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Araştırma Makalesi / Research Article

An Emerging Factor in Turkish Anti-Dumping Policy: Additional Customs Duty*

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Abstract

The purpose of this study is to explain the determinants of anti-dumping investigations in Turkey, which is one of the most frequent users of anti-dumping investigations among World Trade Organization (WTO) members. Following rising global protectionism after 2012, the implementation of new measures gained prominence among many countries. Most notable of these new changes is the extensive use of Additional Customs Duty (ACD) in Turkey. The study examines this policy tool for the first time in the literature regarding anti-dumping determinants. Negative binomial regression models used for 1989-2019 period to illustrate different variables such as retaliation motives, deterioration in trade deficit, productivity of the manufacturing sector and real GDP growth as important factors affecting investigative efforts. The findings indicate that certain protectionist motives matter more in anti-dumping investigations rather than unfair competition dynamics. Thus, ACD policy seems to keep its importance to reduce anti-dumping investigation initiations against some countries over time.

Keywords: *Türkiye, Anti-Dumping, Additional Customs Duty, Trade policy,*

Türk Anti-Damping Politikasında Yükselen Yeni Bir Faktör: İlave Gümrük Vergisi

Öz

Bu çalışmanın amacı Dünya Ticaret Örgütü (DTÖ) üyeleri arasında anti-damping soruşturmalarını en sık kullanan ülkelerden biri olan Türkiye'de anti-damping soruşturmalarının belirleyicilerini açıklamaktır. 2012 yılından sonra dünyada artan korumacılık önlemlerinin ardından Türkiye de İlave Gümrük Vergilerini (İGV) yaygın olarak kullanmaya başlamıştır. Çalışmada anti-damping belirleyicileri incelenirken bu politika aracı literatürde ilk defa dikkate alınmaktadır. 1989-2019 dönemi için çeşitli makroekonomik göstergelerden oluşan bir veri setini birleştiren araştırmada Negatif Binom Regresyon modelleri kullanılmıştır. Analiz bulguları, misilleme motivasyonları, dış ticaret açığındaki bozulma, imalat sektörünün verimliliği ve reel GSYİH büyümesi gibi farklı değişkenlerin damping soruşturmalarını etkileyen en önemli faktörler olduğunu göstermektedir. Bu sonuçlar Türkiye'de anti-damping soruşturmalarında haksız rekabet dinamiklerinden ziyade bazı korumacı motivasyonların daha baskın olduğunu ve İGV'lerin zamanla bazı ülkelere yönelik anti-damping soruşturma taleplerini azaltacağını ortaya koymaktadır.

Anahtar Kelimeler: *Türkiye, Anti-Damping, İlave Gümrük Vergisi, Ticaret Politikası.*

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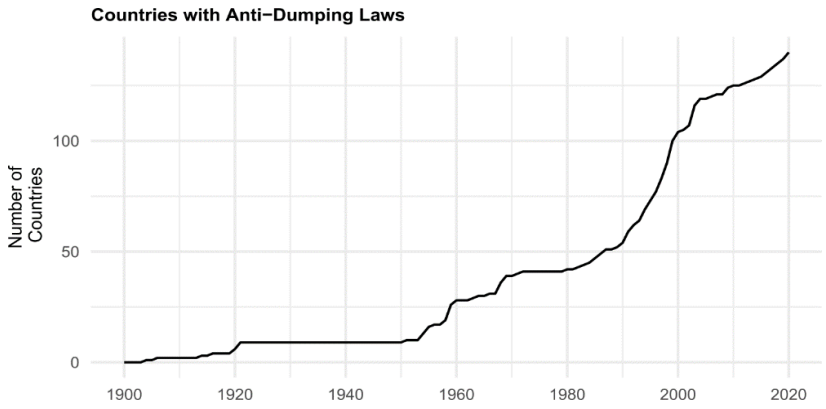
INTRODUCTION

Dumping is a well-known term in international economics and has the ability disrupt trade patterns and firm behavior. Formally defined by International Trade Commission, dumping or the sales of a good at less than fair value occurs when a firm exports a product at a price lower than the price it normally charges in its domestic market (International Trade Commission, 2007). Such an issue possesses risk both for domestic firms and workers. States act against dumping practices by launching firm-based investigations to protect domestic industries and prevent unfair trade practices.

Following the post-WTO era, a substantial change in the states employing anti-dumping investigations occurred. This is predominately due to the development of technical infrastructure provided by multinational trade scheme. World Trade Organization (WTO) framework standardized procedures which enabled developing states to initiate investigations and anti-dumping measures following the late 1990's. Figure 1- illustrates the number of countries that have imposed anti-dumping legislation since 1900. By 1980, 42 countries enforced anti-dumping laws and this number of states reached to 104 in 2000. As of 2020, 140 countries have anti-dumping regulations.[1]

Figure 1: Number of Countries with Anti-Dumping Laws



Source: Authors' update of the dataset of (Blonigen, 2016)

Historically, import policies have been vital area of concern in Turkey. As a developing country, various financial instruments have been implemented to overcome the problems of trade deficit and industrial policy. According to WTO statistics, between the period of 1996 and 2019, Turkey was ranked as the 10th country in the world which employed the most anti-dumping investigations (World Trade Organization [WTO], 2020). However, with the global surge in protectionist measures following 2012, additional measures were implemented with existing practices (Evenett & Fritz, 2015). Most notable change was the inclusion of Additional Customs Duties (ACDs) as a new trade policy instrument. Following its implementation in 2011, billions of dollars of 'additional' tariffs were enforced on textiles and apparel products from countries holding no preferential trade agreements with Turkey.

