

## Structural changes and productivity in the crisis period in Romania. The industry case

**Anca DACHIN**

The Bucharest University of Economic Studies  
daniela.dachin@economie.ase.ro

**Felix-Constantin BURCEA**

The Bucharest University of Economic Studies  
felixburcea@yahoo.com

**Abstract.** *The present crisis is a new case study for the theories regarding economic fluctuations. The interpretation of this phenomenon varies from the acceptance of its character of rule in the history of capitalism, which brings corrections to excess in human behaviour, to the emphasis on its uniqueness determined by the effects of unprecedented globalization. The Romanian economy went through the crisis by having persistent structural problems which were partially masked by the expansion during the previous period of sustained economic growth. Considering that productivity is a significant parameter for the competitiveness of the national economy and that the healthy economic growth is a chance for diminishing the gap to other European countries, the paper aims at the identification of the economic activities which have contributed to economic growth until 2008 and of the potential sources of economic recovery in the next period. The research uses the empirical analysis in order to see the effects of the crisis, as well as to understand the signals given by the productivity trend regarding structural changes after the crisis started. Since the industry had a fast recovery in 2011 compared to other EU countries, the analysis is extended to the contribution of this activity to economic growth.*

**Keywords:** crisis; structural changes; productivity; budgetary constraints; industry.

**JEL Codes:** E32, E23, L6.

**REL Codes:** 17E, 17H.

## 1. Introduction

The debate about the most appropriate development models has now a new approach, because the crisis affected more or less all the countries involved in the flows of the international economy. The present crisis is a new case study for theories concerning the economic fluctuations. According to Nouriel Roubini, in the modern history of capitalism crises are the rule, not the exception. Crises produce outrageous losses, by destroying entire industries, destroying wealth and causing massive layoffs (Roubini, 2010, pp. 35-36). The causes of crises can be different. Depending of its persistence and effects, the present crisis can determine a reconsideration of the economic theory fundamentals.

The problem of restructuring is not strictly circumstantial and surprising, since for some economists it has been even predictable. Even before any manifestation of the crisis in the European Union, they have signaled the necessity of EU restructuration, considering that without serious, profound and clear reforms Europe will inevitably arrive to a decline, and a relative decline may become an absolute one (Alesina, 2006, p. 3).

A subject that has attracted much attention in the political economy literature is the role of economic and political crises in generating incentives to reform (Agéon, 2004, p. 670). Usually the incertitude concerning the economic consequences has strong implications on the acceptance of adjustment programs by the population. Structural policies produce positive effects in the long run, while the short term effects are unfavorable and hard to accept, especially when there is a lack of confidence in the reform programs. The economic crisis imposes hard budgetary constraints, which can force restructuration in a short term.

A first possibility of counteraction is given by the automatic stabilizers. Some studies show that Eastern Europe is characterized by a low level of automatic stabilizers. A possible explanation is that in the economies with a higher degree of openness the automatic stabilizers are weaker because of the positive effects of demand increase on other countries (Dolls et al., 2009). Thus, the increase of interdependencies in the global economy reduces the functionality of those self-regulation mechanisms.

In Romania the economic restructuration process began in 1990, by having a difficult roadmap of the transition process towards the market economy. The privatization policy and the company restructuration, as well as the introduction of the financial discipline have been very much debated in the past decade. The conclusions of a systematic study about structural changes show that the Romanian economy suffered because of weak budgetary restrictions (Croitoru, 2003). In this period has functioned the moral hazard generated by the belief of companies that the government will find solutions. The specific behavior of companies with losses included more funding from suppliers, non-payment of taxes, etc, practices that continued also after the transition period ended.

The economic growth engine after 2000 was the consumption. Governments promoted a pro-cyclical expansionary policy. In the period 2005-2008 the budgetary expenditures have doubled in nominal terms, increasing the share of the public sector from 32% to 37% of GDP (Marinaş, 2012). The accumulation of important budgetary and current account deficits during the economic expansion period made impossible the use of demand stimulation policies when the crisis started, because it could have led to an unsustainable public debt. Hard budgetary constraints imposed an austerity policy in Romania, as well as in other EU countries. These can also lower the effects of the political cycle, because the action margin for stimulating the economy became much shorter.

