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The Industry – a Vulnerable Source of Economic Recovery in Romania

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Abstract. *In a globalized world the exogenous shocks and related instabilities of economic variables have negative effects on the economic growth of each country. Increased sensitivity to shocks shows higher economic vulnerability and the persistence of its factors and features reveal structural deficiencies of the economy. Industry is a category of resource with a decreasing share in GDP in the European Union in the past decades, but still gives the first signs of slowdown in activity before crisis. The industrial production in Romania had a fast recovery among the EU Member States in 2011 based on the increase of the external demand. The paper focuses on the exposure of the Romanian industry to further economic instability by using an empirical analysis of short-term statistics. Since a high share of the Romanian industrial exports are EU oriented, the commercial channel is an important factor that may affect the post-crisis economic growth if the structural vulnerability does not decrease.*

Keywords: industry; economic vulnerability; trade dependence; intra-industrial trade.

JEL Codes: L60, F14, E32.
REL Codes: 17E, 17H.

1. Introduction

The globalization reflects cross-border interdependencies generated by economic flows which lead to emergence of the global market. Main causes of this process are the openness of national economies, the gradual deregulation of markets, the new organization forms of companies etc.

In this context emerged the scientific concept of vulnerability in connection to researches about global changes. This concept has a multidimensional character and provides a useful framework for the analysis of consequences of these changes on human societies (Brauch, 2011, pp.70-71). One aspect is the economic vulnerability which has various definitions and interpretations. In the simplest sense this term is associated with a disturbance affecting any form of economic activity as a result of exposure to different factors which occur as external shocks. The risk of a country to be affected by shocks depends on the size and probability of the shock occurrence, on the exposure to shocks as well as on the capacity of the economy to react to shocks.

Vulnerability has been discussed mainly in connection to the Small Island Developing States (SIDSs) and the Least Developed Countries (LDCs). An index of vulnerability has been developed. The exposure of these countries is given by the intrinsic features of their economies: the degree of international openness, export concentration and dependence on strategic imports. A subject of debate is the meaning of "smallness", which could be measured by the size of population and total income (Srinivasan, 1986, pp. 205-18) or the share of the economy in total world trade. The results of other researches conclude that a higher vulnerability is given by the susceptibility to shocks of economies with a low level of capital to labor ratio. Thus the "small" size is defined in terms of scarcity of production factors such as physical capital, knowledge and technology per labor unit (Cordina, 2004, pp. 36-37). In this case the concept of vulnerability may apply also for other countries besides the two groups mentioned before. According to researches also economies with high output level per capita may be vulnerable. The whole debate is about the assumption that higher economic risks determined by vulnerability have an important impact on output per capita, economic growth and the process of economic convergence.

Another relevant concept is the structural economic vulnerability. As long as the vulnerability is not the result of the implementation of recent or current policies, but originates in the persistence of factors or features, it may be considered as "structural" (Guillamont, 2011, pp. 3-4).

According to opinions (Blomström, 1993) there are advantages when measuring the competitiveness and the comparative advantage by using exports instead of production, since the world markets are less affected by government interventions or by other non-economic factors.

Modern trade theories reveal the role of companies especially due to the development of multinationals firms. Paul Krugman (1985) analyzed the impact of the strategic rivalry between the multinational companies. The theory of global strategic rivalry explains that the intra-industry trade becomes usual while firms struggle to dominate the market and take decisions that influence both trade and investment. It is customary to distinguish between horizontal intra-industrial trade, which refers to simultaneous exports and imports of the same sector and at the same stage of processing, and vertical intra-industrial trade having simultaneous exports and imports of the same sector, but at different stages of processing (OECD, 2002, pp. 159-170).

This paper focuses on the dynamics of industrial production in Romania in the context of the economic crisis, as well as on aspects of economic vulnerabilities of this sector determined by circumstantial and structural factors.

