

# Trends and developments in Romania's trade balance in the period 2006-2010

Gina IOAN<sup>1</sup>

Cătălin Angelo IOAN<sup>2</sup>

<sup>1</sup>*Danubius University of Galati, Department of Economics, [gina\\_ioan@univ-danubius.ro](mailto:gina_ioan@univ-danubius.ro)*

<sup>2</sup>*Danubius University of Galati, Department of Economics, [catalin\\_angelo\\_ioan@univ-danubius.ro](mailto:catalin_angelo_ioan@univ-danubius.ro)*

**Abstract.** In the actual economical crisis, the balance of trade of Romania is a sensible chapter of the economical policy. The paper analyses the trends of exports and imports between Romania and the major partners, on global and also on groups of goods arriving at the conclusion that if Romania was on a good road till 2010, the actual tendency is to grow the deficit of the balance of trade.

**Keywords:** balance of trade, export, import

## 1 Introduction

Under the conditions of globalization, to develop the interdependences of the States of the World, the complexity of the world economy, witnessing to a diversification of the commodity trade. Factors which have influenced the development of trade relations, world economic circuit are primarily economic, and we refer here to the scientific and technical progress, the deepening of the international division of labour and, sometimes, these factors have dressed a shape policy also.

The economic flows that take place in the world economy reveals changes in the economic development of States, changes that underlie the structure and dynamics of the economic circuit<sup>1</sup>.

The international economic relations, representing a dynamic flow, mirrored physical changes and value of production of the country, with effects throughout the economy. In this context, the business of foreign trade (imports and exports) is an important component of analysis and appreciation of economic structures as purposeful, along with other components, macro-stabilization and building an effective economy.

For the Romanian economy, as otherwise, for any economy, whether developed or in transition, the foreign trade is an important vector of economic growth and improvement of productive structures. Since 1990, Romania travels the road, sometimes difficult process of transition to a market economy, its integration in an interdependent global economy.

The restriction of trade relations with the former CAER member countries and the geographical orientation of the Romanian foreign trade towards the countries of the European Union, have resulted in the development of trade with the developed countries: Germany, France, Italy, Belgium, etc.

In 1990, the Romanian exports accounted for \$ 4 billion, the partner countries being mainly the former USSR, Yugoslavia and China and, in a less proportion, Germany, Italy etc. After nearly 21 years, the exports from Romania in Russia fell by almost 50% and the exports to competitive markets (Germany, Italy) have reached nearly 30%.

The geographical reorientation of the Romanian foreign trade towards the European Union countries has led to an increase in its growth until 2006, representing a share of almost 70% on the export and 65% on the import.

The liberalization of markets, governed by free trade agreements, constitutes a factor for revival of foreign trade, in particular with the developed countries. Free trade agreements have

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<sup>1</sup> Dumitrescu Sterian, Bal Ana, Economie mondială, Editura Economică, București, 1999, p.337

contributed to the new impetus of exports and the development of trade. In the statement of Romania, from the data set analyzed, it is observed that all these have led to economic growth, but in the short term, the expectations being not the same at the long term, mainly because of the structure of exports and the factors influencing it.

An important economic indicator for both the decision factors and operators, the main actors in the economy, which can guide the structure and dynamics of foreign trade, is the exchange rate.

In this paper, we tried to mark out, using statistical methods, the degree of interdependence between the exchange rate and the evolution of exports and imports in terms of appreciation or depreciation of the currency. The data collected relate to a period of 5 years, with a monthly frequency, i.e. January 2006-December 2010.

We also analyzed the trends of development of the export or import relative to the main geographical regions of the globe, but also for Romania's main partners.

Another aspect is that of the special structure of the balance of trade. Its trend analysis on main groups of goods reflects a relatively good direction (even if still somewhat fearful). A negative aspect is referred to the Romanian trade diversion of items manufactured from export to import, which will result in the loss of a significant number of jobs, particularly in the field of textile industry or the footwear, with major social impact phenomenon in less-favoured regions of the country.

## 2 The statistical analysis

The analysis of the evolution of the balance of trade of Romania in the period January 2006-October 2010 (monthly data) reveals an upward trend in both exports and imports (with a trend more sharply on export) despite its sinuous character. After a marked fall in the period October 2008-January 2009, it is observed (Figure 1), an increase in the volume of trade in the period immediately after.

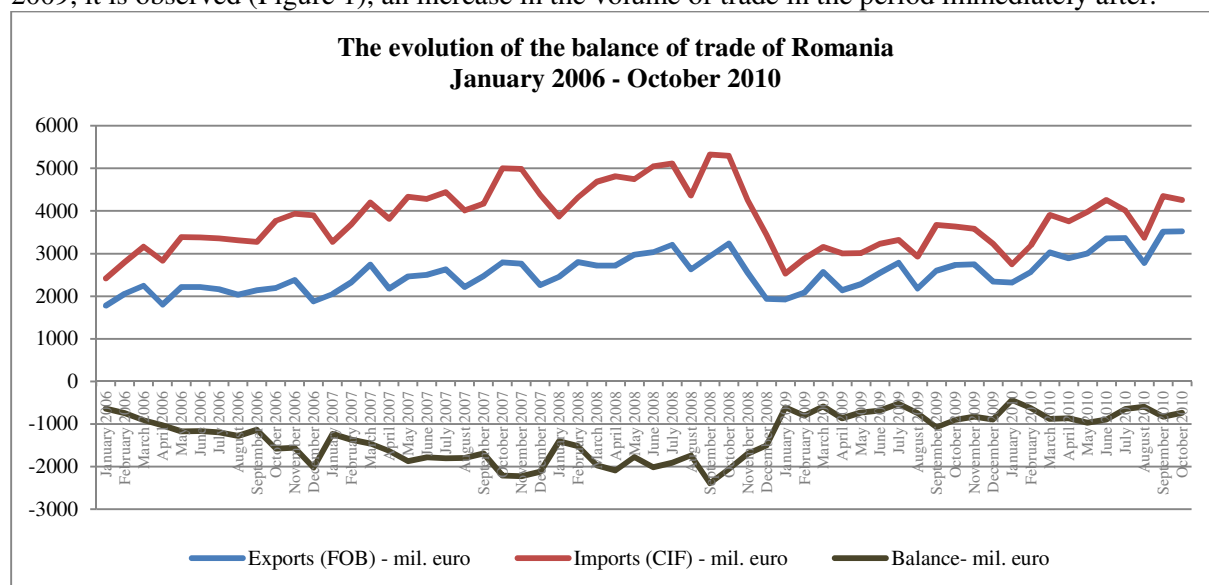


Figure 1

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

A comparative analysis of the development of Romanian exports and imports in relation to the exchange rate euro/leu, reveals a relatively close liaison between the two phenomena. Thus, by calculating the coefficient of correlation  $\rho$  between the two sets of data  $(x_i, y_i)$  where  $x_i$  – exchange rate euro/leu and  $y_i$ -exports FOB in mil. lei, after the formula:

$$\rho = \frac{n \sum_{i=1}^n x_i y_i - \sum_{i=1}^n x_i \sum_{i=1}^n y_i}{\sqrt{n \sum_{i=1}^n x_i^2 - \left( \sum_{i=1}^n x_i \right)^2} \sqrt{n \sum_{i=1}^n y_i^2 - \left( \sum_{i=1}^n y_i \right)^2}}$$

yields  $\rho=0,62$ , so a direct dependence of the level of exports of the leu/euro (Figure 2).

Similarly, by calculating the coefficient of correlation  $\rho$  between  $x_i$  - the exchange rate euro/leu and  $y_i$  - CIF value of imports in mil. euro, we have  $\rho=-0,57$ , so an inverse dependence of the level of imports of the exchange rate euro/leu (Figure 3).