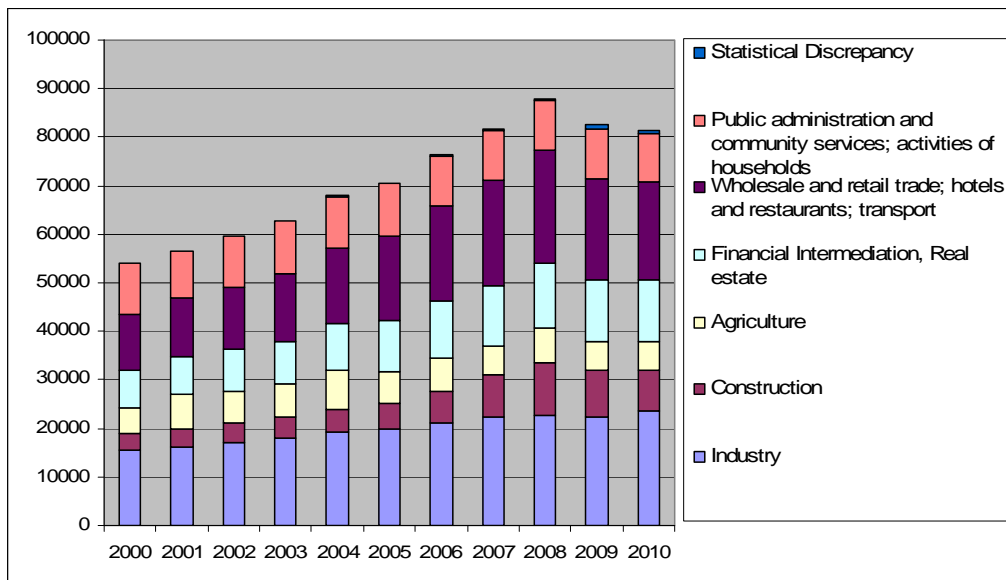
The perception of Romanian companies in 2008 regarding the risk of a possible economic crisis was unrealistic. Joldes and Horobet (2008) showed that the Romanian managers did not realize the exposure degree of their companies to crisis effects. In addition to the lack of expertise in risk evaluation, the more optimistic attitude at the beginning of the crisis can be explained by the confidence given by the adhesion to EU and the habit created by previous weak budgetary constraints.

Considering productivity as a significant parameter for the national economy's competitiveness and healthy economic growth as chance for recovering gaps to other European countries, the present paper has as main purpose to identify the economic activities that contributed to the economic growth until 2008 and potential sources for economic recovery in the next period.

## 2. Structural changes and implications on productivity in the Romanian economy

After a period when the Romanian economy had a positive evolution (2000-2008), sustained by a regional and global favorable situation, but also by many changes that occurred in the internal economic environment (adhesion to the European Union, investment attraction, economic environment stabilization), 2009 revealed a strong economic contraction (GDP decreased by 6.6% compared to 2008). 2010 was the second recession year, real GDP being 1.6% lower compared to 2009. In 2011 recorded an economic growth of 2.5% due to international environment stabilization, but also to good results obtained by the Romanian economy, especially in industry and agriculture.

The sustained increase of GDP in the period 2000-2008 was mainly due to absolute and relative increase of services activities (commerce, hotels and restaurants, transportation, financial intermediations and real estate transactions) and the boom of constructions on the period 2006-2008 (Figure 1). Thus, over a decade the sectoral structure of the national economic changed, by increasing the share of services, especially on the account of the decreasing share of agriculture in VAB, from 10.2% in 2000 to about 7.4% in 2009-2011.



Source: Eurostat database.

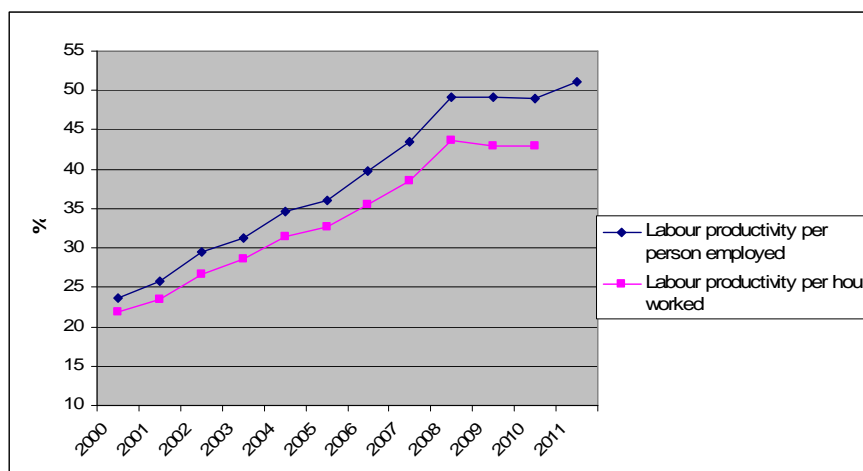
**Figure 1.** Contribution of the main activities to the gross value added, 2000-2010  
Million Euro (reference year 2005)

