routes to reduce and sustain lower applied tariffs over these 25 years, a second theme common to this period is that many increasingly adopted ‘contingent’ or ‘administered’ import protection under policies such as antidumping, safeguards and countervailing duties – what Chad P. Bown (2011) has termed it jointly as temporary trade barrier (TTB) policies. The combined result of these two phenomena is a new framework for the international trading system. Exporters are simultaneously subject to low (on average) applied import tariffs, but they also face the threat of frequently changing TTBs. Chad P Bown (2011) in his paper provided an empirically based set of facts on the cross-country use of TTB policies over 1990–2009 by taking stock of newly available, product-level data organized into the World Bank’s Temporary Trade Barriers Database (Bown, 2010a). His first estimates compare developed versus developing economy use of TTBs and show how such policies are likely to have heterogeneous economic impacts on these two types of economies’ own trade flows. Most striking is how the divergence between these two groups of policy-imposing economies has taken place over time. Even before the global economic shock of 2008–09, the annual stock of imported products subject to such trade barriers imposed by major emerging economies such as Argentina, Brazil, China, India and Turkey had grown substantially; from a starting point in the mid-to-late 1990s at or close to zero, to coverage of up to 4 per cent of each economy’s imported products by 2007. On the other hand, more developed economies with a longer history of using such policies, like the United States and EU, have experienced a declining share of their imports subject to such policies over time. One of the measures indicates that while 3.5–5 per cent of these economies’ imports may have been affected during 1997–2005, TTB policy coverage had fallen by roughly 50 per cent to only 1.5–3 per cent of their annual imports by 2007.

The major G20 users have contributed more to increase the stock of product lines subject to TTBs by 25 per cent during the crisis period. G20 economies increased the stock of products covered by TTBs roughly from 1.7 percent in 2007 to 2.15 percent in 2012. On the other hand, developing economies have increased their stock of product coverage by TTBs during the crisis by 40 per cent, though there is substantial heterogeneity within the set of developing

economies (Bown 2011). The G20 emerging economies consisting of Argentina, Brazil, Mexico, Turkey and Chile have increased their stock of import product line substantially from 1995 to 2013, i.e. from 0.5 percent to 3 percent it especially rose sharply from 2007 to 2012 i.e., the crisis period.

The analysis of trends and patterns in the AD initiations by the importers i.e. the users of the antidumping measures reveals many interesting patterns. Since there are many countries involved in it, for the sake of simplicity, I have analysed it for top ten users whose share is around 75 per cent and for all other countries it is just 25 per cent. This analysis is carried out in three subsections i.e. region-wise (country groups), country-wise and sector wise.

While the AD actions were mainly used by developed nations in the 1970s and 1980s they are increasingly used by developing countries like India also in the recent years. Dale (1980) has done a study of anti-dumping in the 1970s. Relying on GATT reports, Dale reported that the four main actors the U.S., EU, UK and Canada had initiated 481 anti-dumping actions between 1968 and 1978. Australia opened 100 investigations between 1975-76 and 1977-78.

AD investigations initiated by emerging economies were very less in early 1990s, whereas developed countries were using it heavily. The major observation can be noted from the figure the emerging economies have overtaken the developed countries after 1996 which never came down. The picture after 1996 is completely opposite to the picture before it. Out of the total initiations during 1990 to 1994, 69 per cent were initiated by developed countries and merely 31 per cent by emerging countries. Except in 1993 emerging countries initiations were far less than their counterparts till the year 1995. But in the year 1996 emerging countries have taken the lead in initiating antidumping investigations. Out of the total 4757 initiations during 1995 to 2014, 2875 were initiated by developing countries which amounts to 60.5 per cent and 1882 were initiated by developed countries which are around 39.5 per cent.

The initiations of anti-dumping investigations by importing Member during 1995-2014 have been analyzed. Altogether the top ten countries account for 75 per cent of all initiations in this period. Of those, six are developing countries. In terms of percentages, developing countries within the top ten account for 43 per cent of all initiations. India has been the most active user, with 740 initiations in this period, i.e. approximately 16 per cent of all initiations, followed by

the US and the EC. The other active users among developing countries are Argentina, Brazil and South Africa, accounting for 7.6, 6.64 and six per cent respectively and China and Turkey accounting for 5.5 and four per cent approximately. Thus it is clearly seen that developing country Members of the WTO have taken the lead with respect to initiating anti-dumping investigations after the inception of WTO. Just to understand the changes in the pattern of the use of anti-dumping measures, we must compare the trends in the initiations in pre and post WTO period.

