

Silent Confusions

“In its explicative model on the functioning of the rational space called market, Economics lends itself to manipulation by the predominant ideological sensitivities, through the fact that it accepts a skewing of the role and the status of factors in the equation of wealth production.”

In Economics, assertions do not invariably call on the objective founding of the truth and on the empirical testing of hypotheses. The specificity of cognition in Economics presupposes the replacement of the experiment with the observation – throughout large data series – of the causes and the consequences of economic reality. However, it also presupposes something different, much harder for rational thought to accept: the admission of faith in explaining the way things work, as well as the acceptance of subjective forms of manifestation in the understanding of causality. The expectation, for instance, becomes a forger of attitudes. This cognitive constitution of a discrete nature, permissive to the fluid influences of what the economists have dubbed “the animal spirits”, provides the rationalist experimentalists with indubitable proof that Economics is not a mature science.

The most confusing sign for the non-orthodoxy of the model of intellectual knowledge with which Economics operates is offered by the assumption that the economic system built on the factorial preeminence of the capital has an immanent auto-corrective behavior. This vision, ubiquitous in the world of economists, seems to eliminate the specificity of economic phenomena – which obey stochastic causality – by instituting a superior determination, akin to the invisible hand, which is responsible for continuity. The most obvious form invoked as the reason for the self-regulating capacity of capitalist economic systems is the recurrence of profit and the diffusion of prosperity. But is the expectation for the infallibility of self-regulation a cognitive path, when there is an economic crisis? Or, in other words, is expectation – as a basis for the trust in auto-correction – a source for the acceptance of loss? Of course, there is also a corollary for the question, entirely avoided: which is the source for the correction?

The questions appear contentious, if we take as a guide the rarity of their being brought up in the debates concerning the consistency of economic theory, and scientifically useless when we observe that the answers are being charged with ideological perspectives. As they say, there is no place for doubt when the games are made by faith. The consequence of the acceptance, with regard to causality, of a different course for the intellectual understanding of economic phenomena obfuscates, pure and simple, the epistemic state of the body of economic knowledge.

The conceptual structuring of Economics in the perimeter defined by the procedures of the logic for validating the specific truth of the sciences of nature is not entirely possible. Essentially, Economics’ object is human behavior justified by yield;

a behavior which does not exclusively have objective causes. This fact certainly looks to be in contradiction with the perception that Economics deals with the state of rationality of human action. The puzzlement comes from the acceptance of a non-rational source for the state of rationality. This state is a characteristic of evolved markets, such as the financial ones, which make speculative bubbles appear and disappear.

By observing the human behavior's sources for the proportions between the rational and the non-rational, and the objectual and the subjectual such as they are in reality, Economics would not have a problem of logic, but an epistemological one: keeping as well the natural proportions in its conceptual architecture, ahead of all the proposed explicative models. Behavioral excesses are determined by the excesses of founding the understanding only on certain behavioral sources, discounting others of similar relevance. Highlighting only certain sources within explicative models generates phenomena of cognitive dissonance, with one thing being told by the theory and another being suggested by the theoretical good sense which stems for the spontaneous contact with reality.

In the end, the complication affects the status of Economics in a somber note with regard to the clarification of what the scientific character of economic knowledge is. Where the assumption of self-regulation having a power of law becomes essential in the construction of explanations, an abstraction from the subjectual essence of economic phenomena is being made. Thus, for instance, deciding in favor of the immanence of randamental effects translates into an elimination from the explicative model of the fundamental causes of a stochastic nature, which originate from subjective behavior. The epistemic result is in accordance with the rationalist visions, but in perfect contradiction with the object of economic knowledge.

The oddity arrives from the direction of a non-scientific need, whose purpose is to avoid the doubting of the social virtues of the economic systems, which generate order by resorting to a preminent, if not unique, principle. We are in fact talking about a logical inconsistency, the switching in the planes of reference from the economic (belonging to wealth production) to the societal (which manages power). In its explicative model on the functioning of the rational space called market, Economics lends itself to manipulation by the predominant ideological sensitivities, through the fact that it accepts a skewing of the role and the status of factors in the equation of wealth production. The effect is absurd, because systems which are at most antithetical (economy versus society, market versus state) are laid into an irreducible (antinomian) conflicting position. The absurdity starts with an ideological option in favor of either the capital factor, or the labor factor.

The way in which this is done is also absurd: a product of man (the capital and the societal system centered on it) is declared as the main cause of reality. The expectation for something to happen is an irrational request for inaction. Meaning that the human condition is to be emptied of content, without action it will no longer be in resonance with the human nature.

Contents

Inflation Game Redistributions and Economic Crisis Path Dorel Ailenei, Amalia Cristescu.....	5
Estimation of the Mechanisms for Automatic Fiscal Stabilization. The Romanian Case Aura Gabriela Socol, Cristian Socol.....	15
Impact of the Financial Crisis on the Romanian Capital Market in the European Context Leonardo Badea.....	27
Current Research on Flexibilizing the Labor Market Daniel Ștefan, Costantin Roman, Aureliana Geta Roman	41
The Indian Stock Market and the Great Recession Arindam Mandal, Prasun Bhattacharjee	59
Credit Risk Assessment under Basel Accords Oana Miruna Dănilă	77
An Analysis of Current Labor Market Developments and Structures in European Union – in Correlation with Labor Market Flexicurity Requirements Alina Ștefania Chenic (Crețu).....	91
“Underground” Economy Nature – Conceptual Status Cristina Voicu	109
The Analysis of the Representativeness of Results Obtained after Applying the Method of Job Evaluation through Tasks Dorin Leonard Nistor	121
Implications of Educational Attainment on Labour Market Claudia Șerban	137

Note: The authors are responsible for the content of their articles and for obtaining necessary permissions.

Text revision:

Gabriela Ochiană

Computerized drawing up:

Nicoleta Bobocea

Cover:

Nicoleta Bobocea

Subscriptions distribution:

Mircea Dinu

Tel./Fax: 021/210.73.10; 021/210.63.07
021/210.63.08

Data base indexation:

EconLit

<http://www.aeaweb.org>

Research Papers in Economics (RePEc)

<http://www.ideas.repec.org>

<http://econpapers.repec.org>

Directory of Open Access Journals (DOAJ)

<http://www.doaj.org>

EBSCO Publishing

<http://www.ebscohost.com>

**International Consortium for the Advancement
of Academic Publication (ICAAP)**

<http://www.icaap.org>

CNCSIS B+

www.econometeoreticasiaplicata.ro; www.ectap.ro

Reception of texts: economia.ta@edeconomica.com

ISSN 1841-8678 (Print)

ISSN 1844-0029 (Online)

Inflation Game Redistributions and Economic Crisis Path

Dorel AILENEI

Bucharest Academy of Economic Studies
dorel_ailenei@yahoo.com

Amalia CRISTESCU

Bucharest Academy of Economic Studies
amalia.cristescu@economie.ase.ro

Abstract. *Starting from the effects of the socially redistribution of wealth generated by inflation, the authors aim to identify the system of interests that supports this process, namely the connections with the economic crisis. In this aim, this work launches the hypothesis that the contagious disease of the market imbalances represents the basis for the manifestation of the inflationary process. By analyzing the assumptions and the causes of the market imbalances manifestation, the authors reveal a system of interest alliances that added to the complicit attitude of the consumers supports the manifestation of the inflationary process. The confrontation between this hypothesis and the inflationary trends in developed countries over the last four decades, respectively the recent lesson of the global economic crisis, leads to the confirmation of a common root of the inflationary phenomenon and the economic crises. The authors think that in order to avoid the emergence of new global economic crises and the negative effects of inflation, a radical behavioural change is required from both consumers and other economic agents.*

Keywords: inflationary game; economic crisis; consumerist behaviour; contagious disease.

JEL Codes: E20, E31.

REL Code: 8F.

Introduction

Generally, inflation is defined as a random increase in the general level of prices, with additional details regarding a specific period of time (Burda, 1997, Blanchard, 2000), respectively as an erosion of the purchasing power of money (Walgenbach, 1973).

Usually, the conceptualization of inflation calls for four major theoretical sources:

- The classic theory, represented by David Hume (1751), explains inflation in terms of price increases caused by the money supply increase.
- The Keynesian theory argues, through its very founder John Maynard Keynes (1936), that inflation occurs when the demand for goods and services is greater than the supply (thesis that, among others, was caught up by Richard Lipseys (1995), who proves that inflation has also extra monetary causes).
- The monetarist approach repeats David Hume's thesis arguing that *inflation is always and no matter where a monetary phenomenon* in spite of the fact that it makes valuable nuances between the temporal dimensions of the process: short term versus long term (Friedman, 1963).

Even in the inflation synthesis proposed by Frisch (1983), the characteristic elements fall within the same conceptual area described earlier:

- Inflation is generated by an excess demand, in other words, "too much money chasing too few goods";
- Inflation – an increase in the money or income reserve, on total or per capita;
- Inflation – an increase in the price level characterized by the following elements: if forecast with a certain degree of error, it leads (by means of costs) to new price increases, and it is measured by net prices (from which taxes have been deducted) and it is irreversible;
- Inflation – a depreciation of the value of money in relation to other currencies, measured by the exchange rate, or by the price of gold, or indicated by an excess of gold demand or other currencies.

The phenomenology of inflation

Beside nuances and controversies, the inflation conceptualization is based on the imbalance between money and goods, or in other words, between the macro market of all goods and the monetary market. It is thus necessary to conceptually sever the causes and the premises of the inflationary process. This is required in order to penetrate beyond appearances and to discern between

factors that can be influenced and modified by anti-inflationary policies and permanent, substratum factors that explain the persistence of the inflationary process even at low, controllable levels. Thus, one can say that the inflation assumptions are related to the very major imbalance on which economics is built: the disparity between the characteristics of needs and wants and those of resources and goods (Figure 1).

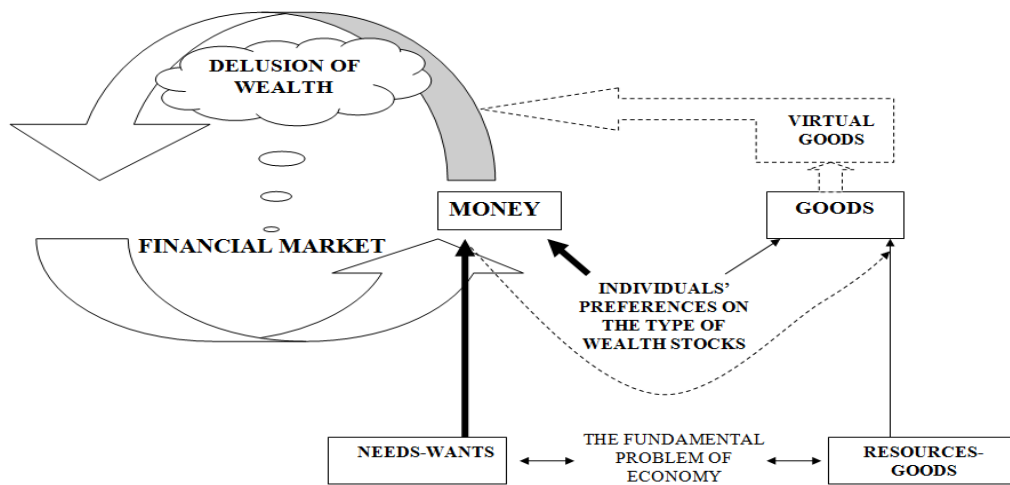


Figure 1. *The phenomenology of inflation*

It can be said that the main premise of inflation lies in the fundamental problem of economy: the identification of the ways to reduce the contradiction between the characteristics of needs-wants and those of resources-goods. Since needs and wants have a very strong dynamics and are virtually unlimited, there will be a much higher pressure on money as an indirect means (of access to goods) of solving the needs-wants binomial, than on goods that are produced much more difficult with limited resources.

Another premise, somewhat immediate to the inflationary process, is based on the individuals' preferences on the means of establishing the wealth stocks. There is no doubt that money will have net benefits in terms of administration, liquidity and mobility compared to goods. These two assumptions explain the predominance of the individuals' propensity to hold money in relation to the possibilities of production and the preferences for holding assets. Furthermore, the premises of inflation also explain the persistence of inflation beyond any mix of macroeconomic policies. This is due to the fact that the measures implemented by macroeconomic policies may affect the causes but not the premises of the inflationary process. For example,

the interest rate of the monetary policy will produce more expensive and more difficult to procure money, but it will not solve the fundamental problem of economy, that is slowing the rhythm of the needs-wants dynamics or a significant limitation of them. Moreover, this measure will only partially influence “the appetite” of individuals for money (even if they are more expensive) in relation to the stock of assets. In other words, the assumptions of inflation are related to the essence of economy, regardless of the time and space of its manifestation, while the causes of inflation are related to the materialization in specific forms of manifestation of this economic essence (national economies or world economy in certain periods of time). Thus, the monetary causes are related to the regulation of the broad money and its circuit in economy, the equilibrium of the exchange rate, the nature of the correlations between the monetary and financial phenomena, the equilibrium of the monetary flows in relation to foreign countries etc.

Moreover, money can support the monetary illusion of more valuable goods, a kind of delusion of wealth. In addition, the process of “value virtualization” (Dinu, 2011) in modern economies supports the illusion of an accelerated growth of material wealth through the emergence of virtual goods (securities, options, derivative instruments etc.). On the other hand, money is requested for itself (Keynes, 1936), i.e. in order to produce more money, entering the rotary delusion of wealth provided by the financial market.

The causes of the inflationary process arising from the real economy are related to the factors that determine the genesis and the dynamics of the aggregate supply and demand, to the national economic structure, to the labour market and productivity, to the emergence of competition and the efficient functionality of markets, to the connections that the national economic system has with the world economy etc. The correlation of the macroeconomic causes with the microeconomic causes of inflation may reveal hidden connections in the propagation of inflationary shocks. Thus, by insisting upon locating the causes of the outbreak and propagation of the inflationary phenomenon in the monetary market or the goods market, the fact that the roots of this macroeconomic phenomenon lie in macroeconomics is overlooked. In other words, inflation is observed and estimated at the macroeconomic level, but the onset of this imbalance occurs in the microeconomic markets. The neglect of the latter (microeconomics) leads to a virtual aberration of the inflation conceptualizing perspective by focusing it on the generalized increase of prices and the diminishing purchasing power of money, thus giving the impression that prices have the same increase (according to a specific index of prices). From this perspective, it becomes clear that inflation is a multidimensional phenomenon:

- The structural dimension dwells in the differentiated increase in prices in certain markets, and therefore their contribution in supporting the inflationary process is different;
- The spatial dimension is rendered by the distribution of the prices dynamics in the field, and their contribution to estimating the inflation level depends on the territorial structure of the observed price samples;
- The temporal dimension is rendered by differentiating the moments of time of the price increases onset, respectively by their temporal forms.

In order to observe these dimensions of the inflationary process and its microeconomic roots, it is necessary to avoid the “beaten path” in the scientific research. Thus, insisting on the fact that “inflation is *a generalized increase of prices and not an increase in the price of individual goods*” (Frisch, 1983) may be a form of *intellectual blindness* that would block the cognitive approach bypassing evidences like: *prices do not increase sharply, simultaneously and equally*; there are price increases that can lead to propagated effects (usually those of raw materials and energy products); the territorial manifestation and propagation of the price increases sends signals that are very useful in preventing the inflationary process etc.

Similarly, the microeconomic roots of the inflationary process could not be notified without considering the fact that the money – goods imbalance corresponds directly with the supply – demand imbalance that occurs in the real markets. The microeconomic perspective could support the hypothesis that inflation is a kind of *contagious disease* of the markets system. The process can be triggered by a shock that imbalances a market at some point. The contagious effect can trigger imbalances on vertical, horizontal or territorial integration structures. When the contagious effect becomes significant in terms of a structural dimension, the inflationary process occurs at a macroeconomic level. But, at that point, the anti-inflationary measures can be late and very expensive anyway.

In terms of the causes and premises of the inflationary phenomenon, to say that *human greed* is the basis of its manifestation does not suffice to notice how imbalances can occur in markets. However, in order to avoid gliding towards the historical aspects of the issue, we will limit the analysis to the modern times, namely to the emergence of marketing. According to specialists, marketing emerged because of the transition of the producer market to the consumer market⁽¹⁾ (due to the technological progress). This transition is reflected in the stage model of economic development created by W.W. Rostow (1960) through the highest level given to the *High mass consumption*, which is a stage of maturity, characterized by a thriving population and a mass production for sophisticated consumer goods. Rostow believes that this is a typical USA stage. This is the level of economic development at which the

slogan “the consumer is king” is promoted – a king that is continuously incited to an excessive consumption. Of course, the reason of this incitement is the profit maximization, but we are dealing with a real conspiracy in which producers, distributors and bankers become allies so that they can manipulate consumers. Profit increases do not arise only from the increased market shares, but rather from the economies of scale generated by a high mass consumption, respectively from the higher velocity of circulation of capital used by each of the protagonists of the alliance. Moreover, the contribution of the banker is very interesting for the purpose of our analysis because, by elongating the temporal dimension of the market, it provides the conditions needed for the economies of scale to function.

Thus, the possibilities of consumption financing are taken beyond the individual's current income, balancing revenues in an increasingly distant and uncertain future. It is no less true that the consumer also indulges in the delights of the abundance state, more often than not ignoring the problem of debt repayment. But from a monetary perspective, this consumption, based on the consumer's complicity, leads to an increased velocity of money and hence, to an increased supply of money, according to Irwin Fisher's famous equation:

$$M \times V \uparrow = P \times Y.$$

Under these circumstances, the control of the monetary flows is shared between the central bank and economic agents, with the former controlling more often than not the broad money, while the latter are responsible for accelerating the velocity of money. This perspective is very useful from a conceptual point of view as it abolishes the accusation of the Austrian school, according to which the moral culprit for triggering the inflationary phenomenon is the state, that covers its inefficient production and distribution of public goods with money. Our approach does not rule out the causes related to the public sector inefficiency, but proves that the interests of the private sector can generate and sustain the inflationary process at a higher level, even when the central bank and the government apply a prudent monetary policy.

The ratification of the consumerist perspective on the outbreak and persistence of the inflationary process involves a confrontation with the macroeconomic limited approach of this process as an imbalance of the macro markets of all goods and monetary markets, respectively as a blockage of economic growth. Thus, as Figure 2 shows, the inflationary shocks have overlapped for an extended period of time with the shocks of economic recession which has favoured the tendency to explain the phenomenon of inflation by cyclical macroeconomic imbalances, respectively by accidental economic growths that occur in major developed countries.

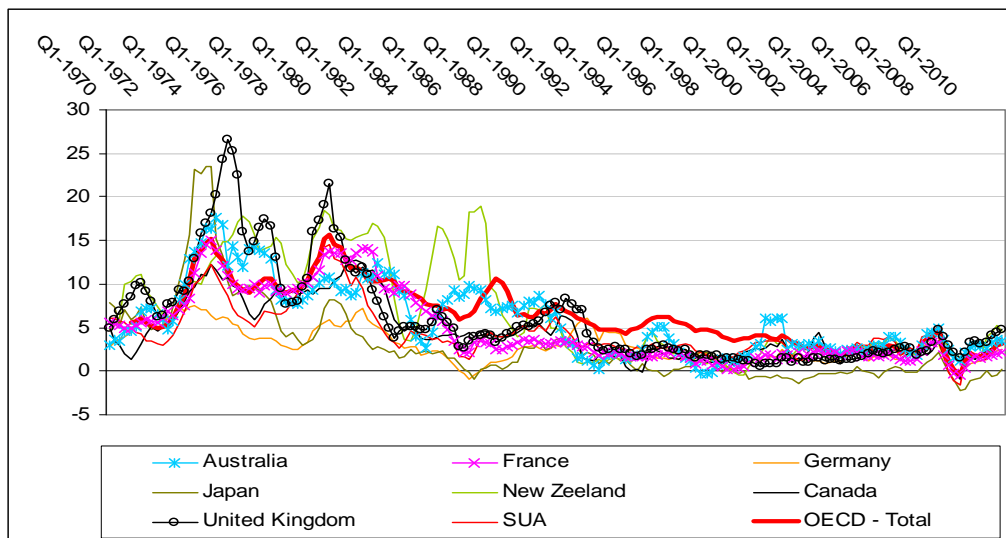


Figure 2. *Inflation in the major industrialized countries*

It may be tempting to address the relationship between economic growth and inflation as a structural feature of the global economy, but there are at least two reasons to resist this temptation:

- In a world of fluctuating exchange rates, there is an aim to adjust these rates in different countries in response to internal and external shocks.
- The period of global economic growth has been associated with an expansion of trade which reduced the cost of many industrial goods (processed) in particular.

As it can be seen in Figure 2, the trend of the structural relationship between global economic growth and inflation was abandoned as positive results acted in ensuring price stability rendered by the implementation of effective monetary policies, based especially on the inflation targeting strategy. The success of these policies was based on a series of fundamental reforms in production and labour markets in response to an increased competition due to the trade opening, which led to more flexible economies. In return, they become less likely to respond with inflationary pressures in case of cost or demand shocks. However, since there is little doubt that some economies are more flexible now than before, after all, there is no evidence that this should result in a lower inflation even though there may be many other beneficial effects of a higher flexibility.

Another possible explanation for the recent period of low inflation refers to good economic policies. OECD countries appear to have had somewhat

similar policies in the analysed period and hence the assumption that economic policies (in terms of interest rate policies of central banks) tended to move together. However, this observation tells us little about the phenomenon since the challenges that the economic policy makers were facing were similar as well. In addition, the explanation for the low inflation level in developed countries in recent years, based on good economic policies and structural reforms seems to overshadow the relationship inflation – recession/economic crisis and, therefore, our cognitive approach based on the interests system that supports the inflationary process. Indeed, statistics confirm that even during an ongoing economic crisis the level of inflation remained relatively low, which seems to support the opposing hypothesis that there is no conspiracy of interest in the generation and manifestation of the inflationary process.

Still, an increasingly number of economists believe that the recent financial crisis was not caused only by the excessively lax monetary policy of the Federal Reserve System of the United States. Thus, it becomes even more solid the opinion that the crisis was caused primarily by factors that had little to do with the monetary policy and that were largely due to the context created by the macroeconomic conditions, the distorted incentives on financial markets, the failures related to regulations and supervision of financial markets (even when central banks were responsible for regulation and supervision), the problems of information and certain specific circumstances, including the policy of the real estate market in the USA to support home ownership for mortgaged households with low income.⁽²⁾

The macroeconomic conditions that preceded the crisis have included both low real interest rates worldwide, associated with global imbalances and the period of moderation (The Great Moderation), characterized by stable economic growth and low inflation, which led to a systematic underestimation of the risks and the very low risk premiums in financial markets. There were some distorted incentives for commercial and investment banks to increase leverage, which was made possible by inadequate supervision and regulation, but also by the lack of an appropriate system of banking settlement. There have been distorted incentives both for exercising weaker requirements regarding the initiation of loans and the execution of regulatory arbitrage by creating off-balance sheet entities, which, for various specific reasons, ended up still in the balance. There have also been distorted incentives for traders and investment fund managers so that they take excessive risks because of the asymmetric remuneration contracts. Finally, there have been significant information problems regarding risk assessment for highly complex asset-backed securities. Concurrently, there has been an immense underestimation of the potential risks systematically correlated. None of these causes had anything to do with the

monetary policy, except for the fact that monetary policy may have contributed to the “Great Moderation”.

Succumbing to the temptation of the easy profit from trading commissions, many large banks were distracted from their basic functions: providing an efficient mechanism for payments, respectively assessing and managing risk and granting loans. The banking system in the USA and many other countries did not focus on providing loans to small and medium companies that are the basis of providing employment in economy, but rather they have focused on security, especially on the mortgage market. In a nutshell, financial markets have failed to fulfil their basic functions, leading to risks, allocating capital poorly, stimulating excessive debts, and imposing high costs of trade. Furthermore, rating agencies have given their blessing to what banks did. Financial markets have succeeded, based on innovation, to avoid regulations, as the tax and accounting rules have created products that were so complex that their effect was to increase both the risk and the information asymmetries.

This perspective reveals another conspiracy of interests motivated by profit maximization, which is similar to the consumerist hypothesis in support of the inflationary process. Thus, a new idea emerges, according to which the pressures of the interests system that supports the inflationary process have burst in an area of economy that is less supervised and regulated than that of the monetary policy objective of ensuring price (similar to a complicated system of communicating vessels circulated by steam pressure) – namely, the financial market. The idea could be supported by the empirical records that signal the emergence of some divergent trends in the dynamics of commodity prices and the average inflation rate in the world. Therefore the same system of interest alliances and the consumer’s complicity are the basis of the inflationary process and of the global economic crises, which proves that the two processes follow a mutual behaviour path.