The results obtained, confirm the theoretical expectations of stimulating exports with the devaluation of the national currency and the imports at its appreciation.

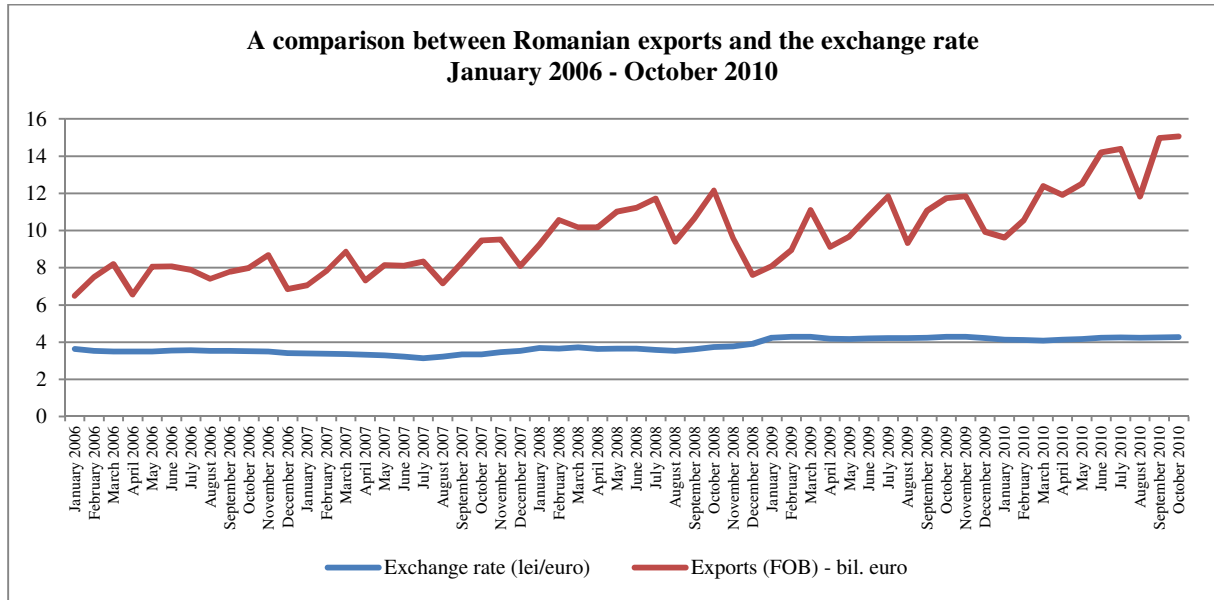


Figure 2

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

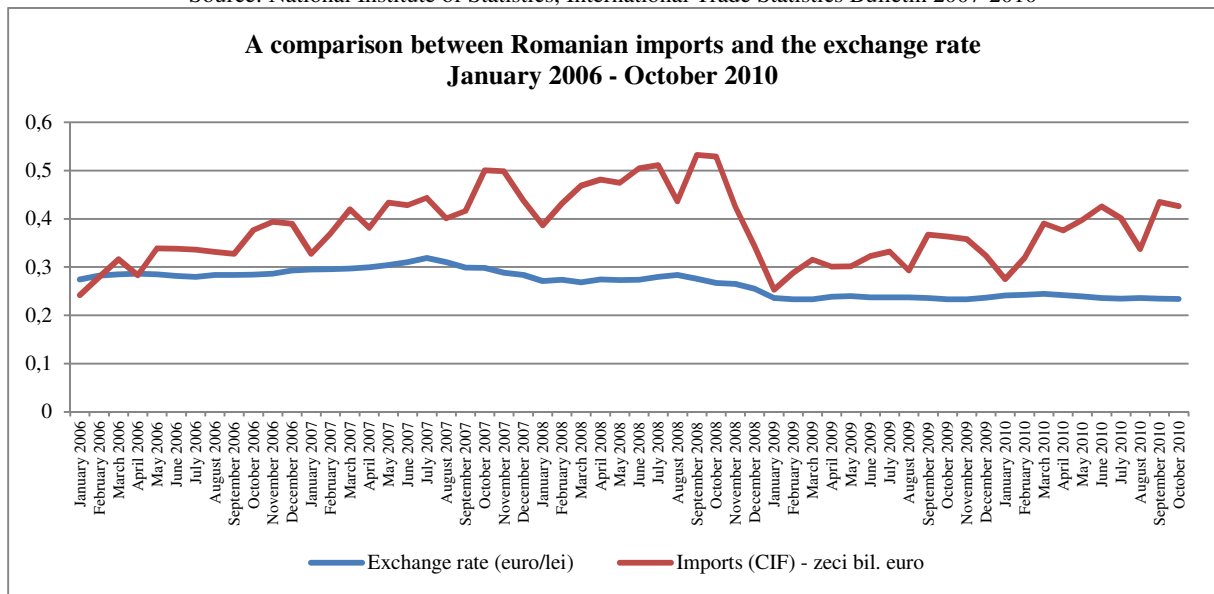


Figure 3

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

Relative to the Romanian export by geographical areas, the coefficients of correlation between the total value of exports and that corresponding to continents ranges from 0.99 in the case of Europe (which means that for an increase in the general export business of Romania, it should be oriented, in particular, towards the countries of Europe), 0.64 for Asia, 0.41 - Africa, 0.44 - America and 0.29 - Oceania. Note also that there is a significant correlation between exports to Asia and exports total of Romania and at the same time, a weak correlation between that corresponding to other continents.

Relative to imports, the coefficients of correlation between the total amount of their respective continents ranges from 0.99 in the case of Europe (which means that the import activity is prominent

in the countries of Europe), at 0.73 for Asia, 0.21 - Africa, 0.74 – America and 0.39 - Oceania. As a result of these facts, we see that there is a significant correlation between imports from Asian countries or the USA and imports total of Romania, the correlation between African countries or those in Oceania and our country being insignificant.

Considering the weightings in total exports to Romania, we determined the regression lines corresponding to each continent.

Thus, the share of exports to Europe have a tendency to change gives by the regression line:  $y = 0.00002812x + 0.8787$  (where  $x$  – the month of reference with 1 - January 2007, and  $y$  – the total value of exports by region) which signifies a somewhat constant of approximately 88% of the total export, but with a slight downward trend overall growth. In particular, targeted for exports to the European Union, we have:  $y = 0.00056613x + 0.7065$  which implies increasing their weighting in export activity. For Asia, we have:  $y = 0.00000812x + 0.6823$  therefore a constancy more accentuated than in the case of Europe, an encoded form at about 7%. In the case of Africa, we have:  $y = 0.0001865x + 0.0186$  and in the case of America:  $y = -0.00021008x + 0.0319$  or Oceania -  $y = 0.00002615x + 0.0020$ . The general trend of export is therefore fall to the countries of the two American continents and also by the countries of the Oceania (here the export share very little with approximately 0.15%, so insignificant in the overall).

By performing the same analysis but on ten months (counted) of the year 2010, the findings are somewhat different. Thus, the exports to the countries of Europe have the line of regression:  $y = -0.00276x + 0.89736$ , European Union -  $y = -0.00445x + 0.7502$ , Asia -  $y = 0.00284x + 0.05046$ , Africa -  $y = 0.00145x + 0.03386$ , America -  $y = 0.0015x + 0.01625$ , Oceania -  $y = 0.00003709x + 0.00085$  where  $x$  is the number of the month corresponding to the reference date of January 2010. It is noted in the analysis of these functions, a downward trend of exports to the countries of Europe and the European Union, in particular, increasing at the same time, exports to American countries (by which the share in total export of Romania is quite low).