During the period 1990-94 total 1251 cases were initiated by all the AD users, out of that top five countries Australia, US, EU, Mexico and Canada initiated 75 per cent of the AD cases and if we consider top ten countries it goes up to 92 per cent. Surprisingly, India, South Korea, South Africa and Thailand do not find a place in top ten users. The share of top five countries has come down in the period 1995-2014 to nearly 32 per cent. This has not happened because the traditional users have reduced their use of AD measures but the use by many new users has increased significantly. So the composition of the most active users has changed histrionically over a period of time. There were five developing countries in the list of top ten countries during 1990-94, whereas there are now six of them in the top ten in the period 1995-2012. The sixth developing country is India which was not the part of top ten clubs earlier. Furthermore, the weight of developing countries in the overall initiation figures in the top ten has changed significantly. Developing countries accounted for only 25 per cent of all initiations during 1990-1994, whereas their share increased to 58 per cent during 1995-2014 out of which 43 per cent is contributed by top six developing countries and rest 15 per cent by all other developing countries.

India did not initiate any investigation in 1990, 1991 and 1993. It initiated 8 investigations in 1992 and 7 in 1994, bringing its total initiations to 15 during 1990-1994, which stands 1 per cent of all initiations. Though India contributed only 1 per cent initiations during 1990-94 and has evolved as a top user of AD measures during 1995 to 2014 with nearly 16 per cent of the total initiations. South Africa also deserves to be mentioned in that it increased its share in initiations from 1 per cent in 1990-1994 up to 4.81 per cent in 1995-2014.



The shares of US and EU were 21 and 15 per cent respectively during 1990-94 which has come down to 11 and 10 per cent respectively. The share of Argentina has increased from 4.8 to 6.7 per cent. Similarly, share of the Brazil has also increased from 4 to 7.76 per cent.

All the cases initiated till 1985 were initiated by OECD countries; Australia, Canada, EU and United States. After that Mexico joined the antidumping club as a major user. Other Latin American countries Argentina, Brazil, Columbia followed Mexico in the early nineties. Lower middle and lower income countries such as South Africa, Egypt, Peru, Philippines and India started using antidumping by the late nineties significantly.

Only four countries reported antidumping initiations in 1980 which increased to ten in nineties. Till 2000 41 countries reported the initiations out of which six were OECD, five non-OECD developed countries and rest developing countries. By 2010 the number of AD users increased to 48 but surprisingly there was no change in number of traditional users, seven more developing countries have started new investigations.

The distribution of antidumping user countries has been highly skewed. In all, only twelve countries are using it very actively. These countries account almost 80 per cent of the total initiations occurred during 1995-2014. The four traditional users of antidumping namely Australia, Canada, EU and United States which accounted 64 per cent during 1990-1995, still accounts 31 per cent of the total initiations in the world. These four countries account almost 90 per cent of the total initiations by OECD countries during 1995-2014. The table 7 compares the initiations reported by these traditional users with the relatively new users who are mostly developing countries.

Traditional users are Australia, US, EU, New Zealand and Canada and all of them are OECD countries. Whereas, new user are Argentina, Brazil, China, India, Mexico and South Africa and they are mostly emerging (lower-middle and lower income) economies. Other countries which are not mentioned here are Thailand, Malaysia, Turkey, and Indonesia. The important observation we should note here is that although the traditional user's share in total initiations has come down to 32 per cent, it is still high because these are only five countries who contribute one-third of initiations out of 48 countries. That means rest 43 countries together contribute 68 per cent initiations. In the category of new users, top six countries mentioned in the table contribute 2001(62 per cent) initiations out of 3220 initiations. These six new users initiated 42 per cent of the total world initiations.

Thus the above analysis indicates the surge in antidumping cases was indeed fuelled by the developing countries in the late 1990s but the use of antidumping mechanism was still not widespread among these countries (Aggarwal 2003). According to an estimate (Zanardi 2004), around forty developing countries have not initiated an investigations even in they have and AD law. Vermulst (2005) notes that complex methodology related to the calculation of dumping and injury margins, as well as the very detailed procedural compliance that the authorities need before taking an antidumping action make the use of AD laws difficult to apply and understand in Practice.

