ANNALS of the ORADEA UNIVERSITY.

Fascicle of Management and Technological Engineering, Volume VII (XVII), 2008

SOME CONSIDERATIONS ON THE DEGREE OF OPENNESS AND ON THE ELASTICITY OF THE ROMANIAN FOREIGN TRADE AFTER 1989

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Keywords: Romanian foreign trade, degree of openness, external trade elasticity to GDP

Abstract: *Being generally known that, because of the late restructuring and privatization of the industry the Romanian economy was mainly based on the external trade and external financial loans after 1989, this paper focuses mainly on the openness degree and on the elasticity coefficient of the Romania's external trade while trying to join the EU. We will try this way to emphasise how much does our country export and import in relation to the GDP, as well as the evolution of the Romanian exchanges with foreign countries, in order to be able to express some qualitative conclusions connected to the Romanian foreign trade.*

1. INTRODUCTORY REMARKS

One of the main subjects of the Pure Theory of International Trade has been the study of Comparative Advantage, that is, the determination of trade patterns. Ricardo focused on relative cost differences based on technology, whereas the conventional Heckscher-Ohlin model shows that even with identical technologies and constant returns, relative costs can differ if factor proportions differ. Other authors have focused on economies of scale as another determining factor of comparative advantage. Some related concepts that have received much less attention from theorists are those of the degree of openness of an economy and the external trade elasticity of a country.

In the case of the degree of openness the relevant question is not *what* does a country export or import but *how much* does a country export and import in relation to its GDP? Therefore, the specific analysis of the external trade general statistic indicators is necessary to express some qualitative conclusions connected to foreign trade. In this view, more detailed analyses, the inclusion of other economic indicators in the statistic data sources, as well as the carrying out of correlative analyses are highly necessary, the study of the economic efficiency of foreign trade needing such an analysis in order to be able to create an objective image of the evolution of the Romanian foreign trade in the period when Romania was pursuing the efforts necessary to accede to the European Union.

For this analysis we will use specific indicators outlined in the specialty literature, underlying the fact that these indicators require a series of computed indicators, necessary to more rigorously characterise the economic relationships of the country with the exterior. The indicators which will be use in this paper are: *the degree of openness; mainly using the ratio (Exports + Imports)/GDP as the measure for openness of the economy; indicators of the evolution of trade exchanges with foreign countries; indicators of the elasticity of the external trade.*

2. THE DEGREE OF OPENNESS OF ROMANIA'S ECONOMY

As it is known, the indicators of international openness of a country's economy are used to measure the degree of integration of a country's foreign trade in the

world economy and take into consideration measures like the export, the import and the GDP of the analysed country. The practical motivation of their use is given by the fact that, as the states of the world have different dimensions and forces, it would be irrelevant to compare, in the absolute value, the volume of foreign trade of a developed country with that of a less developed country or even developing country. Consequently, in order to obtain a relevant and comparable result, it is necessary to compare the value of foreign trade to the volume of that country's production.

In *Table 1* and in *Graph 1 below* we present the openness indicators of Romania's foreign trade after 1989, thus reflecting its involvement in the external commercial exchanges in the period analysed, mentioning that we have included among these indicators *the covering degree,* too, because it allows us in the current analysis to emphasise some conclusions regarding the structure of the degree of openness, that is if the openness is made based on imports or based on exports (if the covering degree is under 100%, then it is about a clear openness based on imports, a fact presented as a matter of fact by the official statistic indicators).

