

Identify the Major Variables Affecting the Dumping

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Abstract

The main purpose of this paper is to identify the factors affecting the dumping among the countries. In order to achieve this goal, we have designed the econometric model by identifying the economic coordinates of countries where has had most number of dumping during 1995 to 2011. The results of the econometric model shows that import tariff rates, economic growth, degree of economies openness, degree of import penetration and exchange rates were most important component affecting dumping. The impact of import tariff and import penetration is negative, so that with increase of tariff rate by one percent, anti-dumping has decreased by an average rate of 0.066 percent and one percent increase in import penetration has resulted in reduction of 1.98 percent in anti-dumping.

Keywords: Dumping, Anti-dumping, World Trade Organization

1. Introduction

Dumping is a non-competitive practice in international trade and is known as one of the market behavioral variables that affect the structure and function of market. Dumping as a behavioral variable leads to increasing the degree of monopoly and leading market toward the effective monopoly and such a policy would lead to a decline in the market share of domestic firms and make them lost. Base on this, one of the major issues that is considered in the countries competition law, is dumping and legislation of anti-dumping law. In the anti-dumping law it is enacted a framework to how civil deal with firms taking dumping that the competitive space does not damaged.

It is notable that recent studies are indicated that in the current situation, anti-dumping is considered as one of the barriers to entry into global markets. In other words, the aim of legislation the anti-dumping law in the countries and according to GATT and the World Trade Organization (WTO) agreements, was to maintain the space of healthy competition in commercial transactions, however in the current situation the studies shows that some countries are using this law as a protection and conservation tool, means that to protect their domestic industries against foreign competition, they eliminate the competing firm from domestic market by accusation of getting dumping. (Shahiki tash , 2011)

Now, the central question of this paper is that how has been the trend of dumping in the field of commercial transactions and which countries were the main actors in this field and which commodity groups are faced with this problem and also which countries and with which economic coordinates are more faced with this problem. To answer these questions, we first refer to the trend of dumping and statistical analysis of this economic phenomenon in commercial transactions. Then, in the third section we will refer the history of research in this area and we will investigate that the findings of previous studies, does confirms what realities. In the fourth Section the theoretical bases of papers are mentioned. The aim of this section is that based on the international trade theories, the mechanism of dumping influencing and the components affect it, will be investigated. In the fifth section, with respect to third and fourth sections and citing the performed modeling in empirical studies and theoretical discussions, the econometric model will be estimated based on the statistical data relating to the period 1995 to 2010 to identify factors that have contributed to the dumping in that period. Finally, in the last section the results of research will be summarized.

2. Investigation Of Dumping Trend

According to the statistics released by the WTO, the number of anti-dumping preliminary researches among the WTO members is increased from 157 cases in 1995 to 358 cases in 1999 and has been reached to 155 cases in 2011 so that in the period 1995 to 2011 it has been raised about 4010 cases of dumping.

Table1. The number of initial and finalized anti-dumping researches between 1995- 2011

Type of investigation	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	sum
Initiations	157	358	298	372	315	234	220	201	204	165	213	209	171	155	4010
Measurements	119	190	237	171	218	224	154	138	141	108	139	141	123	98	2601

Source: WTO

Table 2 shows that most frequent users of anti-dumping law in the world have been India, America, Europe Union, Argentina and Austria, respectively. A list of major countries that broadly use this law is summarized in table 2:

Table2. The major countries has used anti-dumping

countries	India	U.S.A	European Union	Argentina	Australia	Brazil	South Africa	China	Canada	Turkey	South Korea	Mexico
Number of initiations	656	458	437	291	235	232	216	191	155	148	111	105

Source: WTO

Also, statistical investigations indicates that the most number of dumping took place in the world between the years 1995 -2011 has been concerned to the production of basic metals and then chemical and petrochemical products, resins, plastics and industrial rubber, electrical and electronic products, textile industries, and products generated from paper and paperboard.

As table 3 shows, about 21.27 percent of anti-dumping researches during 1995 to 2011 was concerning to China, so that it was the largest dumping provider and then Korea and America are placed in the next position with 7.08 percent and 5.83 percent, respectively.