Till now, we are aware of who has initiated the antidumping cases and to what extent. This section, deals with the sectors wise analysis of antidumping initiations by major users. This is based on the Harmonized System (HS) codes used internationally. So as per this classification there are twenty one chapters classified/ grouped by HS codes. Just to identify most frequently named sectors, I have selected top ten sectors for the analysis. The table 8 shows a sectoral breakdown of global antidumping initiations. The sectors have been arranged in a descending order. Table 9 shows the percentage share of each sector .It is very evident that the highest numbers of cases have been initiated in the sector of base metals and articles thereof (XV). Out of 4757 initiations 1379 cases have been initiated in this sector which accounts for 29 per cent. The second most targeted sector is chemical and allied industries, almost 20 per cent cases of total cases during 1995-2014 were initiated in this sector. Why dumping cases tend to be concentrated in these sectors? It is because the world markets for steel, base chemicals and plastics are highly cyclical and therefore at the bottom of a cycle, firms operating in these markets may turn to pricing sales below cost (Miranda et al. 1998). It is also possible however at the downturn, domestic firms in importing countries use antidumping law to protect themselves and since there is a very high probability of affirmative injury findings during this period, they rush to file antidumping cases (Aggarwal 2003, p 144).

We come to know that base metals and chemical industries are the most targeted sectors. India is a major player in filing the antidumping cases followed by US and EU respectively. India filed 44per cent of its cases into the chemical industries whereas US filed 54per cent of its cases in base metals. When we further split the analysis we can infer that there is trend between developing and developed nations while filing the cases as shown in table 10. Developing countries mostly files the cases into chemical or allied industries (VI) and plastic and rubbers

(VII) whereas Developed nations files most of the cases in the steel industry (XV). Developing countries such as India, China filed the most of cases in the Chemical Industries (VI) while Brazil and Turkey filed the most of cases in Plastic and rubber (VII). Developed Countries like US, EU, Australia and Canada filed cases mostly in Steel Industry (XV).

To maintain consistency with earlier analysis regarding initiations, we have analysed data pertaining to impositions of definitive measures in the period 1995-2014 and then compared them with the data for 1990-1994. Table 11 contains data regarding definitive measures imposed in the period 1995-2014. It shows that the top 15 most active users of anti-dumping measures in this period accounted for 88 per cent of all impositions. The six developing countries in the top ten accounted for 48 per cent of all impositions. That is, developing countries' share has been considerably larger than that of developed countries. Table 12 indicates that in the period during 1990-1994, top ten active users of anti-dumping measures accounted for 97 per cent of all impositions. Five of them were developing countries which altogether accounted for only 18 per cent of all impositions.

On the basis of these data, our observations regarding the imposition of definitive anti-dumping measures have to be considerably similar to those regarding initiations. Firstly, as in the case of initiations, here too the number of the users of anti-dumping measures went up significantly after inception of the WTO, compared to the period during 1990-1994. The share of the ten most active users declined to 76 per cent in 1995-2012 from 97 per cent in 1990-1994. Secondly, the composition of the active users also seems to have changed. The number of developing countries among top ten has increased from five to six. Even in case of impositions, the share of developing countries in total impositions has risen significantly: developing countries accounted for 49 per cent of all impositions during 1995-2012 whereas they only accounted for 18 per cent during 1990-1994. The data on the imposition of definitive anti-dumping measures clearly reveals that in the initiation of investigations developing countries have emerged as the main users of these measures in the post-WTO period.

Similarly, in sector wise analysis of anti-dumping measures most of the cases filed in the textiles (XI), Plastics and rubber(VII), Chemical and allied industries (VI), Textiles (XI) and machinery (XVI) as shown in Table 13. Total number of cases filed in these top 5 sectors contributed around 85per cent of the top 10 sectors. In base metal sector (XV) 32per cent of the cases filed out of top 10 sectors. In table 14 it is given that the sectoral anti-dumping measures

from the year 1990-1994 trends between the sectors seems to be same for both the table. Only the percentage of filing in the top 5 sector has increased marginally due to introduction of the WTO in 1995. Most of the cases filed in top 10 sectors were in the year 2000, 2002 and 2003. After the emergence of WTO in 1995, China remains on the radar of reporting countries in the imposition of dumping duties. Around 25per cent of duties imposed only on china from 1995 to 2014 as shown in table 18. This shows the aggressive policies implemented by Chinese government during this period to increase the export by killing the domestic industry of the reporting countries. Most of the dumping duties imposed during 2000, 2002 and 2003.