Considering this development, countries such as China, India, and other Asian countries which were previously targeted by anti-dumping investigations, have naturally become exponents of this new policy instrument. In contrast to an anti-dumping investigation, ACD

measures provide far greater advantages for policymakers in terms of cost efficiency and ease of implementation. They also provide protection for domestic producers and reduce pressure over policy makers stemmed from upsurging imports. Therefore, it could be postulated that these two measures compliment and substitute each other to a varying degree. In other words, both in domestic producers' and policy makers' perspective, ACDs provide practically similar results with less efforts compared to anti-dumping measures.

In this study, special attention will be paid to some country specific factors and a comprehensive account of ACD will be provided. For this purpose, detailed imports statistics both for ACD and anti-dumping are prepared by using tariff lines (namely 12 digits GTIP in Turkish practices). The study is the first one identifying ACD among the determinants of anti-dumping decisions and the imports statistics are computed for the first time for ACD coverage since its implementation.

Another contribution is updating and correction of data pertaining to Turkey on the Global Anti-Dumping Database (GAD). Inconsistencies are adjusted by comparisons with original Communiques published in Turkish Official Gazette.

In addition to such improvements in the data and the inclusion of ACD into the analysis, this study also aims to stimulate empirical inquiries in the rising global protectionist environment especially for developing countries regarding anti-dumping investigations. Turkey as a developing country which has multidimensional trade structure and agreements with different trading blocs may provide a convenient starting point for this purpose.

Following this brief Introduction, Section 1 provides a background on ACDs. Section 2 gives a summary of the related literature and Section 3 introduces empirical methodology for the determinants of dumping investigations in Turkish case. Last 2 sections depict the results and derives conclusion for further policy implications.

1. A NEW FACTOR IN TURKISH ANTI-DUMPING POLICY: ADDITIONAL CUSTOMS DUTY

Incorporation of the Customs Union with the EU and commitments to the WTO, prevents Turkey from autonomously setting tariffs. Thus, trade defense measures including dumping and safeguard measures have been the most frequently used instruments for protecting domestic industries. However, a new instrument under the name of additional customs duty was introduced in 2011. Since its implementation, both its weight in tax collection and intense usage has led it to be applied as a protectionist tool. Compared to anti-dumping and safeguard investigations, ACDs are fast and easy to apply in terms of operational procedures.

In 2011, textile and apparel industries requested additional measures on the grounds that current tariffs and trade defense measures were insufficient in safeguarding domestic production against upsurging imports.[2] Following the request, a safeguard investigation commenced and ACD measures were imposed for the first time with using safeguard policy. EU member states and other nations which hold a Free Trade Agreement with Turkey were excluded and it has also been clearly stated that taken measures cannot exceed the WTO commitments.[3] However, it is evident that imposing additional duties by excluding certain countries in advance, violates the WTO Safeguards Agreement. As a result, this new duty which was initially carried out as a typical safeguard measure shifted into a different form with subsequent implementations.

Although the first set of ACDs were result of an investigation, all the rest imposed by Decrees of the Council of Ministers (Presidential Decrees after 2017) without any investigation. By changing the implementation procedures, it has been aimed to eliminate the incompatibility with WTO legislation. Still, the design is origin based and the issue continues to be problematic in the context of WTO, EU, and Free Trade Agreements.

In addition, there are discussions in domestic law perspective that the additional duty cannot be accepted as tariff increase, and it has the nature of a new tax. Opponents advocate that the existing application is groundless, until a separate tax law is enacted with clear arrangements. Nevertheless, the legal dimension of the matter is beyond the scope of this study and ACDs will be examined with respect to their impacts on anti-dumping investigations.

Since 2011, 35 ACD decrees were introduced affecting almost every industry, with no application between the 2012-2014 period. By 2015 the frequency of Decrees substantially increased and ACDs emerged as the most frequently employed measure in Turkish imports policy. By 2020, ACD usage reached a new phase in the amount of imports volume covered, and agricultural products were also added to the scheme. The practicality of ACD measures has allowed to eliminate the pressure of imports over domestic industries by easier procedures. Therefore, there is an observable fall in anti-dumping file petitions by domestic industries after the adoption of ACDs.

2. LITERATURE REVIEW

The policy area of dumping practices and its different aspects have been subject to numerous empirical research. Studies examining different economic and political factors and their effects on the initiation of dumping investigations constitute one of the most important research areas in anti-dumping literature.

Hansen and Prusa (1997) focus on economic and politic factors which affect investigation initiation decisions in the US for manufacturing industries. The authors attempt to model the decision-making process of the investigation authority by using a comprehensive industry, import, and political pressure dataset. According to their findings, political pressure is emphasized as an important factor in the US case.

Aggarwal (2003) identifies the determining factors of dumping investigations by using macroeconomic, political and trade related variables. By using the panel data of 99 countries between 1980 and 2000, deterioration in balance of payments in developing countries, and macro-economic factors in developed countries are found to be more influential in initiation decisions.

Feinberg (2005) examines the macroeconomic factors that determine the anti-dumping file petition incentives of US domestic industries for 1981-1998. By comparing quarterly data of the macroeconomic state of the US economy with US firms' anti-dumping demand, the study finds positive relationship between real exchange rate and real GDP growth with anti-dumping file petitions.

