

Săvoiu, Gheorghe; Dinu, Vasile; Tăchiciu, Laurențiu

## Article

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## ROMANIA FOREIGN TRADE IN GLOBAL RECESSION, REVEALED BY THE EXTENDED METHOD OF EXCHANGE RATE INDICATORS

Gheorghe Săvoiu<sup>1\*</sup>, Vasile Dinu<sup>2</sup> and Laurențiu Tăchiciu<sup>3</sup>

<sup>1)</sup> *University of Pitesti, Pitesti, Romania*

<sup>2),3)</sup> *Academy of Economic Studies, Bucharest, Romania*

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### Abstract

In this article the authors propose an extended method for assessing foreign trade, which is capitalized on in the analysis of foreign trade/external marketing, under the influence of two of the most difficult recession of the Romanian economy, placed in the last interwar decade and in the first decade of the new millennium. The selection of the periods for the analysis, despite and beyond the methodological shortcomings concerning the provision of statistical comparability, which is relatively overcome by the advantages of the method, was dictated by the regulator impact of the major recessions in Romanian foreign trade, which offers the possibility to identify a national profile of economic behaviour. The structure of the article includes, after an introductory reference to approaching external marketing in the main economic theories, the first section dealing with the repertoire of foreign trade theories, with main emphasis on the specific contemporary issues and trends, but also a section for detailing the extended method proposed and the original statistical tools that are proposed (from the spread of the mobile rates of the contrary flows, to the indices and coefficients of the Hirschman and Gini-Struck type in curve ABC), and of the databases. Once applied in the results section, the extended method manages to quantify the broad outline of a reactive profile, slightly lagging and inertial, of the external marketing / foreign trade of the national economy, in relation to crisis or recession in both time analyses, which is relatively stable for eight decades, providing space for comments that allow greater macro-economic self-awareness. The main final remark shows that a small starting gap, apparently favourable, of Romanian foreign trade, in response to crisis or recession type phenomena, cannot however compensate the inertial trend of these cyclic phenomena, which is slightly longer than one year, and whose negative impact is strongly felt and amplified.

**Keywords:** method of exchange indicators, foreign/international trade, mercantilism, spread of mobile rates, Hirschman and Gini-Struck indices and coefficients in ABC curve.

**JEL Classification:** C46, E 31, O24, N74, P22, P33

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\* Corresponding author, **Gheorghe Săvoiu** - gheorghe.savoiu@upit.ro

## Introduction

The financial and monetary crises, converted into cyclical recessions that shook the countries of the world in the twentieth century, and culminated in the global banking credit crisis in 2008, are inherent consequences of the contagion and instability of capital or financial markets, showing that the flows of international trade have enriched both their actual content, and the indicators that can assess them. Modern foreign marketing is able to import and export not only goods and services, but also inflation and unemployment, and even crisis or recession.

The crisis begins with the disruption and even economic stagnation, marking a difficult period in the normal functioning of an economic system, by difficulties accumulating, conflictual tensions breaking out and strong pressures for information, technological and entrepreneurship change. The economic crisis is preceded and accompanied by open conflicts in communication, where internal and external problems are overlapping, which threaten the integrity, the reputation or the existence of an economy and, as an economic policy, it becomes synonymous with a failure of administration, a decrease in governability, culminating with the inconsistency and incoherence of the survival of an economic system. Recession with local or general impact is characterized by a slowdown in economic activities for a minimum period of six months, the specific macroeconomic marker being the negative rate of the index of real GDP, as the external trade indicators are also included in the information system of impact anticipating and assessment.

The global recession periods cyclically reviewed the sensitive aspects of foreign trade, with regulatory effects on the main indicators of trade and terms of exchange rate. The first substantial economic theories, i.e. the mercantilist ones, considered normal economic evolution or the development undisturbed by crises, as generating material wealth. Wealth itself was thus understood solely as a result of foreign trade and built according to the rule of “selling foreigners, annually, more than we consume, in terms of value, from their products” (Mun, 1664). Classic mercantilism and neo-mercantilism were “statist systems built on imperial power structures, focused on monopolistic privileges, encouraging exports and discouraging imports” (Rothbard, 1986), the obvious forms of protectionism.

The physiocrats were the first to relate to mercantilism in a challenging spirit, internal or external trade / marketing being the occupation of a class considered sterile and unproductive, and the classical economic theory, matured the moment the growth phenomenon was theoretically set up, as formulated by David Hume and Adam Smith, proclaimed industrial production essential, and government intervention in all markets inappropriate. Then, Malthus and Ricardo found the limits of growth, from positions of a demographic nature, or in terms of income correlated with the subsistence of population. David Ricardo resumed the few mercantilist truths, stressing that the full economic freedom and imposed freedom of movement and exchange for any kind of property as the main factor of economic growth.

Socialism and socialist economy, based on Marxist support, were developed as theory and practice of *political economy and economic policy*, stressing the importance of external trade from statist, and implicitly mercantilist, positions. The theoretical current of marginalism, also called neoclassicism, which was to emerge in the 1870s, generated by the *Austrian school of economics* around Carl Menger in Vienna (*Principles of Economics*), the

*School of Lausanne*, having as mentor Leon Walras, and the *British school*, through William Stanley Jevons (*The Theory of Political Economy*) amplified the importance of marginal cost, marginal utility and market equilibrium (resulting from the analysis of the behaviour of the producers and consumers, in an attempt to maximize the benefits and usefulness in eventually bringing about the general equilibrium), again repositioning itself in relation to mercantilism and the active balance of foreign trade. Thorstein Veblen was to shape the new theory, called the theory of economic institutionalism, highlighting the importance of habits in the economic behaviour of consumers and producers, with an impact on both exports and imports, and after the Great Depression of the '30s, John Maynard Keynes, in his theory, offers a new attempt to explain crises through the dynamic imbalance of a decision-making type, i.e. saving – investment. State involvement in the economy appears as a postulate, which reopens the mercantilist growth processes by policies of export and import, the government being able to prevent, under the new economic ideas, a seriously decreased demand by increasing its own expenditure.

