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The impact of anti-dumping measures of the EU against ASEAN countries on trade flows¹

Ludo Cuyvers

Michel Dumont

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Abstract

Keeping good time with the gradual reduction of tariff barriers, anti-dumping measures became increasingly popular worldwide in the 1980s and 1990s. Though in principle aimed at countering unfair import competition, there are indications that the anti-dumping policy instrument is used to raise less transparent non-tariff barriers to international trade.

Following the 1996 Anti-Dumping Regulation, the European Commission can impose anti-dumping duties if dumping by a non-EU country is established and perceived to damage a given EU industry.

In this paper anti-dumping duties levied by the European Commission against products from ASEAN countries in the period 1991-2001 have been considered. The ASEAN countries were among the countries most targeted by anti-dumping measures imposed by the EU in the 1990s.

A panel regression has been applied to estimate the impact of anti-dumping duties on trade in some twelve products that have been subject to anti-dumping duties targeting ASEAN countries in the period considered.

We find a significant negative impact of anti-dumping duties on both the value and the quantity of imports from ASEAN countries. Our estimation provides some, though not overwhelming indications of trade diversion in favour of EU countries but no evidence of trade diversion in favour of non-targeted non-EU countries.

1. Introduction

As in the successive GATT rounds import tariffs were gradually phased out, governments all over the world increasingly started to impose non-tariff barriers to protect domestic industries from international trade competition.

Anti-dumping measures nowadays are among the most customary non-tariff barriers. With dumping defined as imports of a product at an export price below its “normal value”, anti-dumping measures are, in principle, supposed to protect countries from “unfair” trade competition although price discrimination between markets can be considered as a legitimate business strategy (Krugman and Obstfeld 2003, p. 145).

The WTO Anti-Dumping Agreement (i.e. The Agreement on the Implementation of Article VI of GATT 1994), reached at the end of the Tokyo Round, and revised and extended at the end of the Uruguay Round, provides importing countries the right to impose anti-dumping measures if the dumping causes “material” injury to a competing domestic industry. The agreement fixes the definition of dumping, the criteria to determine that there is a causal link between the dumping and the “material” injury, the procedures for anti-dumping investigations, the implementation and duration of anti-dumping measures and the role of dispute settlement panels.

Three alternative methods are considered to determine the “normal value” of products: the product price in the exporter’s domestic market, the price charged by the exporter in another country, or a price computed as a combination of the exporter’s production costs, other expenses and normal profit margins.

Anti-dumping measures can be justified as a response to “unfair” import competition, but the recent surge in anti-dumping investigations can clearly not only be explained by an increase in “unfair” trading practices. Prusa and Skeath (2002) gathered data on all anti-dumping cases that were filed and reported to the GATT/WTO in the period 1980-1998². They distinguish economic motives for anti-dumping initiatives from strategic motives. Whereas the first motives are prompted by the response to “unfair” imports, the latter motives concern the improper use of anti-dumping investigations or measures, e.g. countries investigating anti-dumping measures against those countries that investigated them in the past (i.e. retaliation). Estimations suggest that about half of all anti-dumping filings seem to be prompted by strategic motives. Apparently strategic motives (e.g. retaliation) appear to be more important than economic motives for the new users of anti-dumping legislation, whereas both motives are equally important for the traditional users.

In the 1980s and the beginning of the 1990s anti-dumping measures were mostly imposed by Australia, Canada, the EU and the US. More recently countries like Argentina, Brazil, China, India, Mexico, South Africa, South Korea and Taiwan appear to get a taste for it, judging by the number of investigations that have been initiated by these countries in the last half of the 1990s. In the period 1985-2001 developing countries initiated 810 anti-dumping investigations, 266 of which targeted developed countries, 287 other developing countries and 257 countries in transition, whereas developed countries initiated 925 investigations, 411 targeting developing countries, 282 other developed countries and 232 countries in transition (Zanardi, 2004, p. 423).

Zanardi (2004) argues that the recent embracement of anti-dumping activities by new users should convince the traditional users that reforming the current anti-dumping rules during the ongoing Doha Round, to make them more consistent with the original objective of “fair trade”, could also be in their interest.

Table 1 lists the top 40 countries that were the target of anti-dumping investigations in the period 1981-2001. The EU represents investigations that targeted the European Union as a whole.

Countries from Asia were the target of more than 38 % of the anti-dumping investigations in the period considered and ASEAN countries represent more than 7 % of the investigations.

If dumping and the causal link between the dumping and the injury to a domestic industry has been established during investigation, the WTO Anti-Dumping Agreement permits the importing country to either impose **duties** that do not exceed the dumping margin computed during the investigation, or alternatively to propose a voluntary **undertaking** to the exporter to raise its import price or to restraint its exports.

In the period 1981-2001 about 74% of anti-dumping investigations initiated by the European Commission resulted in either a duty being imposed or a price undertaking.

² The Anti-Dumping Agreement stipulates that WTO members should inform the Committee on Anti-Dumping Practices of all their anti-dumping investigations and measures.

Table 1: Top 40 of countries targeted by anti-dumping investigations (1981-2001)

Country	Number of investigations	% of total
China	422	9.43
USA	338	7.55
South Korea	305	6.82
Japan	292	6.53
Taiwan	201	4.49
Germany	190	4.25
Brazil	188	4.20
United Kingdom	118	2.64
Thailand	116	2.59
France	115	2.57
Italy	113	2.53
India	108	2.41
Spain	100	2.24
Indonesia	92	2.06
Russia	92	2.06
Poland	75	1.68
Canada	74	1.65
Romania	71	1.59
Belgium	69	1.54
Malaysia	65	1.45
South Africa	62	1.39
Ukraine	62	1.39
Mexico	60	1.34
Czechoslovakia	59	1.32
Hong Kong	59	1.32
Netherlands	59	1.32
Turkey	55	1.23
Singapore	48	1.07
Yugoslavia	47	1.05
Hungary	43	0.96
Argentina	39	0.87
Sweden	39	0.87
Venezuela	39	0.87
East Germany	38	0.85
Austria	36	0.80
USSR	35	0.78
EU	28	0.63
Australia	26	0.58
New Zealand	26	0.58
Chile	25	0.56

Source: Zanardi (2004).

