

# **STRUCTURAL ANALYSIS AND FORECAST OF THE ROMANIAN EXPORTS**

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*The concerns on export stability analysis are of maximum importance in the context of increasing the integration level of the Romania's economy into of the European one, as an effect of the reform process. Various methods are used by specialists for evaluating and disseminating data on the evolution of the exports, in order to provide information to policy makers. The structure of Romania's exports is one of the basic elements for designing its economic re-launch and development strategies, integration into the European economy and of course for establishing commercial policies. The commercial policies could be seen as a instrument for providing the structure stability.*

*Structural analysis is one of the methods used to evaluate the export structure matrix stability. We are proposing hereby such a unified method. Our proposed model try to define the structure of the basic export products, the stability degree and the intensity of the measures to be used for restructuring the export structure (existing and estimated). This model is designed as a link between the Pareto's model and the Markov's Chains transitions. The case study was made on Romania's export statistics between 1995 and 2001. During this timeframe, Romania's exports have been between 7 and 10 billion US\$, the first 50 products covering 69 % – 72 %. The modification of the export structure can be done only through several promotion and protection measures strong enough to facilitate the new trends.*

## **1. Introduction – integration necessity; role of exports**

The changes in the political and social systems have generated mutations in economics. Even if Romania inherited some strong background economic ties, it became part of the many upgrading and rearrangements of the international economic relations (form, structure, geographical approach and so on).

At the same time, both European integration and globalization require non-restricted capital flows and branch out for multinationals.

Romania's line up to European and international values could be achieved by developing its exchanges in commodities, technology, personnel, culture and so on. These constitute both cause and effect of strengthening economic cooperation and interdependencies, as a fundamental for development.

Romania – in its condition of small-medium size country, with not a very high level of economic development – had to address various forms of economic cooperation in order to create the backbone of its future development and to gain access to several sources of capital, raw materials, technology and so on.

“International economic cooperation represents a specific and very complex form of international trade, which pulls together states or economic units, on bilateral or multilateral basis, in order to perform - by joint efforts and in terms of specific

contracts – related activities (manufacturing, trade, R&D, services), within a timeframe, with common outputs, superior to the sum up” [Albu, 1995].

This definition highlights the major components of economic cooperation, also by pointing out its goal.

For a better presentation of the importance of international economic co-operation, it would be worth to portray its functions. It should be mentioned that, apart from other economic activities, international economic cooperation based work fulfills duties on microeconomics, macroeconomic and world economic scales [Grigoriu, Grigorescu, 2001].

At the economic unit level (microeconomics), the functions of the international economic integration are:

- Contributes to the improvement of the company management;
- Increases the competitiveness of the products;
- Facilitates the rational use of resources (labor, material, financial);
- Contributes to planning of strategies for comparative advantage(s);
- Provides a window of opportunity for specialization.

At the national economy level (macroeconomics), the functions of the international economic integration are:

- Contributes to better use of natural resources;
- Increases the GDP and national wealth;
- Facilitates mutations in the structure of the national economy;
- Improves and intensifies foreign exchanges;
- Facilitates the training of highly skilled specialists;
- Favors some macroeconomic and/or sectorial policies;
- Contributes to the expansion of the R&D sectors;
- Contributes to establishing some balance of payments issues.

Both on macroeconomic (states, governments, international organizations) and microeconomics levels (companies, R&D units, non-profit organizations) it is important to depict – as accurate as possible – the amount of the term “E” and the shares that are being related to each and every co-operative partner.

## **2. Aspects of structural approach – hierarchy necessity**

The concerns related to the analysis of exports stability are very important on the context of increasing the economic integration of Romanian exports on the European economy, as effect of the reform process. This is why there are used various methods for dissemination and light-up the exports evolution. Through this are placed also the matrix method we are presenting.

Based on the statistics, the Romania’s export in 1995-2001 years was between 7 and 10 billion US\$ (table 1). The first 50 products covered about 69 to 72 % as value. All this time, on the first 50 positions, where placed a number of 87 different products. Twenty one from these products are permanent on the list during this 7 years. The

balance of them is about 49 to 52 % from total exports amount and about 69 to 75 % from the first 50 products amount.