Understanding and capturing the normative shade, the monetarist school, or the Chicago School, criticized, through Milton Friedman, the new distortion of economic reality, as demonstrated by the crisis in the 1970s, when the Keynesian economic policies no longer worked as remedies, while the economy was simultaneously faced with inflation and unemployment; so they were amended according to the monetarist theory. Of course the solutions were multiplied, and are still multiplying continuously, in the global economy under the impact of globalization, and neo-Keynesian, post-Keynesian theory, or the neoclassical theory, etc. are other names for the same political economy of mercantilist origin, with very different approaches and solutions

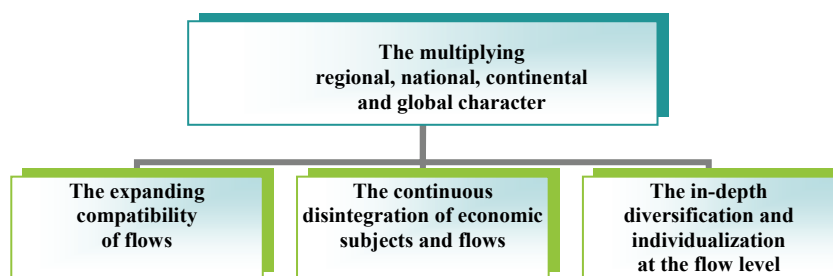
In this article reference to mercantilism emphasizes the methodological importance of this theory, which, beyond its historical errors and inherent limitations, provides, for the first time, scientific methods of marketing and trade analysis, instrumental analyses of export and import flows, considerations of efficiency, by appeal to the active balance, to characterizing the structure of international markets, to the analysis of the inequalities of structural and regional distributions arising from specialization and comparative advantages. Without exaggerating the importance of external trade, any subsequent theory is redefined in relation to the mercantilist heritage.

### 1. Specific trends and theories of foreign trade / external marketing

In foreign trade, the major players are represented by the *exporter*, the entity that brings goods for sale outside an economic territory, called the national economy, and the *importer*, or the entity who brings goods into their own economic territory. The methodological knowledge and detailed understanding of international economic flows requires revealing the external marketing trends, manifested in the relatively recent economic history of the last decades: (figure no. 1)

The multiplying character arose from the continued development of international specialization under the impact of scientific progress, of the globalization of human society problems (underdevelopment, food crisis, environment degradation, rapid population growth, economic crises, inflation, excessive urbanization development, transition to competitive market economy), and the increasingly varied opportunities to conclude international agreements and economic partnerships. Compatibility between the multilateral

and bilateral nature of the international economic flows has always been in full process of expansion, with rigorous compliance with the principles of international law. International economic flows had as subjects more and more businesses in different countries, acting through concluding commercial agreements of great typological diversity. International economic flows had a general tendency to multiply in a given economic and legal context. International economic flows have become more varied, from the flow of goods, materials and services (classic foreign trade), to the capital / monetary flow (direct investment, loans, transactions in securities), from the global flow of labour (through labour migration from one country to another), to the world currency flow (selling and buying convertible currencies), the information flow, invisible trade, etc.

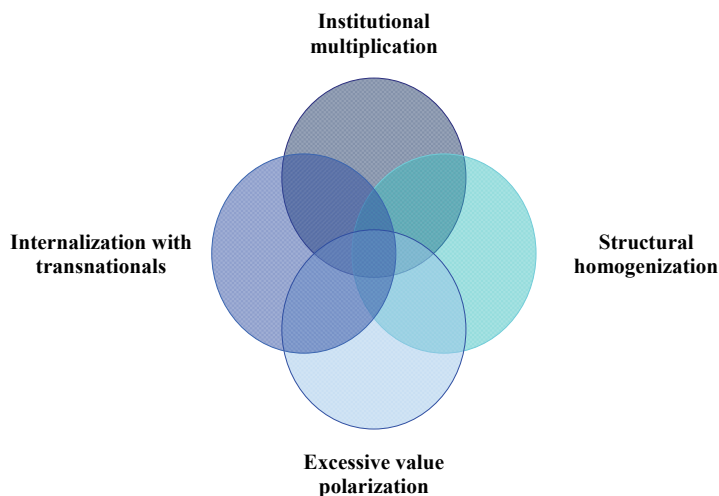


**Figure no. 1: Historical trends and international foreign trade**

Each country seeks to participate in international trade by means of its trade balance, but also through other methods of statistical and economic analysis. The state of the trade balance (surplus, deficit or balanced) represents the synthetic expression of the degree of economic efficiency in the country recorded in foreign trade activities, and shows the results of nationwide activity, as well as the place it occupies at an international level, revealing the real competitiveness of its goods on the world market. Foreign trade or international trading shows, in today's context, a dynamics of an exponential type (world exports increased from \$ 10 billion in 1900 to over 16,000 billion in 2010, in nominal terms by 1,600 times, and in real terms over 60 times), its contrary flows of export and import become more dynamic (an example is Romania's exports of goods, which increased from \$ 717 million in 1960 to \$ 49.4 billion in 2010, while the imports increased from 700 million to 62000 million, according to [http://www.economywatch.com/economic-statistics/Romania/Trade\\_Statistics/](http://www.economywatch.com/economic-statistics/Romania/Trade_Statistics/)) which represent priorities of the flows of trade policy and sustainable development in almost all economies of the world, reveals a continuing diversification, and also limitations or restrictions of all kinds, both tariff and non-tariff in nature. Out of the top 15 exporting countries of the world which, in early 2010, generated two thirds of international trade, only nine presented a commercial surplus, which stresses the need to capitalize on the methods of statistical and economic simultaneous analysis of the export and import flows. (figure no. 2)

New institutions have appeared, and continuously appear, whose legal nature is different, but whose aim is to do international trade in the existing UN systems, or union trading in the EU, or new interstate integrationist systems, or in the systems of producers and consumers; the importance of transnational corporations and internalization are increasing the process of developing domestic trade between the subsystems and their constituent entities, the structure of export and import flows is homogenized, especially between developed countries, and also, conversely, is excessively polarized in point of value (EU,

U.S., along with Japan and China, have exceeded half of the amount of international marketing for a long time).