In conclusion, we can assert that the solution to avoid global economic crises and the negative effects of inflation does not lie in improving monetary policy instruments, nor in correlating it with other macroeconomic policies, nor in complicated institutional constructions that supervise and ensure the stability of the financial market, but in a radical change of behaviour that first and foremost involves the consumer’s awakening. Only when the consumer is aware of the fact that letting himself be manipulated towards excessive consumption is detrimental in the process of inflationary redistribution of wealth, will the basis of a new economic alliance be laid, an alliance that is favourable to a sustainable development and an individual and social well-being.

Notes

- (1) The producer market describes a state of relative scarcity of goods, as the producer holds the dominant position in relation to the consumer. On a consumer market, the balance of power changes due to the abundance provided by the technological progress and by the competition between producers, competition in which consumers are favoured.
- (2) See Bean (2009) with a very elaborate analysis of the crisis, including the expanding credit and the housing boom, macroeconomic history, distorted incentives, information problems, amplification and propagation of the crisis in the real economy, policy responses and lessons about monetary policy and economy in general.

References

- Bean, Ch. R., „The Great Moderation, the Great Panic and the Great Contraction”, Schumpeter Lecture, *Annual Congress of the European Economic Association*, 2009, www.bankofengland.co.uk
- Burda, M., Wyplosz, C. (1997). *Macroeconomie. O perspectivă europeană*, Editura All Beck, București
- Blanchard, O. (2008). *Macroeconomics*, 5th ed. Upper Saddle River, N.J., Prentice-Hall, ISBN 139780132078290
- Dinu, M., „Criza gnoseologică”, *Economie teoretică și aplicată*, Vol. XVIII, Nr. 11, 2011
- Friedman, M. (1963). *A Monetary History of the United States*, Princeton University Press
- Frisch, H. (1983). *Theories of Inflation*, Cambridge, Cambridge University Press
- Hume, D. (1751). *An Enquiry Concerning the Principles of Morals* (edited by J.B. Schneewind), Hackett Publishing Company, ISBN 9780915145456
- Fisher, I.N. (1922). *The Purchasing Power of Money: Its Determination and Relation to Credit, Interest, and Crises*, 2nd ed., New York, The Macmillan Co
- Keynes, M.J. (2007). *The General Theory of Employment, Interest and Money*, Palgrave Macmillan, ISBN 9780230004764 – paperback
- Lipsey, R., Chrystal, A. (1995). *An introduction to positive economics*, 8th ed., Oxford University Press, ISBN 0198774249
- Mishkin, F., „Globalization, Macroeconomic Performance, and Monetary Policy”, *Journal of Money, Credit and Banking Supplement*, Vol. 41, No. 1, 2009, pp. 187-196
- Rostow, W.W. (1960). *The Stages of Economic Growth: A Non-Communist Manifesto*, Cambridge, Cambridge University Press
- Stiglitz, J. (2010). *Freefall: America, Free Markets, and the Sinking of the World Economy*, ISBN 9780393075960, W.W. Norton & Company
- Svensson, L.E.O. (2009b), “Flexible Inflation Targeting: Lessons from the Financial Crisis”, www.riksbank.se
- Walgenbach, P.H., Dittrich, N.E., Hanson, E.I. (1973). *Financial Accounting*, New York, Harcourt Brace Javonovich, Inc.

Estimation of the Mechanisms for Automatic Fiscal Stabilization. The Romanian Case

Aura Gabriela SOCOL

Bucharest Academy of Economic Studies
auragabriela.socol@gmail.com

Cristian SOCOL

Bucharest Academy of Economic Studies
socolcristian1@yahoo.com

Abstract. *The set of fiscal rules within the Euro area are based on the functionality of the automatic stabilizers as a main instrument of the fiscal stabilization. This non-discretionary approach should guarantee that the evolution of the current budget deficit is anti-cyclic and thus it should contribute to the economic stability. According to the Convergence Program submitted to the European Commission, Romania proposes to access the Euro area in 2015. For this reason, the assessment of the automatic fiscal stabilization mechanism for the Romanian economy is essential, under the terms in which the adjustment mechanisms (possibly alternative) – at the markets' level are poor. This study makes an estimation for the extent of the automatic stabilizers for Romania, with the purpose of assessing the macroeconomic stabilizing role of the Romanian fiscal policy during the period 2000-2010, by using the official methods of the International Monetary Fund and of the European Commission.*

Keywords: fiscal policy; automatic stabilizers; rules versus discretion.

JEL Codes: E62, H61.

REL Codes: 8K, 8M.

Introduction

Since the foundation of the European Economic and Monetary Union, estimates have been made with reference to the fact that the fiscal health is an essential condition for the stability of the monetary union. The fiscal policy influences the assignment of resources between the public and private sectors, thus affecting the consumption, saving or investment behaviour, and, indirectly, the output level and the evolution of the economic cycles. In other words, within the Euro area, the national macroeconomic stabilization is the full responsibility of the fiscal policy. Thus, the fiscal policy should take the role of macroeconomic adjustment instrument role, given the absence of the national monetary policy or the rigidity conditions of the other instruments (the rigidity of the labour market, of wages and of prices, the low synchronization of the business cycles). Giving up the instrument of exchange rate within EMU involved the assignment of higher role of the national fiscal stabilizers in order to help economies in adjusting to the asymmetric shocks.

Within the Euro area, the Stability and Growth Pact pretended to be a modality to support and induce the fiscal discipline. But its rules do not provide enough stability to deal with the cyclic crises. Moreover, it cannot replace the coordination of the economic policies. Also, SGP omits their structure and causes, under the terms in which it refers to the limits of the deficits only. The previously mentioned arguments suggest the necessity to settle limits for the level of the public debt. The entire set of fiscal rules within the European Monetary Union (EMU) is based on the functionality of the automatic stabilizers. This study estimates the extent of the automatic stabilizers for Romania, with the purpose of assessing the macroeconomic stabilizing role of the Romanian fiscal policy during the period 2000-2010. According to the Convergence Program submitted to the European Commission, Romania proposes to access the Euro area in 2015. For this reason, the assessment of the automatic fiscal stabilization mechanism of the Romanian economy is essential, under the terms in which the adjustment mechanisms (possibly alternative) at the markets' level are poor.

Fiscal policy can play an important role to help stabilize the economy during cyclical swings. Discretionary policy, however, typically involves implementation lags and is not automatically reversed when economic conditions change. In contrast, automatic fiscal stabilizers ensure a prompt, and self-correcting fiscal response. A simple rule of thumb applies: the larger government is, the larger are the automatic stabilizers. Government size is determined by several factors, however, typically unrelated to stabilization

goals, and increasing it beyond a certain level may have efficiency costs (Baunsgaard, Symansky, 2009).

Buti et al. (2003) show that „It is often claimed that tax and welfare reforms that aim at enhancing efficiency may come at the cost of cyclical stabilisation. Reducing the generosity of welfare systems and lowering taxes may boost efficiency and output, and improve market adjustment to shocks. But, by reducing the size of automatic stabilisers, it may also imply less cyclical smoothing. This would be unwelcome in EMU given the loss of national monetary autonomy and the well-known pitfalls of active fiscal management. This paper argues that the alleged trade-off between efficiency/flexibility and stabilisation may not exist. We show that, if the initial level of the tax burden is high, reducing it may lead to higher output stabilisation in the event of a supply shock and higher inflation stabilisation in the event of a demand shock. Simulations show that European countries – especially small ones – might have a tax burden close to or even higher than the threshold level”.

The automatic stabilizers widen the budget deficit when the output gap increases, and vice versa for a decrease in the output gap. This provides an appropriate fiscal response when the output gap is caused by demand shocks. However, if the economy is hit by a supply shock, offsetting this by fiscal demand changes will have inflationary consequences. So, with a supply shock, the automatic stabilizers will slow down the convergence to the new potential GDP, hence requiring a fiscal adjustment (Blanchard, 2000).

How to estimate the size of fiscal stabilizers is an important issue, for example impacting the assessment of the proportion of a targeted fiscal expansion that will come from the stabilizers and what is needed in the form of discretionary measures. Reaching common understanding on the methodology for estimating the stabilizers across different countries will facilitate efforts to coordinate fiscal policy responses during a crisis. More comprehensive guidance on how to estimate automatic stabilizers are contained in Fedelino et al. (2009).

1. The advantages of strong automatic fiscal stabilizers

The rules of fiscal policy based on the functionality of the automatic stabilizers have some clear advantages. The conjuncture public revenues and expenses (en. state-contingent), such as the costs for the unemployment assistance absorb the economic fluctuations without delays in obtaining information and in implementation. Moreover, the impact of the automatic stabilizers has a short duration, and if they have a symmetrical functionality

during the economic cycle, they do not contribute to the degradation of the structural budget position.

The automatic stabilizers represent natural means to reduce the variations in the economic activity. Nevertheless, taking into consideration the fact that some countries, especially the small ones, may encounter an adverse monetary position, at the national level an active fiscal policy continues to be necessary. Considering arguments such as the synchronization, irreversibility and models uncertainty issues, the use of fiscal policy discretionary measures for stabilization purpose should be limited to exception cases: pronounced recessions, high risk of economic overheating or inflation acceleration (Altar, 2009).

With large fiscal stabilizers, implementation is timely and gradual as tax and expenditure react in a countercyclical manner to changing economic conditions. From a fiscal sustainability perspective, automaticity also provides a timely reversal of any fiscal expansion – the fiscal loosening in bad times is automatically followed by a tightening in good times. This may enhance the impact of a fiscal expansion on demand with respect to discretionary action, as the latter may raise solvency concerns and affect interest rates. On the other hand, this is not only in advanced countries but also in low-income and emerging market countries, here empirical evidence points to the prevalence of procyclical fiscal policies. In those countries, procyclicality reflects a bias in discretionary fiscal policy, enhancing the automatic stabilizers would provide some countercyclical pushback (Baunsgaard, Symansky, 2009).

Constraints on fiscal space, financing, and debt solvency may prevent a country from letting the automatic stabilizers operate (which would make the goal of raising the automatic stabilizers pointless). This also reinforces the importance of following prudent fiscal policies during good times. Financing constraints are typically more binding in developing economies with shallow domestic debt markets or limited access to external financing. Evidence of procyclicality in fiscal policy in these countries could also be a symptom of more severe financing and debt sustainability-related constraints.

Expanding fiscal policy would not be appropriate in the presence of large supply shocks, as this would simply create inflation. Thus, prudence is needed in raising the automatic stabilizers in countries exposed to large supply shocks. Raising the automatic stabilizers may have effects on other fiscal policy goals. This is particularly true if the increase is achieved by raising the tax (and spending) level. Equity goals might be enhanced by a larger size of government, particularly if it comes with higher progressivity. But, beyond a certain level, a larger size, and related higher taxes, would have efficiency costs. This raises a key policy issue, namely how it is possible to boost the automatic stabilizers without increasing the government size (Baunsgaard, Symansky, 2009).

2. The estimation of the automatic fiscal stabilizers in Romania

Fiscal variables, and by implication fiscal balances, move in response to both discretionary policy actions and other, “automatic” effects induced by changes in the macroeconomic environment (typically, but not solely, cyclical changes in output). For example, taxes may be cut or expenditure increased – examples of discretionary policy actions – resulting in a worse fiscal balance. When economic activity slows down, revenues are negatively affected and spending may increase automatically (typically some components of spending, such as unemployment benefits, react to the cycle) – again, resulting in a deterioration of the fiscal balance. Looking solely at changes in the fiscal balance can thus be misleading: these movements may give an impression of expansionary (or contractionary) discretionary policy actions, even though the changes are driven by cyclical factors (Fedelino et al., 2009).

The cyclic budget component has been estimated by means of two methods: (a) the aggregate method proposed by the International Monetary Fund in Technical Notes and Manuals, International Monetary Fund, Fiscal Affairs Department; (b) the disaggregate method proposed by the European Commission (the OECD methodology).

According to both methods, the overall fiscal balance may be decomposed as follows:

$$OB = CPB + CAPB \quad (1)$$

where:

$CAPB$ = the cyclically adjusted primary balance and

CPB = the cyclical primary balance.

So, the changes in the OB can be decomposed into: (1) the automatic response of fiscal variables to changes in output; (2) the response of fiscal variables to changes in discretionary policy

$$\Delta OB = \Delta CPB + \Delta CAPB \quad (2)$$

$$AS = \Delta CPB = \Delta OB - \Delta CAPB, \quad (3)$$

where:

AS = automatic stabilizers.

Automatic stabilizers are one of the factors that explains changes in overall balances (ΔOB). Their name derives from the fact that they both help “stabilize” the business cycle and are “automatically” triggered by the tax code and by spending rules. For example, taxes that are a function of income react automatically to the cycle – with lower growth and correspondingly lower business profits or pre-tax household income, the government’s tax take will be

lower while disposable income and, hence, consumption will decline by less than pre-tax income, helping ease the impacts of a slowdown. Similarly, some spending programs also react automatically to the cycle, such as unemployment benefits or other social transfers, which are designed to kick in when economic conditions deteriorate (Fedelino et al., 2009).

The difference between the two methods – the aggregate and the disaggregate methods – consists in the modality in which the cyclic budget component is estimated. Thus, according to the aggregate method proposed by the International Monetary Fund, the cyclic component is estimated as residual budget component, after which, the structural budget component is previously estimated. The disaggregate method proposed by the European Commission considers the structural budget component as a residual component, and this time the focus is on a more detailed method for the estimation of the cyclic budget component, as it is presented below.

The aggregate method. The change in the cyclically adjusted primary balance can be derived from cyclically adjusted revenue and expenditure. In particular, the cyclically adjusted component of revenue RCA is defined as:

$$R^{CA} = R \left(\frac{Y^p}{Y} \right)^{\varepsilon_R}$$

$$gap = \left(\frac{Y - Y^p}{Y^p} \right)$$

Where R is nominal primary revenue, Y^p is potential output (that is, the maximum output compatible, at any given time, with the absence of unexpected inflation), Y is actual output and ε_R is elasticity of revenue with respect to the output gap.

The potential GDP and the output gap have been estimated by means of the method recommended by the European Commission – the production function method. For the estimation of the potential GDP by means of the production function method, quarterly values related to the period 2000-2010 have been used. The main advantage for the estimation made by using this method is that the part of the economy's aggregate offer may also be reflected. In the case of the real GDP, we have used quarterly data in an SDDS format (Special Data Dissemination Standard), expressed in millions of RON, 2000 average prices for the period 2000-2010 and published by the National Institute of Statistics (INS). The seasonal adjustment of the data has been performed by using the DEMETRA program (Annex 1).

The determination of the potential GDP by using the production function method supposes three stages (Denis et al., 2006): (i) determination of the production function form; (ii) estimation of the production function parameters; (iii) determination of the production factors entries; (iv) estimation of the total factor of productivity (TFP); (v) determination of the potential GDP and of the output gap. According to the methodology described by Denis et al. (2006), the Cobb-Douglas production function presents the gross domestic product as a combination between labour (L) and capital (K), corrected for the excessive capacity degree (U_L , U_K), and adjusted for the efficiency level (E_L , E_K). The potential GDP is given by the following relation:

$$Y = (U_L L E_L)^\alpha (U_K K E_K)^{1-\alpha} = PTF \times L^\alpha \times K^{1-\alpha}$$

On the other hand, cyclically adjusted primary expenditure is similarly defined as:

$$G^{CA} = G \left(\frac{Y^p}{Y} \right)^{\varepsilon_G}$$

Where G is nominal primary expenditure and ε_G is the elasticity of expenditure with respect to the output gap. Then the cyclically adjusted primary balance is:

$$CAPB = R \left(\frac{Y^p}{Y} \right)^{\varepsilon_R} - G \left(\frac{Y^p}{Y} \right)^{\varepsilon_G}$$

And the cyclical primary balance is

$$CPB = OB - CAPB$$

An essential aspect is related to the structural budget component indicator. That is the reason why, according to the IMF method, the cyclic component, as we have previously mentioned, is calculated in the same way as the residual component: the structural component is eliminated from the total budget balance. Thus, considering the accuracy of the economic theory, the structural budget component should be related to the potential GDP indicator. This happens, mainly, because, economically, it represents the budget deficit recorded at the level of the potential GDP. Moreover, the initial official methods (Hagemman, 1999, Girouard et al., 2005) estimate the structural balance indicator at the level of the potential GDP. Especially for largely public understanding reasons, the European Commission estimates the structural balance related to the current GDP (as it can be noticed in Annex 2, the differences may be significant). Thus, so as the results could be comparable, the structural budget balance has been related to the current GDP indicator in both variants.

The disaggregate method. The budget cyclical component is determined according to the sensitivity of the budget deficit in case of economic fluctuations. Actually, the sensitivity of the budget deficit according to the cyclical evolution of the economy represents the variation in percents of the budget balance to the modification by one percent of the output gap. The structural component of the budget is obtained by subtracting the cyclical component from the component of the current budget balance, according to the following formula:

$$CAB_t = B_t - B_t^C = B_t - \sum_j B_{tj}^C$$

where:

- CAB_t = structural budget components (the cyclically adjusted component);
- B_t = current budget balance;
- B_t^C = cyclical budget components on categories of incomes and expenses.

The formula used to calculate the cyclical component is as it follows:

$$DC_{tj}^C = B_{tj} \times \alpha_j^{PIB} \times gap_t$$

The cyclical component of each category of incomes and expenses (CAB) is calculated by using the output gap and the elasticity estimated for the gross domestic product (α_j^{PIB}). The sensitivity of the budget deficit to the modification made in the gross domestic product (PIB); ϕ , actually, is the first derivative of the current budget balance (B_t) related to the gross domestic product and it is calculated as the difference between the sensitivity of the budget incomes (ϕ_v) and the sensitivity of the budget expenses (ϕ_G) to the variation of the domestic output:

$$\phi = \phi_v - \phi_G.$$

where:

$$\phi_v = \alpha_v \times \text{the share of the incomes in the gross domestic product}$$

where:

$$\phi_G = \alpha_G \times \text{the share of expenses in the gross domestic product}$$

The total elasticity of the budget incomes is obtained as an aggregate sum between the elasticities of the three categories of taxes (the direct taxes, the indirect taxes and the social contributions), balanced with their share in the total of the budget incomes. Moreover, the total elasticity of expenses is obtained as a result of balancing the category of expenses taken into consideration with their share in the total of the budget expenses. By means of Granger causality tests, measurements have been made for the causality relations between the

above-mentioned categories of budget incomes and expenses and the gross domestic product. In order to estimate the elasticity of the budget incomes and expenses related to the gross domestic product (GDP), the cointegration procedure has been used (Annex 3). The results obtained for the cyclic budget component on the basis of the two methods are presented in Annex 4.

Conclusions

Firstly, the results obtained by means of the two methods are quite similar (Annex 4). In both cases, the results obtained for Romania show an improvement of the fiscal automatic stabilizers' extent, around the value of 0.40. This fact is also indirectly confirmed by the decrease of the discretionarism's degree in Romania, in other words, the improvement of the structural budget balance related to the level of the current GDP. Their level is lower if compared to the level considered in the case of the Euro area countries (0.5) (Bouthevillain et al., 2001), and this shows a lower efficiency of the automatic stabilizers' action in Romania in comparison with the Euro area countries. Nevertheless, we may say that their efficiency increased in comparison with the period 2000-2007, when the value estimated according to a fiscal reaction function proposed by Fatas and Mihov was of 0.35 only (Socol, 2009). Nevertheless, two aspects should be outlined. Firstly, the results of the estimations should be cautiously interpreted, as inflection points may occur in the differently used methods. For example, both methods use the output gap indicator (however, the potential GDP may be estimated based on different methods, thus obtaining different results; the elasticities of revenues and expenses may be estimated by means of the co-integration method, and also OECD proposes a method for their estimation, etc.) Secondly, we think that what is the most important for the economic, and especially social welfare, refers to the mechanisms for the transmission of the fiscal automatic stabilizers towards variables such as output, inflation, etc. rather than their value which, as a matter of fact, may also be interpretable. These aspects will be studied in a future study.

Aknowledgements

This article represents the dissemination of research financed by Social European Fund, contract no POSDRU/89/1.5/S/59184 *Postdoctoral research performance and excellence in economic sciences in Romania*, Academy of Economic Studies, Bucharest.

References

- Altar, M. (coord.), (2009). „Finanțe publice: introducerea unui cadru fiscal bugetar pe termen mediu”, studiu SPOS 2009, Institutul European din România
- Baunsgaard, Th., Symansky, S.A., „Automatic Fiscal Stabilizers”, September 28, 2009, SPN/09/23, IMF, available at www.imf.org
- Barro, R.J., „On the Determination of the Public Debt”, *Journal of Political Economy*, 87, 1979
- Bohn, H., „The Behavior of US Public Debt and Deficits”, *The Quarterly Journal of Economics*, 113, 1998
- Bohn, H., „The sustainability of fiscal policy in the United States”, *CESifo Working Paper*, nr. 1446, 2005
- Blanchard, O., „Commentary”, *Economic Policy Review*, Federal Reserve Bank of New York, April 2000
- Buti, M., Martinez-Mongay, C., Sekkat, K., Noord van den P., „Automatic Fiscal Stabilizers in EMU: A Conflict Between Efficiency and Stabilization?”, *CESifo Economic Studies*, Vol. 49, 2003, pp. 123-140
- Bouthevillain, C., Cour-thimann, P., Van den Dool, G., Hernández de Cos, P., Langenus, G., Mohr, M., Momigliano, S. Tujula, M., „Cyclically Adjusted Budget Balances: An Alternative Approach”, European Central Bank, *Working Paper*, No. 77, 2001
- Denis, C., Grenouilleau, D., McMorro, K., Roger, V., „Calculating potential growth rates and output gaps – A revised production function approach”, *European Economy, European Commission Economic Papers*, No. 247, 2006
- Fatás, A., Mihov, I., „Government Size and Automatic Stabilizers: International and Intranational Evidence”, *CEPR Discussion Paper*, No. 2259, 1999 (London: Centre for Economic Policy Research)
- Fatás, A., Mihov, I., „On constraining fiscal policy discretion in the EMU”, *Oxford Review of Economic Policy*, No. 19, 2002
- Fedelino, Annalisa, Ivanova, Anna, Horton, M., „Cyclically Adjusted Balances and Automatic Stabilizers: Some Computation and Interpretation Issues,” *IMF Technical Notes and Manuals* (Washington: International Monetary Fund), 2009
- Gali, J., Perotti, R., „Fiscal policy and monetary integration in Europe”, *NBER Working Paper*, No. 9773, 2003
- Giorno, C., Richardson, P., Roseveare D., Noord van den, P., „Potential output, output gaps and structural budget balances”, *OECD Economic Studies*, 24, 1995
- Girouard, N., André, C., „Measuring Cyclically-adjusted Budget Balances for OECD Countries”, *Economics Department Working Papers*, No. 434, 2005, OECD, Paris
- Hagemann, R., „The Structural Budget Balance The IMF’s Methodology”, *IMF Working Paper* No. 55, 1999, International Monetary Fund (IMF); National Bureau of Economic Research (NBER)

Annex 1

According to the methodology described by Denis et al (2006), the Cobb-Douglas production function presents the gross domestic product as a combination between labour (L) and capital (K), corrected for the excessive capacity degree (U_L , U_K), and adjusted for the efficiency level (E_L , E_K). The potential GDP is given by the following relation:

$$Y = (U_L L E_L)^\alpha (U_K K E_K)^{1-\alpha} = PTF \times L^\alpha \times K^{1-\alpha}$$

Years	Output gap
2000	-1.55
2001	-0.57
2002	-0.60
2003	-0.91
2004	0.86
2005	2.60
2006	6.05
2007	8.81
2008	9.13
2009	-1.92
2010	-4.00

Source: Author's calculations.

Annex 2

The cyclic budget deficit and the structural budget deficit in Romania

Table 1

Years	Output gap	Structural budget deficit (% GDP)	Structural budget deficit (% potential GDP)
2000	-1.55	-3.86	-3.43
2001	-0.57	-3.22	-4.06
2002	-0.60	-2.56	-3.89
2003	-0.91	-2.14	-3.78
2004	0.86	-1.09	-2.96
2005	2.60	-2.70	-1.42
2006	6.05	-4.36	-4.91
2007	8.81	-5.16	-6.13
2008	9.13	-8.57	-7.06
2009	-1.92	-8.26	-9.11
2010	-4.00	-6.53	-8.26

Source: Author's calculations.

