

Inter-regnum

“If God proved tolerant towards the varying intensity in the people’s acceptance of their destiny, the markets exclude those which are not anytime, anywhere and, especially, anyhow adaptable. Liberalization is no longer tolerant. The market proclaims: I am the State!”

The founding vision of the model for understanding and explaining the functioning of the world is nowadays made up of precepts which defy the essence of natural, organic evolution. In the economy speculation tends to replace work, while in the life of the individual the illusion unravels reality. The present consumes the future, justifying this as a favor towards human rights. The freedom of commerce acts as a centripetal force towards competitive advantage and centrifuges the ideality of development. The theoretical wrapping is politically correct, but the practices conserve disparity. The economy concentrates wealth at a fast rate, but society does not escape poverty.

The guidelines of knowledge have become fluid under the plethora of contradictions. The path of which the dissonances insinuate has been prepared by the fact that the day-to-day action has been removed from under the matrix of ethically balanced discernment. Profit was judged as normal outside the caveat of it bringing good to everyone. The equality of chances became a loser’s solution. Materialism has extended its anti-human facet, becoming the *raison d’être* of social systems. The whole human universe thus led to antithetical consequences, the will for good being perverted into a source for crisis.

The feeling of dysfunctionality in the present world configuration is rooted in ideological determinism. The faded expression of this picture is the result of a movement originating in the resuscitated depths of societal experiments. Unnatural targets – such as the expectations of the market – structure the trajectory of actional systems. Inside the materialist inter-conditionings empire of profit-at-any-cost, the causes are replaced by motives, while intentions replace rules. Order is a matter of personal ambitions transferred to the formulas of power.

On this terrain the states are sacrificed in the management of markets, whereas the markets occupy the positions of democratic decision-making. Reality becomes increasingly trapped within theoretical frameworks which are obsessed by efficiency, while performance is certified by the very short time span. Freedom becomes particularized, power economicised and wealth dissocialized. A global mechanism emerges, through which the markets impose the functions of the state. Through corporatization, capitalism becomes a market society.

The paroxysmal behavior of market ideology, having become corporativism, announces the halting of creative destruction. The world got fixed in that exceptional

manner of the survival solutions represented by the principle of “the purpose justifies the means”. Innovation no longer has the goal of increasing the productivity of factors, pursuing speculation as a source of added value. The markets no longer care for their natural status as a space of economic rationality – they are transforming into generators of virtual values.

The breakthrough in making economic factors fictitious nullifies the practical sense of economic activity. In this universe of abstract conventions man is a derisory body. In a world centered of gain, the speed of wealth leaves comfort far behind. This is the inherent paradox in the development of markets on the social ground and the fatal consequence of the state’s corporatization. Prosperity becomes a decorative theme on the streets lined with exclusivist shops. The statistic gives us wealth as a mean distribution, instead of the Gini coefficient.

The appeal to state interventionism in bailing out the markets is, in this context, tolerable. But the slow reaction of the financially exhausted state in insuring the continuing support for the freshly rescued markets’ appetite for profit is intolerable. The states become indebted in order to avoid the failure of the markets and over-indebted in order to insure the profitability of the markets. The recent economy no longer knows, as it is natural, the method of competition on the markets, but the competition of markets for the control of the state’s functions. A state is good only if it becomes the annex of the markets. Otherwise it is declared bankrupt. In this way, all it is left for the citizen is to live in the inter-regnum between the indebtedment of the state and the profit of the markets.

Capitalism has become corporatism. From the long-prepared end of adversative history to the stimulated agony of the functional equilibriums between the states and the markets, a black hole is insinuated into reason. The impact of the belief in the superhuman force of the markets bellies the belief in the supernatural. If God proved tolerant towards the varying intensity in the people’s acceptance of their destiny, the markets exclude those which are not anytime, anywhere and, especially, anyhow adaptable... against anyone, it could be argued, in an obvious paraphrasing of an illustrious Romanian financier.

Liberalization is no longer tolerant. The market proclaims: I am the State!
Corporatism cannot stand freedom.

Marin Dinu

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Gabriela Ochiană

Computerized drawing up:

Nicoleta Bobocea

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Testing the Asymmetry of Shocks with Euro Area

Marius-Corneliu MARINAȘ

Bucharest Academy of Economic Studies
marinasmarius@yahoo.fr

Abstract. *The objective of this study is to identify the demand and supply shocks affecting 13 EU member states and to estimate their degree of correlation with the Euro area shocks. This research ensures identifying the asymmetry of shocks degree with the monetary union, depending on which it's judging the desirability of adopting a single currency. The analysis is also useful for the economies outside the Euro area, because they are strongly commercial and financial integrated especially with the core economies from union. Applying the Blanchard and Quah methodology to estimate the shocks in the period from 1998:1-2010:3, I have found a weak and negative correlation between demand shocks and a medium to high correlation of the supply shocks. The results obtained suggest the presence of a structural convergence process with the Euro area, in the context of domestic macroeconomic policies rather different, both inside and outside the monetary union.*

Keywords: demand shocks; supply shocks; SVAR model; Euro area; asymmetric shocks.

JEL Codes: E32, E37.

REL Codes: 9B, 9G.

Introduction

Adopting the Euro entails giving up two instruments that can be used to neutralize macroeconomic shocks. These shocks will become more rather asymmetric, given that there are significant differences with the Euro area's economic structure or it is promoting divergent macroeconomic policies than this. The event of asymmetric shocks will generate a lower correlation of business cycles, increasing the costs of participating in monetary union. To identify the relationship between economic shocks and business cycles, the economic literature is using several methods of the shocks decomposition that affect some nominal and real variables. The most used methodology is that of Blanchard and Quah (1989), further developed by Bayoumi (1991) and Bayoumi and Einchengreen (1992). This concerns the decomposition of the shocks that affects output and inflation in aggregate demand, respectively aggregate supply shocks. This methodology is useful to analyse the risks of a common currency adopting, because it allows identifying the nature of shocks and the most appropriate answers to their action. Bayoumi and Einchengreen have investigated two types of shocks with two type VAR models, one for real GDP and the other for the GDP deflator. The shocks were estimated based on residuals of the two models, with the restrictions specified in the next section of the paper.

The two economists have estimated that for the EU countries there are more asymmetric shocks than US regions, this situation leading to difficulties for stability of the European Monetary Union. Moreover, the shocks adjustment is more difficult in European countries, which will lead to the persistence of high unemployment following a restrictive shock. The methodology was used to estimate the impact of enlargement of monetary union with countries from Central and Eastern Europe. Using data for ten economies from this region and the Euro area economy, Fidrmuc and Korhonen (2001) estimated that Hungary, Latvia and Estonia registered a high supply side shocks correlation with EMU in the period 1994-2000. For others countries the correlation of shock was close to zero, suggesting reduced structural convergence of these countries with EMU. Correlation of shocks on the demand side is generally lower than the supply side, low levels of correlation coefficient reflecting the macroeconomic differences during the transition.

Horvat (2000) analyzed the correlation between demand and supply shocks for the Baltic countries and the Visegrad group, with Germany as a reference. In this case, Hungary was characterized by the highest correlation of aggregate supply shocks and the lowest correlation of the aggregate demand side. Weimann (2002) estimated that Bulgaria, Czech Republic, and Hungary

registered the strongest correlation of shocks on the demand side with the Euro area. Frenkel and Nickel (2002) concluded that there are significant differences between the nature, intensity and capacity of the shock adjustment between CEE countries and the Euro area, but some of the new member states there are similarities with economies within the monetary union. According to Babetski (2003), lower correlation of demand and supply shocks monetary union economies should not be a cause for concern because the situation might improve inside the Euro area. Adapting the endogenous hypothesis of an optimum currency area, the economist showed that Euro adopting for some new member states would lead to increase of the intra-industry trade and greater convergence of demand shocks. Arfa (2009) found that several new member countries of the European Union have a quite high correlation of demand shocks with the Euro area however supply shocks are asymmetric. Socol and Soviani (2010), respectively Socol and Măntescu (2011), have explained the weak correlation of the demand shocks due to differences between national fiscal policies.

A short description of the methodology

The decomposition of the demand and supply shocks involves using a structural type of the VAR model, whose restriction are inspired by traditional macroeconomic model with aggregate demand, short-run aggregate supply and long-run aggregate supply. In the short term, an increase in aggregate demand leads to an increase of both production and inflation, so that there will be a direct relationship between these variables. In the long term, a positive demand shock will generate only an increase in prices, while production volume is constant. Increasing short-run aggregate supply leads to economic growth and to inflation rate reducing, so that there will be an inverse relationship between these variables.

In the VAR type models the shocks are a part of a variable that can not be explained by its past values or other variables included in the model. Thus, the term appears as a shock error (residual) from a certain stochastic equation. To identify demand and supply shocks is used a VAR-type model with two variables (GDP and inflation rate) which can be written as in the equations (1) and (2), where each variable is influenced by actual and lagged values of other variables and by its lagged values.

$$y_t = b_{10} - b_{12} \times ir_t + c_{11} \times y_{t-1} + c_{12} \times ir_{t-1} + e_{y,t} \quad (1)$$

$$ir_t = b_{20} - b_{21} \times y_t + c_{21} \times y_{t-1} + c_{22} \times ir_{t-1} + e_{ir,t} \quad (2)$$

Where variables y_t și ir_t are supposed to be stationary, $e_{y,t}$ și $e_{ir,t}$ represents the errors with standard deviations σ_y și σ_{ir} , which are not correlated.

Blanchard and Quah directly associated structural shocks of demand (ε_{dt}) and supply (ε_{st}) with y_t and ir_t variables, as a bivariate moving average. The vector (X_t) composed by the two endogenous variables will be written as an infinite moving average vector of structural shocks, including demand and supply shocks:

$$X_t = C_0 \times \varepsilon_t + C_1 \times \varepsilon_{t-1} + \dots + C_n \times \varepsilon_{t-n} = \sum_{n=0}^{\infty} L^n C_n \times \varepsilon_t \quad (3)$$

where $\varepsilon_t = \begin{bmatrix} \varepsilon_{dt} \\ \varepsilon_{st} \end{bmatrix}$ and L is a lag operator; $L^0 \varepsilon_t = \varepsilon_t$; $L^1 \varepsilon_t = \varepsilon_{t-1}$; $L^2 \varepsilon_t = \varepsilon_{t-2} \dots$

The starting point of their model is the following:

$$\begin{bmatrix} \Delta y_t \\ \Delta ir_t \end{bmatrix} = \sum_{i=0}^{\infty} \begin{bmatrix} a_{11i} & a_{12i} \\ a_{21i} & a_{22i} \end{bmatrix} \times \begin{bmatrix} \varepsilon_{dt} \\ \varepsilon_{st} \end{bmatrix} \quad (4)$$

where Δy_t and Δir_t represent, respectively, changes in the logarithm of output and prices at time t, ε_{dt} and ε_{st} represent supply and demand shocks and a_{kji} represent each of the elements of the impulse-response function to shocks.

The model defined by equations (4) also implies that the bivariate endogenous vector can be explained by lagged values of every variable. If A_i represents the value of model coefficients, the model to be estimated is the following:

$$\begin{bmatrix} \Delta y_t \\ \Delta ir_t \end{bmatrix} = A_1 \times \begin{bmatrix} \Delta y_{t-1} \\ \Delta ir_{t-1} \end{bmatrix} + A_2 \times \begin{bmatrix} \Delta y_{t-2} \\ \Delta ir_{t-2} \end{bmatrix} + \dots + \begin{bmatrix} e_{yt} \\ e_{irt} \end{bmatrix}, \quad (5)$$

where e_{yt} and e_{irt} are the residuals of every VAR equation. Equation (5) can be also expressed as:

$$\begin{bmatrix} \Delta Y_t \\ \Delta ir_t \end{bmatrix} = (I - A(L))^{-1} \times \begin{bmatrix} e_{yt} \\ e_{irt} \end{bmatrix} = (I + A(L) + A(L)^2 + \dots) \times \begin{bmatrix} e_{yt} \\ e_{irt} \end{bmatrix}, \quad (6)$$

and in an equivalent manner:

$$\begin{bmatrix} \Delta Y_t \\ \Delta ir_t \end{bmatrix} = \sum_{i=0}^{\infty} \begin{bmatrix} d_{11i} & d_{12i} \\ d_{21i} & d_{22i} \end{bmatrix} \times \begin{bmatrix} e_{yt} \\ e_{irt} \end{bmatrix} \quad (7)$$

Putting together equations (4) and (7):

$$\sum_{i=0}^{\infty} \begin{bmatrix} d_{11i} & d_{12i} \\ d_{21i} & d_{22i} \end{bmatrix} \times \begin{bmatrix} e_{yt} \\ e_{irt} \end{bmatrix} = \sum_{i=0}^{\infty} L^i \times \begin{bmatrix} a_{11i} & a_{12i} \\ a_{21i} & a_{22i} \end{bmatrix} \times \begin{bmatrix} \varepsilon_{dt} \\ \varepsilon_{st} \end{bmatrix}, \quad (8)$$

Where a matrix, denoted by c , can be found that relates demand and supply shocks with the residuals from the VAR model.

$$\begin{bmatrix} e_{yt} \\ e_{irt} \end{bmatrix} = \left[\sum_{i=0}^{\infty} \begin{bmatrix} d_{11i} & d_{12i} \\ d_{21i} & d_{22i} \end{bmatrix} \right]^{-1} \times \sum_{i=0}^{\infty} L^i \times \begin{bmatrix} a_{11i} & a_{12i} \\ a_{21i} & a_{22i} \end{bmatrix} \times \begin{bmatrix} \varepsilon_{dt} \\ \varepsilon_{st} \end{bmatrix} = c \times \begin{bmatrix} \varepsilon_{dt} \\ \varepsilon_{st} \end{bmatrix}. \quad (9)$$

From equation (9) it results that in the 2x2 considered model, four restrictions are needed to define uniquely the four elements of matrix c . Two of these restrictions are simple normalisations that define the variances of shocks ε_{dt} and ε_{st} . The usual convention in VAR models consists of imposing the two variances equal to one, which together with the assumption of orthogonality define the third restriction $c' \times c = \Sigma$, where Σ is the covariance matrix of the residuals e_y and e_{ir} . The final restriction that permits matrix c to be uniquely defined comes from macroeconomic theory and it refers to cumulative effects of demand shocks on output which must be zero.

Results obtained

In this study I have applied SVAR methodology to identify aggregate demand and supply shocks for 13 economies of the EU and the Euro area. Five of the economies are from Central and Eastern Europe (Romania, Hungary, Czech Republic, Poland, Slovakia), four are peripheral (Portugal, Spain, Greece and Ireland) and others are from the euro area core (Germany, France, Italy and Austria). Motivation for choosing these economies was that of estimating the degree of the shocks correlation within the euro area (between core and periphery) and between several new member states and the Euro area as a whole, respectively some economies that form it. To identify the demand and supply shocks I have used quarterly data series of real GDP and inflation in the period 1998:1 - 2010:3, the total number of observations being 51. Real GDP was expressed as an index with base year 2000, while inflation is the percentage change in GDP deflator. The source of data was Eurostat and to estimate the demand and supply shock I have used EViews software. Because of the influence of seasonality specific to quarterly macroeconomic data, I have applied for all data series of TRAMO/SEATS to eliminate this feature of the variables.

After this process, I have tested the stationary character of both variables expressed in logarithm. These may have a unit root, which would characterize

the presence of a trend or lack of stationarity. To investigate this hypothesis, I have used the ADF test, whose H_0 hypothesis is the existence of a unit root. For most data series I have estimated the existence of a unit root at level and no root on the first differences. It results that the variables are integrated of order 1, ie I (1). In the table below I have included the probabilities associated with the ADF test for I (0) and for I (1). If the probability is higher than threshold of significance (5%, respectively 1%) then that variable has not stationary.

According to the results of the stationarity test included in Table 1, Ireland is the only economy whose GDP is stationary at the level, evidence of an economy flexible, easily able to neutralize the shocks affecting it. Hungary and Slovakia register also a relatively high level of economic flexibility. In terms of inflation, it is stationary at 1% in Germany and Slovakia, proving the ability of domestic supply side to counteract the influence of aggregate demand shocks. Furthermore, the stationarity at level is a virtue in a monetary union, allowing faster adjustment of economic shocks that generate either a decline in the economy or is overheating it.

Table 1

Countries	GDP		GDP DEFLATOR	
	I(0)	I(1)	I(0)	I(1)
	H_0 : There is a unit root (it's lacking stationarity)			
Romania	0.8544	0.0072	0.5854	0.0000
Euro Area	0.5386	0.0005	0.4605	0.0000
Germany	0.1864	0.0000	0.0042	-
France	0.2034	0.0014	0.2825	0.0001
Italy	0.2028	0.0005	0.7892	0.0000
Austria	0.6111	0.0108	0.8829	0.0001
Spain	0.9863	0.0026	0.1065	0.0001
Portugal	0.1377	0.0000	0.0409	0.0000
Greece	0.2265	0.0000	0.1197	0.0000
Ireland	0.0110	0.0000	0.7982	0.0000
Czech Republic	0.2388	0.0169	0.1823	0.0000
Hungary	0.0871	0.0002	0.0424	0.0000
Poland	0.7708	0.0128	0.1075	0.0000
Slovakia	0.1368	0.0000	0.0028	-

Source: Eurostat (2011); personal estimations with Eviews 7 software.

Since the variables expressed as first differences became stationary, I have built one VAR model consists of real GDP and inflation series for each of the 14 economies. A VAR model is valid if it satisfies the following conditions:

- a good representation of the model, by choosing the optimal number of lags;

- stability, obtained if the roots are lower than unity;
- residual validity by lack of autocorrelation, by normalization and homoskedasticity.

To identify the correct number of lags of the VAR model for economies included in this paper I have used the criteria provided by LR Sequential tests, Akaike Criterion, Schwarz and Hanna-Quinn Criterion tests. To validate these tests I have applied the Lag Exclusion Wald Test, whose null hypothesis is rejecting the choice lag. If its probability is below 1% or 5% the optimal lag is selected. According to the results included in the Table 2, it results that eight economies have a VAR with one lag, three have VAR models with two lags and another three are characterized by 3 and 4 lags for the two data sets included the VAR.

Table 2

The estimation of the number of VAR lags

Countries	Sequential LR	AIC	SC	HQ	Chosen lag	Probabilities of Lag exclusion test H0: the statistics χ^2 rejects the selected lag
Romania	4	4	4	4	4	0.000261
Euro Area	1	1	1	1	1	0.000136
Germany	1	1	1	1	1	0.033883
France	2	3	1	2	2	0.039302
Italy	1	1	1	1	1	0.000214
Austria	1	1	1	1	1	0.000796
Spain	4	4	1	4	4	0.003020
Portugal	2	2	2	2	2	0.027871
Greece	3	3	3	3	3	0.027798
Ireland	1	1	1	1	1	0.000000
Czech Republic	1	1	1	1	1	0.000053
Hungary	1	1	1	1	1	0.007902
Poland	2	2	1	2	2	0.009867
Slovakia	1	1	1	1	1	0.000000

Source: Eurostat (2011); personal estimations with Eviews 7 software.

The VAR models of the 14 economies must also fulfill the conditions on the residual validity that supposes the normal distribution, homoskedasticity and lack of errors autocorrelation. In the table below I have included the tests probabilities associated with the three conditions previously mentioned. Because their values are higher than threshold of significance at 5%, then the three null hypothesis are accepted, which validates the correct representation of the VAR models residual.

Table 3

The probabilities of the VAR residual tests

Countries	Autocorrelation LM test	Cholesky (Lutkepohl) Normality test	White Heteroskedasticity test
	H0 no errors correlation for the choice lag	H0 the residual VAR has a normal distribution	H0 no heteroskedasticity
Romania	0.2815	0.4411	0.3486
Euro Area	0.2105	0.2485	0.2979
Germany	0.3747	0.5948	0.5727
France	0.0693	0.5718	0.1805
Italy	0.4111	0.0706	0.1060
Austria	0.2298	0.1123	0.8939
Spain	0.2030	0.2006	0.4189
Portugal	0.4251	0.6383	0.4246
Greece	0.4105	0.3869	0.2465
Ireland	0.1317	0.2274	0.4941
Czech Republic	0.2282	0.0788	0.2225
Hungary	0.1539	0.0641	0.1830
Poland	0.3507	0.2319	0.8631
Slovakia	0.6900	0.1916	0.2608

Source: Eurostat (2011); personal estimations with Eviews 7 software.

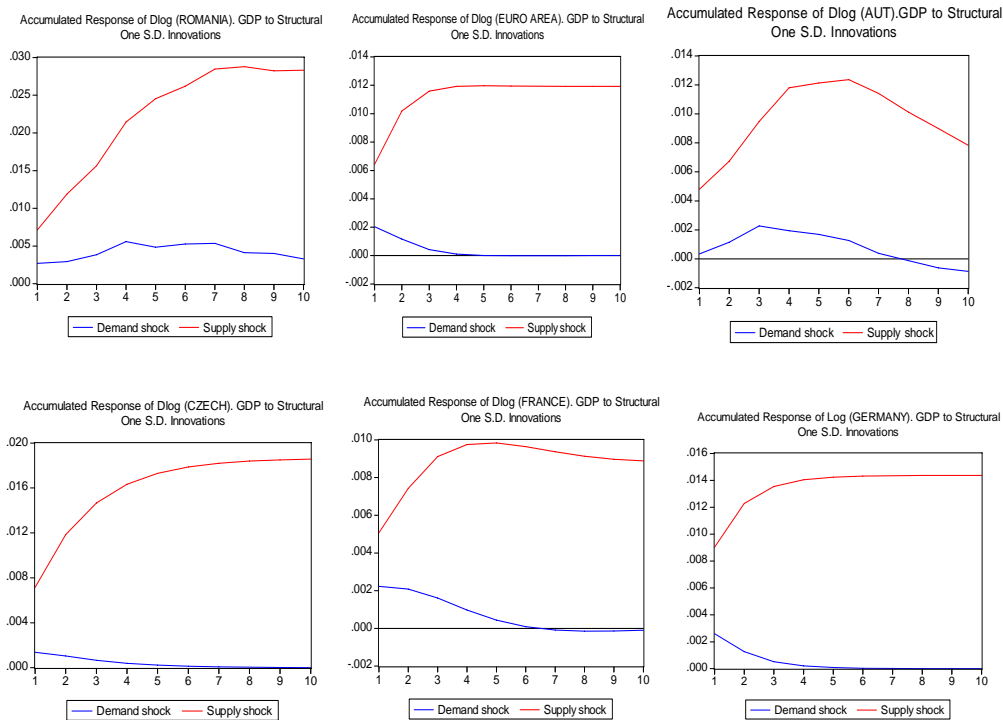
Once I have established the final form of VAR models and have checked their statistical validity, I imposed structural restrictions needed to identify the demand and aggregate supply shocks. To achieve compatibility between the theoretical model (aggregate demand – aggregate supply) and SVAR model, the latter must meet the following conditions:

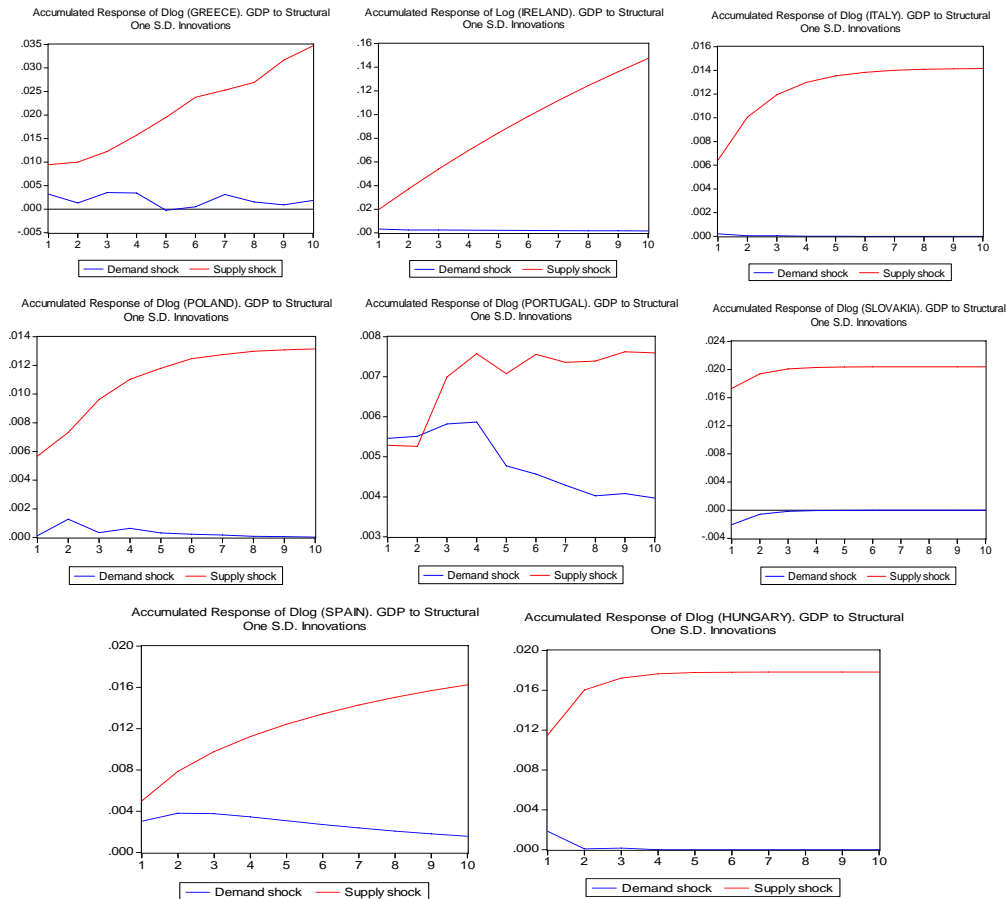
- Aggregate demand shocks on GDP are some temporary, while aggregate supply shocks are some permanently. Therefore, the accumulated response of economic growth rate to aggregate demand shocks should register a neutralization, while the response to aggregate supply shock is permanent. In other words, an aggregate demand shock has only temporary and positive influence on output.
- Positive aggregate supply shocks on inflation induce its increase, while positive shocks of the aggregate supply decreases the rate of inflation.

According to Figure 1, the cumulative GDP reaction to demand and supply shocks corresponds to theoretical macroeconomic correlations in all 14 cases. Thus, supply shocks have a rather permanent feature, while demand-side shocks are insignificant in most cases. Both shocks intensity is one point (or unit) standard deviation of relative to the average period. Among the economies included in the analysis, Slovakia recorded the highest GDP in the first quarter of reaction after the event of supply shock, while Greece had the highest long-term

growth. Thus, a shock of 1% of the aggregate supply led to increase of real GDP by 0.17% standard deviation in the first quarter in Slovakia and by 0.2% after 10 quarters. In Greece, the increase was about 0.1% on short term and over 0.3% after nine quarters.

Among the new EU countries, Romania was characterized by largest long-term effect of supply shocks on economic growth (about 0.3% standard deviation). In the case of other new EU member states included in the analysis (Hungary, Czech Republic, Poland), GDP change was at least 0.12% after 10 quarters. Among the countries from the Euro area, Spain has registered a GDP change by about 0.16%, following a positive supply shock with one point standard deviation, while the GDP of Germany, Italy and Ireland have increased by approximately 0.14%. Generally, relatively less developed economies than in Euro area core countries have a greater potential for growth, feature corresponding to decreasing marginal returns hypothesis. The aggregate demand shocks had a temporary feature, so they are neutralized after two quarters in Hungary, three quarters in Slovakia and after five quarters in the Euro area. In Ireland and Italy, demand shocks exert a negligible impact on economic growth. Romania has registered the highest period in which a demand shock is active, it neutralizing after approximately five years.



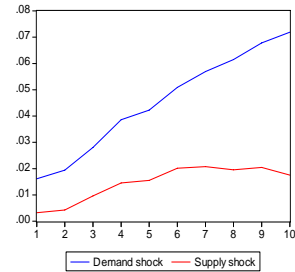


Source: Eurostat (2011); personal estimations with Eviews 7 software.

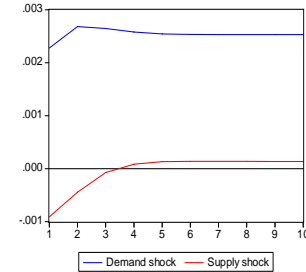
Figure 1. Accumulated responses of GDP to demand and supply shocks

Regarding the inflation response to aggregate supply shocks and demand, theoretical correlations are not observed in four out of 14 cases. In those cases, the inflation rate is not reduced despite positive aggregate supply shocks. Thus, prices of final goods in Romania, Greece, Ireland and Spain can be interpreted as having a high degree of rigidity at reduction, thing that can be attributed to reduced competition, poor economic integration, trade union power, state involvement in the setting of certain internal prices etc. Hungary recorded the highest positive response of inflation to demand shocks, the impact of long-term leveling off at about 0.16 standard deviation points. Concerning the impact on supply growth on inflation, the effects are less significant, tending to remove after about a few quarters, as in the cases of euro area, Austria, France, Hungary, Poland and Slovakia.

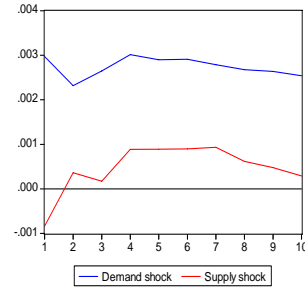
Accumulated Response of Dlog (ROMANIA) INFLATION to Structural One S.D. Innovations



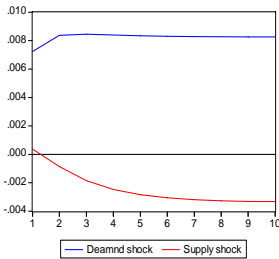
Accumulated Response of Dlog (EURO AREA) INFLATION to Structural One S.D. Innovations



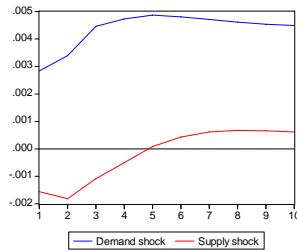
Accumulated Response of Dlog (AUT) INFLATION to Structural One S.D. Innovations



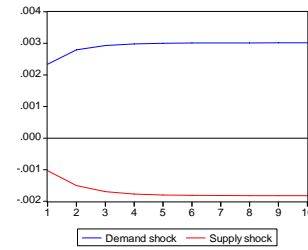
Accumulated Response of Dlog (CZECH) INFLATION to Structural One S.D. Innovations



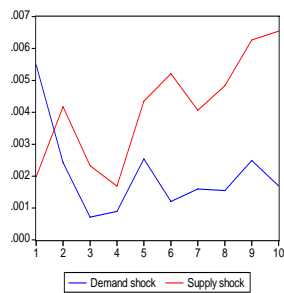
Accumulated Response of Dlog (FRANCE) INFLATION to Structural One S.D. Innovations



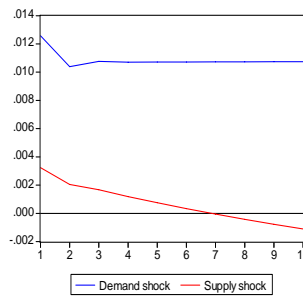
Accumulated Response of Log (GERMANY) INFLATION to Structural One S.D. Innovations



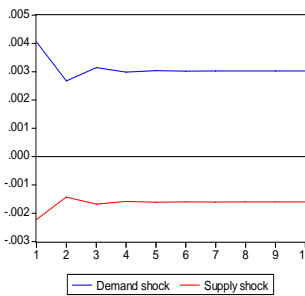
Accumulated Response of Dlog (GREECE) INFLATION to Structural One S.D. Innovations



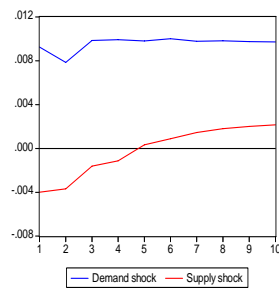
Accumulated Response of Dlog (IRELAND) INFLATION to Structural One S.D. Innovations



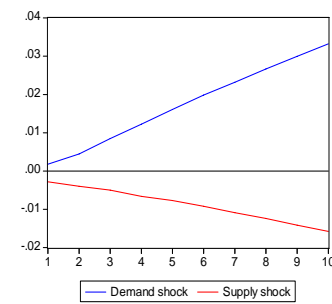
Accumulated Response of Dlog (ITALY) INFLATION to Structural One S.D. Innovations



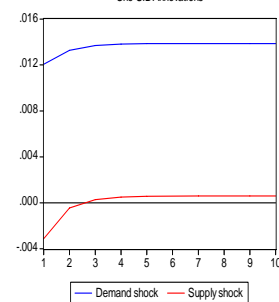
Accumulated Response of DLOG (POLAND) INFLATION to Structural One S.D. Innovations

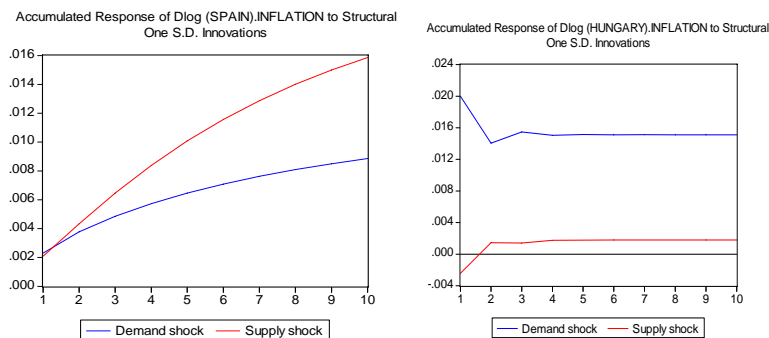


Accumulated Response of Dlog (PORTUGAL) INFLATION to Structural One S.D. Innovations



Accumulated Response of Dlog (SLOVAKIA) INFLATION to Structural One S.D. Innovations





Source: Eurostat (2011); personal estimations with Eviews 7 software.