**Figure no. 2: The new accents of contemporary international trade**

The theories of foreign or international trade are numerous, and they have permanently evolved, starting with the advent of the large national states in 17th and 16th century Europe. Classical theories support the assumption that price differences are the cause of foreign trade as a natural result of varying levels of supply and demand of two countries. Whether they are theories of absolute advantage (Adam Smith), of absolute and relative comparative costs (Robert Torrens and David Ricardo), or they support international values (John Stuart Mill), the first classical theories (Smith, 1776, Samuelson, 2001) state that foreign or international marketing activity, in conditions of free trade, favours both the global economy and each individual country. Classicism and commercialism exacerbate the importance of external marketing and provide the theoretical framework for the theoretical analysis of division of labour in international trade, becoming the inspiration for the commercial strategies of development, by the leading role given to the phenomenon described in the development and propagation of design-oriented economic development oriented outwards, an extrovert development.

During the interwar period, the new approaches rephrased the classical theory. A first reinterpretation justifies, practically, international trade in terms of opportunity or replacement costs, and therefore is even called so (Alfred Marshall, Gottfried Haberler). There followed the Heckscher-Ohlin-Samuelson model, known by the acronym of HOS theory of foreign or international marketing (Samuelson, 1964, Ohlin, 1967). The basis for this new theory was formed by two axiomatic requirements: a) the requirement of endowment with factors (the country that has a positive endowment with a given factor of production will export goods that use that important factor to a larger extent, in exchange for goods of intensive use of scarce factors); b) the requirement of equalizing income factors (international exchange equalize the price of factors from one nation to another). Post-war period was initially dominated by a group of theories known as the broad concept

of “new theory of international trade”, which is especially focused on the imperfections of competition, challenging the hypothesis of homogeneous factors, boosting external marketing as a process of exchange and transfer of ownership. Among the contestants were famous names of economists that W. Leontieff, G. Marcy, H. Johnson, T.M. Rybczynski, J. Bhagwati, G.M. Meir, etc. A so-called process of renewing the theory of foreign (international) trade promptly appeared in multiple versions, placed in the general area of the balance between supply and demand, variously benefiting from either the primacy of the demand perspective, or the influence of export supply over demand (Nurkse, 1970).

The new theories motivated trade / marketing by the representative national demand (S.B. Linder), by differentiation demand (B. Lassudrie-Duchêne), or the relationship between the product life cycle and international trade (Vernon, 1973). Another important theoretical approach belongs to Fr. Perroux, and recognizes the international propagation of fluctuations in international trade flows, by analyzing the effect of driving in real terms, but especially through direct foreign investment, reconsidered as major generators of international trade (Perroux, 1969). Michael Porter and the new theory of competitive advantage reposition the nation as a matrix of development companies (Porter, 1995).

These entities take advantage of national benefits, emerging internationally by capitalizing on the factors of production, technological resources, and natural, human and financial resources available to their own economy. The most recent of the theories of foreign or international trade is the new liberal theory of international trade (Krugman, 1990, Krugman and Obstfeld, 1994), awarded a Nobel Prize at the end of the first decade of the twenty-first century. This contemporary approach argues that the origin of modern international trade is represented by a number of causes, such as the differences between nations due to economic specialization (an approach which draws it close to the classic mercantilist view), the possibility of economies of scale, providing production factors and random elements. Foreign or international trade, which is defined in more and more varied manners, from difference demand to the set of international trade relations (including export and import flows), or the benefits accruing from the national advantages, to the benefits of economies of scale, is a generator of foreign and domestic prices, of export and import prices, of international, regional and local prices.

The differences in the making of these prices are the result of both the perimeters, and the legislative barriers, completely different from one state to another, from one region to another. Price remains a key, express clause of the contract, and the dynamics of the exchange term of trading essentially depends on the simultaneous developments of the export and import prices of a national economy.

## **2. Method, statistical instruments and databases**

The analyses of foreign trade focus on methods that exploit the costs of structured flows through transactions that tend to favour some goods over others, thus highlighting the importance of specific transactions (Jones, 1976, Norman, 1987, Kiyotaki and Wright, 1989, Aiyagari and Wallace, 1991; Kocherlakota, 1998), or the methods of analysis of an external and globalized balance, identifying restrictions on each transaction, not only aggregated at the level of flows of net trade (Starr 2003, Starr 2007; Rötheli, 2011). Other methods of classical analysis (Jevons, 1875) or more recent methods quantify the impact of economies of scale, highlighting the importance and uniqueness of the transaction starting

from the exchange milieu, and even the role of modern technologies in foreign trade (Laidler, 1988; Meltzer, 1998, Krugman, 1990, Krugman and Obstfeld, 1994, Lewis and Mizen, 2000). Focusing on an economic good in export or import flows can also be solved with the help of game theory (Schelling, 1960, Sugden, 1995), or by identifying and testing, by various statistical and econometric methods, different trends of the products, and discovering for some of them trends of decline, as for the primary ones on a long term (see the Prebisch-Singer hypothesis, Basu and McLeod, 1991, Barros and Amazonas, 1993).

The foreign trade analyses may also focus on the specificity of import prices, under the influence of taxes on the domestic market, evaluated according to official data (Obstfeld, 2001, Obstfeld and Rogoff, 2001, Burstein, Neves and Rebelo, 2003), or the level of equilibrium of the real exchange rate interpreted as a result of fluctuations in export and import flows, revealing economic goods differentiated by means of portfolio balance model (Taylor, 1995, Sarno and Taylor, 2002), confirmed indeed by other specific empirical methods (Lane and Milesi-Ferret, 2002). Some relatively recent models renew classic hypotheses and models, like the Harrod-Balassa-Samuelson model of real exchange rates, successively repeated and improved (Harrod, 1933, Balassa, 1964, Samuelson, 1964), or the analyses of effect of increasing foreign or international trade (Hicks, 1953; Johnson, 1955; Nurkse, 1959, Balassa, 1978, Bhagwati and Srinivasan, 1980, Cuddington and Urzua, 1989, Findlay, 1995), thus managing to revive this kind of modelling thinking in modern econometric terms (Micossi and Milesi-Ferret, 1994, De Gregorio, Giovannini and Wolf, 1994, Chinnor, 2000, Bergin, Glick and Taylor, 2004; Holod and Reed, 2009).