Annex 3

The elasticities have been estimated by means of the Johansen co-integration method. According to the obtained co-integration coefficients, the long-term relations between the budget categories and the GDP have been deduced:

$$\ln(\text{taxdir}) = 1.51 \times \ln(\text{GDP}) - 7.96$$

$$\ln(\text{taxind}) = 1.11 \times \ln(\text{GDP}_{-1}) - 3.24$$

$$\ln(\text{contributions}) = 0.98 \times \ln(\text{GDP}) - 2.10$$

$$\ln(\text{che}) = -0.13 \times \ln(\text{GDP}) + 3.14$$

Annex 4

Years	Cyclic comp. method I	Cyclic comp. method II
2000 Q1	-0.172762814	-0.165628144
2000 Q2	-0.315440598	-0.112440599
2000 Q3	-0.688750479	-0.289750479
2000 Q4	-0.557238183	-0.317238183
2001 Q1	0.006812753	0.016812753
2001 Q2	-0.309759097	-0.909759097
2001 Q3	-0.048605298	-0.032605298
2001 Q4	-0.269053895	-0.276053895
2002 Q1	-0.255828014	-0.278828014
2002 Q2	0.057568848	0.085688476
2002 Q3	-0.303701906	-0.413701906
2002 Q4	-0.136447265	-0.736447265
2003 Q1	-0.146838721	-0.176830021
2003 Q2	-0.236395123	-0.212395123
2003 Q3	-0.241773786	-0.291993786
2003 Q4	-0.343882362	-0.443082362
2004 Q1	-0.130843163	-0.190843163
2004 Q2	0.064766317	0.074766317
2004 Q3	0.556285841	0.580285841
2004 Q4	0.412550337	0.312550337
2005 Q1	-0.02078931	-0.02088931
2005 Q2	-0.195439874	-0.185439874
2005 Q3	-0.293207274	-0.593207274
2005 Q4	-0.117773418	-0.217773418
2006 Q1	0.212612638	0.412612638
2006 Q2	0.227020844	0.226020844
2006 Q3	0.164005247	0.100005247
2006 Q4	0.561912256	0.661912256
2007 Q1	0.574645495	0.174645495
2007 Q2	0.57739359	0.49739359
2007 Q3	0.587500525	0.387500525
2007 Q4	1.404408497	1.604708497
2008 Q1	2.036642983	1.936642983
2008 Q2	2.357852867	2.857852867
2008 Q3	2.197433672	1.197433672
2008 Q4	1.39059687	0.79059687
2009 Q1	-0.166593973	-0.166593973
2009 Q2	-0.571386604	-0.571386604
2009 Q3	-0.495276168	-0.495276168
2009 Q4	-0.893274257	-0.851574257
2010 Q1	-0.845551741	-0.645551741

Source: Author's calculations.

Impact of the Financial Crisis on the Romanian Capital Market in the European Context

Leonardo BADEA

“Valahia” University of Targoviște, Romania
leobadea@yahoo.com

Abstract. *This paper aims at analyzing the impact of financial crisis on the capital market in Romania in order to establish the main financial developments. There is clearly a phenomenon of contagion leading to different manifestations of the global capital markets. Our objective is to highlight by statistical linear regression the factors that influence the evolution of capital market. Surprisingly, the results will show that investors are not always rational and do not react according to statistics.*

Keywords: risk; volatility; financial crisis; capital market.

JEL Codes: G01, G11.

REL Code: 11B.

1.1. The substance of the current financial crisis

Crises can be defined as situations characterized by a pronounced instability, being subsequently accompanied by volatility and increasing uncertainty. The problem in defining them is to estimate the dimensions of the market volatility and of market fall impact in order to pinpoint such an evolution in the category of a crisis. How high should inflation, unemployment or GDP decrease of a country be as to pave way for the assessment that it is on the verge of undergoing a crisis? It has conventionally been established that the use of the term recession is required after the fall in GDP of a country or region after two successive quarters. National Bureau of Economic Research (NBER) defines crisis as “a significant decline of economic activity for several months reflected in lower GDP, lower individual income, employment reduction, reduction of industrial production and consumption.” Experts classify these crises into social crises (increasing inflation, unemployment, poverty), financial crises (increased volatility in capital markets, falling stock markets and their spectacular return), political crises (which may degenerate into war), local or international crises, as well as crises caused by natural disasters or generalized economic crises. We consider that an economic crisis is basically generated by financial, political or social causes; the financial crisis is only a form of manifestation of economic crisis and reflects a mistrust in the financial system, a significant decrease in the volume of transactions on the stock exchange, a disfunction of the market mechanisms. According to the economist Hyman Minsky’ theory of financial instability, financial crises follow a predictable course. Thus, the first sign announcing a future financial crisis is the external shock on the economy, which may take the form of a war, of a very rich or very poor harvest, of the invention of new technology. This exogenous factor strongly increases the chances of profit in one of the major sectors of the economy and reduces economic opportunities in other fields. Increased profit opportunities in a given economic sector attract funding sources, creating an explosion or an investment mania. Investment fever is fueled by a substantial increase in bank lending as well as by attracting personal and private firms funds. The attraction of loans leads to an increased urge to speculate, manifested by rising the prices of assets and of highly demanded goods. In turn, rising prices determine increased profit opportunities, attracting new investors to the market. In search for profit, more and more investors ignore the rules of rational behavior and invest in a market that is already at risk for the overstatement of assets. In a next step, some investors note that the market has reached a maximum and seek to transform their overvalued assets in cash or in high quality assets. Subsequently, a larger number of investors can grasp the danger

and try to sell their risky and overvalued assets, leading to a collapse in prices. The event announcing the danger and creating a state of panic may be a bank or a corporate bankruptcy. After the crisis in investment there follows a credit crisis caused by the fact that banks would not extend credit. As a result, chained bankruptcies are triggered and economy may go into recession or even depression.

1.2. The impact of financial crisis on international capital market

Capital markets crisis began in the early months of 2007 on the capital market for mortgages, for loans directly related to the market of structured finance products. Then, in the summer of 2007, it continued on the market of buyout type of corporate loans, also linked to the structured financial products market. As the number of traditional investors in the market gradually diminished, the value of the existing products on the market began to decline. Due to the fact that the global investment banks have not only the investor role but also the intermediary role on this market, falling prices have forced them to account for large losses in record time since the last months of 2007. These losses caused both a lower value of the banks and their need for private recapitalization, the action being carried in the first eight months of 2008. When investors of capital in these banks vanished, public trust in these institutions disappeared as well. Because investment banks were the main driver of capital markets, loss of confidence in them enhanced by Lehman Brothers bankruptcy led to the blocking the entire global financial system. That moment marked the beginning of the economic crisis exacerbated by the global capital markets crisis that had been under way for three years. Lehman Brothers marked an important moment not only because of losses caused by bankruptcy but because of that sudden extinction of confidence in banks at the heart of the financial system. It then became clear to any investor, either individual or institution that any bank is suddenly at risk of bankruptcy, no matter how large and famous it is. For the first time it was shaken the belief that “what it is too big cannot fall.” Confronted with this new reality, investors decided to keep their money, refusing to lend it to anyone and in any way. The credits for buying a house, a car, durable household products almost instantly disappeared and so did education loans, loans to governmental agencies and subdivisions of any kind, as well as one day loans between banks. The sudden paralysis of the financial system could not avoid affecting the real economy. Conversely, the effects of the deepening financial crisis were almost immediately felt in all the fields of the global economy, leading to the lowering of the gross global product for the first time since the war. Once triggered, any economic crisis becomes a long

lasting process. Economic growth and decline take place in stages that are measured in many months. Healing solutions for the crisis are very complicated, relatively difficult to control and take a long time to be implemented and materialized. Yet, the capital market crisis is different. On the capital market, crises are short lived, they can often be sudden but they can also be healed fairly quickly. This significant difference between the economic crisis and the capital market crisis is given by the fact that economic recovery requires coordination of actions of an extremely large number of participants.

1.3. Capital market developments in Romania after 2008 in the context of European capital market

The financial crisis has affected capital market development in Romania since 2008 because of the contagion phenomenon manifested in the European capital market and beyond. On the capital market in Romania in 2008 there was an increase in the number of participants, as intermediaries, being registered five new participants (four credit institutions: BCR, MKB Romexterra Bank, Credit Europe Bank, BRD - GSG and an intermediary from another member state, Raiffeisen Centrobank AG Vienna). However this could not prevent the decrease in interest in exchange transactions.

In 2009 the number of participants decreased compared with the end of 2008 because of the characteristics of the economic crisis in Romania where the local crisis superimposed over a global one.

Table 1

Romanian stock market agents, the period 2008 - 2009			
Stockbrokers	2008	2009	2010
Authorized agents	87	58	65
Agents withdrawn	89	76	59
Stockbrokers	310	292	262

Source: BSE, BSE Annual Reports, 2008-2010.

At the end of 2009, the Bucharest Stock Exchange consisted of a number of 306 shareholders, of which 87 were corporate shareholders and 219 individual shareholders with a share capital worth 76,741,980 ron. All shares issued by S.C. S.A. BSE are dematerialized and made part of the class of ordinary shares. Thus, in 2009 the total number of shares issued by SC S.A. Bucharest Stock Exchange was 7,674,198, each worth 10 ron per share. Analyzing the dynamics of capital market in Romania in the context of EU integration and in other systems of similar size, in 2009 there were reductions in the total number of intermediaries that act as trading participant in BSE as follows:

- four new participants were enrolled in the BSE trading system;
- three credit institutions (OPT Bank, Piraeus Bank and RBS Romania);
- an intermediary from a state member of the European Union, Balkan Advisory Company IP - EAD - Bulgaria;
- the quality of participant has been withdrawn to a number of nine financial intermediaries.

Table 2 was made in order to highlight the sharp decrease in the evolution of the total number of participants on the capital market in Romania:

Table 2

**Participants in the years 2009 and 2010
on the capital market in Romania**

Type of participants	Participants 2008	Participants 2009	Participants 2010
SSIF	70	61	54
Credit Institutions	5	8	7
Remote member (foreign SSIFs)	2	3	3
Credit institutions operating through branches in Romania	1	1	1
Total	78	73	65

Source: BSE, annual reports 2008-2010.

According to the evolution of the number of participants on the BSE, the number of Romanian capital market agents is situated in the same downward trend, decreasing with 48 agents within two years' time.

Table 3

**Presentation and performance
of European stock exchanges in 2010⁽¹⁾**

EUROPE	Capitalization (USD million)	% of global capitalization	% of regional GDP	GDP / capita USD (PPP)	GDP per capita USD (constant prices)
England	2.662.852	6.14	75.43	35.445	28.489
France	1.538.747	3.55	52.25	34.045	24.362
Germany	1.188.010	2.74	29.49	35.613	25.420
Switzerland	967.300	2.23	174.43	42.536	37.789
Spain	555.617	1.28	39.69	31.954	16.330
Italy	529.993	1.22	23.67	30.756	19.580
Russia	508.373	1.17	16.50	16.139	3.074
Austria	104.271	0.24	21.91	38.152	27.132
Romania	17.129	0.02	19.97	27.605	13.662
Bulgaria	4.804	0.01	12.31	12.393	2.570

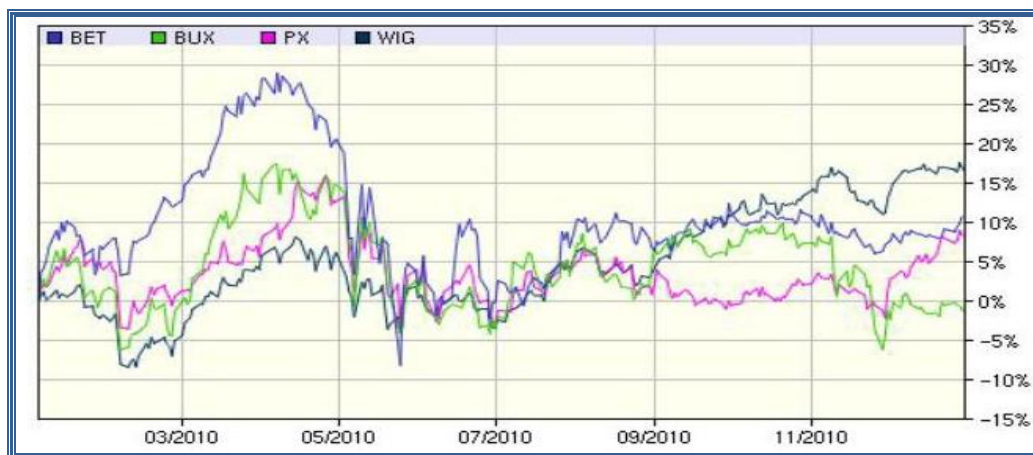
Source: Capital Market Development in 2010, report by Intercapital Invest SA.

Table 3 shows a comparison of the developments in the main European stock exchanges, the main criteria being the capitalization, the share of global capitalization for each state, the share of regional GDP, GDP per capita, 10 European markets being included in this comparative analysis. One can notice that Romania has some of the lowest share of global capitalization with a rate of only 0.02%, lower values belonging to states such as Bulgaria, Iceland, Latvia, Estonia, Malta, etc.

The highest level of capital is held by the stock in England, with a rate of 6.14% and capitalization of 2,662,852 million dollars.

Unlike other periods of time, the correlation between the capital market in Romania and the regional markets weakened its intensity in 2010, this fact being based on the correlation between the three indices and the external market indices, namely PX, WIG and BUX, indices of stock exchanges in the Czech Republic, Poland and Hungary.

The values of these coefficients recorded in 2010 (correlation coefficients between BET and WIG, BUX and PX indices) were 0.16, 0.67 and 0.74, compared with 0.97, 0.99, 0.98 in 2009. As a result, the correlation between the developments on the Romanian market with the evolutions of the developed markets also decreased: the correlation coefficient between the BET and S & P500 American index was 0.49 in 2010 compared to 0.98 in 2009 and 0.94 in 2008. These values are presented in Figure 1:



Source: Analytical report, BSE Listing, 2010, p. 9, available at www.kmarket.ro.

Figure 1. The evolution of BUX, PX and TIG indices compared to BET in 2010

This development shows that in 2010, local factors were more and more important in the evolution of shares listed on the BSE against external factors, the only ones that really mattered in previous years. Therefore, low economic performance achieved by our country have determined many of the non-resident investors to adopt a general strategy of waiting, which was subsequently adopted by local investors as well. These measures did not fail to affect the level of liquidity: the average daily share transactions in the last quarter of 2010 was down with over 50% of the value recorded in the first two quarters of the year, ie 29.9 million ron.

1.4. Progress analysis of the stocks on the Romanian capital market in the context of the financial crisis

Although the evolution of economics in recent decades has undergone significant progress and although monetary and governmental authorities have established a diverse palette of instruments able to anticipate and to influence economic developments, the current economic and financial crisis has demonstrated once again that economy as a whole retains areas that are not sufficiently investigated, among them obviously being the economic cycles. In this turbulent context, the market development activities in Romania also experienced the same difficult, winding trajectory, full of uncertainties. For example, in 2009, the dynamics of Bucharest Stock Exchange indices had the following features, summarized in Table 4.

Table 4

The dynamics of BSE indices in 2009		
BSE index	31.12.2009 Value (points)	Index change in 2009 (%)
BET	4,690.57	+ 61.68
BET - XT	461.95	+ 66.55
BET - C	2,714.77	+ 37.31
BET - FI	23,885.96	+ 90.33
BET - NG	596.16	+ 71.10
ROTX	9,674.67	+ 46.80
RAQ - I	2,382.57	+ 5.52
RAQ - II	5,491.44	+ 12.43
Rasdaq composite	2,239.51	+ 8.13

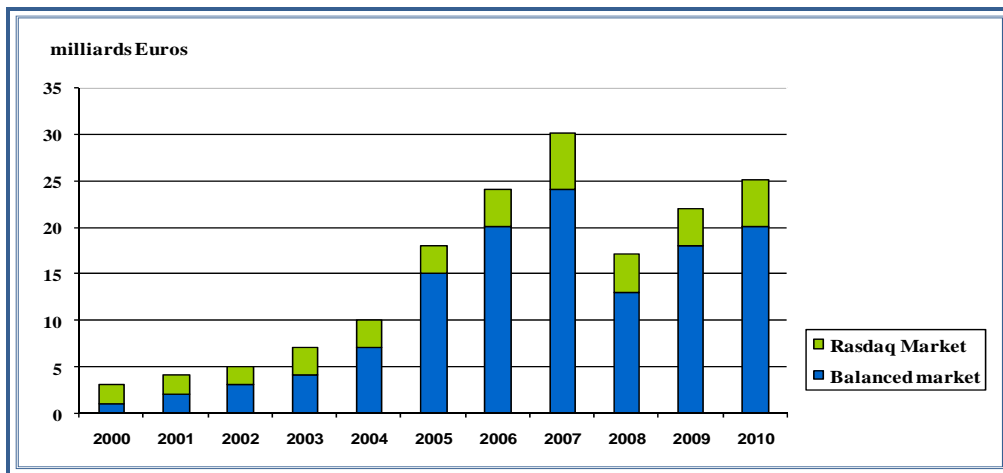
Source: Annual Report of the Bucharest Stock Exchange, 2009, www.bvb.ro, p. 5.

Thus, at the end of 2009, all the indices calculated by BSE expressed significant appreciation compared to the year 2008. The most dramatic increase was recorded by two sectoral indices, BET FI (+90.33%) and BET - NG (+71.10%).

The evolution of the indices presented above for 2009 was particularly influenced by the main guiding trend in European stock exchanges.

In this respect, the development of BET - C was above the European average, with a value of +37.31%, which positions the Bucharest Stock exchanges among the most dynamic ones in Europe. Regarding the evolution of market capitalization in 2009, one can say that this was mainly influenced by dynamic trading prices of securities already listed, since that year there was no admission to the trading of new shares in Romanian companies, which could have significantly altered the value of market capitalization.

Moreover, while at the end of 2008 cumulative capitalization of the two markets administered by the BSE was estimated at about 15 milliard euros, at the end of 2009 the aggregate capitalization reached almost 22 milliard euros, registering an increase of 50%, also due to the market value reached at the time by Erste Group AG, the only foreign company whose shares were admitted to trading on the Romanian stock market. This situation is revealed in Figure 2. for the period 2000-2009, as follows:



Source: Annual Report of the Bucharest Stock Exchange, 2009, www.bvb.ro, p. 6.

Figure 2. *The evolution of market capitalization in Romania during 2000-2010*

Market capitalization growth in recent years has represented a positive sign. As evident from the chart above, although the pace of capitalization of national companies traded in stock exchanges was above the European average in 2009, its nominal value remains relatively low compared to the potential of the Romanian capital market. So, amid diminishing value of transactions with shares, increasing liquidity in the market segment dedicated to financial instruments with fixed income has significantly changed the structure of the

stock transactions made by Romanian Stock Exchange. For example, the share of bonds in the total BSE transactions ranged to 18% in 2009 compared to 2% in 2008. Thus, government securities accounted for most of the total turnover exchange transactions in financial instruments with fixed income.

In the analysis of Rasdaq market development in Table 5 it is presented Rasdaq market trading activity during 2004-2009, which is quite low in terms of market capitalization and trading value:

Table 5

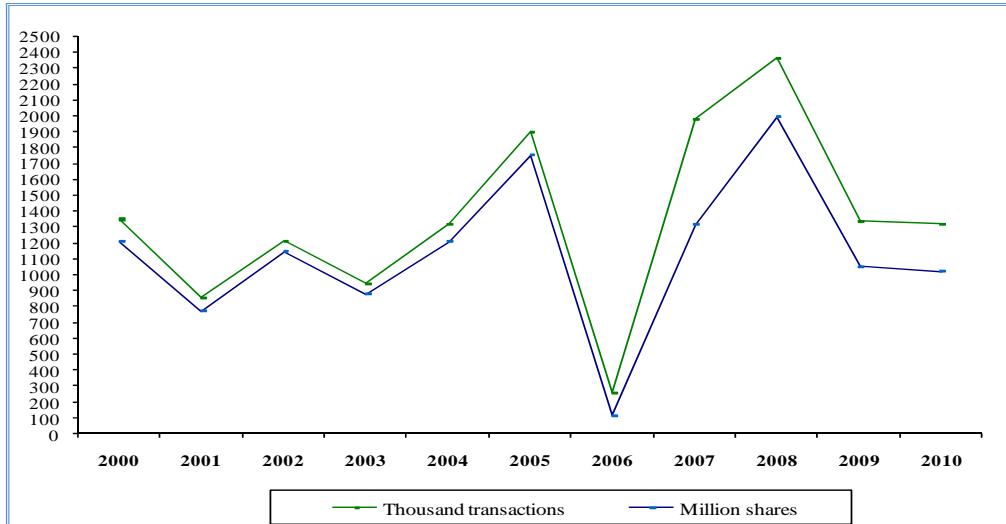
**Rasdaq indicators in the period
of time 2005-2010 (million euros)**

Rasdaq market indicators	2005	2006	2007	2008	2009	2010
Total traded value	296.92	241.11	1,287.72	426.49	136.32	291.62
Number of listed companies	3,683	2,420	2,019	1,753	1,555	1,309
Market capitalization	2,241.33	3,126.44	6,985.67	3,079.08	2,937.41	2,526.44

Source: http://www.bvb.ro/info/SumareDeTranzactionare/BER/2010-12-31.Raport_Zilnic_Trnzactionare.html.

It is worth noticing the average value of the number of transactions made on Rasdaq market, 748 respectively, correlated with the daily value of the number of traded shares, respectively 6,203,310. These values are quite high in our opinion, a situation which can only be beneficial for both Rasdaq market dynamics and the market operator, that charges fees for each transaction made.

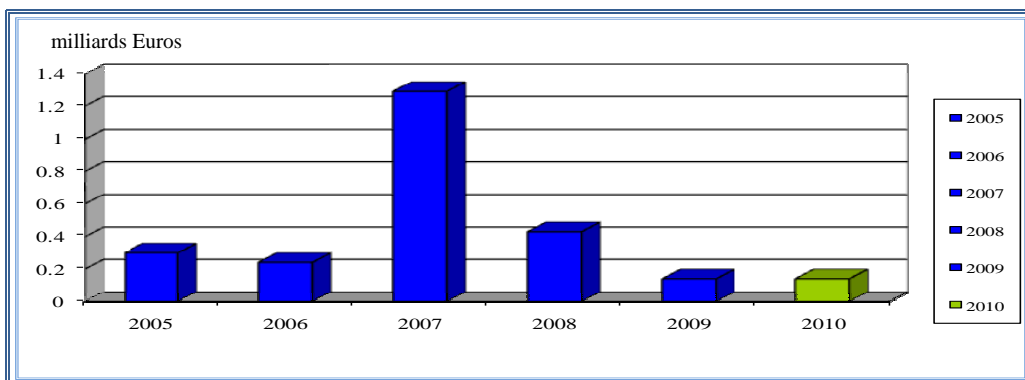
As expected, most transactions and traded shares were recorded during 2008, the year when the current global crisis emerged in Romania, its peak being accompanied by the spectacular fall of 2009, when the volume of transactions and the shares traded was reduced by several thousand and millions of shares, respectively, as shown in Figure 3. A notable point is the evolution of the number of transactions related to the number of traded shares, the maximum value being reached in 2008, yet, once the economic and financial crisis has increased in the Romanian capital market, both indicators have started to severely decrease.



Source: Annual Report of Bucharest Stock Exchange, 2010.

Figure 3. *The evolution of the number of transactions and of the number of shares traded during 2000-2010*

In 2010 it can be seen an attempt to redress the volume of shares traded on Rasdaq, as, after the peak in 2008, their number had began to alarmingly decrease. For operations in the market offers and special operations in 2009 the following values were recorded:



Source: Capital Market Development in 2010, SSIF Intercapital report, p. 15.

Figure 4. *Rasdaq market value transactions, the period 2005-2010*

Rasdaq market capitalization decreased by 12.2% in 2010 to 12.3 milliard in 2009 to 10,800,000,000 ron and accounted for 10.6% of the regulated market capitalization of BSE in 2010, compared to a rate of 15.1% because of the financial crises that is being persistent in the minds of the investors.

1.5. Brief analysis of the correlation among market capitalization, gross domestic product (GDP) and foreign direct investment (FDI) in Romania during 2005-2011

We wanted to study the capital market development in Romania in the period 2005-2011 in order to identify the links of influence, if any, between certain indices and macroeconomic factors with the purpose of determining the nature and substance of the crisis on the capital market in Romania. Consequently, we tried to establish the link between the development of the BSE market capitalization and the evolution of Romania's GDP, using the long "disputed" method of linear regression. The regression analysis focuses on the dependence of a resultative variable (y) upon one or more independent variables (x). The resultative characteristic is also called the dependent, endogenous characteristic or effect, and the independent characteristic can be labelled as factorial, exogenous characteristic or cause. Regression shows how one variable depends upon another variable (or on other variables).