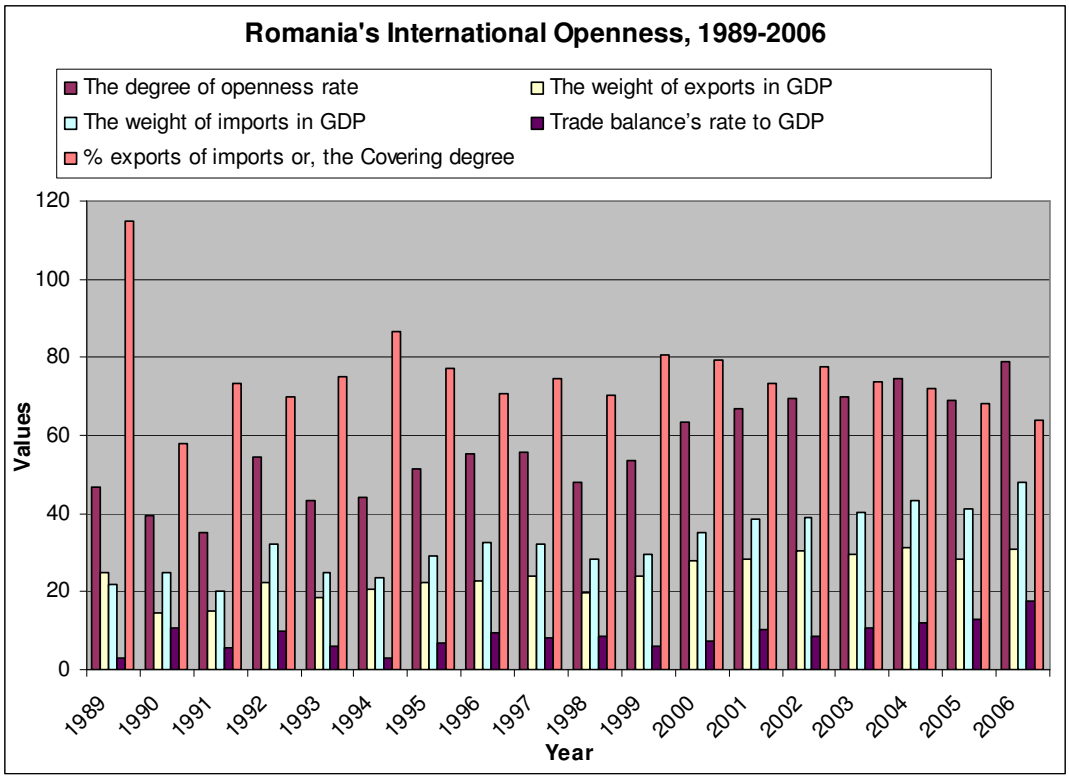
Table 1: Romania's economy international openness, 1989-2006

Year	Degree of openness rate	Exports weight	Imports weight	Trade balance's rate	% exports of imports or, the *Covering degree*
1989	46,57	24,88	21,69	3,19	114,71
1990	39,57	14,51	25,05	10,54	57,93
1991	34,99	14,80	20,19	5,40	73,28
1992	54,28	22,29	31,98	9,69	69,71
1993	43,30	18,56	24,74	6,18	75,01
1994	44,10	20,46	23,64	3,19	86,52
1995	51,26	22,29	28,97	6,67	76,96
1996	55,25	22,88	32,37	9,48	70,70
1997	55,85	23,89	31,96	8,07	74,74
1998	47,82	19,71	28,11	8,40	70,13
1999	53,51	23,85	29,66	5,82	80,39
2000	63,22	27,98	35,24	7,26	79,41
2001	67,04	28,33	38,71	10,37	73,21
2002	69,23	30,27	38,96	8,70	77,68
2003	69,99	29,68	40,31	10,63	73,64
2004	74,38	31,15	43,23	12,09	72,05
2005	69,18	28,08	41,09	13,01	68,33
2006	78,88	30,74	48,14	17,39	63,87

Source: Personal computations based on the official statistic data

The computation of the indicators in *Table 1* was made as follows:

- the openness rate or the intensity of trade, by relating the foreign trade stated in USD to GDP, according to the official statistic data (computed as a ratio of the sum of FOB export and CIF import, to GDP, in nominal values);
- the weight of exports (FOB, stated in USD) in GDP which indicates the part of the GDP destined to foreign markets;
- the weight of imports (CIF, stated in USD) in GDP, or *the rate of completing the internal resources through imports;*
- the weight of the sold of the balance of trade (FOB-CIF, stated in USD, in absolute values) in GDP;
- the weight of exports in total imports (FOB/CIF, stated in USD) or *the covering degree.*



Graph 1 – The international openness of the Romanian foreign trade, 1989-2006

Therefore, as it ca be noticed in the data presented in the above table and the related graph, after a natural deduction – due to the economic and political conditions at the time – at the level of 1990, compared to 1989 -, Romania's openness rate raised starting with 1991 – when it registered 34.99%, reaching the maximum value, after a sinuous evolution, in 2006 – when it reached the record value of those years, of 78.88%. To obtain this result, the imports had an important contribution (approximately 48.14% of the trade's openness comes from imports). Practically, Romania's tendency of openness for the external economic exchanges is obvious and the small windings registered in this period are too small to say that there was a tendency to diminish the openness.