The method of quantification of value and physical degrees of coverage and the net term of transfer between the external trade flows has been extended in an ecological spirit (Banzhaf, 2004), accompanied by statistical and econometric tests (Zanias, 2005), reconsidered as a priority in economic growth analyses focused on foreign trade (Ricardo, Jason, Dani, 2007), and transformed into a method able to provide decision-impact restrictions (Coughlin, 2010). The classical version of the method used in this article for the specific evaluations based on the Romanian economy proceeds from the already classic model of analysis using exchange indicators in the context of domestic trade (Enescu, 1993; Korka and Tuşa, 2004; Anghelache, Mitruţ, Isaic-Maniu and Voineagu, 2009; Săvoiu, 2007; Săvoiu, 2011), which it improves with statistical tools of concentration – diversification assessment per flow, and elements of inflection identification in times of crisis and recession, through the gap of flow rates; therefore it is called the extended method of exchange ratio indicators.

The phenomena of concentration - diversification are assessed structurally, but also correlated with reference limits by using the Gini index, through statistical and mathematical solutions, continuously replicated since the appearance of that instrument, up to the present moment, passing successively through indices of the following types: Hirschman, Herfindahl-Hirschman, Grubel-Lloyd, Brühlhart, Greenaway, Neven, Hine-Milner, Sternberg-Litzenberger, Hannah-Kay, Finger-Kreinin, Andreosso-O'Callaghan, Gini-Struck in the curve ABC, etc. (Hirschman, 1964, Grubel and Lloyd, 1971, Finger and Kreinin, 1979, Lilien, 1982, Curry and George, 1983; Neven, 1995, Sternberg and Litzenberger, 2004; Andreosso-O'Callaghan, 2009, Săvoiu et al., 2010, Esteban and Ray, 2011). The inflection is detected by the spread or gap rates of the export and import flows, calculated with a mobile base (Săvoiu and Iorga-Simăn, 2010). Preference for the method of exchange ratio indicators is justified by its synthetic character and the simultaneous

analysis of flows, as shown in its theoretical premises. The export and import flows have opposite economic and financial effects, as each flow can be analyzed both separately, and combined as a balance ( $\Delta = X - M$ ), where  $X$  and  $M$  are the volume of exports, and of imports, respectively. Flows can also be measured simultaneously through the relative specific indicator called coverage of imports by exports [ $GA = (X : M)$ ], and dynamically through the value volume indices, the indices of physical volume, and of price ( $I_v$ ,  $I_p$ ,  $I_q$ ). The quantitative flows are analyzed through the gross exchange ratio [ $RSB = (QX : QM)$ ]. The flows can be shown distinctly, both in point of level and dynamic structure, by destinations (exports), and by sources of origin (imports), respectively through elementary indices and weights or specific gravity. The effects of the action of the combined flow is found in the trade balance (passive, balanced or active), and assessing the role of external trade is found in the final result of the economy, determined as the ratio of that balance and the gross domestic product.

Flows can also be shown through value indices, physical volume indices, and, especially, the specific indices of prices, known as unit value indices (IVU), the calculation relation of which is that of an aggregate index, constructed as a harmonic average of individual price Paasche type indices:

$$I^p = \frac{\sum v_i}{\sum \frac{1}{i^p} \times v_i} = \frac{\sum p_i q_i}{\sum p_0 q_i} = IVU \quad (1)$$

The quantitative flows, isolated and subsequently relativized, also conduce to also determining the gross exchange ratio, useful in quantifying the structural changes in exports and imports. The extended method adds the gap of the mobile rates of export and import flows, and the Gini-Struck indices for export and import, to the seven classic statistical indicators, namely: a) the index of percentage coverage of imports by exports ( $ICXM = I_X^V : I_M^V$ ); b) the „gross barter” terms of trade index or ratio of the export quantum index to the import quantum index ( $IGB = I_X^Q : I_M^Q$ ); c) the „net barter” terms of trade index, or, in a synthetical expression, the terms of trade index ( $INB = UVI_X : UVI_M$ ); d) the foreign trade price shears, ( $FTPS = INB - 100\%$ ); e) the effect, as absolute value, of the deterioration of the net exchange ratio, determined when there is a price shears, i.e. the absolute value of the losses ( $\Delta VL = \Delta UVI_X - \Delta UVI_M$ ); f) the purchasing power of exports index) ( $IPPX = I_X^Q \times INB$ ); g) the factorial terms of trade index ( $IFTT = I^W \times INB$ ), where  $I^W$  is the index of labour efficiency.

The databases are drawn from sources formed of the statistical and economic classics of the decade preceding World War II (available practically only for the years between 1929-1938, as the data are missing for 1939, the starting year of the global conflagration), and from the Internet, by visiting the official site of the National Institute for Statistics (<http://www.insse.ro>), for the first decade of the twenty-first century (2000-2010), both decades being significantly influenced two decades major recession periods with a global impact.

### 3. Results and discussion

Building especially on data from the Encyclopaedia of Romania, reprinted in 1943, the classical analysis is summarized in table no. 1, through processing the databases, according to the current method, restricted to only six indicators, losses or the effect of worsening terms of trade or the effect in the absolute size of the deterioration of the net exchange ratio, being determined for the entire period between 1930 and 1938, at about 160 billion stabilized lei, in conditions of a permanent existence of a price scissors in Romania's foreign trade. The only indicator that cannot be determined yet is the factorial terms of exchange ratio, as there are no comparable data about the total economic productivity for the period under review.