Simple regression method involves the explaining of a resultative variable Y on the basis of a factorial variable, using a model called the regression function. Such a model uses the notion of causality, ie the changes in the independent variable cause changes in the dependent variable. The accurate relationship between socio-economic phenomena and processes cannot be described regardless of any number of factorial characteristics we may consider, due to the random phenomena which can not be modeled or explained. These unexplained variations in the model, due to such variables that are not included form the random (residual) error.

The study of economic dependence should also consider the fact that socio-economic phenomena are of a complex nature, under the influence of numerous factors, some being essential, others accidental, with different action and intensity and in a different direction.

The case study objectives are: to identify by the statistical method the connection between the two variables, its shape and intensity as well as to determine the model parameters.

Regression analysis of the BSE market capitalization in comparison to GDP during 2005-2011⁽²⁾

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0,377084765031786
R Square	0,142192920019077
Adjusted R Square	-0,029368495977107
Standard Error	19,6010085642703
Observations	7

Multiple R = 0.377 is the coefficient of multiple correlation, but in our case with one independent variable Multiple R is the Pearson correlation coefficient.

R Square = 0.48 is the coefficient of multiple determination; R^2 represents the proportion of variation market capitalization explained by the linear relationship with the evolution of GDP. In our case $R^2=0,142$ so only 14.5% of market capitalization evolution is explained by the evolution of GDP;

Standard error = 19.6% is the estimated standard error and it is interpreted as the average error in predicting the market capitalization according to GDP evolution with the regression equation.

Observation = 7 years is the total number of periods of time covered by the study.

Anova

The regression analysis also includes a test with null hypothesis: the slope is equal to 0 (ie no correlation between independent and dependent variable under study). If the slope is significantly different from 0 (this happens if the Signature F has a value $p < 0.05$), we may conclude that there is a linear relationship between the two variables. In our case there is no significant relationship between Romania's GDP evolution and the market capitalization development.

The regression analysis of the market capitalization of BSE and FDI in the period 2005-2011

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0,644138293
R Square	0,414914141
Adjusted R Square	0,297896969
Standard Error	16,18800784
Observations	7

Multiple R = 0.644 is the coefficient of multiple correlation, but in our case with one independent variable Multiple R is the Pearson correlation coefficient.

R Square = 0.41 is the coefficient of multiple determination; R² is the proportion of variation of market capitalization explained by the linear relationship with the evolution of FDI. In our case R² = 0.41 so only 41% of market capitalization evolution is explained by the evolution of FDI;

Standard Error = 16.188% represents the estimated standard error and it is interpreted as the average error in predicting market capitalization based on the evolution of FDI and the regression equation.

Observation = 7 years is the total number of periods of time under study.

Anova

The regression analysis also includes a test with null hypothesis: the slope is equal to 0 (ie there is no correlation between the independent and the dependent variable under study). If the slope is significantly different from 0 (this happens if the Signature F has a value $p < 0.05$), we may conclude that there is a linear relationship between the two variables. In our case there is no significant relationship between FDI evolution and the development of market capitalization. This is another case where there is no significant correlation between the evolution of FDI and the development of market capitalization.

1.6. Conclusions

In the national and international context characterized by uncertainty, the main objectives of the Bucharest Stock Exchange for the next period of time call into question the increase of liquidity in the market by attracting new investors, local companies being thus encouraged by BSE to absorb stock or bond offerings. Achieving these goals is performed through close collaboration between capital market institutions in Romania, which is a desirable aim to be fulfilled in the near future. It is also obvious that the study of the link between BSE market capitalization and the two referential indices, GDP and FDI, surprisingly shows that they do not have a significant influence on the evolution of market capitalization. Nevertheless, the influence of FDI is more important, Romanian investors showing interest in foreign capital. Clearly, portfolio investments made by foreign investors have a much greater importance. But we could also notice that at the top of market capitalization for European countries Romania is on one of the last places. Capital market depth is low enough so that it does not encourage great investors, “the big fish”. Moreover, the impact of the crisis was felt due to the affected indices of 2006 – as a result of economic and political inability – in 2008 as a consequence of the contagion phenomenon on the European capital markets.

Acknowledgements

This work received financial support through the project “Postdoctoral Research in Economics: Continuous training programme for elite researchers – SPODE” co-financed by European Social Fund, the Human Resources Development Sectorial Operational Programme 2007-2013, contract no. POSDRU/89/1.5/S/61755.

Notes

- (1) Out of the 34 European functionable stock exchanges, it was presented the situation of only 10 of them that more actively interact with Romania
- (2) The data regarding 2011 are provided by BSE and World Bank prognosis.

References

- Akerlof, G., Shiller, R., (2011). *Spirite animale. Despre modul în care psihologia umană influențează economia și ce înseamnă aceasta pentru capitalismul global*, Editura Publica, București
- Anghelache, Gabriela (2009). *Piața de capital în context european*, Editura Economică, București
- Badea, L. (2010). *Gestiunea portofoliului de active*, Editura ProUniversitaria, București
- Minsky, H.P. „The Financial Instability Hypothesis”, *Working Paper*, No. 74, May 1992, pp. 6-8
- Mishkin, F.S. (2001). *The Economics of Money, Banking and Financial market*, 6th edition, Addison Wesley Longman
- Nassim, N.T. (2010). *Lebăda neagră. Impactul foarte puțin probabilului*, Editura Curtea Veche, București
- Roubini, N., Mihm, S. (2010). *Economia crizelor. Curs-fulger despre viitorul finanțelor*, Editura Publica, București
- Soros, G. (2009). *Noua paradigmă a piețelor financiare*, Editura Litera Internațional, București

Current Research on Flexibilizing the Labor Market – second part –

Daniel ȘTEFAN

Christian University “Dimitrie Cantemir”, Bucharest
stefandaniel73@yahoo.com

Costantin ROMAN

Bucharest Academy of Economic Studies
roman_costantin@yahoo.com

Aureliana Geta ROMAN

Bucharest Academy of Economic Studies
romanaureliana@yahoo.de

Abstract. *We try to explain why entities opting for short-term contracts or staffing/personell leasing. These are less common/usual forms of employment and to explain that there are two approaches:*

- *What are the intensions behind the use of these methods and arguments?*

- *What circumstances must solve using such methods?*

The questions is why some companies use more staffing/personell leasing than other contracts. What factors influence a company's decision to adopt these unusual methods for the employment contracts rather than open indefinitely-term contracts.

Keywords: staff/personell leasing; outsourcing human resources; human capital; employment contract indefinitely.

JEL Code: J08.

REL Code: 12E.

The intangible capital assets in the actual context

A new wealth: the competence

The modern economy is more and more intangible. The service providing entities are more numerous than those in the primary and industrial sectors. Two thirds of the GNP of Western countries are carried out in the service supplying sector (Fustee, 2005, pp. 63-89).

Therefore, without analyzing all the consequences, we entered the information era. In this economy, the new wealth is knowledge (competence). The information often becomes a necessity, its excess or incomplete character being harmful.

This new wealth of the entities, the knowledge as information, has the following characteristics:

- The information is infinite, by advertising, electronic information, by web sites, by reunions and reports. In exchange, the knowledge by science is synthetic, a synthesis for action (to know what to do in line with the objectives set);
- The information is easily transmitted – any relative information regarding the exercising of a profession. In exchange, science is difficult to transmit. In order to become a specialist in a certain field, one must graduate a university, one must update its knowledge by post-university training forms etc.;
- Information has not have a high commercial value. In exchange, science has a high value;
- The information generates entropy while science creates a structure and harmony.

Within the industrial entities the science has become dominant. A traditional industrial entity fabricates glass by using sand. An industrial entity in the science era fabricates microprocessors by using the same sand.

The complexity

In post-industrial economy, the complexity is ubiquitous:

- In entities with complicated structures;
- In relations between companies because the tendency is to more and more externalize what does not belong to the specialization with the purpose of having performance;
- Because the flows and exchanges are permanently increasing;
- Because everything is based on knowledge and the information of the entity is a very complex matter;
- Because information overwhelms us.

We are now in the era of planetary education, what is complex is not necessarily complicated. Each isolated element is often easy to understand. Complexity comes from the number of parameters, the inaccuracy of the measurement, the unpredictability of the evolutions, the interactions between the parameters.

In such a new context, new quantitative and qualitative (subjective) measures are required which may often evidence empirical or comparative reality reflecting clarifications. These are adapted to the complex environments metrology and allow the answer to problems such as: How is a commercial team's productivity measured? How is the value creation by a computer science department measured? How is the efficiency of a place of work appreciated? How is a client's satisfaction appreciated?

The value of the entity is more and more intangible

The entities may become rich through their specialists; through traders, clients, patents, technology. In fact, it has a very high hidden value, a strong intangible value which is not reflected in the balance sheet and which actually has a high capacity for the creation of future values.

Presenting the intangible capital

In most cases, the entities are bought and sold at a higher value than the accounting value in the balance sheet. The difference between these two values bears the name of goodwill. This means that an entity is accepted for a higher price than the accounting value because its intangible value is also bought.

But what is the signification of the intangible capital assets? It consists of the totality of the prior elements of prosperity and sustainability. It consists of the following elements:

- The value of the client, respectively the number of clients, the faithfulness, the financial health, their profitability and notoriety, etc.;
- The human and the managing team value, respectively the competence, the motivation, the cooperation, again the faithfulness but with higher potential;
- The value of the structure by structuring the knowledge and competences of the informational system, the patents, the brands etc.;
- The capital-suppliers, respectively the faithfulness, the reliability, the quality, the loyalty etc.;
- The risks and opportunities which are not part of the intangible assets but which may increase or reduce risks and strategy opportunities, the geographical environmental, social, competitive risks are added to these four basic elements.

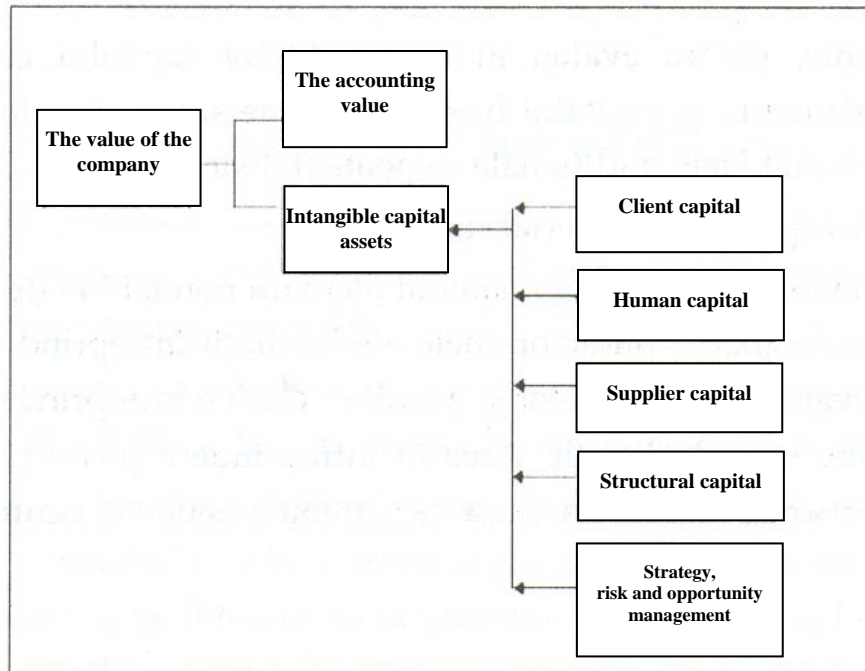


Figure 1. Chart of the value of the entity

The importance of the concept

The concept of intangible capital assets appeared in Sweden ten years ago and it was fast developed in the industrialized countries.

The appearance of this new concept derives from the fact that the actual economy is more and more intangible.

The professional people in the financial-accounting field know exactly the accounting value of the entity, but not the intangible value. They have created a multitude of methods in order to calculate the global value of the entity: EBIT, OCF, EVA etc.

The most successful methods calculate the value the entity may create in the future by taking into consideration the business plan.

But how trustful can a business plan be if the available means to accomplish it are not known?

The economies need new financing instruments and accurate calculation of the value of the entity because if they are wrong about its value the economic decisions made (investments, subinvestments, ending the working relationships etc.) will be based on unaccurate criteria and may lead to similar decisions.

The applications of the intangible capital assets

The client capital, the human capital, the structural capital and the suppliers capital may be assessed from a qualitative point of view; the process of the intangible capital assets can not be measured by traditional methods; it can only be completed.

The applications of the intangible capital assets are multiple:

- For the manager the intangible capital assets offer a new strategic aspect which allows the observation of the key points of entity reliability: the reliability of the suppliers, the adequacy of the competences and needs. If an entity loses 20% from the stocks of inventory, nobody is calm. This entity may lose 15% of its clients and will record capital losses. In this case, one must fight against it.
- For the person who wishes to maintain the exchange rate at the stock exchange or the sale of the entity, the intangible capital asset allows him to present some convincing arguments. The market capitalization index, the net accounting value of the entity may be very high because the clients are faithful, the brands are prestigious, the research and development is exceptional.
- For the investor, the intangible capital assets reduce the risks. If, before buying, 20% of the clients of the entity bought proves low reliability the managing team will have to be informed or a low price will be obtained;
- For the bank, this instrument reduces the risk of long – term credit default;
- For the insurer, it allows the better assessment of risks;
- There is also the possibility to measure the value of the non – lucrative organizations.

The intangible capital assets means knowledge

The connection between the knowledge management and the value creation is acknowledged. The analysis of the intangible capital assets and its semantics takes into consideration:

- The commercial capital – the client knows that he can trust the entity, it knows how to find clients, it knows the categories of clients and the trends in the field;
- The human capital – the competent collaborators are prepared, know how to work together, know the objectives, etc.;
- The structural capital – the entity capitalizes the competences, the brands are acknowledged, the organization gains experience by learning, some knowledge is turned into patents, the informational system is the memory of the entity.

Consequences on the business relationships

The actual economy and the business of the future are intangible, based on competence (knowledge). These are characterized by complexity, they evolve rapidly and as a consequence they are unpredictable.

In order to succeed and in order to be performant from an economic point of view, we must accept the idea that different economic actors are no longer interchangeable.

An entity forms a specialist in its domain for a certain period. A collaborator with a great potential leaving an entity costs this entity more than three times the annual wages of this collaborator, taking into consideration some works with hidden costs as it results from studying the human capital and the performances of human resources.

When the entities no longer have an increased productivity, a loss with intangible value may occur. If the entity no longer has reliability and records losses it should not lose its good suppliers, its shareholders or clients. In the actual conditions, the replacement of the valuable persons on favourable terms is very expensive.

The entities are constrained by the complexity and speed of the appearance changes which means efforts must be made for a complete change. The value creation needs more and more a state of mind that involves a certain period of transformation.

The intangible capital assets lead to sustainable development

From a financial point of view, the personnel represents an expense. For the approach of the intangible capital assets this means a fortune. According to a purely accounting logics, in difficult economic periods, all expenses, including the personnel expenses, can be the object of reduction. For “the management of the intangible”, the employees represent an economic adjusting variable. The essence of this debate is to create value. Easily enough, the destruction by elimination of hidden values is risked.

Another example is the customer loyalty obtained by establishing a trustworthy relationship which derives from an ethical business action. That action which proves the development of the client capital is part of a long lasting development logics which will be in its interest.

In such conditions, according to the intangible capital assets action, the management of an entity is considered as an subensemble of the long lasting development.

Measuring the performance from a financial point of view

The traditional evaluation of the entities' performance basically refers to the use coefficients (ratios) resulted from studies and pertinent analysis (Lucey, 2000, pp. 78-86).

The assessment of long lasting development policies of the entities

The assessment models of profile agencies are based on the recommendations of social and environmental liability standards of entities. These have multiple sources, amongst which UNO, OCDE or independent actors such as GRI (Global Report Initiative), which suggests a standard model of institutional communication related to SEL (Social – Ecological Liability).

The mentioned agencies take into consideration references related to:

- The observance of the human rights;
- The management and social relationships;
- The client relationship;
- The supplier relationship;
- The new type of management;
- The environment policy;
- The policy in favour of the nonstock professional corporation.

It is necessary that we create an image over the human capital. In this respect, two aspects are appreciated: the means the entity is endowed with in order to meet its objectives and the results it obtains (Tinsely, Pillai, 2006, pp. 15-19).

Example of human capital

Scorecard regarding the human capital which involves more assessment criteria.

<i>Head-hunting efficiency</i>	Number of positions filled / number of free positions throughout the year
<i>Reliability of collaborators</i>	Number of departures throughout the year
<i>Reliability of managers</i>	The annual number of managers departures The seniority of the leading team members
<i>Managers competence</i>	Number of experts, of persons with experience and competence, of beginners, of difficult persons (very low competence because of the age)
<i>Climate</i>	Number of files submitted The frequency and tone of reunions The existence of a satisfaction investigation of the collaborators or of a social barometer Rate of absenteeism
<i>Motivation</i>	Number of initiatives of the voluntary and extrafunctional collaborators (the quality, the sports club of the entity, actions of promotion of the entity, associating life) The annual number of situations in which the collaborators are standard bearers for the entity (interview, participants to seminars, the importance of cooptation etc.)
<i>All criteria</i>	The notification of clients over the human capital (see the satisfaction investigation)

The criteria is easy to appreciate by using simple indicators.

Scorecard of the human capital

<i>Motivation</i>	Means of communication of the strategy and and entity market with the employees The existance of a direction of human resources The exigency of a benchmarking regarding wages Advantages outside the remuneration, converted into months of salary The EC budget rate according to the wage bill
<i>Motivation and competence</i>	The existance of formalized career paths, elaborated job definitions The exigence of individual plans of formation The exigence of a book of management The number of training days declared for the previous year
<i>Motivation and climate</i>	Licensing treatment
<i>Climate</i>	The number of holidays per year
<i>Recruiting</i>	Partnerships with schools

Objective measures in an uncertain and heterogeneous environment

We are leaving in a complex world which is not less complicated. The elaboration of the scorecards (Gervais, 2005, pp. 619-625) in this context is quite difficult. Their life is short, their use is marginal and their content is unstable.

The elaboration of the scorecards consists of a multitude of inovations in the field and difficulties explained as follows:

- The data is scattered and difficult to collect expecially in large entities;
- The measuring units are not comparable between them;
- The measuring methods are adapted to different indicators and consist of numerous calculations, expertise, audits, surveys.

The elaboration of such efficient scorecards must allow the decision making. In this context, the application of certain principles is necessary:

- It worths more to turn on a small source of light than sitting in the dark;
- The use and interpretation of a complex measuring system that is improved in time;
- The elaboration of a complex indicators system is much more necessary if the relative character of the measure is accepted;
- For the aggregation of the indicators in compatible units, the solution is to transform them in representative and performant notes.

These notes appreciate the level reached within the measurement in relation to a purpose or objective.

Collecting the data of the informational system

There are five types of data participating in the creation of a table of long lasting and responsible economic performance:

- Basic data present in the informational system of the entity;
- Declarative, verifying data, obtained from interviews (for example: Do you have ISO 9001 certification? The „YES” answer being accompanied by the certificate);
- Declarative data which can not be verified or which are difficult to be verified (for example: Do you reform the security system in such a field?);
- Statistic data obtained by investigation or survey;
- Extimations presented by assessors.

The characteristics of an informational system (IS) regarding the intangible capital assets or the long lasting development are the following:

- The collection of information resulted from other systems, basically the commercial IS, the technical IS, the financial IS, etc.;
- Very numerous and various basic data;
- Complex aggregations and calculations in order to answer multiple questions;
- Questionnaires (more than a hundred questions);
- The model of the intangible capital assets – with a multitude of indicators of human liability, with financial and commercial data;
- A common referential based on numerous international, national and sectorial norms.

The challenges of the intangible capital assets management and the development of an economy that protects the people and the environment, the problem of the tables, of the indicators and generally of their measures of accomplishment have a central place.

Scorecards with strategical orientation

The scorecards with strategical orientation (Gervais, 2005, pp. 619-633) are indicators systems which try to measure the global performance in different constitutive dimensions. They allow the clarification of the strategic objectives and their expression in concrete target values. Also, they ensure a development of the general policy within the organization and a return to the strategy for its gradual development.

The prospective or balanced scorecard (balance scorecard) is an instrument offering an operational representation of the global performance of the company, at the same time allowing the guidance and the assessment of the strategy.

The content of the balanced measurements system

In order to obtain the highest possible global result, it is necessary to offer quality performance and thus to influence the processes. Therefore, the measuring with more categories of indicators is suggested:

- financial indicators (to appreciate the economic performances);
- client satisfaction level indicators (economic performance according to the answers offered by the expectations of consumers);
- internal procedures indicators (the improvement of the innovation, production and maintenance process expressed in lower costs);
- organizational experience indicators (training, competence development). The prospective scorecard (balanced scorecard) clarifies the nonfinancial objectives which must be complied with to accomplish the financial objectives;
- sense indicators in evidencing the cause-effect relations between the operational performances and the strategic result;
- the monitoring indicators for the functioning of the entity and not just for the control of the results; Kaplan and Norton suggest (1998) the identification of result measuring indicators (lagging indicators), whose result intervenes after the ending of the action and the advanced indicators (leading indicators), upstream situations as an important warning before the performance degrades. For example, if the result is the clients satisfaction degree, according to criteria and rates of error or time of response to the clients requests, the entity may react faster to a default.
- *The financial indicators* depend on the strategy adopted. For example, an increasing entity shall have an increasing index of the turnover according to the sales percentage to the new products or on new markets.
- *The client indicators* are relatively classic: part of the market, level of satisfaction and rate of reliability of the clients; number of new clients, profitability on clients category. The monitoring indicators are assimilated to the attributes offered: those related to the product or performance (functionality, price, quality), those regarding the relationship with the clients, those related to the brand image and reputation. The criteria selection depends on the fact that the segment taken into consideration, the entity continues a low strategy of price or quality of performance.
- *The „internal procedures” indicators* are limited to the key procedures. For example, if the speed of the innovation is essential the company may choose the development and to wait for the percentage of the sales accomplished with the new products. The developing procedures for the development of the product and service after the sale will be taken into consideration because they play a more and more important role in the current competitive context.

	Withdrawal strategy	Maintenance strategy	Increase strategy
<i>Incomes optimization</i>	The profitability on product or client category. Percentage of non profitable clients.	The profitability on product or client category regarding the new applications of existing products.	Increase rate of the turnover on the segment. Part of the turnover generated by the new products or new clients. Turnover on employee.
<i>Productivity</i>	Unitary accounts.	Cost compared to the one of the competitors. Cost reduction rate. Indirect expenses (resulted from sales).	
<i>Assets utilization</i>	Time for the investment return. Utilization rate of the assets.	Need according to working capital. Profitability of the capital on category of assets. Utilization rate of the assets.	Investments (in sales percentages). Research - development expenses (in sales percentages).

- *The “organizational experience” indicators* – refer to: the level of satisfaction and competence of the personnel, the functionalities and the level of performance of the informational system, as well as to the quality of the management systems. The decisions made in this respect generate a formation effort, a modification of the remuneration system and of making available for the persons responsible, of an access instrument to information in real time. The monitoring indicators are:
 - The default between the level of competence intended and the actual situation;
 - The percentage of the expenses with the clients, whose remuneration complies with the new norms;
 - The equipping rate with informatic means adequate for the expenses with the clients.

The interest and limits of the instrument

The balanced table offers a coherent model of performance. It facilitates the application of the strategy and allows a reflection regarding the relevance of options (Nobes, Parker, 2004, pp. 534-535).

The prospective or balanced scorecard (balanced scorecard) allows a better communication of the strategy to the units. Often the managers limit their messages to the strategy intentions. This attitude is insufficient for the transmission of the clear managing lines. The scorecard mentioned expresses

the strategy in concrete objectives and mentions the cause – effect relationships between them.

The balanced scorecard generally offers data regarding the execution of the project. This instrument better trains the personnel on the results of the efforts, which should mobilize more. It allows the concentration of resources over the pertinent strategic initiatives.

Because the prospective or balanced scorecard regroups indicators regarding all the critical aspects of the strategy accomplishment, focused on the indicators directed more on the objectives, the weaker field becomes easily to identify.

The limits of the balanced scorecard

The distinction between the action indicators and the result indicators is often ambiguous. Most indicators are result indicators (lagging indicators), related to the financial performance, while the leading indicators (leading indicators) are related to the internal procedures and the organizational experience.

By referring to procedures related to the client and to the competences development, the balanced scorecard uses a procedural perspective. However, this may contradict the vertical logics of the budgetary instruments system.

The balanced scorecard allows a better monitoring of the strategy, but it does not do without a supervision system for an easier evolution. The indicators used do not inform however about the environment changing factors.

Outsourcing human resources – conceptual approach

The most important models of outsourcing labor force are represented by short-term employment contracts and employee leasing. These alternatives represent different methods for reaching an optimum of human resources, from the point of view of flexibility and stability.