This openness effect was due to the measures of liberalization of the commercial policy adopted in 1990 which had this right objective, and the situation would have been a positive one if there had not been the imbalances generated by the balance of trade whose deficit, situated between 3% and 18%, affected the internal balance. To support this deficit of the balance of trade, Romania had, for years, to use external financing resources and if this situation continues in the future also – due to the fact that the highest level of this weight was registered in 2006 – this deficit will erode more and more the national revenue and consequently, the imports will have to be reduced in the end. The only solution contemplated consists in the considerable increase of exports, but this involves competitive products, that are a massive restructuring of the entire national economy and/or a huge influx of FDI.

As for the weight of exports in GDP, this also registered an ascending tendency but too low to be able to significantly influence the situation presented previously.

To have a more complete image on the openness degree of the Romanian economy and to be able to appreciate it accordingly, we will perform a comparative presentation of it with other states in the region, which started on the way of European integration together with Romania - but with a weaker economic situation - and managed to accede to the EU on 1 May 2004, and together with these, we will

present the data for Germany, too (as the biggest world exporter), but also for the European Union in its whole. *Table 2* contains the results of this analysis (pursued in the same way as in *Table 1*), at the level of years 1995, 2000 and 2005, for which we found all the data we needed in computing the indicators.

Table 2: The degree of openness computed for some countries, comparatively, including for Romania, in the years 1995-2000-2005

Indicator	Degree of Openness			Exports weight			Imports weight			Trade balance's rate		
Country / Year	1995	2000	2005	1995	2000	2005	1995	2000	2005	1995	2000	2005
Hungary	89,30	128,90	112,27	44,63	60,20	54,56	44,67	68,70	57,70	6,6-	3,6-	8,6-
Bulgaria	78,51	87,40	89,65	44,80	36,90	60,80	50,65	50,50	77,38	1,5-	5,6-	11,8-
Czech Republic	84,06	107,94	124,51	38,63	51,21	62,92	45,43	56,73	61,59	6,8-	5,52-	1,33+
Germany	36,25	68,30	70,57	19,22	35,1	38,80	17,03	33,2	31,76	2,19+	2,91+	7,06+
Romania	51,26	63,22	69,18	22,29	27,98	28,08	28,97	35,24	41,09	6,67-	7,26-	13,01-
EU	8,72	22,67	20,78	5,70	10,81	9,90	3,02	11,85	10,88	0,8+	1,04-	0,6-

Source: Personal computations based on data provided by EUROSTAT (www.eurostat.org) and the National Statistics Offices. Explication: + = surplus; - = deficit; until 2005, we refer to the statistic data of UE15; for 2005, the data refer to UE25

First of all, from the table above results the fact that the openness for external commercial exchanges of Hungary and Czech Republic is higher than 100%, starting with 2000. More than that, the weight of exports, even though it is surpassed by the weight of imports in GDP, has a level above 50%, a proof that these two countries are open to the exterior due to imports, but also due to exports. The exception is Czech Republic in 2005, when the weight of exports is higher than that of imports, which shows that the high international openness of this country starts to be preponderantly dominated by exports. The most positive example for the things mentioned previously is given by Germany's situation which confirms its position of the biggest exporter of world.

A more unfavourable situation from the point of view of the economic openness is registered by the European Union (in its whole), Bulgaria and Romania, which have weights of openness under 100% and a relatively high rate of internal resource completion (the exception is EU). The previous table shows though that the weight in GDP of the Bulgarian exports is higher than in Romania's situation. An already strongly globalised state, Germany, has a weight of openness degree in GDP and a weight of exports higher than the weight of imports, a fact justifying the existence of a surplus of its balance of trade with a small enough weight in GDP not to affect seriously the general internal balance of the country.

3. Indicators of the evolution of Romania's commercial exchanges with foreign countries and the elasticity coefficient

The trends of foreign trade are determined both by fluctuations in the prices of exported or imported products as well as by the fluctuations in the quantities afferent. Therefore, the change of the value and quantitative volume of export and import can be expressed with the help of indicators of evolution of exchanges with the foreign countries, which are delimitated as such: *indicators of the value and quantitative volume of export and import, indicators of the exchange ratio, elasticity coefficients.*

The physical volume index expresses the evolution of exports, of imports respectively, for a certain period of time. It can be computed also for the global activity of foreign trade and separately for imports and exports, using current prices. These prices can be adjusted to comparable prices, situation in which an individual value/index is computed for all merchandise or a synthetic group value can be computed which will be applied to the groups of merchandises, made up of different products. Within the group indices, we must take into account the characteristics of all the merchandises belonging to that particular group, a reason for which there will be used data which can sum up these characteristics.