Figure 2. Accumulated responses of inflation rate to demand and supply shocks

It results that this analysis confirmed the importance of supply shocks impact on economic growth and demand for inflation control, supposing that long-term impact of demand on output is neutralizes. To identify the relationship between the intensity of shocks affecting the economies included in this study, we used Pearson correlation coefficient. According to the results obtained and included in tables 4 and 5, joining to the Euro area did not reduce the risk of asymmetric shocks in the event of periphery economies monetary union. The core of it is relatively strongly correlated with the supply side both the whole Euro area, as well as inside it. Among the peripheral countries, Ireland and Portugal had supply and demand shocks positively correlated with the core Euro area, while Spain and Greece have promoted divergent macroeconomic policies in relation to monetary union. For most economies, the correlation of the shocks on the demand side is lower than the supply ones. The weak correlation of demand shocks can be explained by:

- Differences between economic, trade and financial structures of the two economies.
- The existence of different exchange rate regimes and different rates of inflation.
- Differences between stages of development.
- Promoting divergent macroeconomic policies, as a result of different economic developments.

Between the two shocks, those on the aggregate supply side have acquired greater importance in view of accession to the Euro area, because it will decisively influence the convergence between business cycles with Euro area. Those on the aggregate demand side will automatically become more related, in the context of a common monetary policy and a more strictness national fiscal policies.

Table 4

The demand shocks correlation

	RO	EA	GER	FRA	ITA	AUT	SPA	POR	GRE	IRE	CZE	HUN	POL	SLK
RO	1.00													
EA	-0.09	1.00												
GER	-0.08	1.00	1.00											
FRA	-0.09	0.64	0.63	1.00										
ITA	-0.26	0.74	0.74	0.37	1.00									
AUT	-0.05	0.10	0.08	0.02	0.01	1.00								
SPA	-0.04	-0.08	-0.07	-0.11	0.05	-0.11	1.00							
POR	-0.03	0.33	0.29	0.23	0.10	0.38	-0.28	1.00						
GRE	-0.03	-0.05	-0.03	-0.22	-0.01	0.06	0.08	0.08	1.00					
IRE	-0.26	0.42	0.42	0.37	0.13	0.00	0.26	0.09	-0.09	1.00				
CZE	-0.11	0.17	0.18	0.13	0.16	-0.05	-0.14	-0.19	-0.14	0.11	1.00			
HUN	-0.13	0.12	0.13	0.12	0.30	-0.23	0.16	-0.22	0.02	0.05	0.22	1.00		
POL	-0.09	-0.12	-0.12	-0.27	0.10	-0.06	-0.15	0.00	0.19	-0.35	0.21	0.10	1.00	
SLK	0.00	0.14	0.13	0.24	0.27	0.05	-0.12	0.25	0.05	-0.18	0.16	0.34	0.47	1.00

Source: Eurostat (2011); personal estimations with Eviews 7 software.

Among the new EU member states, Czech Republic, Slovakia and Hungary showed a positive correlation of the demand shocks with the Euro area, but weaker as significance, while Poland and Romania had a divergent evolution with the monetary union. Between four of the five CEE economies (except Romania) there was a trend in the same sense of demand shocks. This group of economies has been characterized by a process of structural convergence with EU economies and integration through trade with them, which was reflected in a positive synchronization of the supply shocks with those economies. Hungary, Romania and Slovakia are the most synchronized with the Euro area while the second economy has the most correlated supply shocks with the rest of the economy within the same group.

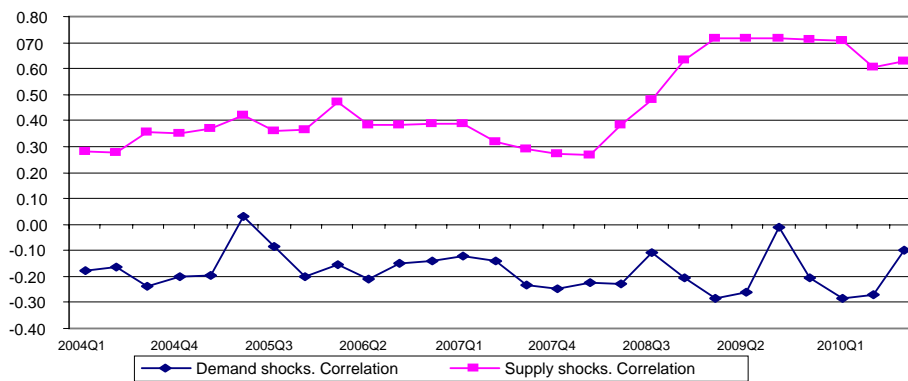
Table 5

The supply shocks correlation

	RO	EA	GER	FRA	ITA	AUT	SPA	POR	GRE	IRE	CZE	HUN	POL	SLK
RO	1.00													
EA	0.54	1.00												
GER	0.55	1.00	1.00											
FRA	0.40	0.75	0.74	1.00										
ITA	0.55	0.78	0.78	0.55	1.00									
AUT	-0.64	-0.57	-0.55	-0.25	-0.53	1.00								
SPA	0.70	0.60	0.61	0.41	0.49	-0.59	1.00							
POR	0.19	0.32	0.33	0.26	0.23	-0.25	0.09	1.00						
GRE	0.23	0.27	0.25	0.28	0.17	-0.09	0.09	0.02	1.00					
IRE	0.40	0.45	0.44	0.43	0.46	-0.32	0.45	0.05	0.15	1.00				
CZE	0.35	0.13	0.15	-0.03	0.10	-0.30	0.16	-0.20	0.05	-0.06	1.00			
HUN	0.51	0.58	0.58	0.51	0.51	-0.50	0.39	0.20	0.50	0.29	0.30	1.00		
POL	0.43	0.10	0.11	0.10	0.16	-0.21	0.17	-0.03	0.18	0.28	0.31	0.13	1.00	
SLK	0.54	0.46	0.46	0.34	0.45	-0.32	0.45	0.11	0.23	0.46	0.06	0.40	0.18	1.00

Source: Eurostat (2011); personal estimations with Eviews 7 software.

To capture the evolution of demand and supply shocks correlation between Romania and the Euro area I have used the five-year rolling-window correlation of five years method. According to this methodology, it appears that there was a weak connection between demand shocks, which is rather contrary in the case of the two economies. The economic crisis has induced a greater divergence of these shocks, the correlation value being about -0.3. The impact of crisis on supply shocks was a different one, generating the transition from weak correlation (lower than 0.3) during 2003-2008, to the average correlation by 0.7 in 2004-2009. Moreover, the correlation of supply shocks higher (approximately 85%) took place between 2007 and 2009. Therefore, the aggregate supply response in Romania has become more similar to the euro area, something which will ensure a higher symmetry of shocks in the future.



Source: Eurostat (2011); personal estimations with Eviews 7 software.

Figure 3. *The correlation of demand and supply shocks between Romania and Euro area (5-year rolling-window correlation)*

Conclusion

The methodology applied in this study is a useful framework to analyse the risks of adopting a common currency, because it allows the identification of the nature of the shocks and more appropriate responses to their action. The basic idea is that aggregate demand shocks affect real GDP only short term, while the impact on inflation is one permanently. The aggregate supply shocks have a permanent influence on the short and long term both on prices and production, the relationship between these being one inverse (increasing the aggregate supply increases production and reduce inflation).

- The cumulative reaction of the GDP to aggregate demand and supply shocks respects the theoretically macroeconomic correlations for all 14 economies analyzed. Thus, supply shocks have a permanent impact, while demand-side shocks are insignificant in most cases.
- Slovakia has the highest reaction of the GDP in the first quarter of the after the event of a supply shock, while Greece had the highest long-term growth.
- Romania was characterized by the largest period when the demand shock is active, neutralizing it after approximately five years.
- Regarding to the inflation response to aggregate supply shocks and demand, theoretical correlations were not observed in four out of 14 cases.
- Prices of final goods in Romania, Greece, Ireland and Spain have a high degree of rigidity to decrease.
- The core of the monetary union is relatively strongly correlated with both the supply side the whole Euro area, as well as inside it. Ireland and Portugal have supply and demand shocks positively correlated with the core Euro area, while Spain and Greece have promoted divergent macroeconomic policies in relation to monetary union.
- For the most economies, the correlation of the demand shocks is lower than the supply ones. Hungary, Romania and Slovakia are the most synchronized CEE economies with the Euro area in terms of supply shocks. The correlation of supply shocks is important for a higher synchronization of business cycles in the Euro area.
- Aggregate supply response in Romania has become more similar to the Euro area, something which will ensure a higher symmetry of shocks in the future.

Acknowledgements

This paper represents a partial dissemination of the postdoctoral research project CNCISIS, HUMAN RESOURCES type, *Macroeconomic modeling of the relationships between the asymmetric shocks, convergence of business cycles and mechanisms of adjustment in the context of Romania's adhesion to the euro area*, No 78/03.08.2010, Project Manager Marinaş Marius-Corneliu.

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The Population and the Labor Force Market

Constantin ANGHELACHE

Bucharest Academy of Economic Studies
“Artifex” University of Bucharest
actincon@yahoo.com

Abstract. *This paper analyzes the recent evolution of the population and labor resources in Romania. The occupied population, according to the SEC methodology, is the sole entity that indicates the human potential of the occupied labor force that can be used to determine the social productivity of labor as a ratio between the GDP and the occupied population.*

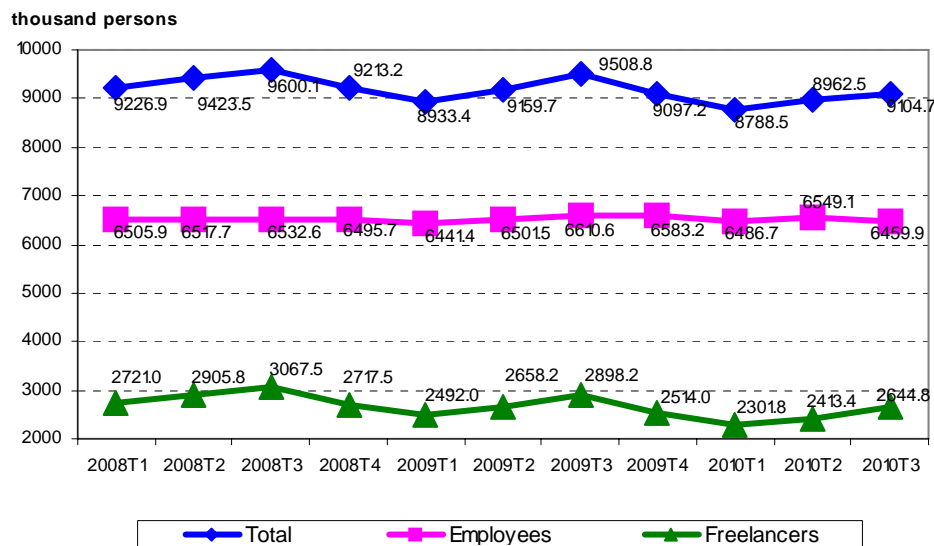
Keywords: population; labor; productivity; resources; outputs.

JEL Code: J21.

REL Codes: 12G, 12I.

The occupied population includes all persons – both employees and freelancers – who develop a productive activity within the production limits of the European Accounts System.

The curve of the following chart shows the number of occupied population, by trimesters, in 2008-2010. The occupied population oscillated around 9 million people, with high values in quarter 3 2008 (9.6 million), respectively quarter III 2009 (9.5 million), to reach 9.1 million persons in trimester III 2010.



Source: National Institute of Statistics.

Occupied population according to the methodology of the European Accounts System, 1995

Employees represent all the persons working mainly on the basis of a formal or informal contract, for other resident institutional entity, in exchange for wages or some equivalent pay. The number of employees, the second curve, shows a level oscillating between 6.4 million in quarter II 2009 and 6.6 million in trimester III 2009, thus reaching 6.5 million in trimester III 2010.

This number differs significantly from the one of employees that are currently operated with. It includes the number of employees determined in compliance with the accounts, that take into consideration both data sources used to determine the cost of labor force occupation, such as the Survey on labor force in households (AMIGO), the Inquiry regarding the cost of labor

force (S3); Annual structural survey in enterprises (ASA), and also administrative data sources (information provided by the Ministry of Foreign Affairs, Ministry of Labor, Family and Equality of Chances, Ministry of Interior and Administrative Reform etc.), accounting situations of commercial companies.

I state that the number of employees includes those working in the hidden economy, established according the computation methodology.

Another category is represented by the independent workers (freelancers), they being the sole owners or co-owners of the entities without judicial personality they work in. In this category, there can also be included: family workers, non-paid and home workers that manufacture for market; workers that exert, both individually and collectively, productive activities regarding exclusively the final consumption or formation of capital on their own account. Their number oscillated between 2.5 millions in 2009 and 3.1 millions in 2008, to reach 2.4 millions in 2010 and 2.6 millions in 2011.

The evolution of the productivity of labor is, within the series, fluctuant enough, from positive elevated levels, such as in quarter III 2008, of 10.7%, to constant decreases starting quarter I 2009 until quarter I 2010, to record a comeback to a positive trend, of 1.6% in quarter II 2010 against the previous year and of 1.9% in quarter III 2010 against quarter III 2009.

Real hourly productivity marks, in principle, the same evolution as the real productivity per occupied person.

In the analysis of the occupied population, it can be observed the percent evolution of the structure occupied regarding the great employees categories and individual entrepreneurs.

In this context, according to the European Account System edition 1995 also, the employees hold a weight of some 70% out of the occupied population.

On activity branches, the greatest weight is held by agriculture, with 27.6%, followed by industry, with 22.5%, and transports, with 21%.

The indicator occupied population of Romania compared to other countries proves a concerning discrepancy in negative way and where I think the attention of decisional factors must be focused.

In 2010, Romania, with a rate of occupation of 60.1%, was among the countries with values below EU-27 average (for which the value of the indicator was 64.3%).

The greatest values of the occupation ratio in 2010 were recorded in: Netherlands (76.3%), Denmark (74.1%), Sweden (72.9%), Austria (71.4%) and Germany (71.0%).

In most EU-27 member states, the occupation ratio in 2010 was increasing against the previous quarter, excepting four member states, in which

case slight declines were observed (between 0.1 and 0.4 percent points): Portugal, Lithuania, Luxembourg and Belgium. At the level of EU-27 the increase against the previous quarter was 0.7 pp.

Against the same period of 2009 the occupation ratio was in decline in most European states. At the level of EU-27 the decrease was 0.5 pp. The exceptions are six member states, for which the occupation ratio remained at the same level or increased slightly (at most 1.0 pp) – among these, Romania. In the case of Romania, the increase of 0.9 pp recorded in 2010 against 2009 was produced on the background of occupation characteristics of our country, where the agricultural sector continues to hold a significant weight.

In Europe, the most significant declines in 2010 against 2009 were recorded in: Estonia (4.3 pp), Lithuania (3.6 pp), Bulgaria (3.1 pp) and Latvia (2.5 pp).

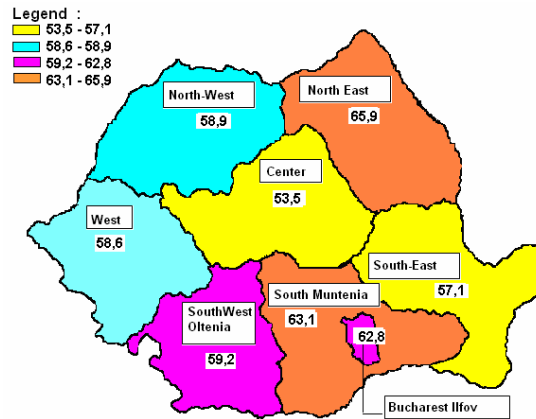
In 2010, in Romania, the weight of employees in total occupied working age population was 67.4% – one of the most reduced in Europe (the next-to-the-last place, after Greece); with 16.5 pp under the EU-27 average (83.9%). In the same time, the weight of non-employees in agriculture (mainly employees on their own and family non-paid workers) was 26.8% – the greatest in Europe; with 23.3 pp above the EU-27 average (3.5%).

The increase of occupation in 2010 against the previous periods occurred on the background of transition towards agriculture, phenomenon visible from:

- Reduction of employees weight (by 2.5 pp smaller in 2010 both against 2009 and against 2008);
- The increase of the weight of non-employees in agriculture (mainly workers on their own and family workers): by 3.1 pp against 2008 and by 2.0 pp against 2009.

According to the provisional results of the Survey on Labor Force (AMIGO), in 2010, the occupation ratio of the working-age population was 60.2%; increasing by 0.1 pp against the end of 2009, but decreases by 0.2 pp against the middle of 2009, this being based on the seasonal character. Regarded through the prism of distribution by development regions, the smallest occupation ratio was recorded in the Center region (53.5%) and the greatest in the North East region (65.9%).

Occupation rates greater than the national average (60.2%) were recorded only in two regions where the agricultural sector is significant – North-East (65.9%) and South (63.1%), and also in Bucharest-Ilfov (62.8%), where labor force is drawn into the services sector. The highest growths, established by chain indexes, were recorded in the North-East region (2.0 pp) and South (1.5 pp), and the highest decreases were emphasized in Bucharest-Ilfov (2.3 pp) and South-West Oltenia (1.9 pp).



Source: National Institute of Statistics.

Territorial disparities of the occupation ratio (%)

Information regarding the “budget sector” must be carefully analyzed, because the data refer to the statistics from economic activities (aggregated on homogenous activity) according to CAEN Rev.2.: public administration, education, respectively health and social assistance (including private education – some 3%, respectively some 5% for health and social assistance), excluding the armed forces and assimilated personnel (MAPN, SRI, MAI etc.).

These statistics do not take into account the financing form, their purpose being to provide information on economic activities, according to CAEN Rev.2.

The budgetary sector was characterized, during the period 2009-2011, by continuous decreases of the number of employees. The most pregnant declines were recorded in 2010 and during the first nine months of 2011. The same tendency will continue in the next period.

The effective of employees at the end of 2010, belonging to the budget sector, reached almost 950 thousand persons, continuing the decreasing tendency. Thus, in the public administration there were 207 thousand persons, in education 377.4 thousands and in health and social assistance 365.5 thousands.

Comparatively to the end of 2009, the effective of employees decreased by 57 thousand persons. Out of these, some 40% came from the public administration and 60%, in almost equal proportions, from education, respectively health and social assistance.

Also, declines in the effective of employees recorded in the public administration units can be found in the secondary activities developed by these entities: cultural, sport, and recreational activities, landscape design and services for buildings, agriculture, water supply, sanitation, waste management, de-contamination, constructions, transport and storage, production and supply

of electrical and thermal energy, gases, hot water and air conditioning, lease and sub-lease of real estate goods etc.

As for the evolution of average monthly salary gains during the period 2009-2010, they were characterized, mainly, by declines from one month to another, excepting the months when annual and occasional premiums were granted, according to the national law (only in 2009 and the first half of 2010), sums from other funds (including for previous periods).

Following the application of legal provisions (Law no. 118/2010 regarding some measures for the recovery of budgetary equilibrium), of reduction by 25% of salary gains for the personnel in the budgetary sector, in trimester III 2010 the lowest values of the net average salary gain for the last years were recorded, that is: public administration 1,404 lei, education 1,063 lei and health and social assistance 1,036 lei.

In October 2010, in all the activities of the budget sector, salary gains were recorded, due to the payments of occasional premiums (including holiday wages), of sums from other funds (including the previous periods), of cumulating functions for teachers, also for payments of supplementary hours worked in some medical facilities. Also, the increase of salary gain was influenced by the firing of personnel with small wages from the sector.

However, compared to June 2010 (the month that preceded the application of Law no. 118/2010), the net average salary gains from October were 18% – 21% below the level for June.

Compared to previous October, net average nominal salary gains from October 2010 was 24% lower in education, 22% lower in health and social assistance and 20% lower in public administration. In 2011, the salaries held at these levels, as we expect their block in 2012, or even their reduction, if the effects of the crisis will impose.

The effect of economic crisis was felt in the demand for labor force in the budgetary sector. In 2010, the lowest values of the vacant work places ratio was recorded, since 2005 until present, in public administration, respectively health and social assistance.

Compared to the previous year, in 2010, the vacant work places ratio decreased in health and social assistance (by 0.25 pp), public administration (by 0.12 pp), and in education it increased (by 0.14 pp).

The evolution of the vacant work places ratio was more accentuated in health and social assistance (by 2.53 pp), followed by public administration (0.67 pp), and for education the ratio kept unchanged.

In 2010, little more than 10% of the total vacant work places were recorded in each of the activities: public administration (2.7 thousand vacant places), respectively health and social assistance (2.4 thousand vacant places), while in education the demand for work places was of some one thousand.

Comparatively against the previous periods, in health and social assistance, the most significant decrease of number of vacant places recorded: by 7.8 thousand vacant places, representing more than two-thirds (67.5%) of the number of vacant places that diminished within a year in the whole economy, respectively with 0.8 thousand vacant places against the previous trimester.

In public administration, in 2010, the number of vacant work places decreased by 0.5 thousand, and against 2009, by 2.2 thousand.

In education, a slight increase of the demand for work places recorded, as against the previous year, following the start of the new school year.

In 2010, the weight of employees in public administration, defense and social security in the public system was 8.0%, decreasing by 0.1 pp from 2009. At the level of EU, the indicator had the value of 8.6%.

The greatest weight values of employees in public administration were recorded in Greece (13.1%), Luxembourg (12.5%), France (11.4%), Belgium (10.4%) and the lowest in Finland (5.4%), Denmark (6.4%), Sweden (6.8%).

Among the European countries, the evolutions against 2009 are divergent: as the decrease trend is observed in 12 countries, increase in 12 while in three countries the weight of administration employees remained constant against the same period of the previous year.

In 2010, with only 6.3% of the employees working in the field of health and social assistance, Romania was placing among the last four countries in Europe. Lower weights were recorded only in Cyprus (4.4%), Latvia (5.4%) and Bulgaria (5.6%).

Amongst the European countries, the highest weight was recorded in Denmark (20.2%). At the level of EU-27, the value of the indicator was 11.2%.

Against the previous year, in almost all European countries the increase trend can be observed; five countries make exception: Cyprus, Belgium, Sweden, Finland and Luxembourg. In Romania the increase was by 0.2 pp.

Regarding the weight of the employees in education in total employees, the value recorded in 2010 was 6.3%. This value, even in slight increase (0,3 pp) against the previous year, is the smallest in Europe.

The highest values of the indicator were recorded in: Lithuania (12.5%), Sweden (12.0%), United Kingdom and Latvia (in both countries 11.8%) and the smallest (apart from Romania) in: Germany (6.6%), Bulgaria (6.8%).

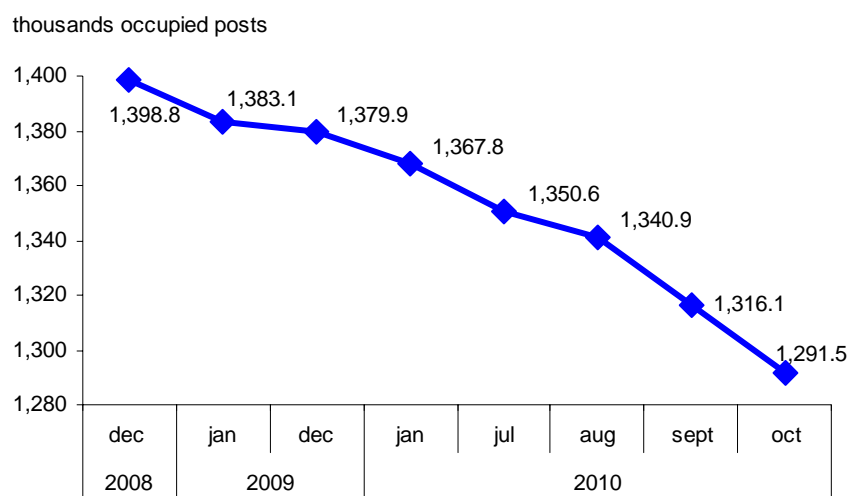
The increasing trend against the same period of the previous year can be observed in almost all European countries (excepting four countries).

The information corresponding to the financing form are managed by the Ministry of Finance, according to the provisions of OUG no. 48/2005, with subsequent completions and modifications. In the basis of this ordinance, the main credit orders for the public institutions financed from the state budget, social security budget, special funds budget and of the autonomous public

institutions integrally financed from own revenues submit, monthly, to the Ministry of Public Finances, for the previous month, situations regarding the monitor of the number of posts and personnel expenses, for their own apparatus and for public institutions in their subordination, co-ordination or authority, regardless the financing mode.

The number of posts occupied in the budgetary sector, according to the MPF, was in December 2010 of 1,291.5 thousands, decreasing against the previous periods: by some 25 thousands occupied posts against September 2010, by some 88 thousand posts occupied against December 2009, respectively by some 107 thousand posts occupied against December 2008.

Also, as an effect of OUG no. 48/2010 for the modification and completion of some normative in the health domain, for de-centralization, starting August 2010, some hospitals in the own network of the Ministry of Health passed to the sanitary network of the public administration authorities, causing a transfer of occupied posts from central public administration to the local one.



Source: National Institute of Statistics.

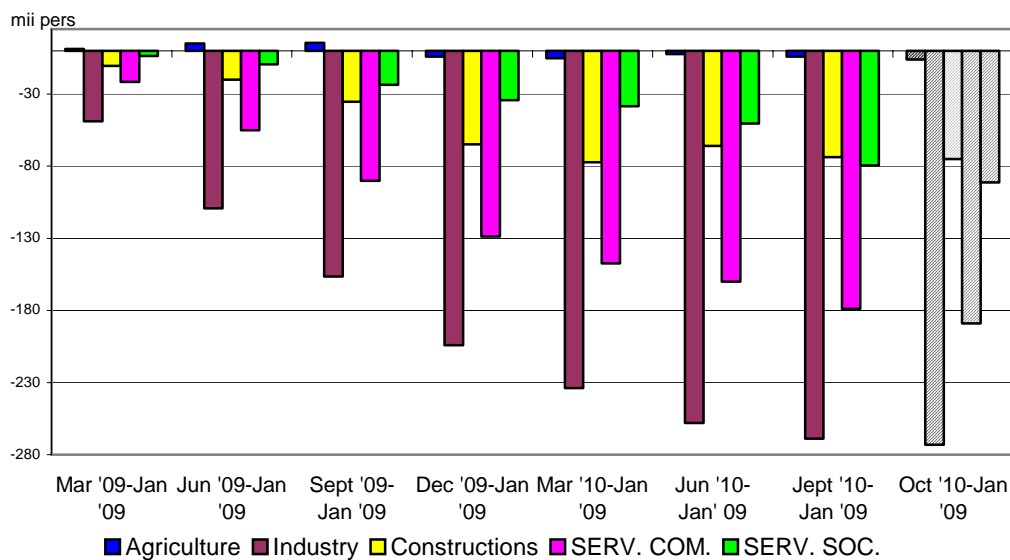
Evolution of the number of occupied posts in the budgetary sector during the period December 2008 – October 2010

A direct effect of the economic crisis, the phenomenon of decline for the number of employees was accentuated during 2009, first ten months of 2010, from 4.81 millions in January 2009 to 4.16 millions in October 2010. Also, during the period until October 2011, even it slowed down, the reduction of the number of employees continued.

To be remarked the fact that the monthly data regarding the number of employees and net or gross average salary gains are aggregated on the homogenous activity of the units; it means that for the units that developed more activities (secondary) apart from the principal one, secondary activities are included, each one of them, to the economic activities according to proper CAEN Rev.2.

Unlike industry and services, activity sectors that recorded decreases of the number of employees in the last month of each quarter compared to the corresponding month of the previous quarter, in agriculture and constructions, slight increases occurred, due to the seasonal character of these activities. Until trimester II 2010, the most significant decreases in the number of employees occurred in the sectors with preponderant number at the level of national economy, that is, industry and commercial services. In September against June 2010, the effective of employees in social services, respectively commercial ones, known the greatest declines (by 29.0 thousand persons, respectively by 18.7 thousand persons).

Comparative to January 2009, the effective of employees decreased continuously in all activity sectors, excepting some slight increases recorded in agriculture in March, June and September 2009 (with seasonal character).



Source: National Institute of Statistics.

Differences in number of employees against January 2009, on activity sectors

In October 2010, as against the previous month, the decline trend of the number of employees continued in all sectors. Significant are the decreases of the effective of employees in the social services sector (11.9 thousand persons), respectively commercial services (10.2 thousand persons). These declines have represented 70% of the total decrease of the number of employees compared to the previous months (by 31.6 thousand persons).

For an extended presentation of the infra-annual statistic indicators, they were estimated monthly, on property forms: public property includes the entities with full or partial state ownership; private property includes the entities with major private ownership, full private and integral foreign (co-operative and community entities were excluded) and the public ownership of national and local interest.

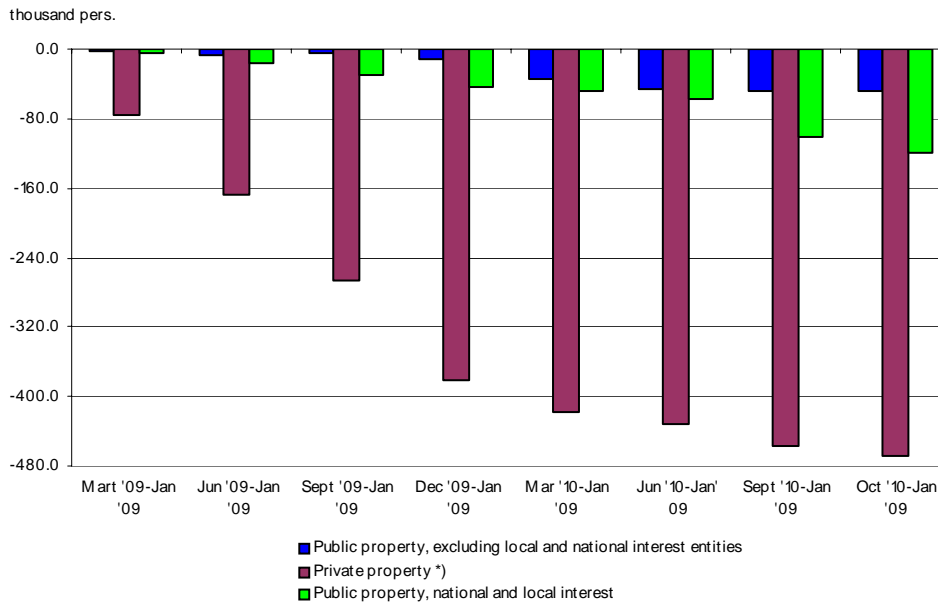
During 2009, the number of employees fell by some 440, mainly inside units with private property (381 thousand persons, meaning 87% of the total decline per economy). Meanwhile, the private sector has, as number of employees, the major weight in economy, some 65%.

In the private sector, in 2009, the most accentuated decrease of the number of employees was recorded (116).

In 2010, the decrease of the effective of employees had a slower rhythm compared to the previous year, but moved from the private sector towards the public one. So, In September 2010 against June 2010, in public administration units of national and local interest, the number of employees had the most accentuated fall (by some 43 thousand persons). As number of employees, these units hold a quarter of the total number of employees in economy. The decrease of the number of employees in the public administration entities of local and national interest, represented 43% out of the total decrease (by 75 thousand persons).

Regarding the whole public sector (public property + public property of national and local interest), which holds some 34% of the number of employees, the decrease was by 88 thousand persons in October 2010 against January 2010, surpassing by some 8 thousand persons, the decrease belonging to the private sector.

Compared to January 2009, in October 2010, the decrease by 645 thousand persons is distributed on ownership forms like this: some 470 thousand persons in the private sectors (that represented 73% of the total decline), some 119 thousand persons in the units with public ownership, of local and national interest and some 49 thousand persons in public ownership entities.