## **2. Chapter IV:**

The basic purpose of the anti-dumping measures was to provide contingent protection to the domestic producers of member countries, facing problem of material injury caused by dumping by exporting country. But, unfortunately the use of anti-dumping measures seems to be more of protectionist and less of contingent in its nature. This chapter establishes the fact that the anti-dumping measures were used to protect domestic industries from the foreign competition. Many researchers have observed (a) the antidumping investigations are biased towards the domestic petitioners and (b) The investigations are carried out in such a manner that the probability of outcome being in favor of domestic petitioners i.e. being positive is very high.

This fact is corroborated by the evidences gathered from the WTO DSB decisions and the appellate body rulings. Several incompatibilities have been observed in the AD applications by the domestic investigating authorities. Some provisions/clauses of some member country's legislations, prima facie, are not compatible with the WTO antidumping legal settings. The dispute arises when a member government believes another member authority is violating the WTO agreement. The complainant member country submits a 'request for consultation' at DSB after the identification of the agreements it believes is being violated.

Till now, there have been 113 such requests for the consultation at DSB of WTO which cites Agreement on Antidumping. Out of the total requests, 40 are still in consultation and 14 have been settled or terminated. Reports have been adopted by the respondents in 18 cases and in 20 cases implementation has been notified by the respondent. 12 cases are still in the preliminary stage for which panel not yet composed or panel just composed.

Out of 113 cases, in 50 cases US alone is the respondent followed by EU (13) and China (08). There are only four cases against India. So this is an adequate info to understand the whole issues of use and misuse of antidumping provisions. In almost, fifty percent cases US has been alleged of ADA violations. In majority of the cases complainants are developing countries.

The article level analysis reveals that, the articles mostly cited are such as Art. 1, Art. 2, Art. 3, Art. 5, Art. 6, Art. 9 and Art.12. An article **2.4** of ADA is the most allegedly violated by the respondents followed by Article 5 and Article 3 and 6 and therefore has been bone of dispute between the complainant and respondent. The higher incidences of DSB cases concentrated around these articles indicate the potential mishandling of antidumping case on these grounds, which in fact covers almost entire procedure.

The analysis of cases where reports or preliminary findings are available reveals many lapses and gaps in the use of AD measures and investigation procedure as a whole. In many cases DSB panel has expressed grave concerns about the intention of investigating authorities. The conduct of the investigation process itself is designed in such a way that the outcome of it would be biased and favoring the domestic industry.

As far as the compatibility of domestic legislation with the WTO antidumping law is concerned, there are many clauses/provisions added to domestic legislation by some countries which are incompatible with the original WTO law. The clause of 'public interest' in the EU legislation is not consistent with ADA. Similarly, the practice of 'zeroing' the negative dumping margins being practiced very frequently by US as well as EU and has been the most debated and disputed at DSB by the developing countries against the practicing countries. The use of 'zeroing' practice itself is a proof of intentions of the practicing countries, especially US. Though US, in many case, argued it is consistent with ADA, it is, in fact a violation of ADA. The ambiguity in the ADA and the limited powers of DSB are the root cause of this issue.

### **3. Chapter V:**

The results analyzed in this chapter are about the signaling effects, initiation effects and imposition effects and duty effects broadly termed as trade destruction effects of Indian AD policy. The results in this chapter are arranged in four parts. The first part deals with overall

trade effects. Where, basically, the trade destruction effects on India's total imports of the named commodities have been analyzed. So it is total imports of the named commodities in the given period i.e. named and non-named together and not just named countries alone. The trade effects on named and non-named countries have been analyzed separately in next chapter to investigate the trade diversion effects. The trade destruction effects are further classified into industry specific effects both use based and HS base classification and then region specific i.e. emerging and developed countries.

The results presented in this chapter are partly consistent with the earlier empirical studies. Rather it is different from what Prusa, Ganguli, Aggarwal and many others have found. They have found that the AD initiations reduce import value significantly during all the stages i.e. pre-initiations, during investigations and after final duty imposition. But what appears from the results is that there are significant signaling and initiation effects in the first year of initiation. But after the second year of initiation i.e. after the duty imposition, trade value increased significantly that is because there is no significant change in the quantity imported but the unit price has shown significant increase. Theoretically, the trade value falls because the unit prices tend to go up after the imposition of duty and thereby reduces the quantity imported. But it depends on the elasticity of imports.