Table 1.

**Romania's exports between 1995 - 2001**

	<b>Total Exports</b>	<b>First 50 products</b>		<b>21 de products permanently present</b>		
	<b>(thousand \$)</b>	<b>(thousand \$)</b>	<b>% from total</b>	<b>(thousand \$)</b>	<b>% from total exports</b>	<b>% from firs 50 products</b>
1995	7,910,000	5,669,176	72	3,891,581	49%	69%
1996	8,085,000	5,778,340	71	4,056,903	50%	70%
1997	8,429,000	5,851,721	69	4,268,891	51%	73%
1998	8,300,000	5,778,571	70	4,353,334	52%	75%
1999	8,503,000	6,000,684	71	4,318,473	51%	72%
2000	10,367,000	7,293,632	70	5,136,287	50%	70%
2001	11,385,000	7,943,997	71	5,590,071	49%	70%

Source: Statistics of the Romanian Foreign Trade Center

As a consequence we focus our analyses on this 21 products considered as “stars” on the national products portofolio. There are nominated on the table 2.

Building a serial cumulated frequencies it is possible to obtain a graph Pareto type (graph 1).

The analysis was developed by using the matrix ABC method to the most frequent 21 products. The reason is to determine the contribution of these products to the grow up exports.

**3. The proposed model**

The model of structural analysis and forecast are in fig.1.

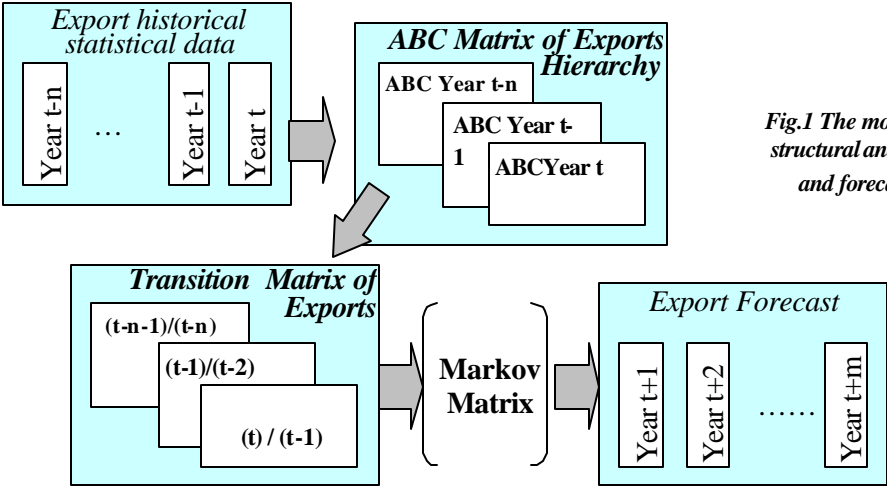


Fig.1 The model of structural analysis and forecast

The ABC method derive from the application of Pareto law to the customer behaviour.

The existence of such lawfulness was discovered in various other areas, as example: the stock products and the inventory amount, the customer distribution and the turnover, the exports structure and the amount of them.

*Table 2*

**First 21 exported products**

Petroleum oil, mineral bitumen, other then brute
Other furniture and parts
Women's outwear non-knit
Plate laminate products laminate, iron and steel
Man's outwear non knit
Footwear rubber, plastic, leather
Parts for footwear
Wood cut, peeled, polished
Blouses and shirts for women
Blouses and shirts for men
Sweaters, jackets, singlet
Boats, liner, ships civil, cargo
Pipes, tubes, other round profiles
Parts and accessories for motor vehicle
Overcoat, wind-cheater, capes, s.o.
Bearings with bolls, roles, ace-roles, s.o.
Aluminum brute
Chairs adaptable
Motors, electric generators, exception electro-groupes
Polymers of vinyl-clorate and others
Glass products for home use

The analysis of the products repartition, as per 20% / 80% law, represents the basic element for defining the most proper strategy of adaptation to the external market pressure and to the specificity of the environment of the foreign trade companies activity.