We are trying to explain why entities opt for short-term contract or for employee leasing. These are less usual employment forms and, in order to be able to explain them, two approaches are imposed:

- which are the intentions behind using these methods and reasoning?
- what situations must be resolved for appealing to such methods?

The most important papers tend to consider short-term contracts and employee leasing as indicators of numerical flexibility. But we appreciate that the quantitative stability of staff, due to the necessity of compensating absenteeism and the lack of qualified human resources, becomes just as important as any other strategic objective of the company (Atkinson, 1984).

The majority of researches and studies dedicated to atypical methods of employing labor force was realized in the United States of America and in the United Kingdom of Great Britain and have tended towards ignoring judicial and legal constraints regarding the commitments of companies towards staff, which is not completely surprising because the market of labor force in these countries is relatively non-regulated.

Legal restrictions and fiscal systems regarding the outsourcing of human resources

Non-standardized employment contracts generically include "those contracts which derive from the standard form and from which it is expected that the average of collaboration hours would be full-time, the period to be undetermined and they will be performed at the workplace designated by the employer, under its supervision" . We must highlight a prime element which determines their special nature. They will not be performed on an undetermined period, this aspect corresponding to the concept of contingent labor.

Even if the general theoretical notions regarding the forms of these atypical employment contract models coincide and find common ground, the legal and judicial national divergences will not reach consensus any time soon. It is necessary to recognize the conceptual expansion of employment contract categories, expansion supported by very different approaches, definitions and national institutionalizations, sometimes even divergent. As Gonos (2006, pp. 83-110) also observed, "each discrete form of what has been labeled as contingent labor force represents a distinct social commitment, of which viable continuity depends on the presence of a favorable regulation environment and of the presence of a legal doctrine which supports it; either this, or the complete absence of institutional barriers, absence which will be used to the advantage of its own legitimacy" .

A comparison between the Norwegian system and the British-American one will reveal certain dimensions which will vary depending on the national, fiscal and legal system. These dimensions are important for revealing the nature of atypical employment contracts, their differentiation between countries and to what extent the mechanisms identified inside them explains their functioning.

Individualizing employment and remuneration conditions

In Norway, the alternatives of remuneration methods are regulated by statutory law. These are legally recognized and, once the employee is involved in this agreement, its status will be one of the following:

- involved in a contractual, bidirectional relation, free to be terminated, and of which validity is not affected in time. This is the standard type

of contract, both in Norway and in most European countries, including Romania;

- involved in a fixed-term contract. This is a short-term, bidirectional relation, of which validity in time must be mentioned;
- a tripartite leasing contract, involving the employer (lessor), employee (good) and the user-company (lessee).

The leasing implies that the lessor is responsible for directing, organizing and supervising the contracted good and the lessee – which most of the times is a brokering company between the human capital and company – acts as an employer.

When discussing about bidirectional contracts, the line which marks differences between undetermined period and fixed term is a very fine one. When two parties enter in association in a contract regarding the exploitation of human capital, there are no similar regulations which serve as customization benchmark, in the end, for any of them.

In case of tripartite contractual relations, the definition of employee leasing is the same, but the restrictions deriving from it are different. Only recently, the lessee has been obliged to submit to legal, social and fiscal regulations on the labor market. And the contract concluded between the employee and lessor is regarded as a service contract, and not an employment contract.

Constraints of entities regarding the use of alternative methods for employing labor force

For understanding the legal constraints resulting from the alternative uses of human resource leasing and of short-term contracts, they must be comparatively analyzed, together with continuous contracts.

As regards social protection, the following dimensions can be identified:

- extending procedures for finalizing employment contracts;
- duration of notice and costs of amicable termination of the collaboration;
- provisions regarding financial indemnifications and penalties deriving from the illegal termination of the employment contract.

These regulations are very important, because they influence the choice which the company makes when choosing one of the employment contract types: undetermined period, short-term or leasing. In cases where there is a high level of risk associated to the labor market, the company will avoid continuous contracts, because the possibility that these will be terminated before the provisioned term is relatively high, and the company will suffer both legal expenses, and consequences on its market brand or its reputation. In countries

such as Norway, costs for terminating employment contracts are consistently reduced by using alternative means of collaboration, such as fixed-term contracts and employee leasing. The alternatives do not imply prolonged commitments and can be terminated with a minimal cost for the company. And as regards the employee, the broad possibilities which he has in giving up one job for another service him in a benefic manner to the same extent in which cost control brings an advantage to the company.

The stricter legislation is regarding dismissals or breaking employment contracts, the more popular alternative methods for employing human resources become. Governments respond to this request by issuing regulations regarding employee leasing and fixed-term contracts. In European countries, a wide variety of restrictions over fixed-term contracts is imposed.

Researches which have been performed on atypical employment contracts are often related to Atkinson's concept on the numerical flexibility of staff: "Conceptually, numerical flexibility refers to the capacity of management of manipulating the numeric dimension of staff, depending on the company's necessities and despite fluctuations on the labor market. The result will be a report of employees/labor force necessary, at least close to the ideal."

In a study regarding new forms of employing human resources, Smith defines numerical flexibility as being "the ascension of contingent work positions and decline of permanent employment forms" (Hauseman, 2004). In another study, regarding the outsourcing of labor force as procedure of attributing numerical flexibility for the entity, Davis-Blake and Uzzi notice the fact that, unlike insourcing, which provides stability, outsourcing brings flexibility on several planes for the company:

- reduces numerous costs with human resources and diminishes administrative costs;
- employs personnel without permanence perspectives and by fluctuation of which no prejudices are caused to the company's image;
- offers niche specialists, which are necessary only in a certain moment .

Matusik and Hill (2004, pp. 680-697) notice an increasing trend of the contingent labor force aiming at technical and professional positions and have asserted that this type of contract should be adopted, with a prior analysis, also for key-positions, in fields which strongly influence the value brought to the company, places where they could be promoted in terms of their functionality, rather than of numeric flexibility. Companies could use the same type of contract for replacing employees which are temporarily absent, thus also promoting numeric stability. The fixed-term employees are allocated, often, jobs of permanent employees who are not present at a certain moment, thus allowing the company to maintain the quantity of human resources at a constant

level. In this way, while a part of the personnel contracted for a fixed term is used for responding variables in the activity field, another part is used for ensuring a quantitative permanence. There are several factors which influence the request of companies for substitute personnel, the most important being maternity leaves and medical leaves.

The question which must be asked is what determines some companies to use employee leasing more than others? Which are the factors influencing the decision of a company to adopt these atypical employment methods, rather than concluding continuous employment contracts? And we do not wish to include here the substitution of human resources or individual preferences for certain types of niche activities, elements which are very important in certain sectors and professions, but are detrimental to a general model of synthesis.

Fluctuation of demand for human capital and market risk

Numerical flexibility regards the intention and ability of optimizing the number of employees focused on one field or project, for fulfilling tasks or of fluctuations of demand for labor force. The idea of "necessity" for this type of flexibility varies from one company to another. If numerical flexibility is regarded as a vital element, then the introduction of atypical employment contracts will probably be considered.

First of all, we suppose that numerical flexibility – by this meaning the introduction of the employee leasing concept in the company's approaches regarding employment contracts – is associated to the fluctuations of demand on the market. In case a company experiences demand fluctuations or other seasonal changes, the introduction of atypical contracts will act as a buffer solution. And the more employees/ hour are needed, the more labor force will be recruited by means of employee leasing, rather than by means of long-term contracts. This way, the company will be able to interrupt contracts when fluctuations on the market hit a standstill, as associated costs are minimal, because temporary employees have no assertions for a stable, long-term job (Davis-Blake, Uzzi, 2005, pp. 195-223).

The volume of employments by employee leasing or by fixed-term contracts is modified inversely proportional with demand fluctuations on the labor market.

When there is a high degree of uncertainty regarding clients' preferences, the level of request or actions of competitors, the entities will tend to anticipate the need to adjust the human capital, both quantitatively and qualitatively. If a company wishes to reduce the sphere of a certain activity, the first thing will be dismissing employees, which attracts additional costs. If the personnel submitted to dismissals is employed on continuous contracts, the dismissal will cause prejudices, both on the financial side and on the side of intellectual

capital, affecting its reputation of being a trusted employer and diminishing the morale of those remaining to work within the company.

However, this cost will be substantially reduced if the atypical methods of contracting human capital will be applied to those activities which are subject to a high risk to the market's conditions. On a market characterized by a high level of risks, companies will want to outsource human resources by contracting employees though employee leasing or short-term contracts.

The higher the level of risk of a specific market, the more human resources will be used through alternative means, such as employee leasing.

Specificity of human capital

One of the most important arguments of the transaction-cost economic theory is the fact that the level of specificity of a detained good affects the decisional limits of a company. The specificity of a patrimony element is defined as being the degree in which it is valuable in a certain transaction. Focusing on the specificity of the human capital, we could say that this represents the level of specific aptitudes required by the company's activities for successfully fulfilling a certain set of tasks. When the degree of specificity is high, internal organization of human capital is efficient and rational (Williamson, 1975).

The leasing personnel normally works successively for more companies, and the sole element of stability which they have is their connection to the lessor.

The higher the level of specificity of the human capital, the lower will be the degree of using leasing employees.

Power of trade unions

An element which affects the use of short-term labor contracts is the power manifested by trade unions. On one hand, trade unions are generally refractory to outsourcing human resources because these are more difficult to be organized and have, most of times, different objectives than the permanent personnel. As the percentage of employees which are trade union members increases, it tends to oppose even more resistance to the tendencies of companies of turning to external sources for human capital. And this resistance tends to have even more success, diminishing the temptation of the enterprises to employ capital by means of leasing or fixed-term contracts. On the other hand, outsourcing human resources is a strong instrument for antagonizing the power of trade unions.

When the power of trade unions is fragile, the company will prefer to rely on standard employment contracts. The critical factor which the company considers is the cost involved by terminating an employment contract. And in an environment where there is no trade union power, dismissing an employee, even if he is employed on an undetermined period, no longer seems so problematic.

The professional protection of employees is dependent on governmental regulations and the power of trade unions. As this power increases, the company will acknowledge the difficulty of concluding a standard contract and will turn to human resource leasing and short-term contracts.

The relation between short-term contracts and employee leasing

The relation between the two variables: employee leasing and short-term contracts is interesting. On one hand, options can be perceived as direct alternatives, when a company finds itself in situations without a high level of risk, as is e.g. the situation of compensating the absence of employees on maternity leave or medical leave. That is why, when an alternative is chosen, no interest is manifested, normally, towards the other. In no case we expect that there will be inclines of expectations from the alternative which was not chosen. On the other hand, there are two mechanisms.

References

- Atkinson, J. (1984). *Flexibility, uncertainty and manpower management*, Institute of Manpower Studies, Report No. 89, Brighton, Sussex University
- Davis-Blake, A., Uzzi, B., „Determinants of employment externalization: A study of temporary Workers and independent contractors”, *Administrative Science Quarterly*, 38, pp. 195-223
- Fustee, A. (2005). *Le tableau de bord de la performance économique durable et responsable*, in Balantzian, G. (coordinateur), *Tableaux de bord. Pour diriger dans un contexte incertain*, Editions d'Organisation, Paris
- Gervais, M. (2005). *Contrôle de gestion*, 8e édition, Economica, Paris
- Gonos, G., „The contest over «employer» status in the postwar United States: The case of Temporary Help Firms”, *Law and Society Review*, 31(1), 2006
- Houseman, S.N. (2004). *Temporary, part-time and contract employment in the United States: New Evidence from an employment survey*. Institute of Employment Resources, Kalamazoo, MI
- Kaplan, R., Norton, D. (1998). *Les tableaux de bord prospectif*, Les éditions d'Organisation, Paris
- Lucey, T. (2000). *Management accounting*, 4th Edition, Continuum, The Tower Building, London
- Matusik, S.F., Hill, C.V., „The utilisation of contingent work knowledge creation and competitive advantage”, *Academy of Management Review*, 23(4), 2004
- Nobes, C., Parker, R. (2004). *Comparative international accounting*, 8th Edition, Prentice Hall, Edinburgh
- Polivka, A.E., „Into contingent and alternative employment”, *Labour Review*, October 1996
- Roman, C-tin, Moșteanu, T. (2011). *Finanțele instituțiilor publice*, Editura Economică, București
- Ștefan, D. (2010). *Management financiar*, Editura Bren, București
- Tinsely, St., Pillai, L. (2006). *Environmental Management Systems. Understanding Organizational Drivers and Barriers*, Earthscan, London, 2006
- Williamson, O.E. (1975). *Markets and hierarchies: Analysis and antitrust implications*, New York, Free Press

The Indian Stock Market and the Great Recession

Arindam MANDAL

Siena College, Loudonville, USA
amandal@siena.edu

Prasun BHATTACHARJEE

East Tennessee State University, Johnson City, SUA
bhattacp@etsu.edu

Abstract. *This study analyzes the impact of the outbreak of the Great Recession of 2007 on the behavior of the Indian stock market. The SENSEX index of the Bombay Stock Exchange is analyzed for the pre-recession period of January 2002 – November 2007 and the post-recession outbreak period of December 2007 – July 2010. Substantial increase in SENSEX return volatility observed during the post-recession outbreak period, whereas no substantial difference in returns between two periods is found. Also strong co-movements in returns and volatility are observed between the SENSEX and other major stock indexes during the post-recession period. Our results establish the dominance of global factors in influencing Indian stock market behavior during periods of economic turmoil.*

Keywords: great recession; SENSEX; contagion; volatility; daily returns.

JEL Code: G01.

REL Code: 11B.

1. Introduction

The Great Recession which started in December of 2007 in the US⁽¹⁾ had a substantial negative impact on the world economy. The Gross World Product declined by 1.1 percent during the period of 2008 to 2009 with an overwhelming 3.4 percent drop in GDP of developed countries⁽²⁾. In contrast, even during the height of the recession, the Indian economy managed to grow at a modest rate of 5.35 percent in 2009. But this positive growth rate in India was substantially lower than the average growth rate of 8.72 percent during the five years prior to the financial crisis. The rapid economic growth in India over the last decade has been clearly reflected in the Indian stock markets. The most widely tracked stock index in India, the Bombay Stock Exchange (BSE hereafter) SENSEX, increased from 4,300 points in 1997 to about 20,000 points in 2010. This translates into an annualized growth rate of 12.55 percent per annum over the last 13 years. However the spectacular growth experience in the SENSEX hasn't been unilateral. Over the last three years, on account of the Great Recession, the SENSEX tumbled from more than 20,000 points in Dec 2007 to little over 8,000 in March 2009. The purpose of this paper is to analyze the impact of the outbreak of the Great Recession on the behavior of the SENSEX.

Prior research has corroborated findings of substantial shift in the behavior of equity markets on account of major global events. For example, following the 1997 East Asian crisis, studies like Baig and Goldfajn (1999), Sheng and Tu (2000), Ratanapakorna and Sharma (2002), Jang and Sul (2002), Yang et al. (2002), Kim (2005), Caporale et al. (2006) documented increase in volatility and correlation among the stocks of the emerging economies. They also find increased co-movements among the stocks of developed and emerging market economies during these times. In the Indian context, studies have also identified strong correlation in volatility and returns between the global stock markets and the Indian stock market. Mukherjee and Mishra (2010), Sarkar et al. (2009) have reported strong impact of US stock markets on Indian markets. However, only a few of these studies (Yang et al., 2002) have actually analyzed the impact of global business cycle fluctuations on the Indian markets. Given the global impact of the Great Recession, this paper fills the gap in the literature on the behavior of the Indian stock markets after the onset of the biggest economic turmoil since the Great Depression of 1930s.

In this paper, we explore the change in SENSEX behavior during the pre and the post recession-outbreak period⁽³⁾. We also analyze the co-movements in the SENSEX with other major stock indexes from the US, Europe, Asia and Latin America. Using such time series tests as the co-integration tests and the

Granger (1969) causality test, we try to answer questions whether there existed different behavior of the SENSEX before the crisis, whether the correlations among the observed markets increased during the post-crisis outbreak period and whether there are any changes in the causal relations between the stock markets during the sample period. The major findings of this paper are:

i) Substantial increase in volatility of SENSEX is observed during the post-recession period.

ii) Although the average daily stock returns turned negative with the onset of the recession, we do not find statistically significant differences in daily returns between pre-recession and the post-recession outbreak period.

iii) Contemporaneous return and volatility correlations amongst the SENSEX and the other major equity markets are considerably higher in the post-recession outbreak period.

iv) Significant changes in the nature of return and volatility causality among the equity markets are observed during the post-recession outbreak period.

The rest of the paper is organized as follows. In section 2 we present an overview of the related literature. Section 3 describes the data. In section 4 we analyze the data and present some summary statistics. The nature of pre and post-recession contagion are explored in section 5. We perform cointegration and Granger causality tests in section 6. Finally section 7 concludes the paper.

2. Literature review

The ongoing phenomenon of globalization during the last two decades has resulted in cross-border integration of financial markets of different countries. This has invoked a growing interest in understanding the interlinkages and spillovers in the financial market disturbances across countries. Such cross border transmission of disturbances from one country to another has often been referred to as contagion in the literature. Earlier studies have found that stock market interlinkages do strengthen with global financial integration (Agmon, 1972, Hilliard, 1979). The literature on financial contagion has literally exploded since the thought-provoking paper by Forbes and Rigobon (2002). They define contagion as “a significant increase in cross-market linkages after a shock to one country (or group of countries)”, otherwise, a continued market correlation of returns at high levels is considered as “no contagion, only interdependence”.

King and Wadhvani (1990) find evidence of an increase in stock returns' correlation following the 1987 global financial market crash⁽⁴⁾. Calvo and Reinhart (1996) report correlation shifts during the Mexican Crisis of 1994,

while Baig and Goldfajn (1999) support the contagion phenomenon during the East Asian Crisis of 1997. Prior to the Great Recession, the 1997 East Asian Crisis has been cited as the most significant global financial crisis in recent years (Mishkin, 1999). Hon et al. (2007) find that the impact of the collapse of the technology bubble in 2000 on the US NASDAQ resulted in an increase in correlation between the US and other foreign stock markets.

Sheng and Tu (2000), Ratanapakorna and Sharma (2002), Jang and Sul (2002), Yang et al. (2002), Kim (2005) and Caporale et al. (2006) have examined the effect of 1997 Asian Financial Crisis on the financial markets across different countries. Sheng and Tu (2000) examine linkages among 12 Asia-Pacific countries before, during and after the 1997 Asian Crisis. They report that on the wake of the Asian Crisis, the relationship among the South-East Asian financial markets became stronger than the correlation between North-East Asian countries. They also confirm the dominant role of the US market in affecting the Asian financial markets at the onset of the crisis. Ratanapakorna and Sharma (2002) analyze the US, Europe, Asia, Latin America, Eastern Europe and Middle East markets during the pre-Asian Crisis and the crisis period. They find no long-run relationship among these indexes during the pre-Asian crisis period. However, during the crisis period, one significant cointegrating vector is observed and more short-run (i.e. causal) relations are observed as compared to the pre-crisis period. They infer that during the Asian crisis period, the globalization phenomenon increased and only the European markets directly affected the US market, while the other regional markets indirectly influenced the US market via the European market. Similar global spillover patterns are observed by Jang and Sul (2002), Yang et al. (2002), Kim (2005). They find that before the crisis, there is almost no co-movement in the stock markets of seven Asian countries while such inter-market linkages increase substantially since the start of the crisis. They report persistence of these linkages even after the crisis is over. Caporale et al. (2006) examine the international transmission of the 1997 financial crisis using a bivariate GARCH-BEKK model. They observe that the dynamics of the conditional volatilities differ substantially. Causality links in the variance are found to be strong and bidirectional in normal periods, while such linkages turn unidirectional (from the markets in turmoil to the others) following the onset of the crisis, consistently with crisis contingent models.

Though there is a vast amount of literature on the cross border spillover of financial disturbances, only a few have focused on the Indian equity market. Sharma and Kennedy (1977) find a strong link between Indian, US and UK markets. Rao and Naik (1990) document weak correlation between Japanese,

US and Indian stock markets during 1970s and 80s. Hansda and Ray (2002) examined the interdependence between the BSE/National Stock Exchange (NSE hereafter) and the NASDAQ/New York Stock Exchange (NYSE hereafter) at the aggregate market level. They find unidirectional causality from the NASDAQ/NYSE to BSE/NSE. Hansda and Ray (2003) further explored the price interrelationship between ten dually listed stocks i.e. the stocks, those are listed on the BSE and NSE and the NASDAQ/NYSE. They have found bi-directional causality in vector auto regression model between the prices of the dually listed stocks. More recently Mukherjee and Mishra (2010) and Sarkar et al. (2009) have identified strong correlation between the global stock market and the Indian stock market, with the impact of the US stock market on India being the most prominent. Sinha et al. (2010) have also reported increasing integration of the Indian stock markets with the world market during the post-recession period. They ascribe the recent growth and integration of the Indian stock market with the world market to the revival of foreign institutional investors' (FIIs) interest in emerging market economies including India.

While most of the studies have found growing integration of financial markets across borders, it is apparent that the nature of such integration largely varies over time⁽⁵⁾. The primary rationale that has been cited in the literature is that poor synchronization of country specific business cycles are responsible for such time varying integration patterns. During periods of relative stability, when global shocks do not occur, country specific factors dominate the individual stock market behavior. On the other hand, during periods of extensive global shocks, stock markets across countries are affected through the channels of cross-border trade and capital flows (Bonfiglioli, Favero, 2005). As a result, stock market returns and volatility show persistent correlation universally during periods of significant global shocks. Our present research reconfirms this time varying behavior in the Indian context using the outbreak of the Great Recession as an exogenous global shock.

3. Data

SENSEX is the most followed market index in the Indian stock market. It consists of the 30 largest and most actively traded stocks, representative of various sectors, on the BSE. These companies account for around fifty per cent of the market capitalization of the BSE. This study uses closing value of the daily SENSEX during the time period of January 2002 to July 2010. Our data set clearly accounts for two distinct phases of the global business cycles. The time span of January 2002 to November 2007 represents a booming phase of

the world economy primarily fuelled by the soaring housing markets. On the other hand the period of December 2007 to July 2010 is marked by the outbreak of the Great Recession in the US and its aftermath⁽⁶⁾. We do not consider the period prior to 2002 because March 2001 to November 2001 is marked by another downturn in the US economy following the collapse of the dot-com bubble of 1995-2000.

In order to account for the existence of dynamic interlinkages among BSE and other stock markets in the world, we use six stock market indexes from the US, Europe, Asia and Latin America. These are NASDAQ and DOWJONES from the NYSE in the US, FTSE from the London Stock Exchange in the UK, JKSE of the Jakarta Stock Exchange in Indonesia, Merval from Argentina and BVSP from Sao-Paulo, Brazil. While the US and the UK markets are included to trace out the impact of developed countries on the Indian stock market, Argentinean and Brazilian markets are included because of the similarity of the level of economic development in these countries and India. Further the Indonesian market is expected to capture the regional contagion effect, if any, with the Indian stock market.

All the stock market index data are collected from the Yahoo Finance website⁽⁷⁾. The daily returns are calculated for each series using the formula

$$R_t = (\log(P_t) - \log(P_{t-1}))$$

where R_t is the daily return series, P_t is the current stock price and P_{t-1} is the stock price in the previous period. Volatility in the stock returns is computed by the rolling standard deviation for 21 days. Our final working sample consists of 1,809 data points for seven stock indexes.

4. Data analysis

The daily SENSEX returns and volatility for the entire sample period are shown in Figures 1 and 2, respectively. Table 1 presents the summary statistics for the daily SENSEX returns for the pre and post-recession outbreak periods. The mean return during the pre-recession period is higher than the post-recession period with average daily returns turning negative and declining by almost 109 percent in the latter period. Volatility of the returns as measured by standard deviation can also be seen to increase markedly for all the indexes during the post-recessionary period. The Jarque-Bera test clearly fails to accept the null hypothesis of normally distributed daily stock returns for both the pre-recession and the post-recession outbreak periods. Mukherjee et al. (2011) also report that non-normality with fat tails is a distinguishing characteristic of the distribution of the SENSEX daily returns.