The result of the duty effect model are consistent with the results of erstwhile model measured the only duty imposition effect, but this model allow us to measure the actual duty effect. To capture the specific effects we have used interaction dummies where we have interacted dummies where we have interacted earlier after initiation dummies by the actual dumping duty.

At the same time we have kept earlier after initiation dummies to control the initiation effect. Thus, this model precisely captures actual duty effects. The unit price shows a significant rise during all the four year after the imposition of duties. Due to the rise in unit prices the quantity of imports has decreased in first two years (negative signs) but surprisingly it has increasing in third and fourth year. That simply means, even after the imposition of duty the quantity imported has not changed significantly. But an increase in unit price has led to increased import value. Therefore, it appears to be inconsistent with earlier studies due to the inelastic demand for imports.

As far as, the duty effects on total import value are concerned, it is function of unit prices and the import quantity. Therefore, it has also decreased along with quantity in first year of duty imposition. But it shows significant increasing trends in subsequent years.

The analysis of industry specific trade effects gives us more clarity and corroborates our earlier results. An attempt has been made to analyze the trade effects of AD on the industries classified on the basis of their use i.e., consumer goods, basic goods, capital goods and intermediate goods<sup>2</sup>. This allows us to assess the impact of AD according to the used based groups of the commodities which differs in import elasticity and nature. Therefore there is a possibility that each group may have different effects of the AD measures. Further we have extended this analysis to the industries classified by HS codes as attempted in Moonsung kang et.al (2012). This allow us to compare effects on both used based classified and HS code based classified industries.

As far as the initiation effect is concerned, it is evident from the results that the prices of basic goods and capital goods fall significantly during the investigation period. The unit value of basic goods fall by 34.44 percent during the investigation period, whereas the in case of capital goods it decreased by 53.57 percent. But there is no significant change in the unit prices of intermediate goods (which are mostly chemical goods and minerals). There is no significant effect observed in the import quantity of basic goods during investigations but its import value dropped by 29 percent. Similarly, there is no investigation effect seen in the quantity of capital goods. But the gross import value dropped very heavily (37 percent). Relatively there is very little investigation effect on the import quantity and import value of intermediate goods during the investigation period.

Though, the unit prices of basic goods dropped significantly during investigation period, there is no further significant change has been noted in the unit prices during first three years after the duty imposition but in the fourth year prices decreased by 46.37 percent. The import value of basic goods decreased in the first year after imposition of duty. But except this year there is no significant imposition effects observed.

In case of capital goods, there was trade depressing effects during investigation period. The unit prices have gone up after the imposition of duty (39 percent to 62 percent). Though there is

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<sup>2</sup> The classification is taken from the ministry of statistics and programme implementation.

no significant drop in the import quantity during the first and second year after the imposition of duty; the sign of the coefficients are still negative. But import quantity drops very significantly during third and fourth year after the duty imposition. Nevertheless, import value has remained unchanged, though the coefficients are negative.

As far as intermediate goods are concerned, the unit prices increased significantly after the imposition. But surprisingly, there is no drop in quantity is seen. Consequently the import value has increased significantly during first three years after the duty imposition.

Thus, we can conclude from the above analysis, that there are no trade depressing effects of antidumping duty imposition but there is investigation (harassment) effect and trade drops significantly during the initiation and investigation period for basic goods.

Due to the inelastic demand for imports of capital goods, the import quantity do not fall during first two years of imposition but then in the third and fourth year it goes down very heavily. Thus, both initiation and duty imposition have trade destruction effects on the imports of capital goods. But there are more cases of intermediate goods in the sample than the basic and capital goods together, and therefore it has influenced results of overall trade. Though the AD policy has been effective in raising the unit prices, it has failed to provide contingent protection to the domestic suppliers of the intermediate goods.

Just to compare, we have tried to run the separate regressions for each of the commodity group keeping other commodities constant. So that it enables us to compare among the three commodities groups and helps us to understand the relative effects on each category. Thus, the following tables show the results of these relative regressions for all three categories. Though this was possible with regression of any one group of commodity but for better understanding and clarity it has been done separately for all the groups.