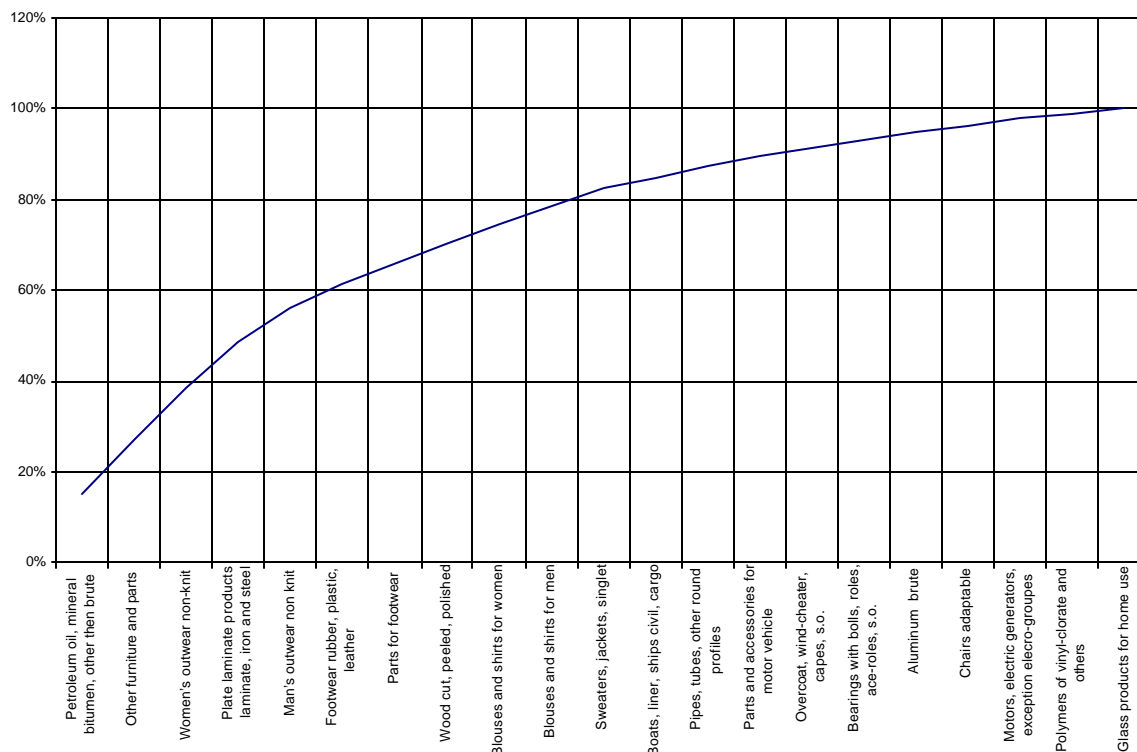
According to this method can be considered that the export activity is balanced and stabil if 20% of the products covered 80% from the turnover. After the exports analysis we can appreciate that as proper the activity and take into account all the rates from 15%/85% to 25%/75%. Base groups of products being situated, on the amount bases from sells, outside the mention above levels, in not compulsory a critical situation, but it is requested to focus on disclose the causes of unbalance and to make the corrections.

Analyses by 20% / 80% law assume to follow the next stages:

- Establish the parameters relevant for the study objectives;
- Identification of all products;
- Define the main criteria of the classification;

- Tidy up the products decreasing by the value of the main index of analysis;
- Building the curve of grouping or of relative cumulate frequencies expressed in percentage;
- Results presentation and interpretation.

Graph 1



For the foreign trade activity the Pareto observations offers the possibility to think of a theory refers to a products repartition based on their average on the goods nomenclature and exports volume. This law was analysed by the point of view of the *stability of the fluctuation of the Romanian exports*. Thus, there are tree groups of products which creates the exports continuity:

**group A** - 30% from the products assuring 60% from exports; on this group, during the studied period there are about 6-7 products; as a conclusion this group has *the biggest stability on the exports structure*.