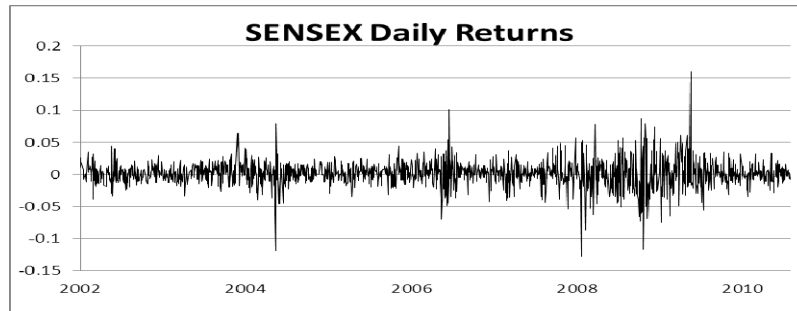


Figure 1. *SENSEX Daily Returns*

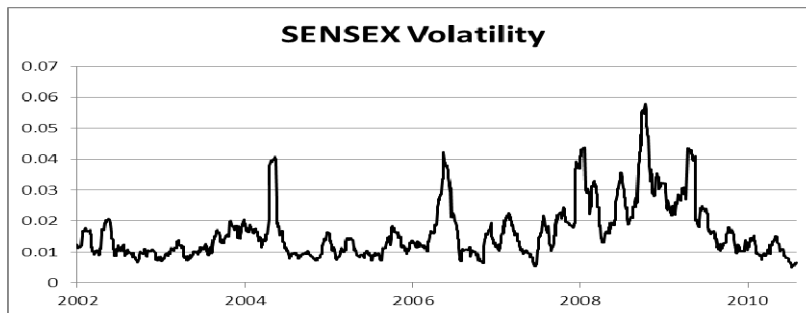


Figure 2. *SENSEX Volatility*

We also report the skewness in Table 1 in order to shed light on the asymmetry of the probability distribution of the daily stock returns. During pre-recession period, we find that the distribution of the SENSEX returns is negatively skewed, while it turns positive in the post-recession outbreak period. The spread of the distribution of returns as measured by Kurtosis declines slightly during the post-recession period. Higher Kurtosis would imply fatter tail and thus higher risk because of higher probability of observing an extreme event.

Table 1

	Pre-Recession	Post-recession outbreak
	SENSEX	
Mean	0.001442	-0.000144
Median	0.00181	-0.000078
Std. Dev.	0.015122	0.025065
Skewness	-0.317886	0.123621
Kurtosis	9.262804	8.281845
Jarque-Bera	2067.204	651.212

In order to test if the differences in the mean returns between the two subsample periods are statistically significant, we perform a t-test with unequal variances on the mean return of each series. The results of the test are reported in Table 2.

Table 2

t-Test: two-sample assuming unequal variances (SENSEX)		
	Pre-recession	Post-recession Outbreak
Mean Returns	0.001442	-0.000144
Variance of Returns	0.0002	0.0006
t Stat	1.4796	

We fail to reject the null hypothesis that pre-recession and post-recession mean returns are same, thus implying that the returns on an average remain statistically similar for both the time periods.

Similarly, we also test if the mean volatilities are statistically different for pre-recession and post-recession periods. The results of the t-test with unequal variance are given in Table 3.

Table 3

t-Test: two-sample assuming unequal variances (SENSEX)		
	Pre-recession	Post-recession outbreak
Mean Volatility	0.015122	0.025065
Variance of Volatility	0.000039	0.000129994
t Stat	-15.71376375*	

*Significant at 5% level.

The significance of the t-statistic shows that pre and post-recession volatilities in stock returns are statistically different.

5. Nature of the contagion – pre-recession and post-recession outbreak period

The analysis of the stock returns in the previous section points to the fact that there are some fundamental differences in the nature of the daily SENSEX returns and volatility during pre and post-recession outbreak periods. In this section we explore the international dimensions of the stock market behavior, with particular focus on the nature of contagion during the pre and the post-recession periods in the Indian stock market. Below we present correlation of both returns and volatility of returns across different stock market indexes considered in this paper. The most common method of investigating market linkages adopted by early researchers is to examine the return and volatility correlation structures amongst the markets under investigation. Correlation measures help to capture the nature of market co-movements without further shedding any light on the causality of such movements.

5.1. Correlations in stock market returns

The correlation of the stock market returns for the two different time periods are presented in tables 4 and 5, respectively. For the pre-recession subperiod of January 2002 – November 2007, none of the stock markets are strongly correlated except for the DOW and the NASDAQ. The strongest correlation between DOW and NASDAQ is obvious since both the indexes are US based. In terms of the degree of correlation with the US stock indexes, both FTSE and BVSP are found to be relatively more correlated with the DOW and the NASDAQ than SENSEX and JKSE. SENSEX and JKSE are also found to be weakly correlated with FTSE, but on the contrary to such trends JKSE and SENSEX exhibit a strong correlation pattern among themselves. For the post recession period however, we notice a distinctive change in overall pattern of association among the stock indexes with an increase in the correlation among all the indexes. Post-recession, SENSEX is found to become strongly correlated with the returns of the developed markets.

Table 4

Correlation in returns during pre-recession period (Jan 2002 - Nov 2007)							
	BVSP	DOW	FTSE	JKSE	MERVAL	NASDAQ	SENSEX
BVSP	1	0.5327	0.3759	0.1583	0.3099	0.5242	0.1880
DOW		1	0.5167	0.0663	0.2402	0.8540	0.0990
FTSE			1	0.2178	0.2563	0.4399	0.2406
JKSE				1	0.1731	0.1138	0.4013
MERVAL					1	0.2226	0.1357
NASDAQ						1	0.1129
SENSEX							1

Table 5

Correlation in Returns During Post Recession Period (Dec 2007 - Jul 2010)							
	BVSP	DOW	FTSE	JKSE	MERVAL	NASDAQ	SENSEX
BVSP	1	0.7721	0.6924	0.4008	0.7979	0.7758	0.4431
DOW		1	0.6611	0.2690	0.6912	0.9407	0.3800
FTSE			1	0.4314	0.7039	0.6285	0.5031
JKSE				1	0.4348	0.2745	0.5694
MERVAL					1	0.6892	0.4303
NASDAQ						1	0.3455
SENSEX							1

The divergence in the nature of correlations in returns among the indexes during the pre and the post-recession time periods clearly depicts two broad trends – first during relatively stable economic condition, stock market behaviors are more driven by country specific idiosyncratic shocks rather than global shocks. At the same time regional contagions play an important role

during relatively calm economic environment (Forbes, Rigobon, 2002, Bonfiglioli, Favero, 2005). On the other hand, following a substantial global shock, markets seem to become more integrated on a global scale across borders.

5.2. Correlations in stock market volatility

In this section, we compare the volatility of the returns across indexes. The nature of correlation of volatility across markets shows substantial change following the onset of the recession (see Tables 6 and 7). During the pre-recession time period, volatility of SENSEX is not correlated or rather slightly negatively correlated with DOW, NASDAQ and FTSE, whereas it is positively correlated with BVSP, JKSE and Merval. On the other hand, with the outbreak of the recession, SENSEX becomes highly correlated with all the indexes. It seems that during normal economic conditions, the Indian market is insulated to some extent to the volatility in the markets of the developed economies. During these calm times the Indian market is rather more concerned with the activities in similar emerging market economies like Brazil, Indonesia and Argentina. On the other hand, during adverse economic times, the Indian market is highly vulnerable to market conditions across the globe.

Table 6

Correlation in volatility during pre-recession period (Jan 2002 - Nov 2007)							
	BVSP	DOW	FTSE	JKSE	Merval	NASDAQ	SENSEX
BVSP	1	0.588	0.571	0.457	0.422	0.545	0.342
DOW		1	0.889	0.295	0.364	0.896	-0.082
FTSE			1	0.355	0.212	0.739	-0.001
JKSE				1	0.438	0.227	0.566
Merval					1	0.496	0.240
NASDAQ						1	-0.014
SENSEX							1

Table 7

Correlation in volatility during post recession period (Dec 2007 - Jul 2010)							
	BVSP	DOW	FTSE	JKSE	Merval	NASDAQ	SENSEX
BVSP	1	0.942	0.946	0.822	0.940	0.910	0.751
DOW		1	0.954	0.764	0.931	0.977	0.707
FTSE			1	0.796	0.926	0.933	0.697
JKSE				1	0.769	0.742	0.795
Merval					1	0.892	0.662
NASDAQ						1	0.688
SENSEX							1

6. Direction of causality

The fact that the stock markets show common patterns in terms of returns and volatility of returns during the recessionary time periods emphasizes the importance of global shocks in understanding the relationships among these markets. Although the correlation results presented in the previous section captures the association among the markets, it fails to point towards the dynamic causal relationships among these indexes. To decipher the direction of causation among the stock markets under consideration, we perform the Granger causality tests. This method was proposed by Granger (1969) and popularized by Sims (1972). Testing causality, in the Granger sense, involves using F -tests to test whether lagged information on a stationary variable Y provides any statistically significant information about a stationary variable X in the presence of lagged X . If not, then "Y does not Granger-cause X." The bivariate vector autoregression (VAR) framework can be used to test for such Granger causality. Assuming a particular autoregressive lag length m , we can estimate the following unrestricted equation by ordinary least squares (OLS):

$$Y_t = \sum_{i=1}^m \alpha_i X_{t-i} + \sum_{i=1}^m \beta_i X_{t-i} + u_t$$

where u_t is iid with mean zero and the Granger causality of X to Y is tested as joint significance of α_i s i.e. the null hypothesis H_0 : X does not Granger cause Y is tested as H_0 : $\alpha_i = 0$ for all i . In case time series data is non-stationary, the Granger causality test can only be performed if both the series are cointegrated of same order. But then cointegration will guarantee that the linear combination of two non-stationary time series generates a stationary time series. Thus in order to test for Granger causality, our first step is to test for stationarity of the time series data. We start our analysis in the following section by testing for stationarity of our time series variables.

6.1. Stationarity tests

Table 8 reports the results of the Phillips-Perron unit root test (Phillips, Perron, 1988) on the returns series for pre-recession and post-recession time periods.

Table 8

Phillips-Perron test for unit root in return series		
	Pre-recession	Post-recession
BVSP	-35.334	-24.778
DOW	-37.630	-28.437
FTSE	-38.764	-25.473
JKSE	-31.820	-21.060
MERVAL	-34.318	-23.182
NASDAQ	-36.940	-26.800
SENSEX	-33.847	-23.439

*Significant at 5% level.

We do not find any evidence of unit root either during the pre-recession or the post-recession periods in the returns series.

Stationarity test for volatility of returns series is given in Table 9.

Table 9

Phillip-Perron test for unit root in volatility series			
	Pre-recession	Post-recession	Post-recession (1st difference)
BVSP	-4.780	-1.012	-22.013
DOW	-3.352	-1.050	-24.369
FTSE	-2.965	-1.026	-19.848
JKSE	-5.823	-2.642	-19.939
MERVAL	-5.620	-0.941	-22.706
NASDAQ	-3.414	-0.958	-24.286
SENSEX	-4.480	-1.196	-23.983

*Significant at 5% level.

For the pre-recession period of January 2002 – November 2007, we do not find any evidence of unit root in the volatility series. We fail to accept the null hypothesis that the series are non-stationary at 5 percent level of significance. For the post-recession outbreak period, i.e. December 2007- July 2010, all the volatility series in levels are non-stationary. However, in first difference all the series in the post-recession period are found to be stationary. If two time series are integrated of the same order, then there is possibility of cointegrating relationship between the two. According to Engle and Granger (1987), if two time series are co-integrated, then the Granger causality model is still misspecified. One needs to do proper error corrections to carry out the causality analysis in that case. Since during the post-recession sub-period volatility series in all the markets are non-stationary, we start out by testing for cointegration in the volatility series using Johansen (1991) approach. The unrestricted Johansen rank test for cointegration is shown in Table 10 below.

Table 10

Johansen cointegration test - post recession outbreak period volatility

	Hypothesized No. of CE(s)	Unrestricted cointegration rank test (Trace)	
		Eigenvalue	Trace statistic
SENSEX vs BVSP	None *	0.024719	18.71153
	At most 1 *	0.008647	4.820164
SENSEX vs DOW	None *	0.019061	15.83826
	At most 1 *	0.009352	5.195731
SENSEX vs FTSE	None *	0.026023	20.02355
	At most 1 *	0.009793	5.442484
SENSEX vs JKSE	None *	0.030994	23.32989
	At most 1 *	0.010571	5.887516
SENSEX vs Merval	None *	0.020774	18.16137
	At most 1 *	0.012075	6.657134
SENSEX vs NASDAQ	None *	0.020547	15.71781
	At most 1 *	0.007632	4.236904

*Significant at 5%.

Cointegration test results show existence of one co-integrating relationship between the SENSEX volatility with other market index volatilities during the post-recession outbreak period.

6.2. Granger causality tests

We perform Granger causality test to determine the causality of volatility between SENSEX and other indexes in both the sample subperiods. These results are reported in Tables 11 and 12. The results are substantially different when we test for Granger causality between the pre-recession and the post-recession periods. For the pre-recession period, except for volatility of JKSE, none of the indexes cause the volatility in SENSEX. Also SENSEX does not cause volatility in the indexes under consideration. It reconfirms the fact that during the pre-recession period contagion across countries is non-existent with the exception of regional contagion effect of JKSE on SENSEX. Whereas during the post-recession period, volatility in foreign indexes does Granger cause volatility in the SENSEX. Also volatility in SENSEX is found to Granger cause volatility in BVSP. Foreign markets are thus found to have important impact on Indian market during post-recession period, but the Indian market does not have substantial impact on foreign markets with the exception of Brazil.

Table 11

**Granger causality test of volatilities between SENSEX and other indices
Jan 2002 - Nov 2007**

Null hypothesis:	Obs	F-Statistic	Probability
SENSEX does not Granger Cause BVSP	1251	0.47553	0.49058
BVSP does not Granger Cause SENSEX		0.9415	0.33208
SENSEX does not Granger Cause DOW	1251	0.52821	0.4675
DOW does not Granger Cause SENSEX		0.02055	0.88604
SENSEX does not Granger Cause FTSE	1251	0.19413	0.65958
FTSE does not Granger Cause SENSEX		0.00777	0.92977
SENSEX does not Granger Cause JKSE	1251	0.30992	0.57783
JKSE does not Granger Cause SENSEX		5.89978*	0.01528
SENSEX does not Granger Cause MER_SD	1251	1.18304	0.27695
MER_SD does not Granger Cause SENSEX		0.02799	0.86715
SENSEX does not Granger Cause NASDAQ	1251	0.56574	0.4521
NASDAQ does not Granger Cause SENSEX		0.03982	0.84187
*Significant at 5% level.			

Table 12

**Granger causality test of volatilities between SENSEX and other indices
Nov 2007 - July 2010**

Null hypothesis:	Obs	F-Statistic	Probability
SENSEX does not Granger Cause BVSP	558	5.66238*	0.01767
BVSP does not Granger Cause SENSEX		12.7913*	0.00038
SENSEX does not Granger Cause DOW	558	1.53723	0.21556
DOW does not Granger Cause SENSEX		9.46844*	0.00219
SENSEX does not Granger Cause FTSE	558	2.63446	0.10514
FTSE does not Granger Cause SENSEX		9.28626*	0.00242
SENSEX does not Granger Cause JKSE	558	0.00003	0.99576
JKSE does not Granger Cause SENSEX		6.89145*	0.0089
SENSEX does not Granger Cause MER_SD	558	1.43044	0.2322
MER_SD does not Granger Cause SENSEX		5.00537*	0.02567
SENSEX does not Granger Cause NASDAQ	558	0.61409	0.43359
NASDAQ does not Granger Cause SENSEX		8.06466*	0.00468
*Significant at 5% level.			

We further perform Granger causality tests on the returns series (Tables 13 and 14).

Table 13

Granger causality test of returns between SENSEX and other indexes Jan 2002 - Nov 2007

Null hypothesis:	Obs	F-Statistic	Probability
SENSEX does not Granger Cause BVSP	1251	1.57366	0.20991
BVSP does not Granger Cause SENSEX		38.7136*	0.00000
SENSEX does not Granger Cause DOW	1251	0.15623	0.69272
DOW does not Granger Cause SENSEX		47.3389*	0.00000
SENSEX does not Granger Cause FTSE	1251	0.6379	0.42462
FTSE does not Granger Cause SENSEX		13.6319*	0.00023
SENSEX does not Granger Cause JKSE	1251	3.77851**	0.05214
JKSE does not Granger Cause SENSEX		0.74445	0.38841
SENSEX does not Granger Cause MER_SD	1251	0.39521	0.52969
MER_SD does not Granger Cause SENSEX		7.44464*	0.00645
SENSEX does not Granger Cause NASDAQ	1251	0.27221	0.60194
NASDAQ does not Granger Cause SENSEX		43.9026*	0.00000

*Significant at 5% level, **Significant at 10% level.

Table 14

**Granger causality test of returns between SENSEX and other indices
Nov 2007 - July 2010**

Null hypothesis:	Obs	F-Statistic	Probability
SENSEX does not Granger Cause BVSP	558	0.80544	0.36986
BVSP does not Granger Cause SENSEX		14.32*	0.00017
SENSEX does not Granger Cause DOW	558	0.05261	0.81866
DOW does not Granger Cause SENSEX		26.0674*	0.00000
SENSEX does not Granger Cause FTSE	558	1.35292	0.24527
FTSE does not Granger Cause SENSEX		5.32195*	0.02143
SENSEX does not Granger Cause JKSE	558	2.70299	0.10073
JKSE does not Granger Cause SENSEX		0.88384	0.34756
SENSEX does not Granger Cause MER_SD	558	3.09458	0.0791
MER_SD does not Granger Cause SENSEX		3.69009**	0.05525
SENSEX does not Granger Cause NASDAQ	558	0.24736	0.61913
NASDAQ does not Granger Cause SENSEX		42.9581*	0.00000

*Significant at 5% level, **Significant at 10% level.

We do not find any substantial changes in causality among return series between pre and post-recession time periods. During both periods, BVSP, DOW, FTSE, MERVVAL and JKSE Granger cause SENSEX but not the other

way round. On the other hand SENSEX Granger cause JKSE during the both the time periods.

Our results indicate that direction of causality in returns series does not vary with business cycles but volatility in return series strongly depend upon economic fluctuations. During relatively stable economic environment, volatility does not spread across countries, but during periods of economic turmoil, Indian market gets affected by the volatility in the world market.

7. Conclusion

The purpose of this study is to document the behavior of the Indian stock market, particularly SENSEX before and after the Great Recession. We find substantial change in behavior of the SENSEX following the outbreak of the recession. Prior to the Great Recession, the Indian market was characterized by positive daily returns, but such returns turned negative after the recession. But we do not find any significant statistical difference between the pre and post-recession daily mean returns. Major changes are observed in terms of volatility of returns. With the onset of the recession, there is substantial increase in volatility in the Indian equity market. In order to explore the impact of the foreign stock markets on SENSEX, we analyze the nature of contagion among the US, European, Asian and Latin American markets. During pre-recession period, the Indian market is found to be insulated from the world market. It seems that country specific and to some extent regional factors dominate the SENSEX during periods of relative economic stability. The picture is substantially different after the Great Recession, marked by strong correlation in SENSEX returns and volatility with other stock markets around the world. This study concludes that in order to understand the time varying behavior of the SENSEX in terms of international financial market integration, it is important to account for global business cycle fluctuations. Analyzing the market behavior without accounting for such global fluctuations perhaps may give distorted picture of the returns and volatility in the Indian markets.

Notes

- (1) Based upon National Bureau of Economic Research (NBER) dating of US business cycles.
- (2) World Economic Outlook Database, October 2009.
- (3) Our study analyzes the impact of the recession on returns and hence our sample is divided into two subsamples - one prior to the recession and the other following the onset of the recession. The period following the outbreak of the recession is interchangeably termed as post-recession or post-recession outbreak period in this paper.

- (4) On Monday, 19 October, 1987, stock markets around the world crashed, shedding a huge value in a very short time. The crash began in Hong Kong, spreading west to Europe, hitting the U.S. after other markets had already declined by a significant margin. In the literature it is also known as Black Friday.
- (5) See Forbes and Rigobon (2002), Karolyi and Stultz (1996), Lee and Kim (1993), Lin et al. (1994), Longin and Solnik (1995, 2001) and Bonfiglioli and Favero (2005).
- (6) Although the NBER dated June 2009 as the official end date of the Great Recession in the US but its effects are still persistent beyond June 2009 during the sample period used in this paper.
- (7) See <http://finance.yahoo.com/>

References

- Agmon, T., „The Relations Among Equity Markets: A Study of Share Price Co-Movements in the United States, United Kingdom, Germany and Japan”, *The Journal of Finance*, 27(4), 1972, pp. 839-855
- Baig. T., Goldfajn, I., „Financial market contagion in the Asian crisis”, 1999, Department of Economics PUC-Rio (Brazil). Available at: <http://ideas.repec.org/p/rio/texdis/400.html> [Accessed December 4, 2010]
- Bonfiglioli, A., Favero, C.A., „Explaining co-movements between stock markets: The case of U.S. and Germany”, *Journal of International Money and Finance*, 24, 2005, pp. 1299-1316
- Calvo, S., Reinhart, C., „Capital flows to Latin America: Is there evidence of contagion effects?”, *The World Bank*, 1996, Available at: <http://ideas.repec.org/p/wbk/wbrwps/1619.html>
- Caporale, G.M., Pittis, N., Spagnolo, N., „Volatility transmission and financial crises”, *Journal of Economics and Finance*, 30(3), 2006, pp. 376-390
- Engle, R.F., Granger, C.W.J., „Co-Integration and Error Correction: Representation, Estimation, and Testing”, *Econometrica*, 55(2), 1987, pp. 251-276
- Forbes, K., Rigobon, R., „No contagion, only interdependence: measuring stock markets co-movements”, *Journal of Finance*, 57 (5), 2002, pp. 2223-2261
- Granger, C.W.J., „Investigating Causal Relations by Econometric Models and Cross-spectral Methods”, *Econometrica*, 37(3), 1969, pp. 424-438
- Hansda, S.K., Ray, P., „BSE and Nasdaq: Globalisation, Information Technology and Stock Prices”, *Economic and Political Weekly*, 37(5), 2002, pp. 459-468
- Hansda, S.K., Ray, P., „Stock Market Integration and Dually Listed Stocks: Indian ADR and Domestic Stock Prices”, *Economic and Political Weekly*, 38(8), 2003, pp. 741-754
- Hilliard, J., „The relationship between equity indices on world exchanges”, *Journal of Finance* 34(1), 1979, pp. 103-114
- Hon, M.T., Strauss, J.K., Yong, S., „Deconstructing the Nasdaq bubble: A look at contagion across international stock markets”, *Journal of International Financial Markets, Institutions and Money*, 17(3), 2007, pp. 213-230
- Jang, H., Sul, W., „The Asian financial crisis and the co-movement of Asian stock markets”, *Journal of Asian Economics*, 13(1), 2002, pp. 94-104
- Johansen, S., „Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models”, *Econometrica*, 59(6), 1991, pp. 1551-80

- Karolyi, G.A., Stultz, R.M., „Why do markets move together? An investigation of U.S. -Japan stock return comovement”, *Journal of Finance*, 51, 1996, pp. 951-986
- Kim, S., „Information leadership in the advanced Asia-Pacific stock markets: Return, volatility and volume information spillovers from the U.S. and Japan”, *Journal of the Japanese and International Economies*, 19(3), 2005, pp. 338-365
- King, M., Wadhvani, S., „Transmission of volatility between stock markets”, *Review of Financial Studies*, 3(1), 1990, pp. 5-33
- Lee, S.B., Kim, K.J., „Does the October 1987 crash strengthen the co-movements among national stock markets?”, *Review of Financial Economics*, 3 (1), 1993, pp. 89-102
- Lin, W.L., Engle, R.F., Ito, T., „Do bulls and bears move across borders? International transmission of stock returns and volatility”, *The Review of Financial Studies*, 7, 1994, pp. 507-538
- Longin, F., Solnik, B., „Is the correlation in international equity returns constant: 1960-1990?”, *Journal of International Money and Finance*, 14 (1), 1995, pp. 3-26
- Longin, F., Solnik, B., „Extreme correlations of international equity markets”, *Journal of Finance*, 56 (2), 2001, pp. 649-676
- Mishkin, F.S., „Lessons from the Asian crisis”, *Journal of International Money and Finance*, 18(4), 1999, pp. 709-723
- Mukherjee, I., Sen, C., Sarkar, A., „Study of Stylized Facts in Indian Stock Market”, *The International Journal of Applied Economics and Finance*, 2011, ISSN 1991-0886/ DOI:10.3923/ijaef.2011
- Mukherjee, K.N., Mishra, R.K., „Stock market integration and volatility spillover: India and its major Asian counterparts”, *Research in International Business and Finance*, 24(2), 2010, pp. 235-251
- Phillips, P.C.B., Perron, P., „Testing for a unit root in time series regression”, *Biometrika*, 75(2), 1988, pp. 335 -346
- Ratanapakorn, O., Sharma, S.C., „Interrelationships among regional stock indices”, *Review of Financial Economics*, 11(2), 2002, pp. 91-108
- Rao, B.S.R., Naik, U., „Inter-relatedness of stock market spectral investigation of USA, Japan and Indian markets note”, *Artha Vignana* 32(3&4), 1990, pp. 309-321
- Sarkar, A., Chakrabarti, C., Sen, C., „Indian Stock Market Volatility in Recent Years: Transmission from Global Market, Regional Market and Traditional Domestic Sectors”, *Journal of Asset Management*, 10(1), 2009, pp. 63-71
- Sharma, J.L., Kennedy, R.E., „A Comparative Analysis of Stock Price Behavior on the Bombay, London, and New York Stock Exchanges”, *Journal of Financial and Quantitative Analysis*, 12(03), 1977, pp. 391-413
- Sheng, H., Tu, A.H., „A study of cointegration and variance decomposition among national equity indices before and during the period of the Asian financial crisis”, *Journal of Multinational Financial Management*, 10(3-4), 2000, pp. 345-365
- Sims, C.A., „Money, Income, and Causality”, *American Economic Review*, 62(4), 1972, pp. 540-52
- Sinha, P., Gupta, S., Randev, N., „Modeling & Forecasting of Macro-Economic Variables of India: Before, During & After Recession”, 2010, University Library of Munich, Germany. Available at: <http://ideas.repec.org/p/pramprapa/26539.html>
- Yang, J., Kolari, J.W., Min, I., „Stock market integration and financial crises: the case of Asia”, *Applied Financial Economics*, 13(7), 2003, pp. 477-486

Credit Risk Assessment under Basel Accords

Oana Miruna DĂNILĂ

Bucharest Academy of Economic Studies
oanamirunadanila@yahoo.com

Abstract. *Credit risk represents one of the most critical risks associated with the banking sector, having a direct impact on the banking institutions' overall performance. As of today, such institutions can access a wide range of methods and systems for assessing credit risk, with direct impact on their capital adequacy ratios. Approaches based on internal rating models, as introduced by Basel II, allow banks to utilize their own methods to quantify credit risk, essential to the risk-weighting of their assets and therefore to the measuring of the capital requirements.*

This paper addresses a potential scoring model in order to quantify the default probability, based on quantitative information and forecasting of potential default scenarios. Qualitative variables have also been considered in order to generate higher prediction accuracy.