For the United States only about 59% of investigations resulted in any anti-dumping measure and for Australia, which with 829 cases initiated was a more active investigator than the EU, only 41% resulted in any measure. The overall success rate of initiated cases of 56 % suggests that a rather large number of cases that are initiated are not well-founded and may be strategically motivated, e.g. because anti-dumping investigations as such may restrict trade (Zanardi, 2004, p. 430).

In this paper we will assess whether anti-dumping (AD) measures imposed by the European Union against ASEAN countries has had a statistically significant impact on bilateral EU-ASEAN trade flows.

We will also estimate the impact of the AD measures on the intra-EU trade flows as well as trade flows from non-ASEAN countries towards the European Union and ASEAN countries that were not targeted by specific AD measures to assess whether these measures may have diverted trade.

In the next section we will elucidate the EU anti-dumping policy and procedure. In section 3 we will discuss the (trade) relationship between the EU and ASEAN and in section 4 we will present some facts and figures of anti-dumping cases opened by the European Commission against non-EU countries in general and ASEAN countries in particular. In section 5 we propose the procedure that we followed to estimate the impact of AD measures targeting ASEAN countries in the 1990s on imports from the targeted countries as well as the impact on imports from non-targeted countries (the latter to assess possible trade diversion).

2. The EU Anti-Dumping legislation

Although a number of European countries like France and the United Kingdom already adopted an anti-dumping legislation in the 1920s it was not until after the Anti-Dumping Code concluded at the end of the Kennedy round that a European anti-dumping legislation was established in 1968. This legislation has since been revised numerous times with the main revisions in 1979 following the Tokyo Round and in 1994 and 1996 following the Uruguay Round.

In addition to establishing dumping and the causal link between dumping and the injury to a domestic industry, the EU anti-dumping legislation also provides for a test that the anti-dumping measures are in the overall interest of the Community, i.e. the advantage for the industry that benefits from anti-dumping measures should exceed the potential disadvantage of these measures for importers, consumers and other interested parties. Moreover, the legislation foresees that the measures are imposed at the lowest of the established dumping or injury margins.

On its website the European Commission explicitly states that anti-dumping measures will become the single most important trade policy instrument in the future: *"During the last three decades, the anti-dumping instrument has been one of the Community's major trade policy instruments. While tariff and non-tariff barriers are and will be more and more reduced between the main trading blocks world-wide, the anti-dumping instrument is likely to further gain in importance, since it will be one of the few remaining instruments to fight unfair trade"*³.

Representatives of an industry in the European Union can submit a complaint to the European Commission when they perceive that competing products are dumped by non-EU countries. The Commission has to decide within 45 days whether the complaint is sufficiently substantiated for further investigation. If so, a formal investigation which has to be completed within 15 months will have to establish whether dumping actually takes place and whether this dumping causes material injury to the complaining EU industry.

During the investigation the complaining EU industry can negotiate a price undertaking with the exporter who is accused of dumping. If the Commission accepts the voluntary agreement (e.g. the exporter raises his export price) it may decide to stop the investigation. When after consulting the member states and interested parties (producers, importers, consumers ...) it appears that anti-dumping measures will be in the overall interest of the Community the Commission may impose provisional duties (six to nine months) which should not exceed the dumping margin.

The imposition of definitive duties (valid for five years) is decided upon by the Council of Ministers after completion of the full investigation. Duties can be imposed *ad valorem* (i.e. as a percentage of the export price), as a fixed amount per unit of product, or based on a minimal price (assumed to be higher than the export price).

At the latest three months before anti-dumping measures are due to expire EU producers can submit a request to extend the duration of the imposed measures. Anti-dumping duties can be challenged in the European Court of First Instance and the WTO dispute settlement procedure can be used to settle disputes between WTO members.⁴

3. EU-ASEAN

In 1980 the EU signed a Co-operation Agreement with the five ASEAN members at the time, Indonesia, Malaysia, the Philippines, Singapore and Thailand, granting them the status of Most Favoured Nation. The Joint Co-operation Committee (JCC) was created to coordinate the co-operation between the EU and the ASEAN. The ASEAN countries benefit from the Generalised System of Preferences (GSP), which was developed by the EU to promote imports from developing countries by granting them preferential tariffs. Given its high level of economic development Singapore does not benefit from the system since 1998 and Indonesia and Thailand lost the GSP benefit in some product categories (e.g. fishery products for Thailand).

In 2001, the European Commission identified ASEAN as a key economic and political partner that is crucial for overall relations between Europe and Asia⁵. In 2003 the Trans-Regional EU-ASEAN Trade Initiative (TREATI) was proposed to further promote the economic co-operation between the EU and the ASEAN.

The EU is one of the most important trading partners of ASEAN, after the United States and Japan. In Table 2 the import shares in the EU15 (i.e. the EU before the enlargement of May 2004) are given by origin for the period 1992-2002. More than 60% of all imports in the EU15 come from other EU15 countries.

³ http://europa.eu.int/comm/trade/issues/respectrules/anti_dumping/tempo2.htm.

⁴ http://europa.eu.int/comm/trade/issues/respectrules/anti_dumping/index_en.htm.

⁵ http://europa.eu.int/comm/external_relations/asean/intro.

Table 2: Import shares in the European Union (1992-2002)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
EU 15	63.3	62.5	62.9	64.0	63.1	63.0	63.1	62.9	59.6	60.7	61.9
Non-EU 15	36.7	37.5	37.1	36.0	36.9	37.0	36.9	37.1	40.4	39.3	38.1
ASEAN	1.9	2.2	2.2	2.1	2.4	2.4	2.5	2.5	2.7	2.5	2.4

Source: OECD International Trade by Commodities Statistics (ITCS).