**Table no. 1: The main statistical indicators processed according to the method of exchange ratio, between 1930 and 1938 in Romania**

	1930	1931	1932	1933	1934	1935	1936	1937	1938
Million lei									
Exports (X) mil. lei	28,522	22,197	16,722	14,171	13,656	16,756	21,703	31,568	21,533
Imports (M) mil. lei	23,044	15,755	12,011	11,742	13,209	10,848	12,638	20,285	18,768
1929 = 100%									
$I_X^Q$ (Export Quantum Index)	143.8	169.4	142.7	131.1	126.4	137.6	161.3	132.4	115.3
$I_M^Q$ (Import Quantum Index)	78.7	58.6	57.4	60.3	65.9	54.4	58.1	74.2	61.5
1929 = 100%									
UVI Exports Index (X)	69.9	45.6	41.9	38.5	37.7	42.6	46.2	69.7	60.0
UVI Imports Index (M)	94.3	80.2	65.0	64.2	65.1	66.9	74.2	91.6	92.2
1929 = 100%									
IGB (Gross Barter Index)	182.7	289.1	248.6	217.4	191.8	252.9	277.6	205.4	187.5
INB (Net Barter Index)	74.1	56.9	63.6	60.0	57.9	63.7	62.3	76.1	65.1
FTPS (price shears)	25.9	43.1	36.4	40.0	42.1	36.3	37.7	23.9	34.9
$\Delta VL$ (value of the losses)	160 million lei (an annual value between 12 and 25 million lei)								
ICXM = IGB $\times$ INB	135.4	164.5	158.1	130.4	111.01	161.1	172.9	156.3	122.1
IPPX = $I_X^Q \times INB$	106.1	96.4	90.8	78.7	73.2	87.7	100.5	100.8	75.1

Source: Composed by the authors with reference to Dimitrie, 1943, pp. 477, 488 – 489; Axenciuc, 1991, pp. 117-125; Josan, 2004

The method used manages to draw some of the behavioural characteristics of the Romanian economy in foreign trade in times of crisis or major recession, making itself useful in historical researches as well. The reactive profile of external trade is outlined for the national economy in relation to the crisis or recession, and a behavioural, and implicitly decision-making, pattern, specific to Romania, emerges from the elements listed below:

- at the height of crisis or global recession, the physical volume of exports rises, the export prices fall continuously, the price scissors reaches its maximum value, while the import volume decreases dramatically, failing to return to previous levels even after nearly a decade; the import prices decrease until 1933, when they reach the lowest level;
- IGB or “gross barter” terms of trade index shows an export dominated by resources and raw materials, as compared with an import of manufactured products with consistent labour incorporated, so the economy was sustaining, in full recession, the operation of

industrial sectors in the partner economies through wages and profits incorporated in the imported goods, without being able to ensure the survival of the entrepreneurs and employees of the national economic territory;

- comparing the average value of one ton of goods exported to one ton of imported commodities, at the prices of the year 1929, once the economic crisis of that year starts, Romania records annual losses and freely cedes value newly created in its economy through foreign trade activity of 24 to 25 billion stabilized lei.

- INB or "net barter" terms of trade index underlines the effect of imports becoming relatively "more expensive" from one year to the next, export prices failing to rise to the same extent as those of the imports in economy, which does not actually possess products of high competitiveness that would allow this type of foreign trade policy;

- Such a great difference in terms of percentage rate between export and import price index is due, among other things, to the export and import structure of Romania, where, structurally, 90-95% of Romanian export was made up by raw commodities or with a low degree of processing, the import was represented by manufactured goods, and the process of structural deterioration is amplified, reaching its maximum impact in the midst of the crisis;

- foreign trade price shears, or FTPS, present throughout the period under analysis, characterized by an  $INB < 100\%$ , shows how the Romanian economy gratuitously cedes between 23.9% and 43.1% of the added value to the economies with which it maintains open flows, and which have values above 100% of the same indicator (a very high price paid to be present on other national or international interwar markets, later lost so easily);

- IPPX, or the purchasing power of exports index, though representing a limit where the imports should have been stopped (especially in the midst of recession), was not at all important decision-making tool, or at least a tool valued as a signalling indicator for the national foreign trade policies of the time, etc.

Extending the method involves evaluating the gap of the linked rates of the export and import flows, which have a high degree of clarity and timeliness of information, indicating the evolutionary turning moments (table no. 2).

**Table no. 2: Identification of evolutionary turning moments  
with the gap of mobile rates**

	Preceding year = 100%									
	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Rates with mobile basis for export ( $XR_{t/t-1}$ )	7.14	- 1.16	-22.18	-24.67	-15.26	-3.63	22.70	29.52	45.87	-31.79
Rates with mobile basis for import ( $MR_{t/t-1}$ )	- 6.36	-22.23	-31.64	-24.76	- 2.24	12.49	-17.87	16.51	60.51	-7.48
Gap of mobile dynamics $XR_{t/t-1} - MR_{t/t-1}$	13.50	21.07	9.46	0.09	-13.02	- 16.12	40.57	13.01	-14.64	-24.31

Source: Statistical evaluations made by the authors from the data in table no. 1

The entire global recession indicates positive values; the abnormality of the positive difference in situations of relative imbalance is an indicator of the classical statistical description, as well as the normality of the negative difference in relative equilibrium situations. The gap of the linked rates of export and import flows indicates the evolutionary inflection points promptly. Along with the gap of the rates, making use of the Gini-Struck

(G-S) index, and the Hirschman index (H) in the curve ABC, identifies the trends and specific limits in processes of concentration and diversification in the export or import flows in international markets. In table no. 3 these limits are quantified in coefficients.

$$G-S = \sqrt{\frac{n \sum_{i=1}^n g_i^2 - 1}{n-1}} \quad (2)$$

and

$$H = \sqrt{\sum_{i=1}^n g_i^2} \quad (3)$$

**Table no. 3: Identification of concentration and diversification limits in international markets structured according to curve ABCx**

Structure	Weight ( $g_i$ ) in market		Excessively diversified market		Excessively concentrated market	
	diversified	concentrated	$g_i$ (%)	$(g_i)^2$	$g_i$ (%)	$(g_i)^2$
A	0.60	0.333	60.0	0.3600	33.33	0.1111
B	0.25	0.333	25.0	0.0625	33.33	0.1111
C	0.15	0.333	15.0	0.0225	33.33	0.1111
Total	1.00	1.000	100.0	0.4450	100.00	0.3333
Coefficient Gini-Struck			0		0.409	
Coefficient Hirschman			0.577		0.667	

Note: The economic structuring flow's level is generated by the sources and destinations.

A structural analysis, detailed annually, performed using statistical tools Hirschman and Gini-Struck, completes the external trade profile in the interwar national economy, at the height of recession, with the defining elements. An overview of a descriptive and structural type is revealed by the data source described in table no. 4.