Methodology

Industry includes mining and quarrying, manufacturing, electric and thermal energy, gas and water. The paper relies on the empirical analysis of short term statistical data. For the detailed analysis of the trade dependence of the economy and respectively of the industry the following indicators were used:

- Trade dependence index:

$$I_d = \frac{\sum_s X_{cs} + \sum_s M_{sc}}{GDP_c} \times 100$$

- Import penetration index:

$$I_{pM} = \frac{\sum_s M_{sc}}{GDP_c - \sum_s X_{cs} + \sum_s M_{sc}} \times 100$$

- Export propensity index:

$$I_X = \frac{\sum_s X_{sc}}{GDP_c} \times 100$$

where:

c = country under study,
s = set of all other countries,
X = total bilateral exports,
M = total bilateral imports and
GDP = gross domestic product.

The trade dependence index is a measure often used to assess the openness of an economy. The other two contribute to a better understanding of the vulnerability of an economy to certain external shocks. The import penetration index measures to what degree the domestic demand is satisfied by imports, while the export propensity index indicates the share of exports in the GDP.

2. Recent trends of the industrial production

The world crisis has affected the Romanian industry which has given the first signals of the downturn since the second quarter of 2008 and entered a sharp decline process since November 2008. The production decrease in January 2009 was 37 percentage points compared to October 2008 (maximum level before the decline). The magnitude of the change in the case of the series adjusted by working days and seasonality indicated however a lower gap of 16.6 percentage points.

The industrial decline in Romania during the crisis was unequally distributed by industrial activities. According to their development path, the activities may be classified in three categories:

- Industrial activities under a general process of restructuring which is not driven by the crisis. This category includes in the first place the light industry (National Commission for Prognosis, 2008);
- Industrial activities affected by the crisis, most of them export oriented;
- Industrial activities less influenced by the crisis, especially the food industry which has an inelastic demand.

The recovery of the industry happened in 2010 with a growth rate of the gross value added higher than the growth rate of the GDP, while the difference remained also in 2011 (Figure 1). This situation determined an increase of the contribution of industry to the GDP, from 23% in 2008 to 26.4% in 2010.

In 2011 the available data for the first semester show that the industrial production continued to grow, with the highest rate for the intermediary goods, which serve industrial markets, not consumers. This is an important aspect because the recession was consumer-driven, affecting the demand for finished products, not for intermediary goods.

*Spring prognosis in 2011, The Romanian National Commission for Prognosis

Source: The Romanian Statistical Yearbook Time series 1990-2009 and the Monthly Bulletin no.1/2011, National Institute of Statistics.

Figure 1. *Changes of GDP and the gross value added in industry in Romania in the period 2003-2011 (previous year = 100%)*

The EU-27 industrial output peaked in April 2008 and then had a downturn activity which lasted 12 month. During this period the output fell by 19.1% (Eurostat, 2011a). We can observe that the magnitude and the cyclical trend of the fluctuations were similar in Romania compared to the EU. Even if in the first half of 2011 new signs of reduction of the industrial production occurred at the EU-27 level, Romania had one of the highest growth rates of the industrial production (+7.7%) comparable with that of Germany (+7.8%) and higher than in EU-27 (+5.3%).

According to some opinions the indicators of confidence in some countries overestimate the intensity of economic recovery. The level of potential production seem to be significantly below its pre-crisis level in France, Italy and the United Kingdom, while in the Euro Area as a whole the crisis has affected the growth perspective of the potential production. A possible interpretation is that the crisis resulted in a deep cyclical recession and has also deteriorated the medium and long term prospects of the manufacturing industry, as perceived by firms (Malgarini, 2011, pp.16).