**group B** - 20% from the products assuring 20% from exports; this group is characterized by a *big instability*; permanently the products from this group swing between groups A and C;

**group C** - 50% from the products assuring 20% from exports; on this group we can find the products which are *usually placed on the last 10 places of the erarchy*.

Each of these three zone by applying the ABC method, presents specific characteristics which determine the individual measures from the adopted export strategy point of view.

Final data can be presented in a general form as per table 3.

**Table 3**

<i>Products</i>	<i>Group A Over 60% from exports volume</i>	<i>Group B 20% from exports volume</i>	<i>Group C 20% from exports volume</i>
<i>P<sub>1</sub></i> • <i>30% from products</i> • <i>P<sub>1n</sub></i>			
<i>P<sub>21</sub></i> • <i>20% from products</i> • <i>P<sub>2m</sub></i>			
<i>P<sub>31</sub></i> • <i>50% from products</i> • <i>P<sub>3w</sub></i>			

**Zone A** includes products which register the best results and give the image of the Romanian exports.

Due to this fact the products and the customer from this area are under a strong oversight, this area is the subject of the exports structure stability.

Other characteristic of this group is the high risk level, as a consequence that loosing a product from this area can cause severe effects on the exports structure and volume.

**Zone B** represents the equilibrium zone of exports, comprised the medium products by their contribution to the exports volume.

Products from this group will be better to be characterized by a bigger stability. At this moment they are fluctuate.

**Zone C** include the products which are characterized by a huge number and a small contribution to the total exports volume. They are depending to the following aspects:

- Degree of new included on the respective product or the method of merchandising or manner of selling - before customer knowledge and acceptance these products are covering a very small amount of exports
- On the foreign trade company there are obsolescent products, subject of small orders, but imperative to be present.

The conclusions of this analysis are as follows:

- Each of the 7 studies years 6-7 products are placed on the A zone and they cover 60% from the 21 products exports, the presence is as per the following table:

	Place during the year:						
	1995	1996	1997	1998	1999	2000	2001
Petroleum oil, mineral bitumen, other than brute	1	1	2	5	5	1	2
Other furniture and parts	2	2	4	4	3	5	5
Women's outwear non-knit	4	3	3	1	1	2	1
Plate laminate products laminate, iron and steel	5	5	5	3	2	3	3
Man's outwear non knit	6	6	6	6	6	6	4
Footwear rubber, plastic, leather	3	4	1	2	4	4	
Parts for footwear							7
Wood cut, peeled, polished				7	7	7	6

*The marked areas shows the absence of the product on that year from the A zone.*

- On the B sector 20% from exports, are placed 4-5 products, not very stable. For the studied period there are:

	Place during the year:						
	1995	1996	1997	1998	1999	2000	2001
Parts for footwear	7	7	8	8	8	8	
Overcoat, wind-cheater, capes, s.o.	8	9	9	9	10	9	
Wood cut, peeled, polished	10	8	7				
Blouses and shirts for women							9
Blouses and shirts for men							10
Sweaters, jackets, singlet			11		11	11	11
Pipes, tubes, other round profiles				11			
Boats, liner, ships civil,	11	11		10	9	10	

cargo							
Aluminum brute	9	10	10				
Plate laminate products laminate, iron and steel							8

*The marked areas shows the absence of the product on that year from the A zone.*

- Area C is characterized by a big stability. By 14 products, 5 are constantly on the zone C.

	Place during the year:						
	1995	1996	1997	1998	1999	2000	2001
Overcoat, wind-cheater, capes, s.o.							15
Blouses and shirts for women	15	16	16	15	13	13	
Blouses and shirts for men	14	14	13	14	12	12	
Sweaters, jackets, singlet	16	13		12			
Boats, liner, ships civil, cargo			15				12
Pipes, tubes, other round profiles	17	15	12		16	16	13
Parts and accessories for motor vehicle	21	19	19	18	15	15	14
Overcoat, wind-cheater, capes, s.o.							15
Bearings with bolts, roles, ace-roles, s.o.	12	12	14	16	17	17	16
Chairs adaptable	20	21	21	21	21	21	18
Polymers of vinyl-clorate and others					11	11	
Aluminum brute				13	14	14	17
Motors, electric generators, exception electro-groupes	19	18	20	19	19	19	19
Glass products for home use	18	20	18	17	18	20	21

*The marked areas shows the absence of the product on that year from the A zone.*

#### 4. Prognosis

Taking into account the big oscillation of the first 21 exported products, we can presume the hypothesis that in the future, due to the various conditions on the international markets, these products will be the nucleus of the Romanian exports.