**Table no. 4: Processes of concentration of exports between 1929 and 1938 (%)**

Year	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Oil	33.2	36.6	30.8	43.1	55.3	52.8	51.7	41.3	40.5	43.3
Cereals	30.9	35.0	39.5	34.3	23.0	17.4	19.6	31.5	32.2	24.4
Wood	16.2	10.9	10.7	7.4	7.2	10.8	8.7	7.8	9.0	11.4
Live animals	6.9	6.6	7.0	3.8	2.9	4.6	5.7	5.0	4.2	5.7
Seeds and vegetables	3.4	2.5	3.8	4.1	4.8	6.3	6.6	5.3	5.5	6.8
Animal products	3.1	3.7	3.0	3.4	2.5	2.9	2.6	3.1	2.3	3.0
Other products	6.3	4.7	5.2	3.9	4.3	5.2	5.1	6.0	6.3	5.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Dimitrie, 1943, p. 479

The concrete determination and presenting the values of the two instruments clarifies some significant concentration processes, placed beyond the limits of markets that are excessively concentrated or exposed to major risks of excessive concentration, as shown in table no. 5.

Table no. 5: Annual values of the export concentration indices, between 1929 and 1938

Year	Annual structural values of $g_i^2$									
	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Oil	0.1102	0.1340	0.0949	0.1858	0.3058	0.2788	0.2673	0.1706	0.1640	0.1875
Cereals	0.0955	0.1225	0.1560	0.1176	0.0529	0.0303	0.0384	0.0992	0.1037	0.0595
Wood	0.0262	0.0119	0.0114	0.0055	0.0052	0.0117	0.0076	0.0061	0.0081	0.0130
Live animals	0.0048	0.0044	0.0049	0.0014	0.0008	0.0021	0.0032	0.0025	0.0018	0.0032
Seeds and vegetables	0.0012	0.0006	0.0014	0.0017	0.0023	0.0040	0.0044	0.0028	0.0030	0.0046
Animal products	0.0010	0.0014	0.0009	0.0012	0.0006	0.0008	0.0007	0.0010	0.0005	0.0009
Other products	0.0040	0.0022	0.0027	0.0015	0.0018	0.0027	0.0026	0.0036	0.0040	0.0029
Total	<b>0.2429</b>	<b>0.277</b>	<b>0.2722</b>	<b>0.3147</b>	<b>0.3694</b>	<b>0.3304</b>	<b>0.3242</b>	<b>0.2858</b>	<b>0.2851</b>	<b>0.2716</b>
Coefficient H	0.4928	0.5263	0.5217	0.5610	0.6078	0.5748	0.5694	0.5346	0.5339	0.5212
Coefficient G-S	0.3416	0.3956	0.3885	<b>0.4478</b>	<b>0.5141</b>	<b>0.4678</b>	<b>0.4600</b>	0.4084	0.4074	0.3876

Source: Statistical evaluations made by the authors from the data in table no. 4.

The structural deterioration shown in the classic style is complemented by identifying a serious increase in economic risks through excessive concentration of exports (i.e. oil and grain, two categories of products that include very little labour).

The structural trends of the Romanian export flow between 1929 and 1938, highlight the inertial entry, after the recession, in the area of excessive concentration of exports; the reactive profile is promptly shaped by the dynamics and the level of the Hirschman and Gini-Struck indices the curve ABC, the last of which statistical tools shows a higher accuracy and sensitivity, relatively extending the period of increased risks to approximately four years (1932-1935), compared with only one year, according to the other index. Punctually repeating the historical analysis in the context of the first decade of the twenty-first century, focusing on the global recession of 2008, where, according to its prolonged inertial manner, the Romanian economy entered only in the second quarter of 2009, it appears that a specific reaction mode of the foreign trading activity is still maintained, outlining and defining the behaviour of domestic economy for nearly a century.

The degree of openness of the Romanian economy calculated as an aggregate volume of exports and imports in GDP in 2008, or in the best level of its foreign trade, was over 63%, comparable with 64.1% in 2001. The introspection of a classical analysis identifies issues relating to the volume of flows per capita (per capita export, or import per capita), the share of an economy in the world flow of export or import (Romania down from 0.44% contribution to interwar global trade to 0, 15-0.2% in the first decade of the twenty-first century). The crisis and recession have diminished the negative impact of net exports in GDP as the only favourable effect of a major impact: in Romania, the balance deficit already has a continuous upward trend from about 5% to about 14% of GDP between 2001-2008, only to change sharply, to below 10% in 2009 (although the share of exports declined from over 30% to circa 25% in the same year 2009, the imports had a more severe setback).

The delayed and inertial profile of interwar Romania's foreign trade in relation to the global crises and recession is still intact, the national economy practically coming out of the last recession at least one year later than all the European, and developed non-European economies. The annual periodicity data base, processed by the extended method, is presented in table no. 6.

**Table no. 6: Value indicators of foreign trade, between 2001 and 2010, in Romania**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Million Euro										
Exports (X)	12722	14675	15614	18935	22255	25850	29549	33628	29116	37293
Imports (M)	17383	18881	21201	26281	32569	40746	51322	56337	38897	46802
$\Delta=X-M$	-4661	-4206	-5587	-7346	-10314	-14896	-21773	-22709	-9781	-9509
out of which with the European Union, in %:										
Export( $X_{UE}$ )	67.8	67.2	67.7	72.9	69.5	70.5	71.98	70.4	74.3	72.2
Import( $M_{UE}$ )	57.4	58.4	57.7	64.9	63.2	68.71	71.29	69.1	73.3	72.5

Source: National Institute of Statistics, 2009a.

Note: The data is from National Institute of Statistics, 2009b; National Institute of Statistics, 2010.

The results of classical analysis, i.e. its specific indicators, appear in detail in table no. 7 for the same period extending from 2001 and 2010; this time the manner of quantification of the indices is chain-linked, in order to increase the degree of relevance, timeliness and profoundly analytical character, both of the classical method and the extended method.