^{e)} estimate monthly data;

^{*)} excluding co-operative and community ownership.

Source: NIS, Survey on salary gains.

Differences in number of employees against January 2009, on ownership forms^{e)}

The number of insurants includes the insurants with full or part time contracts that are in the declaration regarding nominal situation of insurants provided by employers. The insurants who, during the month, had only unemployment support or compensating payments, are not included, even if they are present in the nominal declaration received from employers. Only those insurants are included who had been declared with a number of worked days equal to the month's number of work days, who had not benefited from medical allowances. The age groups are calculated for the respective reference month.

To allocate on groups of gross salaries realized, the incomes were cumulated for the insurants with more contracts.

The number of insurants with contract presented continuous decreases, both as total and as age groups. So, only during the period June-September 2010, the number of employees fell by 110 thousands, while against 2008 it diminished by some 822 thousand employees.

Regarding the repartition of employees on age groups, along the entire analyzed period, the major weight is held by the employees within the 30 – 44 years group (slightly below 50% of the total number of employees).

Against 2008, a little increase of the weight is observed, for the employees in age groups 30 – 44 years (by 2.6 pp), respectively 55 years and above (by 0.9 pp), while decreases of the employees' weight have been ascertained for the groups 15 – 24 years (by 1.8 pp) 25 - 29 years (by 0.9 pp), respectively 45 – 54 years (by 0.8 pp).

Under the aspect of employees' repartition on intervals of gross realized salary gains, in June 2008, those making gross gains less or at most equal to 600 lei represented 22% of total, while 66% made gross salary gains between 601 and 3,000 lei. To be noted that in June 2008 the average gross salary per economy was 500 lei.

During the period June 2009 – September 2010, the weight of employees that realized gross gains less or equal than 600 lei fell, reaching some 10-12%. Meanwhile, the weight of employees that made gross salary gains between 601 and 3,000 lei went little over three quarters of the total employees.

As for the weight of employees with gross gains realized above 8,001 lei, it remains constant across the period analyzed and represented some 1.5%.

The report between the number of vacant workplaces for 1,000 unemployed BIM, it had a descending evolution from 2008 until present, both in Romania, and in the other states member of the European Union.

In 2010 the most vacant workplaces at 1.000 unemployed BIM were in Netherlands (falling by almost 30%). At the opposite pole, we find Latvia, with only eight vacant workplaces for 1,000 unemployed BIM.

Report between number of vacant workplaces for 1,000 unemployed BIM *
(no. vacancies/1,000 unemployed BIM)

	RO	BG	CZ	DE	EE	LV	LT	LU	HU	NL	PT	SI	SK	SE
T2 2008	171	...	682	...	573	167	329	196	90	...
T2 2009	64	78	149	...	44	11	27	118	...	476	24	91	59	80
T2 2010	35	46	90	336	41	8	20	182	58	340	...	69	33	122

Sources: NIS calculation on Eurostat data; * According to BIM criteria.

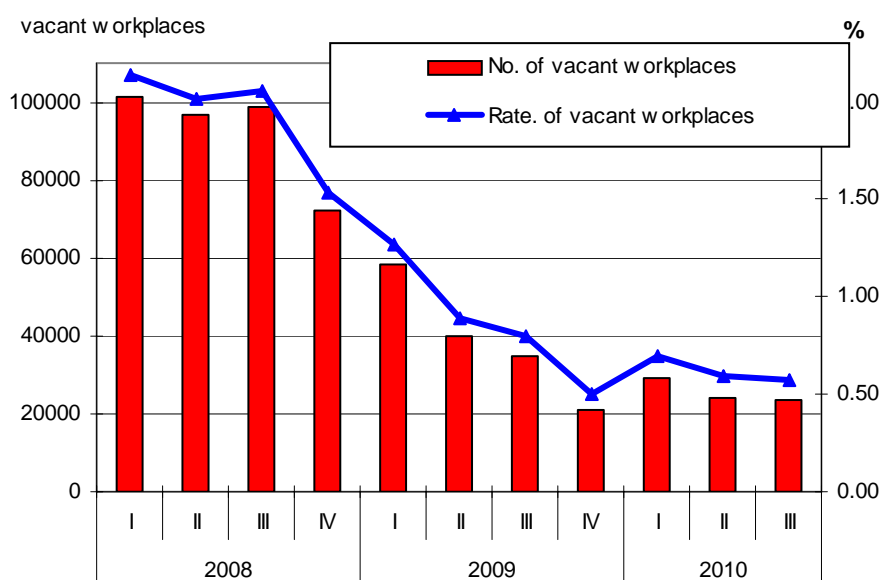
In Romania, in 2010, there were 35 vacant workplaces for 1,000 unemployed BIM, in continuous and significant decline against 2009 (by almost 45%), respectively 2008 (by almost 80%). The decline trend continued in 2011, when the number of vacant workplaces decreased by some 6% (reaching 33 vacant workplaces for 1,000 unemployed BIM).

From 2008 until present, the number of available workplaces was in continuous decrease (excepting quarter I 2010, when the effects of OUG

no. 223/2008 ceased, that is the suspension of occupation of vacant workplaces in the budgetary system).

The least vacant workplaces, respectively the lowest values of vacant work places, were recorded in quarter IV 2009, and quarter III 2010.

The distribution of the vacant workplaces differs from one development region to another. So, in 2010, the most vacant workplaces were in Bucharest-Ilfov (21.0% of the total number of vacant workplaces), respectively North-East (19.6% from the total number of vacant workplaces). Also, the Bucharest-Ilfov region has the major weight of occupied workplaces (20.8%).



Source: National Institute of Statistics.

Number of vacant workplaces and the rate of vacant workplaces by quarters 2008 - 2010

The smallest number of vacant workplaces were in the regions South – West (5.9% from the total vacant workplaces), respectively South-East (7.1% from the total vacant workplaces). Also, the region South-West has the smallest weight of the number of occupied posts (8.6%).

As for the vacant workplaces rates by development regions, they had a decreasing trend, recording the lowest values in 2010 compared to 2008 și 2009.

The region that mostly diminished the demand for labor force was Bucharest-Ilfov, the vacant workplaces ratio decreasing in 2010 by 0.46 pp against the same quarter of the previous year, that is, by 1.95 pp against 2008.

Romania holds an acceptable position, with a relatively reduced value of the unemployment rate (2.4 pp below EU-27 average – of 9.3%).

Comparatively to the previous periods, in 2011 the unemployment rate had a small growth, both as against 2010 and 2009.

Comparing the data in 2010 with those for EU-27, we observe that the rate of unemployment decreased by 0.2 pp the same decrease being observed in the majority of Member States.

Harmonized unemployment ratio

	RO	EU 27	NL	AT	LU	MT	DE	CY	CZ	SI	DK	FI	SE	BE	PL	BG	FR	HU	PT	IE	SK	EE	LT	ES	GR	IT	LV	UK	(%)
2010Q3*	6,9	9,3	4,3	4,3	4,8	6,1	6,5	6,7	6,9	7,1	7,3	7,3	7,8	8,8	9,0	9,5	9,8	10,8	11,1	14,1	14,3	15,5	17,8	19,8	:	:	:	:	:
2010Q2	6,8	9,5	4,5	4,4	4,7	6,6	6,8	6,5	7,1	7,1	7,3	9,6	9,3	8,1	9,5	10,0	9,4	11,1	10,8	13,7	14,4	18,6	18,3	20,1	11,9	8,4	19,4	7,7	
2010Q1	8,1	10,1	4,8	4,7	5,1	7,3	7,8	7,3	8,1	7,1	7,8	9,3	9,1	8,6	10,6	10,2	10,2	11,8	10,8	12,9	15,2	19,8	18,1	20,1	11,7	9,1	20,4	8,0	
2009Q3	6,8	9,0	3,7	5,1	4,8	7,1	7,6	5,4	7,3	6,2	6,1	7,5	8,0	8,2	8,1	6,7	9,4	10,3	10,0	12,7	12,5	14,6	13,8	17,9	9,3	7,3	18,4	8,0	
2009Q2	6,3	8,8	3,6	4,7	5,0	6,9	7,5	4,9	6,3	5,6	6,0	9,6	9,1	7,5	7,9	6,3	9,2	9,6	9,2	12,0	11,3	13,5	13,6	17,9	8,9	7,3	16,7	7,6	
2009Q1	6,9	8,7	3,5	4,7	5,6	6,8	7,8	5,0	5,8	5,3	5,2	7,6	7,9	7,9	8,3	6,4	9,3	9,7	9,0	10,2	10,4	11,4	11,9	17,4	9,4	8,0	13,9	7,0	
2008Q3	5,4	6,8	2,8	3,7	4,9	5,7	7,0	3,4	4,3	4,1	3,4	5,6	5,6	7,7	6,6	5,1	7,6	7,7	7,8	7,1	8,9	6,2	6,0	11,3	7,2	6,1	7,2	6,1	
2008Q2	5,6	6,8	3,1	3,4	4,5	5,7	7,5	3,2	4,2	4,1	3,1	7,3	6,7	6,3	7,1	5,8	7,4	7,6	7,4	5,7	10,0	4,0	4,5	10,4	7,2	6,7	6,3	5,2	
2008Q1	6,3	7,1	3,5	4,2	4,8	6,1	8,0	4,3	4,7	5,1	3,3	6,6	6,3	7,1	8,1	6,5	7,8	8,0	7,7	4,9	10,5	4,2	4,9	9,6	8,3	7,0	6,5	5,1	

Source: National Institute of Statistics.

In 2010, the BIM unemployment rate decreased from the previous year in four regions (North West, South-East, South Muntenia and West). Increases from the same period were recorded in Center, North-East, Bucharest-Ilfov and South-West Oltenia.

The BIM unemployment rate had, in 2010, the lowest value (4.7%) in Bucharest, and the greatest in the region Center (10.7%). Values lower than the national average (6.9%) were recorded in four regions: Bucharest-Ilfov (4.7%), North-East (5.5%), West and North-West (both by 5.8%).

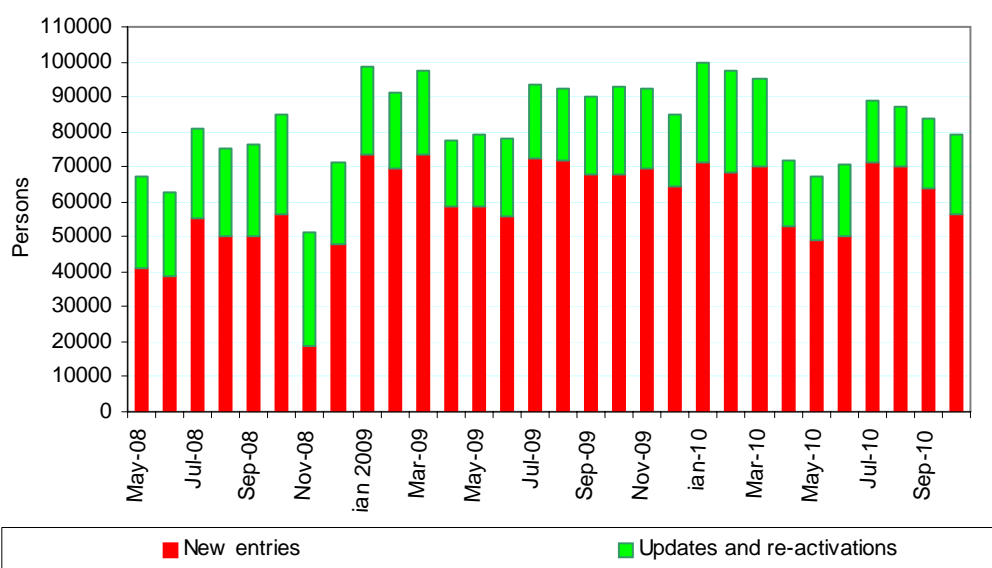
After reaching a minimum value in May, June, July 2008 of 37%, the unemployment rate knew an increasing trend until March 2010 (8.4%). Since April 2010, the unemployment rate decreased, reaching 7.1 % in October and slightly lower in the following periods.

In territorial analysis, disparities are significant. So, in 2010, the unemployment rates recorded the greatest values in the departments: Vaslui (11.6%), Mehedinți (11.0%), Teleorman (10.6%) and the lowest values in the departments: Bucharest (2.7%), Ilfov (2.8%), Timiș (4.2%).

From the minimum point of the unemployment rate (3.7% in May 2008), the monthly entries in unemployment were preponderantly (71.6% in October 2010) from new records, excepting November 2008, when the new entries in

unemployment was surpassed by the number of updated work demands and re-activation of money rights (62.9% of total entries).

The evolution of unemployment entries was oscillating, recording a minimum point in November 2008 (51,242 persons) and a maximum in January 2010 (99,816 persons).



Source: ANOFM (National Agency for Labor Force Occupation).

Monthly entries in unemployment

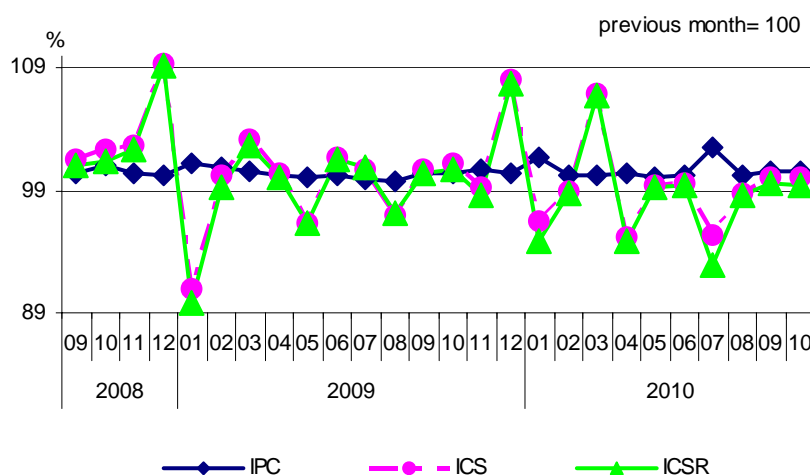
The index of real salary gains follows closely the evolution of the index for the average net nominal salary gain, as it results from the chart that emphasizes the trends recorded in the last two years. The phenomenon is explained by the decrease of the inflation growth rate, that is taken into consideration at the determination of the real salary gain.

During the year, fluctuations of the salary gain are recorded, mainly determined by the grant of occasional premiums (13th salary, holiday premiums, premiums in March/April, or December, for religious feasts). They influence the increases or decreases depending on the period in which they are granted, leading, eventually, to the blur of the fluctuations of the monthly salary gain at the level of the entire year.

The salary gain, both in nominal and real terms, was lower in most months in 2010, compared to the previous month (exception – March, when

premiums were granted for the Easter, leading to an increase of the nominal and real salary gains as against the previous month).

The most significant decreases of the index for the nominal salary gain, in 2010, were recorded in April (by 4.8%), respectively July (by 4.7%). As for the real salary gain, the most significant decrease was in July 2010 (by 7.1%).



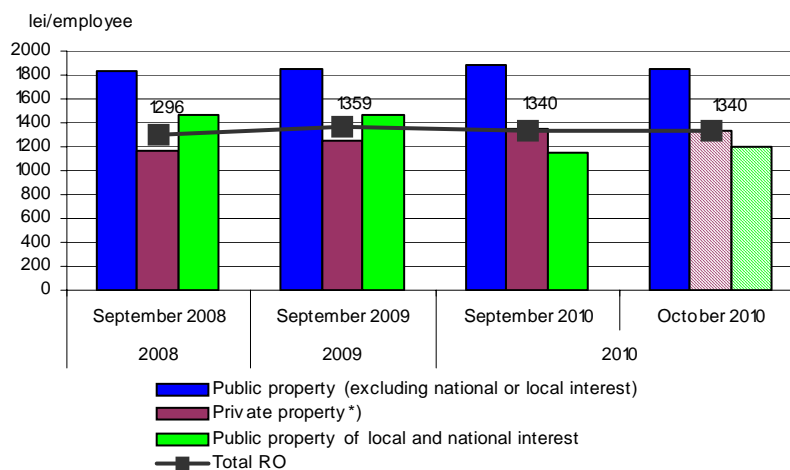
Source: NIS, Survey on salary gains.

Evolution of the index for consumption prices, for the average nominal net salary gain and the real salary gain against the previous month(%)

On activities of the national economy, the maximum values of the net average salary gain are in the financial brokerage (with percentage between 115 – 146% above economy average). At the opposite pole, with the lowest net average salary gain, are placed the hotels and restaurants activities (with percentage between 41 – 43% below economy average). To be noted that both sections hold similar percentage as numbers of employees at the level of the national economy (some 2-3% each).

In 2010, compared to the previous year, the net average salary gain had a slightly decreasing trend, for most economic activities (excepting those pertaining to the budgetary, hotels and restaurants, real estate transactions and shows, cultural and recreational sectors).

As against 2008, the net average salary gains recorded in September 2010 were higher, excepting the activities in the budgetary, professional, scientific and technical activities, shows, cultural and recreational sectors.



Source: NIS, Survey on salary gains.

Nominal average salary gain, by ownership forms in the last month of Q3 2008-2010 and October 2010

In 2010, the average net salary gain realized on various activities of the national economy has recorded, both increases and decreases, in almost equal measure. So, in the economic sector, slight increases were recorded, the greatest being in the activity of production and supply of electrical and thermal energy, gases, hot water and air conditioning (1.8%). At the opposite pole, with the most significant decrease of the net average salary gain, was the extractive industry (18.9%, because of the premiums granted for “oilers’ day” in the previous month).

In the public property units (fully state-owned or state-owned majority), holding a weight of some 9% of the total number of employees, the average net salary gain has the highest values. The lowest average net salary gains are recorded in the privately-owned entities (privately-owned majority, fully private, fully foreign), that hold the majority weight of the number of employees (some 65%). Exception, since July 2010, following the application of the Law no. 118/2010, the lowest level of the average net salary gain was in the public entities of national and local interest.

In 2010, more than two-thirds (69.9%) of social security pensioners had pensions above 500 lei.

The number of pensioners with pensions above 1,000 lei represented, at the analyzed moment, just the fifth part (21.1%) of the total social security pensioners.

The average number of social security pensioners had a descending quarterly evolution, from 2002 until 2011.

Since quarter II 2010, the number of social security pensioners has followed an ascending trend, reaching 5,658 thousand persons at the end of the same year.

As for the state social security pensioners, after being on a continuous ascending trend, since quarter II 2007 (4,641 thousand persons), since quarter III 2010 it was recorded a decrease, to 4,759 thousand persons, in 2011 (September).

In 2010, comparative to the corresponding quarter of the previous year, the social security pensioners had the possibility to spend averagely with only 26 lei (3.6%) additional.

In 2010, the index of the real pension decreased as against the previous year (96.0% from 118.1%); subsequently, the purchasing power of the social security pension declined.

**Grouping of the number of the social security pensioners on pensions interval
(at end of quarter)**

Pension levels	QIII 2008	QIII 2009	QIII 2010
TOTAL – thousand pers	4674	4736	4776
	Of which, in %		
Below 171	3.2	1.8	1.3
Between 171-210	3.2	1.2	1.4
Between 211-250	4.2	2.4	2.2
Between 251-290	4.7	3.2	3.0
Between 291-350	8.8	5.4	5.1
Between 351-500	23.8	18.1	17.1
Between 501-1,000	44.3	49.0	48.8
Above 1,000	7.8	18.9	21.1

Source: National Institute of Statistics.

In the analyzed period, some 3/4 of the total departments have recorded a greater number of pensioners compared to the employees. In the top of this group there are Giurgiu and Teleorman counties, where the report pensioners/employees was almost 2 (1.9) pensioners for one employee.

The Bucharest municipality was at the opposite pole, recording the lowest value of the report (0.6).

The departments in which the ratio is 1 to 1 represents a tenth from the total.

According to the provisional results of the Survey on Family Budgets realized by NIS in 2010, the average monthly total revenues for a household were 2,231 lei, a value relatively constant during 2007-2010.

Both the weight of salary incomes, and of other incomes, decreased in 2010 against 2007-2009, by recording the lowest values (49.0% and, respectively, 14.4%).

On the other hand, the weight of income from social performances in the household revenues increased systematically from 19.3% in 2007 to 26.7% in 2010.

The structure of the money incomes of households reveals the same trend as the total revenues.

In 2010, the average total revenues for a urban household were by 32.3%, higher than rural households, decreasing by 37 pp from 2009.

The total (averagely) expenses of the population, in 2011, were some 2022 lei monthly per household, representing 90.6% of total revenues. Compared to quarter II 2010, they mark a decrease, influenced in great part by the decline of the household's average gains. As against 2008 and 2009, the expenses, on average, per households, increased mainly due to price growth.



*) provisional data for quarter III 2010

Source: National Institute of Statistics.

Structure of the money incomes of population households*)

The analysis of the structure of total expenses, in 2010, emphasizes the fact that the weight of money expenses decreases as against the previous years, in counterpart increasing the consumption from own resources. In 2010, as country average, from the total money expenses for food and alcohol purchase (170.7 lei per one person/months) the ones intended to acquiring bread and bakery products decreased as against 2008 and 2009 (from 16.1% in 2008 to 15.0% in 2010).

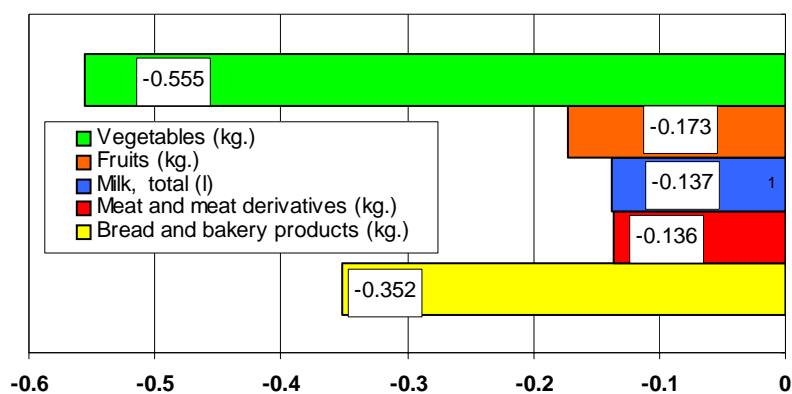
An important weight is corresponding to the expenses for purchasing meat and meat derivatives, that draw, together, for households as whole, in 2010, averagely, 22.9% of the expenses to purchase food and alcoholic drinks, decreasing by 1.5 pp from 2009.

Expenses for acquiring bread and bakery products, meat and meat derivatives, vegetables and canned vegetables gathered more than 50% of the expenses for acquiring food and alcoholic drinks (52.4%, decreasing by 0.3 pp from 2008).

The quantities acquired recorded decreases at all main product groups, excepting mineral water, other non-alcoholic drinks, and eggs. Higher quantitative decreases manifested for vegetables and canned vegetables (-0.533 kgs.), bread and baking products (-0.226 kgs.) and meat and meat derivatives (-0.156 kgs.).

The size and structure of the food consumption of households represents the cumulated result of market acquisitions and use of food products from proper resources. As we have seen, buying expenses decrease, subsequently, the alimentary consumption takes the same trend.

So, the consumption of alimentary products decreases in 2010, from 2008 and 2009, for the most basic products. If in 2008 a person consumed per month, averagely, 9.4 kg bread, in 2010 8.8 kg were consumed. For potatoes, the quantitative consumption fell from 3.5 kg, average per person, in 2008, to 3.3 kg in 2010.



Source: National Institute of Statistics.

Consumption of population households at some basic food products in 2009-2011

Compared to 2010, the decrease of the consumption of food products is as evident as in 2011. Inclusively, the average monthly consumption of alcoholic drinks per person decreases from 2.3 l in 2008 to 2.1 l in 2010.

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Negative Income Tax and Labor Market Participation. A Short Run Analysis

Samir AMINE

Université du Québec en Outaouais and CIRANO, Canada
samir.amine@uqo.ca

Pedro LAGES DOS SANTOS
University of Le Havre, France
pedro.lages@univ-lehavre.fr

Abstract. *This article examines the effects of the negative income tax, in a matching model, on labor market participation. We show that the introduction of such instrument reduces unemployment and improves the situation of the poorest. But, amazingly, it provokes a fall on labor market participation principally because the agents are then less selective. We find another surprising result: despite the rise on participation, the increasing of unemployment benefits improves the situation of the firms at the expense of workers.*

Keywords: matching; participation; negative income tax.

JEL Codes: D63, H21, J41, J64.

REL Codes: 12F, 12G.

1. Introduction

To answer the perspectives of demographic evolution and more particularly the problem of pension financing, the European councils of Lisbon and Stockholm already fixed ambitious objectives concerning the rates of employment in the European Union before 2011. It is wished that the rate of employment be then equal to 70 % of the whole population old enough to work, with at least 60 % as regards the women and 50 % for the oldest workers (from 55 to 64 years). Now, the realization of these objectives obviously implies an improvement of the labor market conditions and, possibly, a revision of the redistributive systems in order to increase substantially the participation rate. In order to reduce the disincentive effects of the going back to work, measures consisting in the preservation of the allowances after the return to activity were imagined. The NIT was imagined by M. Friedman in 1962 and resumed by neo-keynesians such as J. Tobin to avoid the traps of assistance favouring an encouragement of employment.

In this article, we develop an analysis on the effects of the NIT in a matching model with horizontal differentiation of the workers and jobs (Marimon, Zilibotti, 1999, pp. 266-291). However, we consider, here, the labor supply at the extensive margin so as to study the effects of a policy based on a NIT scheme on the labor market participation. Authors such as Pissarides (1990) or Garibaldi and Wasmer (2003) have already introduced an endogenous participation into standard job search models. As in these articles, we are interested in the relations between frictions on the labor market and the labor supply. However, none of these works considers, as we do here, the implications on the decision of participation linked to externalities inferred by the meeting process between firms and workers. In other words, we point out the very particular interactions between employment policy, selectivity of the agents, productivity and participation, engendering all the more interesting results as they are *a priori* unexpected. Indeed, we verify that the implementation of a tax credit allows to reduce inequalities for the benefit of the poorest and to increase employment. However, contrary to what we could expect, the tax credit can lead to a decrease of the participation essentially cause of a lesser selectivity of the agents. Furthermore, the results present another unexpected effect concerning the unemployment compensation system. Indeed, in this framework, the increase in unemployment benefits favors firms and provokes a degradation of the situation of the workers. This article gets organized in the following way. In the section 2, we present the model. We solve it in a section 3. Then, we specify and confirm the results of the analysis by proceeding to quantitative exercise in a fourth section. Finally, we conclude our study in a fifth and last section.

2. The model

We consider an economy including two risk neutral agents: the population susceptible to work and firms. Among all the people "capable" of working (N), some integrate the labor market ("active persons", N_A) and the others prefer to stay outside ("non-working - inactive - population", N_I). At each period, the agents capable of working, heterogeneous and having an infinite horizon, decide according to their utility in each situation (that we shall define later) if they participate to the labor market (by trying to find a job) either if they stay "inactive" taking advantage of social-security benefits and of their household production. Besides, firms, in number K , produce the same good and offer each a single job. These jobs are also heterogeneous and we suppose that, at each period, filled jobs can become vacant with a probability s . Besides, among active people (N_A), some will have a job (L) while the others will be unemployed persons (U) and among jobs offered by firms (K), some will be filled (L) while the others will be vacant (V). Consequently, we have: $N_A - U = K - V$.

All the agents have the same discount rate r and R represent the sum $(1+r)$. To describe the differentiation of the workers and the jobs, we use the analytical framework of Salop (1979). We consider that workers ("active people") and firms are uniformly distributed on a circle of circumference equal to 2. This distribution is exogenous. The position of a worker on the circle represents his "type" of qualification while that of the firm represents the exact "type" of qualification whom it looks for. The distance l (between 0 and 1) separating a worker of a firm measures the adequacy between the profiles of each. The adequacy is completed when $l=0$ and the mismatch is maximum for $l=1$. The productivity of a worker is then a decreasing function of this distance l noted $y(l)$ with $y'(l) < 0$ and $y''(l) \leq 0$. Let us remind that every firm employs only a single worker and its production is determined by the productivity of this one.

Concerning the meeting process (Petrongolo, Pissarides, 2001, pp. 390-431), we consider that the firm which an unemployed worker is going to meet is taken at random among all the firms. Let us note U the number of unemployed workers and V the number of vacant jobs. The labor market tightness is then noted $\theta = V/U$. Let us suppose that λ represent the maximal distance which can separate an employee of his employer. To provide a vacant job, the firm needs to meet only a single worker filling the requirements, that is a worker whose "type" is at a distance not exceeding this mismatch threshold λ . The association employer/employee is then productive enough and thus practicable. We show (appendix 1) that the probability to fill a vacant job, noted q , is determined by:

$$q = 1 - e^{-\lambda/\theta} \quad (1)$$

We notice that a greater selectivity of firms and workers (*i.e.* a decline of λ) has for consequence a decrease of the probability to fill a vacant job. The probability to be hired, noted p , satisfies:

$$p = (1 - e^{-\lambda/\theta})\theta \quad (2)$$

This probability p is an increasing function of the threshold λ . We show that p is also an increasing function of the labor market tightness θ (appendix 2).

2.1. Intertemporal utilities and profits

Every agent arbitrates between two choices: participate to the labor market by becoming an unemployed worker susceptible to reach employment or stay out of this market and benefit from the return on its household production and on the social-security benefits. Let us suppose that z represents the value of the household production of the "inactive" people and m all the social-security benefits which he/she perceives. His/her intertemporal utility is then written as follows:

$$W_I = z + m + R^{-1}\hat{W} \quad \text{with} \quad \hat{W} = \max\{W_U; W_I\} \quad (3)$$

The greater is the amount of the social-security benefits from which benefits an inactive worker, the greater is the proportion of those who decide to stay out of the labor market. In the same way, the more an inactive people benefits from his/her household production, the more it is attractive to keep the "status" of "inactive". On the other hand, if the unemployed worker's situation tends to become more interesting (thanks to, for example, an increase of the amount of unemployment benefits or of the probability of hiring), the participation rate will be higher. When a worker obtains a job, his/her productivity, $y(l)$, and thus his/her (gross) salary, $w(l)$, is going to depend on the distance l which separates his/her "type" of that of the firm which hired him/her. We note $W_E(l)$ the intertemporal utility of such a worker. As regards unemployed workers, we consider that they benefit from unemployment benefits, noted b . Their intertemporal utility W_U also depends on the distance λ , which affects the rate of hiring (p) and the expected utility of an employee \bar{W}_E . As the distributions on the circle of workers and jobs are supposed uniform, the expected value of a variable x is written as follows:

$$E[x(l)] = \bar{x} = \frac{1}{\lambda} \int_0^\lambda x(l) dl \quad (4)$$

We introduce a linear taxation scheme such as the Negative Income Tax schematizing the taxation progressiveness. We assume a tax function as

follows: $t(w) = -\alpha + \gamma w$. The amount of the tax $t(w)$ paid by each employee depends on the level of his/her income. The peculiarity of the fiscal table holds in the fact that only the workers whose income exceeds a certain threshold (the average wage) pay a tax, while those who earn low incomes benefit from a tax credit. Besides, the workers who earn the average wage are tax-exempt ($t(w(0)) = \bar{t}$: the highest tax paid by the worker perfectly adapted to his/her job; $t(w(\lambda)) = \underline{t}$: tax credit perceived by the least productive employee. The budget constraint satisfies then:

$$\int_{w(\lambda)}^{w(0)} t(w) dw = 0 \quad (5)$$

In the stationary state, the intertemporal utilities $W_E(l)$ and W_U satisfy:

$$W_E(l) = w(l) - t[w(l)] + R^{-1}[sW_U + (1-s)W_E(l)] \quad (6)$$

$$W_U = b + R^{-1}[pW_E + (1-p)W_U] \quad (7)$$

The jobs which firms have are vacant or filled. Let us note $J_F(l)$ the value of a filled job:

$$J_F(l) = y(l) - w(l) + R^{-1}[sJ_V + (1-s)J_F(l)] \quad (8)$$

This value of a filled job depends on the immediate net gain and the future profits dependent on a possible separation between employer and employee. The value of a vacant job J_V is a function of the mismatch threshold λ . This threshold indeed affects the probability q to provide this job as well as the expected value of a filled job \bar{J}_F . We have then:

$$J_V = -c + R^{-1}[q\bar{J}_F + (1-q)J_V] \quad (9)$$

As long as it is not filled, the job costs c to the firm (*i.e.* the employer has to invest to create this job and "to look for" an employee).