As a result, can be used a matrix type method to presume the future evolution of the export structure. Models type matrix chains are used to make the prognoses of the structure for phenomena with known distribution of elements and also with known modification and movement between the elements.



Future evolution of the phenomena depends in a probability approach by the previous structure. A method recommended for this type of prognoses is the method of Markov chains.

The Markov chains are used to appreciate and foresight the structure of phenomena, taking into account the possible transformation from a stave to a new one, from a period to other.

Using this type of matrix can be obtained a prognoses as the presented one in table 4.

Table 4

**Export prognosis for first 21 products**

(billion USA \$)

	2001	2002		2003		2004	
		min	max	min	max	min	max
Petroleum oil, mineral bitumen, other then brute	721	631	670	575	610	528	561
Other furniture and parts	416	395	420	388	412	380	404
Women's outwear non-knit	724	699	743	697	740	695	738
Plate laminate products laminate, iron and steel	305	281	298	271	288	266	283
Man's outwear non knit	543	529	562	530	563	530	563
Footwear rubber, plastic, leather	469	455	483	454	483	454	482
Parts for footwear	336	329	349	332	352	334	355
Wood cut, peeled, polished	338	320	340	313	333	307	326
Blouses and shirts for women	214	208	221	208	221	209	222
Blouses and shirts for men	195	189	201	189	201	189	201
Sweaters, jackets, singlet	185	179	190	180	191	180	192
Boats, liner, ships civil, cargo	173	204	217	231	245	249	265
Pipes, tubes, other round profiles	158	168	178	183	194	196	208
Parts and accessories for motor vehicle	133	138	146	146	155	153	163
Overcoat, wind-cheater, capes, s.o.	176	191	203	207	220	221	234
Bearings with bolts, roles, ace-roles, s.o.	120	131	139	144	153	157	167
Aluminum brute	107	131	139	154	164	175	186
Chairs adaptable	85	91	97	100	106	108	115
Motors, electric generators, exception electro-groupes	74	87	93	101	107	113	120
Polymers of vinyl-clorate and others	65	102	109	135	144	163	173
Glass products for home use	56	81	86	104	111	124	132

## 5. Conclusions

There are, in our opinion, some questions (problems) that should be on the priority agenda of governmental institutions when trying to establish some generic guidelines for international economic cooperation and foreign trade policies.

These could be, *inter alia*:

- International economic cooperation - is it envisaged as an instrument for economic development and European integration?
- Are high efficiency products considered as priorities in the efforts towards economic promotion?
- Are there any index systems for evaluating the efficiency and the capitalization of the international economic cooperation operations?
- The impact of the privatization process – has it been evaluated in terms of economic development and international trade relations?
- Are there any links between efficiency /both at microeconomics and macroeconomic levels/, liberalism and protectionism?
- How much liberalism and how much protectionism are necessary for a proper integration into the international trade flows?

It is to be said that, after twelve years from the December revolution, there would be natural for Romania to step into a new qualitative approach as a result of better understanding of market mechanisms and requirements, of local (national) needs and priorities.

Of course, there are many concerns related to a progress in terms of international trade favorable to the general economic development, framework in which international economic cooperation gets a higher importance.

Another conclusion is that Romania has some specific natural resources and highly trained specialists that could facilitate, through policies structured mostly on efficiency criteria, the country's performances as a robust EU-type business partner.

The EU integration process is the first step towards global economy required alignments and aspiring countries, more or less in competition among themselves, have to design quite accurately their future role and actions on the world market(s). The mark-up strategies used by companies are, for the time being, more related to national prospective than to the global environment.

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