**Table no. 7: Main statistical indicators, processed according to the method of exchange ratio, between 2001 and 2010 in Romania**

	Previous year = 100%									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Value developments										
I <sup>r</sup> Exports (X)	112.9	115.4	106.4	121.3	117.5	116.2	113.7	113.8	86.3	128.1
I <sup>r</sup> Imports (M)	122.1	108.7	112.3	124.0	123.8	125.1	125.2	109.8	67.9	120.3
Quantitative evolutions										
$I_X^Q$ (Export Quantum Index)	112.2	117.2	108.4	115.4	107.3	107.4	107.3	109.6	96.7	119.7
$I_M^Q$ (Import Quantum Index)	122.5	110.1	116.1	123.1	117.6	120.8	127.5	106.2	76.1	115.5
Evolutions of the prices										
UVI Exports Index (X)	100.6	98.5	98.2	105.1	109.5	108.2	106.0	103.8	89.3	107.0
UVI Imports Index (M)	99.7	98.7	96.7	100.7	105.3	103.6	98.2	103.4	89.3	104.2
Indicators of exchange ratio										
IGB (Gross Barter Index)	91.6	106.4	93.4	93.7	91.2	88.9	84.2	103.2	127.1	103.6
INB (Net Barter Index)	100.9	99.8	101.6	104.4	104.0	104.4	107.9	100.4	100.0	102.7
FTPS (price shears)	-	-0.2	-	-	-	-	-	-	*	-
$\Delta V_L$ (value of the losses)	Insignificant value									
$ICXM = IGB \times INB$	92.4	106.2	94.8	97.8	94.9	92.9	90.8	103.6	127.1	106.4
$IPPX = I_X^Q \times INB$	113.2	117.0	110.1	120.4	111.6	112.2	115.8	110.0	96.7	122.9
$IFTT = I^w \times INB^{**}$	107.8	116.8	107.0	115.2	110.0	111.8	114.3	107.7	95.3	103.0

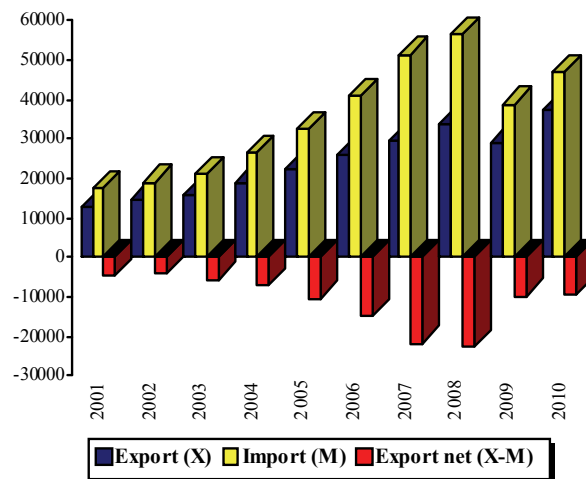
Source: Composed by the authors with reference to National Institute of Statistics, 2009a; National Institute of Statistics, 2009b; National Institute of Statistics, 2010

Note: \* potential or remanent price shears.

\*\* labour productivity considered per employed person, provided by National Institute of Statistics, 2011.

The main aspects of the reactive external trade profile of the Romanian economy is reconfirmed, from the specific elements of the major recessions analyzed: a) in the peak period of the crises, or of the periods of global recession, the volume or the index of quantity of the export increase maximally, the export prices fall sharply, the price scissors is profiled or maintained as potential, while the volume of imports decreases much more, import prices are reduced at a maximum intensity; b) IGB or "gross barter" terms of trade index reflects a sharp deterioration in the exports slightly delayed almost a year (by

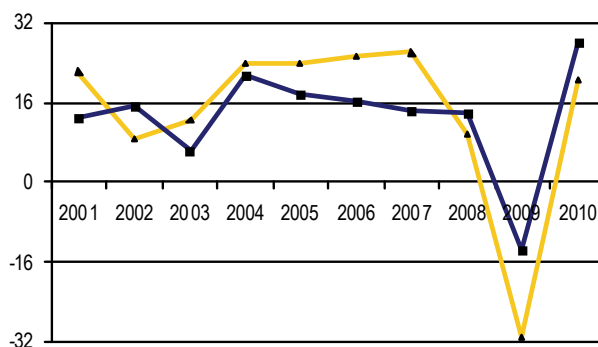
increasing the share of manufactured goods in imports, and those lacking labour in exports), and Romania certainly supports other partner economies, by paying the wages and profits incorporated in the imported goods, while failing to ensure the entire survival of the entrepreneurs and employees in its own economy; The specific losses of newly created or added value of the interwar past are substituted both by structural deterioration of the flows, and free transfer of productivity (IFTT) or contractions of the purchasing power of exports; d) INB or "net barter" terms of trade index emphasizes a shift from recording the effect of "rises" in absolute terms to quantifying in relative terms, a process that is more severe at the entrance in the crisis and is maintained subsequently during deep recession, as Romanian economy does not have a "critical" mass of internationally competitive products; e) the so high interwar difference in point of percentage rate between export and import price index was levelled after nearly 80 years, and it tends to "zero" in recessions, while FTPS or foreign trade price shears only sporadically appears, or remains only a potentiality in crisis and recession; f) the signal generated by the purchasing power of exports index or IPPX, though it is a limit where imports had to be stopped, was by no means an important decision-making tool, nor was it valued as a signalling indicator of interwar national foreign trade policies, or in the contemporary policies, which gave crises and recessions the character of a natural regulator in this respect. Not all the major adverse aspects of Romanian foreign trade have been levelled or flattened as compared to the last century, and the chronic deficit of the balance, with direct impact in systematically increasing the foreign debt, has become the new feature of the contemporary period, even if, in times of crisis and recession, the deficit is reduced significantly, as can be seen in figure no. 3



**Figure no. 3: Developments concerning the value of Romanian exports and imports between 2001 and 2010**

Source: National Institute of Statistics, 2009a; National Institute of Statistics, 2009b;  
National Institute of Statistics, 2010

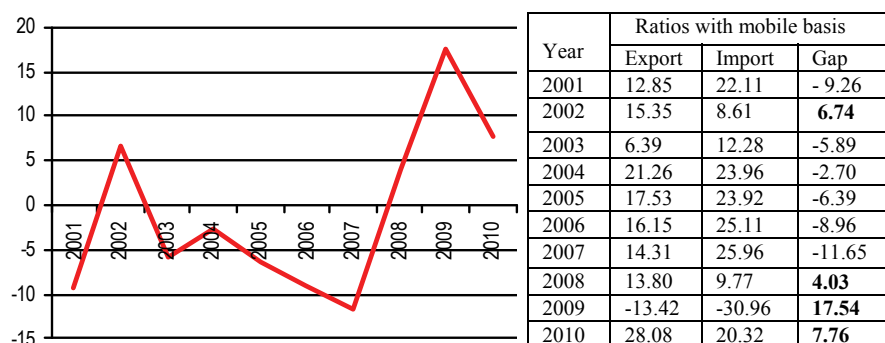
Also, one can identify some specific inflections, through the evolutionary intersections of the contrary flows, (as in figure no. 4), where, maintaining the colours, a presentation is made of the comparative dynamics of the mobile base rates of exports and imports.