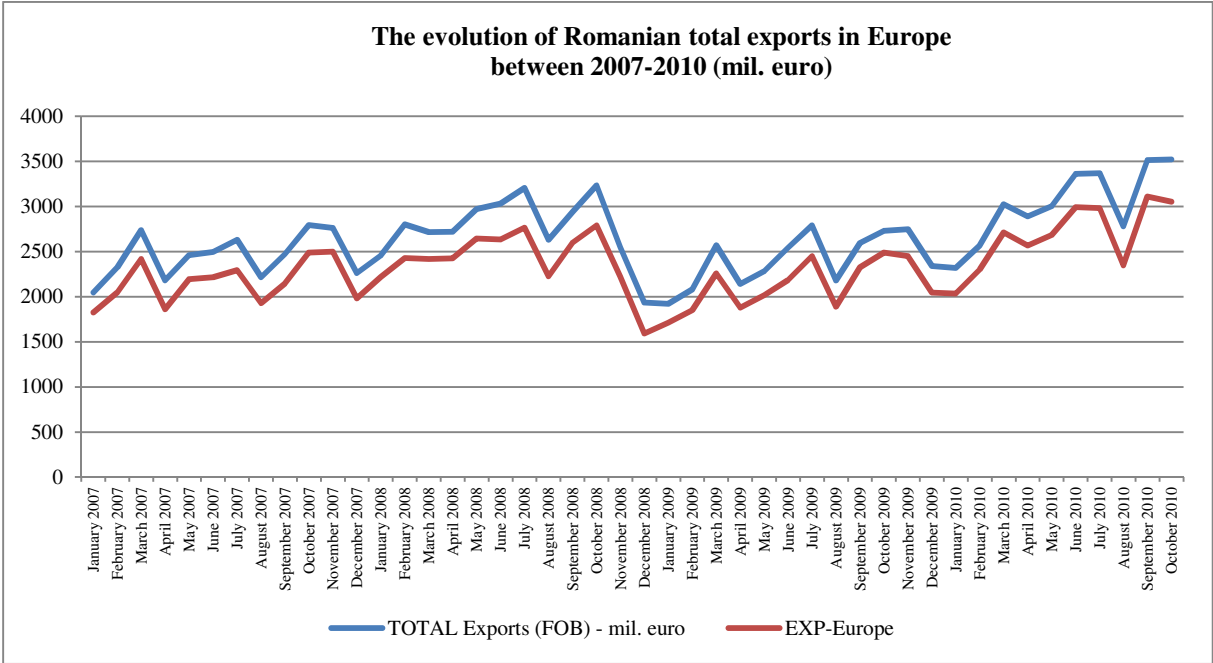


Figure 4  
Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

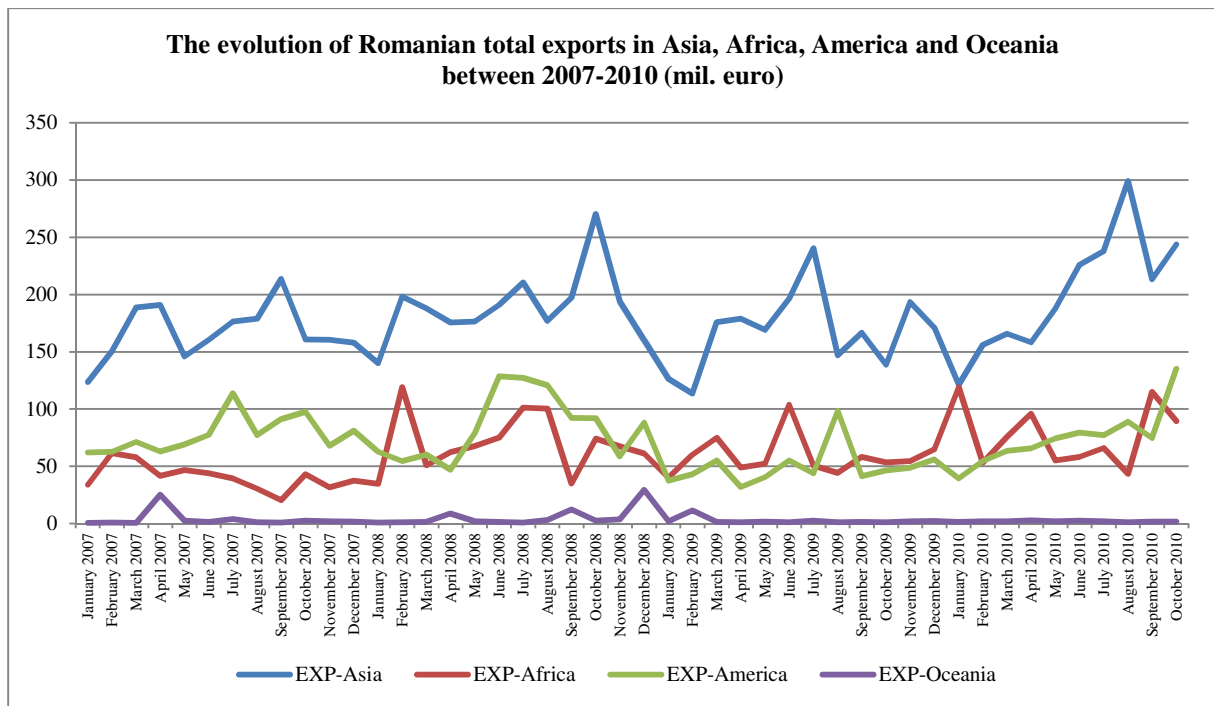


Figure 5

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

Doing similar to the situation of imports, we obtain that their relative share to Europe have a tendency to change due to the line of regression:  $y = -0.00060748x + 0.8575$ , which signifies a somewhat constant of about 84% of the total import, but with a slight general trend towards decrease. In particular, for the imports targeted by the European Union, we have:  $y = 0.000558125x + 0.6998$  – a trend of slight increase in their share in import activity. For Asia, we have:  $y = 0.0007646x + 0.1039$  constancy at about 12%. In the case of Africa, we have:  $y = 0.00003723x + 0.0049$  and in the case of America:  $y = -0.000111x + 0.0299$ , Oceania -  $y = -0.0000624x + 0.0029$ . The general trend of import is so depressing in the countries of the two American continents and also in countries of Oceania (imports having a very small proportion of approximately 0.15%, so insignificant in the overall).

The analysis on the ten months (counted) of the year 2010, reveals aspects similar somewhat. Thus, imports from the countries of Europe have the line of regression:  $y = 0.00269x + 0.8281$ , European Union -  $y = 0.0029x + 0.7091$ , Asia -  $y = 0.00217x + 0.1394$ , Africa -  $y = 0.00011x + 0.0068$ , America -  $y = 0.00025x + 0.0240$ , Oceania -  $y = -0.0002x + 0.0014$  (x represents the number of the month corresponding to the reference date - January 2010). It is observed, from the analysis of these functions a trend of increase in imports from the countries of Europe and the European Union, in particular, decreasing at the same time, imports from all other continents.

The comparative analysis of exports and imports reveals, on the one hand, the fact that after a period favourable dynamics of export activity (at the beginning of the period considered), last year it shows a downward trend in European Union countries, which are the main destination of exports. On the other hand, imports from this area shall maintain the trend of increasing what shows both an unjustified increase in the demand for goods from import and a non-use of raw materials for industrial processes.