Table3. The countries that have had most number of anti-dumping petition during 1995- 2011

countries	The Number of AD	Percent
China	853	21.27
Korea, Republic of	284	7.08
United States	234	5.83
Taipei, Chinese	211	5.26
Indonesia	165	4.11
Japan	165	4.11
Thailand	164	4.09
India	155	3.86
Russian Federation	124	3.09
Brazil	114	2.84
Malaysia	104	2.59
Germany	91	2.27
Ukraine	65	1.62
South Africa	60	1.5
Mexico	55	1.37
Turkey	53	1.32
Italy	51	1.27
Spain	47	1.17

Singapore	46	1.15
United Kingdom	44	1.09
France	43	1.07

Source: WTO

The question is that what is the reason for increasing anti-dumping in the world? To answer this question various studies has been undertaken. The most of these studies shows that trade liberalization has had a significant impact on firm's pricing behavior, so that price policy of large firms in recent years compared to years 1947-1970 has changed considerably. The studies conducted by Lyvnsn in Turkey, Harrison (1994) in Chile, Krishna and Mitra (1998) in India shows that by trade liberalization in these countries, markup pricing of firms has changed significantly in comparison with before implementing such a policy. Krishna and Mitra states that in the space of trade liberalization, the firms are forced to follow anti-dumping pricing policy to maintain their market share in their target markets, because in such an space the degree of competition in world markets have risen and the firms must have successful behavioral policies to be able to survive in the global market.

Kewr and Dumot (2004) states that the reduction of tariff barriers since the middle 1980s caused the nations use of non-tariff barriers to create an entry barrier for competing firms. It is noteworthy that in the present circumstances one of the most important non-tariff barriers to protect domestic industries in international trade competition is anti-dumping policy. Practically since the exporting firms (especially in developing countries) do not have technical and financial ability necessary to prove the claim (that have not followed dumping pricing policy) are excluded from the market of importing country. The success of such a policy to eliminate the competitors (especially by developing countries) leads to an increase in anti-dumping in the world. In total it can be said that from the late 1970s, these laws have been further the bolster role, this means that domestic firms and producers have used this tool in order to create a barrier to foreign competitors.

3. The Econometric Estimates Of The Factors Affecting Dumping

In this section we seeks to identify the factors affecting dumping. Based on this and considering background of research and theoretical foundations we attempt to examine the factors affecting this pricing model in the context of a regression model. In other words, the relationship between the number of anti-dumping briefs and macroeconomic indicators of the sample countries has been tested.

In this study, the dumping regression model is estimated during 1995- 2010 for data related to 37 countries with the highest anti-dumping petition. Since the structure of data in this paper, is panel data and due to the heterogeneity of economic structure of countries and considering the result of LR test, the panel model is used.

Table (4)- LR Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	50.498345	(36,477)	0.0000
Cross-section Chi-square	815.320800	36	0.0000

Now, to estimate the regression we have to choose one of the fixed effects model and random effects model. Hausmann (1978) is introduced a test for this purpose that is explained in following. This test is expressed that under the assumption of the lack of correlation between cross-sectional data and other explanatory variables, both estimator (LSDV and REM GLS) are inconsistent but the LSDV estimator is also inefficient; However in contrast in terms of correlation between cross-sectional data and other explanatory variables, LSDV is consistent but GLS is inconsistent. This test forms its assumptions as follow:

H_0 : The two estimator should not be significantly different from each other however the random effects model is preferred, and H_1 expresses the existence of fixed effects model and rejection of random effects model. In this test the covariance matrix of difference vector $[b - \hat{\beta}]$ is used where b is the slope in the fixed effects model and $\hat{\beta}$ is the slope in the random effects model.

$$\text{var}[b - \hat{\beta}] = \text{var}[b] + \text{var}[\hat{\beta}] - \text{cov}[b, \hat{\beta}] - \text{cov}[b, \hat{\beta}]$$

The Hausmann test suggests that the covariance of an efficient estimator and difference between that estimator and an inefficient estimator is zero, that is:

$$\text{cov}[(b - \hat{\beta}), \hat{\beta}] = \text{cov}[b, \hat{\beta}] - \text{var}[\hat{\beta}] = 0$$