**Figure no. 4: Developments in Romania's export and import growth rates between 2001 and 2010**

Source: Composed by the authors with reference to National Institute of Statistics, 2009a; National Institute of Statistics, 2009b; National Institute of Statistics, 2010

If evolutionary imbalance is found in the net export value, mobile ratios intersect for years 2002 and 2008, signalling a “postponed” global crisis and a global recession and a global, much wider as inertness phenomena in Romania compared to other countries in the world. The major inflections are described with significantly more precision through the gap of ratios, in a manner relevant tabularly and graphically, belonging to the period 2002 and 2008 -2010 (figure no. 5).



**Figure no. 5: Mobile-based gap rate of exports and imports between 2001 and 2010 (%)**

Source: Composed by the authors with reference to National Institute of Statistics, 2009a; National Institute of Statistics, 2009b; National Institute of Statistics, 2010

What characterizes both the “thrust” of crisis and global recession, with a much larger amplitude of the inflexion, is the abnormality of the positive difference of the gap rates of the two contrary flows, in contrast to the normality of their negative difference, in national economy with a chronic trade deficit between 2001 and 2010.

In turn, the new phenomena of concentration – diversification in Romania’s foreign trade can be seen in the extensive analysis of export and import flows, by means of the

Hirschman and Gini-Struck coefficients. The determination, at the beginning of the period, i.e. in 2001, and in full recession (2010), of these tools is revealing (table no. 8).

**Table no. 8: Annual values of the indices of concentration of exports and imports, in 2001 and 2010 in Romania**

Categories of products	The annual structural values of $g_i$ and $g_i^2$ determined through coefficients							
	2001				2010			
	Export		Import		Export		Import	
	$g_i$	$g_i^2$	$g_i$	$g_i^2$	$g_i$	$g_i^2$	$g_i$	$g_i^2$
Mineral products	0.069	0.0048	0.144	0.0207	0.055	0.0030	0.110	0.0121
Food and agricultural products	0.038	0.0014	0.078	0.0061	0.084	0.0076	0.084	0.0071
Chemical products	0.064	0.0041	0.127	0.0161	0.095	0.0090	0.169	0.0286
Metallurgical products	0.133	0.0177	0.073	0.0053	0.119	0.0142	0.109	0.0119
Textiles, clothing, leather products, footwear	0.348	0.1211	0.177	0.0313	0.122	0.0149	0.090	0.0081
Transport means	0.200	0.0400	0.278	0.0773	0.154	0.0237	0.074	0.0055
Machines and mechanical devices					0.272	0.0740	0.285	0.0812
Other products	0.148	0.0219	0.123	0.0151	0.099	0.0098	0.079	0.0062
Total	<b>1.000</b>	<b>0.211</b>	<b>1.000</b>	<b>0.1719</b>	<b>1.000</b>	<b>0.1562</b>	<b>1.000</b>	<b>0.1607</b>
Coefficient H	-	0.4593	-	0.4158	-	0.3952	-	0.4009
Coefficient G-S	-	0.6076	-	0.5643	-	0.5653	-	0.5615

Source: statistical evaluations made by the authors based on data from National Institute of Statistics, 2001; National Institute of Statistics, 2010

The structural trends of export and import flows of Romania, between 2001 and 2010, identify the persistence of both flows within the area of excessive concentration, according to the Gini-Struck index values in the curve ABC-Struck. Although the overall trend for the years prior to recession was a diversification one, recession resumed the high level at the beginning of the decade under review, with however some positive aspects by the densification of both flows on the categories of manufacturing intensive products (vehicles, machinery and mechanical devices) at the expense of textiles, clothing, leather and footwear. The sources of imports and the destinations of exports also see a natural process of concentration in the destinations by groups of countries (by increasing trade with the European Union, and Europe as a whole), conforming to the political options to integrate the national economy.

Yet the structural concentration, approximately similar for export and import, conceals a balance deficit with the European Union, which nears 50 billion euro over the entire period, while the annual contribution to that deficit sharply rises from 25 - 30% in 2001 or prior to the crisis, in 2007 and 2008, to reach circa 70 % in 2009. The analysis reconfirms established or modern views (Oprescu, Eleodor, and Damtoft, 2009) concerning the inability of small economies to dominate international markets, and also the need for symmetry, visibility and information clarity in the economy in general (Todt, 2009), and especially in international trade.

## Conclusions

The article proposes an extended method for assessing foreign trade and outlines a reactive, slightly shifted and inertial profile of foreign trade or external marketing of the national economy in relation to crisis or recession in both temporal analyses, relatively stable for eight decades.

If a small early stage gap of the typically Romanian external trade, as a response to the crisis or recession type phenomena, may seem slightly favourable, the inertial trend extending for a little more than one year of the duration of these cyclical phenomena proves to have an amplified negative impact. The extended method provides basically three additional instruments (spread rates, the Hirschman index and Gini-Struck struck in the curve ABC), which have qualities of signals and limiting and interpretive structural thresholds. Smaller or less developed economies cannot afford scale interventions and policies in the competition and trading on international markets and Romania's behaviour can be no exception to this truth. The extensive method seeks, through the additional information, to help a prompt and accurate response in times of crisis and recession, a reaction that can always be improved

Deepening the analysis and interpretation of external marketing in two of the decades that were under the impact of the most severe global and nationwide economic recessions outlines a model of specific behaviour of Romania, which can provide valuable to economic and financial policies, thus facilitating the acts of decision and giving them a high degree of accuracy and rigor, by inferring, from the individual to the economy, of the Socratic dictum of self-knowledge, as a viable solution in international trade.

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