Nielsen and Svendsen (2012) investigates the impact of lobbying activities in EU anti-dumping practices. The petitioners of an anti-dumping file, other firms in the same industry, civil society and non-governmental organizations are categorized as lobbyist, and their all type of efforts during each investigation process is defined as lobbying activity. The study recommends a measure of lobbying based on the theoretical foundations of public choice and indicates a

significant relationship between the domestic lobbying efforts and political position of the members in EU.

China is the country that faces the most anti-dumping investigations around the world. Li (2018) investigates the determinants of anti-dumping investigations initiated against China by using a detailed country-industry data and Probit model. It is concluded that geographical distance cause less anti-dumping investigations against China, but increase of trade volume, GDP per capita, population, exchange rate, accession to WTO and financial crises rise the number of investigations.

Feinberg and Reynolds (2018) examines global anti-dumping filings in post-WTO era about retaliation motives. The study evaluates the response of the targeted countries after an anti-dumping investigation whether to stay inactive, retaliate or take the case to WTO Dispute Settlement Mechanism (DSM). Evidence of generalized behavior pattern is found depending on the income level of the initial anti-dumping investigator country. Countries are less likely to retaliate with a new anti-dumping investigation against wealthier countries and DSM is a more applicable option in such circumstances.

Firme and Vasconcelos (2020) analyzes developing and developed countries and illustrate that foreign income growth, domestic income, currency devaluation, current account surplus and reduction in imports are the factors in decreasing AD cases. Metal, chemical, and plastic products are found to be target of more AD investigations. The countries with higher income levels are likely to initiate more AD investigations and retaliation motives are quite significant among the determinants of anti-dumping investigations.

Ba and Coleman (2021) discusses anti-dumping decisions and evaluate protection demand in a de-industrialized world and integrated supply chains environment. It investigates the de-industrialization dynamics in anti-dumping petitions using a sample size of 34 industrialized and middle-income countries from 1978-2015. According to the findings, real exchange rate fluctuations and retaliation motives affect demand for anti-dumping protection.

Turkey has also been subject to various analyses and econometric models. Most of these studies are extensions of Aggarwal (2003) and basically focus on macroeconomic indicators in determining the initiation of anti-dumping investigation decisions and none of them attempt to measure the impact of ACD in anti-dumping dynamics.

Disbudak and Turkcan (2005) is one of the earliest studies analyze anti-dumping initiations of Turkey from 1995 to 2003 by using a negative binomial model. GDP and imports growth rates are found to be statistically significant factors in anti-dumping investigations and Turkish AD investigations are essentially affected by macroeconomic variables.

Another noteworthy study is conducted by Avşar (2014) which uses some explanatory variables of Aggarwal (2003) including total employment of the industry, the percentage change in the total production of the industry and the percentage change in imports of that industry. It is concluded that the size of the local industry, the decrease in its production level and the increase in imported products of the same industry raise the number of AD investigations.

In another study, Özer and Erkal (2016) analyzes the relationship between the number of AD investigations and macroeconomic indicators between 1989-2011. Import growth, domestic and foreign growth, and real exchange rates are the explanatory variables. According to the

results, all these variables except for REER is found to be statistically significant in Turkey's AD investigations.

In a recent study Kaplan and Türkcan (2020) uses domestic and foreign real GDP growth rates, import share of the country subject to AD investigation in Turkey's total imports, share of Turkish exports to the country subject to AD investigation in Turkey's total exports, and reciprocal REER as the explanatory variables. They find that all these variables except for REER and Turkey's GDP growth are statistically significant in Turkey's AD initiations. The general outline of the related literature is given in Table 1.

In this study, various macroeconomic and trade related factors which have been found as significant determinants of anti-dumping investigations by the related literature are elaborated with respect to Turkish practices. As mentioned before, the impact of newly introduced ACD policy has not been examined yet in Turkish case and the aim of the study is to incorporate this new policy into the analysis.

Table 1: General Outline of Some Empirical Studies

Study	Time – Country	Methods	Results
Hansen and Prusa (1997)	1980-1988 US	Probit	Besides economic indicators, political pressure also affect investigation initiation in the US. The "name" of the targeted country and its market share in the domestic market are also significant factors.
Agarwal (2003)	1980-2000, 99 countries	Negative Binomial	Trade deficit and average tariff rates in developing countries; macroeconomic imbalances in developed countries are significant in AD initiations. Retaliation and past investigations against a certain country are also significant in both groups.
Feinberg (2005)	1981-1998, 15 countries	Negative Binomial	Real exchange rate and real GDP growth rate are significant determinants of AD file petitions.
Disbudak and Turkcan (2005)	1995-2013 Turkey	Negative Binomial	GDP and import growth rates are found statistically significant. Real exchange rate and GDP growth of the trading partner is not significant in Turkish anti-dumping initiations.
Nielsen and Svendsen (2012)	1995–2004 EU-15	Public Choice	Domestic lobbying activities cause changes in political position of member states in EU anti-dumping decision making process.
Avşar (2014)	1992-2008 Turkey	Negative Binomial	Size of the domestic industry, fall in its output and rising domestic competition due to surging imports cause increase in anti-dumping investigations.
Özer and Erkal (2016)	1989-2011 Turkey	Negative Binomial	Import growth rate of Turkey, and the GDP growth rates of 10 trading country which are subject to most Turkish anti-dumping investigations, positively effect investigation initiations. Turkey's GDP growth rate is also found statistically significant that negatively affects anti-dumping initiations.
Li (2018)	1997-2013, 20 countries	Probit	Exports, GDP per capita, population, nominal exchange rate, WTO accession, financial crises, and geographical distance are found statistically significant factors in anti-dumping initiations against China.
Feinberg and Reynolds (2018)	1995-2011 42 countries	Probit	In addition to the macroeconomic determinants of petitioning, retaliation is also found to be statistically significant. The income level of the dumping initiating country is found to affect the decision of respondent country.
Firme and Vasconcelos (2020)	1995-2013 46 countries	Poisson-Negative Binomial	A negative relationship is detected between anti-dumping cases and fall in imports, GDP growth, devaluation of the currency or improvements in current account balance.
Kaplan and Türkcan (2020)	1997-2017 Turkey	Negative Binomial	Real GDP growth rates of the country subject to AD investigation, its import share in Turkish total imports and share of Turkish exports to that country in overall exports found to be statistically significant in determining the number of AD investigations.
Ba and Coleman (2021)	1978-2015, 34 countries	Negative Binomial	Changes in exchange rates and effect of retaliation motives are found to be important elements behind anti-dumping investigations. Deindustrialization in advanced economies is also found as an emerging factor for anti-dumping demand.