There are two types of effects, pre-duty effects and post-duty effects. Pre-duty effects are signaling and initiation effects and post duty are duty imposition effects and actual duty effects.

#### **Pre-duty effects:**

As far as the initiation effects are concerned, out of six groups of industries only two groups, base metals and machines are having initiation effects on the unit price. The unit prices of the both the industries fall significantly during the initiation period by 25.24 percent and 39.46 percent and for others there is no significant change. Surprisingly, even after the fall in the unit prices the import value of the base metals and machines fall significantly by 21.88 percent and



23.81 percent. There is even significant effects are observed on the vehicles group of products where, the quantity and value falls heavily by 28.89 percent and 46.68 percent respectively. Products grouped under all the three groups are mostly capital goods. So for capital goods initiations effects are significant. There are no significant effects observed on Chemical and Plastics and Minerals. But for the group of textiles and papers import volume and import value both falls by 48.21 percent and 41.72 percent respectively.

**Post-duty effects:**

There are no significant imposition effects seen on the base metal industry except the unit price falls in the fourth year after the imposition. But as mentioned in the previous paragraph, we have noted a significant fall in import value and unit prices both.

The imposition effects on the machinery industry are very significant. The unit prices of this group of products increases in first, third and fourth year by 48 percent, 82.21 percent and 55.11 percent respectively. Thus the increase in the unit value is very heavy and therefore, as expected the import quantity drop significantly during third and fourth year by 48.31 percent and 33.56 percent respectively. Consequently, the import value has also dropped significantly in third and fourth year.

The post duty trade effects on the category 'Minerals' are very significant. Though the imposition effects in the unit price model are not significant, its highly significant in the import quantity and import value models. The import volume initially during first and second year increases by 40.44 percent and 27 percent. But it starts falling in third year and falls in the fourth year significantly (-44.73 percent). The imposition effects on import value are highly significant. It increases heavily for first three years by 43 percent, 112 percent and 102 percent respectively.

This is a very strange observation that the unit prices drops even after the duty imposition for the Vehicles category. The unit prices for the vehicles fall significantly during second and third year after duty imposition by 22.47 percent and 30.85 percent in the respective years. Since there is a fall in the unit prices, import quantity increases heavily throughout four years after duty imposition. It increases by 62.57 percent, 89.26 percent, 81.12 percent and 42.76 percent during first to fourth year respectively. Even after a fall in unit prices, may be, due to heavy increase in import volume, the import value increases significantly during second and fourth

years by 35.39 percent and 24.55 percent respectively. This clearly indicates that the import demand for the vehicles is price elastic.

The fifth category is Chemicals and Plastics. They have been clubbed together due to insufficient observations individually. But both categories are chemical based and both are demanded mostly as intermediate goods so found it convenient to add them together. The imposition effects in the unit value model are seen very significant throughout four years after imposition except for third year. It increase by 12.63 percent, 17.11 percent and 17.82 percent during first, second and fourth year respectively. The import quantity did not change during first two years after the imposition but it rises by 17.23 percent in the third year. As far as import value is concerned, it do not get altered in first year but then goes up by 10.73 percent and 24.73 percent respectively in the third and fourth years.

In case of group 'textiles and papers' the unit price goes up significantly by 24.73 percent during first year after the imposition but for other years it is not significant. The import quantity of this industry group increases during first and fourth years significantly by 82.94 percent and 100 percent respectively. The import value increases significantly during first two years. It increases by 68.37 percent and 176 percent during first and second years. This is how, the very huge trade effects are seen in case of textiles and papers which again are mostly imported as intermediate goods. The results of the synthesis model are also supported by the independent regressions of the individual groups.

#### **4. Chapter 6:**

This chapter dealt with the disaggregated effects. The overall trade has been disaggregated into named and unnamed countries trade. To do this we have compiled data for the imports of the subject commodities from the subject country i.e. named countries. To get unnamed countries, the named countries imports have been subtracted from total import (import from the whole world). So now we have data for import from the countries named in the petition and from countries exporting the similar goods to India but not named in petition. Now this will help me to check the possibility of trade diversion. Theoretically, if the trade from named countries fall and the trade from the unnamed countries in the same commodities increases, then there are chances of trade diversion. But merely fall in the trade from named countries proves trade

destruction and not the trade diversion. It can be proved only when there is sudden increase in the imports of the subject commodities.