Keywords: scoring model; default probability; logit model; qualitative variables; credit risk.

JEL Code: G24.

REL Code: 11C.

1. Introduction

Under the current market conditions, deriving from the global financial crisis, the banks have to pay special attention to getting prepared in order to promote and implement a large number of required changes. One of the top priority areas should be the connection between the bank's capital structure and size and the amount of risk which can be taken in order to maintain the requirements for a stable and efficient institution.

It is well known that credit risk represents the most critical risk associated with the banking sector, also having a direct impact on the banking institutions' overall performance.

Basel II offered the banking institutions a wide range of approaches for assessing credit risk, with direct impact on their capital adequacy ratios. The three approaches under Basel II are varying in terms of complexity; however the banks have the possibility to choose one such approach, based on their risk profile, internal requirements and requirements of the local and regional supervision authorities.

The standardized approach represents a more complex version of Basel I, through allocating various risk weights to each asset class (both on balance sheet and off balance sheet assets), depending on counterparty and collateral quality as indicated by rating agencies and similar institutions.

Internal ratings approach (IRB) allows a more detailed classification of risks, based on internal rating systems established by each credit institution. The banks are using their own estimations with respect to the probability of default (PD). When it comes to the loss given default (LGD) or exposure at default (EAD), the banks are using data provided by financial services authorities (Foundation IRB) or own estimations (advanced IRB). It is clear that the accuracy of such models depends on the quality of assessing the probability of default.

Nowadays some specialists are discussing if the new methods applied to credit risk have really improved the regulatory framework or they have actually contributed to the current financial crisis, given the fact that banks were allowed to use their own predictions and models for assessing credit risk and set up their capital adequacy ratios accordingly (Ranjit, 2009, p. 3). Despite these concerns, Basel III does not bring substantial changes regarding the approach to credit risk.

Within this broader context, I am proposing a scoring model to quantify the probability of default based on quantitative variables (financial ratios) relevant to such scenario. I have also considered qualitative variables which have a direct impact on the reimbursement capacity of a borrower. I have used data collected from a Romanian banking institution pertaining corporate borrowers.

2. Estimating the probability of default

Estimating the probability of default is the first step toward quantifying and evaluating the credit risk within IRB. At this stage the major challenges appear from lack of data in the collection process.

Basel Committee defined three major methods to be used for calculating the PD:

- Average external counterparty rating;
- Estimation through the employment of various models on credit risk;
- Estimation based on historical data and ratings allocated to the assets in the bank's balance sheet.

Devising relevant models in order to quantify the PD has been a constant topic for modern researchers, i.e. Beaver (1966 and 1968) and Altman (1968) studies on using linear discriminant analysis to predict a company's default. Currently there are several other models dedicated to such predictions.

The structural models are based on Merton Option Pricing Model and regard the borrower's capital as an option on its assets. The default appears when the market value of the borrower (depending on both value and volatility of its shares) reaches a certain default barrier.

Fundamental models are estimating the PD based on certain variables extracted from the borrower's financials and are used primarily for unlisted companies, for which there is no publicly available market value.

Within the above mentioned category of models there are three sub-categories:

- Macroeconomic models – assessing PD based on the overall economy status (useful especially for calculating PD with respect to various economic sectors);
- Credit scoring models – based on financial and accounting data of borrowers;
- Rating based models.

The credit scoring models are most widely used; they are based on several financial ratios with respect to the borrower's profitability, liquidity, debt multiples, debt service etc. A correlation is built between the borrower's financials and probability of its default. Such models are using techniques derived from statistics (i.e. linear discriminant analysis devised by Beaver and Altman) and econometrics to determine the PD. There are also alternative approaches based on non-parametric methods: neural networks, fuzzy algorithms, K – nearest neighbor. There is a lot of debate in this respect – despite several studies (Galindo & Tamayo 2000, Caiazza 2004) suggesting that

non – parametric models generate more accurate predictions, other studies (Altman, Marco, Vareto, 1994, Yang, 1999) prove otherwise.

Linear discriminant analysis is based on the hypothesis that there are two types of companies – in default and not in default. The associated function is:

$$Z = v_1 X_{1,j} + v_2 X_{2,j} + \dots + v_n X_{n,j} = V^T X_i,$$

in which:

$$v_j, \quad j = 1, \dots, n - \text{coefficients;} \\ X_{j,i}, \quad j = 1, \dots, n - \text{financial ratios.}$$

The coefficients are selected in order to maximize the following function:

$$F = [V^T (\mu_F - \mu_{NF})]^2 / V^T \Sigma V,$$

in which

μ_F si μ_{NF} are reflecting the average financial ratios for companies in default and companies not in default and Σ – the covariance matrix

After defining coefficients $v_i, i = 1, \dots, n$, the function can be used to determine the status of a borrower – in or not in default: if $V^T X_i + \alpha < 0$ – the company is in default, where α is a constant reflecting historical data on defaults.

Z – score models reflect in an indirect way the default probability.

Such probability is calculated as follows:

$$p_F (X_i) = 1 / [1 + \exp(V^T X_i + \beta)],$$

in which:

$$\beta = \alpha + \log (p_{NF} / p_F); \\ p_F \text{ and } p_{NF} - \text{probability of default/non default.}$$

Altman's Z – score method is the most known application of the credit scoring for predicting bankruptcy.

The Z score function (Altman, 2000) is:

$$Z = 0,012X_1 + 0,014 X_2 + 0,033 X_3 + 0,006X_4 + 0,999X_5,$$

in which:

$$X_1 = \text{Working Capital/Total Assets;} \\ x_2 = \text{Retained Earnings/Total Assets;} \\ x_3 = \text{Earnings Before Interest and Taxes/Total Assets;} \\ x_4 = \text{Market Value of Equity/Total Liabilities;} \\ x_5 = \text{Sales/Total Assets.}$$

Econometric models are mostly based on logit and probit functions; nevertheless the specialists are recommending the logit models as the best technique to determine the default probability. Ohlson (1980) and Platt & Platt

(1990) are considered the pioneers of logit models. Laitinen (1999) used automatic selection processes to determine the variables used in linear and logic models.

The most popular application based on logit model is Moody's KMV EDF RiskCalc Model, which indicates the expected default frequency (EDF) for analysed companies, based on their financials, through the following formula:

$$EDF = F \left(\Phi \left(\sum_{i=1}^N \beta_i T_i(x_i) + \sum_{j=1}^K \gamma_j I_j \right) \right)$$

in which:

x_i , $i=1, \dots, n$ – financial ratios;

I_j $j=1, \dots, K$ – variables associated with economic sectors;

Φ = normal distribution;

F, T = nonparametric transforms.

The logit model represents a direct method for predicting bankruptcy.

3. Scoring model for predicting defaults

Given the information presented so far, I will present a scoring model for quantifying the default probability

3.1. Data collection

In my opinion data collection represents one of the most critical issues associated with the implementation of an accurate rating system. In this respect, the following factors have to be considered: easy access to raw information, the data quality and accuracy and process management.

Easy access to raw information – given the high volume of data, the systems have to allow its processing (reading, writing and updating) with minimum human intervention.

Data quality and accuracy – high quality systems have to be capable to identify and “repair” missing or inaccurate information, to identify ways to improve data collection, to reduce redundancy, to capture and integrate information collected from several sub – systems.

In order to build my model I have used data representing financials of 317 corporate borrowers, selected from a number of randomly generated 1000 such borrowers (SMEs), clients of a Romanian bank. Out of the 317 analysed borrowers, 58 have defaulted during the last year (1), giving an NPL ratio of 16,6%, in correlation with the overall NPL ratio for this borrowers segment (SMEs).

The selection process was based on economic sectors (see Figure 1), mirroring the distribution across the entire loan portfolio; the start-up and real estate clients were excluded as not relevant.

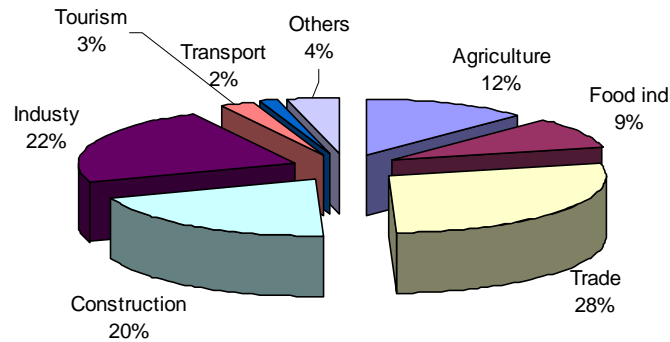


Figure 1. Economic sectors distribution of analysed companies

3.2. Selection of Variables

The **exogenous variables** used in this analysis are exclusively of a quantitative nature – ratios and indicators pertaining the evolution of the company's financials.

As a first step, I have selected 14 relevant financial ratios across five major categories (according to Altman et al., 2005), as in Table 1.

Table 1

Category	Ratio
Profitability	Profit Margin
	Return on equity (ROE)
	Return on assets (ROA)
	Return on investment (ROI)
Liquidity	Current ratio
	Quick ratio
Debt	Debt ratio
	LT debt to equity
	Debt to equity
Debt service	EBITDA Coverage
	Interest Coverage
Activity	Asset turnover
	Accounts Payable Turnover
	Accounts receivable / debt

In order to assess the discriminatory power of each variable, I have prepared univariate analyses for each of the 14 indicators (Fernandes, 2005). Following such analyses, five of the variables present weak correlations between themselves: profit margin, ROA, current ratio, debt ratio and Interest coverage. I have considered that the relationship between the selected variables and expected default frequency has to be clear and economically viable:

- Profit margin, ROA, current ratio and the interest coverage are in inverse correlation with the EDF;
- Debt ratio has a positive correlation with EDF.

Figures 2-6 are showing the relationship between EDF and each considered variable⁽²⁾.

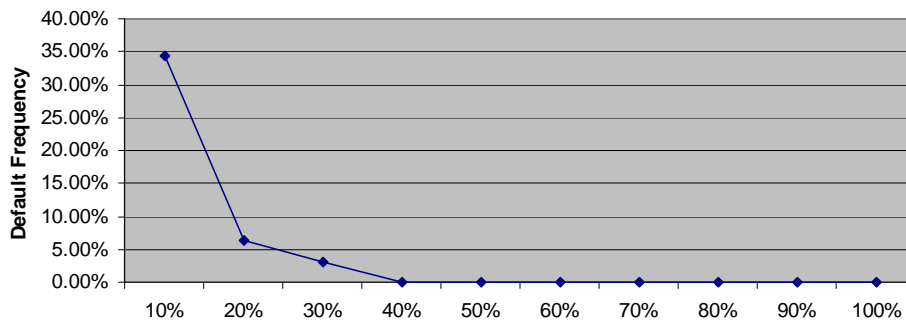


Figure 2. Univariate relationship between profit margin and default frequency

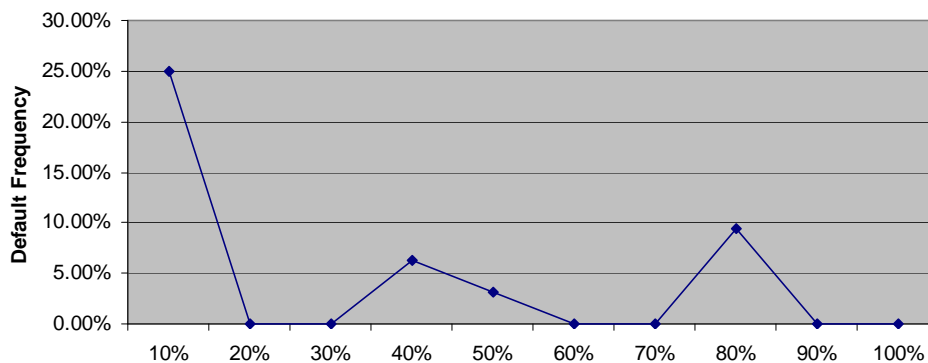


Figure 3. Univariate relationship between ROA and default frequency

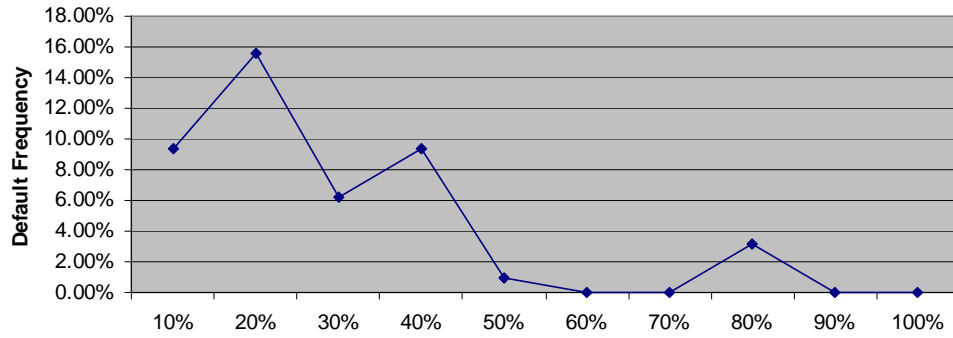


Figure 4. Univariate relationship between current ratio and default frequency

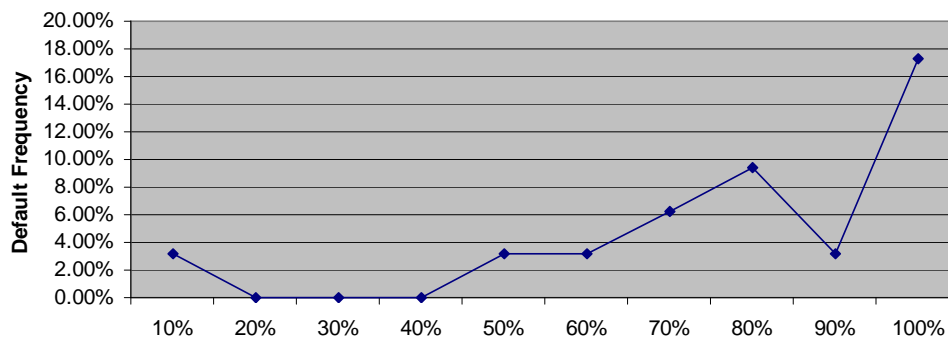


Figure 5. Univariate relationship between debt ratio and default frequency

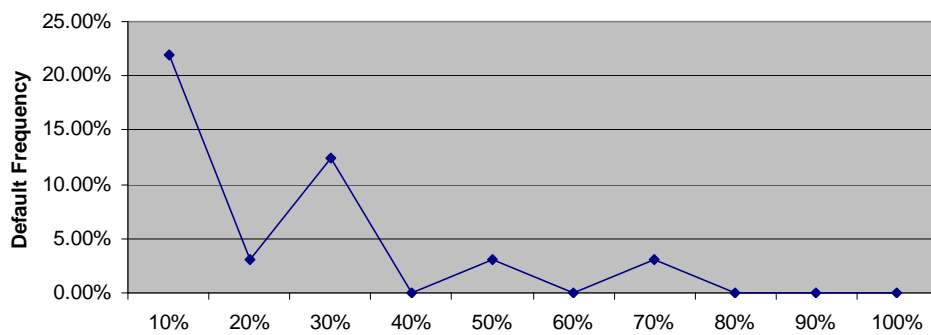


Figure 6. Univariate relationship between interest coverage and default frequency

3.3. Scoring model

A logit model was used to determine the probability of default (Altman et al 2005):

$$Y_{it} = f(\beta_k, X_{it-1}^k) + e_{it},$$

in which:

Y_{it} – dependent binary variable – default and non–default scenarios;

X_{it-1}^k – independent variables – financial ratios values for each analysed borrower.

The logit function results, based on the five selected variables/financial ratios (V1- Profit margin, V2 – ROA, V3 – Current ratio, V4 – Debt ratio, V5 – Interest coverage) are as follows:

Variable	Coefficient	Std. Error	z-Statistic	Prob.
V1	-0.312407	0.089443	-3.492818	0.0005
V2	0.067621	0.058591	1.154121	0.2485
V3	-0.034178	0.013798	-2.476983	0.0132
V4	0.000295	0.000175	1.683654	0.0922
V5	-0.053892	0.116278	-0.463480	0.6430
C	-1.224376	0.944995	-1.295644	0.1951

Considering the fact that the V2 (ROA) results are positive (which means that an increase of the value of this variable will imply an increase of the PD), which is incorrect from an economic point of view, and the fact that the probability associated with V5 (0.643) exceeds 0.05%, this model cannot be considered relevant and the two variables were eliminated.

Using only three ratios (V1 – Profit margin, V3 – Current ratio and V4 – Debt ratio) within the logit model, the following results were obtained:

Variable	Coefficient	Std. Error	z-Statistic	Prob.
V1	-0.274833	0.069655	-3.945653	0.0001
V3	-0.034467	0.013765	-2.503992	0.0123
V4	0.000322	0.000164	1.963116	0.0496
C	-1.004333	0.891212	-1.126930	0.2598
Mean dependent var	0.044164	S.D. dependent var		0.205784
S.E. of regression	0.155796	Akaike info criterion		0.209707
Sum squared resid	7.597226	Schwarz criterion		0.257137
Log likelihood	-29.23849	Hannan-Quinn criter.		0.228653
Restr. log likelihood	-57.36402	Avg. log likelihood		-0.092235
LR statistic (3 df)	56.25106	McFadden R-squared		0.490299
Probability(LR stat)	3.71E-12			

The above results are statistically relevant (the probabilities associated with the three variables are lower than 0.05%). Also the results show that between each of the V1 and V3 variables and the default probability there is an inverse correlation and a positive one in case of the V4 variable, which is economically correct.

Analysing the impact of the variables over the default probability, it is obvious that there is a significant influence on this probability deriving from profit margin (V1), while the influence of debt ratio (V4) is much weaker.

To verify the model's accuracy I have considered the discriminatory power (capacity to determine on an ex-ante basis the default situations) through a ROC curve – relationship between the percentage of defaulted companies correctly identified and percentage of non-defaulted companies incorrectly identified.

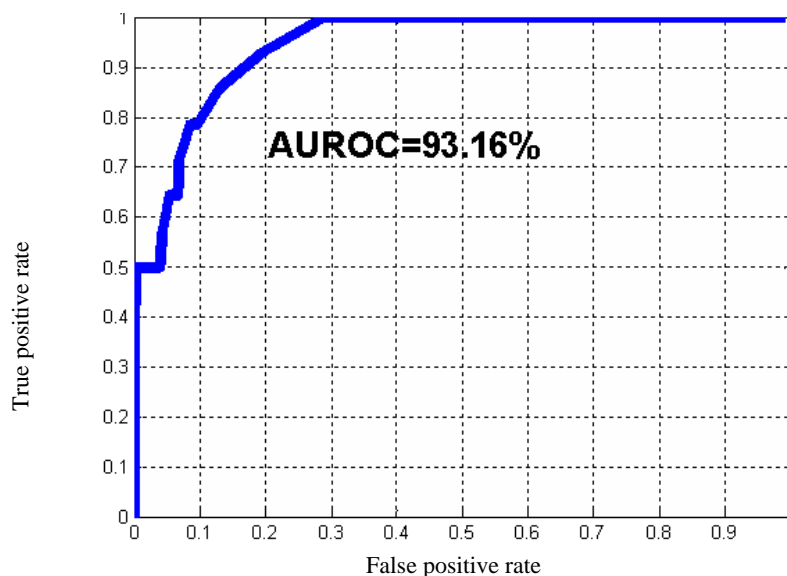


Figure 7. ROC curve

As shown by the above graph, the ROC curve confirms the fact that the model correctly quantifies the default probability – AUROC is 93.16%.⁽³⁾

3.4. Interpreting the results

The main finding of this analysis is that using exclusively quantitative information (financial ratios) it is possible to build a scoring system which offers accurate predictions. Based on such system, rating categories will be put in place through dividing the obtained scorings into the required number of

classes (such number will be based on the Basel II provisions – minimum 7 classes for non-default borrowers and one for default borrowers, to avoid excessive concentration into one rating class).

4. Qualitative variables and final rating

As recent literature demonstrate (Lehmann, 2003) the next step in building a high quality ratings system, able to provide accurate predictions, is to include the qualitative variables. In this respect I have considered 4 factors with direct impact on any credit decision: the market, the shareholders, the executive management and the business. Based on observations on a number of 2,800 corporate borrowers (SMEs) out of which a number of 460 defaulted within 12 months, I have determined the following relevant qualitative variables:

- Market share;
- Shareholders risk;
- Executive management risk;
- Dependency on suppliers;
- Dependency on clients.

I have allocated for each qualitative variable a certain scoring based on the relevant risks and their past evolution:

- Market share – negative correlation with the risk level (an increase of the market share means a better position on a market, so a lower risk);
- Executive management risk – negative correlation with the quality of the executive management involved in this area or any other areas with impact;
- Shareholders risk – negative correlation with the level of involvement of the shareholders (i.e. shareholder loans, dividends allocated for future investments);
- Dependency on suppliers and clients – positive correlation with credit risk. The dependency on one supplier is considered standard if it does not exceed 25% out of total suppliers (critical at over 50%). Also, the dependency on one client is considered standard if it does not exceed 20% out of total clients (critical at over 40%).

The scoring for each qualitative variable based on the credit risk impact is presented in Table 2.

Table 2

Scoring for quantitative variables

No.	Qualitative variable (X _i)	Value	Score
1	Market share	Growth	3
		Stagnation	2
		Decrease	1
2	Executive management risk	Low (high quality of management)	3
		Medium (standard quality)	2
		High (low quality)	1
3	Shareholders risk	Low	3
		Medium	2
		High	1
4	Dependency on suppliers	Critical (one supplier >50% of total suppliers)	0
		High (25% - 50%)	1
		Good (5% - 25%)	2
		Low (< 5%)	3
5	Dependency on clients	Critical (one client >40% of total clients)	0
		High (20%-40%)	1
		Good (5% - 20%)	2
		Low (<5%)	3
Total			$\sum_{i=1}^5 X_i$

For these qualitative variables I have used three credit risk classes: 1 – low risk, 2 – medium risk and 3 – high risk, generating the following score brackets:

Credit risk	
1	11 - 15 points
2	6 - 10 points
3	< 6 points

Final rating is determined through performing a correlation of the financial rating (quantitative) with one of the credit risk brackets for qualitative variables. The analysis shows that the impact of the qualitative variables on a borrower's capability to maintain a proper debt service stands at a level of 25% (with 75% deriving from quantitative aspects). Consequently, in building the credit risk matrix it has to be taken into consideration the fact that following the introduction of qualitative variables, the final rating could be up to two classes, above or below the financial (quantitative) rating.

5. Conclusions

A scoring model based exclusively on quantitative information (profitability, liquidity and debt service ratios) offers a good prediction capability of credit default events, a fact also shown by the ROC analysis and an AUROC level of 93.16%.