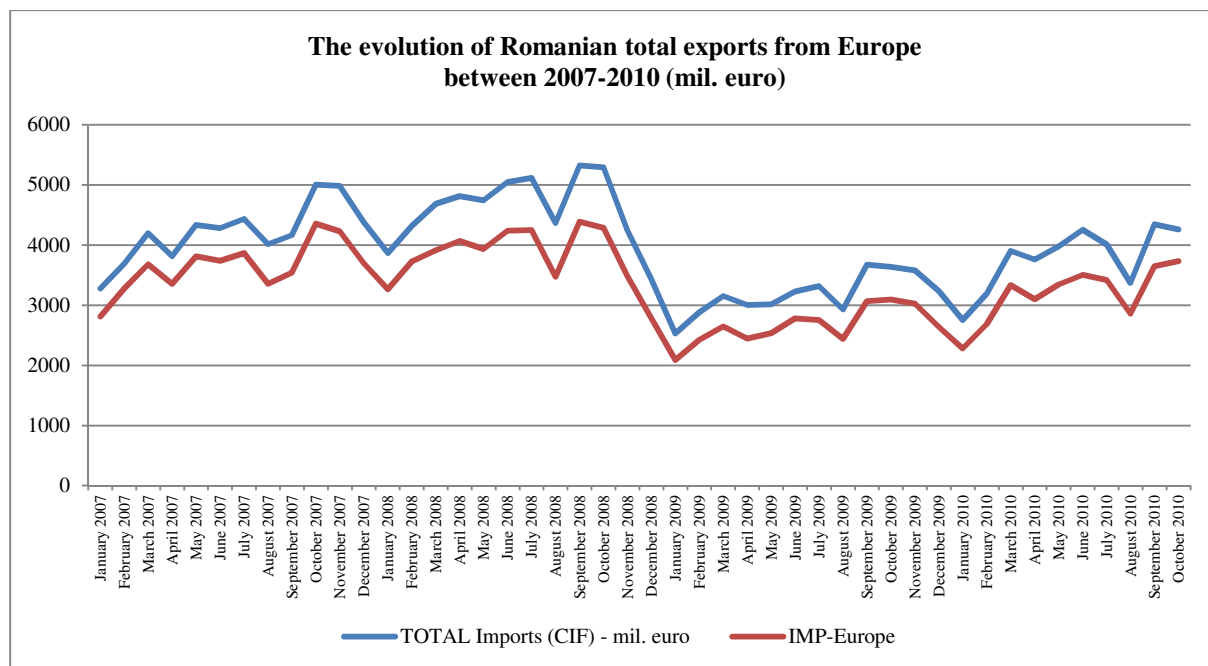


Figure 6

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

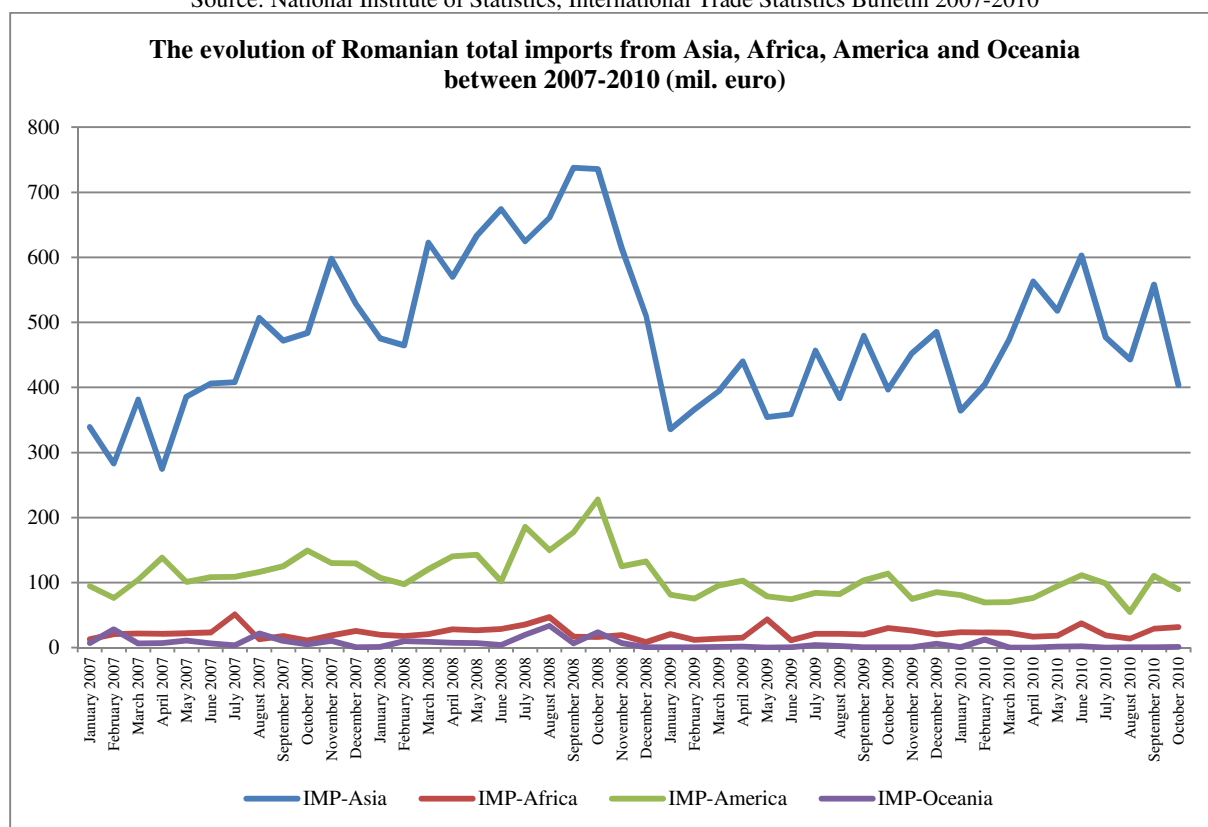


Figure 7

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

For the main countries, relative to the international trade of Romania, the regression analysis, relative to the first ten months of the year 2010, reveals a decreasing tendency to export in the case of Italy ( $y = -0.0023x + 0.1852$ ), Turkey ( $y = -0.0007x + 0.0763$ ), the United Kingdom ( $y = -0.0008x + 0.0466$ ), Austria ( $y = -0.0003x + 0.0278$ ), USA ( $y = -0.0001x + 0.0210$ ), China ( $y = -0.00002x + 0.0054$ ). If in the situation of exports to China, USA, Austria and the UK the situation is not alarming (because of the percents of these countries in the total export – about 4%), in the case of Turkey or Italy the situation is worrying, these countries representing about 7% and 17% respectively of total exports to Romania.

Trends of increasing export manifests itself in the case of Germany ( $y=0.0002x+0.1686$ ) with a total weight of approximately 17%, France ( $y=0.00001x+0.0759$ ) - 7,5% of total exports, Hungary ( $y=0.0008x+0.0501$ ) - 5,5% of total exports, Bulgaria ( $y=0.0016x+0.0200$ ) - 3% of total exports and the Russian Federation ( $y=0.0003x+0.0130$ ) - 1,5% of the total export. If in the case of Germany, the increasing trend is significant at a rate of 17% of the exports to Romania, in the situation of other countries, increasing trend is either too weak (France), or refer to the partners of the export quite poorly represented in total.

Romania imports from partner countries, reveals in the last ten months of the analysed year 2010, a downward trend in the situation of Italy ( $y=-0.0027x+0.1172$ ), Germany ( $y=-0.0012x+0.1072$ ), France ( $y=-0.0006x+0.0482$ ), Turkey ( $y=-0.0010x+0.0482$ ), the United Kingdom ( $y=-0.0008x+0.0294$ ), Austria ( $y=-0.0004x+0.0176$ ), USA ( $y=-0.0002x+0.0133$ ), China ( $y=-0.00005x+0.0034$ ) and an increase only in the case of Hungary ( $y=0.00005x+0.0319$ ), Bulgaria ( $y=0.0007x+0.0130$ ) or the Russian Federation ( $y=0.00004x+0.0082$ ).