To compute the physical volume, the statistics provides the possibility to use *the group indices (synthetic, general, total),* which are computed at the level of some groups or heterogeneous communities and synthesises the average variation of the indicator studied.

Building these synthetic indices can be made in four variants, as follows:

- *variant Laspeyres* (called after German economist Etienne Laspeyres), which is an index computed both for the price variable as well as for the quantity variable and which uses constant weights from the basic period
- *variant Paasche* (called after German economist Hermann Paasche), which uses constant weights from the current period
- *variant Marshall-Edgeworth* (called after the names of British economists Alfred Marshall and Francis Ysidro Edgeworth), uses as weight the sum of the weights from the two periods
- *variant Fischer* (called after American economist Irving Fisher), which proposes the computation of synthetic indices as a geometrical mean of Laspeyres and Paasche indices

and when in the computation of these indices the quantitative and qualitative factors are known for both periods, they have also the name of *aggregate indices*.

In what follows we will deal with only the presentation of the unitary values indices and of the elasticity coefficients, because the computation of Laspeyres and Paasche indices is quite difficult in what the foreign trade activity is concerned, taking into consideration the fact that the determination of the value volume of the current year in the prices of the basic period is an extremely expensive one. Moreover, in the specialty literature there are also other categories of indices satisfying in a higher proportion the properties of Laspeyres and Paasche indices, whose sizes are not influenced by the change in the weights from one period to another. The major difficulty of their computation resides in the fact that, being computed based on Laspeyres and Paasche indices, they cannot be computed for a long period of time and are not considered relevant for the practical reality. Due to this reason, the statistics in several countries do not provide such information, Romania including, in the last time INSSE (National Institute of Social and Economic Statistics, Romania) taking over, by virtue of the process of harmonization with the Eurostat practices, also the methodology to determine the indices of unitary value in foreign trade, giving up the classical price indices, of Paasche type.

Therefore, the influence of changing the export or import prices can be eliminated by comparisons of the *export value index, of the import respectively, with the value index of the gross domestic product.* The coefficients are computed according to the following formulae:

$$\frac{I^{V}(X)}{I^{V}(GDP)}, \text{ respectively } \frac{I^{V}(M)}{I^{V}(GDP)} \qquad (1)$$

Where: X - export, M - import; $I^{V}(X)$ – value index of export;

$I^V(GDP)$ – GDP value index; I^V(M) – import value index.

A higher than *1* coefficient shows that exports, imports respectively, have a higher growth rhythm than the GDP's growth rhythm. The result is a favourable one because based on it we can conclude that that particular economy is intensely involved in the international trade activity, and the absorption capacity of the national market is relatively high. A result lower than 1, imposes an international expansion of that particular economy. Therefore, if the indices of unitary value of imports are lower than the indices of unitary value of exports and if we refer to the quantity in the current period, always the unitary value of the imports becomes lower with more than the unitary value of exports becomes lower compared to the previous year. Actually, these indices are the indices for the export and import average price and when they surpass 100%, it means that the unitary average value became higher. If in case of export it is preferable an index of unitary value of above 100%, not the same thing is expected in the case of import.

Therefore, the unitary values are computed for a group of representative merchandises from the Combined Nomenclature (CN) at the level of 8 digits. The weighing element used to aggregate the indices of unitary values computed at the level of 8 digits is the value of merchandises in the current period, according to the Paasche formula, so that we can present in *Table 3* the indices of unitary values for the Romanian export and import, computed based on statistic data stated in Euro (the comparison base used is the previous year and the indices of unitary value with other bases are computed by concatenation).