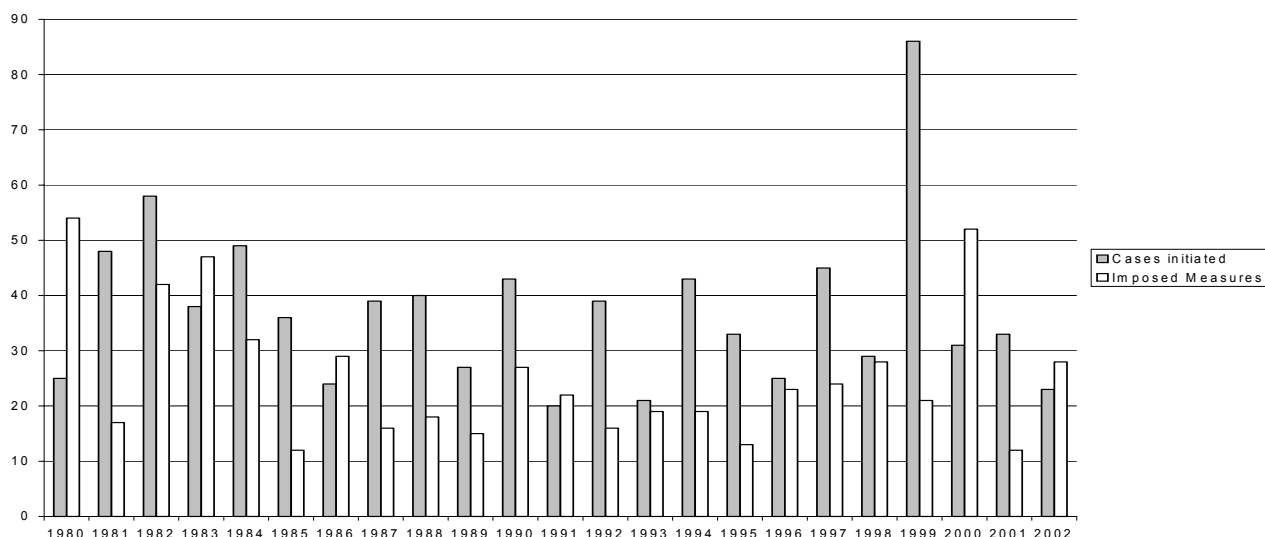
The import share of non-EU15 countries increased with 1.4% in the period considered, 0.5% of this increase is due to the increase in the import share of ASEAN countries.

After the Asian crisis in 1997 the EU persistently witnessed a trade deficit with ASEAN, explained by the decrease in exports from the EU towards ASEAN and the increased imports from ASEAN in the EU due to the depreciation of most ASEAN currencies.

Automatic data processing machines; transistors, semiconductors devices and valves and parts and accessories for office machinery and automatic data processing machines are the most important export products of ASEAN countries towards the EU, accounting for 45% of all ASEAN exports to the EU (ASEAN, 2003).

4. EU anti-dumping investigations

In Figure 1 the total number of anti-dumping investigations that have been initiated and the total number of investigations that have been concluded by a price undertaking or the imposition of a duty are given for the period 1980-2002, i.e. starting after the adoption of the EU anti-dumping legislation in 1979.

Figure 1: Number of investigations initiated and number of investigations concluded with imposition of anti-dumping measure (1980-2002)

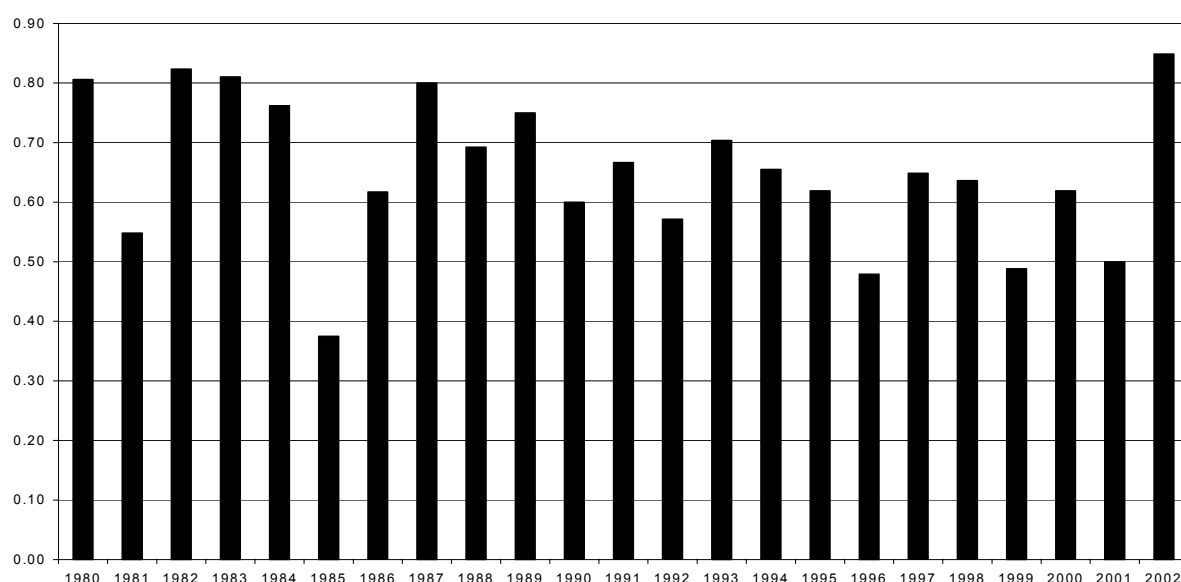
Source: The Annual Reports from the Commission to the European Parliament on the Community's Anti-Dumping and Anti-Subsidy Activities.

With an average of 65% the number of cases that are concluded with an anti-dumping measure is substantially higher than for the US and Australia as shown above. There does not appear to be a clear-cut trend in the success rate.

Except for the 1999 peak the number of anti-dumping investigations that are started appears to be declining. The European Commission pointed out that its share in world-wide anti-dumping cases is decreasing due to the increased number of cases initiated by new users.

In Figure 2 the success rate (i.e. the % of investigations that have been concluded either with a price undertaking or a duty) is shown as an indication of the degree of credibility of dumping allegations.