3. EMPIRICAL METHODOLOGY

As an explanatory variable, initiated anti-dumping investigation is discrete count data. Therefore, choice of econometric model is highly dependent on this nature of the explanatory variable. Normal distribution of the error term is one of the basic assumptions of OLS regression and count data generally violates this assumption. Homoscedasticity assumption and non-negativity of the dependent variable are other problems in discrete variables. Thus, alternative methods are needed to be employed and count data may be estimated with Poisson-based regression techniques. Poisson (log-linear), negative binomial and zero inflated negative binomial regression are the general techniques widely used in determinants of anti-dumping initiation studies.

Cameron and Trivedi (2013) defines event count in its simplest form as the conditional mean of dependent variable which is restricted to be a non-negative random variable and depends on some vector of explanatory variables. Broadly, this is a nonlinear generalization of linear model but correct specification of mean and variance requires special attention. When the discrete random variable, Y, has Poison distribution with intensity parameter μ where μ>0 and t is a particular time or space unit of observation then it has density:

$$Pr[Y = y] = \frac{e^{-\mu t}(\mu t)^{y}}{y!},\ y = 0,1,2,\ldots.\ where\ E[Y] = V[Y] = \mu t \quad (1)$$

Accordingly, Poisson distribution is the probability distribution of a given number of independent events in an exposure with an average rate. If the length of t is set to unity, then the exposure independent distribution is obtained. It is positively skewed and assumes the mean and variance of the distribution are equal.

In a time series count data analysis with Poisson regression model, given the vector regressors of $\mathbf{x_t}$, regressand $\mathbf{y_t}$ is independently Poisson distributed with density:

$$f(y_t|\ x_t\ ) = \frac{e^{-\mu_t}\ {\mu_t}^{y_t}}{y_t!},\ y_t = 0,1,2,\ldots \quad (2)$$

and mean parameter is $\mu_t = exp(\mathbf{x_t'\beta})$ where $\boldsymbol{\beta}$ is a $kx1$ parameter vector. Mean parameter is estimated by maximum likelihood methods. Since, $\log(\mu_t) = \mathbf{x_t'\beta}$, the log in this equation is the link function used by most generalized linear models. It ensures the non-negativity of the mean which is aimed by count data.

Poisson regressions as the benchmark model have quite limiting requirement of mean and variance equity (equidispersion assumption) which is not common in real world circumstances. Over-dispersion (variance exceeding mean) or under-dispersion (mean exceeding variance) are more common cases compared to equidispersion. Thus, negative binomial and zero inflated negative binomial regressions are designed to be other alternatives. Negative Binominal Regressions are extension of Poisson regression family. Mean structure does not change but over-dispersion is controlled by an extra parameter called dispersion parameter. It allows variance to exceed mean and its distribution is as follows:

$$Pr(y_t|\ \mu_t,\ v_t) = \frac{\Gamma(y_t+v_t)}{y_t!\Gamma(v_t)}\left(\frac{v_t}{v_t+\mu_t}\right)^{v_t}\ \left(\frac{\mu_t}{v_t+\mu_t}\right)^{y_t} \quad (3)$$

The v_t parameter captures the level of overdispersion. The conditional mean is $E[y_t|x_t] = \mu_t = \exp(x_t\beta)$ and the conditional variance is:

$$V(y_t \mid x_t) = \mu_t \left(1 + \frac{\mu_t}{v_t}\right) = exp(x_t\, \beta) \left(1 + \frac{exp(x_t\, \beta)}{v_t}\right) \quad (4)$$

To identify this variance, we assume the heterogeneity parameter v_t constant across all observations. Then $V(y_t \mid x_t) = \mu_t + \left(\frac{{\mu_t}^2}{v_t}\right)$. As v_t gets larger dispersion dissappears and the variance converges to the mean.