2.2. The surplus sharing

According to the generalized Nash rule, the surplus created by a couple employer/employee is distributed between both agents according to their respective bargaining strength. We shall note β ($0 < \beta < 1$) the workers bargaining strength. The maximization program of the surplus verifies then:

$$\text{Max} \beta \ln[W_E(l) - W_U] + (1 - \beta)[J_F(l) - J_V] \quad (10)$$

Then, the following first order condition satisfies:

$$\beta[1 - t'(w(l))][J_F(l) - J_V] = (1 - \beta)[W_E(l) - W_U] \quad (11)$$

The tax schedule gives a constant marginal tax rate ($t'(w(l))$) that we shall note γ . The previous equation can be rewritten in the following way:

$$\beta(1 - \gamma)[J_F(l) - J_V] = (1 - \beta)[W_E(l) - W_U] \quad (12)$$

So, the surplus of the workers with a filled job is represented by:

$$W_E(l) - W_U = \beta[W_E(l) - W_U + J_F(l) - J_V] - \beta\gamma[J_F(l) - J_V] \quad (13)$$

It seems that the proportion of the total surplus got by a worker is lower than his/her bargaining strength (β). Indeed, considering the tax scheme, the average tax rate is increasing with regard to the wage. Consequently, firms take advantage of the fact that workers are incited to negotiate lower wages to get a greater part of the collective surplus. The association employer-employee is practicable only if it generates a positive total surplus. Consequently, the threshold λ , which corresponds to the couple employer/employee the least effective possible (beyond λ , the association does not engender a positive surplus), satisfies:

$$W_E(l) - W_U + J_F(l) - J_V = 0 \Rightarrow W_E(\lambda) = W_U \Leftrightarrow J_F(\lambda) = J_V \quad (14)$$

3. Model equilibrium

3.1. Optimal selectivity and labor market tightness

Using the relation defining the mismatch threshold and the surplus sharing process, we deduce the following relation between the labor market tightness (θ) and the mismatch threshold (λ) (see appendix 3):

$$(r+s)c = \frac{1-\beta}{1-\beta\gamma} q [\bar{y} - y(\lambda) + \underline{t}] - [y(\lambda) - \underline{t} - z - m](r+s) \quad (15)$$

In space $(\lambda; \theta)$, this relation ($\lambda \equiv JC(\theta; \cdot)$) is represented by an increasing curve (JC) (Figure 1). Since, on the one hand, $[\bar{y} - y(\lambda)]$, $[w(\lambda) - y(\lambda)]$ and the probability for a firm to meet a worker are increasing in λ and, on the other hand, q is decreasing in θ , the equation (15) implies that any increase in labor market tightness causes a rise of the mismatch threshold. When θ increases, the probability for firms to meet workers decreases. Therefore, in order to compensate for this effect, they are less selective in the hiring process (λ increases). Moreover, for a given level λ , this relation implies that an increase in a maximum tax credit causes a reduction in labor market tightness (the curve (JC) moves (JC')). Furthermore, if $W_U > W_I$, then the whole population wants to participate to the labor market and if $W_U < W_I$, everyone prefers to stay inactive. Therefore, at the equilibrium, the labor market participation satisfies:

$$W_U = W_I \tag{16}$$

The utility of an unemployed worker is, at the migration equilibrium, equal to that of an inactive. Therefore, from equations (14) and (16), we deduce:

$$W_U = W_E(\lambda) = W_I \tag{17}$$

Note that the expected utility of an employee depends on his/her decision to participate or not to the labor market. Therefore, for there to be trade-off between participation to the labor market and stay out of it, the agents must undergo a loss of instant gain $(z + m - b)$ by participating and becoming unemployed. Otherwise, everyone would participate. With this migration equilibrium condition, we obtain (see appendix 3) a decreasing relationship between tightness θ and the mismatch threshold λ :

$$\beta p [\bar{y} - y(\lambda) + t] = \frac{(1 - \beta\gamma)(r + s)}{1 - \gamma} (z + m - b) \tag{18}$$

In space $(\lambda; \theta)$, this relationship $(\theta \equiv CW(\lambda; \cdot))$ is represented by a downward curve denoted CW (Figure 1). Given that the probability of finding a job p and the difference $[\bar{y} - y(\lambda)]$ are increasing in λ and p is increasing in θ , the equation (18) implies a decreasing relationship between the mismatch threshold and the labor market tightness. The intuition behind this relationship is quite simple. For arbitrating agents between participate or not to the labor market, an increase in λ means a greater probability of hiring. Consequently, unemployment is made more attractive by increasing the number of unemployed people and thus reduces the labor market tightness. It may be noted also that λ given, increasing the amount of tax credit awarded to the least productive employee means an increase in θ (the curve (CW) moves (CW')) while a lower welfare benefits or higher unemployment benefits causes a decrease in θ .

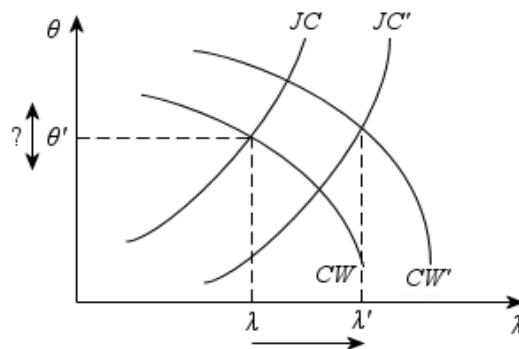


Figure 1. Negative income tax and selectivity

Proposition 1. *In a matching model with differentiated skills, the introduction of a tax credit makes agents less selective reducing the matching quality and the average productivity.*

3.2. Labor market participation

At the stationary equilibrium, the number of workers who lose their job must equal the number of unemployed workers who find a job. Therefore, we consider L the employment level. This equilibrium condition implies:

$$pU = sL = s(N_A - U) \text{ and } qV = sL = s(K - V) \quad (19)$$

Therefore, combining the two previous equations, we obtain the expression of the active population N_A as a function of θ and of λ :

$$N_A = \frac{K[s + p(\lambda; \theta)]}{\theta[s + q(\lambda; \theta)]} \quad (20)$$

Equation (20) corresponds to a simple accounting relationship satisfied at the flows equilibrium. Indeed, an increase in the active population means an influx of unemployed people into the labor market which, given the number of jobs, makes the market tightness lower. Similarly, an increasing number of firms means a higher number of vacancies and thus a rise in labor market tightness.

Therefore, with a variable participation, the model equilibrium satisfies the following definition:

Definition 1. *The labour market equilibrium is a set of variables $(\lambda^*; \theta^*; N_A^*)$ which jointly satisfy equations (15), (18) and (20).*

4. Quantitative analysis

We consider an explicit function of productivity, linear form, depending on the “distance” separating the employee from his/her firm, such that: $y(l) = y_0 - \psi l$. We retain the starting values of the following parameters: $\beta = 0,5$; $\psi = 5$; $s = 0,02$; $c = 3$; $r = 0$; $N = 2$; $b = 2$; $m = 2$; $z = 2$; $K = 1$ and $y_0 = 16$. Moreover, in the tables, SB represents the budgetary balance, $W_E(\lambda_i)$, the utility of the poorest employee in the initial simulation and SG , the collective surplus.

Table 1

Negative income tax													
			N_A	U	\bar{y}	\bar{w}	$W_E(\theta)$	$W_E(\lambda_i)$	\bar{W}_E	J_V	\bar{J}_F	SG	
$-t$	+	+	-	-	-	-	-	+	-	+	+	+	

As showed in *Proposition 1*, it appears (Table 1) that the introduction of a Negative Income Tax makes firms and workers less selective. However, this increase in the mismatch threshold λ causes a decrease in the average productivity. Indeed, the tax credit enjoyed by "low wages" encourages workers to lower their reservation wage, their income remains unchanged, and therefore to accept jobs farther from the type that would suit them perfectly. These jobs are then less effective and therefore tend to have lower average productivity.

Moreover, this lower selectivity of agents tends to increase the probability of filling jobs for firms and the probability of being hired for unemployed people. In fact, since the number of firms is constant, increasing λ simultaneously causes an increase in employment and a decline in the number of vacancies. Therefore, the greater decrease in unemployment causes a rise of the labor market tightness. But this decline of the number of unemployed people (and also of the unemployment rate) is explained by two simultaneous "phenomena": the increase of the hiring probability p (due to higher threshold λ) and the decrease of participation. The decline of the active population, which is verified in *Table 1*, is due to the fall of the expected utility of an employee \bar{W}_E following the increase λ (because of lower average wage). Indeed, the future as employee appears less attractive, then a larger proportion of the unemployed people withdraws from the labor market leading to an increase of the hiring probability for those who remain. Therefore, given that the utility of an unemployed worker, W_U , is determined by the migration equilibrium condition ($W_U = W_I$), increasing p can then compensate for the decline of \bar{W}_E . But this observation does not match what is expected from the introduction of a Negative Income Tax. Indeed, while his/her real goal is *a priori* to encourage unemployed to return to work by encouraging them to accept jobs barely interesting (that is indeed the case), it appears that this public policy reduces the attractiveness of the activity comparatively to inactivity.

The Table 1 shows the effects of a NIT on utilities and profits. Firstly, in terms of incomes, it appears that the net wage of the lowest paid employee remains constant despite the decrease in $w(\lambda)$. This result was expected since we have seen previously that at the equilibrium, $W_E(\lambda) = W_I$. Indeed, the tax credit offsets the decrease in his/her direct income, but, then, worker supports an increasing mismatch compared to firm's needs and consequently, the minimum productivity ($y(\lambda)$) and the current profit ($y(\lambda) - w(\lambda)$) decrease. However, we show that the intertemporal utility of the marginal worker, "the lowest paid" at the beginning (which corresponds in the simulation at λ_i), increases. Indeed, this worker, through the tax credit, earned a net income higher than what he had been receiving previously. So, the introduction of a NIT favors the most

disadvantaged workers since, whatever the situation of the other employees, the situation of the poorest improves. Nevertheless, the highest net wage ($w(0) - \bar{t}$) decreases. Indeed, the utility of the richest workers declines because of a lower selectivity and their contribution to the cost of the NIT. However, the decline in average productivity is lower than the average wage. Therefore, the average values of filled jobs \bar{J}_F and of vacancies J_V increase.

Remark 1. *Even if it may cause a negative effect on the labor market participation, the introduction of a NIT looks interesting as a redistributive policy in favor of the poorest but also as a policy of reducing the unemployment rate. In addition, it appears that this policy may even lead to an increase of the collective surplus since the expected profits of firms increase though the introduction of the NIT causes in average a loss of job productivity.*

Table 2 presents the unemployment benefits effects on different variables of the economy.

Table 2

Unemployment benefits												
			N_A	U	u	\bar{y}	\bar{w}	$W_E(0)$	\bar{W}_E	J_V	\bar{J}_F	SG
b	-	-	+	+	+	+	-	-	-	+	+	-

It appears that rising unemployment benefits causes an increase in labor market participation (since the utility of being unemployed is therefore more attractive) leading to a decrease in the probability of hiring p (with an increase in the number of unemployed and in the unemployment rate). The process stops when the migration equilibrium condition ($W_U = W_I$) is respected again. Note that since the number of firms is considered constant, new jobs can not be opened so as to increase competition among firms and to absorb the influx of inactive into the labor market.

Therefore, the labor market tightness tends to decline and it appears that increasing the probability q to fill vacancies increased firms requirements. Firms become more selective (decrease in λ) and that improves the matching quality and thus the average productivity. However, an unusual and unexpected effect is the decline of the average wage w . Indeed, one might expect that the increase in unemployment benefits leads to increase wage demands of workers and thus to increase average productivity. However, given that the unemployed workers are more numerous and that the unemployment rate rises sharply, competition between workers is such that the average wage goes down. Therefore, the utility of all the workers decreases so that some of them (the employees initially the poorest) are advised to leave their job (to be unemployed).

Remark 2. *An increasing in unemployment benefits takes advantage only to firms. Even if this measure can increase the labor market participation, it appears that the competition between workers is then such that the average wage tends to decrease.*

5. Final comments

These results should obviously be considered in light of the different assumptions. In particular, given the rigidity of firms number, we can consider that our approach is rather short-term course. That is precisely what makes it particularly interesting here. Indeed, it is clear that the analysis of long period is only of interest if economic policy has the opportunity to continue. Therefore, to consider for example that the introduction of a NIT may, in the short run, reduce the labor market participation tends to relativize the interest of the implementation of the policy and that, regardless effects that are expected in the long term.

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Appendix

1. Matching function

We assume that U unemployed know exactly the location of the V vacancies and that each unemployed apply in each period. The probability that a vacancy receives a given application is then equal to $1/V$ and, consequently, the probability that it does not receive is equal to $(1 - 1/V)$. However, a vacancy may receive several applications including some that are not suitable (the hiring of these workers there would not in fact sufficient productivity). This assumes that firms are able to identify all applications. In the model used here, the proportion of applications that may be suitable for a particular job is equal to λU (λ is the maximum distance (mismatch threshold) can separate the qualification held by an employee and one required by an employer. Therefore, the probability that a given vacancy receives no suitable application is equal to $(1-1/V)^{\lambda U}$. The number of hires in each period is then given by:

$$H=V\left[1-\left(1-\frac{1}{V}\right)^{\lambda U}\right]$$

However, we have:

$$1-\left(1-\frac{1}{V}\right)^{\lambda U}=\exp\left[\lambda U\ln\left(1-\frac{1}{V}\right)\right]$$

Therefore, assuming a high number of unemployed and job vacancies:

$$1-\left(1-\frac{1}{V}\right)^{\lambda U}=\exp\left(-\frac{\lambda U}{V}\right)$$

If we denote $\theta = V / U$, the number of hires, the probability of filling a vacancy and the probability of finding a job for the unemployed are given by:

$$H=(1-e^{-\frac{\lambda}{\theta}})V \quad q=1-e^{-\frac{\lambda}{\theta}} \quad p=(1-e^{-\frac{\lambda}{\theta}})\theta$$

2. Analysis function $p(\theta; \lambda)$

We have:

$$p(\theta; \lambda) = \theta q(\theta; \lambda) = \theta(1 - e^{-\lambda/\theta})$$

The derivative of $p(\cdot)$ with respect to θ is given by:

$$\frac{\partial p}{\partial \theta} = 1 - e^{-\lambda/\theta} - \frac{\lambda}{\theta} e^{-\lambda/\theta}$$

We show that this derivative is defined on the interval $[0; 1]$. Therefore, the probability p is an increasing function of θ .

3. Selectivity and job creation process

Using equation (6), the intertemporal utilities of workers satisfy:

$$r\bar{W}_E = R\bar{w} - s(\bar{W}_E - W_U) \quad (21)$$

$$rW_E(\lambda) = R[w(\lambda) - \underline{t}] - s[W_E(\lambda) - W_U] \quad (22)$$

Can then be determined through equations (7), (21) and (22) the income expressions of the less productive employee and of an employee:

$$W_E(\lambda) - W_U = \frac{R[w(\lambda) - \underline{t} - b]}{r + s} - p \frac{\bar{W}_E - W_U}{r + s} \quad (23)$$

$$\bar{W}_E - W_U = \frac{R(\bar{w} - b)}{r + s + p} \quad (24)$$

Therefore, in terms of incomes, it appears, using equations (14), (23) and (24), that:

$$w(\lambda) = b + \underline{t} + p \frac{(\bar{w} - b)}{r + s + p} \quad (25)$$

As workers, we can rewrite equation (8) as follows:

$$rJ_F(\lambda) = R[y(\lambda) - w(\lambda)] - s[J_F(\lambda) - J_V] \quad (26)$$

$$r\bar{J}_F = R(\bar{y} - \bar{w}) - s(\bar{J}_F - J_V) \quad (27)$$

Using equations (25), (26) and (9), we establish the surplus generated by the least productive job, relative to a vacancy, and the average surplus generated by a filled job:

$$J_F(\lambda) - J_V = \frac{R[y(\lambda) - w(\lambda) + c]}{r + s} - q \frac{\bar{J}_F - J_V}{r + s} \quad (28)$$

$$\bar{J}_F - J_V = \frac{R[\bar{y} - \bar{w} + c]}{r + s + q} \quad (29)$$

Therefore, if we integrate the equations (23), (24), (28) and (29) in equation (18), the surplus sharing implies:

$$y(\lambda) + c - b - \underline{t} - p \frac{\bar{w} - b}{r + s + p} - q \frac{\bar{y} - \bar{w} + c}{r + s + q} = 0 \quad (30)$$

Equations (12) and (13) show that employers and employees share the surplus resulting from their collaboration based on their respective bargaining strength:

$$\bar{J}_F - J_V = \frac{1 - \beta}{\beta(1 - \gamma)} [\bar{W}_E - W_U] \quad (31)$$

If we take the equations (24) and (29), we have:

$$(1 - \beta) \frac{\bar{w} - b}{r + s + p} = \beta(1 - \gamma) \frac{\bar{y} - \bar{w} + c}{r + s + q} \quad (32)$$

So, with equation (30):

$$y(\lambda) - \underline{t} + c - b - \frac{[\beta(1 - \gamma)p + (1 - \beta)q][\bar{w} - b]}{\beta(1 - \gamma)(r + s + p)} = 0 \quad (33)$$

According to equations (8), (14) and (24):

$$\bar{J}_F - J_F(\lambda) = \frac{R[\bar{y} - y(\lambda)]}{r + s} - \frac{R[\bar{w} - w(\lambda)]}{r + s} \quad (34)$$

But, using equations (6) and (21), we deduce:

$$\bar{W}_E - W_E(\lambda) = \frac{R[\bar{w} - w(\lambda) + \underline{t}]}{r + s} \quad (35)$$

We show then:

$$\bar{J}_F - J_F(\lambda) = \frac{R[\bar{y} - y(\lambda) + \underline{t}]}{r+s} - [\bar{W}_E - W_E(\lambda)] \quad (36)$$

Therefore, equations (14), (31) and (36) give:

$$\bar{W}_E - W_U = \frac{\beta(1-\gamma)R[\bar{y} - y(\lambda) + \underline{t}]}{(1-\beta\gamma)(r+s)} \quad (37)$$

Therefore, substituting the expressions (37) and (24), we establish:

$$\frac{\bar{w} - b}{r+s+p} = \frac{\beta(1-\gamma)}{1-\beta\gamma} \frac{[\bar{y} - y(\lambda) + \underline{t}]}{r+s} \quad (38)$$

Finally, combining equations (33) and (38), we obtain:

$$(1-\beta\gamma)(r+s)[y(\lambda) - \underline{t} + c - b] = [\bar{y} - y(\lambda) + \underline{t}][(1-\beta)q + \beta(1-\gamma)p] \quad (39)$$

Using equations (25) and (38), we get:

$$w(\lambda) - b - \underline{t} = \frac{\beta p(1-\gamma)}{1-\beta\gamma} \frac{[\bar{y} - y(\lambda) + \underline{t}]}{r+s} \quad (40)$$

Equation (39) can be written as follows:

$$(r+s)c = \frac{1-\beta}{1-\beta\gamma} q [\bar{y} - y(\lambda) + \underline{t}] - [y(\lambda) - w(\lambda)](r+s) \quad (41)$$

In the equilibrium, the labor market participation implies:

$$W_U = W_I \quad (42)$$

Using equations (14) and (42), we deduce in the equilibrium:

$$W_U = W_E(\lambda) = W_I \quad (43)$$

Combining equations (3), (7), (21) and (42), we establish a third expression of $(W_E - W_U)$:

$$\bar{W}_E - W_U = \frac{R(z+m-b)}{p} \quad (44)$$

Using equations (37) and (44), we obtain a decreasing relationship between λ and θ :

$$\beta p [\bar{y} - y(\lambda) + \underline{t}] = \frac{(1-\beta\gamma)(r+s)}{1-\gamma} (z + m - b) \quad (18)$$

Using equations (40) and (18), we obtain the reservation wage expression:

$$w(\lambda) = \underline{t} + z + m \quad (45)$$

Therefore, equations (41) and (45) give:

$$(r+s)c = \frac{1-\beta}{1-\beta\gamma} q [\bar{y} - y(\lambda) + \underline{t}] - [y(\lambda) - \underline{t} - z - m](r+s) \quad (15)$$

The equilibrium values $(\lambda^*; \theta^*)$ are given by:

$$(r+s)c = \frac{1-\beta}{1-\beta\gamma} q [\bar{y} - y(\lambda) + \underline{t}] - [y(\lambda) - \underline{t} - z - m](r+s) \quad (15)$$

$$\beta p [\bar{y} - y(\lambda) + \underline{t}] = \frac{(1-\beta\gamma)(r+s)}{1-\gamma} (z + m - b) \quad (18)$$

The Industry – a Vulnerable Source of Economic Recovery in Romania

Anca DACHIN

Bucharest Academy of Economic Studies
ancadachin@yahoo.com

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

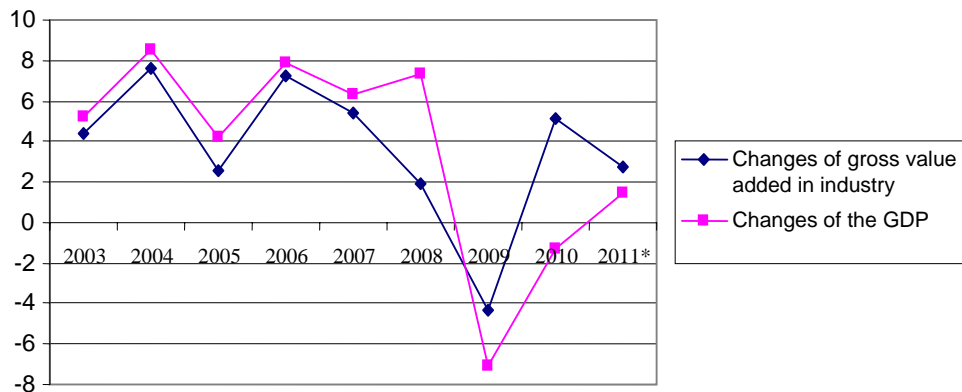
The world crisis has affected the Romanian industry which has given the first signals of the downturn since the second quarter of 2008 and entered a sharp decline process since November 2008. The production decrease in January 2009 was 37 percentage points compared to October 2008 (maximum level before 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

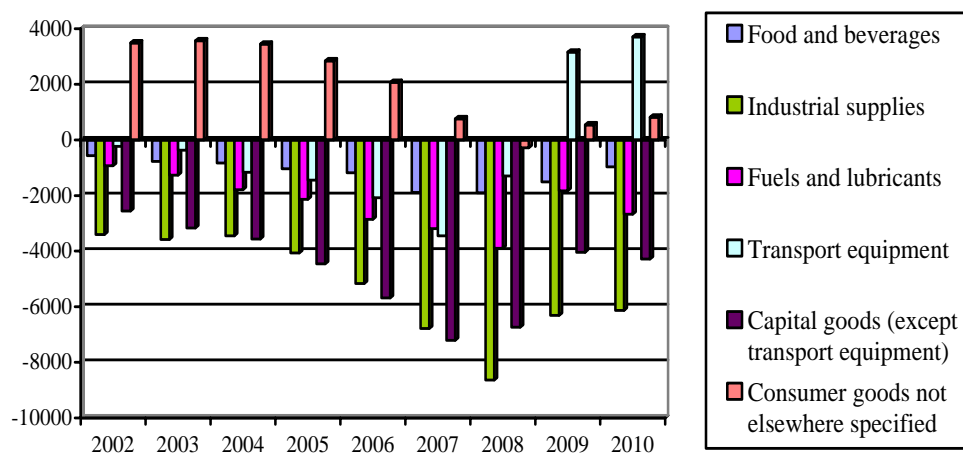
recovery, respectively on the trade channel. Due to the lack of recovery of the internal demand, the same channel may rapidly induce a new downturn. The subject of the further discussion is the trade channel as possible vulnerable point of the economy and industry.

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.

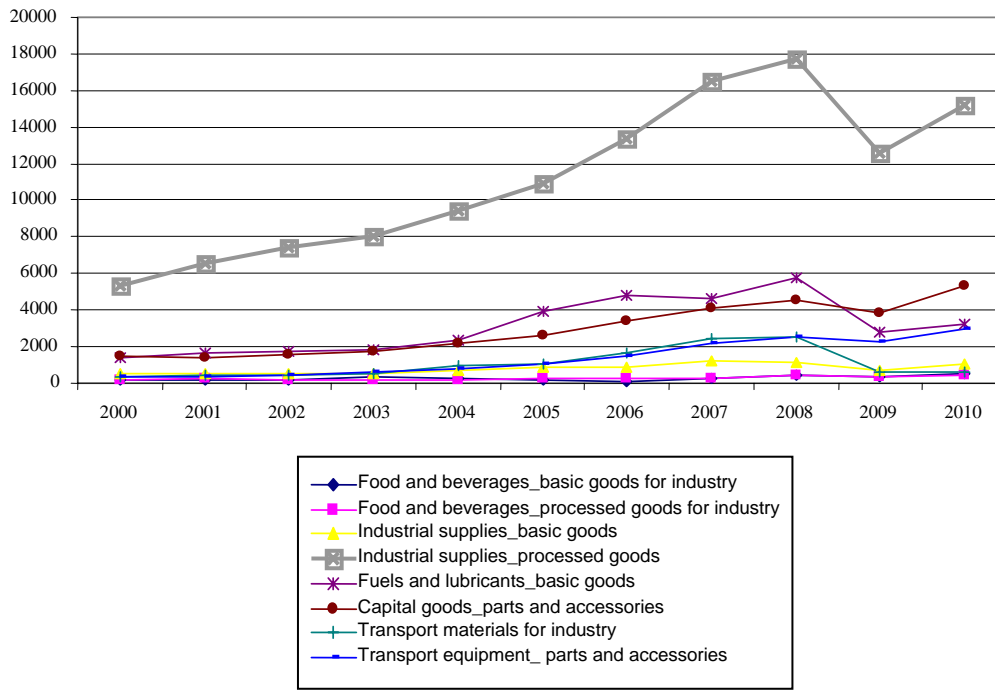
The chronic trade balance deficit in Romania and its sharp increase after year 2000 (Figure 2) has generated a macroeconomic imbalance which tended to diminish only after the crisis started. Practically in 2008 there was trade deficit for all main groups of products which were traded on international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

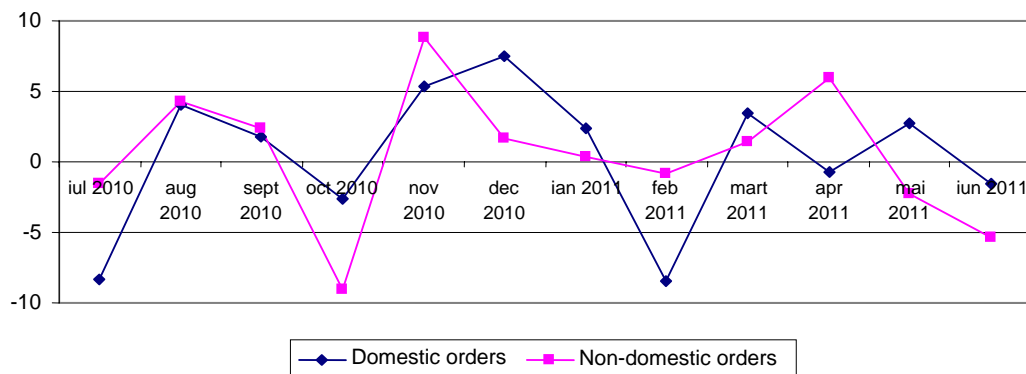
Figure 2. The trade balance deficit in Romania, by broad economic categories (million Euro)



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-30.VI 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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Sustainable Development of South-West Oltenia Region in the Current Economic Crisis

Camelia MARIN

Bucharest Academy of Economic Studies
cameliamarin81@yahoo.com

Isabella SIMA

Bucharest Academy of Economic Studies
i_onescu@yahoo.com

Mihaela RUXANDA

University of Bucharest
ruxanda_mihaela@yahoo.com

Abstract. *The present article advances the concept of sustainable development at the regional level. A brief review of the literature on sustainable development, be it from primary or secondary sources, reveals that there is a relatively small number of studies in this area at the national level. Therefore, we considered it appropriate to carry out an analysis regarding macroeconomic indicators in one of the development regions of our country, namely South-West Oltenia. Sustainable development involves a combination of economic, social, political and environmental policies to ensure effective management of the planet. Nevertheless, all these must be accomplished taking into consideration the implications of the current economic crisis.*

Keywords: sustainable development; regional development; gross domestic product; economic development; economic crisis.

JEL Code: O11.

REL Code: 18G.

1. Introduction

Nowadays, mankind is the direct result of evolution in which, during time, has been accumulated the residues of long-term models of existence that went through, and which, taken together form a barrier to progress, expected and deserved by the current generations. Overcoming it is inconceivable without the rapid and profound progress of knowledge and its promotion in society, especially in economy (Bari, 2005, p.121).

2. Conceptual framework of sustainable development

In the current circumstances, more than ever we need an economic theory based on studying full contemporary realities, and unconventional in order to conform the needs of our nation, to help out from the present difficult economic situation, theory free from prejudice and ruled only by truth. It tells us where to go for the good of the world, the nation, of all citizens and even of each region.

Each region has to fight to achieve a qualitative and sustainable economic growth which should have a significant impact on the eradication of poverty, in other words, the main concern of the state, transition's target, should be the humanization of society development, this being path to success in this difficult time of economic crisis.

To continue with, sustainable development is a process of change in which exploitation of resources, directing investments, the orientation of technological development and change institution are all in harmony and enhance both current potential and the future one, in order to meet the needs and aspirations of humanity.

Based on this definition, sustainable development can be considered as a process consisting of three systems:

- Ecological system (exploitation of resources);
- Economic system (investment and technology development);
- Socio-cultural system (institutional changes).

Therefore, it can be presumed that this system of sustainable development is accepted as a general guide for economic development. However, translating this concept into operational policies produces many complications due to differences between regions and theoretical interpretations (Dobrescu, Albu, 2005, p. 57).

It should be pinpointed that these features take into consideration a systemic approach of the sustainable development starting from the utility functions specific to each system and the general theory of systems indicating that the system is more than the mere sum of sub-components. However, it is

considered that the model of sustainable development is still poorly defined, both theoretically (there are many definitions) and practical (given that no country and no region has failed to solve a series of key issues such as unemployment, inflation, education and health, poverty, etc.). Applying these indicators to states in general, it can be easily observed that the degree of development in countries in transition to sustainable development is different.

According to an overview on the existing definitions given by the literature on this topic, there can be selected the following ones:

- continuous economic growth (not zero growth or negative developments);
- socio-economic development in accordance to the requirements of ecological balance (so not just preserving the environment, but a continuous improvement of its quality);
- improvement on living standards for all people and not only for an elite (ensuring access to culture, science, health, education, etc.);
- ensuring the necessary framework for the creation of jobs, having as main purpose, besides economic growth, social inequalities and poverty elimination;
- equal opportunities of development between generation;
- demographic growth in accordance with the possibilities of society and nature, in order to ensure proper working and living conditions, corresponding to general development;
- management of resources, especially non-renewable ones;
- ensuring gender equality among nations, ethnic groups and nations, irrespective of political and religious options, gender, etc. – Participation not only theoretical but also practical – of all nations through international decisions.

3. Economic development of the South-West Oltenia Region

From this theoretical basis, we analyzed the possibilities and prospects of current and future economic development of South-West Oltenia Region, which can influence, positively or negatively, its sustainable development.

The gross domestic product (GDP) is the most accurate indicator characterizing the development of a region over a period of time.

In order to observe the economic situation in South-West Oltenia Region an analysis of GDP on different categories was necessary. These categories are represented by share of industry, agriculture, construction and services in GDP. The time span for analysis is from 2005–2012. The period reflects the situation of regional development in the region during the period preceding the crisis, and during her deployment.

Table 1

Structure of GDP by sector in South-West Oltenia

– % of GDP –

	2005	2006	2007	2008	2009	2010	2011	2012
Industry	29,9	29,2	29,6	29,9	26,8	26,2	26,1	26,3
Agriculture	11,1	10,0	6,8	7,6	7,5	7,4	7,3	7,2
Construction	7,0	8,0	6,2	10,9	11,7	12,1	12,4	12,7
Services	41,2	42,4	43,8	42,7	44,3	44,8	44,9	44,7
Total taxes	10,7	10,5	10,5	9,8	9,7	9,5	9,3	9,1

Source: Table was made by the authors based on data from the Institute of Statistics and Forecast Center forecasts made.

The above table emphasizes that in South-West Oltenia Region the largest share of GDP can be found at services, between 41% and 45%. The strong tendency of tertialization of the region's economy determined the growth of some branches of the services faster than other activities. Population predilection toward specialization on a certain branch is determined by the multiple possibilities of career prospects and important gain opportunities.