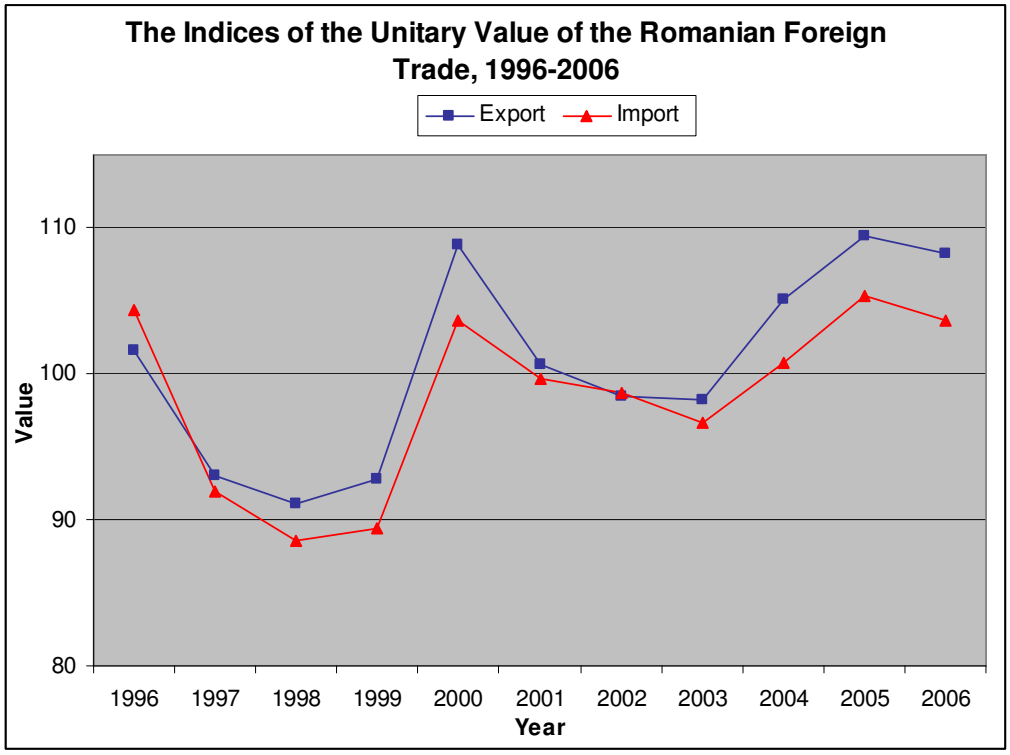
Table 3: The indices of the unitary value of the Romanian foreign trade, 1996-2006

Year	Export	Import
1996	101.6	104.4
1997	93.01	91.95
1998	91.07	88.54
1999	92.83	89.41
2000	108,9	103,6
2001	100,6	99,7
2002	98,5	98,7
2003	98,2	96,7
2004	105,1	100,7
2005	109,5	105,3
2006	108,2	103,6

Source: Personal computations based on the following data: for 1996-1999 we computed the indices with base in the chain based on the data from the Romanian Statistics Annuary, 2000; for 2000-2004 we took over the data of the indices with base in chain from the quarterly publication „Indici de valori unitare în comerțul exterior al României" published by INSSE on 7 March 2005; for 2005-2006, the source for the data is the Romanian Foreign Trade Annual, 2006, and the press releases of INSSE of the period February – May 2007.

In the table above we can notice that in the years 1996, 2000, 2001, 2002 and 2004-2006 these indices of unitary values for export indicated an increase of the average price compared to the last year, and in the other years they actually registered diminutions. A more accentuated diminution for imports than for exports means the fact that, if the constant quantity is maintained in the current period, the price fluctuations for import meaning diminution surpass the export prices, a conclusion which can be interpreted as being favourable, in the context of this

methodology of computation. In *Graph 2* we reflected the tendencies of the two factors according to data in *Table 3*.



Graph 2 – The evolution of the indices of unitary value of the Romanian foreign trade, during 1996-2006

The evolution of the exchanges with foreign countries can be presented with the help of the *elasticity coefficient of export and import relative to GDP* which presents a relative size, with a theoretically unlimited term in the field of international economic relations, this coefficient being computed as a ratio between a country's import's growth rhythm and the GDP's growth rhythm or as a ratio between the export's growth rhythm and the world import's growth rhythm. [1] In *Table 4* we present the values we obtained as a result of the computations on the Romanian foreign trade.