Zero-inflated Poisson (ZIP) regressions are other type of extensions designed for count data that includes excess of zero counts. The main idea of ZIP is modeling two alternative outcome sets separately. In one set (S1) the outcome is always a zero and in the other (S2) the counts follow a standard Poisson process. Let's assume $Pr[y_t \in S_1] = \omega_t \;\; Pr[y_t \in S_2] = 1 - \omega_t \;\; and\; t = 0,1,2, \dots, n$. Then,

$$Pr[y_t = 0] = \omega_t + (1 - \omega_t) exp(-\mu_t)\; and\; Pr[y_t = r] = (1 - \omega_t) exp(-\mu_t) \frac{{\mu_t}^r}{r!} \quad (5)$$

where r=1,2…

As before, covariates enter the model through the conditional mean, μ_t, of the Poisson distribution and $\mu_t = exp(\mathbf{x_t'\beta})$ where $\boldsymbol{\beta}$ is a $kx1$ vector of coefficients. In this set up, $E[y_t|x_t] = (1 - \omega); V(y_t \mid x_t) = (1 - \omega_t)(\mu_t + \omega_t {\mu_t}^2)$ and over-dispersion is subject when $\omega_t > 0$.

4. MODEL SPECIFICATION

The aim of the study is to reveal the main determinants of the AD Investigations initiated by Turkey between 1989-2019. For this purpose, some macroeconomic variables of Firme and Vasconcelos (2020) and Ba and Coleman (2021) are used with adaptations to Turkish case. Since the explanatory variable is count data, the econometric methods that can be used to find out the factors behind anti-dumping initiations is quite limited. Thus, the same econometric model, negative binomial model, is used as all other similar studies.

In determining the factors that affect anti-dumping initiations, macroeconomic variables such as Turkey's real GDP growth, real 502ort he502 rate, imports growth, trade deficit to GDP rate, manufacturing value added as of GDP, and imports penetration rate will be utilized.

In addition, the impact of newly introduced ACD policy over AD investigations, retaliation measures, formerly initiated anti-dumping investigations and financial crises are also analyzed as explicit factors.

$AD_t = f\left(AD_{t-k}, Y^g_{t-k}, e_{t-k}, M^g_{t-k}, TD^{GDP_{t-k}}_{t-k}, MVA^{GDP_{t-k}}_{t-k}, ACD^{M_{t-k}}_{t-k}, ImpPen_{t-k}, Ret_{t-k}\right)$ where $k = (0,1,2 \dots)$ and is lag of the variables.

It is widely emphasized in the literature that as the economic activities slow down, protection demand of the domestic industries rises. Conversely, a positive relationship is anticipated between the number of AD investigations and increase in imports (Aggarwal, 2003). Similarly, a retaliation motive is also expected to cause more AD investigations for a given country (Kaplan & Turkcan,2020). Trade deficit to GDP ratio and import penetration rate are also expected to move in the same direction with AD investigations. However, the relationship of initiated investigations with real GDP growth and real exchange rates remains ambiguous in the literature.

AD_{t-k} as the lag of AD investigations is in the function because the administrative capacity may be a factor in deciding to initiate new investigations. GDP variations are included in anti-dumping determination literature to control the effects of business cycles over anti-dumping demand of the industries. For this purpose, annual real GDP growth denoted by Y_{t-k}^{g} is used. e_{t-k} is CPI Based annual real exchange rate. Depreciation or appreciation of REER is closely related to imports and accepted as one of the most important determinants of imports and demand for protection. The level or growth of imports is expected to influence anti-dumping decisions via different channels. Thus, three different variables are included to control different aspects of import; M_{t-k}^{g} is annual growth of imports and ${TD_{t-k}}^{GDP_{t-k}}$ is trade deficit percentage to GDP. Import penetration ratio is a specification used in the in the literature to observe the impact of imports over domestic demand. According to OECD definition it is specified as:

$$ImpPen_{(t-k)} = 100 * \frac{M_{(t-k)}}{Y_{(t-k)} - M_{(t-k)} + X_{(t-k)}}$$

where Y_{t-k} is the output, M_{t-k} is the imports and X_{t-k} is the exports. Hence, the denominator of the equation is domestic demand.

${MVA_{t-k}}^{GDP_{t-k}}$ is manufacturing value added (% of GDP). Manufacturing activities are classified under ISIC divisions 15-37 and value added is the net output of an industry in World Bank National Accounts Data. The change of the manufacturing activities across time may be an explanatory variable to control anti-dumping expectations of the manufacturing industry. Intuitively, as the value-added increase (decrease) anti-dumping demand is expected to decrease (increase).

ACD is a relatively new instrument in Turkey's import policy as mentioned in previous sections. $ACD_{t-k}^{M_{t-k}}$ is a variable measures the percent of ACD-covered imports in total imports value.

In many studies, retaliation is widely accepted as one of the most important dynamics that substantially affects anti-dumping initiations. Thus, it is also explicitly included it in the analysis. Ret_{t-k} is the number of retaliated anti-dumping investigations.

Since the dumping investigations are initiated depending on past performances, the number of lags chosen is an important and frequently discussed issue in the literature. It is not specified in Turkish anti-dumping investigation initiations on which periods are taken as investigation and injury determination periods. These periods are included in the closing Communiqués in which the measures are publicized. Furthermore, they depend on case basis and due to these limitations, only first lags of the variables are incorporated. According to Aggarwal (2003) and Knetter and Prusa (2003), such a lag preference is adequate and applicable.

Prior to elaboration of the regression equations, it will be appropriate to check the data regarding over-dispersion as well. Number of initialed investigations AD_t shows a clear sign of over-dispersion with a mean 10.32 and variance 60.36. Since variance is 5.85 times the mean, negative binomial regressions for the analyses are used.