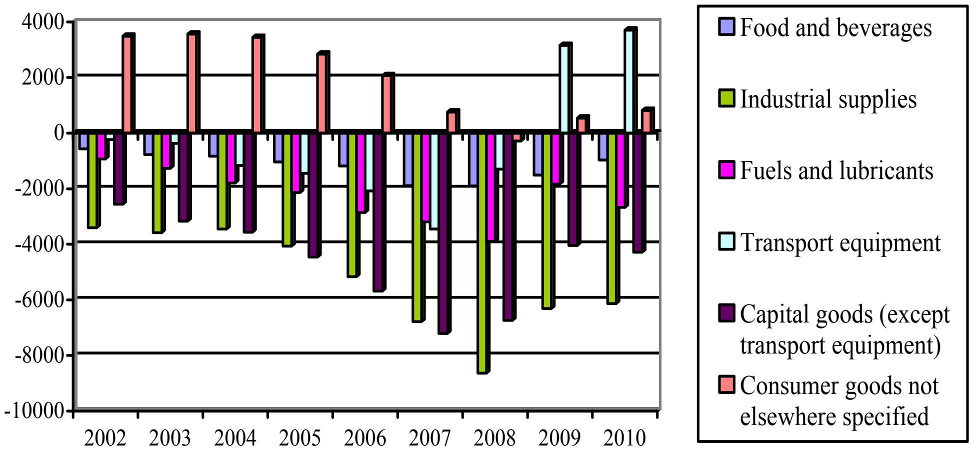
Investors are mainly interested by three contagion channels which can allow the crisis or its consequences to reach the countries outside the Euro Zone: the external financial support, the banking system and the international trade. Even if Romania does not have a debt problem comparable with some other EU countries, the high necessity for external financing increases the vulnerability to a new liquidity crisis. Important problems may be generated also by the post-crisis recovery which relied to a great extent on the export recovery, respectively on the trade channel. Due to the lack of recovery of the internal demand, the same channel may rapidly induce a new downturn. The subject of the further discussion is the trade channel as possible vulnerable point of the economy and industry.

3. Vulnerability induced by the trade channel

Romania is already integrated in the European Union from the perspective of intra-EU trade. In the last years the volume of foreign trade increased significantly, by having a strong dependence of exports on imports.

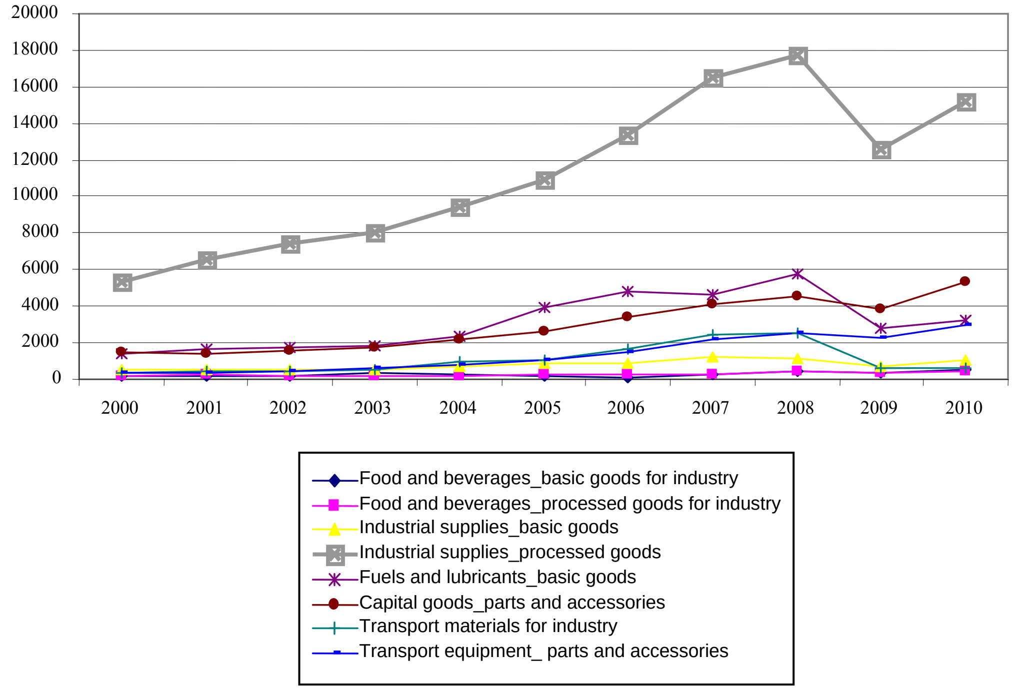
The chronic trade balance deficit in Romania and its sharp increase after year 2000 (Figure 2) has generated a macroeconomic imbalance which tended to diminish only after the crisis started. Practically in 2008 there was trade deficit for all main groups of products which were traded on international markets and the later improvement of the situation was a result of import reduction and increase of exports of transport equipments.