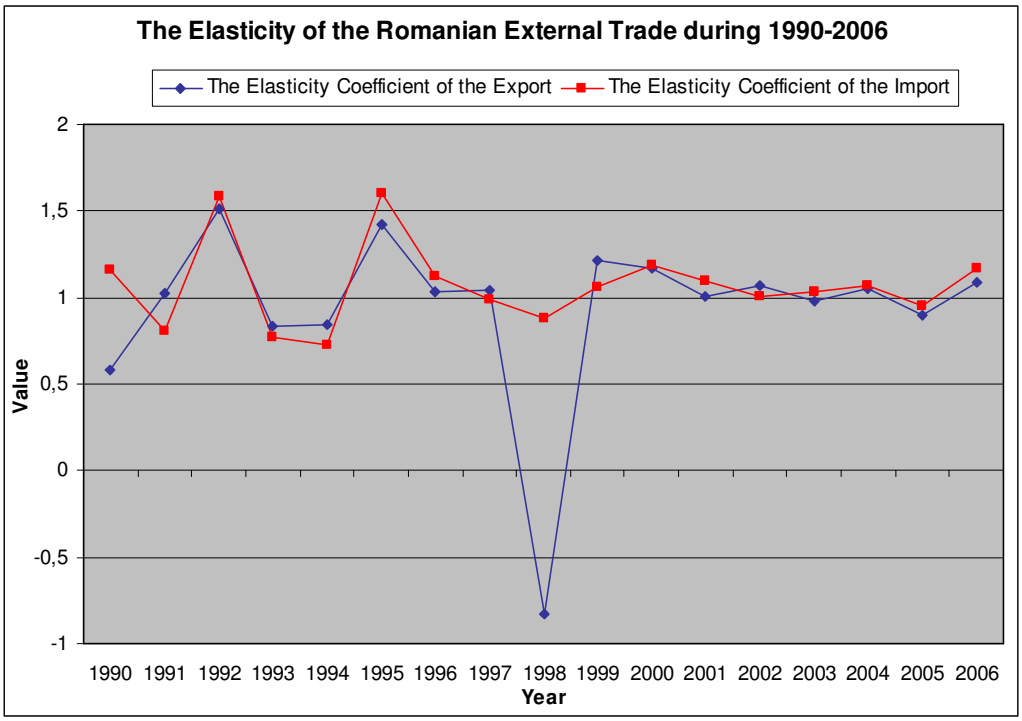
Table 4: The elasticity coefficient of Romanian export and import – 1990-2006

Year	Exports growth rate	Imports growth rate	GDP growth rate	Elasticity coefficient for export	Elasticity coefficient for import
1990	0,5506818	1,09046161	0,94400949	0,58	1,16
1991	0,73852814	0,58380981	0,72430259	1,02	0,81
1992	1,02297773	1,07542955	0,67904233	1,51	1,58
1993	1,12124685	1,04201949	1,34695963	0,83	0,77
1994	1,25735895	1,09000307	1,49062974	0,84	0,73
1995	1,28596976	1,44577296	0,90295981	1,42	1,60
1996	1,02199747	1,11257054	0,99577227	1,03	1,12
1997	1,04292429	0,98644512	0,99886782	1,04	0,99
1998	0,98469932	1,04946809	1,19353925	-0,83	0,88
1999	1,02228379	0,89178915	0,84496676	1,21	1,06
2000	1,22151526	1,23662025	1,04102276	1,17	1,19

Year	Exports growth rate	Imports growth rate	GDP growth rate	Elasticity coefficient for export	Elasticity coefficient for import
2001	1,0981962	1,19126771	1,08448043	1,01	1,10
2002	1,21809398	1,14795525	1,14036834	1,07	1,01
2003	1,27350736	1,34335966	1,29855958	0,98	1,03
2004	1,33146481	1,36088062	1,2687395	1,05	1,07
2005	1,17697512	1,24095747	1,30560339	0,90	0,95
2006	1,17193207	1,25389378	1,07041396	1,09	1,17

Source: Personal computations based on the official statistic data published by INSSE – time series: 1990-2007.

The supra-unitary result each year (excepting the years 1993, 1994, 1998 and 2005), if not in both cases, then at last for one of the components of foreign trade, actually demonstrates that, on the whole, the Romanian foreign trade react quite much to a modification of GDP with 1%. Where a negative result was obtained, it means that the evolutions are reversed, that is a rise of the Romanian export GDP diminished, which represents an alarm signal. This phenomenon was produced not only in 1998 of the entire period analysed, which could be a good sign. The high value of the coefficients in the period 1999-2001, quite contradictory at a first sight, is explained as a matter of fact based on the high values of exports and/or especially of imports and their evolution, while the GDP had a positive growth rate compared to 1999, when the growth rate was negative.



Graph 3 – The elasticity of the Romanian foreign trade, 1990-2006

With the help of the graph above we can notice the tendencies of the two coefficients and we see that during 1995-1997, the level of the elasticity coefficient of the import relative to GDP surpasses the elasticity coefficient of the export. The negative coefficient of the exports relative to GDP is practically suggested by the reduced capacity to export high quality products towards the European Union countries, turned into target-market for the majority of the country's exports.