Figure 2 : Percentage of EU anti-dumping investigations that are concluded with a price undertaking or the imposition of a duty (1980-2002)



Source: The Annual Reports from the Commission to the European Parliament on the Community's Anti-Dumping and Anti-Subsidy Activities.

The number of EU anti-dumping investigations that have been initiated and concluded against ASEAN countries in the period 1980-2003 is given in Table 3.

The largest part of the 89 cases have been initiated in the 1990s. About 67 % of the 85 concluded investigations resulted in some anti-dumping measure being imposed (mostly a definitive duty) which is close to the overall 65% average⁶. A considerable part of all anti-dumping investigations that were initiated by the European Commission in the 1990s targeted some ASEAN country. In six years of the 1990s more than 15% (in 1995 even 36%) of all cases initiated by the Commission were targeting ASEAN countries⁷. The increased import competition of ASEAN countries, as reflected in the trade deficit of the EU with

⁶ With 63% of EU investigations targeting ASEAN countries resulting in provisional duties against about 50% for all EU investigations, provisional measures seem to be imposed more when ASEAN countries are involved.

⁷ For the entire period 1980-2002 on average 10.4% of the investigations initiated by the EU were targeting ASEAN countries.

ASEAN in most years of the 1990s, appears to have resulted in a relatively large number of cases that were submitted by competing EU industries.

Table 3: EU anti-dumping investigations initiated and concluded targeting ASEAN countries (1980-2003)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cases initiated	3	0	0	1	1	1	1	1	4	1	3	0
Cases concluded	0	3	0	0	1	1	1	0	1	1	5	2
with a measure	-	2	-	-	1	-	-	-	-	1	4	1
Definitive duty	-	-	-	-	1	-	-	-	-	-	1	-
Undertaking	-	2	-	-	-	-	-	-	-	1	1	-
Both	-	-	-	-	-	-	-	-	-	-	2	1
without a measure	-	1	-	-	-	1	1	-	1	-	1	1
Provisional duties	0	0	0	0	1	0	0	0	1	0	3	2
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Cases initiated	6	4	11	12	2	8	0	17	2	6	5	0
Cases concluded	1	3	1	5	15	6	10	1	16	2	6	4
with a measure	1	1	1	3	9	6	9	-	11	1	5	1
Definitive duty	1	1	1	3	9	5	9	-	10	-	4	1
Undertaking	-	-	-	-	-	-	-	-	-	-	-	-
Both	-	-	-	-	-	1	-	-	1	1	1	-
without a measure	-	2	-	2	6	-	1	1	5	1	1	3
Provisional duties	0	2	5	7	4	9	3	0	15	1	2	1

Source: The Official Journal of the European Communities and The Annual Reports from the Commission to the European Parliament on the Community's Anti-Dumping and Anti-Subsidy Activities.

Of the 89 cases that were initiated in the period 1980-2003 against ASEAN countries, 31 were targeting Thailand, 22 Indonesia, 21 Malaysia, 10 Singapore, 3 Vietnam and 2 the Philippines. Electronics (21), textiles (20), chemical products (16), other mechanical products (10) and iron & steel (8) were the most popular product categories for anti-dumping investigations against ASEAN countries.

There is a substantial difference in the kind of anti-dumping measures that are imposed by the EU against ASEAN countries compared to the kind that are imposed on other countries. Before 1997 about 47 % of all EU anti-dumping measures that were imposed after investigation were price undertakings whereas only

7% of anti-dumping measures against ASEAN countries were undertakings and 12% a combination of a duty and a price undertaking⁸.

It is not clear whether this substantial difference can be explained by ASEAN exporters being more reluctant to accept a voluntary agreement or whether it can be explained by the European Commission being more reluctant to accept a proposed price undertaking.

5. Estimation procedure and results

Blonigen and Prusa (2003) review the empirical work on the impact of anti-dumping measures. Overall, empirical studies indicate that AD measures significantly reduce the imports from countries that are targeted by these measures, both for the US (Staiger and Wolak, 1994; Krupp and Pollard, 1996; Prusa, 1997) and the EU (Messerlin, 1989; Brenton, 2001). However, whereas for the US, Staiger and Wolak (1994), Krupp and Pollard (1996) and Prusa (1997) find unambiguous evidence of trade diversion, i.e. an increase in imports from countries that are not named in a given AD investigation, for the EU the evidence is mixed. Messerlin (1989) and Brenton (2001) find indications that anti-dumping measures imposed by the EU increase imports from countries that are not involved (especially non-EU countries) but Konings, Vandenbussche and Springael (2001), using detailed 8-digit product level data for the period 1985-1990, find that trade diversion caused by EU anti-dumping measures is rather limited. There are some indications that trade diversion is important in highly concentrated industries, but the differences in trade diversion between AD cases investigated by the US and the EU could, according to the authors, also be explained by the fact that the EU policy offers injury margin protection, whereas the US policy offers dumping margin protection, as well as by other institutional differences (transparency, uncertainty regarding level of protection).

Prusa (1997) estimated the impact of anti-dumping petitions filed in the US in the period 1980-1988 using the following OLS regression:

$$\ln x_{i,t} = \alpha + \beta_0 \ln x_{i,t-1} + \beta_1 \left(\frac{\ln x_{i,t-1}}{\ln x_{i,t-2}} \right) + \beta_2 \text{NumNamed}_i + \beta_3 \ln \text{duty}_i + \beta_4 (\text{dec}_i \ln \text{duty}_i) + \beta_5 t + \beta_6 (t \text{ dec}_i) + \beta_7 \text{Year} + \varepsilon_{i,t} \quad (1)$$

where $x_{i,t}$ denotes imports of a given product i subject to AD investigation (duty) at time t , NumNamed_i is the number of countries named in the AD investigation, duty_i is the level of the AD duty imposed on product i , dec_i is a dummy variable being 1 if a duty is levied and Year denotes year dummies that control for macroeconomic trends. Estimation for 109 rejected AD cases and 126 AD cases where duties were levied by the US suggests that anti-dumping petitions and duties had a significant negative impact on the imports from named countries, especially for high levels of AD duties. However, the results also indicate

⁸ Vandenbussche, Veugelers and Konings (2001) have argued that duties are actually more in the interest of the Community than price undertakings as the latter imply a lower welfare level than duties. EU firms will prefer price undertakings as these will ensure higher profits.

that the protective effect of AD duties is undone by increased imports from countries that are not named in the AD cases.