The dummies  $d1\_aduty$ ,  $d3\_aduty$  and  $d4\_aduty$  are significant at 5per cent level of significance and the imposition of antidumping duties then import value rises by 37.30per cent, 69.72per cent and 96.40per cent in 1<sup>st</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year after the imposition, respectively. The coefficients of remaining dummies  $d\_ini$ ,  $d1\_ini$ ,  $d2\_aduty$  are not significant but their signs are positive. In the quantity model also import quantity (natural log) taken as a dependent variable and import quantity is also positive but it's not significant.

Theoretically, the import value and volume both should fall after the antidumping initiations and duty imposition but our results are contradictory to the theory. This has happened due the positive price effects and the probably because of the inelastic demand for imports. It has kept import quantity unaltered but conversely the import value has gone up due to higher unit price. It means the Indian Antidumping policy is ineffective and has failed to give contingent protection to the domestic industries during 2003-2012.

In the unit price model, unit price (natural log) is taken as dependent variable. In the Initial two years price did not changed significantly but signs are still negative but the after the imposition of duty prices increased significantly. So, we can say the Indian AD policy has been effective to provide price protection to the domestic industries.

I have analyzed the AD imposition effects and duty effect by disaggregating them. In the value model imposition effect and duty effect i.e.  $d1\_aduty$ ,  $d3\_aduty$  and  $d4\_aduty$  are statistically significant and coefficients have positive sign. Duty effect is shown by  $adduty\_d1a\_imp$ ,  $adduty\_d2a\_imp$ ,  $adduty\_d3a\_imp$  and  $adduty\_d4a\_imp$ . Besedes and Prusa (2016) found that AD action increases hazard in every stage, but the smallest effect is during the final AD stages duty phase and larger effects during the initiation and preliminary phases. Our result go with it, duty year dummies show the lesser effect as depicted by their coefficients. But in price model we can see that unit price marginally increased in 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year after imposition due to duty effect.

The imported goods are classified on the basis of its use by HS code into four categories

namely Basic goods, Consumer goods, Capital goods and Intermediate goods<sup>3</sup>. But there is only observation in the consumer goods category; hence we have dropped it from the analysis. So for the simplicity of the analysis of trade effects on import value, import quantity and unit value of all these three categories are analyzed separately for each dependent variable. First, the regression analysis has been carried out by taking import value (natural log) of basic, capital and intermediate goods respectively. In given model I have used *d1\_ini*, *d1\_aduty*, *d2\_aduty*, *d3\_aduty* and *d4\_aduty* to control the effects due to initiation and imposition effect of the whole model. In this model imposition dummies for basic goods like *d1\_aduty\_bas*, *d2\_aduty\_bas*, *d3\_aduty\_bas* and *d4\_aduty\_bas* have negative coefficients but all are not statistically significant. After the imposition in the second year the import value falls by 41.60per cent in the second year after the imposition of duty. The coefficients of dummies for capital goods have positive signs but all they are statistically insignificant. Coefficients of *d1\_aduty\_intermediate* and *d2\_aduty\_intermediate* show negative sign but not significant. In nutshell, the basic goods are more affected after the imposition of duty and Import value of intermediate goods fall for two years after imposition marginally. Whereas for capital goods there is no significant change and coefficient are positive. Second set of analysis is carried out with unit value as a dependent variable, for named countries of Basic goods, Capital goods and Intermediate goods are taken as dependent variable in the respective model. Dummies *d1\_ini*, *d1\_aduty*, *d2\_aduty*, *d3\_aduty* and *d4\_aduty* to control the effects due to initiation and imposition effect of the whole model. Here in this model *d1\_ini\_capital*, *d1\_aduty\_capital* and *d4\_aduty\_capital* shows significant decrease, increase and increase respectively. In the initiation year capital goods price reduces by 34.81per cent and increase in the first year and fourth year of imposition by 60.31per cent and 46.22per cent. For intermediate goods it increases by 32.18per cent in the initiation year and reduces by 23.5per cent in the fourth year of imposition. Whereas there is no significant decrease or increase in the unit price of the basic goods.

For the sake of analyzing the unnamed countries trade effects; India's import value (natural log) of dumped goods from the unnamed countries<sup>4</sup> has been taken as a dependent variable. The dummies such as *d1\_aduty*, *d2\_aduty*, *d3\_aduty* and *d4\_aduty* used to show the effect

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<sup>3</sup> Ministry of Statistics and Programme Implementation.