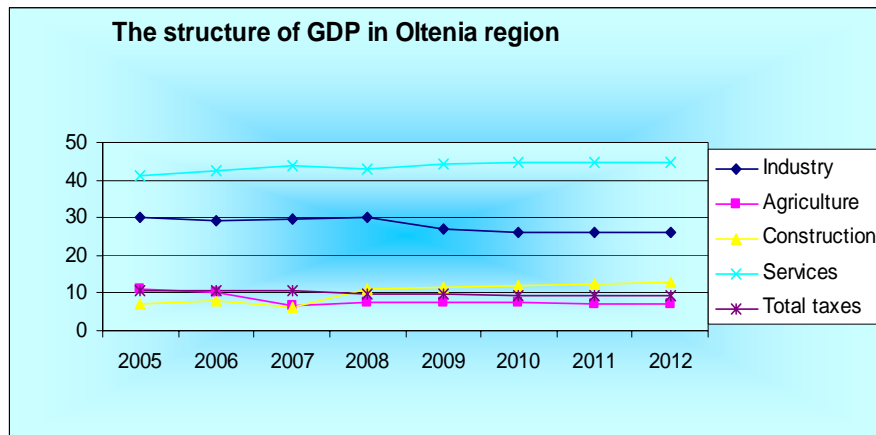
In the region, trade and transport have the largest share of total services, while financial intermediaries occupy the lowest position in this ranking. Health and social services had an oscillating evolution.

In contemporary economy, the services are considered a very important branch of the national economy because, in addition to material needs of the population, ensure the continuation or completion of these needs, contribute to recreation and spending free time, thus maintaining a biological balance essential for a physical and mental health status at the population level, competing at the same time to the development of particular activities, with positive consequences in terms of employment of labor.

On the second place is industry with a relative weight of 26% of GDP. In this area, there is a downward trend, since the region experienced economic transition and industrial restructuring in difficult terms. These processes encountered more resistance in this region than in other parts of the country, being somewhat delayed due to social and political tensions. Moreover, there have been affected the mining industry and some state-owned enterprises. The economic structure, mentioned above, is reflected in the regional GDP distribution between different economic sectors.

Roughly speaking, taking into consideration the issues presented above, from a socio-economic perspective, there are disparities in the Oltenia region. All the five counties which form this region face a difficult period from this point of view. On one hand, the industrialized counties from the North, Gorj and Valcea are strongly affected by the industrial reorganization, which led to a

high level of unemployment, on the other hand, the agricultural area from South, including Dolj, Olt and Mehedinti, is severe affected by the low level of productivity, deepening the poverty along these under-developed regions.



Source: Graph was made by the authors based on data from the Institute of Statistics and forecasts made by the Centre for Prognosis.

Figure 1. *Structure of GDP in South-West Oltenia Region*

Evolution shows a decrease in the share in GDP of agriculture and industry in favor of services, like community development. Although justified through natural potential and economic traditions from the South-West Oltenia, this structure of GDP on economic sectors is not compatible with a modern and developed region, the main cause being the differences in productivity between the economic sectors.

For example, GDP has serious limitations on the ability to reflect the region's real income and the level of its economic and social development.

First, the rigor of this indicator is affected by the fact that in its calculation are not included domestic activities of family members, activities which tend to increase and to represent a high pounder in this equation.

Secondly, there are not taken into account most of the costs (efforts) to protect the environment, namely those expenses incurred to remove the negative effects of pollution.

In the third, GDP does not reflect those activities that do not generate commercial transactions. Demonetization, naturalization of some activities, reflux of exchange economy have the effect of reducing "artificial" production of a country's freight, in the context of the region, creating a significant distance between the actual production from one country and one captured by GDP.

Fourth, the underground economy is not included in the national accounting records.

But even if GDP would benefit from a rigorous calculation (so even if there were any of the limits of computation shown above), it should not be a sufficient indicator consistent with the realities of contemporary economy and society.

Following the evolution of sectorial employment in the region, there is a tendency of decrease in the employment rate in agriculture sector, in favor of services. This trend is likely to continue in the near future, as the regional economic structure modernizes, entailing increases in productivity. However, on medium and long term, economic restructuring and productivity growth will stimulate economic activity and employment.

But, unfortunately, GDP does not measure the welfare of a nation, but just the added value produced in economy annually. This represents the gross added value incorporated in final goods and services.

To continue with, there is analyzed the gross added value by sector in the South-West Oltenia.

The relevance of analyzing the gross added value, resides from the fact that a positive evolution, ascending of this indicator, can lead just to the idea that value addition product encountered at regional level is a factor of sustainable development.

Table 2

The gross domestic product by industry

– million RON, current prices –

South - West Oltenia								
	2005	2006	2007	2008	2009	2010	2011	2012
GVA in Industry	7,144.8	8,335.9	10,130.5	12,168.0	11,869.0	12,385.3	13,300.8	14,539.2
GVA in agriculture	2,660	2,863.2	2,322.4	3,211.6	3,336.9	3,503.9	3,735.9	4,003.4
GVA in construction	1,686.3	2,280.3	3,156.8	4,590.8	5,179.6	5,720.6	6,339.2	7,034.0
GVA in services	9,863	12,110.8	14,970.9	17,978.1	19,645.1	21,210.7	22,881.6	24,760.9
Total GVA	21,354.1	25,590.2	30,580.6	37,948.5	40,030.5	42,820.5	46,257.6	50,337.4
PIB	23,920.5	28,589.2	34,168.0	42,064.9	44,329.3	47,340.9	51,003.1	55,383.1

Source: The table was made by the authors based on data from the Institute of Statistics and Forecast Center forecasts.

In developed economies, the production of high quality material and goods meet the new and diversified requirements. Individual and social needs, in continuum dynamics, determined the necessity of services development, faster than the diversification of goods. Mostly modern economy is producing and consuming services.

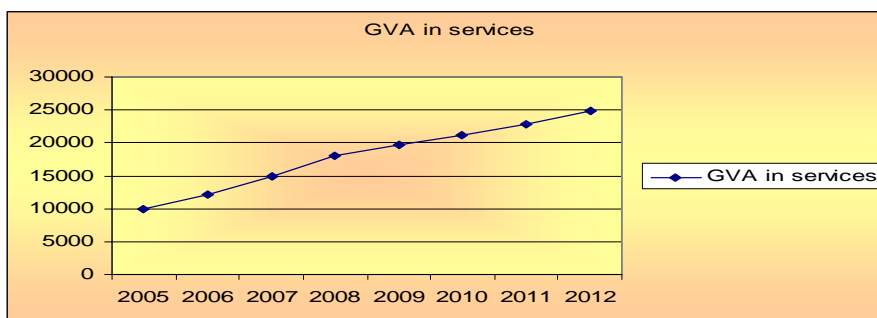
The dynamic of needs influenced the division of labor, considered by some experts, together with the dynamic of needs, another cause of the growing role of services sector in the economy (Badita, Cristache, James, 2005, p. 25).

On one hand, the division of labor develops collaborative relationships between suppliers of raw materials, producers of goods service providers, and on the other hand, deepens economic competition and struggles to gain a bigger market share.

In an economy based on services, there are produced complementary goods. Satisfying consumer's demand is based on both quality of services due to increased competition and the use of complementary goods. These phenomena are reflected on the growth the services have on the world's GDP. Developed market economies are characterized by a dominant and growing share of services in GDP, as a result of increased economic efficiency and sustainable exploitation of resources. In the South-West Oltenia, this tendency, confirmed around the world, is smaller, but present, observing a reduction of the secondary and primary sector for the services sector. Lately, in the South-West Otenia agriculture poulder in GDP dropped to approximately 7%, decrease which has been influenced by demographic phenomenas, labor migration and food imports. There has been also a decrease in the industry poulder in the creation of GDP. This decreasing took place due to economic inefficiency, which caused economic collapse in the industry. Under these circumstances, GDP percentage determined by services increased, representing at present moment almost 40%.

In this context, redefining the role and place of services in the current European market economy requires characterization of macroeconomic developments in this sector, independent and interdependent with other branches and sectors of activity.

Constant development of services of the economy in this era determines different specialists to intensify their efforts to define the concepts in this field, which is complex and dynamic (Badita, Cristache, James, 2005, p. 26).

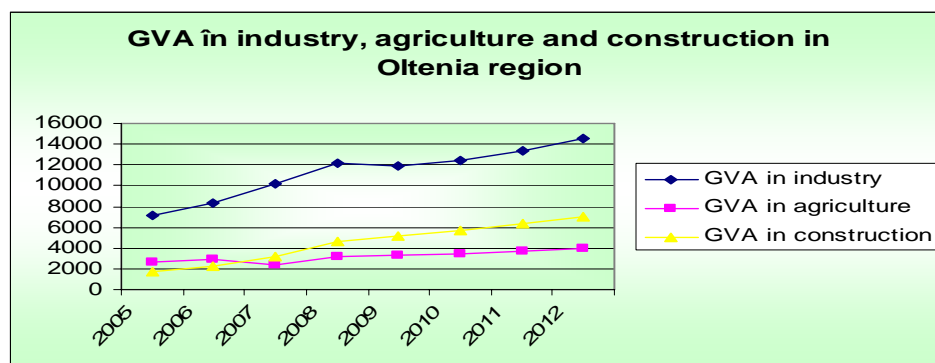


Source: Graph was made by the authors based on data from Table 2.

Figure 2. Gross value added in services

The graphical representation pinpoints that in South-West Oltenia the gross added value in services records the highest value, being on an upward trend in the period analyzed.

The positive evolution, ascending of this indicator, from 9863 million in 2005 to 21,210.7 million lei in 2010, can only lead us to the idea that addition product value registered in the services region is a factor of sustainable development.



Source: Graph was made by the authors based on data from Table 2.

Figure 3. Composition of GVA by sector in the South West Oltenia

In the second place in the region is industry. In this sector, there is a sinuous evolution of this indicator in the South-West Oltenia region, which tends to increase from 2005 to 2008 and in 2009 decreased by 299 million. This decrease induces the adoption of decisions having as priority restructuring in industry, adding the development and specialization of existing sectors by creating a special environment for innovative activities, stimulating new industries with ecological preference and skill-level adjustment of training and retraining human resources, which have to meet the rigors of the market and consumer's requirements.

Another economic branch of the South-West Oltenia which had a sinuous evolution in the period analyzed is agriculture. This represents a "special case" in this region, because in 2007 agriculture was affected by drought, which caused a decrease in crop production; livestock production has increased in the first quarter, but during the year has decreased, this aspect being indirectly caused by drought, by diminishing the amount of forage available.

Thus, the agricultural sector reduces its contribution to national GDP by 540.8 million lei in 2007 in comparison with 2006, being substituted by the significant increase encountered in the construction sector.

Last year, agriculture and constructions rose by 21% and 26%, resulting in growth of 7.1% of the GDP, while the industry had an increase of only 1.3%, the lowest in the past eight years.

Agriculture is at the beginning of a long and difficult process of modernization and restructuring, designed to lead to more efficient and better exploitation of the important agricultural potential of the region. Climatic conditions, topography and soil affect the development in this sector. Cultivation of cereals have the most favorable natural conditions in this region.

Sinuuous evolutions of this indicator in the region, but especially in the sectors of activity (production and services), should signal to the authorities the effects of economic crisis in these activity sectors.

Their application have as unique purpose elimination of the deficiencies and the introduction of sustainability based on “magic triangle” on economic growth, environmental protection, social cohesion, as a defining element on which all political and economic decisions are based on, regardless the level on which they are adopted.

Among the counties that make up the region, Dolj has the highest GDP, followed by Valcea, and the last is Mehedinți county.

Table 3

The gross domestic product

– million RON, current prices –

	2005	2006	2007	2008	2009	2010	2011	2012
South-West	23,920.5	28,589.2	34,168.0	42,064.9	44,329.3	47,340.9	51,003.1	55,383.1
Dolj	7,266.9	8,839.4	10,626.2	13,334.6	14,163.2	15,149.1	16,336.3	17,778.0
Gorj	5,120.1	5,984.1	7,045.4	8,518.1	8,865.9	9,449.3	10,156.2	11,010.2
Mehedinți	2,688.6	3,246.6	3,806.3	4,585.1	4,690.0	4,970.8	5,347.7	5,787.5
Olt	3,937.6	4,560.4	5,507.9	6,730.4	7,114.9	7,616.7	8,219.1	8,922.2
Vâlcea	4,907.3	5,958.7	7,182.1	8,896.7	9,495.3	10,155.1	10,943.7	11,885.2

Source: The table was made by the authors based on data from the Institute of Statistics and Forecast Center forecasts.

In the counties which constitutes this region, the highest economic and social contribution has the services sector, industry and last but not the least agriculture and constructions. In what concerns 2011 and 2012 is expected a GDP increase, but on the current socio-economic background there is unlikely that the expected growth to be met.

4. Conclusions

To overcome this crisis in the region it is needed the adoption of some decisions having as objectives the following:

- reducing the imbalances and the integration of public sector activities in order to arrive at an optimal level of development of the region;
- rehabilitation of infrastructure by identifying and taking advantage of existing potential not only in the region but also in every county in part;
- promoting comparative advantages, social programs established according to the specific region;
- restructuring industry, continuing with the development and specialization of existing branches by creating a innovative work environment;
- stimulating new industries with environmental preference;
- qualification-level re-adaptation of human resources, which must meet the rigors of the market however, user requirements.

Therefore, sustainable development combines sustained economic growth, preserve and improve human health, natural, social justice and ensuring democratic social ambience. In other words, sustainable economic development provides the consumer satisfaction without compromising or prejudicing those of future generations.

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The New and the Future Look of the Economy

Liliana CRĂCIUN

Bucharest Academy of Economic Studies
lilianacrăciun@economie.ase.ro

Abstract. *The global financial situation and our future economy remain vital concerns for us all. As a result, the government and the business community have to stimulate the economy and give it new dimensions. Virtually everyone agrees on the importance of the economy, but no consensus has or is expected to be reached soon as to the definition of the economy. Economy as a “discipline” is a concept torn apart by current economic crisis, where fierce competition, greed and consumerism will neither solve the crisis in progress nor will they rehabilitate the economy. It is true that the current economic crisis and the times of slower economic growth that will inevitably follow are old system-related symptoms of the excesses and the recklessness accumulated in time at global level, for which reason we see ourselves forced now to reconsider the options that are lay ahead and outline a clear future perspective.*

Keywords: global crisis; global economy; post-crisis economy; macromodels of budget planning; multidisciplinary; interdisciplinarity; transdisciplinarity; sustainability.

JEL Codes: B41, D23, D61, D63, K00.

REL Codes: 18D, 7A, 16A, 17A.

Foreword

The past decades have shown a tumultuous acceleration of historical-political processes that have brought about radical changes in the geopolitical sphere, which continues to influence the economy and the international relations to these days, while also impacting on the building of new global balances.

Despite these trends, autarchies has dominated the economic life of mankind from its beginnings and until the great geographic discoveries and the industrial revolution.

Economic “coagulations” have continued and intensified gradually, taking various forms, reaching nowadays to levels of inter-penetrability which some time ago were hard to imagine and turning into a factor of equilibrium at regional and international level. Current developments are confirming the old predictions about the inextricable link between the economic factor and international stability.

Adam Smith provided us with a wise prediction of how markets might someday go astray, and his novel idea that competitive markets would in time trigger the evolution of the public good, driven as they are by private profit-induced behaviour, appeared so enchanting in its aesthetic beauty that most economists could never go beyond the concept as such. Smith succeeded by what was later called “the bible of classical liberalism” to criticize and to give an insight into the economic problems. In short, Smith's theory is that the value of an asset is determined by the cost of production and that market price revolves around the natural price. But oscillations depend only on the supply and demand ratio. If the demand is lower than the supply, the market price decreases below the natural one.

The famous, “invisible hand” of Adam Smith helps harmonize individual interests with the general ones. Hence, the idea that the less the government interferes with the economic life, the better that government is. Smith’s work has transformed economy into a modern and academic science and his well-known metaphor of the “invisible hand” comes to reinforce the idea that each person indirectly influences in some way or another economy. By pursuing his own goal, an entrepreneur implicitly promotes his company’s goal as well, being led by an “invisible hand” that the entrepreneur does perceive as its own intention. When an entrepreneur in a market economy finds a way to cut down costs, the competition is forced to try to do the same thing.

We need to make a clear-cut distinction between economic vs. political spheres. Market participation and regulation are two distinct functions. Markets allow participants to engage in free trading. At this point, it is fully justified that

market participants should be driven by profit-making interests. In contrast, the making and enforcing of rules must be guided by considerations dealing with the public good. In this respect, the profit-making argument is inappropriate. That is true when people try to break the rules to their advantage and when the political process is corrupt and the representative democracy fails to produce the results that would turn the open society into the most coveted form of social organization.

We are now at a point in mankind history when the range of uncertainty is unusually high. We are experiencing still the worst financial crisis ever since the Second World War. This crisis is quantitatively bigger and qualitatively different from other financial crises. The only relevant comparisons are the Japanese real estate bubble that burst in 1991, a crisis from which Japan has not recovered yet, and the great economic crisis (the Great Depression) of the 1930's. The difference between the present crisis and the Japanese experience is that the latter struck one single country only; instead, this new crisis has swept the whole world off its feet. The current crisis differentiates itself from the Great Depression by the fact that the financial system was not allowed to collapse and was artificially nourished. In the midst of the deepest financial crisis since the Great Depression, the instability of the global financial system is quite obvious.

But this is not just a momentary instability: there have been several crisis episodes in the industrialized countries over the past two decades, numerous financial and monetary crises in emerging markets, with trade liberalization causing many poor countries more damages than benefits. The myth of the "new economy" has dissipated, corporate scandals have shown that favouritism and bad governance are more complex and more widespread than we imagine and that wealth is distributed more unequally than before and social fragmentation and exclusion have increased both in the rich and in the poor countries.

At present, organizations do no longer ask themselves whether they will be confronted with a major crisis in the future, but rather what type of crisis they will be facing with and how it will affect them. Development and implementation of an effective crisis management plan is vital. The main objective of economic crisis management is to provide accurate and true information as fast as possible for the external public affected by the crisis.

To come out of the crisis, many countries worldwide show a tendency whereby the state chooses to intervene on the economy. Although to some point this could be a saving solution, the state should, according to economic theory, stick to its role mainly on the social and welfare fronts. By remaining active exclusively in the field of enacting the strictly necessary regulations and

ensuring the general regulatory framework, the state could avoid its “natural” propensity to taint the markets, the competition and ultimately the modern democratic system itself. Although a consensus has not yet been reached on the “best state”, research on the assessment of the dimension of the state will prove useful in the future.

While we have in place an effective crisis management team, in order to have an effective communication plan as well, we need knowledge about such plan or about crisis simulation. Governments should consider very carefully the crisis management process and they need to simulate similar cases, to make sure that we will be well-prepared in case of crisis. Financial crises rarely strike right out of the blue; most of the times, a financial crisis begins only after a real shock has slowed down the pace of the economy, so the crisis actually serves as a speed-up mechanism.

In any society, the government will try to maintain order and economic growth. Economic disorder leads to social disturbances and political change. Lack of economic growth leads to unemployment, which in turn generates anxiety. Most modern governments take an active role in managing their economies by means of economic policies. The purpose of such policies is to maintain a stable currency and economic growth.

But markets would only respond to the needs of individuals, and not those of social decisions. Individuals are allowed to engage in free exchange of goods, but they are not allowed to make social decisions such as establishing the rules that should govern the society or the rules on how market mechanism should work.

The biased character of state involvement derives from the fact that the state is not an abstract concept, but an economic unit represented by civil servants. These officials have their own views on the involvement of the state, which are often subjective, even if they are based on economic reality. In addition, other economic units will respond in their own way to the actions taken by the state, which enhances bias.

Government programs are pursuing multiple objectives. If the only target of the government were to redress market failures, then the government would be faced with difficult technical problems such as, for example, with how to abate pollution.

But the biggest problems occur when the government is expected to compromise between two different obstacles, especially between boosting market efficiency, while promoting equality. Normally, economic periods have an asymmetrical shape. Economic boom is long and diffuse; it starts slowly, accelerates gradually, then flattens and slows down during the decline. Disappointment turns into panic, climaxing into financial crisis. A new model

of economic growth should ensure the channelling of resources more towards production of exportable goods and services, the so-called tradable, thus satisfying better the domestic demand, while crediting should be sustained rather from internal savings.

The future economic theory should be based on two basic principles: 1) economic laws have demonstrated their long-term validity, 2) the large number of rational economic agents. It seems however that during the period before the crisis these two principles were seriously violated. And economists are not to be blamed for that, though we must nevertheless admit that economists have to a large extent been caught unprepared by the current crisis, as their prediction methods and models proved inadequate and unfit to the new depression and, in particular, to its rapid expansion due to the so-called globalization.

In a widely accessible formulation, economic growth policy means the actions taken by state to increase the GDP over a longer period of time. It is actually a matter of resource allocation, which shows several features: establishing long-term development targets – which enables increase in the quality of life; identification, orientation and sizing the products required to achieve targets – which takes place by complying with certain principles: enhancing the capacity to assimilate high-end technologies; economic rationality of minimum input with maximum results; equity between generations in terms of resources, maintaining the balance between immediate and long-term effects of the economic growth.

The essential criterion for the future of the economy is long-term improvement of life quality. The dispute over the state interference in the economy has been resolved, yet the problem now arising is to what extent and how the state should intervene to attain the desired results. All these issues must be seen and solved in correlation with market mechanisms.

The first efforts have materialized at theoretical level when the traditional theory of economic growth based mainly on extensive use of inputs and resources have caused incompatibilities in the ratio between resources and goods and between the welfare of the present and that of the future generations.

Extreme social polarization, now present in all the countries, coupled with educational and informational gap, have become a source of instability at national and even global level, and malfunctions can no longer be fixed by “traditional recipes”.

Fiscal policy, alike the monetary policy, can be used to increase total demand and production in the short run. Both types of policies can be used to discourage the growth in demand when inflation threatens to rise. But these two policies do more than just change the total demand volume. Because they have different impacts on investments, they may have different long-term effects on

the economy. A monetary growth lowers the real interest rate, stimulating investment. In contrast, tax increase reduces national savings, increases real interest rates and decreases investment. Using fiscal policy to stimulate economy by reducing private investments could have harmful effects on future potential output.

Financial stability is a natural condition for a financial system dedicated to a productive investment, in contrast with the inherent instability of a financial system based on credit granting, predatory actions and speculation. We need to create a new financial system, capable to provide financial services to meet community needs in the choices it has to make.

Economists are studying these choices by applying different models. Most economic models have three common elements: insufficiency, cost, marginal analysis. These three concepts make up the basis onto which the economy is built.

Insufficiency: Most people want more than they can actually afford. That is the essence of insufficiency: people wanting more than they can afford to get with their own resources.

Choice: Insufficiency prompts people to make choices. When a good is in short supply, people are forced to choose between the needs to satisfy first and the needs to be left unsatisfied.

Opportunity cost: When a good is in short supply, choosing to use a good in a different way is to give that good a different destination. The value of the good that people choose not to use any more represents the opportunity cost.

In the self-organizational cycle of the economy, the basic processes are autocatalytic, being oriented towards producing more and more capital starting from an initial volume of monetary capital. The factors influencing this process can be grouped into: personal (physical abilities, skills, knowledge, experience etc.), social (technology, science, volume and efficiency of production inputs, cooperation, forms of labour division and methods of organization) and natural. The driving forces in economic growth can be seen only in their relation to the workforce. The system can never be reduced to its component forces, because the system is more than just the sum of its component parts. Consumption, distribution and production are resumed continuously, simply because the economic processes are cyclical.

In order to solve the new global issues, new forms of global regulation are required, based on solidarity, sympathy, cooperation, respect for human rights etc. A united world society can be an alternative to globalization.

Since modern society is a system based on dynamic accumulation processes (of money and power), generating the tendencies towards unlimited

concentration of capital and power, a direct, network-like democracy is needed to counteract the drifting towards totalitarianism.

What will be the new look of the economy?

Economic science is likely to suffer significant changes in the aftermath of the present crisis.

Trends in the economy should relate to:

- development of macro-models using high frequency statistical series (quarterly or even monthly macro-models);
- development of more advanced models for simulation of public debt and deficit sustainability;
- use of non-linear modeling and multiple equilibriums for early detection of the entry of fundamental macroeconomic variables into highly unstable areas (where very small variations in some fundamental or status parameters can attract the economic system towards regimes characterized by irregular cycles, the so-called multi-cycle regimes, by high fluctuations and even chaos);
- development of more refined multiannual budget planning models etc.

Conclusions

Even the most optimistic economists admit that we live in an imperfect world, faced with much too many injustices, inequalities and inequities. We continue to witness to an increase of the international turmoil, with the world beset by many crises, including structural ones, by violence and armed conflicts, famine and diseases, pollution and imbalances. There is however still hope that mankind will eventually muster its resources to overcome crisis. Each country has its own strategy for adapting and restructuring its workforce in times of crisis or major economic changes.

Since globalization has been invented to describe the importance of the growing international market and interdependent global economy, many tend to look at international markets and international financial transactions as to some novelty. In any case, globalization covers more than just a free market amongst nations.

Government should implement a national policy through action programs designed to prevent unemployment and inflation, generate new financing sources and encourage investment and global involvement.

Modern economies and societies need regulations and public policies, for the public goods to be adequately supplied and the negative externalities to be effectively prevented or minimized. This requires the public sectors to operate

in an environment based on free allocation of resources (at market prices) and a vibrant economic competition.

It goes without saying that public sectors need streamlining, lest public resources should be wasted. We also need a moral compass, without which everything gets stuck sooner or later.

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The Spread of Economic Ideas among Romanian People. Case Study: Alexandru D. Xenopol

Angela ROGOJANU

Bucharest Academy of Economic Studies
angelarogojanu@yahoo.com

Liana BADEA

Bucharest Academy of Economic Studies
badea.liana@gmail.com

Laurențiu-George ȘERBAN-OPRESCU

Bucharest Academy of Economic Studies
george_laur_serban@yahoo.com

Abstract. *Alexandru D. Xenopol (1847-1920), a leading figure of the Romanian intellectual tradition of the turn of the century – academician, economist, philosopher, historian, educator, sociologist and writer – has remained in the universal cultural memory as a tireless promoter of the economic empowerment of the Romanian inhabited territories. Encyclopaedic, visionary and lucid mind, Alexandru D. Xenopol dedicated his work to searching the elements of the compatibility of the Romanians with the modernity and globalization in the cultural, educational and economic history of our people. Alexandru D. Xenopol has not remain unnoticed; scientists of this country, such as Nicolae Iorga, paid an homage to his great intellectual value: "educated in the best traditions of the economic school of the mid nineteenth century, and above all, a man with a philosophical mind, comfortable with abstractions and with an endless love for subtle links between them" (Iorga, 1975, p.190). The purpose of this paper is to highlight the importance of the spread of economic ideas in shaping the Romanian economic development stage.*

Keywords: economic education; industry; institutions; protectionism; economic emancipation.

JEL Codes: B00, B31, I20.

REL Code: B31.

Introduction

Certainly, the work of Alexandru D. Xenopol enriched our cultural heritage, but also the universal one: “Author of the first great synthesis of our national history, a classic work of reference, used even today because of its huge scientific documentary material introduced into the scientific circuit in a philosophical interpretation with a strong materialist character; member of the Romanian Academy and awarded by the prestigious French Academy for one of his works published at Paris, A.D. Xenopol gained an important place in the history of our economic thinking through works specifically dedicated to issues of the second half of the nineteenth century” (Murgescu, 1987, p. 334).

More than other intellectuals of the time, Xenopol drew attention to a fact which was not given a sufficient attention: “always a people's intellectual brilliance was like a flowering of its material welfare” (Xenopol, 1967, p. 79). Concerned in unleashing the energy boost of the intellectual potential of Romanians, Xenopol showed in a scientific way that between the material and the intellectual wealth of a nation there is a relatively unbreakable relations, where the “financial issue is the mean and the necessary condition for providing the development of the scholar” (Xenopol, 1967, p. 79).

What was the chance in the late nineteenth century and in the early twentieth century of a people who cut his way to the modernity following the example of some Western countries, meaning starting with from the beginning – the modern state formation? Sceptics, disguised as patriots, who by the number and occupations dominated the public opinion, sustained with all their power the status of a eminently agricultural country. Alexandru D. Xenopol, who after his father was half Anglo-Saxon, could be accused of anything, but not of xenophobia. Conversely, the great historian rose not against some temporary ideologies, but against the propaganda clichés of the interests of landowners, dominant in the Romanian economy at that time.

Alexandru D. Xenopol prevails in the Romanian economic way of thinking by the civilizing vision on the economy: “Our life today demands to facilitate her game, a lot of items that need a lot of work both physical and intellectual in order to product them: pavers, roads, telegraphs, bridges of iron, in a more material order; schools, teaching establishments and museums, gardens, maintenance of a strong army in a moral and intellectual order. These all need to be made by the state and municipalities, which have to have significant material resources; if such needs cannot be met, the people is left behind on the path of culture, thus meaning the existence of a state of barbarism compared to the most advanced nations” (Xenopol, 1967, p. 79).

The economic conception of Alexandru D. Xenopol remains a scientific and moral landmark in the Romanian and universal history of economic

thought, although its theoretical eclecticism, a mixture of classical liberal principles and the ones of the German historical school, seems a rather desperate solution to the problems of Romania in the process of the full modernization. Under the influence of ideas of Friedrich List and Henry C. Carey's, but other economists too, Alexandru D. Xenopol contributed greatly to the spread of economic ideas in Romania in the second half of the nineteenth century. In the published books, pamphlets and articles and in public speeches, Alexandru D. Xenopol tirelessly advocated for the cause of agrarian countries, showing that they are delayed in their economic development, exactly like in the case of Romania at the time: "any nation that tends to prosperity must first secure a material basis on which to raise its prosperity" (Xenopol, 1967, p. 80).

Its economic arguments imbued with national accents, sometimes exaggerated, are also to be found in the work of other authors of the time (such as Marțian or Aurelian). In the introductory study of "Opere economice", Ion Veverca summarizes the considerations regarding the scientific prestige of a great scientist: "His contributions and economic views place him among our most representative economists of the second half of the nineteenth century" (Veverca, Xenopol, 1967, p. 7). The force of the economic ideas which he argued for the emancipation of Romanian economic and industrial profile was emphasised in a capitalist-industrial vision, and "from this point of view, along with Marțian, Hasdeu, Kogălniceanu and Aurelian, Xenopol may be considered as one of the most representative protagonists of the need to develop the Romanian industry in the second half of the nineteenth century" (Veverca, Xenopol, 1967, p. 53).

Agrarian countries and industrial countries

In a globalizing world, the voice of Alexandru D. Xenopol remains one of the most powerful at the prospect of the eternal agrarian perspective of any country, in general, and in case of Romania in particular. His harsh reaction to the status of "agrarian country" concerned the supporters interested in maintaining the status quo; although the fact was obvious, it required further explanation regarding the economic and political implications, to indicate "the exorbitant degree of our lives hanging on foreign peoples" (Xenopol, 1967, p. 80). The saying "Romania – an eminently agricultural country" was „finally compromised in our economic literature of the time”, because "Xenopol was not content only to state a position of a predominantly agricultural country in case of Romania, to analyze the resulting data, to determine the many shortcomings to which Romania was exposed because of this, but he failed to fight with intransigence the tissue orientation that advocate for maintaining the agrarian position, denouncing the serious danger that threatens, using his words "threaten the very life and our existence" (Veverca, Xenopol, 1967, p. 53).

Naturally, Xenopol started his analysis from the assessing of the economic potential of Romania at the time, trying to identify the vulnerabilities and the targets of economic development: “What produces our country? Gross things, not very well manufactured objects, and in their production process the nature is more active than the man, while the last one only helps and facilitates the production process. And what is the man role in the animal breeding? Merely to give them some care. What does the man even in the agricultural production? He is able to put the seed to germinate: its growth and tightening remain completely at the mercy of chance, and the farmer after entrusts his fortune to the earth, is turning to the sky an eye full of care and expect the rain and the winds to establish the fate of his wealth” (Xenopol, 1967, p. 80).

Based on existing statistical data from several sources, Xenopol indicates the formula of Romania's foreign economic exchanges: “Raw materials from our country are directed towards foreign countries, where, turned into valuable objects, are returning to our country” (Xenopol, 1967, p. 80). Xenopol accuses the industrial countries of Europe in practicing a vicious circularity of the export and import activities, from where it results an enslaving dependence on the advanced countries, an addiction that went up in the details of everyday life.

For instance, the sheep's wool went to Transylvania, from where it returned in the form of clothing, the animal skins were exported to Germany and France, then the Romanians imported them as footwear, and “our cattle bones returned as matches, the hemp as ropes used to bind the horns of oxen and it was the same story in the case of so many items returning to the country; thus we are dressed from head to toe in foreign objects, we are eating using foreign dishes, we are travelling in foreign carriages, we are using foreign furniture in our homes, we are covering our eaves with foreign tin, the windows we look through are foreign, thus we do not really know what is Romanian in our entire life, especially if we take into consideration the alienation of the language, the growth (education, n.n.) and customs” (Xenopol, 1967, p. 80).