Using the same OLS specification as Prusa (1997), Brenton (2001) estimated the impact of 98 anti-dumping actions by the EU in the period 1989-1994 and found a significant negative impact of AD duties on imports from named countries as well as significant trade diversion. Konings, Vandenbussche and Springael (2001) however, using a similar OLS specification to estimate the impact of 246 AD cases, do not find much evidence of trade diversion.

Due to the inclusion of the lagged dependent variable, OLS estimation or fixed effects (Least Squares Dummy Variable LSDV) estimation will be biased (Nickel, 1981; Kievit, 1995; Greene, 2000). Kievit (1995) found that LDSV estimation, though being inconsistent, often results in smaller standard errors than more consistent instrumental variable (e.g. Anderson and Hsiao, 1981) or GMM estimators and proposes a bias-corrected LDSV estimator which Monte Carlo simulations show to be more efficient than instrumental variable estimators⁹. In most of the previous work the bias due to the lagged dependent variable seems to be ignored. Prusa (2001) reports both fixed effects estimators and instrumental variable estimators, first-differencing (1) and considering $\ln x_{i,t-2}$ as instruments.

To assess the impact of AD measures taken by the EU against ASEAN countries we will use specification (1), considering the possible bias due to the lagged dependent variable. Data on imports were retrieved from the OECD International Trade by Commodities Statistics (ITCS). Consistent time series are not available for the entire period 1980-2004. For the period 1980-1996 data are available following the SITC¹⁰ Revision 2 classification, whereas for the period 1991-2001 data are given following the SITC Revision 3 classification. Unfortunately both revisions differ substantially and as pointed out by the OECD¹¹ it is close to impossible to convert data from SITC Revision 2 to SITC Revision 3. We therefore consider the SITC Revision 3 data for the period 1991-2001, i.e. for the 1990s, which was the period in which most cases targeting ASEAN countries were concluded (see Table 3).

The European Commission uses the Combined Nomenclature (CN) classification to identify products subject to anti-dumping investigation. This classification permits a highly detailed product description (up to 10 digits). Data on international trade are not available at this high level of product detail. To link the data on AD measures to data on imports some conversion and aggregation has to be considered. Based on the description of products subject to AD measures as published in the *Official Journal of the*

⁹ Unfortunately the bias-corrected LDSV estimator is not easily operationalised. Blundell, Bond and Windmeijer (2000) argue that the poor performance of first-differenced GMM estimators could be due to the weakness of lagged levels as instruments and argue for the use of 'system' GMM estimators which in addition to lagged levels as instruments for equations in first-differences consider lagged differences of the dependent variables as instruments for equations in levels as proposed by Arellano and Bover (1995) and Blundell and Bond (1998).

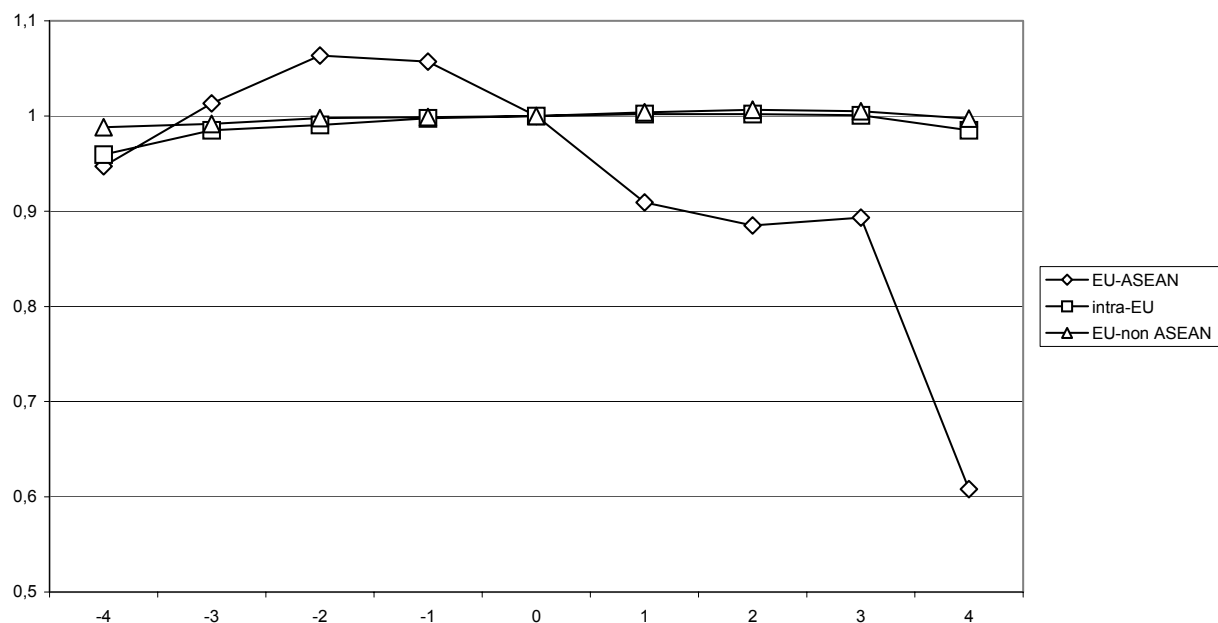
¹⁰ Standard International Trade Classification.

¹¹ http://www.oecd.org/document/18/0,2340,en_2649_34241_1906706_1_1_1_1,00.html

European Communities (using the CN classification) we converted the products to a 6-digit SITC revision 3 product category. Given the high level of product detail of the CN classification this implies that a substantial number of distinct products within a given SITC revision 3 product class may not be subject to any AD measure. For those AD investigations targeting ASEAN countries that resulted in some AD measure being imposed by the EU in the period 1991-2001 Table A.1 (appendix) lists the ASEAN countries that were targeted, the CN code and the SITC Revision 3 code that we linked to it, the year the investigation started and the year the AD measure was imposed. In almost all cases the AD measures imposed was an ad-valorem duty. As mentioned before, price undertakings are apparently not a popular tool in EU-ASEAN antidumping procedures.