<sup>4</sup> Unnamed countries are those countries which were not named in the Antidumping Initiations by the Indian authority

after the imposition i.e. after initiation effects of the antidumping duties. Year dummies are used as a control variable.

The regression results are very clear and shows that due to fear factor (apprehension effect) of being the target of Indian AD Authority, price of imports from unnamed countries rises in the investigation period subsequently as 19.96per cent, 21.4per cent, 45.79per cent and 58.24per cent respectively though there is no duty imposition involved. There is no effect on the quantity imported as it is not significant. So this combined effect resulting in import value as shown by the imposition dummies of value model. The import value rises by 23.98per cent in 1<sup>st</sup> year, 34.04per cent in 3<sup>rd</sup> year and 38.81per cent in the 4<sup>th</sup> year. Since there are no evidences of increase in the import quantity, we have to accept the null hypothesis i.e. there is no trade diversion effect.

The regression results of imposition and duty effects on the value, quantity and unit value of unnamed countries are analyzed by segregating imposition and duty effect. In the unit value model *d1\_aduty*, *d2\_aduty*, *d3\_aduty* and *d4\_aduty* are statistically significant at 1per cent level of significance and coefficients of it are positive. Whereas Duty effect is shown by *adduty\_d1a\_imp*, *adduty\_d2a\_imp*, *adduty\_d3a\_imp* and *adduty\_d4a\_imp* is not statistically significant. The price effect can be further split into duty price effect and non-duty price effect; it is very evident from the results that the duty price effect is not significant which is consistent with our hypothesis. But overall price effect is positive because of non-duty price effects. This may be due to the signals or threat of being the next target. Besedes and Prusa (2016) found that AD action increases hazard in every stage, but the smallest effect is during the final AD stages duty phase and larger effects during the initiation and preliminary phases. Our results are consistent with this observation; the duty dummies show lesser effect as depicted by their coefficients. But in price model we can see that unit price marginally increased in 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year after imposition due to duty effect.

The import value of Basic goods, Capital goods and Intermediate goods from unnamed countries are taken as dependent variable in the present model. Dummies, *d1\_ini*, *d1\_aduty*, *d2\_aduty*, *d3\_aduty* and *d4\_aduty* are taken to control the initiation and imposition effect of the model. The imposition dummies for basic goods like *d1\_aduty\_bas*, *d2\_aduty\_bas*, *d3\_aduty\_bas* and *d4\_aduty\_bas* shows negative coefficient. And even *d1\_aduty\_bas* is significant at 1per cent level of significance and trade reduces by -29.46per cent after the

imposition on basic goods. Coefficients of Capital goods dummies have negative sign but are insignificant. But for Intermediate goods the dummies are positive and statistically significant for the two years after the imposition. Import value rather increases by 43.47 per cent and 26.99 per cent which is contradictory.

Thus we get very important results from this section. There are trade distorting effects on basic and capital goods from unnamed countries but the trade in intermediate goods from unnamed countries increases very significantly, which is a very clear evidence of the trade diversion from named to unnamed countries.

It has been observed in the previous section that there are trade distorting effects on basic and capital goods from unnamed countries but the trade in intermediate goods from unnamed countries increases very significantly, which is a very clear evidence of the trade diversion in basic and capital goods from named to unnamed countries. The analysis of the trade effects on the industries classified on the basis of HS codes reveals that the trade in base metals and machineries fall significantly but the trade in chemicals and textiles has gone up significantly. This is a clear indication of the trade diversion in chemical and textiles industries from named countries to unnamed countries.

### **VIII. Conclusion :**

Thus, the thesis basically deals with the Indian experience and also the comparative perspective of the antidumping policy. Studies by Aggarwal 2005 and Ganguli 2008 have found that from 1993 to 2003 the Indian experience was also similar to the experience of the developed countries like US, EU and other OECD countries. But the present study does not go with it. As far as the trade effects are concerned, India's antidumping policy has been ineffective in providing contingent protection and even after the imposition of heavy AD duty during 2003-2012 the import did not reduce, rather in some cases they increased. The price effects of AD duty imposition are very significant for both named and unnamed countries. There is evidence of increase in the import of basic and capital goods from unnamed countries and this could be due to trade diversion from named to unnamed countries.