The shock produced by the crisis is related to the accentuated reduction of the share of services, such as commerce, hotels and restaurants and transportation, from 26.5% of VAB in 2008 to 24.2% in 2011. The share of agriculture in VAB decreased from 8% to about 7.4% in the crisis period, even if there was a slight increase of employment in agriculture, as survival solution. Industry began a continued but slow increase of the VAB in real terms after 2000, reaching in 2011 the share of 31% from total VAB, the highest value of the entire period 2000-2011.

These structural changes at macroeconomic level had effects on the level of labor productivity. Labor productivity is an economic indicator that helps us to measure the efficiency of a sector or of the economy as a whole (Blanchard et al., p. 67). The reduction of the share of agriculture, which had a productivity of 25-28% from the national average and the increase of the share of constructions and financial intermediation, activities with productivity much above the average, have been sources of productivity increase as a whole. Thus, we can notice that the productivity situation has improved visibly comparing with EU until the starting point of the crisis (Figure 2).

The crisis caused not only an immediate decline in commerce, hotels and restaurants and constructions activities, sectors that ensures a high number of work places, but also a reduction of productivity due to labor market rigidity. The 2011 comeback is mainly due to an absolute increase of productivity in industry.

It can be noticed a slower recovery of productivity measured per hour worked comparing with EU-27 average (Figure 2). The increase in supplementary worked hours until 2008 can be a cause for the difference between the two indicators of productivity. The crisis increased the gap to EU more accentuated at labor hour productivity, signaling a substitution of hours from more productive activities with those less productive (agriculture, public services).



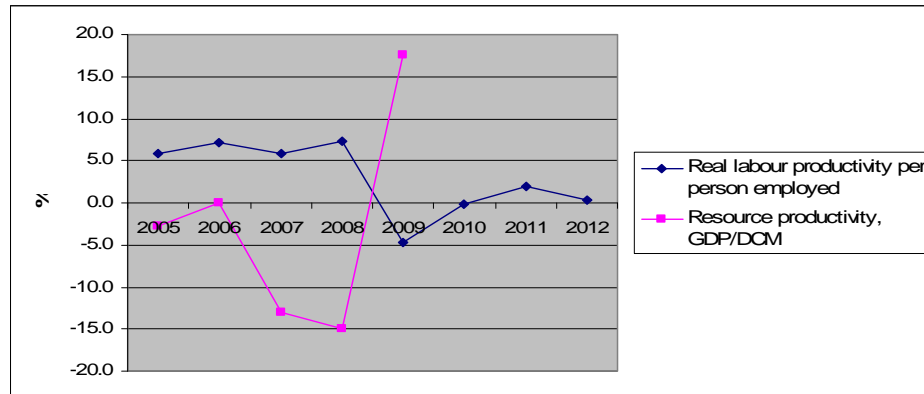
\*GDP calculated at purchasing power parity

Source: Eurostat database.

**Figure 2.** Labour productivity\* in Romania compared to EU-27 (EU-27=100%)

In order to highlight the efficiency of economic activities, which reflects also the structural characteristics of national economy, it is also necessary to analyze the resource productivity, which indicates the GDP obtained per domestic material consumption unit (DMC). The DMC measures the total volume of materials directly utilized in economy and includes the annual quantity of raw materials extracted from the domestic territory of the focal economy, plus all physical imports minus all physical exports.

In Romania the resource productivity decreased by 40% in the period 2000-2009 (gradual decrease), while in EU-27 it increased in average by 17% (Eurostat, 2012). This tendency shows the low efficiency of the production processes, correlated with the predominance of the medium and low technological level. In 2009, the labor productivity decreased sharply and the resource productivity increased significantly (Figure 3). The DMC decrease is mainly associated with the decline in constructions, metallurgical industry, manufacture of coke and refined petroleum products, manufacture of chemicals and chemical products and also in other sectors with high consumption of material resources.