Or: $\text{cov}[b, \hat{\beta}] = \text{var}[\hat{\beta}]$. Putting the above equation in the last equation, the covariance matrix is obtained:

$$\text{var}[b - \hat{\beta}] = \text{var}[b] - \text{var}(\hat{\beta}) = \psi$$

The Houseman test function has asymptotic distribution χ^2 , so in this test the χ^2 distribution is obtained based on the Wald criteria with $k-1$ degrees of freedom.

$$W = \chi^2_{[k-1]} = [b - \hat{\beta}] \hat{\psi}^{-1} [b - \hat{\beta}]$$

To calculate $\hat{\psi}$ we use the estimated covariance matrices for estimator slope in the LSDV model and the estimated covariance matrix in the random effects model without involving the constant. This means that the model is estimated one time based on the LM (that was described in the Breusch-Pagan test) and another time is estimated based on the fixed effects model and then $\hat{\psi}$ is obtained from the results of these two estimation. This result is used in the Hausmann test to choose between the fixed effects model and random effects model. In this test if H_0 is rejected meaning the existence of fixed effects model and if H_0 is not rejected, it is better to use random effects model for estimation.

Table (5). The Hausmann test for the diagnosis of fixed effects and random effects

Prob.	Chi-Sq. d.f.	Chi-Sq. Statistic	Test Summary
0.0002	5	23.922596	Cross-section random

According to table 5, it is observed that $p = 0.0002$ indicates that H_0 (use of random effects in model) is rejected. Now considering the mentioned issues, we estimate the following panel model using the LSDV method.

$$ADD_{it} = \alpha_0 + \alpha_1 Exch_{it} + \alpha_2 D \log(GDP)_{it} + \alpha_3 \left(\frac{IMP + EX}{GDP}\right)_{it} + \alpha_4 TRF_{it} + \alpha_5 \left(\frac{IMP}{CON + G}\right)_{it} + u_{it}$$

In the above regression, ADD indicates the relative amount of anti-dumping and the right side variables of relationship are the real exchange rate, economic growth rate, degree of openness of the economy, tariff rates and import penetration, respectively.

As was expressed in order to estimate the model, we use panel regression and fixed effects model (the ordinary least squares model with dummy variable). In this method, if we want to take the periods and times constant, we would use the dummy variable Z_{iT} , if we want to take the sections constant, we would use dummy variable W_{it} and finally if we want to take constant both of times and sections, we would use both dummy variable Z_{iT} and W_{it} . In order to estimating β one can use the following relationship:

$$\hat{\beta}_{FE} = \left(\sum_{i=1}^N \sum_{t=1}^T (x_{it} - \bar{x}_i)(x_{it} - \bar{x}_i)' \right)^{-1} \sum_{i=1}^N \sum_{t=1}^T (x_{it} - \bar{x}_i)(y_{it} - \bar{y}_i)$$

In terms of x_{it} and ε_{it} are independent, β_{FE} is unbiased. Also when ε_{it} have a normal distribution, β_{FE} have a normal distribution as well.

As Table (6) suggests, all considered variables have a significant effect on the relative amount of anti-dumping. It is observed that with one percentage change in the exchange rate, the dependent variable will increase by 0.01 percent. Also, if the degree of openness of the economy increases by a percent, the relative amount of anti-dumping will be increased by 1.87 percent.

The results suggest that the rate of economic growth is the most influential factor, so that one percent increase of growth rate, leads to increase in relative anti-dumping by 5.24 percent. The effect of the import tariff and import penetration is inverse and negative, so that with a one percent increase in tariff rate, the dependent variable is reduced by 0.066 percent and a percent increase in import penetration will lead to a reduction of 1.98 percentage points in the relative anti-dumping.