Despite the compositional changes in exports and imports after 2000, Romania´s trade dependence remains high. Raw materials and capital goods for industries account for a larger share of imports than food and other consumer imports. There was an accelerated increase of industrial supplies as processed goods (Figure 3) which demonstrate the vertical intra-industrial character of Romania`s trade with the EU countries.



Source: The Romanian Statistical Yearbook Time series 1990-2009 and the Bulletin for international trade, National Institute of Statistics.

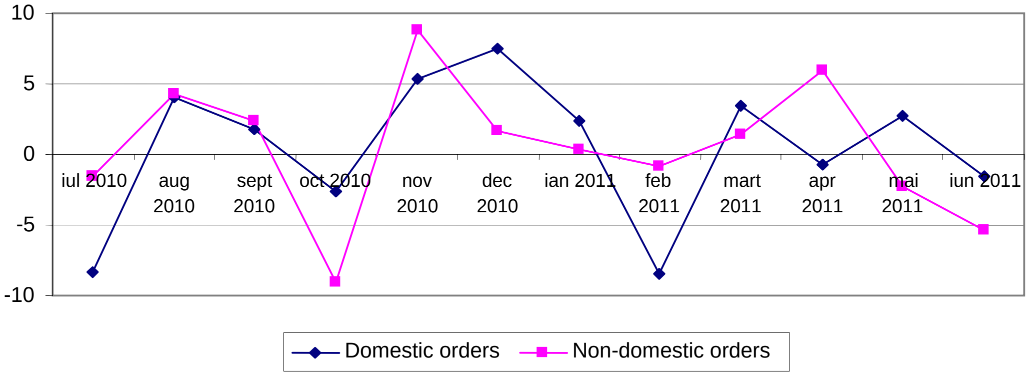
Figure 2. *The trade balance deficit in Romania, by broad economic categories (million Euro)*



Source: The Romanian Statistical Yearbook Time series 1990-2009 and the Bulletin for international trade, National Institute of Statistics.

Figure 3. *Import CIF for industry (million Euro)*

The prospects for industry can be also revealed by means of the industrial new orders indices which measure the dynamics of demand for the future production. These indices are calculated for the manufacturing industry. They have a relative volatility because they express the judgment of the producer who thinks there is sufficient evidence for a valid agreement. The trend for new orders in the manufacturing industry in different EU-27 countries in 2006-2011 (2005 = 100%) show that countries with the best behavior in the crisis, respectively Poland and Czech Republic, relied permanently on positive changes of the new orders during the period, while the more rapid turn on the ascending trend of the cycle was based mainly on domestic orders. A similar situation was in Germany, even if this country had a period of declining new orders in 2009. In Romania the engine consisted of the non-domestic orders (Eurostat, 2011b). In the last two years in Romania there was an unequal change rate of the domestic and non-domestic orders for the manufacturing industry, but in both cases these changes were predominantly positive (Figure 4).



Source: Quarterly Panorama of European Business Statistics nr.1, 2 and 3/2011, Eurostat.

Figure 4. *Dynamics of domestic and non-domestic orders for the manufacturing industry in Romania, seasonally adjusted (previous year = 100%)*

The vulnerability to the global economic conditions has been rather enhanced. This is likely to happen as long as the internal market remains weak. The dependence on international trade is recovering and even exceeds the pre-crisis level (Table 1).