5. DATA

AD_t is the number of anti-dumping initiation in a given year and the is from updated GAD by using Turkish Official Gazette. Since 1989, all investigations carried out in GAD have been verified with published official gazettes. Especially in first 5 years of Turkish anti-dumping practices some discrepancies are observed between the original texts and WTO notifications. Since these notifications are the core source of GAD, some modifications and adjustments are made according to original texts in the Official Gazette.

Y_t^g is the annual real GDP growth of a given year t and taken from IMF International Financial Statistics (IMF,2021). e_t is CPI based annual real exchange rate and the data is utilized from Bruegel's real effective exchange rate (REER) database (Darvas, 2012). The database consists of a narrow index, examining 67 trading partners and is available from 1960 and that version is used in the analysis

M_t^g and ${TD_t}^{GDP_t}$ is computed from Turkish Statistical Institute (TUIK) Foreign Trade Statistics Database (TUIK,2021). The figures are based on current USD value of imports in this database and ${TD_t}^{GDP_t}$ is the percentage of trade deficit over GDP. GDP statistics is from World Bank's World Development Indicators (WDI) database in current USD (WB,2020).

${MVA_t}^{GDP_t}$ as the rate of manufacturing value added (% of GDP) is also available in WDI database (WB,2020). Turkey is among the countries which keeps this data since 1960.

In calculating $ImpPen_t$,imports and exports data of foreign trade statistics database of TUIK in current US dollar is used. The output data is obtained from WDI database in current USD.

Ret_t is calculated as the number of anti-dumping investigations launched by a country in which Turkey has also initiated investigation to that country at the same year. No order of precedence considered for this variable and the only criteria is both countries conducting anti-dumping investigations against each other at the same year. Since WTO statistics keep records of most countries' anti-dumping investigations against each other, they are mainly used as the source for this variable. However, they include the data for the period of 1995-2020. Thus, all the information in GAD and MoT statistics is combined to create a retaliation table for the period of 1989-1995.

$ACD_t^{M_t}$ is defined as the rate of protected imports value in year t ccompared to the total imports value of the same year. It is computed from the data of TUIK Foreign Trade Statistics Database (TUIK,2021).

ACD_t is a dummy variable that controls the existence of ACD measure in a given year. As the measure exist it takes the value of 1; and 0 otherwise.

$Crisis_t$ is a dummy variable that controls the financial crisis of Turkish economy. It takes value of 1 for 1994, 2000-01 and 2008; and 0 for the others. Descriptive statistics of the variables are given in Table 2.

Table 2: Descriptive Statistics of the Variables

Variable	vars	n	mean	sd	min	max	range	se
AD	1	31	10.323	7.769	0.000	32.000	32.000	1.395
Y_g	2	31	4.487	4.582	-5.800	11.200	17.000	0.823
e	3	31	78.967	15.477	52.725	106.748	54.024	2.780
M_g	4	31	10.943	21.118	-30.221	53.455	83.676	3.793
TD_GDP	5	31	-7.726	2.319	-12.630	-3.890	8.740	0.417
MVAD_GDP	6	31	18.629	2.542	15.054	23.122	8.068	0.456
ImPen	7	31	20.463	3.950	13.365	26.760	13.395	0.709
Ret	8	31	0.839	1.241	0.000	4.000	4.000	0.223
ACD_M	9	31	0.367	0.762	0.000	2.621	2.621	0.137
ACD	10	31	0.226	0.425	0.000	1.000	1.000	0.076
Crisis	11	31	0.129	0.341	0.000	1.000	1.000	0.061

6. RESULTS

ACDs are still a relatively new instrument but has gained momentum in recent years. Due to low number of observations, the first regression group was applied without considering ACD. In second group, ACD is also included with different controlling variables over anti-dumping investigations.

In selecting best fitted models, both zero inflated and negative binomial regressions are implemented. All the regressions provided in Tables 3 and 4 are negative binomial regressions due to their better performance compared to zero inflated models. The models in the last columns are best performing models based on AIC to explain the determinants of anti-dumping investigation initiations for the period of 1989-2019.

Table 3- presents seven models controlling various variables associated with different aspects of macroeconomic indicators, retaliation behavior and manufacturing sector's value-added characteristics.

In this group of models, explanatory variables of past year's investigations (AD_{t-1}), annual real GDP growth (Y_{t-1}^{g}), import growth (M_{t-1}^{g}), log of real exchange rate ($\log(e_t)$), trade deficit over GDP (${TD_{t-1}}^{GDP_{t-1}}$), retaliation (Ret_t), and financial crises ($CrisisDummy_t$) are positively correlated with initiation of anti-dumping investigations. Manufacturing value added over GDP (${MVA_{t-1}}^{GDP_{t-1}}$) and import penetration rate ($ImpPen_{t-1}$) have inverse relationship with new investigation initiations.

Contrary to expectations, AD_{t-1}has positive sign in all regressions but among many other iterations in different model specifications it is statistically significant only in Model 3.