For each individual AD case we constructed a time series of imports starting four years before an AD measure was imposed ($t = -4$) until four years after the measure was imposed ($t = +4$). In Figure 3 the natural logarithm of EU imports (values) from targeted ASEAN countries, from other EU countries and from non-targeted non-ASEAN countries is shown for the period starting four years before an AD measure was imposed until four years after the imposition. The values for the year when the measure was imposed ($t = 0$) have been set to 1 and the figure shows the average indexes (relative to $t = 0$) over all considered AD cases. The imports from targeted ASEAN countries appear to increase substantially in the third and second year before the imposition of an AD measure. However, in the year before a measure is imposed the imports apparently fall slightly. This could indicate an “investigation effect” (e.g. Staiger and Wolak, 1994), i.e. the mere opening of an AD investigation reducing imports from countries targeted in the investigation. For most AD investigations there appears to be a lag of two years between the start of an investigation and the imposition of an AD measure (see Table A.1).

Figure 3: Trends in imports in the four years before and the four years after AD measures targeting ASEAN countries were imposed (1991-2001)



Note: the figure shows the trend in the natural logarithm of import values relative to the base year ($t = 0$) in which the AD measure was imposed.

After the AD measure is imposed imports from targeted ASEAN countries drop substantially, apparently also four years after the measure is imposed.

The imports from other EU countries and non-ASEAN countries slightly increase in the years before the AD measure and further increase slightly afterwards. At first sight the figure does not seem to indicate substantial trade diversion, although one should keep in mind that the values of imports from other EU countries and non-ASEAN countries are far higher than the values of imports from ASEAN countries.

In Table 4 we report the results of two alternative estimations of specification (1) with the natural logarithm of the value of imports as dependent variable. The first two columns list the results of a fixed effects estimation, using individual time dummies for the year that an AD measure is imposed and each of the three following years after and alternatively interacting these dummies with the level of the AD duty. As mentioned before a fixed effects estimator is biased due to the presence of a lagged dependent variable. We therefore also performed a GMM estimation, first-differencing (1) and using lagged values of the levels to instrument, as in Prusa (2001). The results of this estimation are reported in the third and the fourth column.

As in Prusa (2001) the coefficients of the Instrumental Variable (IV) estimation are less significant than the coefficient estimates of the fixed effects estimation which is an indication of the smaller variance of fixed effects estimators relative to IV estimators as pointed out by Kievit (1995). The fixed effects estimator is however likely to suffer from a bias. Both alternative estimations indicate a significant negative impact of AD measures (duties) in the year that an AD measure is imposed and the two following years. For the third year after the AD measure is imposed the effect is not very significant or even positive (insignificant) in the IV estimation¹².

Following the second column a 10 % AD duty decreased the value of EU imports from targeted ASEAN countries by 1.6 % in the year that the duty is levied and by 2.7 % in the year after. The results are robust to the inclusion of year dummies (capturing aggregate macroeconomic shocks), the number of countries named (mostly insignificant), some control variables (GDP growth) and the sequential suppression of one observation (to account for possible outliers). A first order auto-regression (AR(1)) estimation suggests that there is substantial first-order auto-regression. The AR(1) estimates¹³ of the impact of an AD duty are somewhat higher than the plain fixed effects estimates with a 10 % AD duty decreasing the value of EU imports from targeted ASEAN countries by 2.0 % in the year that the duty is levied and by 3.3 % in the year after. In contrast with the findings of Brenton (2001) for EU anti-dumping cases in the period 1989-1994 we do find a significant negative impact of the size of an AD duty on the value of imports from targeted ASEAN countries. Using a similar specification as Brenton (2001) we find that a 10 % AD duty overall decreases the value of EU imports from targeted ASEAN countries by 1.2 %.¹⁴

¹² A dummy capturing the impact of AD measures after four years is mostly insignificant.

¹³ The results of the AR(1) estimation are not reported but available upon request.

¹⁴ The results of this estimation are available upon request.

Konings, Vandenbussche and Springael (2001) also find a significant impact of the size of an AD duty on the imports from countries targeted by EU anti-dumping measures in the period 1985-1990. A spline regression, i.e. a regression in which the slope coefficient can differ for different sub-periods to account for possible structural change (e.g. Greene 2000: p.322), shows a significant decrease in the positive time trend of EU imports from targeted ASEAN countries if the year before the AD duty is imposed is taken as the threshold. This seems to support the “investigation effect” pointed out by e.g. Staiger and Wolak (1994). The fact that an AD case is opened (i.e. usually one to two years before a measure is imposed) is apparently sufficient to slow down the rise in imports from targeted countries, as can also be seen in figure 3¹⁵.

Table 4: Alternative estimations of the impact of AD duties on the value of EU imports from targeted ASEAN countries (1991-2001)

ln imports, t				
	Fixed effects		Instrumental variables	
ln imports, t-1	0.83 (12.66) ***	0.83 (12.85) ***	0.49 (2.45) **	0.41 (1.86) *
dummy t0	-0.53 (-5.42) ***		-0.14 (-1.83) *	
dummy t1	-0.90 (-3.64) ***		-0.46 (-4.02) ***	
dummy t2	-0.48 (-2.32) **		-0.53 (-2.14) **	
dummy t3	-0.22 (1.71) *		0.16 (.82)	
dummy t0* ln duty		-0.16 (-5.36) ***		-0.04 (-1.50)
dummy t1* ln duty		-0.27 (-3.58) ***		-0.14 (-4.09) ***
dummy t2* ln duty		-0.14 (-2.06) **		-0.17 (-2.16) **
dummy t3* ln duty		-0.07 (-1.78) *		0.03 (.52)
number of observations	197	193	145	141
R ² adjusted	0.89	0.89	-	-

Note: The first two columns report the results of a Least Squares Dummy Variable (fixed effects) estimation and the last two columns the results of a GMM estimation of a specification in first differences with lagged values of the levels of the dependent variables used to instrument. Heteroskedastic consistent t-values are shown in brackets. *, **, *** denotes significance at respectively 10%, 5% and 1%.