Alexandru D. Xenopol's conclusion leaves no room for any doubt: “We are an agricultural country and therefore we produce only raw objects and introduce valuable objects from the foreign manufacturers. Many believe that this is very good and that we must keep this stage of development. We believe that here is the vice of our entire development, the danger that threatens our very life and existence” (Xenopol, 1967, p. 80). The dangers to which an agricultural country was exposed identified by Xenopol are similar to those that contemporary authors use to characterize a precarious economic situation of emerging countries that are not finding inside them a foothold for a sustainable development.

▪ *The first danger* is resulting from an unfair exchange ratio: “an agrarian country will sell cheap and buy expensive necessary items for living”; Alexandru D. Xenopol, the author of “historical series” generalizes the trends

for every place and every time: “A community of people dealing only with agriculture and bringing all other needful items from foreign countries will be put into harmful dependence on their markets. That country will produce in abundance wheat, barley, rye, so it will seek to sell its surplus abroad and with the acquired means (money) to meet its other needs (clothing, luxury, travel, parties)” (Xenopol, 1967, p. 81). The trend to increase the transportation costs in relation to the market distance influenced differently the return price: the prices of the exported agricultural products were lower as the distance was greater, while those of imported industrial products will always be bigger. His conclusion claimed the unequal exchanges as a reason for the disadvantages an underdeveloped country had to face, but denied all the theories and practices concerning the trade issue, “that country will be forced to buy expensive and sell cheap items necessary for living, so in time it will lose money, the import amount surpassing the export one”(Xenopol, 1967, p. 84).

▪ *The second danger* was represented by bureaucracy, excessive politicization and “the forging of democracy” as direct consequences of conserving the agriculture as a “principal occupation”. Moreover, in the absence of the occupational diversity, common in industrial countries, there were no grounds for possible democratic or social, or cultural emancipation and “democracy in that country will be a big lie.” (Xenopol, 1967, p. 82) At a time when in many parts of Europe people’s appetite for democracy appeared, the economic backwardness was the ground for “political and bureaucratic parasitism”. Typically, the arguments were up against the national interest and the personal interest, “God forbid a country where votes are divided between peasants who do not know to whom to give it, and landowners who give the vote in function of their agricultural interests and officials or aspirants to functions who give it for their personal interests” (Xenopol, 1967, p. 83). The conclusion reached by Alexandru D. Xenopol reveals that “because occupations are not varied, there will not be solidarity of interests between the members of that nation and the whole class that does not deal with agriculture will be interested in the state budget, creating a dangerous wound of clerks” (Xenopol, 1967, p. 84).

▪ *The third danger* reflects a dramatic demographic picture, showing the direct effect of “the farming life”: the continuous decrease of the population. Thus, Xenopol wrote: “In an agrarian country, people will live very badly and their reproduction will be prevented to the extent that they will be deprived of their basic needs. Two particular cases will contribute to the decline: bad standard of living and bachelor life” (Xenopol, 1967, p. 83). The absolute poverty of population was the poverty of all: “The peasants being poor, like communities, will not be able to satisfy the needs of the congregation: roads, bridges, schools, doctors, veterinarians. Housing of the farmers will be the worst (poorest) and will not be heated in winter, thus the peasant will have to

replace the heat with alcohol (alcoholic beverages), the heat being thus obtained from his body” (Xenopol, 1967, p. 83). However, the growth, care and education of children were compromised and the worrying mortality showed the long distance to civilization. In the city, the emancipation induced by urban life and job insecurity makes many young people to prefer celibacy to marriage. All this “will put the knife even to the existence of the people, who is diminishing as number of citizens, the cause of this phenomenon being the poverty of people” (Xenopol, 1967, p. 84).

The differences between agrarian and industrial countries are examined by Xenopol from the perspective of the gain resulting from a good production in the first case and from its processing in the second.

Who wins in an agricultural country	Who wins in an industrial country
<ul style="list-style-type: none"> ▪ the owner of the sheep ▪ the shepherd ▪ the one who transports the goods ▪ the merchant 	<ul style="list-style-type: none"> ▪ all those who turn it into fabrics (the laundry, the weavers, the painters, the paper and accessories manufacturers, the carriers, the merchants etc.).

Figure 1. A certain quantity of wool produced in an agricultural country and processed in an industrial country

In a metaphorical conclusion, Alexandru D. Xenopol captures the absolute advantage that industrial countries have compared to the agrarian ones: “While in an agricultural country *one* wins, in the industrial country *a thousand* wins” and “while in the industrial country everyone wins more, in the agricultural one everyone wins little” (Xenopol, 1967, p. 85). Furthermore, the absolute difference shows two very important things: first, “one nation can prosper only proportionally to what it produces” and second, “the issue of the industry in a country is not only a matter of gains, but also a matter of civilization” (Xenopol, 1967, p. 86). The obsessive concern for the development of the industry is one of the most important concerns of Xenopol, a fact underlined by the exegetes of his work: “None of our economists from the nineteenth century, who have militated for the development of the industry, succeeded to emphasize more strongly than Xenopol the multiple shortcomings that Romania has because of the situation of being declared an agrarian country and none of them succeeded to plead with more solid and broader arguments in favour of some urgent measures to encourage the development a national industry” (Veverca, Xenopol, 1967, p. 53).

The operating mode of working the land, primitive and poor, which induced a way of life founded on a principle “which is interesting for us is to be much, but not good”, was a natural result of a disjointed development, not productive and uncompetitive. The result of this situation was summarized by Xenopol in a few ideas, which emphasize the major difficulties in relation to markets:

▪ *Lack of industry*: “An agricultural country will be hampered in the exploitation land by the lack of industry itself” (Xenopol, 1967, p. 87), which is mirrored in the variety of crops, “industry is necessary even for the prosperity of agriculture” (Xenopol 1967, p. 89).

▪ *Lack of competitiveness*: “a country with so bad crop can only give very poor results even when we speak about hard work” (Xenopol, 1967, p. 87), and the result is disarming: “regarding the quantity and the small price, we cannot compete with any other agricultural country” (Xenopol, 1967, p. 87).

▪ *A disordered economic action*: “cutting almost all forests, the natural balance was broken regarding the rain and drought, and now we have some years too rainy, some others too dry; thus the nature revenges the disobedience or contempt of its eternal laws”, “the introduction of the iron road in our country meant the greatest threat to our forests, which was represented by the total eradication, thus shaking the atmospheric equilibrium” (Xenopol, 1967, p. 90).

▪ *An old way of working*: For example, “managing the cattle is similar to the wild state, their use as civilized state” (Xenopol, 1967, p. 93); “cattle in our country is one of the most defective. It requires a lot of work and a small production; but the cattle are badly cared for in order to meet the first requirement or the other” (Xenopol, 1967, p. 87).

▪ *Protecting the local industry through internal and external protection*: the internal one supposed a paradoxical and ineffective solution: a preference for the Romanian products, which had a poor quality and were more expensive than the foreign ones. Therefore, the state should impose the use of indigenous products primarily in public institutions, and then to generalize it to indigenous consumers.

The background observation, valid for Xenopol, but for us nowadays, sounds rhetorically: the state, the government or the parliament has as a purpose for the Romanian people a better life or a more expensive one? However, the historical experience of Romanians shows that such solutions are not productive simply because they require the abandonment of the search for initiative. The exit from the trap of the fear of foreigners existing in the collective mind is not completely even today. Now, as then, what is good and happens to us is because of us, and everything bad that happens to us is because of foreigners, no matter who they are. According to the studies of Xenopol, in Romania at that time, there were four major industries (leather industry, drapery industry, hemp industry and paper industry) and some small industries, insufficient to meet the domestic demand and to exit from the economic delay traps.

The transition from the state of a poor country to a rich one could not be done unless the activities in agriculture were emancipated and the development of the industry, sine qua non conditions of the economic, social and cultural prosperity. Indeed, a poor state cannot claim to improve the welfare of its

people by redistributing poverty, but can create the conditions for increasing wealth, which “cannot increase in a nation than refining it to work. Hence the need for industrial development is necessary” (Xenopol, 1967, p. 190).

In the Xenopol mind, the industrial development policy gives the preference to large industrial factory, an industry that is involving the capital. Even today, the capital issue is not simple, but then it was particularly difficult. Despite the evidence, Alexandru D. Xenopol was confident that something could be done: “even if we do not have important capitalists, this does not mean that we cannot easily find the needed amounts to set up a factory” (Xenopol, 1967, p. 180) Xenopol's optimism for identifying some sources of capital should be appreciated; unfortunately he was not confirmed by the evolution in the next century. Xenopol's attention moved toward two directions: first – way of association, namely, joint stock companies, ”we remember the significant capital from the national insurance companies compiled by “Dacia” and “Romania”, by the discount and circulation Bank, housing society and credit building society” (Xenopol, 1967, p. 180). The fear of foreign capital is explained: Xenopol, like other economists of the period, starting from the enthusiasm generated by the political independence, was confident in the creative potential of Romania, keeping at a long distance what was coming from abroad.

Trade

Xenopol has a limited understanding of the importance of the trade in a country's economic development, considering it beginning “less important than the industry and the agriculture” (Xenopol, 1967, p. 122). Like other thinkers, Alexandru D. Xenopol keep the millenary bias that the trade harm the morals of men. Xenopol, himself a xenos, has the same reaction considering the traders (foreign) of Romania at that time, as he wrote: “But what is sad and saddest in our country is that almost all traders are foreigners, so that the foreign countries sucks not only a great tribute to industrial products, but even they benefit by the fact that these objects are not sold in our country by Romanians, they are sold only by foreign people, who respect the trade's principle “buy cheap and sell expensive” (Xenopol, 1967, p. 123).

In what concerns the foreign trade, Xenopol considered it a necessary evil. Xenopol has a very special vision of economic relations with other countries; although beneficial in the overall economy, the foreign trade is considered as destructing “the finest work of the people”, in fact the domestic industrial economy. Certainly, domestic industry has decreased in size with the diminishing of the natural economy and with the growing competition in the case of the emergence of industrial products. Thus, as Xenopol claimed, the appearance of the rail transport was the means and not the cause of the decrease of the interest in domestic economy. In the last quarter of the nineteenth

century, amid the general economic boom, the acquisition of the state independence it was a natural thing for the Romanian economy to record positive developments in the economic relations with other countries. Not always the increases in some areas were real. An interesting observation made by Xenopol shows an increase in both import and export, but the latter increase was due largely to the increase of prices of exported products: "Our export turnover is more significant especially because of the prices climb, and not of the increases of our productive activity" (Xenopol, 1967, p. 152). Boosting the trade is a way of procuring the means of payment to support the imports and the domestic formation of the capital. Xenopol launched some ideas about money that essentially shows a high degree of economic penetration of their meaning: "Money cannot come to a country other than as a replacement value of consumption. It follows therefore that in order to have money in a country, one must have the middle to attract it, because money does not come, waiting to be called. But money is the nerve of wealth, while others are only the means to reach him; thus you can see from this how dangerous it is for a country the phenomenon of giving towards foreign countries bigger amounts than those who are received. In other words, it is dangerous to leave the trade balance over time in favour of imports" (Xenopol, 1967, p. 191). Moreover, when you do not have money, you should know how to earn it!

Education

The classics of economic theory advocated in various ways for a minimal state focused on infrastructure, individual safety, independence of the judiciary system and education, convinced that a rich state must have educated citizens. This great truth is shared by Alexandru D. Xenopol, but also by all the Romanian economists of the time. The economic social, political and cultural emancipation at the time was negatively influenced by the "wrong instruction of people". All started from the obsolete view that prevails in the school education; the school really produced educated people, but unskilled, therefore useless for the Romanian economy or for any other economy in the world. The educational activities were improperly developed for modern times, thus is why Xenopol warned: "Our school system is generally made so as to give the country's bureaucrats and officials."

With an unmanageable ironic tone, Xenopol sanctioned the old bad habits of education: "From the village school to university, people are taught in our schools to handle up the pen" in order to get into any office "What our schools produce? aspiring to posts, and nothing more"; "the great danger is that through such a training even the lower class of people evade from productive occupations and learn to live as parasites at the expense of the state" (Xenopol, 1967, p. 103). The harsh criticism of the school who is oriented predominantly towards a humanistic instruction, the lack of vocational schools, the lack of technical universities, and the

fact that “what is felt in our country is the lack of suitable schools for the needs of the country, schools that make a tiller from the farmer boy, but an intelligent tiller” (Xenopol, 1967, p. 103). contributed to the continuous adjustment of the educational system in process of searching the best options.

On this occasion, Xenopol evokes the personality of Dionisie Pop Marțian and his ideas: “instruction in our country is vicious; from the very beginning we feel a great satisfaction to have the only true economist Romania ever had, Dionisie Pop Marțian, the one who from a long time ago, seeing the evil that threatens us, emphasized the need to guard ourselves, but as all the really benevolent voices in this miserable country, remained without any response” (Xenopol, 1967, p. 103).

State

State, with the authority conferred by the laws of the country, was the fundamental institution in producing and distributing the wealth. Reviewing the systems for generating wealth, Alexandru D. Xenopol explains his commitment to the state seeing as an arbiter: “in a state economy there can be applied two systems to produce wealth. The first means the state can mix as little as possible in the activity or to say otherwise is beyond the economic game of power, and the second, where the state is preoccupied in the supreme leadership of the economic interests of people not as a producer, but as a straightened” (Xenopol, 1967, p. 95).

Although he had not addressed issues contained in the general economic theory, Xenopol made some references when he has justified the incompatibility of economic policies resulting from the doctrine of free trade with the Romania's economic backwardness. The first principle, *laissez-faire, laissez-passer*, as Xenopol said, was applied to the more civilized states where agriculture, industry and trade are flourishing. The precarious economic situation of Romania in the second half of the nineteenth century required the state intervention, as a promoter of national interests, in supporting the private initiative of state and individuals. The main arguments in favour of such positioning resulted from several circumstances, including: the insufficient production in the case of industries (small), insufficient concern of the state for the economic interests of the country, as the state was “the highest representative of society” and what is the main activity of the state after all? “Spends more and produces less, and so is the government, which every year increases the budget spending without thinking in the means to increase the revenue”; the state “spends like a civilized state, maintaining a lot of luxury issues that might be missing and the production on which is based its cost is not much higher than that of a barbarian people! We have the zulu wealth, and we want to live as Englishmen. This does not work! and that is why we see that all our governments used the same means to procure their money: make loans or sell the assets of the state” (Xenopol, 1967, p. 112).

Xenopol noted the absence of the entrepreneurial spirit; saving was not one of the Romanians characteristics, “many families are economically living in our country”, “to live economically when you are poor is not a merit, because your needs are the ones that makes you to do so, not the trends”. “The merit would be there where you have the means to live and you apply the savings principles, when you have a surplus over your needs, surplus that instead of spending it for the satisfaction of the need of luxury, you save it until you take it as a source of enrichment” (Xenopol, 1967, p. 112).

The state would fulfil its mission when it assumes an industrial development program, guaranteed by the authority of institution and also being the guarantor of the national industry, which it offers a gradual internal protection. Xenopol himself successively proposed and supported a large-scale industry development program, the program to encourage small industries and those industries related to agriculture; Xenopol talks about the practice of *laissez-faire*, *laissez-passer* policy inside the country and about the protection of domestic production.

The means that the state could use to boost the industrial development are related to:

- First, reforming the education system by reducing the number of schools which increase the number of clerks and increasing the number of those who create people for the productive employment;
- Secondly, to encourage all industrial occupations (scholarships abroad to learn how to develop certain activities, loans for those who want to make their own business after finishing school, competitions, awards of excellence);
- Thirdly, the adoption of a law of the state concession of some industrial activities, coupled with the removal of abuses.

Starting from Alexandru D. Xenopol revealed affinities, from its militancy; he was associated with liberalism, while he sustained the liberalism without *laissez-faire*, with a direct and vigorous state intervention in favour of private initiative industry.

Undoubtedly, in the intellectual tradition of Romanians, the work of Alexandru D. Xenopol exercise a continuous interest and “in the history of economic thought from Romania, Alexandru D. Xenopol plays an important role among the most important economists of the second half of the nineteenth century, followers of the development of the national industry and of national economy through a policy of active intervention in the service of the state in order to strengthen the country's political independence” (Veverca, Xenopol, 1967, p. 72).

The efforts of economists of that period, to propose viable solutions, based on criteria more or less economic, have not attracted the political support they needed it. Over time, many projects were started and abandoned or changed

immediately when the political regime or political affiliation has changed. Unfortunately, after an economic history of one hundred and fifty years, Romania is placed among countries with large gaps in their economic development.

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Using Quantitative Data Analysis Techniques for Bankruptcy Risk Estimation for Corporations

Ștefan Daniel ARMEANU

Bucharest Academy of Economic Studies
darmeanu@yahoo.com

Georgeta VINTILĂ

Bucharest Academy of Economic Studies
vintilageogeta@yahoo.fr

Maricica MOSCALU

Bucharest Academy of Economic Studies
mari.moscalu@yahoo.com

Maria-Oana FILIPESCU

Bucharest Academy of Economic Studies
oanadicea@yahoo.com

Paula LAZĂR

Bucharest Academy of Economic Studies
lazar_paula@yahoo.com

Abstract. *Diversification of methods and techniques for quantification and management of risk has led to the development of many mathematical models, a large part of which focused on measuring bankruptcy risk for businesses. In financial analysis there are many indicators which can be used to assess the risk of bankruptcy of enterprises but to make an assessment it is needed to reduce the number of indicators and this can be achieved through principal component, cluster and discriminant analyses techniques. In this context, the article aims to build a scoring function used to identify bankrupt companies, using a sample of companies listed on Bucharest Stock Exchange.*

Keywords: aggregate indicator; scoring function; principal components; bankruptcy risk; company.

JEL Codes: C81, D22, G30, G33.

REL Codes: 9B, 11Z.

1. Introduction

The first major model in both financial literature and practice belonged to E.I. Altman, who published in 1968 its original form, known as Z-score function. Although seemingly simple, this model took similar effect on the risk of bankruptcy prediction as the famous Black-Scholes model has had on the evaluation of derivatives.

The model suggested by Altman is based on discriminant analysis, which is used to develop models of classification and prediction of observations belonging to certain groups determined *a priori*. To this end, the discriminant analysis builds a classifier based on a set of observations and indicators characteristic for these observations. In the case of Altman model the set of observations is represented by a number of companies classified by the author in solvent and insolvent, and the considered indicators are certain financial ratios based upon the financial situation of companies is analyzed.

Z-score function proposed by Altman is actually an application of a linear classifier (Fisher type), with the following form:

$$Z(r_1, r_2, \dots, r_n) = \alpha_0 + \alpha_1 \times r_1 + \alpha_2 \times r_2 + \dots + \alpha_n \times r_n,$$

where:

r_1, r_2, \dots, r_n = the rates used for developing the classification model;

$\alpha_1, \alpha_2, \dots, \alpha_n$ = the coefficients for each rate considered;

α_0 = the intercept for the classification function.

Based on the score of each company, it is performed the allocation to one of the two categories, namely the bankrupt companies or solvent companies. Also, based on the Z score it is estimated the probability of bankruptcy of the company.

Altman's original version of the model proposed in 1968 is as follows (Altman, 2002, p. 14):

$$Z = 1.2xr_1 + 1.4xr_2 + 3.3xr_3 + 0.6xr_4 + 1.0xr_5,$$

where

$r_i, i = \overline{1,5}$ are defined below:

$$r_1 = \frac{\text{Working capital}}{\text{Total assets}};$$

$$r_2 = \frac{\text{Retained earnings}}{\text{Total assets}};$$

$$r_3 = \frac{\text{Earnings before interest and taxes(EBIT)}}{\text{Total assets}};$$

$$r_4 = \frac{\text{Market value of equity}}{\text{Book value of total liabilities}};$$

$$r_5 = \frac{\text{Sales}}{\text{Total assets}}$$

Altman has defined three zones for classification of the companies:

- $Z > 2.99$: safe zone; the probability of bankruptcy is very low.
- $1.8 < Z < 2.99$: grey zone; the probability of bankruptcy is medium.
- $Z < 1.8$: distress zone; the probability of going bankrupt is high.

The original data sample consisted of 66 firms, publicly held manufacturers on the American market, half of which had filed for bankruptcy. Later on, Altman has re-estimated the model based on a date set of private companies, as follows:

$$Z' = 0.717xr_1 + 0.847xr_2 + 3.107xr_3 + 0.420xr_4 + 0.998xr_5,$$

where:

$$r_1 = \frac{\text{Working capital}}{\text{Total assets}};$$

$$r_2 = \frac{\text{Retained earnings}}{\text{Total assets}};$$

$$r_3 = \frac{\text{Earnings before interest and taxes(EBIT)}}{\text{Total assets}};$$

$$r_4 = \frac{\text{Market value of equity}}{\text{Book value of total liabilities}};$$

$$r_5 = \frac{\text{Sales}}{\text{Total assets}}$$

The zones of discrimination for Z' score are:

- $Z' > 2.9$: safe zone;
- $1.23 < Z' < 2.99$: grey zone;
- $Z' < 1.23$: distress zone.

There is a third version of Altman model, updated and extended, which has the benefit of usage for non-manufacturer industrials and emerging market credits:

$$Z'' = 6.56xr_1 + 3.26xr_2 + 3.72xr_3 + 1.05xr_4,$$

where:

$$r_1 = \frac{\text{Working capital}}{\text{Total assets}};$$

$$r_2 = \frac{\text{Retained earnings}}{\text{Total assets}};$$

$$r_3 = \frac{\text{Earnings before interest and taxes(EBIT)}}{\text{Total assets}};$$

$$r_4 = \frac{\text{Book value of equity}}{\text{Total liabilities}}$$

In this case the zones of discrimination are below:

- $Z'' > 2.6$: safe zone;
- $1.1 < Z'' < 2.6$: grey zone;
- $Z'' < 1.1$: distress zone with high risk of going bankrupt.

Altman's model, so used in financial practice, has found to be over 70% accurate in predicting bankruptcy (Stancu, 2007, p.787).

Another classification model, similar to Altman's, was developed by the economists J. Conan and M. Holder in 1979 and it is as follows:

$$CH = 0.24xr_1 + 0.22xr_2 + 0.16xr_3 - 0.87xr_4 - 0.1xr_5,$$

where:

$$r_1 = \frac{\text{Gross operating surplus}}{\text{Total liabilities}};$$

$$r_2 = \frac{\text{Permanent capital}}{\text{Total assets}};$$

$$r_3 = \frac{\text{Working capital} - \text{Stock}}{\text{Total assets}};$$

$$r_4 = \frac{\text{Financial expenditures}}{\text{Net sales}};$$

$$r_5 = \frac{\text{Personnel expenditures}}{\text{Added value}}$$

According to Conan-Holder model, a CH value equal to -0.21 means a bankruptcy probability of 100%, a score of 0.068 indicates a probability of 50%, and the CH score of 0.164 implies a bankruptcy probability of 10%.

2. Principal components analysis

We now intend to develop a scoring function similar to Altman's on a sample of 60 Romanian companies listed on the Romanian stock exchange to highlight both their financial strength but also their ability to meet the obligations. This way we took into account a total of seven economic and financial indicators for the activity of the companies (*total assets* – Activ total, *sales* – CA, *operating profit* - EBIT, *net cash flow from operating activities* - CF, *net profit* - PN, *total liabilities* – Datorii totale and *average market value* - CB.

First, we standardized the considered indicators. Table 1 shows the correlation matrix for the seven original variables. Obviously, the main diagonal elements of the matrix are equal to unity:

Table 1

The correlation matrix of the original variables

Variable	Correlations (baza de date + indicatori2010.sta)						
	Activ total	CA	Datorii totale	PN	EBIT	CB	CF
Activ total	1,000000	0,955671	0,904545	0,811757	0,883171	0,984581	0,864128
CA	0,955671	1,000000	0,967587	0,644614	0,741079	0,905970	0,803860
Datorii totale	0,904545	0,967587	1,000000	0,493520	0,608211	0,826175	0,686195
PN	0,811757	0,644614	0,493520	1,000000	0,990361	0,891671	0,839384
EBIT	0,883171	0,741079	0,608211	0,990361	1,000000	0,944330	0,876308
CB	0,984581	0,905970	0,826175	0,891671	0,944330	1,000000	0,899479
CF	0,864128	0,803860	0,686195	0,839384	0,876308	0,899479	1,000000

Source: own results.

The correlation matrix shows the close relationship existing between all seven variables considered, predicting a better representation of them in a substantially reduced number of new variables, principal components. The existence of strong correlations between the analyzed variables diminishes the individual significance of the latter, on the one hand, and highlights the existence of redundancy information, on the other hand: there is a significant amount of information dissipated in the connections between variables. In our approach, we propose to reduce the dimension of the initial causal space, and to remove redundancy information, and therefore we use principal component analysis method.

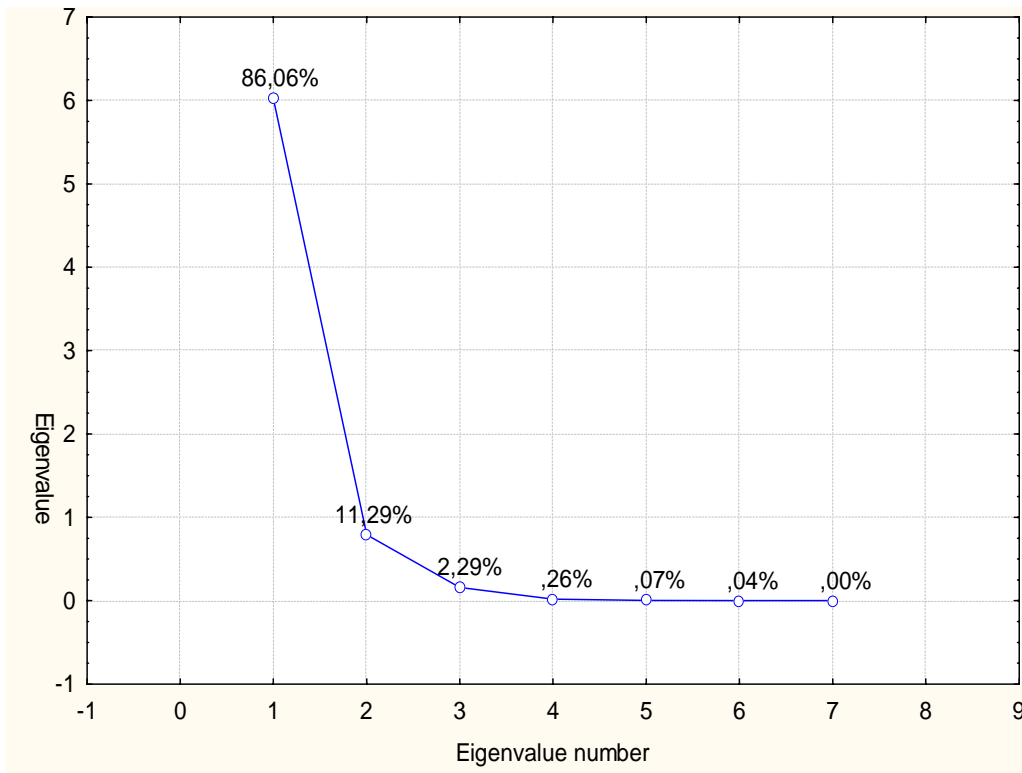
After the standardization of initial data, we present below the eigenvalues resulting from principal component analysis. It is worth mentioning that only the eigenvalues greater than unity are retained for only the principal components that have variance greater than the original standardized variables (mean zero and variance equal to 1) should be extracted, according to Kaiser's criterion. The results are presented in the Table 2.

Table 2

Eigenvalues of correlation matrix

Eigenvalues of correlation matrix, and related statistics (baza de date + indicatori2010.sta) Active variables only				
Value number	Eigenvalue	% Total variance	Cumulative Eigenvalue	Cumulative %
1	6,024163	86,05947	6,024163	86,0595
2	0,790360	11,29086	6,814522	97,3503
3	0,160099	2,28713	6,974622	99,6375
4	0,018130	0,25900	6,992751	99,8964
5	0,004561	0,06516	6,997312	99,9616
6	0,002558	0,03654	6,999870	99,9981
7	0,000130	0,00185	7,000000	100,0000

Source: own results.



Source: own results.

Figure 1. Eigenvalues of the correlation matrix

Note that only the first new variable thus formed has its eigenvalue – which is interpreted in terms of variance or informational quantity – greater than unity, so it is retained only the first principal component. The same decision can be taken based on studying the graph in Figure 1.

Once determined the number of principal components retained in the analysis, further testing will proceed to the interpretation of principal components.

We will continue by computing the factor matrix for the single principal component resulted from the analysis. The factor matrix is very important factor in our analysis because its elements (also known as the *factor loadings*) are correlation coefficients between original variables and principal components. The formula for an element of this matrix is:

$$f_{ij} = \frac{\sqrt{\lambda_j}}{\sqrt{\text{VAR}(x_i)}} \cdot \beta_{ij}, i=1, 2, \dots, n \quad j=1, 2, \dots, k$$

where k is the number of principal components retained in the analysis.

The previous formula gives the correlation coefficient between the original variable i and the principal component j . The relationship is based on demonstration of correlation coefficient definition. This can be argued by defining the correlation coefficient:

$$\rho_{x_i, z_j} = f_{ij} = \frac{\text{COV}(x_i, z_j)}{\sqrt{\text{VAR}(x_i)} \cdot \sqrt{\text{VAR}(z_j)}}$$

Transferring to a matrix, the previous equation can be written as:

$$F = VXW,$$

where X is the covariance matrix between the vectors x and w (the vectors of original variables and principal components) and V and W are diagonal matrix whose elements on the main diagonal are equal to the inverse of the original variables variance and, respectively, of the principal components variance, as it follows:

$$V = \begin{pmatrix} \frac{1}{\sqrt{\text{VAR}(x_1)}} & \dots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \dots & \frac{1}{\sqrt{\text{VAR}(x_n)}} \end{pmatrix}$$

$$W = \begin{pmatrix} \frac{1}{\sqrt{\text{VAR}(z_1)}} & \dots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \dots & \frac{1}{\sqrt{\text{VAR}(z_n)}} \end{pmatrix} = \begin{pmatrix} \frac{1}{\sqrt{\lambda_1}} & \dots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \dots & \frac{1}{\sqrt{\lambda_n}} \end{pmatrix}$$

X matrix is computed from the mathematical definition of covariance:

$$X = \text{COV}(x, z) = E[(x - E(x)) \cdot (z - E(z))^t]$$

Let's assume now the simplifying hypothesis of centralizing the original variables and principal components as it is known that the centralization has no impact on the variance of a stochastic variable. Considering the previous equation, the main equation will be:

$$X = E(xz^t) = E(x(B^t x)^t) = E(xx^t B) = E(xx^t)B = \Sigma B$$

Replacing, we have:

$$F = VXW = \begin{pmatrix} \frac{1}{\sqrt{\text{VAR}(x_1)}} & \dots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \dots & \frac{1}{\sqrt{\text{VAR}(x_n)}} \end{pmatrix} \Sigma B \begin{pmatrix} \frac{1}{\sqrt{\lambda_1}} & \dots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \dots & \frac{1}{\sqrt{\lambda_n}} \end{pmatrix}$$

Assuming the form of the given matrix Σ and the configuration of the matrix A , it results that indeed a certain element of the matrix F is the correlation coefficient between the original variable i and the principal component j . Factor matrix is shown in Table 3.

Table 3

Factor Matrix

Variable	Factor-variable correlations (factor loadings)	
	Factor 1	
Activ total		-0,987380
CA		-0,927273
Datorii totale		-0,844738
PN		-0,875847
EBIT		-0,932918
CB		-0,995254
CF		-0,920787

Source: own results.