Based on the results of the analysis above, it can be interpreted that, even though the exports and imports grow when a superior quantity of goods is produced in economy, there are still limits regarding the capacity of the Romanian economy to sell these goods on the foreign markets (the elasticity coefficient of the exports being, in most cases, inferior to the elasticity coefficient of the imports).

The high result obtained in the case of elasticity coefficient for imports in the years 1992 and 1995 is due to the high evolution of imports in these years, as it resulted from *Table 1*. Practically, in these years there was a very high demand for import goods, reducing the export of national goods on the foreign markets. The elasticity coefficient for import remains at a level higher than the value of the elasticity coefficient for export and only in 1997, the situation is reversed, when we notice thus that the export has a growth rhythm relative to GDP higher then the import, a fact which we can interpret as an intense involvement in the international exchanges, respectively, a sign that the country's economy started to offer to the foreign markets products with a higher degree of sale. The favourable aspect does not last too long because in 1998, the elasticity coefficient for import surpasses again the elasticity coefficient for export, and more than that, the elasticity coefficient for export is even negative.

In the years 1999-2001, the elasticity coefficient for import relative to GDP surpasses the elasticity coefficient for export, reversing only in 2002, after which the previous tendency is going to continue until the moment of EU accession. Actually, the evolution of imports in these years was higher compared to the evolution of exports, T. Andrei [2] interpreting the elasticity coefficient for import relative to GDP in the sense of diminution that is: to what extent a diminution of GDP with 1% determines a diminution of import. To the extent to which the diminishing of the internal activity determines a considerable reduction of import, this, according to the author, is a sign of recession. When we consider the data from our table, usually a diminution of GDP with 1% involves, most of the times, a diminution of imports, which is not to be neglected. If we consider the relation with exports, we can assume that these results are due to the import, to a great extent, to the materials to get products destined to export. Therefore, the considerable diminution of the internal activity determines a considerable reduction of the import.

4. Conclusions

The conclusion of this analysis suggests the fact that Romania's openness in the period analysed was not high enough and the higher weight of imports compared to that of exports is not healthy for our economy, except the case in which our country would have imported preponderantly highly performing productive technology whose results would be soon reflected in our products' increase of productivity and competitivity at export.

In addition, the results obtained in this paper shows that Romania cannot afford to remain defensive, centred on the access problems or ruling upon the supply of the domestic products and services. Introducing the annual Common Customs Tariff - TARIC, as a result of the integration of Romania to the EU, starting January the 1st 2007, there is a need of a quicker accommodation to the international market conditions and it is essential that the productive sectors take into account this fact.

Another interesting thing reflected by the analysis in this paper is the fact that since 2002, the covering degree, on the global relation, has been recording a diminution tendency, the explanation residing in the high growth of imports, as a result of the evolution of prices for the Romanian products and the reduction of their competitivity internally, compared to the foreign products. Moreover, in all these

years, the policy of credits for the population consumption and the mortgage policy respectively were proliferated, which led to an increase of the demand for the electronic appliances and the construction materials, respectively, products which were preponderantly supplied from imports. As a result, the imports' attractiveness was manifested, compared to supplies internally which unavoidably led to a worsening of the covering degree.

Summing up the results of our analysis from the point of view of the external trade existing premises at the beginning of our joining the European Union, we can appreciate the fact that the Romanian foreign trade, despite its correlation with the GDP level, depends to a lower extent on effective economic activity. Only imports are influenced by industrial production and are highly dependent on the demand from producers (for inputs) and from consumers (consumption commodities), while exports are mainly determined by casual factors. This reveals the fragility of the economy and the ineffectiveness of foreign trade policies, and the fact that the Romanian economy is insufficiently adapted to competitiveness criteria that would reveal the comparative advantage of the country on international markets. We can conclude that without a significant inflow of capital coming from foreign investors, economic development is too slow, negatively influencing foreign trade capacity and, consequently, the further development possibilities of the country. At the same time, Romanian companies should invest more in the know-how and advanced technologies, constantly being in touch with the latest evolutions on the international market, as the sole chance of survival in the global competition, under the conditions in which, the difference in between the expansion of our exports and the relative endowment with production factors, in the presumed analysis period in the present paper, could shock anyone.

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