Table 3: Regression Results without ACDs

	Number of Anti-Dumping Investigation Initiations in year t (AD_t)						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
AD_{t-1}	0.02	0.03	0.04*				
	(0.02)	(0.02)	(0.02)				
Y_{t-1}^{g}	0.001	0.07	0.02	0.09*	0.03	0.08*	0.09*
	(0.05)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
M_{t-1}^{g}	0.01						
	(0.01)						
$\log(e_t)$	0.20						
	(0.78)						
${TD_{t-1}}^{GDP_{t-1}}$		0.20*		0.30***		0.24*	0.30***
		(0.10)		(0.08)		(0.10)	(0.08)
${MVA_{t-1}}^{GDP_{t-1}}$		-0.15*	-0.15*	-0.16**	-0.24**	-0.21**	-0.15**
		(0.07)	(0.07)	(0.05)	(0.07)	(0.07)	(0.05)
Ret_t		0.40***	0.35***	0.34**	0.25*	0.34***	0.37***
		(0.11)	(0.10)	(0.11)	(0.10)	(0.10)	(0.10)
$ImpPen_{t-1}$		-0.05	-0.13*		-0.16**	-0.07	
		(0.06)	(0.05)		(0.05)	(0.06)	
$CrisisDummy_t$		0.02		0.20			
		(0.41)		(0.39)			
Constant	1.14	6.66**	6.81**	6.56***	9.62***	8.62***	6.72***
	(3.33)	(2.39)	(2.30)	(1.40)	(2.25)	(2.09)	(1.37)
Observations	31	31	31	31	31	31	31
LogLikelihood	-103.12	-94.02	-95.90	-95.62	-97.76	-95.26	-95.76
Θ	1.91**(0.61)	4.33*(1.74)	3.48**(1.28)	3.70**(1.43)	2.89**(1.00)	3.74**(1.42)	3.64**(1.39)
Akaike Inf.Crit.	216.24	204.03	203.81	203.24	205.52	202.52	201.52

Table 4: Regression Results with ACDs

	Number of Anti-Dumping Investigation Initiations in year t (AD_t)						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
AD_{t-1}	0.02	0.03					
	(0.02)	(0.02)					
Y_{t-1}^{g}	0.02	0.07*	0.09**	0.08*	0.08*	0.09**	0.09**
	(0.06)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)
M_{t-1}^{g}	0.004						
	(0.01)						
$\log(e_t)$	0.21						
	(0.78)						
$ACDDummyt$	-0.17				-0.22		-0.30
	(0.40)				(0.32)		(0.29)
${TD_{t-1}}^{GDP_{t-1}}$		0.21*	0.30***	0.26*	0.26*	0.30***	0.31***
		(0.10)	(0.008)	(0.10)	(0.10)	(0.08)	(0.08)
${MVA_{t-1}}^{GDP_{t-1}}$		-0.15*	-0.17**	-0.20**	-0.20**	-0.17**	-0.17**
		(0.07)	(0.05)	(0.07)	(0.07)	(0.05)	(0.06)
Ret_t		0.41***	0.37**	0.36***	0.35***	0.38***	0.36***
		(0.12)	(0.12)	(0.10)	(0.10)	(0.09)	(0.09)
$ImpPen_{t-1}$		-0.04		-0.05	-0.04		
		(0.07)		(0.07)	(0.06)		
$CrisisDummy_t$		0.003	0.10				
		(0.42)	(0.41)				
$ACD_{t-1}^{M_{t-1}}$		-0.08	-0.14	-0.10		-0.16	
		(0.17)	(0.17)	(0.18)		(0.16)	
Constant	1.11	6.49**	6.86***	8.26***	8.31***	6.96***	7.15***
	(3.32)	(2.42)	(1.43)	(2.16)	(2.08)	(1.38)	(1.44)
Observations	31	31	31	31	31	31	31
LogLikelihood	-103.06	-93.92	-95.29	-95.11	-95.03	-95.32	-95.22
Ɵ	1.92**(0.61)	4.37*(1.76)	3.78**(1.45)	3.80**(1.45)	3.87**(1.50)	3.76**(1.44)	3.85*(1.50)
Akaike Inf.Crit.	218.12	205.84	204.57	204.21	204.07	202.64	202.45

The investigations are conducted by limited human capital in predetermined time frames. In a general sense, it is expected that previous year's investigations to have negative effects on current year anti-dumping investigation initiations. However, the regression results display an opposite direction, but this result is not robust across different specifications.

According to many studies, the demand for anti-dumping protection rises during recession periods, similarly protectionist pressure increases when GDP growth is low or negative. However, the results do not verify such a relationship with respect to GDP growth. The sign on the coefficient of Y_{t-1}^{g} is positive in all models specified but statistically significant in only 3 of them. On the other hand, the coefficient of financial crisis is consistent with this expectation but not statistically significant. Similarly, real exchange rate has a positive sign, but it is not a robust factor in anti-dumping investigations. Its log of first lag to different regressions is also included but the result did not change, and its log level performed better.

Rather than import growth, trade deficit as a percentage of GDP is more important determinant of anti-dumping initiations. It is statistically significant in each model used as an explanatory variable. Retaliation motives also seem substantially important in Turkish case and in each of the model used it is statistically significant too.

Manufacturing value added as a percentage of GDP is another significant determinant of investigations and have a negative sign across all the models used. Despite its consistent negative relationship with the investigations, import penetration rate is statistically significant only half of them.

Table 4- shows the results of regressions when ACD is included with 2 different explanatory variables. Both control variables indicate a consistent negative relationship between ACD and anti-dumping investigations. As substitutes to each other, both variables are used in different models but none of them are statistically significant. Due to the relatively recent implementation period, more time is required to observe their long-term impacts on anti-dumping investigations. Still, consistent negative coefficients maybe evaluated as a signal for the need of persistent follow up in the near future.