In Table 5 we report the results of an instrumental variable estimation¹⁶ with respectively the quantity, the unit value and the shares of imports from targeted ASEAN countries as dependent variable.

¹⁵ When a dummy for t-1 is included in a fixed effects or IV estimation the coefficient is not significant.

¹⁶ In principle this estimation is not biased due to the presence of the lagged dependent variable and the inference on statistical significance is more conservative. The results of fixed effects estimations provide similar results.

Table 5: Instrumental variable (IV) estimation of the impact of AD duties on the quantity, unit value and shares of EU imports from targeted ASEAN countries (1991-2001)

	ln imports, t (quantity)		ln imports, t (unit value)		ln imports, t (import shares)	
ln imports, t-1	0.60 (2.77) ***	0.54 (2.31) **	-0.26 (-0.80)	-0.37 (-1.05)	0.41 (0.96)	0.42 (1.06)
dummy t0	-0.17 (-2.05) **		0.01 (0.71)		-0.13 (-1.59)	
dummy t1	-0.39 (-3.33) ***		-0.04 (-1.37)		-0.44 (-3.28) ***	
dummy t2	-0.63 (-2.38) **		0.11 (1.97) **		-0.76 (-2.22) **	
dummy t3	0.32 (1.56)		0.04 (0.63)		0.10 (0.31)	
dummy t0* ln duty		-0.05 (-1.77) *		$0.5 \cdot 10^{-2}$ (0.67)		-0.04 (-1.15)
dummy t1* ln duty		-0.12 (-3.59) ***		$-0.9 \cdot 10^{-2}$ (-0.92)		-0.14 (-3.28) ***
dummy t2* ln duty		-0.20 (-2.35) **		0.04 (1.96) **		-0.24 (-2.18) **
dummy t3* ln duty		0.08 (1.24)		0.02 (0.79)		0.03 (0.29)
number of observations	145	141	145	141	117	113

Note: The table lists the results of a GMM estimation of a specification in first differences with lagged values of the levels of the dependent variables used to instrument, with the dependent variable respectively the quantity, the unit value price and the shares of EU imports. Heteroskedastic consistent t-values are shown in brackets. *- ** -*** denotes significance at respectively 10%, 5% and 1%.

Table 6: Fixed Effects and IV estimations of the impact of AD duties on the value of EU imports from non-targeted countries (1991-2001)

	Intra-EU				EU- non-ASEAN			
	ln imports, t				ln imports, t			
	Fixed effects		Instrumental variables		Fixed effects		Instrumental variables	
ln imports, t-1	0.18 (1.25)	0.17 (1.24)	0.22 (1.30)	0.22 (1.28)	0.83 (21.59) ***	0.83 (21.50) ***	1.23 (2.99) ***	1.14 (3.09) ***
dummy t0	0.09 (2.69) ***		0.08 (3.34) ***		-0.02 (-0.87)		-0.10 (-1.90) *	
dummy t1	0.11 (2.62) ***		0.01 (0.43)		0.02 (0.98)		-0.4 10 ⁻² (-0.15)	
dummy t2	0.11 (1.96) *		0.03 (1.06)		0.02 (1.06)		0.03 (1.59)	
dummy t3	0.09 (1.79) *		-0.5 10 ⁻² (-0.25)		-0.03 (-1.20)		-0.02 (-0.56)	
dummy t0* ln duty		0.03 (2.74) ***		0.03 (4.51) ***		-0.5 10 ⁻² (-0.79)		-0.03 (-2.19) **
dummy t1* ln duty		0.04 (2.60) ***		0.4 10 ⁻² (0.42)		0.7 10 ⁻² (1.27)		0.1 10 ⁻² (0.19)
dummy t2* ln duty		0.04 (2.03) **		0.8 10 ⁻² (0.98)		0.7 10 ⁻² (1.02)		0.01 (1.93) *
dummy t3* ln duty		0.03 (2.01) **		0.1 10 ⁻² (0.16)		-0.9 10 ⁻² (-1.25)		-0.5 10 ⁻² (-0.55)
number of observations	159	155	117	113	158	154	116	112
R ² adjusted	0.97	0.97	-	-	0.99	0.99	-	-

Note: see table 4.

Anti-dumping measures clearly have a more substantial impact on the quantity of imports than on unit value prices, a result that is also found by Prusa (2001) for the US and Brenton (2001) for the EU.

The finding that for the US anti-dumping cases result in large reductions of import quota but rather small (and often not statistically significant) increases in prices leads Prusa (2001) to conclude that (US) industries that ask for an AD investigation may be more interested in reducing import competition than in import prices that reflect “fair” pricing, though this appears to apply more for AD cases that are settled than for cases that result in duties. AD duties significantly decrease the import shares of targeted ASEAN countries in the first and second year after the duty is imposed.

To estimate the impact of EU anti-dumping measures targeting ASEAN countries on the imports from non-targeted countries we gathered data from the OECD International Trade by Commodities Statistics on bilateral trade flows between EU countries (intra-EU) and between EU countries and non-targeted countries. The results of a fixed effects and an instrumental variable estimation for a specification with the value of intra-EU respectively EU-non ASEAN imports as dependent variable are reported in Table 6.

Imposing AD duties has a positive impact on intra-EU imports though the effects are small and not significant in all specifications (i.e. only significant in t_0 in the instrumental variable estimation)¹⁷. For imports between the EU and countries that are not targeted by the AD measures there is even less evidence of trade diversion. The IV estimation even suggests a rather unlikely significant negative impact in the year that an AD duty is levied. When only considering ASEAN countries that are not targeted by an AD measure by the EU against another ASEAN country or group of ASEAN countries there are no significant effects. Our results on trade diversion are in contrast with the findings by Brenton (2001) who concluded that EU anti-dumping policy causes trade diversion especially in favour of non-EU suppliers. Our results seem more in line with the weak indications of any trade diversion due to EU anti-dumping measures found by Konings, Vandenbussche and Springael (2001).