To be noted that the new principal component presents high negative correlations with all seven initial variables, of over 85%. Table 4 presents the coefficients of linear combinations that define the principal components (eigenvectors of the correlation matrix), from which we calculate the observations scores in the principal components space:

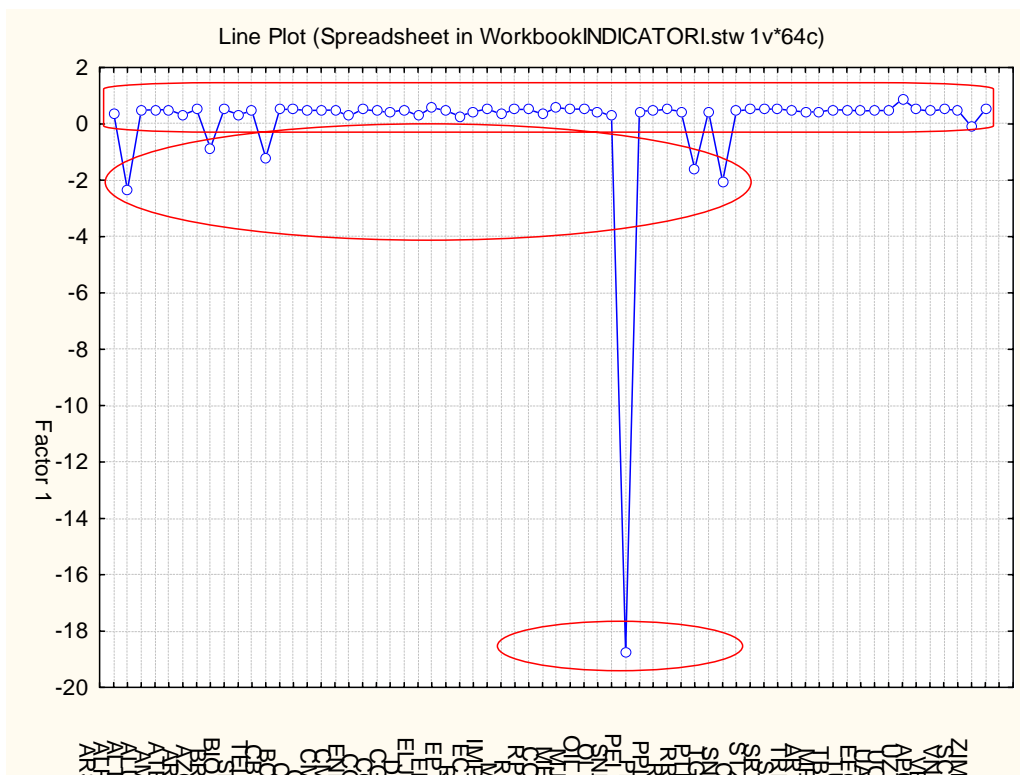
Table 4

Eigenvectors of the correlation matrix

Variable	Eigenvectors of correlation matrix	
	Factor 1	
Activ total		-0,402287
CA		-0,377798
Datorii totale		-0,344171
PN		-0,356845
EBIT		-0,380098
CB		-0,405495
CF		-0,375155

Source: own results.

The representation of the companies in the new space provided by the principal component is drawn in Figure 2.



Source: own results.

Figure 2. Representation of companies in principal components' space

It should be noted that SNP detaches from the other companies by the principal component, as the recorded values for all variables are significantly higher compared to other companies. Another category of companies is represented by LRA, AZO, TEL, RRC, TGN; they show high levels for all indicators, and the other companies in the third category have low and average indicators.

After the application of principal component analysis we identified one principal component that summarizes over 86% of the information generated by the initial indicators and thus we now identify an Altman model which has the following form:

$$Z = -0.402xr_1 - 0.377xr_2 - 0.344xr_3 - 0.356xr_4 - 0.38xr_5 - 0.405xr_6 - 0.375xr_7,$$

where $r_i, i = \overline{1,7}$ are defined below:

$$r_1 = \text{Total Assets}; r_2 = \text{Sales}; r_3 = \text{Total Liabilities}; r_4 = \text{Net Profit}; \\ r_5 = \text{EBIT}; r_6 = \text{Market Value}; r_7 = \text{CF}.$$

The analysis of the graphical representation of enterprises against the first principal component and the case scores led to the identification of three zones of classification:

- $Z < -2.34$: safe zone. The probability of bankruptcy very low.
- $-2.34 < Z < -0.102$: grey zone. Medium risk of going bankrupt.
- $Z > -0.102$: distress zone. High probability of bankruptcy.

3. Cluster analysis

Cluster analysis plays an important role in the unsupervised shape classification methods (also known as unsupervised learning methods). The purpose of cluster analysis is rank of data (cases, observations or forms) in significant and relevant structures from an informational point of view, known as classes, groups or clusters.

A key concept used in cluster analysis is therefore *the cluster*. A cluster is defined as a subset of the initial set of objects (observations) that has the property that the degree of dissimilarity between any two objects belonging to the cluster is less than the degree of dissimilarity between any object belonging to the cluster and any object that does not belong to that cluster.

It is worth mentioning a series of technical specifications. First, to evaluate the distance (dissimilarity) between objects (companies listed in Category I) or between clusters it will be used Manhattan distance. Manhattan distance, also called rectangular distance, "City-Block" distance or L1 norm, is

calculated as the sum of absolute values of differences of coordinates for two objects or two variables.

Secondly, we will use as an agglomerative hierarchical clustering method the Ward's classification method. This method is considered to be the most effective and powerful of all hierarchical clustering "algorithms" because it is the only one explicitly dealing with the issue of homogenization of classes i.e. minimizing within cluster variance: at each step, the pairs of clusters with minimum cluster distance are merged.

An important prerequisite of Ward's method is the decomposition of total variance in within cluster variance and between cluster variance, as follows:

$$\sigma_T^2 = \sigma_w^2 + \sigma_b^2,$$

where σ_w^2 and σ_b^2 are within and between cluster variance.

Ward's method is based on the following reasoning: if at any step of the clustering process there are p groups $\{\omega_1, \omega_2, \dots, \omega_p\}$, and the total within-cluster variance is σ_w^2 , the pair of clusters will be merged so that intra-cluster variance (which will mandatory be greater than the two individual intra-cluster variances, as the increase in the number of objects in the group makes the latter more heterogeneous, thus with higher variability), noted with $\tilde{\sigma}_w^2$, be the lowest possible, that is to be the solution for the following optimization problem:

$$\min(\tilde{\sigma}_w^2 - \sigma_w^2)$$

The argument of the optimization function is Ward distance indeed. Applying this technique on our own set of data provided the results presented in Figure 3.

A feature of agglomerative hierarchical techniques (including Ward's method) is to produce more cluster solutions, choosing one of them having to be made according to the objectives set out in the analysis. Selecting a cluster solution is achieved by drawing a parallel to the abscissa axis for different levels of linkage distance. Thus, considering a small level for the linkage distance, we get three clusters of companies (marked in red on the graph in Figure 2), the clusters being similar to those resulting from the PCA: First cluster - SNP; Second cluster - compared to the assignment from PCA, here we have added UCM, OLT and SCD; Third - cluster the rest.

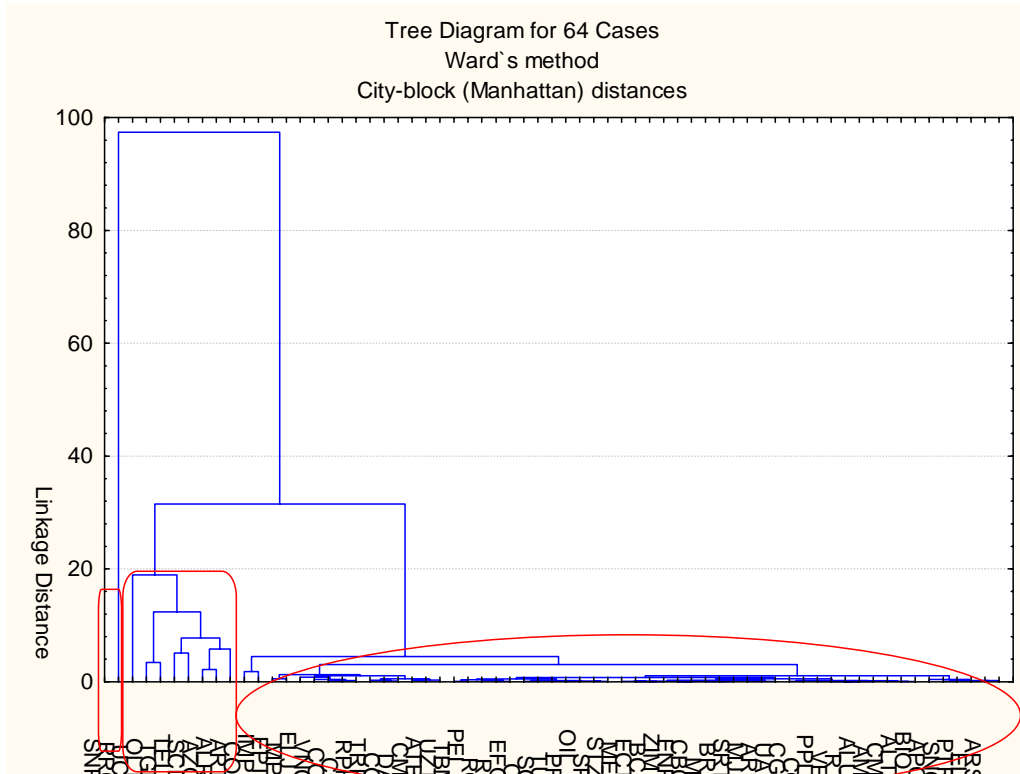


Figure 3. Dendrogram for the 60 firms

4. Discriminant analysis

Discriminant analysis implies using a set of methods, techniques and algorithms in order to determine those characteristics of objects that are the most relevant in terms of recognition of membership to certain classes of default (thus, we deal with a supervised shape classification technique) and to determine the most likely group to belong. Let's note that SNP was removed from the analysis because discrimination can not be done with classes containing a single element. Classes were considered those obtained in cluster analysis. A first result of discriminant analysis is presented in the Table 5.

Table 5

Model's worthiness and the discrimination power of each variable

N=63	Discriminant Function Analysis Summary (data base + indexes 2010.sta)					
	No. of vars in model: 7; Grouping: Clasa* (2 grps)					
Wilks' Lambda: ,15952 approx. F (7,55)=41,399 p<0,0000						
	Wilks' Lambda	Partial Lambda	F-remove (1,55)	p-level	Toler.	1-Toler. (R-Sqr.)
Activ total	0,174561	0,913815	5,18724	0,026663	0,043724	0,956276
CA	0,278340	0,573099	40,96945	0,000000	0,082668	0,917332
Datorii totale	0,175662	0,908089	5,56677	0,021882	0,008899	0,991101
PN	0,160368	0,994686	0,29381	0,589978	0,000951	0,999049
EBIT	0,159590	0,999539	0,02539	0,873991	0,001363	0,998637
CB	0,180197	0,885235	7,13040	0,009946	0,124843	0,875158
CF	0,313932	0,508124	53,24131	0,000000	0,352962	0,647038

Source: own results.

First, it is observed that the overall discrimination is very strong, as indicated by the table header information: *Wilks's Lambda* statistic has a value of 0.15952 (the closer to zero the statistical value is, the higher the power of discrimination is; the closer to unity lambda is, the lower the discrimination power is), p-value is less than 10^{-4} . In Table 6 are presented the two classification functions.

Table 6

Classification function

Variable	Classification Functions; grouping: Clasa* (data base + indexes 2010.sta)	
	G_1:1 p=,12698	G_2:2 p=,87302
Activ total	26,8541	-36,2707
CA	-30,7169	12,2313
Datorii totale	49,8322	-0,7513
PN	65,1031	26,9284
EBIT	-47,9097	-35,8740
CB	-26,4144	16,5351
CF	14,3467	-4,9985
Constant	-13,8868	-2,4161

Source: own results.

The classification matrix (Table 7) shows the number of correct and incorrect predictions made by the classification model compared to the actual outcomes (target value) in the data.

Table 7

Classification matrix

Classification Matrix			
Rows: Observed classifications			
Columns: Predicted classifications			
	Percent	G_1:1	G_2:2
Group	Correct	p=,12698	p=,87302
G_1:1	87,5000	7	1
G_2:2	100,0000	0	55
Total	98,4127	7	56

Source: own results.

The matrix shows that all companies classified in the second class after the cluster analysis have been allocated in the same class in discriminant analysis, only one company, SCD, belonging to class 1, was allocated to class 2 after discrimination.

We have obtained a percentage of correct classification of 98.41%.

5. Conclusions

As Heffernan points out (2005) bankruptcy risk predicting models developed based on discriminant analysis (such as Altman model and Conan-Holder model) can easily mislead because, firstly, they rely on historical data. Even if at the time of their development these models were reasonably accurate, their accuracy decreases over time if no action is taken to update the considered variables and/or to recalibrate the models. It is plausible to believe that the financial rates can change in time, even according to the market where they operate. It is necessary for banks to (re)test with a sufficiently high frequency discriminant models and to perform regular updates of risk models used in practice (Heffernan, 2005, p. 161).

A more difficult problem consists in the fact that the result required by the model is binary: either the debtor is solvent or not. In practice, there are several possible scenarios, such as delays in monthly repayments, failure to pay them, failure to pay fees or penalty interest and so on. Most times the debtor lets the bank know about its financial difficulties and the credit terms are renegotiated but discriminant analysis models used may not include the state of solvency, insolvency and restructuring simultaneously.

The suggested techniques of multivariate data analysis prove to be extremely useful when the research is done on a set of objects characterized by a large number of variables, which makes the study of causal dependencies and classification of objects to be difficult. This is our case, the object of the analysis consisting of companies listed on Bucharest Stock Exchange, for

which we considered a representative number of seven characteristics (total assets, net turnover, operating income - EBIT, net profit, net cash flows from operating activities, total liabilities and average market capitalization).

As we have seen, the seven individual variables are characterized by high levels of volatility, but are strongly interrelated, which means that in addition to the intrinsic information content of each variable, there is a significant amount of information dissipated into directly undetectable links between the variables. In this context, principal component analysis is a useful tool, because it can both synthesize information and eliminate duplication of information.

Applying the principal components method on our data set, we obtained a component that synthesizes approximately 86.10% of the information contained in the original causal space. Thus, the transition from seven variables to only one was performed in conditions of minimum information loss, of about 23%. The first principal component salvages 86% of the information in the original space and is strongly negatively correlated with all indicators considered, thus providing information on business volume, profitability of companies (both in the operation and overall activity level), on the market value of shares issued by companies. After considering the application of principal component analysis we identified one principal component that summarizes over 86% of the information generated by the initial indicators and we identify an scoring model that has the following form:

$$Z = -0.402xr_1 - 0.377xr_2 - 0.344xr_3 - 0.356xr_4 - 0.38xr_5 - 0.405xr_6 - 0.375xr_7$$

The analysis of the graph representation of firms against the first principal component and the scores obtained by the firms allowed us to identify three zones used for their classification:

- $Z < -2.34$: safe zone. Probability of bankruptcy very low.
- $-2.34 < Z < -0.102$: grey zone. Medium risk of going bankrupt.
- $Z > -0.102$: risky zone. High probability of bankruptcy.

Applying the cluster and discriminant analysis helped us testing if the three zones identified by the scoring function are correct.

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The New Governance and Globalization

Costantin ROMAN

Bucharest Academy of Economic Studies

Aureliana Geta ROMAN

Bucharest Academy of Economic Studies

Alexandru BOGHIU

Controller Institut Romania

Abstract. *The changes in economy and the society require a new theory of value based on knowledge. A piece of information which is well documented and as well assimilated may be a substitute for substance, energy and another piece of information. After receiving the piece of information, our thinking needs to change dramatically, in order to consider the factors that make from it such a special value. In order to be able to face the uncertainty and complexity of modern world, a new type of governance appeared, which considers not only the need for informing stakeholders and satisfying them but also the ability of an entity to answer the new restrictions stated by the market through external bodies, the personnel of the said entity and its representatives, public opinion, etc. An entity shall not be assessed only based on some economic or profitability criteria, but also based on its ability to adapt and react, the ability to meet the expectations of the persons it uses, through a model attitude towards topics of general interest (ecology, ethics, inspecting people, rejection of any discrimination, etc.), in short, through its ability to become a citizen of the world.*

Keywords: governance and globalization; the management of the complex relationship space – time – culture; innovation; the governance of the innovation system; change management; building the new governance.

JEL Code: F02.

REL Code: 10B.

Globalization and multiple governance forms

Computers abolished the distinction between “pure” or “fundamental” sciences, on the one hand, and “applied” on the other, pushing farther and farther the barriers that so far have strictly delimited information processing. Waves of innovations do not cease to come one after another.

As always, scientific and technical progress is neutral from a moral point of view: it may serve for good or for evil, for construction or for destruction. Like in the past, progress amplifies – at least in a first phase – the inequalities between countries and regions. We understand now better that the efficient use of knowledge by some society involves meeting a set of conditions: certainly, the freedom of initiative – and therefore to a large extent, private property, saving and using the relevant resources for productive investments and especially for increasing the quality of human capital.

The rapid expansion of computer networks and the conjunction of information technology and telecommunications represent the common denominator of most active entities around the world. We call an active entity any organized group equipped with resources in the widest meaning of the term, able to set for itself objectives and strategies to meet them (de Montbrial, 2003). In general terms, we call “globalization” the phenomenon by which active entities develop their objectives and strategies within the coordinates of some operation fronts, more and more expanded from a geographic point of view.

Besides fashion phenomena, the mega fusions or alliances at the beginning of the millennium correspond to an actual global competitiveness. However, “global enterprises” are not monolithic, but rather extremely supple networks of local enterprises, at the same time autonomous and strictly coordinated, undergoing some constantly reconfiguration processes.

The idea of globalization is closely connected with the idea of market economy, therefore with economic liberalism, hence its strong ideological resonance. In this regard, the economic science has widely contributed to tearing the ignorance veil over the last decades, especially by grasping the concept of transaction cost much better. This means to acknowledge efficiency, which is not necessarily incompatible with fairness or justice in coordinating the economic activities that may be carried out within “the civil society”.

Non-governmental organizations have approached matters that were considered before as being the exclusive responsibility of governments, such as human rights, sustainable development, problems generated by the environment and natural resource management.

The appearance of a “transnational civil society” and therefore of the embryo of global public opinion that states have to take into account more and

more is expressed by numerous examples related to issues as different as forbidding nuclear experiences, limiting human intervention in nature or even human rights and promoting democracy.

It is clear that globalization obliges one to dramatically reconsider the role played by states. From a long-term perspective, the forms of political organization of human societies are – like everything else alive – subject to the imperative of adaptation

The progressive substitution of the word “governance” for the classic word “governing” translates from a lexical point of view the contemporary uncertainty as regards the notion of state power. The idea of a government as an organization that is exclusively in charge with the management of public affairs within a state appears to be more and more maladjusted. The intensification and complexity of interdependence reduce to nothing the ordinary meaning of the word “leadership” because of the increasing closeness between the public good and civil society, a phenomenon that is slowly spreading worldwide.

We took from Asia the Confucian notion of “good governance” according to which a state reaches happiness when it is led by a team of competent and integer personalities. The idea of “good governance” is at the same present in the political literature of the Medieval Christianity. In really democratic regimes, the modes of selecting leaders do not guarantee either their competence or their integrity.

The concept of governance such as governing complex networks of any kind refers to all the operating mechanisms (enterprises and other organizations, states, state groups...), which are not revolving around a central decision-making entity, but which determine the intervention of ad-hoc coordination arrangements with a variable geometry both in time and space.

The concept of governance is these days inseparable from the one of “good governance”, which is ethical in character. The content of the phrase “good governance” involves two inseparable parts – responsibility and transparency. We should mention here that any authority holds power only by delegation and it should therefore be responsible before another authority (in the case of which the same principles apply) in relation to which it has to be transparent. The word “responsibility” translates here the English word “accountability” and the permanent obligation of precisely and controllably “answering for” the actions taken. “The direct accountability towards the people” is pure fiction. This stays true in any other cases, both as regards governing an enterprise accountable to its shareholders, national or international non-governmental organizations, the press or even the government of some country. In all cases, in order to be effective, accountability should be exercised through precise procedures and institutions.

Most people still live anchored in local spatial and temporal reference systems, even if in their daily life – individually or collectively – they are actually subject to a larger and larger extent to some global influences.

Globalization and the multifarious modes of governance involve a spatial interpenetration of powers and a gradual disappearance of borders as radical separation lines between states.

The most important and the oldest functions of the state are three: to defend the inhabitants against each other; to defend them against aggressions and original desires from outside; to assist the ones that are poor and needy.

In order to assume the three functions, states should cooperate with each other, that is, approach the most diverse issues as regards collective security, in the widest meaning of the term. Understanding this, they have to learn how to associate with the important players of the civil society, considering them as partners.

Internal affairs are always internal affairs, but criminal networks, especially terrorist ones or the damage to the environment, for example, are related to globalization, which makes any purely individual strategy inefficient.

The quasi-perfect mobility of movements of capitals, a consequence of deregulation and innovation of financial techniques, requires good governance – respectively new forms of regulation.

In order to reduce the probability of some shocks whose effects could be even more dramatic and extended, one should invent new forms of cooperation, of course, with the contribution of the main private players in international finances.

We may consider, with Raymond Aaron, that the center of international relations consists of interstate relations, these relations making contacts between the entities as such. But it is no longer possible to approve him when he says that each of these entities “claims the right to bring its own justice and to be the only one able to make the decision to fight or not to fight” (Aron, 1962, p. 20).

Perturbations generated by the current changes to the structure of production and services

The globalization of the operation of entities, the development of new information and communication technologies created a new environment that is the origin of an economy and proved its fragility exactly through the most active tool whereby information circulates. The amazing development of communication means contributed to a multiplication of changes, based on production capacities involving lower labor costs. This increase led to delocalization, especially in Western Europe, endangering traditional industrial, commercial and service models, with all the consequences arising from a political, social and human point of view.

Given the instability of markets and the increase in competitiveness, the validity of models, the lack of loyalty of customers, the vulnerability of organizations, the uncertainty regarding tomorrow, etc. oblige managers to cope with situations of an unknown complexity and some difficulties generated by a constantly mobile world.

The adaptation of entities to the new rhythm of change

Contemporary economic activities are dominated by the globalization of markets. This has as a direct effect a fierce competition, obliging the enterprises to permanently innovate and to restructure themselves. The rhythm of change and the adaptation to this change became essential for the performance and survival of these entities.

The goal is an increase in the capacity to respond and react of the entities to essential characteristics such as time, quality, quantity and costs.

This involves:

- the mobilization of forces (participative management, consensus, quality circles, progress groups), which ask for the personnel's creativity, innovation and motivation;
- a reorganization of the production structures and methods through JIT, flows, reducing and eliminating stocks;
- the use of new technologies, especially in the information sector (integrated information system, communication system).

In order to deal with these challenges, the entity of the 21st century has proceeded to a fundamental mutation. It built information systems required for correlating functions with each other and for collecting the data required, acting for a considerable technological rivalry. This entity uses outstanding technical possibilities for:

- the mobilization of expertise, skill, experience of people;
- forming groups that operate via affinities;
- a partial vision on problems and solutions via forums;
- favoring innovation.

In these conditions, major sectors in which transformations of the entity occur are:

- information systems;
- strategy;
- financing resources;
- human resources;
- workflows.

In order for such transformation projects to be implemented, it is indispensable that the relevant entity is equipped with appropriate governance mechanisms in order to become successful concerning several projects at the same time, especially in the field of information systems playing a very important role in change management.

Governance – another mode of leading

The goal of any governance is to ensure the balance of power between the different participants and the operation of their control instruments, both as regards shareholders contributing to intangible capital and as regards the other contributors to this capital.

In order to be able to cope with the uncertainty and complexity of modern world, a new type of governance appears, which considers not only the need for informing shareholders and their satisfaction, but also the ability of the entity to meet the new restrictions imposed by the market through external bodies, the entity's personnel and its representatives, public opinion, etc. An entity shall be assessed based not only on some economic or profitability criteria, but also depending on its ability to adapt and react, its ability to meet the expectations of the persons it uses, by a model attitude to the topics of general interest (ecology, ethics, inspection of persons, rejection of any discrimination etc.), in short depending on its ability to become a citizen of the world.

Such governance appeared within Western societies with a proven democratic culture, which know prosperity, wealth, which, by their dynamism and will to impose themselves, created the conditions for globalization. This governance has as its objective making profit, favoring creativity, facing the challenges of globalization, focusing rather on creation, innovation, research, marketing and production (delocalized in countries with a low demand for labor). The technological explosion and globalization of exchanges led to the development of a knowledge-based economy within which, through flexibility, innovation, ability to mobilize, societies distinguish from each other.

The human being is in the centre of the new governance. But the human being is a world citizen by the assessment of the conduct towards enterprises. This type of governance may not be applied at present to emerging countries, because they are preoccupied rather to meet the basic needs of the population by respecting human rights, gender equality, protection of the environment or sustainable development. We speak about a way of operating some manner of management of multinational societies, considering and respecting the diversity of nations through which they operate, the people, organizations and cultural resources.

Governance has as its purpose the conciliation of coherence, unity and diversity. It involves communication, transparency, participation, equal opportunity, respecting the others.

This new governance allows one to resolve the increasingly complex contemporary problems, through team work, each team member making a contribution.

The huge financial scandals determined the European Union to develop a corporatist governance code, according to which investors become more demanding as regards the quality of information and standards required from companies and markets they intend to invest in (Roman, Moşteanu, 2011, p. 515).

Building the new governance

A multinational entity is characterized by a great cultural, linguistic, traditional diversity, arising from the countries it operates in. This aspect represents obviously wealth that may be exploited but also poses difficulties to the organization, because the coherence of actions becomes necessary.

A group of entities is not a localized physical ensemble, but a distributed ensemble. Distance and size increase enormously the complexity of the problems that have to be solved. Collective conscience and the feeling of belonging to an organization do not appear naturally in such cases, but have to be cultivated. The work within an ensemble is not as simple as it seems. Active participation in organizations involves defining a system of generating values people identify with, adhere to. These values differ from one group to another. Among the values of a group of entities, we should mention the following:

- innovation by comparison with previous products;
- quality “best product, best price”;
- acting upon facts, acknowledging the sanction imposed by the market, field study;
- respecting customers; the true employer is the customer;
- respecting people, knowing one’s collaborators, learning the language of the country one works in;
- discretion and confidentiality;
- autonomy, respectively the ability to decide and assume one’s decisions;
- honesty: error is allowed, but not lying, spying is prohibited, the illicit copying of programs is forbidden;
- seriousness when it comes to working;
- availability;
- flexibility (debate skills, adaptation to circumstances, acceptance of the international milieu and corollary or mobility, accepting job changing).

All these involve respecting the environment and sustainable development.

These values imposed by the entity management, once understood and accepted, represent the so-called entity culture. This is the basis ensuring the unity of an organization. It represents the social current when facing uncertainty. By the adhesion it determines, this culture creates a team spirit and a certain discipline that allows the real fast mobilization of the said entity. Hence it involves a significant ability to accept and lead through changes, flexibility becoming a permanent value.

A solid entity culture has also its disadvantages. The main danger of a prevailing culture is that it may lead to the exclusion of any person that is foreign to the social body, making thus difficult to employ collaborators during one's career. It may lead thus to self-satisfaction, etiquette and autarchy, which may lead in their turn to the syndrome "not invented here". One may even end in mediocrity. Through the competitiveness it imposes, the modern world requires reducing duration and costs.

A consensus of decisions is to be preferred, namely a consensus based on reviewing several options rather than their annihilation.

The team spirit may rapidly turn into defending the advantages acquired. We consider an enterprise culture acquired following the evolution and adaptation to the contemporary world, in short, the conciliation of tradition and modernity. For such a price and based on a solid enterprise culture with well-understood values, an entity may become a real force.

Promoting values for being able to manage the complex relation space-time-culture

The main problem is in this case the coherence of stable values and action within some teams that do not speak the same language, do not have the same culture and often operate without knowing each other, being at significant distance from each other.

The importance of language is often underestimated. Thus, the expatriate has to learn the language of the country where they work, a form of respect for the country they work in and also a potent integration factor.

Quite often such a policy is applied systematically; people speak fluently several languages, a fact representing an indispensable advantage for working abroad. Certainly, it is necessary to define a reference language, English being indispensable, being considered worldwide as the second working language. One often finds that it is not sufficient to translate a message into the language of a given country, but communication has to be adapted to the local culture and thinking. The manner of understanding problems, the implementation of

solutions is different in Europe, USA or Asia. While the French appreciate especially intellectual construction and method, the Americans adopt first a heuristic approach, and the Japanese a non-deduction approach, making a hierarchy of problems, while their approach is still straight and comprehensive.

Forming an international team requires a lot of time. Time for knowing each other, involving frequent travels, time to respect each other, which involves long and painful fights, time to appreciate each other, which involves working together.

In conclusion, we notice the following aspects:

- it is difficult to want to lead a team, by giving orders from thousand kilometers away;
- an international team involves turnover of people;
- it is necessary to use specialists recruited from the local region, with a high training level, not simple executors;
- people tend to preserve their nationality and to defend local solutions; to this effect, they need the support of line managers;
- the golden rule to have a decision approved and implemented is to consult the people in charge with its implementation, even if such a thing requires time.

Innovation

The importance of innovation needs to be treated specifically, especially in the conditions in which it is allowed. This is the best means to secure growth and cope with uncertainty. Therefore, it gives an answer to uncertainty.

Innovation puts the organization under discussion and consists of coming with some novelties. The characteristic of innovation is to lead to change. It involves the entity accepting within it diversity, freedom of thought, autonomy and competition, considered the basis of innovation. These should be sufficiently strong to lead to the appearance of new ideas, only in such conditions one being able to speak about progress.

The integration by the entity of the evolution of culture technologies

In order to be able to approach changes, whether they are expected or not, determined by economic limitations, the entity should be able to innovate permanently and in all fields. Innovation cannot be dissociated from new technologies, especially the information and communication technologies, elements that form the nervous system of a relevant entity.

The email became an essential tool for communication; computers and networks are now part of the standard equipment of offices. The integration of

the evolution of these technologies in the entity culture became an efficacious tool for fighting the resistance to change and make an entity active and competitive.

The governance process

Building governance means to establish some basic principles that:

- govern the relations between various participants;
- clearly define responsibilities;
- guarantee the correct operation of decision-making processes.

The appropriate operation of these processes is based upon the maturity of a given entity, because they require the existence of some decision-making networks that are accepted in due time and involve a considerable effort for being maintained.

Communication and coordination processes

The communication and coordination processes are the most important elements of governance. They should be developed and operated by the management, which should represent an example in these matters and make sure that the people in charge within the entity are involved, that they play an active role and are in the best place for making decisions.

Governance favors dialogue and requires transparency. It allows this way the mobilization of forces, making decisions, their acceptance and involves in the multicultural world it endorses, cooperation, an indispensable condition of the success of complex projects. It represents actually the consensus of the community whose members accept to cooperate and work together.

Decision-making and regulation bodies

As in any other form of human society, the organizations should have a decision-making leader and some control bodies. Committees (boards) may serve as decision-making and regulation bodies, considering the fact that in a worldwide company organized per business divisions, group decisions should be made per profit centers or geographic entities. In such conditions, the role of audit is essential because transparency is a goal involving fairness, consistency and comparability. These regulation and decision-making bodies are provided with information by various committees, through indicators and dashboards.

Indicators, measurement tools and dashboards

In order to measure the efficiency and performance of a given entity, traditional dashboards are no longer sufficient. The implementation of a project of developing decision-making information is the tool allowing the clarification

of decisions. It involves reviewing essential competences, based on some indicators representing in fact the stylized reflection of some complex reality.

The prospective dashboard or balanced scorecard created by Kaplan and Norton (1998) allows the measurement of the four domains of entity performance (Innes, 2004, pp. 47-71):

- financial perspective;
- customer perspective;
- process perspective;
- working experience perspective.

As regards information systems, we would like to add a fifth indicator measuring the contribution to business.

The indicators mentioned above cover major domains of change of the entity. They may be understood better and extended for the purpose of approaching domains still uncovered, and of appreciating and measuring the intangible assets of an organization: multiculturalism, cooperation between teams, exchange of experience, knowledge management, ability to respond, the place of women within the organization, the operational suppleness of the entity, flexibility, adaptability, robustness of information systems (respect for the environment, sustainable development, risk management, etc.)

Defining functions

The great difficulty of such an approach consists of:

- defining exactly the role and responsibilities of various entities: central units, business units, geographic units, etc., all very difficult to define considering past realities, present forces and future implications. One has to define quite clearly the duties and objectives of a management committee, of a supervision committee, of a project manager, of a user project manager, of an ethnic project manager, etc.;
- the relation of trust between units and a collegial work attitude, the possibility to make joint decisions, notwithstanding the difficulty of such a thing, especially when participants' interests are divergent. Valid relations are those based on respecting the functions of the others, even if for this purpose fights are required in the name of centralization or decentralization. These notions have less meaning now, when using modern communication means.

Governance of the information system

An information system consists of all the elements required for defining, generating, maintaining and making available the information needed by the personnel of an entity in order to ensure the appropriate operation of entities.

Such a system cannot be separated from information and communication technologies with computerized functions.

Such a system may not operate without some personnel specially trained for using it.

The objectives of reducing operating costs have been for a long time a priority when implementing information systems. These objectives have been transformed gradually so that to be able to approach new domains, such as rapidity of reaction, service quality, competitive advantage, being difficult to justify the profitability of such systems.

One of the consequences of the decentralization of the control of new information and communication technologies and the creation of independent profit centers worldwide was these systems losing their power. This loss of power underlined the need for new rules of the game in order to ensure the coordination of complementary multiple projects, which are interdependent and initiated in several units. The development of an information system within an entity or the management of such a system is a complex project involving centrifugal forces and power games, requiring the cooperation of all the participants in order to have the chance to act in due time.

Governance has as its purpose the development of a technological culture, by encouraging good practices, and avoiding deviations. Its purpose is not to control all the decisions, but to ensure project management.