In negative binomial regression, rather than the coefficients, the incident rate ratios (IRRs) are used for interpretation. IRR is exponentiated coefficients and the IRR value of a variable indicates how much a one percent change in this variable cause a change in the dependent variable while all other variables are constant.

The coefficients and IRRs of these selected models are provided in Table 5. As the IRRs indicate, 1 percent increase in real GDP growth is associated with 9 percent increase in AD investigations. This effect is more apparent both for trade deficit over GDP ratio and retaliation behavior. 1 percent increase in trade deficit over GDP and retaliation is accompanied by 35 and 45 percent increase in dumping investigations respectively.

However, one percent increase in manufacturing value added over GDP causes 14 percent fall in anti-dumping investigations. These figures slightly differs when ACD in model 2 is included. In this case, existence of ACD in a given year yields 26 percent fall in anti-dumping initiations. However, the coefficient of ACD indicator is not statistically significant contrary to all other variables mentioned.

Table 5: Coefficients and IRRs of the Selected Models

	Model 1		Model 2	
Variable	**Coefficient**	**IRR**	**Coefficient**	**IRR**
Y_g	0.09	1.09	0.09	1.09
TD_GDP	0.30	1.35	0.31	1.36
MVAD_GDP	-0.15	0.86	-0.17	0.84
Ret	0.37	1.45	0.36	1.44
ACD_Dummy			-0.30	0.74

The findings with respect to domestic GDP growth supports the findings of Kaplan and Türkcan (2020) which is the most recent study about Turkey. Although their result is not statistically significant, this study finds a positive and statistically significant relationship between real GDP growth and anti-dumping investigations.

According to Ba and Coleman (2021) there is a robust and statistically significant relationship between anti-dumping investigations and retaliation. The same way relationship is found also for Turkish case. Although they used industrial value added due to lack of manufacturing data to control productivity, the availability of data for Turkey allowed to use manufacturing value added in this study for the same purpose. The results also show the same way interaction with anti-dumping investigation and value added by the related industry.

Aggarwal (2003) emphasizes the number of anti-dumping cases is related to trade deficit and import growth. Nevertheless, all the studies about Turkey used share of imports or imports growth rate rather than trade deficit. In this study, both imports growth and trade deficit are controlled via different models. It is found that trade deficit indicators work better to explain the relationship compared to imports growth.

7. CONCLUSION

Import policies have been traditionally important for Turkey and as many other developing countries trade- related measures have been used in different time spans especially for trade deficit problems and industrial policy design. Trade defense instruments and most notably anti-dumping measures have been widely used in this perspective and Turkey has consistently been among the top users of anti-dumping investigations in last 3 decades. With global rising of protectionist movements, a new trade policy instrument (ACD) was introduced in 2011 which has considerable potential to affect anti-dumping initiation decisions due to its ease of application procedures. In this study, the main determinants of Turkish anti-dumping investigations with special emphasize to ACD are investigated.

The determinants of anti-dumping initiations are analyzed with different control variables and 2 bunches of models are conducted with and without ACD intervention. In this set of regressions, various macroeconomic indicators, retaliation behavior and manufacturing sector's value added are controlled.

According to our findings, the most important factors that affect investigations are retaliation motives, deterioration in trade deficit and productivity of the manufacturing sector. Although it is statistically less significant compared to these factors, real GDP growth is also an

important element in Turkish practices. A negative relationship between anti-dumping investigations and ACD is also detected but since it is applied since 2011 more time is needed for further inference.

As our findings indicate, more structural areas of the economy such as trade deficit, retaliating trade partners, changes in manufacturing value added, and GDP growth are dominant factors in Turkish anti-dumping policy. These factors are mostly related to protectionist motives, industrial productivity problems and overall macroeconomic stability. Thus, it seems more likely that the importance of ACD will substantially increase and it can be a serious alternative to AD investigations soon. Recent fall in file petitions strengthen this expectation and ACD provide a more practical tool for Turkish authorities compared to anti-dumping investigations. Because imposing ACD does not require any additional administrative burden or rigid legislative requirements based on WTO Agreements contrary to anti-dumping investigations. In addition to its convenience for protection purposes, traditionally targeted countries via anti-dumping investigations can be subject to substantial additional tariffs with less administrative efforts and larger import tax revenues.

However, ACD is more distortive tool compared to AD based on its extensive coverage, less selective nature and there is no time limit on its duration of validity. In such a setting, lobbying power of different actors become more important than anti-dumping investigations and predictability of application procedures fade away. AD and ACD have quite different policy implications especially in terms of allocation problem. Thus, comparison of similar protective measures in other developing countries with anti-dumping investigations offer productive output for researchers. In Turkish case, losses in consumer welfare, distortions in investment decisions across industries and rise in inflation via pass through of import prices due to ACD policy are most important aspects that could be examined.

NOTES

[1] I would like to thank Prof. Bruce A. Blonigen for sharing his dataset which I could update with new adoptions after 2016.

[2] Communique on Safeguard Measures in Imports:2011/1

[3] Council of Ministers Decree:2011/2203

AUTHOR STATEMENT

Statement of Research and Publication Ethics

This study has been prepared in accordance with scientific research and publication ethics.

Author Contributions

Single Author, Contribution rate: 100%

Conflict of Interest

There is no conflict of interest for the author or third parties arising from the study.

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