Analyzing comparatively, it follows a joyful situation about the balance of trade with Germany and France (an increase in exports and a decrease in imports). In the case of Italy, Turkey, United Kingdom, Austria, USA or China, is distinguished by both a decrease in exports and imports, with rhythms but approximately equal, so maintaining a relative level of the balance of trade. In the case of Hungary, the pace of increase in exports (0.07%) exceeds the net of imports (0.005% monthly) what is a really gratifying. The same fact is noted also in the case of Bulgaria (growth rate of exports of 0.15%-monthly and 0.07% -monthly increase in imports) or of the Russian Federation (0.02%-exports vis a vis 0.004%-imports). On the other hand, the share of these latter countries in the trade balances of Romania (a maximum of 3%) is not a reason for a great satisfaction.

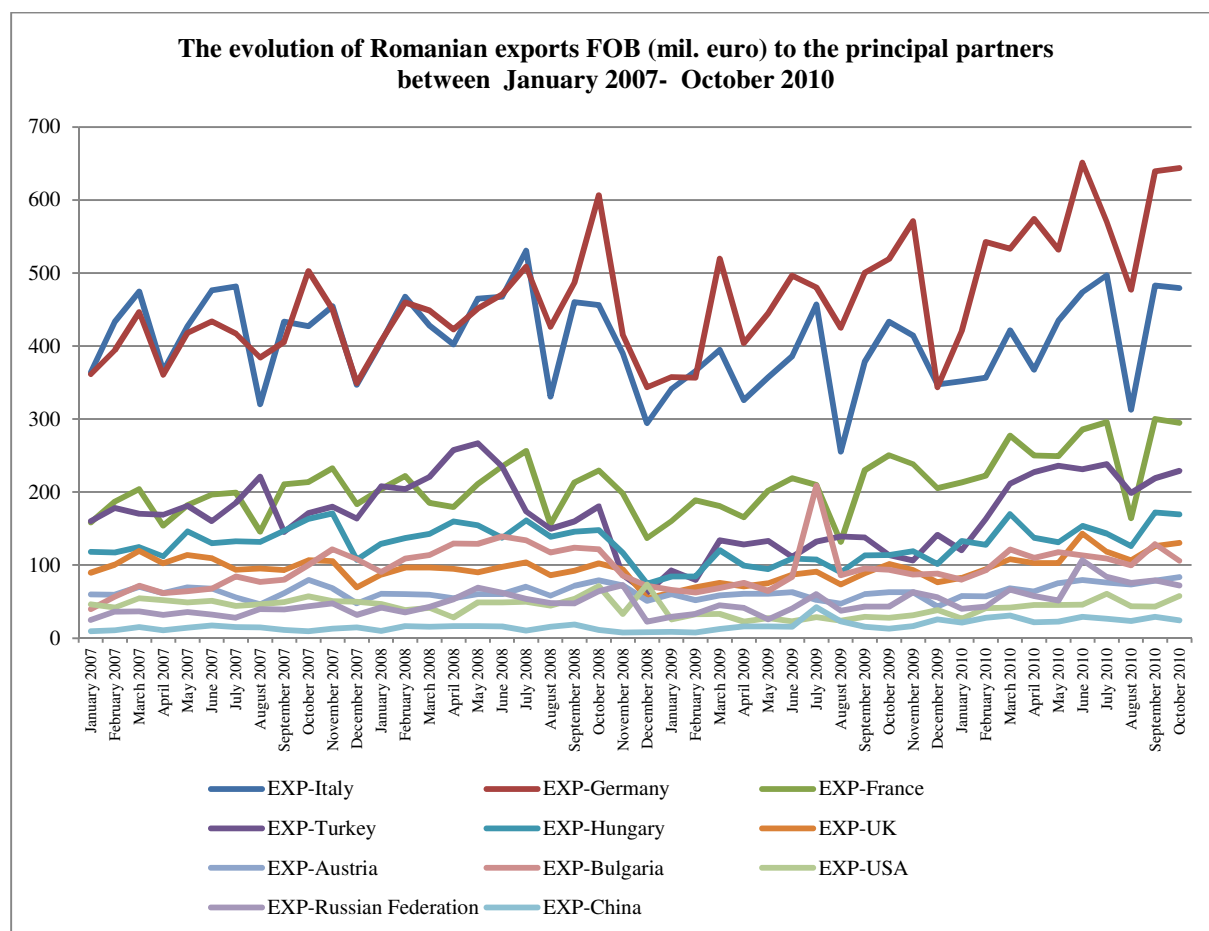


Figure 8  
Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010



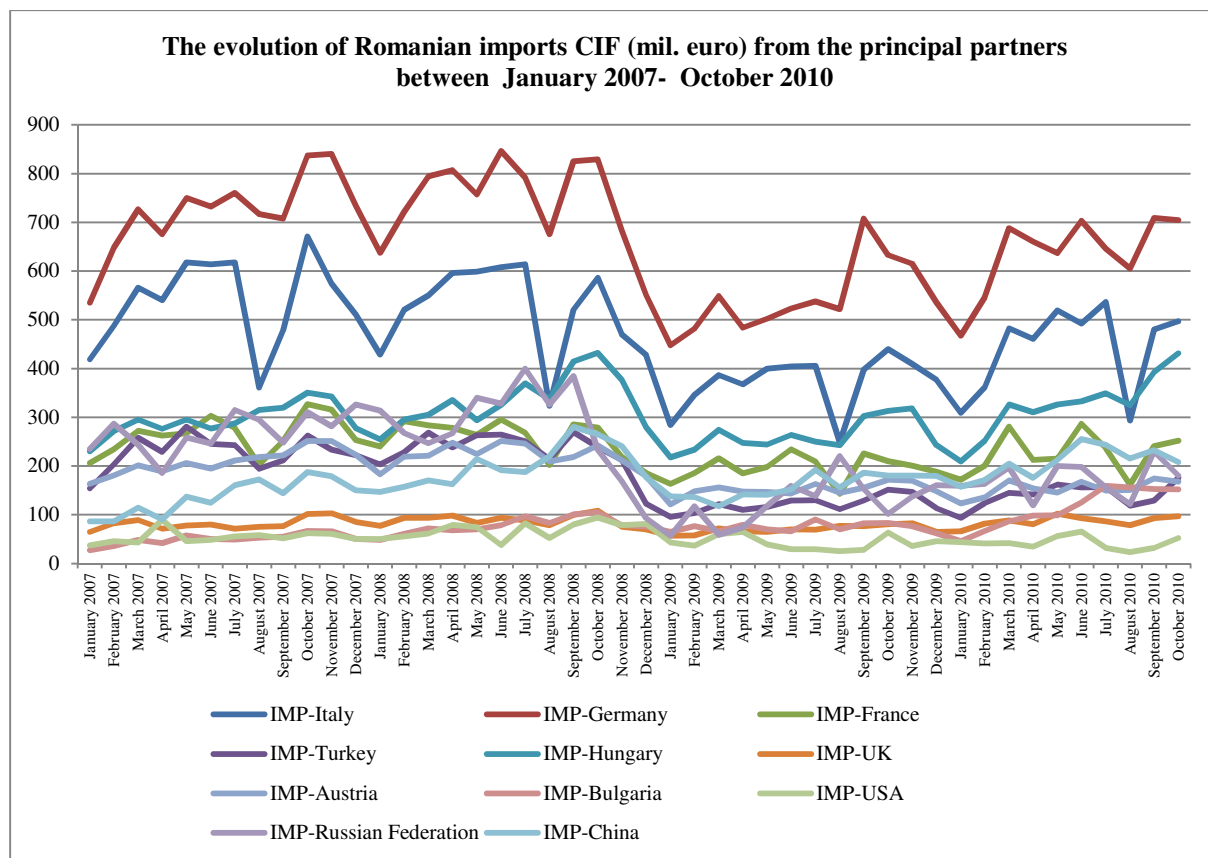


Figure 9

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

The analysis of exports and imports by groups of products reveals a trend upward to export foodstuffs and live animals ( $y=2.2969x+21.3376$ ), but also to imports from the same products ( $y=2.0943x+164.0176$ ). The slope of the regression of export being greater than the relative import, we have a joyful development perspective. The product group "beverages and tobacco" at an ascending slope of the trend of export ( $y=0.7485x+1.8983$ ) corresponds a trend of reduction of imports ( $y=0.0600x+29.4713$ ). The category "Raw Materials, excluding fuel" reveals an equation of the regression line  $y=1.4876x+103.1365$  – export and  $y=0.2785x+92.3903$  – import – positive developments in the trade balance. A marked fall in both export ( $y=-1.2325x+228.6533$ ) and import ( $y=-2.1745x+497.4952$ ) is recorded in chapter "mineral fuels, lubricants and related materials", but the further decrease of the imports is good for reducing deficit kicks off the balance of trade in relation to this product category.