Table 6- Estimation of panel data model

Variables	Coefficient	Std	t-Statistic	Prob.
C	0.790497	0.613383	1.288750	0.1982
EXCH?	0.011195	0.003440	3.254819	0.0012
DLOG(GDP?)	5.235969	1.841308	2.843614	0.0047
(IMP?+EX?)/GDP?	1.870822	0.983887	1.901459	0.0579
TRF?	-0.066408	0.031691	-2.095504	0.0367
IMP?/(CON?+G?)	-1.981728	1.225855	-1.616609	0.1067
Fixed Effects (Cross)				
ARG—C	-1.214717			
AUS—C	-1.257781			
AUT—C	-2.021966			
BEL—C	-2.344415			
BGR—C	-2.468617			
CAN—C	-1.373005			
CHI—C	-1.521366			
CHN—C	20.88742			
FIN—C	-2.046819			
FRA—C	-1.056382			
DUE—C	-0.081026			
HKG—C	-3.062437			
HUN—C	-2.540882			
IND—C	3.300004			
IDN—C	2.254715			
IRN—C	-0.018480			
ITA—C	-0.912798			
JPN—C	2.011844			
KOR—C	4.907761			
MYS—C	0.367707			
MEX—C	-0.508987			
NLD—C	-2.324714			
POL—C	-1.370462			
ROM—C	-1.915513			
RUS—C	1.469988			
SAU—C	-1.838486			
SGP—C	-2.437770			
ZAF—C	-0.688071			
ESP—C	-1.041350			
SWE—C	-2.150701			
THA—C	2.229617			
TUR—C	-0.853428			

UKR—C	-1.083825		
GBR—C	-1.860775		
USA—C	-1.002460		
VEN—C	3.583584		
VNM--C	-1.613175		
Cross-section fixed (dummy variables)			
R-squared	0.813898	Mean dependent var	2.235698
Adjusted R-squared	0.796674	S.D. dependent var	4.325775
S.E. of regression	1.950565	Akaike info criterion	4.256732
Sum squared resid	1685.484	Schwarz criterion	4.619071
Log likelihood	-990.2576	Hannan-Quinn criter.	4.399097
F-statistic	47.25396	Prob(F-statistic)	0.000000

4. Summary and Conclusion

In this paper, we investigated the factors affecting the dumping, the trend of its changes over time, the manner of dumping modeling trend in the static and dynamic conditions. The results confirms that:

1. In the current situation, anti-dumping is considered as one of the barriers to entry into global markets. In other words, the aim of legislation the anti-dumping law in the countries and according to GATT and the World Trade Organization (WTO) agreements, was to maintain the space of healthy competition in commercial transactions, however in the current situation the studies shows that some countries are using this law as a protection and conservation tool, means that to protect their domestic industries against foreign competition, they eliminate the competing firm from domestic market by accusation of getting dumping.
2. The number of anti-dumping preliminary researches among the WTO members is increased from 157 cases in 1995 to 358 cases in 1999 and has been reached to 155 cases in 2011 so that in the period 1995 to 2011 it has been raised about 4010 cases of dumping.
3. Most frequent users of anti-dumping law in the world have been India, America, Europe Union, Argentina and Austria, respectively.
4. The most number of dumping took place in the world between the years 1995 -2011 has been concerned to the production of basic metals and then chemical and petrochemical products, resins, plastics and industrial rubber, electrical and electronic products, textile industries, and products generated from paper and paperboard. It should be considered that providing the join of Iran to WTO and acceptance the tariff rates considered by this organization, the possibility of dumping in these industries would be more likely.
5. About 21.27 percent of anti-dumping researches during 1995 to 2011 was concerning to China, so that it was the largest dumping provider and then Korea and America are placed in

the next position with 7.08 percent and 5.83 percent, respectively. On this basis the possibility of dump for products imported from China and India will be further in Iran.

6. The findings of research indicates that with a percentage change in the exchange rate, the dependent variable will increase by 0.01 percent. Also, if the degree of openness of the economy increases by a percent, the relative amount of anti-dumping will be increased by 1.87 percent.

7. The results suggest that the rate of economic growth is the most influential factor, so that one percent increase of growth rate, leads to increase in relative anti-dumping by 5.24 percent. The effect of the import tariff and import penetration is inverse and negative, so that with a one percent increase in tariff rate, the dependent variable is reduced by 0.066 percent and a percent increase in import penetration will lead to a reduction of 1.98 percentage points in the relative anti-dumping.

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