6. Conclusions

In the 1980s and 1990s anti-dumping (AD) measures were increasingly imposed by many countries worldwide. In principle anti-dumping policies aim at countering unfair import competition, but strategic and protectionist motives can probably explain part of the surge in AD cases that are opened and concluded at a time when the consecutive GATT Rounds substantially reduced tariff barriers. Recently, developing countries have joined the club of the more traditional users of the AD policy instrument, in opening anti-dumping investigations against developed countries and other developing countries. Given the low transparency and the easy applicability, anti-dumping measures are by now probably the most important non-tariff barriers.

¹⁷ The possible positive impact of anti-dumping measures on the output level of domestic industries can unfortunately not be estimated.

In this paper we have estimated the impact of anti-dumping (AD) measures imposed by the European Commission against ASEAN countries in the 1990s, a period in which ASEAN countries were a popular target of AD investigations in the EU. Apparently these measures have significantly reduced the value and volume of EU imports from the targeted countries without much diversion of trade flows towards non-targeted countries. If the impact on the output of domestic industries, which unfortunately could not be estimated, was also limited this would suggest that AD measures targeting ASEAN countries simply reduced imports from these countries without other substantial effects.

The size of AD duties has had a significant negative impact with a 10 % AD duty decreasing imports from targeted ASEAN countries by 1 up to 3 % in the years following the imposition of a duty. AD measures had a more substantial impact on the total value and volume of imports than on unit value prices which furthermore indicates that the measures reduce the volume of imports rather than increase the “unfair” prices of the dumping countries.

There seems to be some ground for a serious debate in the current Doha Round on the “unfair” use of anti-dumping policies as an instrument to raise non-tariff barriers to international trade competition. Given the increased popularity of AD policies by developing countries, developed countries have a clear interest in this debate to avoid that the protectionist use of AD measures simply results in an overall reduction of international trade and welfare.

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APPENDICES

Table A.1: Anti-dumping measures by the EU targeting ASEAN countries in the period 1991-2001

Targeted Country	CN Code (Combined Nomenclature)	SITC Rev. 3 Code (Standard International Trade Classification)	Product definition SITC Revision 3	Investigation	Imposed
Singapore	8423 81 50 10	745.31	Weighing machinery (excluding balances of a sensitivity of 5 cg or better, personal weighing-machines and household scales), including weight-operated counting and checking machines	1992	1993
Indonesia	6404 19 90 90	851.51	Other footwear, with uppers of textile materials with outer soles of rubber or plastics	1995	1997
Indonesia	6402 99 98 90	851.32	Other footwear with outer soles and uppers of rubber or plastics	1995	1998
Thailand	6403 99 93 90 6403 99 96 90 6403 99 98 90	851.48	Footwear with outer soles of leather	1995	1998
Indonesia	8523 20 90 40	898.51	Magnetic discs	1995	1998
Malaysia				1994	1996
Malaysia	8516 50 00	775.86	Microwave ovens; other ovens; cookers, cooking plates, boiling rings, grillers and roasters	1993	1996
Thailand				1993	1996
Malaysia	8517 21 00 00	764.1	Electrical apparatus for line telephony or line telegraphy (including such apparatus for carrier-current line systems)	1997	1998
Singapore				1997	1998
Thailand				1997	1998
Indonesia	5402 33 10	651.52	Synthetic filament yarn (other than sewing thread), textured, not put up for retail sale, including monofilament of less than 67 decitex of polyester	1994	1996
Malaysia	5402 33 90			1994	1997
Thailand	5402 33 00			1994	1996
Malaysia	ex 8305 10 00	895.12	Fittings for loose-leaf binders or files, letter clips, letter corners, paper-clips, indexing tags and similar office articles, of base metal; staples in strips (e.g., for offices, upholstery, packaging), of base metal	1995	1997
Indonesia	6305 32 81 00	658.13	Sacks and bags, of textile materials, of a kind used for the packing of goods of man-made textile materials	1995	1997
Thailand	6305 33 91 00 3923 21 00 10 3923 29 10 10 3923 29 90 10	893.11	Articles for the conveyance or packing of goods, of plastics; stoppers, lids, caps and other closures, of plastics, sacks and bags (including cones)	1995	1997
Malaysia	7318 12 10	694.21	Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers (including spring washers) and similar articles, of iron or steel threaded	1996	1998
Thailand	7318 14 10 7318 15 30 7318 15 51 7318 15 61 7318 15 70 7318 16 30			1997	1998

Table A.1: continued

Targeted Country	CN Code (Combined Nomenclature)	SITC Rev. 3 Code (Standard International Trade Classification)	Product definition SITC Revision 3	Investigation	Imposed
Malaysia	8528 12 52 11	761.1	Television receivers, colour (including video monitors and video projectors), whether or not incorporating radio-broadcast receivers or sound- or video-recording or reproducing apparatus	1992	1995
Thailand	8528 12 54 10			1992	1995
Singapore	8528 12 56 10			1992	1995
	8528 12 58 10				
	8528 12 62 11				
	8528 12 62 92				
	8528 12 66 10				
	8528 10 52 10				
	8528 10 54				
	8528 10 56				
	8528 10 58				
	8528 10 62 10				
Thailand	7307 93 11 91	679.59	Tube and pipe fittings of iron or steel	1994	1996
	7307 93 11 99				
	7307 93 19 91				
	7307 93 19 99				
	7307 99 30 92				
	7307 99 30 98				
	7307 99 90 92				
	7307 99 90 98				
Indonesia	8712 00	785.2	Bicycles and other cycles (including delivery tricycles), not motorised	1994	1996
Malaysia				1994	1996
Thailand				1994	1996

Source: The Official Journal of the European Communities and The Annual Reports from the Commission to the European Parliament on the Community's Anti-Dumping and Anti-Subsidy Activities.