An increase in exports ( $y=0.1259x+3.1594$ ) to "oils, fats and waxes of animal and plant origin" is, unfortunately, moved forward by a considerable increase in imports ( $y=0.2004x+7.5011$ ) which will result in an amplification of the negative balance of trade balance.

The same situation occurs in the category "chemical products and related products nes" where a regression function  $y=0.7275x+123.2699$  – export, corresponds to  $y=2.7924x+367.6026$  – import.

A happy situation is to "processed products classified mainly raw material" and "machinery and transport equipment" where, at the regression of rising export ( $y=0.3146x+470.2569$ ,  $y=12.9981x+558.7709$ ) correspond to decreasing import regression ( $y=-0.7869x+878.5844$  and  $y=0.4308x+1378.3740$  respectively) so a recovery trend of negative balance of trade as they are recorded at present.

A particularly damaging is the "miscellaneous manufactured articles" where export regression is  $y=-1.7013x+556.4549$  and the import  $y=0.9204x+318.0411$ . It is known that a large proportion of the population of the female sex work exactly in this sector (industry of textiles or footwear), or the reduction of exports, with simultaneous acceleration of imports will lead, in perspective, the reduction of a large number of jobs.



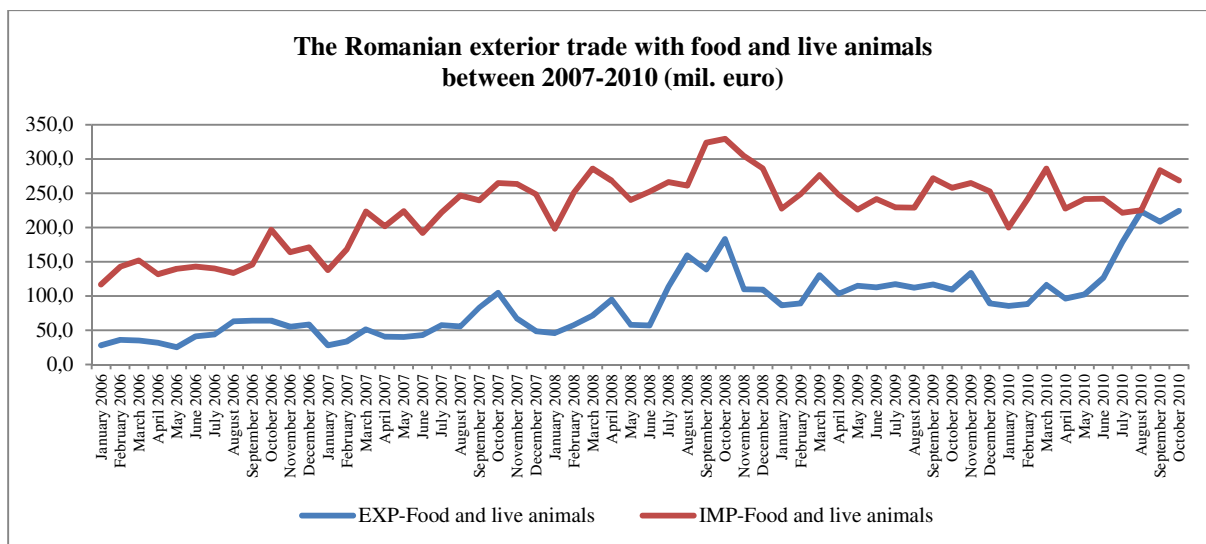