The adaptation of the information system to change management

If the people in charge within the entity are involved and are in the right place for making decisions regarding them, concerning information systems, a strategic adaptation of such a system to the entity needs takes place naturally.

The running of such a system deeply changes the management of the entity, in terms of the personnel's working methods and routines. What is needed is a change program clarifying and planning the required evolution of all the competences, creating an environment within which collaborators would be able to implement the changes required for generating a new source of value for information systems, meant to facilitate the development activity.

An adequate change involves a large number of people adhering to change. All the levers available should be used for ensuring the contribution of every officer. A successful change considers at the same time the implementation of change conduct techniques and takes into account economic elements. Lacking economic results endangers the change program based exclusively on cultural and behavioral factors. But some change that operates considering solely economic factors may provide unsustainable benefits because of the resistance of the people involved.

In order to ensure a successful and sustainable change, several factors should be considered:

- *the institutional one*, that is defining and controlling the manner in which officers work (Charta, internal rules, definition of functions, supervision committees, etc.);
- *the political one*, that is key resources, internal/external balance, opinion leaders, balance of powers;
- *the economic one*, that is defining assets, activities, processes, technologies and skills adding value to some entity and its customers (operational process, machinery, serving centers etc.);
- *the social one* – behavioral values, culture, history.

Practical rules for change management:

- setting some clear, accessible objectives;
- mobilizing teams per one entity project;
- creating trust, which leads to cooperation – indispensable for complex project management.

This means team spirit:

- introducing the innovation spirit;
- learning how to communicate, both internally and externally;
- forming teams instead of renewal players;

The recent appearance of the concept of governance of information systems shows that such activities are beginning to be considered within leaders' strategic reflections.

Consequences of implementation of corporatist governance procedures (Roman, Mocanu, 2011)

At a microeconomic level:

- managers are able to grasp better the real aspects of businesses, having a positive impact on organizations as regards forming alliances, partnerships and on transparency in providing information;
- investors become more preoccupied to search for information about the increase in the entity's capability to finance development rapidly and cheaply;
- to the extent the responsibility of management boards is increasing, it is necessary to have first class managers;
- the level of economic performance is increasing.

At a macroeconomic level:

- an increase in the national economic efficiency through a more rational allocation of resources;

- an increase in transparency, a decrease in the level of corruption and tax evasion;
- the development of capital markets and the increase in the attractiveness for investors with large financial resources;
- the mobilization of population's savings by creating investment alternatives – the capital market;
- positive influences emerge also as regards the life standards of the population.

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The Political Economy of World Heavyweight Boxing during the Great Depression

Vlad ROȘCA

Bucharest Academy of Economic Studies
vlad_rsc@yahoo.com

Abstract. *The purpose of the paper is to show how boxing managed to remain an affordable and consumable good for the US-American citizens in the times of the Great Depression of 1929-1933, when industrial production was closing. Moreover, while other economic activities faced problems, boxing continued to produce money. The research analyzes the economic market of professional heavyweight boxing, presenting some of the tools that helped promoters produce and sell the fight shows to the consumers – like price discrimination and cartel agreements, for example, and, thus, helped generating incomes and assured money circulation in the economy.*

Keywords: economy of boxing; sports economy; Great Depression; sports marketing; cartel agreements.

JEL Codes: G01, Z19.

REL Code: 5Z.

1. From amateurism to professionalism

During some forty years, from the 1880's to the 1920's, boxing has risen from a „backyard” sport, a circus entertainment (Barnum, 2000) and an illegal fight to a social phenomenon that attracted masses of people (Boddy, 2009). Tens of thousands of people stormed to bouts, putting stadiums or arenas which hosted boxing next to theater and cinema halls, varietés, cabarett and ballrooms in the top of the most frequented locations in the 1930's United States of America (Pfeifer, 2005), even with the Great Depression worrying people. Or may be it was the Great Depression that attracted the masses to boxing bouts? Due to its high social implication, boxing had a major influence on the American economy too. Promoters, fighters, national states, as well as private businesses and economic agents profited thanks to boxing, which returned to them a part of the clients and of the incomes which the Depression had taken away.

The paper aims to present how the economy of professional heavyweight boxing functioned during the Great Depression of 1929-1933 and in the following years prior to the Second World War. The main focus will be set on the US-American market. Interdisciplinarity of sciences is used in order to make the topic of the paper more comprehensible. Thus, economic, cultural, social and psychologic ideas and theories are combined in the research. In order to understand why boxing had such a great success during crisis years and how it managed to contribute to the US economy in times when banks and other businesses went bankrupt, we have to understand that boxing consumption was based on the „panem et circenes” („Bread and games”) principle. The phrase „panem et circenes” was used by the Roman poet Juvenal in order to criticise the Roman population for its loss of courage and civic spirit. Juvenal mentioned that people who once fought for their Roman Empire (even in military wars) and for their own status, now were too anxious to enterprise anything anymore and hoped for just two things: bread (something to eat) and games (cheap entertainment, mostly circuses). The same metaphor can be used to describe the US civil society during the Great Depression. The people who in the previous years contributed to the development of the US-American business environment and economy were now too frightened by the sumber realities and perspectives of the crisis. As people had to struggle for their lives and as jobs were hard to find, among their sole satisfactions left were attending sporting events. And having something to eat on their tables. So, bread and games. With games often coming first on the priority list.

2. Bread, boxing and private businesses

In the present research, the focus falls on the „games“. The games are the heavyweight boxing fights organized in the USA during the years of the Great Depression. At a first look, it may be surprising that in times when more and more businesses and banks went bankrupt and when unemployment rates grew, the boxing market – with its supply and demand for fights – still produced valuable fights and huge monetary incomes. The people chose the immediate joy and the sense of belonging that a boxing fight induced to them, rather than the long-term saving of money. When a boxing fight was at one end of their opportunity cost, citizens made choices that may be interpreted as bizarre, which were not so as they seem to be. Because the economy did not offer a promising perspective, people rather invested their few money in attending boxing bouts, because they knew they would win immediate incomes: the joy of attending a fight and of witnessing something big. Because boxing was big in those days, offering many highly valued heavyweights. For the American citizens, buying fight tickets was a rational decision. A decision which demonstrates just what a high status boxing had in those days.

No wonder that not only promoters, but also city councils offered help into organizing bouts, because of the economic benefits that fights brought to the community. On the 17th of February 1937, Max Schmeling met Heinrich Esser – the President of the Nazi Committee for Foreign Trade – in order to talk about the financing which would enable Schmeling to bring James Braddock to Germany and fight him there. Esser, through Dr. Schulze-Schlutius, a member of the Nazi Party (Kluge, 2004), promised a budget of 350 000 US Dollars (Luckey, 2007), about five million US Dollars adjusted in 2009's value, and insisted that the bout should be organized in Berlin, in the newlybuilt Olympiastadion. Two were the reasons that made Esser dream of a fight in Berlin: on the one hand side, with a capacity of more than 70,000 seats, the Olympiastadion would bring high gate incomes from ticket sales. On the other one, foreigners which would travel to watch the fight – mainly US-Americans who would come to support Braddock, but also Frenchmen and Englishmen – would have the occasion to spend several days in Berlin, but also spend their money in the city (Pfeifer, 2005). As air-transport for passengers was almost inexistent at that time, the travels between USA and Europe were done through ocean liners. The liners didn't set away from the docks each day, so, whoever wanted to catch a line, had to wait some other days. What Esser wanted was that these spare days were spent in Berlin, even if the tourists needed to shorten their visit in the capital city of Germany in order to make the train trip to Hamburg, from where they had to embark on the liner. And, for a mini-vacation

in Berlin, boxing fans who were coming to watch the fight had to pay their hotel rooms and their meals, and they also spent money on visiting tourist attractions or on buying souvenirs. So, a boxing bout had the ability to contribute to the development of the local economy. Unfortunately for Esser, Hitler and their National-Socialistic Worker's Party (NSDAP) – which could have enriched its Nazi-propaganda-budget thanks to the spendings of the consumers on the Schmeling-Braddock fixture –, Atlantic City in the USA has offered 400,000 USD to host the fight and secured itself the right to organize it.

The same economic principles around a boxing bout were met on the other side of the North Atlantic Ocean, just that the USA had a democratic and capitalist market, no trace of the German National Socialism. Therewith, it should be no wonder why the most first-class heavyweight bouts during the Great Depression were hosted by the USA, even though Germany had its own valuable boxing market. The sole problem was that Hitler didn't want Schmeling – who, as a world class boxer, was a propaganda tool for the Nazi regime – to fight Jews and blacks in Germany, considerably reducing the possibilities to generate financial income through the staging of fights. US-Americans took this opportunity and didn't let it slip, not at least because it was an income source in the tumultuous era of the Depression. Still, Hitler agreed with Schmeling fighting whatever boxer outside Germany, and in an interview he gave for the Denver Post in April 1936, Schmeling stated that „I expect to bring home a couple of hundred thousand dollars” (Margolick, 2006, p. 128).

Politically, boxing presented a huge interest in Germany (Luckey, 2007, Myler, 2005, Stradling, 2009). Having the most powerful role in the national economy, the German Nazi State used boxing fights in order to generate incomes to the party budget. Contrary to this situation, in the USA, with its free, capitalist market, boxing bouts were organized by private agents. The American state didn't directly earn incomes from boxing – although it had its shares of interest in the sport –, but the private economic agents were the ones who did. Indirectly, however, the national economy was helped by the staging of boxing fights, as connex activities, such as the trade with memorabilia branded with the names of the fighters, were offered to the boxing fans, thus developing the private businesses sector. Margolick described the influence of boxing upon the national US-economy by presenting some happenings with socio-economic character which were met at the 1936 Louis - Schmeling fight:

“Harlem's better hotels were mostly filled, the pawnshops had been cleared of field glasses, the liquer stores had upped their stock, the larger restaurants had added waiters. According to one purveyor, on fight day Harlem ordered ten thousand chickens” (Margolick, 2006, p. 145).

Even during crisis times, a high-interest fight had the power to boost various sectors of the private economy, by bringing additional consumers to hotels, restaurants, stores, newspapers and many others. The consumers that overnighted in hotels did so because they were on a trip especially made to attend the fight. The ones who went to restaurants did so because the owners installed radios that broadcasted the fights which people wanted to follow and, while listening to the voice of Clem McCarthy from NBC reporting about the bout in the ring, they also ordered dishes and drinks that raised the incomes of the restaurant owners; stores in town were visited by tourists who were there to watch the fight, while the newspapers and magazines writing about the boxing bout sold enormous numbers of copies to the “electrified” Americans, who were nothing else than addicted to boxing.

Many economic activities, especially trading, catering, hospitality, transports and tourism, were advantaged by the staging of a fight. When it came to boxing and to the means of enjoying it (e.g.: by buying newspapers in order to get the latest news about the event or by gathering with the friends in a restaurant in order to have a meal and to listen to the live broadcasting of the bout), the Americans didn’t think too much before giving money away, eventhough they lived in crisis times.

That boxing-madness was described as “Fistinia”. Fistinia (coming from “fist”) was the word used to describe the boxing market during the years of the Great Depression, and it included offer and demand of and for boxing fights, as well as all the other managerial principles which were related to boxing, such as athlete branding, bout organization, ticket sales, revenues collection and many more. One in all, “Fistinia” was the word used to describe the boxing world.

3. Political economy and heavyweight boxing

In this research, the political economy can be used as a tool to help explain the business of boxing from the times of the Great Depression. There are at least two principles that political economy is based on:

a) Community forming - People form communities because they hope that by acting together in groups, they can achieve better (living) standards than those that they would have reached by living alone (Phelps, 1985). Two phenomena occurred during the Great Depression. One was that because of unemployment, of job instability and of low wages, people tended to become more egoistic when it came to finding and administrating an income source. As competition between individuals for finding a workplace grew bigger and bigger and as spendings on fast moving consumer goods reduced more and more, another phenomena, quite bizzare at a first look, appeared: people didn’t

quit paying for attending mass events in order to save money for something that may have been more important, like food, for example. Through mass events we understand events where affluences were high – not just once, but succesively, all over the interbellic years –, such as boxing fights, baseball games or jazz concerts. An influence that persisted from the Roaring Twenties was the pursuit of happiness (Fitzgerald, 1998). Boxing fights offered happiness to the spectators, who were glad to be part of the community of fans visiting the events.

b) Reward Structures - The political economy also studies the „reward structures that society can [...] choose among” (Phelps, 1985, p. 4). A boxing fight was a reward for its spectators, because it satisfied the citizens’ wants of entertainment, communion and joy. Such needs were high in times when insecurity, starvation and poverty characterized the society (Edsforth, 2000, Parker, 2002, Watkins, 2000). People chose to attend fights even if it ment to spend their last dollars, because boxing events were an opportunity to break out of the daily worries.

After studying these two principles of political economy, a question arises: Did the boxing consumers make a good choice when deciding to buy fight tickets? The economic theory states that people, having limited ressources – as was the case during the Great Depression –, rationally decide upon how to use the ressources in order to cover their needs. Among others, what people in America’s 1930’s needed was entertainment, as it was a way to relax and to forget the daily worries. Because people were consciuous about their desire to attend a boxing fight in the moment they bought a ticket – otherwise, they wouldn’t have bought it anymore –, we can say that their decision was rational. Consumers quit buying another economic good or service in order to buy themselves a night out at boxing. But, did consumers make good choices? Many consumers spent their last money on fights and on connex activities, such as betting. This shows what an appeal boxing had in the 1930’s, but also that the decisions of boxing fans were, often, emotionally driven. When deciding to buy boxing tickets, many acted impulsive. Because boxing was an institution of the American interbellic society, many people spent their savings or their last dimes on buying fight tickets and placing bets.

The economy is a result of human behaviour (Beardshaw, 1992, Begg et al., 2005, Begg, Ward, 2003). Because the humans are the ones who make economy exist, there is a strong bond between economy, society and culture. As a matter of fact, economy is a social science, with a complex evolutive system (Marinescu, 2004). Boxing, as part of the 1930’s society, was therefore influenced by economy. Moreover, because boxing was a trend in those years, a social phenomenon that would nowadays be described as “hollywoodian”, the

ring-sport was a driver of economy. Of a “dead” economy. What hard goods producers and many sorts of enterprises couldn’t do, boxing did: it sold to the people and it guaranteed money circulation. It helped an economy finding itself in crisis produce money and it gave hope to the people.

Economy helps the human adapt to the natural and social environment he is living in. Professional boxing had its own economic market through which it helped people adapt to their society. Boxing fights were produced by athletes and their staff, who acted as production factors, whereas the spectators – who were the consumers – paid a ticket and received instead the product: the boxing bout. Consumers bought themselves the right to watch a fight. In the meantime, the money the spectators paid for the tickets entered the boxing market and boosted the development of “Fistinia”, which emerged to a private services sector.

4. The emergence of boxing to a social institution

The immediate post-war era (1919-1929) was flourishing for the US society. The Roaring Twenties were times of joy, hope and success (Idema, 1990). Consumers spent more and more, permitting corporations to boost their profits. Thanks to the higher profits, entrepreneurs were able to offer higher wages, and the welfare of the employees improved. Also, unemployment rates diminished, as new businesses were opened. The Share Market also climbed, but the growth was faster than the implementation of control instruments, and as a result, the New York Stock Exchange crashed in 1929. But, until 1929, the third decade of the century was a great period for the US economy. And for boxing.

The needs met by the Army in the First World War developed the industrial capacity of the USA and improved the states’ economies, which rapidly grew in the first postbelic years. During 1922 and 1923, the US economy stabilizes, with the country leading the world in what concerns technology (Mureşan, Mureşan, 2003). Because the technical capacity improved, more goods were produced in less time and at lower costs, the classical example being Henry Ford’s assembly line (Ford, 2008), which, by 1931, was used by other companies – such as Chevrolet – as well (Lewis, 1976). More goods were also sold, and the financial disponibilities of the private economic agents and of the country grew. A state of welfare was achieved. The private and public investments in all the fields of the society, including investments in professional boxing, prospered.

The leading industry in the 1920’s USA was the automotive one. In Detroit, cars were produced in masses and sold at lower prices than ever before, thanks to the scale economies (Babson, 1986, Poremba, 2005, Woodford, 2001).

The car becomes an affordable good, and citizens begin to buy it more and more. During the 1920's, the price of a Ford was 290 US-Dollars (American Cultural History, 1920-1929, <http://kclibrary.lonestar.edu/decade20.html>), no more than about 3,700 US-Dollars in 2009's value. Urban transportation becomes easier and an effect is that people can now faster reach the fighting venue, by driving their cars. Thus, attendances at boxing bouts grow, and so do the gate incomes too. The additional income brought by the evolution of technology is reinvested into boxing, developing the sport and its economic market. No wonder that the first million dollar gate boxing event ever witnessed occurred in 1921. Then, the Dempsey-Carpentier fight in Jersey City produced \$1,6 million from ticket sales. Between 1921 and 1929, 1,488,900 spectators watched boxing fights around New York alone, contributing with \$ 14,247,313 (about \$ 176,805,295 in 2009's value) to the professional boxing market (Fight Toys, 2010). Now that their wages were higher, citizens afforded to attend boxing fights more and more. The contribution of the fans, among with the economic, social and technical developments, improved the boxing market in such a way that, when the Great Depression came, boxing already had a consolidated position, from which it could not be beaten very easy. The tradition that boxing created in the first thirty years of the twentieth century (also thanks to the growth of investments made after the First World War) helped the fist sport to easier get out of the Great Depression. As a matter of fact, due to the "panem et circenes" principle, the economy of boxing did not suffer too much during the depression.

On October 29th, 1929, after severe fluctuations of trade (Robbins, Weidenbaum, 2009) the stock prices at the New York Stock Exchange (NYSE) drastically fall, and the NYSE crashes (Streissguth, 2007). The savers withdraw their savings from the banks. The banks cannot cope with the amount of withdrawals and many of them go bankrupt. Next to the big banks, the USA had a complex network of small banks (Mureșan, Mureșan, 2003), which helped the local communities. Most of the citizens collaborated with their "street corner" bank. The crash of the small banks drove the ordinary citizens into scarcity. As fast as the incomes of the households and the individual purchase power grew after the first World War, as fast they declined after the "Black Thursday". In 1931, the USA count 2,298 bank bankruptcies, as compared to 642 in the first year of depression, 1929 (Mureșan, Mureșan, 2003).

However, the boxing economy did not suffer from the Great Depression as much as other economies. And under no circumstances did it enter bankruptcy, as the banking did. Next to its consolidated position and to the "panem et circenes" principle that were already discussed in the paper, the boxing world was saved by its own form of cartel agreements.

5. Cartel agreements on the boxing market

During 1929 and 1933 – and, as a consequence, also in the rest of the years prior to the Second World War – an industrial production crisis hit many sectors of the American economy. But it did not hit the boxing economy. Excepting punching in the ring, many boxers hardly knew anything else what to do. Boxing was their job, and if they wouldn't have boxed, they would have struggled in life. Paradoxically again, this limited qualification to a sole piece of knowledge (knowing how to fight) saved the boxers and their sport.

Other American industries and businesses layed a seal on their doors during the Great Depression. Still, former employees, now unemployed, had a hope left: professional reconversion. The hope of reconversion made the citizens think that there may be a chance, even if it was small, to find another job. As a consequence, employees didn't struggle to keep their current job, and this was fatal to them. Because of the lack of citizen involvement into the community that Juvenal satirized through the „panem et circenes” metaphor as early as in the year 100 AD, the power and the influence of the labor unions was drastically reduced. Labor unions couldn't negotiate profitable agreements for their members and neither the employers didn't try to hard to help their employees, as they thought that employees would somehow find a new job and survive.

This passivity wasn't to be found in boxing. Boxers knew that if Fistinia was going to crash as the NYSE did, they wouldn't have had much left to do and they would have hardly made some money in order to live. Promoters were also aware of that. James Braddock's case speaks for itself, being one of the most remarkable stories of world's sport. Braddock was born June 8, 1905, in Hell's Kitchen, New York's district of Irish immigrants (Schaap, 2005). At the age of 21, Braddock turned pro, and his fulminant career debut was highly promising: 44 wins and just two losses in three years. However, in 1928, Braddock lost a championship fight to Tommy Loughran and entered in a mental state of depression. Braddock couldn't return to his winning series and became a mediocre boxer. Because his family suffered of poverty during the Great Depression, Braddock gave up boxing and began working on the docks, as a longshoreman. Because he had just few business practice, as a child, and no higher qualification, the poor paid job in the docks was among the few Braddock could do in order to earn some money and save his family. Eventually, due to the longshoreman work, Braddock strengthened his left arm. This physical evolution and an improved state of mind made Braddock return into the boxing ring. After only one year from his comeback, Braddock defeated Max Baer and became heavyweight champion of the world. But, if he wouldn't

have had boxing, Braddock wouldn't have found too lucrative jobs. Maybe just some ones like errand boy or courier boy for the Western Union, jobs he had done in his youth. Other US citizens weren't even so lucky as Braddock had been.

The summer perspective of loosing the boxing and of entering unemployment made boxers and promoters unite and work together in order to save their income source. The cartel agreements helped them in their actions. Forming a closed circle, promoters aided each other, by offering boxers who to produce fights, which were to be sold to consumers who wanted to attend them. Thus, the existence of boxing events was granted, and parts of the incomes were used for offering purses to the boxers.

Cartels are formed when two or more economic agents come to an agreement. Such was the case in the boxing economy of the 1920's and 1930's. Promoters acted in unison, agreeing about how and when to stage the fights, which boxer to meet which other boxer, what purses to offer for the fighters, at which venue to organize the fight or what admission fees to set. And, last but not least, how high would be their own commissions: what percentage of the fight incomes would remain to them, the promoters. Because boxing is also an economy, setting the percentages each one has to receive is one of the main characteristics of sharing a market. If prior to the First World War, a promoter managed few or even just one boxer, beginning with the 1920's, promoters (also known as agents) build themselves portfolios of more boxers, for whom they agree to stage fights, making "boxing promotion an art form", which was "carefully orchestrated [...] by slick press-agentry" (Sammonds, 1990). Because the collaboration between them becomes more powerful, promoters manage to limit the number of agents around the boxing world and to enclose the circle of the boxing market, which becomes more concentrated, more professionalized and more lucrative. More money is being made, and it circulates between the „pockets” of the promoters. For the promoters, who acted as the cartels, the market of professional heavyweight boxing was becoming an oligopoly market, controlled by a few economic agents who had high financial and influential power, and who could easily anticipate the other's thoughts and decisions. Eventhough the boxing market had a private character, the gross of the investments being done by nonstatal agents, the United States of America had all the interest that the sport developed properly. Indirectly, the States also had something to win thanks to boxing. First of all, there were the incomes and the taxes that had to be paid to the government when organizing an event. Second, the private sector of the economy was boosted by a fight. As already mentioned, boxing fans spent money around a fight, buying, next to the tickets, various connex goods or services, like for example food,

drinks, newspapers, transport services or hotel rooms. When a fight was staged, bars, restaurants, gas stations, hotels, transport operators like taxi drivers or the railway system, theater halls that presented filmed images of the fights, ballrooms where parties were started after the fights, as well as newspapers and magazines, all had to win thanks to the connex spendings of the boxing fans.

6. The demand for fight tickets during the Great Depression

To better understand the demand of tickets, it is useful to know how the organization of bouts took place. Each boxer had a promoter, which acted as his manager/agent. The promoter was in charge of finding partners, organizing the fights and managing all issues that concerned the finances of the fights: How much would a bout cost, what were the taxes and what would be the purse of the fighter?

To give just a single example, after setting foot in the boxing industry, Mike Jacobs founded the Twentieth Century Boxing Club in 1933. It was a company that organized events, and with the help of his relations in the boxing world and of the fighters that Jacobs managed – among them Joe Louis – the Twentieth Century Boxing Club emerged into a highly lucrative company and became a rival for the Madison Square Garden, an event organizer which had the advantage of owning the well-known sports arena in New York.

The demand represents the given quantity of a product a consumer wants to buy at a given maximum price. In the case of the 1930's heavyweight boxing, the core product a promoter offered was the entry ticket. Through the ticket, the promoter was selling the boxing show on the canvas. The ticket was the proof that the consumer bought the right to watch the fight.

The demand law helps demonstrate the behaviour of the boxing spectator during the Great Depression, by using two economic tools: demanded quantity and the price of the good. In general, if the price of the good reduces, the demanded quantity increases, and vice-versa. Next, the paper will concentrate upon the reasons which led to the mass consumption of boxing during the Great Depression.

Although times were hard, the tickets for boxing bouts, as well as food, clothing or electronics, weren't so expensive as one might think. In fact, all those products were cheap, but for those who had a job and who could afford them. For the employed Americans, buying themselves a night out at boxing was an extra they could afford next to the daily basic products. For example, a lawyer or a doctor earning about \$50 a month (that is about 630\$ in 2009's value), afforded to buy a \$5-\$7 (about \$70-\$100 in 2000's value) ticket at a bout. And this wasn't even the cheapest type of ticket. Not ticket prices were

high, but the purchase power was low. Many people didn't have the money to spend on fights. They spent their dollars on what was really necessary and saved the rest. Still, venues were mostly sold-out at heavyweight fights, with people from all the social categories attending (Young, Young, 2007). The following economic principles permitted mass-attending to occur even during crisis times:

1) Price discrimination: Nellis and Parker define price discrimination as “the practice of charging different prices for various units of a single product or service when the price differences are not justified by differences in production/supply costs” (2006, p. 269). So, in boxing, price differentiation means to charge different prices for the same fight. The practicing of price discrimination assured sold-out venues.

At a lower price, the demanded quantity (Q_D) generally grows. Promoters used price discrimination in order to have the possibility to offer low prices, and, thus, to increase the quantity of spectators at fights. The ticket values of the Louis-Schmeling fight in 1938 were \$5,75 and \$30. The expensive tickets had a low demand, because they were affordable only to people with a decent income or to snobs. Even though demand for the \$30 tickets was lower than the one for \$5,75 tickets, promoters made profits thanks to the higher prices of the expensive tickets. The low priced tickets had a high demand, being affordable to the majority of the US-American society. Promoters made profits also in this case, thanks to the quantity of sold tickets.

Managers and promoters were the ones who had to be praised for assuring sold-out stadiums. As organizers of the bouts, they had a personal interest to sell as many tickets as possible, because they would keep a share of the revenues. Their habit was to organize fights in big venues, which could host more than 80,000 people, such as the Yankees Stadium in New York or the Soldier's Field in Chicago. The architecture of such arenas permitted price discrimination. The boxing ring was set in the center of the stadium. Thus, the best visibility for spectators was offered by the rows next to the ring and some of the rows further up. As distance to the ring grew, visibility quality diminished, with the lowest visibility at the far away seats. Thanks to this architecture, promoters could sell the fight “at different prices to different customer groups for various reasons” (Nellis, Parker, 2006, p. 268). Generally, the seats which offered best visibility were bought by wealthy, employed people, while the seats with low visibility were the offer promoters made to the unemployed or to the people with low wages. Prices were direct proportional to visibility. The better the view, the higher the price. Even if they couldn't see well, spectator bought back-rows tickets because those tickets offered the

possibility to be part of a social event and to feel the atmosphere, all at an affordable price. High incomes from the sell of expensive tickets permitted the organizers to lower the ticket prices for other seats in the arena, thus to offer correct prices for each category of consumers. The snobs had “their” expensive prices, the wealthy middle-class had expensive but affordable prices, while the unemployed and the poor had the low prices. The preoccupation of promoters to make fights affordable to poor people was one of the factors that contributed to boxing’s success in the 1930’s. Snobs were the “big spenders” and because they paid so much for a ticket, they guaranteed a significant part of the gate revenue. But, as significant as that was also the contribution of the poor, who were the “mass spenders”. Quantitatively, poor spectators outnumbered the wealthy and the snobs at a fight. Snobs bought few tickets for much money, while poor bought many tickets for few money. Given the quantity of tickets they purchased, poor also guaranteed a significant part of the gate revenues.

For the Schmeling-Gora fight in 1931, prices varied from \$1 (about \$14 in 2009’s value) at the gallery, \$2 (\$28 in 2009) at the balcony, up to \$5 (\$70 in 2009) at the ringside. This was a minor discrimination, as the prices varied in a margin of four dollars (between \$1 and \$5), but there have been bouts in the 1930’s where tickets started from \$2 and went up to \$30 (\$450 in 2009) or \$40 (\$600 in 2009).

2) *Snobbism*: According to the theory of Veblen, also known as the snobbism paradox, consumers who want to show off their status in the society buy expensive goods or goods whose prices increase and aren’t affordable to everyone (Veblen, 2009). By doing so, the snobs want to demonstrate their purchase power and their greatness derived from it in front of the world. In boxing, the snobs usually buy tickets in the rows next to the ring, the most expensive ones. The expenditures of the snobs assured a significant part of the gate revenues at the fights of the Great Depression Era. Prominent names of the 1930’s American society, such as New York’s Mayor Fiorello La Guardia, blues interpret Duke Ellington, or baseball player Babe Ruth were regular spectators at heavyweight bouts in New York City. Eleanor Roosevelt, President Roosevelt’s wife, bought three tickets at the Louis-Carnera fight in 1935, but never showed up (Margolick, 2006).

3) *Few substitutes*: Boxing was a product with few substitutes in the 1930’s, other offers with similar entertainment characteristics – relaxation, socialization, joy, feeling of being part of a community – being theaters, ballrooms or cinemas. The availability of substitute goods influenced the demand for fight tickets. Generally, if the price of a good with many substitutes

increases, the demanded quantity of that good will diminish, as the consumer will turn to the substitutes and choose the particular good which offers him the best quality-quantity-price-relationship. For goods with few substitutes – such as boxing during the Great Depression – a modification of the price won't lead to a massive loss of consumers. Because there aren't any or just few substitutes, consumers will continue to buy the product, whatever the price.

4) *Inferior good*: During the 1930's boxing was an inferior good, this characteristic being one of the factors that guaranteed high attendance. Normal goods are the goods for which the demand modifies in the same way as the income: if the income increases, the demand also increases. The inferior goods, although, are the goods for which the demand modifies in a contrary way than the income: for example, if the income diminishes, the demand continues to be the same or even increases. The tendency during the Great Depression was that the income of households and of individuals lowered. The theory of the income effect states that, if the income diminishes, consumers will reduce spending and buy a lower quantity of the good. It didn't happen with boxing. Even if their incomes dropped during 1929 and the 1930's, the Americans continued to storm out in masses at fights and to fill out the hosting venues. Moreover, they gambled a lot.

5) *Rare, "enormous" events*: Two of the most important characteristics of heavyweight boxing were the rarity and the enormity of fights. Bouts between two heavyweights were the supreme shows a sports fan could think about. Although, for example, Joe Louis fought sometimes even more than ten times a year, his most bouts were against low-rated pugilists, many fights being organized as training for the important bouts. For a boxer, fights against rival boxers of at least the same quality were rare: one, two, or maybe three a year. When such "enormous" fights were set to find place, the society and the mass-media were wired up to them months before the first punch. Heavyweight bouts had an aura of greatness, and people afforded to save money in order to buy a ticket, because they knew something like that wouldn't come up again too soon. And, putting away some money once a year for feeling good wasn't that hard even in crisis times.

So, consumers invested into boxing, by buying tickets. This paper tried to demonstrate that even during times of economic crisis, sporting events can be produced and sold to the public. Each type of sport has its own economy and its own market, needing production factors in order to exist. Next to baseball, it was the most influential sport in the US-American society of the 1930's. Boxing also was among the few social activities of those years that managed to make money circulate into the economy.

7. Conclusions and further research

Back in the 1930's, as well as in our days, spectator sports were a Fast Moving Consumer Experience (FMCE). In order to sell the fights, promoters produced an aura of unique experience for the boxing bouts. The main selling proposition of a boxing fight was the unique experience of joy and happiness it offered to the spectators. Spectators who, due to the crisis, couldn't find joy in many other places. The search of joy was a positive consequence of the Roaring Twenties and one of the factors that made boxing exist and assure money circulation during the Great Depression and the rest of the years prior to the Second World War. One other factor presented in the research was the ability of promoters to understand and to use five economic theories/laws: the price discrimination theory, the Veblen Theory, the law of goods with few substitutes, the theory of inferior goods and the principle of rare events. Maybe the most powerful tool used by promoters was price discrimination. And, last but not least, another factor of boxing's success during the Depression was the existence of cartel agreements between the promoters.

The research made an attempt to explain how the economy of professional heavyweight boxing successfully functioned during the Great Depression. Further research may concentrate on the financial implications of boxing fights organized during the Great Depression. A research taking an inside look into the promoter's world, presenting how boxing agents organized fights and managed the boxing economy, would also be interesting. This research concentrated on a period in history, but further research can be done about the economy of boxing in general. Even a parallel comparison between the economy of boxing during the times of the Depression and the ones of the following decades would be interesting.

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