Table 1

Trade dependence of the Romanian economy

	2003	2008	2009	2010
Total economy				
Trade dependence index	70.03	64.88	57.93	68.98
Import penetration index	36.47	34.96	30.6	35.61
Export propensity index	29.64	24.06	24.77	30.6
Industry				
Trade dependence index	...	278.4	232.0	255.6
Import penetration index	...	100.3	97.5	107.5
Export propensity index	...	100.5	96.6	110.2

Source: own calculations based on data from the Romanian Statistical Yearbook, Romania in figures 2011 and Bulletin for international trade no.12/2010, National Institute of Statistics.

The Romanian economy has a trade dependence index with high values which tend to reach again 70% in 2010. This index level shows a high openness to the world economy, especially to the EU countries. The integration of industry in the international trade flows with industrial products is much higher, by having a trade dependence of 255%. The limitation of this indicator is that it does not reflect the structural exposure of the analyzed economy/sector.

The import penetration index, which actually indicates the self-sufficiency, is representative for the vulnerability of the economy. An index over 100% for the industry shows the strong presence of re-exports and a relative weak internal market with low degree of import absorption. Similar levels of the export propensity reveal a symmetry to the import dependence. Thus it is expected that any decline of the external markets will result into a simultaneous decrease of industrial imports and exports.

The Romanian export structure in the first quarter of 2011 is dominated by intermediary industrial products of medium and low technological level (Table 2).

Table 2

Top 10 groups of goods exported in countries of the European Union in the period 1.I-30VI 2011

Code N.C.		Million Euro	Destination countries
	EXPORT -FOB total	15,757.7	
85	Machinery and mechanical appliances; electrical equipment; sound and images recorders and reproducers	3,213.4	76.2% to Germany, Italy, Hungary, United Kingdom, France, Czech Republic
87	Vehicles, tractors and other ground vehicles	2,130.5	77.3% to Germany, France, Italy, Spain, Belgium
84	Boilers, turbines, engines, mechanical apparatus and devices, parts thereof	1,430.8	79.4% to Germany, France, Italy, Hungary, Poland, Netherlands, Austria
62	Clothing and accessories, not knitted or crocheted	840.6	89.5% to Italy, Germany, United Kingdom, France
94	Furniture, lighting fittings and other similar articles; prefabricated buildings	677.4	76% to Germany, France, Italy, Netherlands, United Kingdom, Spain
40	Rubber and articles thereof	647.8	74.9% to Germany, France, Italy, Hungary, Spain, Poland,
64	Footwear and parts thereof	623.2	87.7% to Italy, Austria, Germany, France, Hungary
73	Products of pig-iron, iron and steel	522.4	77.7% to Italy, Germany, France, Netherlands, Poland, Bulgaria, Spain
72	Pig-iron, iron and steel	482.0	77.6% to Germany, Italy, Greece, Bulgaria, Hungary, Czech Rep, Poland
27	Mineral fuels and oils, bituminous substances; mineral waxes	456.0	82.3% to Bulgaria, Hungary, Germany, Malta
	TOTAL	11,024.1	

Source: Bulletin for international trade no.7/2011, National Institute of Statistics.

Since these exports rely on major flows of industrial supplies consisting of processed products, the industry has a problem of structural vulnerability.

4. Conclusions

The Romanian industry has signalized before other economic sectors the beginning of the crisis and had a high recovery rate in 2010 and 2011. This positive development was determined by the raise of the external demand of the main trade partners from the Euro Zone, especially Germany and France. This is an argument which demonstrates a relatively high degree of convergence of the economic cycles resulting from the deepening of the integration process. The continued significant dependence of the Romanian industry on the international trade is an aspect of economic vulnerability when the domestic market is stagnant. Although the vertical intra-industrial trade is common on global markets, the fact that the production structures of the industry cover only certain parts of the value chain of the final products, usually with lower value added, is a cause of the structural vulnerability of the sector. The increase of the domestic market and the consolidation of industrial activities with high value added are long term solutions for reducing risks induced by external shocks.

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