Figure 10

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

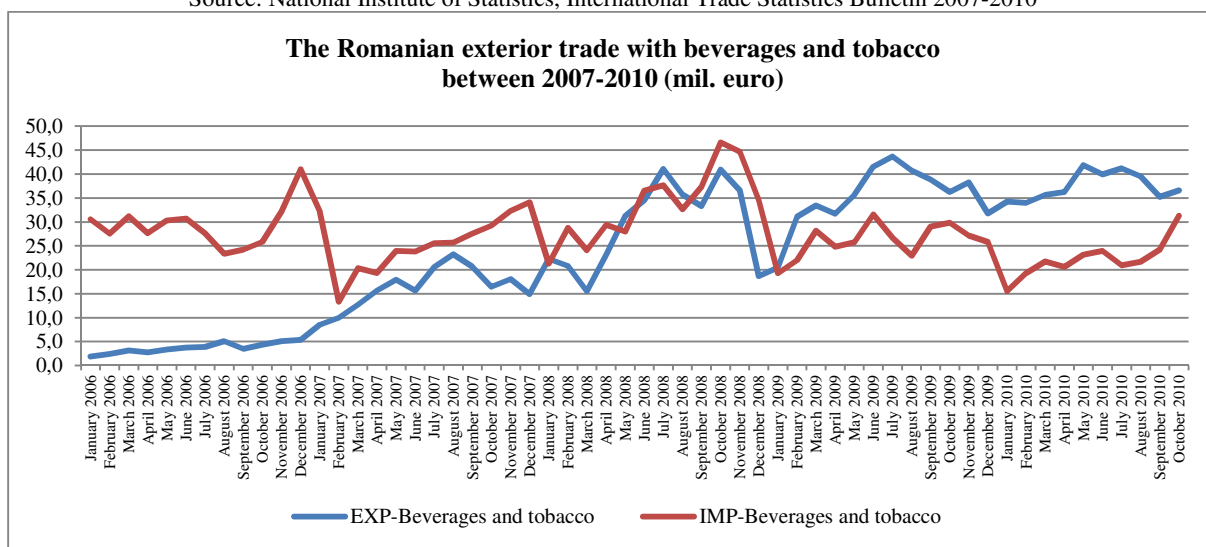


Figure 11

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

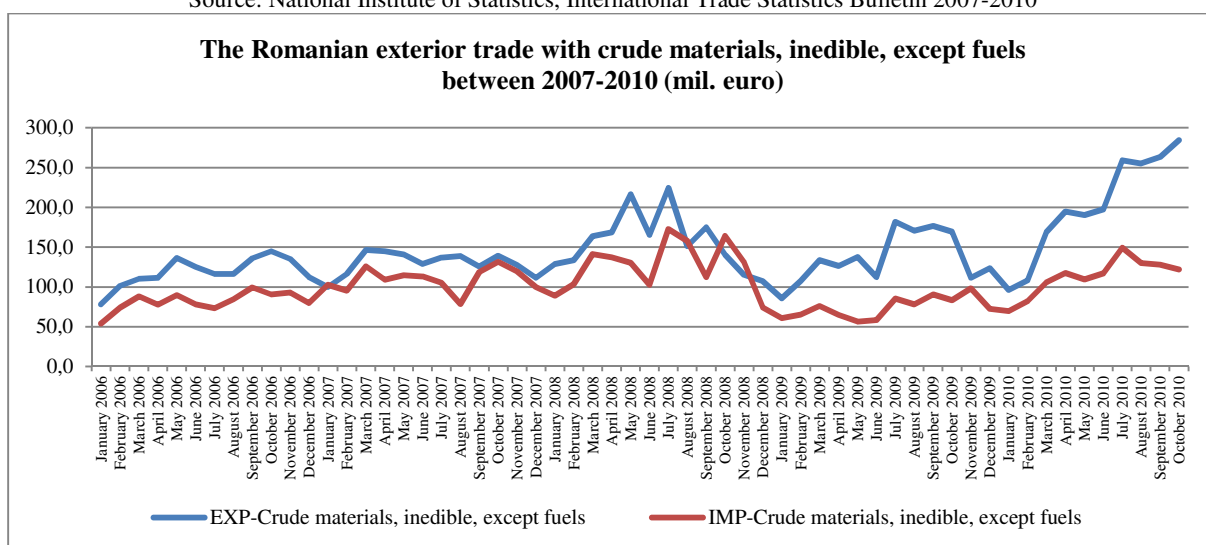


Figure 12

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

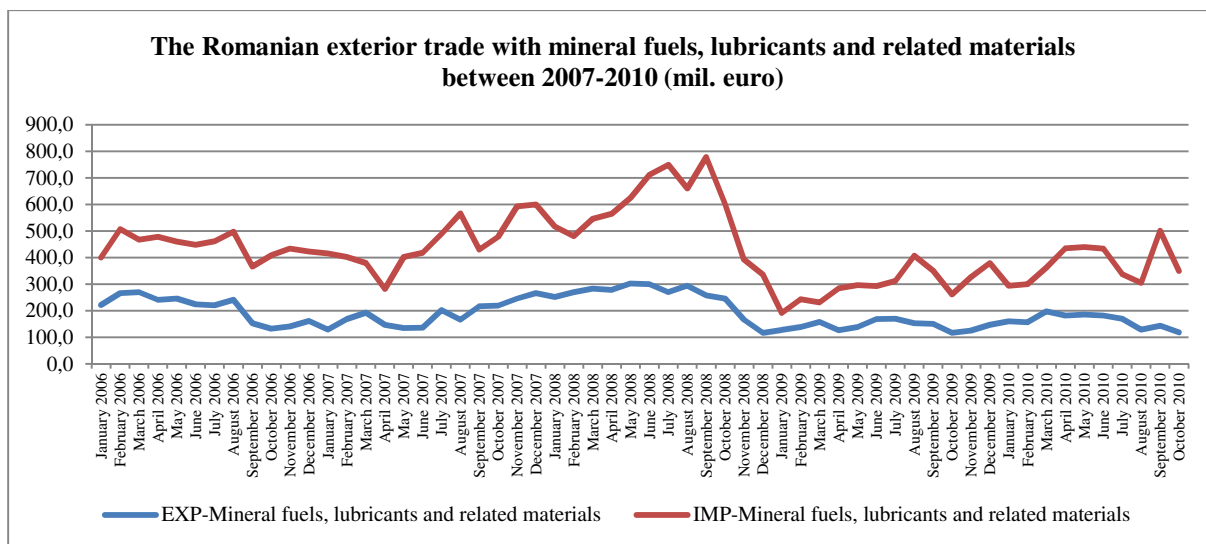


Figure 13

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

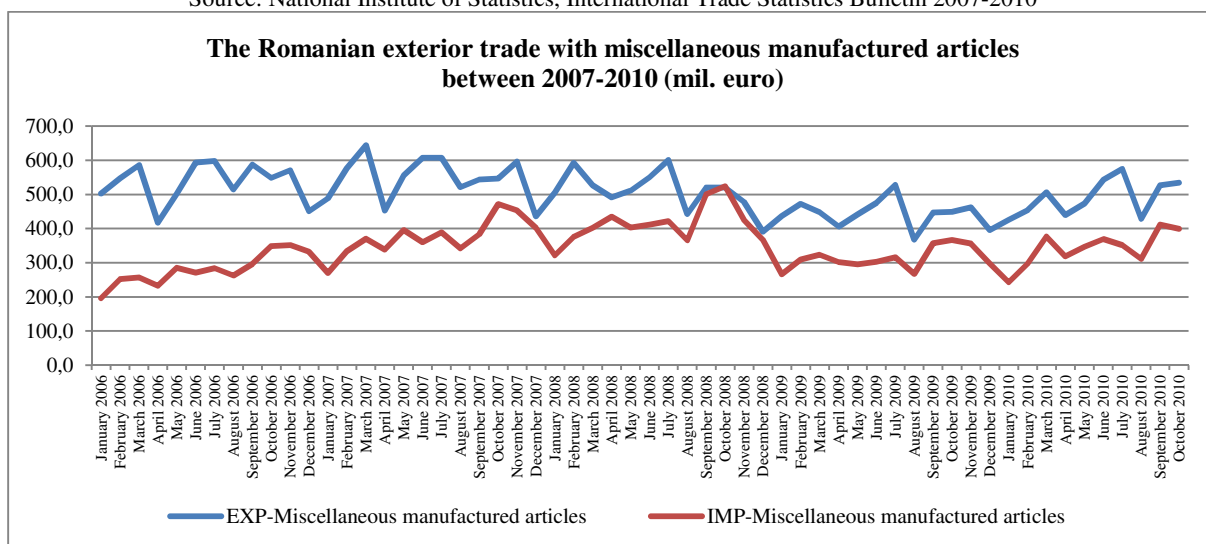


Figure 14

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

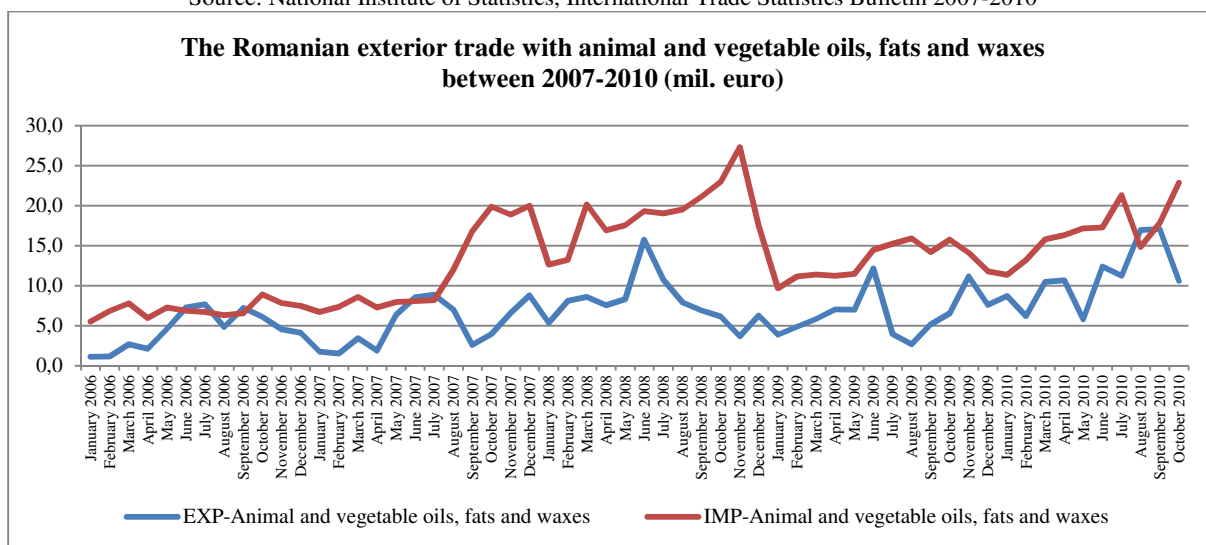


Figure 15

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

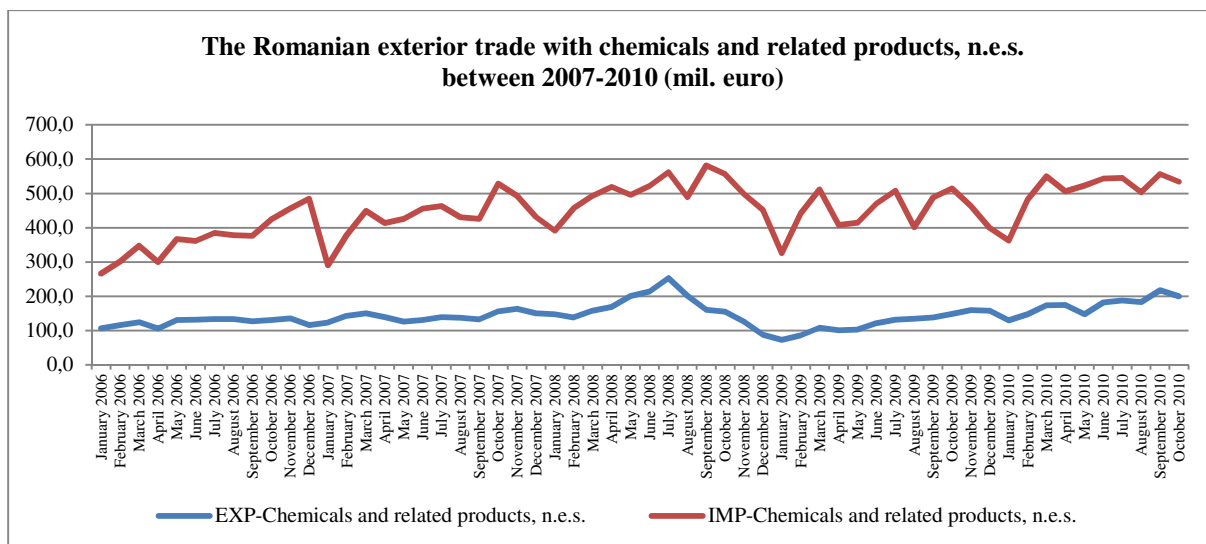


Figure 16

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Figure 17

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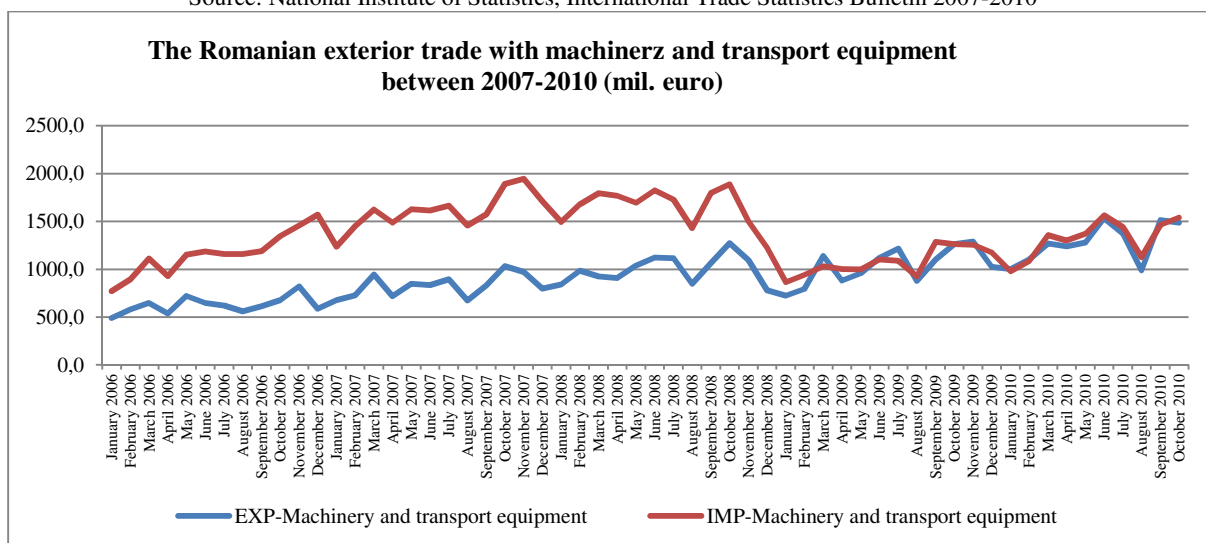


Figure 18

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

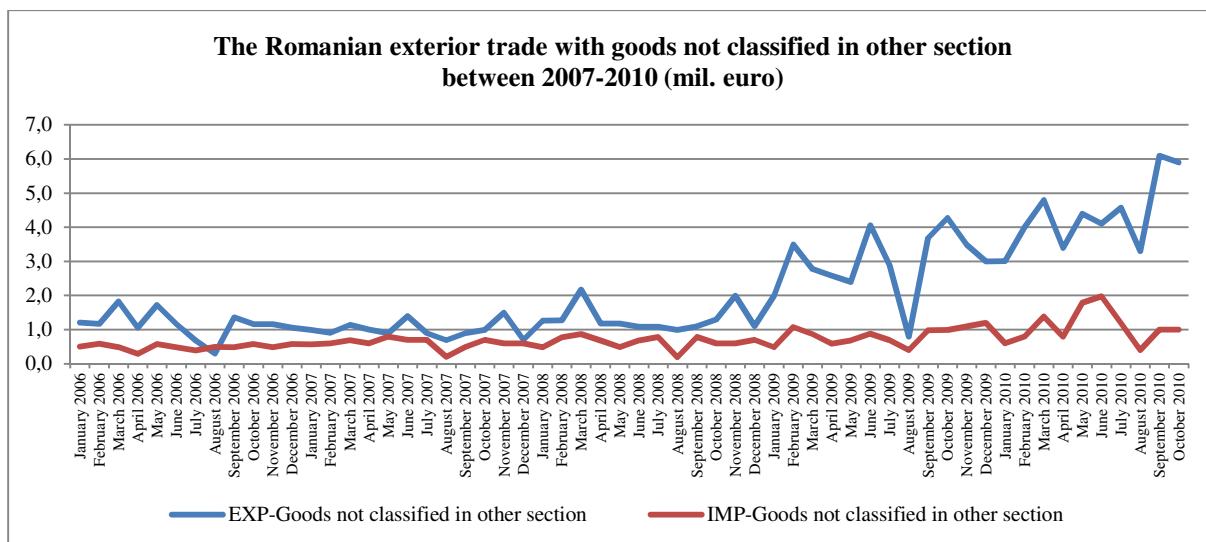


Figure 19

Source: National Institute of Statistics, International Trade Statistics Bulletin 2007-2010

### 3 Conclusions

The analysis of the evolution of the balance of trade of Romania in the period January 2006 to October 2010 reveals a number of aspects that deserve to be taken into account by the decisions factors.

If Romania's monetary policy is quite good (see exchange rate relations – the volume of goods exported or imported), the orientation of foreign trade activity in the last period, does not appear under best kicks off. Thus, despite the fact that the European Union and, in general, Europe, are the main trade partners of Romania (72%-share in total - EU exports and 71% in the total import, respectively) the general trend is the decline of exports to these areas and for increased imports.

Relative to the balance of trade with main partners, it is observed a downward trend of exports to Italy and Turkey (with 17% and 7% respectively, of the total) and an increase in the case of Germany (about 0.02% monthly). Also, exports to Hungary and Bulgaria registered an upward trend, unfortunately they own small weights in total exports. Import activity knew an enough serious decline, obviously the economic crisis but, overall, compensates for exports at the same destinations.

On product groups, we can observe a start righting of their balance of trade in most, even though quite shy, only worrying phenomenon is the overthrow of the situation in the framework of articles manufactured where import trend becomes predominant in relation to the export involving major social phenomena, such as increased unemployment among women.

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