Source: Eurostat database.

**Figure 3.** Labour productivity and resource productivity in Romania (% change on previous year)

In the specific conditions for 2009, the labor productivity per person employed in Romania was 42.9% from EU-27 average, the hour productivity was 43%, and the resource productivity was only 34%. The essential solution for obtaining favorable structural changes and an increase of economic competitiveness is given by the investments in activities that produce higher value added, regardless of the sector.

According to a study published in July 2012 by the company Roland Berger Consultants, based on a sample of 300 Romanian and German companies, more than half of the respondents from Romania consider that a new risk for recession exists and 68% expect that the sovereign debt crisis will have a much stronger negative impact on the Romanian economy. To remark is the fact that in 2011, 52% of the Romanian respondents state that the economic crisis from 2008-2009 helped them boost the competitiveness in the long term through restructuring. Besides the actions to increase sales, managers give priority to programs for cutting costs and increase efficiency. In their opinion, the biggest problems which are slowing down the growth are the insufficient available qualified staff for demanded qualifications and the liquidity deficit.

### 3. Contributions of industry to the economic growth

In the period 2002-2007, the contribution of industry to the economic growth was almost all the time surpassed by the contribution of the services sector. This is mainly due to structural changes at the national economy level, since services became an attractive sector for investments, by having a decisive role in the sustainable economic growth (development of telecommunication

infrastructure). Also the financial sector and transports had an important share to economic growth in the period 2000-2008.

The industry had a decisive role in attenuating the economic contraction in 2010, contributing with +1.2 percentage points to the GDP change (Table 1). In 2011 the positive trend continued, the contribution of this sector to the GDP increase in 2011 representing more than half from the total.

Table 1

**Contribution of the economic sectors to economic growth**

	GDP	Agriculture, forestry, fishing	Industry	Constructions	Services	Net taxes on the products
2009	-6.6	-0.2	-0.3	-1.1	-3.6	-1.4
2010	-1.6	-0.4	1.2	-0.8	-1.1	-0.5
2011	2.5	0.7	1.3	0.3	-0.1	0.3

**Source:** National Statistic Year-Book 2011, Monthly Statistical Bulletin, January 2012. National Institute of Statistics (NIS).

We can notice that the manufacturing industry had the largest influence on industrial production in the analyzed period. It increased significantly comparing with the base year 2005, contributing to the positive dynamics of industrial production in the period 2005-2011, but having also a decisive role in the economic contraction in 2009 (Table 2).

Table 2

**Industrial production indices, by main activities**

	(2005=100%)					
	2006	2007	2008	2009	2010	2011*
Total	109.3	120.6	123.8	116.9	123.4	130.3
Mining and quarrying	102.4	100.8	100.7	88.7	82.6	86.3
Manufacturing industry	112.5	126.1	130.1	121.6	128.9	136.1
Energy, water, gas	92.3	96.3	96.6	103.4	111.8	118.8

\*estimations based on the data from Monthly Industrial Statistics, 12/2011, NIS.

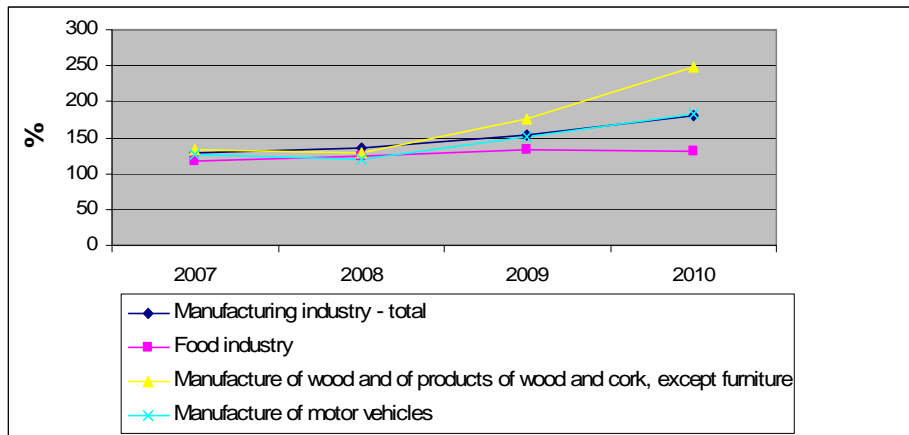
**Source:** 2011 Statistical Yearbook.

The main activities that are positively influencing the trend of the manufacturing industrial production are:

- Food industry;
- Wood processing;
- Automobile manufacturing.

The activity with the biggest positive influence on the industrial production is “Manufacture of motor vehicles and trailers” due to the success of the local automobile constructor Dacia mainly on the external markets, but also on the domestic market.

In the period 2000-2010, as we can observe in Figure 4, the labor productivity in industry increased, as well as in the three activities mentioned above.



Source: Statistical yearbook 2011, NIS.

Figure 4. Indices of labour productivity per employee (2005=100%)

In 2009, the labor productivity at national economy level decreased by 4.7% comparing with 2008 and in 2010 with 0.2% comparing with 2009. On the other hand, the labor productivity in industry rose by 15% in 2009 comparing with 2008 and by 16% in 2010 comparing with 2009. This highlights the fact that industry was a sector with efficiency above the national average, being able to decisively contribute to the recession attenuation in 2010 and to the economic revival in 2011.

The excellent result registered by the industry is mainly due to production efficiency. Thus, the number of employed persons in industry dropped by around 10%, and the gross value added registered an increase of about 5% in 2010 comparing with 2009. In 2011, the number of persons employed in industry has been stabilized, and the gross value added rose by approximately 2%.

For a complete analysis of the industry dynamics and its role in the national economy, we will analyze in the following the investment dynamics in industry. The role of investment is determinant in stopping economic crisis situations and in revival of economic activities (Welfens, 2008, p. 109). According to the estimations made by DeLong and Summers (1991), an increase in investment by one percent will naturally lead to a growth of 1/3 from that percent. At microeconomic level the permanent orientation of economic agents on investments constitute a mandatory condition for keeping in economic competition and modernization.

According to Figure 5, net investments in the manufacturing industry had in the period 2001-2007 a sustained growth tendency. The interest for mining and quarrying has been activated only starting with 2005.





Source: Statistical yearbook 2010, NIS.

**Figure 5.** *Indices of net investment in industry in Romania, 2001-2007(2000=100 %)*

In 2009 net investments in the manufacturing industry declined by 32.8%, and in the next year decreased by another 20.8%. Thus the increase of productivity in 2009 and 2010 (Figure 4) is mainly due to employment restructuring and less to production modernization.

In 2010 we can remark an increase by 88% of investment for the production and distribution of electric energy, gas, hot water and air conditioner. This is mainly due to the investors' interest for the energy sector. Investments have also increased in the sector for water treatment and waste recovery, which are targeted by the EU and have deadlines to fulfill the imposed requirements. This fact has a positive impact on sustainable economic growth, since this kind of investment has an immediate effect on employment, but also on the environment.

Even if the industry had a comparatively better evolution during the crisis years, it has an increased vulnerability when confronting global economic conditions. Industry has a strong tendency of re-export and, respectively, has a weak domestic market with low absorption degree for industrial supplies. According to the estimations of first 3Q's in 2012, industrial production dropped by 0.2%, under the impact of the economic stagnation in EU. The increase of domestic demand and the consolidation of some segments of industrial production with higher added value constitute long term solutions for the industry to sustain the economic growth.

## Conclusion

The economic crisis has been predictable for some economists, because in the history of modern capitalism crises are the rule, and not the exception. Hard budgetary constraints brought by the crisis can impose austerity measures,

which force restructuring in a short term. This is happening especially if the previous expansionary policies have already led to important budgetary deficits, thereby the demand stimulation becomes unsustainable.

Romania followed a restructuring process specific to the period of transition to market economy, which is not fully finalized. In the period of sustained economic growth, based on consumption stimulation, changes occurred in the structure of the main activities which determined an increase of productivity. However productivity is still much lower than the EU average.

The crisis shock affected in the first place constructions, commerce and tourism. The source for the GDP recovery in 2010 and 2011 was the industry, which demonstrates that it can contribute to a healthy economic growth. The positive evolution of industrial production is closely related to labor productivity and investments in this sector, with the condition of more orientation towards activities with higher value added, based on innovation and non-polluting production methods and having a higher degree of product sophistication and qualification level of the employed persons. Another condition is the internal market consolidation for industrial goods produced in Romania.

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