However, in order to increase the accuracy of any rating system based on the above model, I personally consider as necessary in practice to split the system into two separate systems dedicated to trade and non-trade companies, each system employing relevant ratios for each type of company.

To further increase the rating system's accuracy qualitative variables have to be inserted; in this respect I have determined four such variables - Market share, Shareholders risk, Executive management risk, Dependency on suppliers and clients. The final rating is based on both quantitative (financial ratios) and qualitative (score brackets) variables, but its accuracy is always highly dependent on the quality of the historical data collection and processing.

In this respect I consider that one of the major challenges of the Romanian financial institutions in implementing an accurate rating system is represented by the availability and ease of access (within a short period of time and with minimal costs) of historical data.

However a good risk management strategy has to be always certified by practice and continuous monitoring and improvement of the performance of a rating system is mandatory, especially considering the critical aspects associated with wrong credit decisions.

Notes

- (1) Based on Basel II definition –payment default of over 90 days.
- (2) Data in ascending order based on the variable's value and for each period the DF has been calculated as number of defaults divided by total number of analysed borrowers.
- (3) The accuracy of a diagnostic test is good if AUROC >80%.

References

- Altman, E., Sabato, G. „Modeling Credit Risk for SMEs: Evidence from US Market”, *SSRN working paper*, Decembre, 2005
- Altman, E., Sabato, G., „Effects of the New Basel Capital Accord on Bank Capital Requirements for SMEs”, *Journal of Financial Service Research*, Vol. 28, 2005, pp. 15-42, ISSN 0920-8550

-
- Fernandes, J.E., „Corporate Credit Risk Modeling: Quantitative Rating System And Probability Of Default Estimation”, *SSRN working paper*, April 2005
- Lehmann, B., „It is worth the while? The relevance of Qualitative information in Credit Rating”, *Working Paper EFMA*, 2003, Meetings Helsinki, pp. 1-25
- Moody’s, „Moody’s KMVRiskcalc3.1 Model”, April 2004
- Ranjit, L., „Why Basel I Failed and Why Basel III is Doomed”, *Working Paper*, Octobre 2009
- *** Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework – Comprehensive Version, BIS, June 2006
- *** An Explanatory Note on the Basel II IRB Risk Weight Functions, BIS, 2005.
- *** Studies on the Validation of Internal Rating Systems, BIS, 2005
- *** BNR/CNVM - Rules no.15/20/14.12.2006

An Analysis of Current Labor Market Developments and Structures in European Union – in Correlation with Labor Market Flexicurity Requirements

Alina Ștefania CHENIC (CREȚU)
Bucharest Academy of Economic Studies
chenicalina@yahoo.com

Abstract. *Although at first sight the crisis appears as a disturbance of the regular course of economic, social and organizational, this is a necessary step that turns old structures and relations to some superior functional. Under these conditions, however, it is absolutely necessary that the situation be properly evaluated by an analysis of developments and labour market structures and be taken right decision for the purposes of proper management of existing and potential recovery so far underused resources: people, values and strategies. The impact of the economic crisis on labour markets displays significant variation from one country to another. Employment rates and unemployment rates will be compared between European countries and for different groups of workers. Some countries have succeeded in keeping employment levels up and unemployment levels down through recourse to employment-preservation and employment-creation measures combined with an expansion of active labour market policies. Moreover, certain labour market groups or categories have been particularly hard hit by the crisis. These include men, temporary workers, youth and migrant workers.*

In the EU Member States, crossing the crisis period was marked by changes in the sense orientation flexibleworking time and conservation work, a strategy that ensures rapid and reversible adaptation to the needs of production entities present.

Keywords: labor market developments; flexicurity requirements; economic crisis; underemployed part-time workers.

JEL Codes: J01, J61.

REL Codes: 12E, 12G.

1. Introduction

The economic crisis has had severe labour market impacts in EU countries, but the extent of changes in unemployment and employment rates varies considerably from one country to another due to the differences in the size of the shocks and in the importance of labour market policies. By reason of the fact that male-dominated sectors such as manufacturing and construction were badly affected, the crisis has beat men much harder than women. Also, taken on the EU average, young and prime-age workers have been more affected than older workers and the same is true of migrant workers. On the other hand, except for the gender effect, countries differ significantly in terms of the groups that have so far been hardest hit.

Throughout the economic crisis part-time employment has grown further in line with the trend of the last decade. Concerning temporary employment, however, there has been a trend reversal. Fixed-term workers, and particularly temporary agency workers, were in many countries the first to lose their jobs. Captivatingly, in a number of countries some labour market measures have been explicitly extended to cover part-time and temporary workers or have been made more accessible for these groups of workers.

The greater part of EU countries have taken measures to reinforce and broaden passive and active labour market policies but also employmentsustaining measures for the period of the crisis. Nevertheless, the focus and area of the measures taken has been very different – with some countries placing the main focus on employment-sustaining measures and others focussed on assisting the unemployed or offering them retraining. In most cases, as a result of traditionally large cross-country variation in the importance of passive and active labour market policies in terms of expenditure, countries differ considerably in the degree to which they are prepared to cushion the labour market outcomes of the economic crisis. In a few areas the economic crisis has prompted ‘good practice learning’ – which is one of the aims of the European Employment Strategy – an example in this respect being the shorttime working payment that has been recently introduced in several countries, particularly New Member States.

Even though EU labour markets have been powerfully affected by the crisis, mostly job losses have been rather limited when compared to other global competitors, thankfulness in large part to the measures taken to mitigate the impact of the crisis. This reflects especially strong option to increased internal flexibility (flexible working time arrangements including shorter hours or temporary partial unemployment, temporary closures, etc.) joined with nominal wage concessions in response for employment stability in some

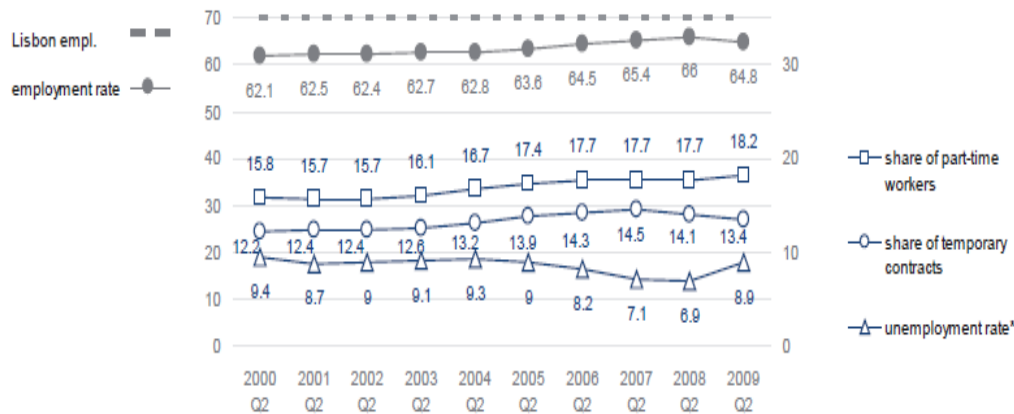
sectors, all of which appears to have prevented, or at least delayed, significant mass dismissals in certain Member States.

Above all, the more moderate raise in the unemployment rate in the EU compared to, for example, the US reflects the greater tendency in some Member States to adjust to changes in demand by lowering hours worked rather than the number of workers, especially in Germany.

2. Labour market developments in the EU (2000-2009) and impact of the crisis on the employments rates

Regarding Lisbon period achievements (for 2010: an on the whole EU employment rate of 70% and employment rates of 60% for women and 50% for older workers), few positive developments have certainly taken place in this respect. For example, employment growth has been particularly strong surrounded by women and older workers, while some countries have successfully boosted their employment rates. Even before the crisis, overall employment rates – which had reached 66% by the second quarter of 2008 – remained far from the Lisbon 2010 target, since when the economic crisis has led to a drop in employment rates of more than one percentage point within a one-year period (Figure 1). In the second quarter of 2009, EU employment stood at 64.8%, while unemployment was 8.9%, representing a two percentage point increase in a single year. Indeed, employment and unemployment levels are currently back to their 2006 and 2005 levels and further deterioration of this situation is most likely. A great share of recent employment growth in Europe has been due to increasing shares of part-time and temporary employment.

Calculated as a percentage of total employment, part-time employment increased by about two percentage points between the beginning of the Lisbon Strategy and the second quarter of 2008. Since the arrival of the crisis it has grown by another 0.5 percentage points to a current level of 18.2%. Temporary employment has also increased by about two percentage points in the eight years since the introduction of the Lisbon Strategy – its share in total employment having reached 14.1% in 2008. Workers on temporary contracts (mostly temporary agency workers but also those on fixed-term contracts) were in a lot of countries the first to lose their jobs for the period of the crisis. Temporary employment, which is usually not exercised out of choice but as a matter of necessity and is much more pronounced among young workers, has therefore fallen steeply since the beginning of the crisis. In the second quarter of 2009 it accounted for 13.4% of all employment, a figure relatively close to the 2004 level.



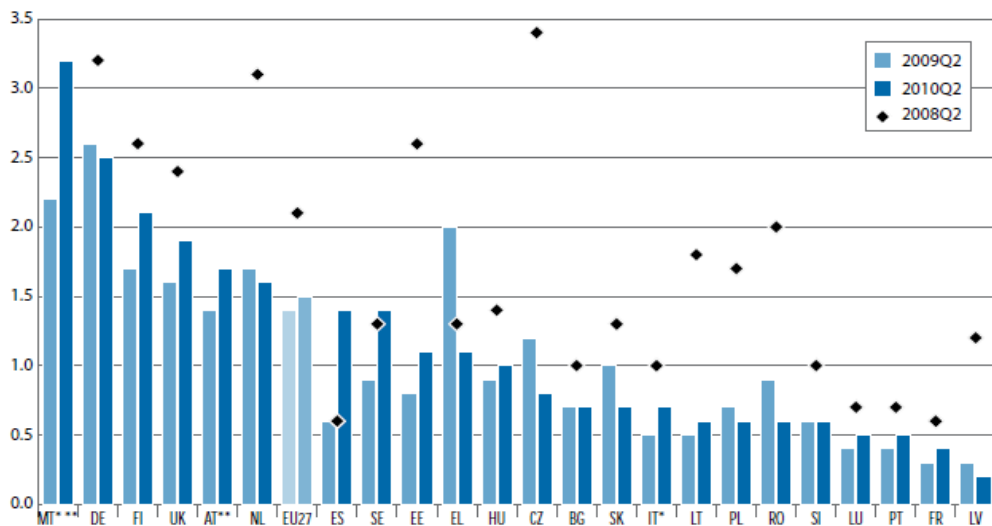
Source: Eurostat (2010) European Labour Force Survey (ELFS).

Figure 1. *Developments in employment and unemployment in EU-27 over the 10 years (2000-2009)*

Concerning the labour market adjusted during the crisis, demand for new workers declined powerfully over 2008 and most of 2009 line with the economic downturn. As we can see in Figure 2, the EU job vacancy rate (the number of vacancies relative to the sum of vacancies and occupied posts) started to drop continuously from the second quarter of 2008, falling from a level of 2.2% in the first quarter down to 1.3% in the third quarter of 2009, when it bottomed out. In total the rate fell by 0.9 percentage points (or around 40%) over this period. Ambitious by an improvement in Germany, the vacancy rate finally started to rise again in the fourth quarter of last year, when it increased moderately to 1.4 %, and then rose again in the first quarter of 2010 to reach 1.5% where it stabilised. Although this indicates a relative improvement in demand for new workers, the rate remains well down on the levels observed at the start of 2008.

Among the larger Member States, vacancy rates in the second quarter of 2010 remained well down on the levels recorded in spring 2008. The decline in the vacancy rate relative to the second quarter of 2008 has been most pronounced in Poland (down by 1.1 percentage points, or by two-thirds), reflecting the cooling-off in employment expansion over 2008 and subsequent slight contraction in 2009. Rates were down by a more moderate amount compared to the spring of 2008 in France (by 0.2 percentage points), Germany (down 0.7 percentage points), Italy (down 0.3 percentage points) and the UK (by 0.5 percentage points). In contrast, the rate had risen substantially in Spain to well beyond the already low levels two years earlier, reflecting a sharp improvement over the last year. By the second quarter of 2010, the rate stood at 0.6–0.7% in Italy and Poland, and at only 0.4% in

France, the second lowest rate in the EU. However, it remained relatively high in Germany (2.5%, the second highest rate in the EU) and the UK (1.9%), reflecting persisting labour/skill shortages and continued substantial job opportunities despite the crisis and increased unemployment. Official sources in Germany and the UK confirm that, although by early 2010 registered job vacancies were still markedly down on pre-crisis levels, overall vacancy levels remained reasonably high at around 500 thousand in each country. In each month since April 2010, total announced job losses have been around a seventh of the peak level reached in January 2009.



Source: Eurostat, Job Vacancy Statistics 2010.

Figure 2. Job vacancy rates for EU Member States in 2008 q2, 2009q2 and 2010q2

As regards employment flows, labour market trends during the crisis reflect two underlying phenomena: a decline in the number of persons who recently started a new job and an increase in the number who recently exited employment.

Year-on-year changes in the level of new hirings show a clear downward adjustment from the second quarter of 2008 onwards, with the trough occurring in the first quarter of 2009 (Figure 3). Despite some moderations the rate of year-on-year declines subsequently, even at the end of 2009 hirings were still down on the levels one year earlier. As a share of total employment, those employed with a new job amounted to 4.2% in the last quarter of 2009, up from the low of 3.5% in the first quarter but still well down on the average of around 5% over 2007. It was only at the start of 2010 that year-on-year changes in hirings finally turned positive again, followed by a strong pick up in the second

quarter. However, this may affect more heavily those already in employment moving to another job rather than new (re-)entrants to employment, while those employed in a new job still only accounted for a relatively limited 4.2% of total employment in the second quarter.

In contrast, during the crisis the numbers of those who recently exited employment rose considerably on corresponding levels a year earlier, again peaking in the first quarter of 2009 before the year-on-year changes moderated over 2009, when almost peter out in the last quarter and then turned negative in the first quarters of 2010. At around 2.0% of the employed population by 2010q2, the share of those exiting employment appears to have broadly moderated back to the precrisis levels observed in the years preceding 2008, having risen to as high as 3.0% at the height of the crisis in first quarter of 2009.

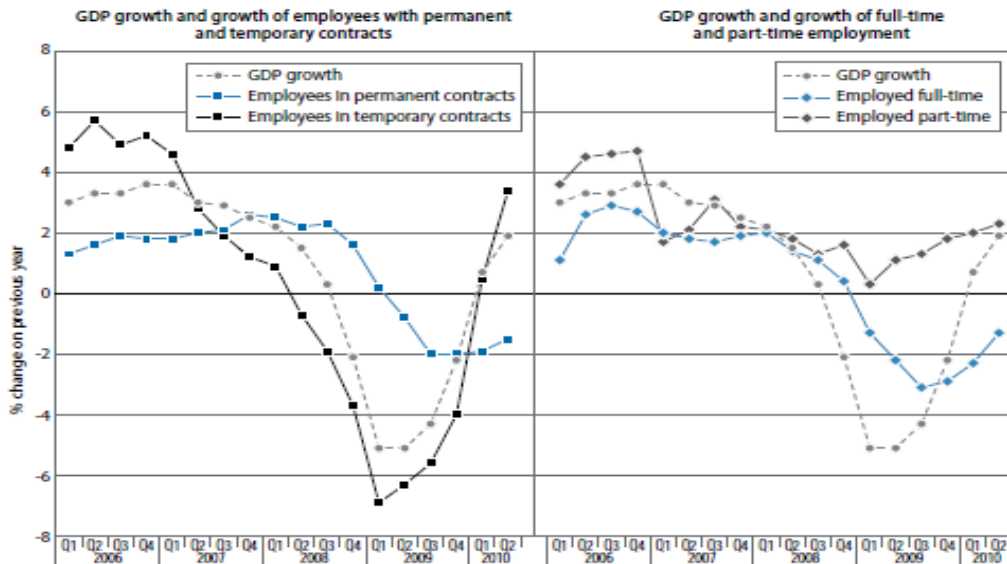


Source: Eurostat, EU LFS, DG EMPL calculations. Data non-seasonally adjusted.

Figure 3. Year-on-year changes in the numbers of people who started a new job or exited employment in the last three months in the EU, 2007-2010

Adjustment by type of employment (temporary and part-time employment)

Employment adjusted first and foremost to the economic downturn through a sharp contraction in temporary employment, which is the most cyclical component of employment. While in 2008 only 14.0% of employees were in temporary employment, they accounted for almost half (around 44%) of the overall reduction in the number of employees from 2008q2 to 2009q4, the last quarter when temporary employment contracted year-on-year.



Source: Eurostat, National Accounts and EU LFS, DG EMPL calculations. Data on GDP seasonally adjusted; data on employment non-seasonally adjusted.

Figure 4. Employment growth by type of employment for the EU, 2006-2010

In order to accelerate downturn in overall economic activity over 2008, year-on-year growth in temporary employment became negative in the second quarter of 2008, and turned increasingly so over 2008 and into 2009. By the first quarter of 2009, when the year-on-year fall was greatest, the number of employees in the EU with temporary contracts had fallen by 1.8 million (or 6.9%) compared with the first quarter of 2008, mainly driven by falls in all the larger Member States and most notably by a decrease of over one million in Spain. Temporary employment has seen a very strong recovery over the first two quarters of 2010, returning to positive year-on-year growth rates of 0.5% and 3.4% respectively, with the result that by the second quarter it was down a much reduced 3.1% on levels at the start of the labour market downturn two years earlier and accounted for a more limited 19% of the reduction in employees over that period.

Nevertheless, the fall in permanent employment has continued into 2010, with no signs yet of the strong rebound observed in temporary employment.

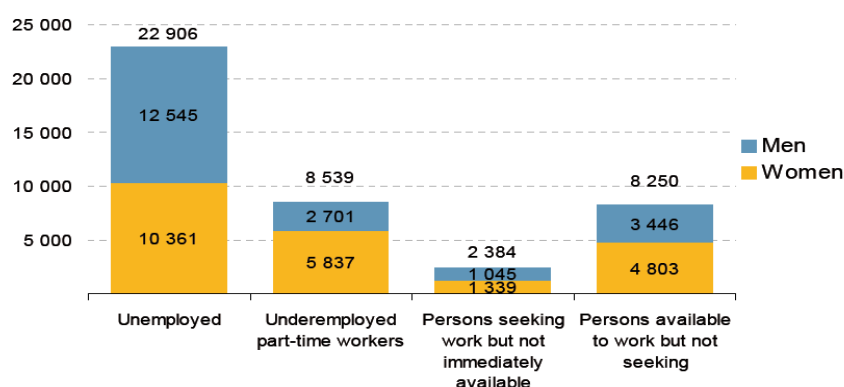
For a while, the strong downturn in temporary employment led to a marked reduction in the share of employees in the EU with fixed term contracts. This share, which has broadly decreased since late 2007, fell to 13.1% in the first quarter of 2009 (down by 1.7 percentage points from the peak of 14.8% in 2007q3) before recovering strongly to 14.0% by mid-2010.

This suggests that the decline in full-time employment has been partially compensated by a continued increase in part-time employment, indicating the potential role of part-time work as a „shock absorber” during the economic downturn.

In the EU-27 in 2010 there were 8.5 million underemployed part-time workers, 2.4 million jobless persons seeking a job but not without delay available for work, and 8.2 million persons available for work but not seeking it.

These three groups of persons do not fulfil all the criteria of the unemployment definition of the International Labour Organisation (ILO), being without work, actively seeking work and available for work. They do however share some characteristics with the unemployed. Eurostat is releasing three new indicators covering these groups in order to supplement the unemployment rate indicator: underemployed part-time workers, persons seeking work but not immediately available and persons available to work but not seeking.

Regarding underemployed part-time workers, this index refers to persons who, although employed, do not work full-time and have insufficient volume of work so that there is some similarity with unemployed persons. This indicator captures in particular part-time workers who would like to have a full-time job. The second and third indicators focus on persons outside the labour force but not completely detached from the labour market. The second indicator, persons seeking work but not immediately available, describes generally people who do not qualify for recording as unemployed for the reason of their limited availability to start a new job. The third indicator, persons available to work but not seeking, covers people wanting to work and available to do so, but who are not recorded as unemployed because they are not actively looking for a job. It includes, among others, discouraged jobseekers and persons prevented from jobseeking due to personal or family circumstances.



Source: Eurostat (online data codes: lfsi_sup_age_a and lfsa_pganws).

Figure 5. Unemployment and new supplementary indicators, EU-27, age 15-74, 2010 (thousand persons)

Among the new indicators, the predominance of women is strongest in the group of underemployed part-time workers (68.4 % of them are women – in the EU-27 in 2010, namely 5.8 million women as compared to 2.7 million men). This imbalance mirrors the gender gap in part-time employment (whether underemployed or not), as 75.5 % of all part-time workers in the EU-27 in 2010 were women.

3. Sweden versus Romania

A country with 9.3 million inhabitants, with average life expectancy of 81.2 years, with an average salary of 3000 Euros/month, with significant investments in education, research and development of renewable energy, Sweden is one of the countries with outstanding performance reflected in the indicators calculated by the international bodies.

Labour Market policies in Sweden have a tradition in the implementation of agreements between the professional associations and unions as well as in the active labour market policies.

Maintaining jobs and creating new jobs is one of the Swedish employment policy targets, given the benefits of having a job, both individually and nationally. At individual level, benefits obtained are both economic (as income), as well as personal, giving the individual a better integration in society, developing skills and competences throughout their working life. In terms of benefits at the society level, it is known that the higher the level of employment, the richer and more stable economically, politically and socially the countries concerned are. In terms of indicators on employment Sweden is among the first places in the EU in terms of employment rate, which is 72.7%, long-term unemployment (as a percentage of the workforce that was in unemployment for a period of one year), being 1.42%.

Employment situation in the OECD countries is also analyzed through access to employment pointer, calculated on the basis of the sub-indicators employment rate and long-term unemployment rate. According to this indicator, Sweden's place ranks 10 out of the 34 countries analyzed. Countries with the best results are Norway, Iceland and Switzerland, and the worst results were registered by Spain, Slovakia and Estonia.

If we analyze the situation of Sweden and the problems Romania is facing at the organizational level, we will see large differences between the two countries. Sweden is one of the leaders in innovation, with results above the EU-27 average.

Table 1

Innovation Indicators

– % –

Innovation indicators (EU-27 – 100%) – Year 2010	Romania	Sweden
Business R&D Expenditures	15.2	203
SMEs introducing product or process innovations	52.75	118
SMEs introducing marketing or organisational innovations	66	93,96
Employment in knowledge-Intensive Activities	47.2	119

Source: Authors' calculations based on the data provided by the European Innovation Scoreboard 2010.

The indicators in the table above outline the major differences between the organizations in Romania and Sweden. These indicators of innovation at companies' levels are calculated as a percentage of EU-27 indicators. Thus, regarding expenditure on research and development in business, Romania achieves only 15% of the same expenditures achieved at the EU-27 level, while Sweden exceeds the EU by 100%. In Romania, small and medium enterprises that have introduced organizational and marketing innovations still represent an important share.

It is also an increase in employment in intensive knowledge areas in Romania, but in Sweden the share of employment in these areas exceed by 19% the EU average. These indicators show the positioning of Romania under the EU-27 average, which means additional action efforts from Romania to meet the EU level.

When making international comparisons, it is important to bear in mind the differences between countries as regards the proportion of labour force migrants and percentage of foreign-born coming from countries where they speak similar languages. Southern European countries have much higher numbers of labour force migrants and in English-speaking countries, many come from countries where English is spoken. Even in France, Portugal and Spain, many foreign-born come from countries where the new country's language is spoken or at least generally understood. Out of 19 OECD countries, the employment rate among foreign-born in Sweden is higher than in Spain, Slovakia, France, Belgium and Ireland. The differences in the employment rates of native-born and foreign-born are greatest in Sweden (12.1 percentage points), followed by the Netherlands, Belgium, Germany and Denmark (between 8 and 12 percentage point difference).

The analysis of employment in Romania in the context of Europe 2020 strategy, in terms of certain indicators and benchmarks

In "Europe 2020 strategy", at the Community level, it was agreed as an overall target for 2020 the increase of the employment rate up to 75% for the

population aged 20-64 years. Thus, each of the 27 Member States of the European Union established its own national objectives. Romania's goal is to reach in 2020 an occupancy rate of 70% compared to 63.9 %, as it was established for this year (2011). In order to achieve this objective it is imperative to adopt a set of measures focused, on the one hand, on supporting people in search of reliable sources of living, and, on the other hand, on strengthening the legal framework relating to the unemployment insurance system and employment promotion.

The reference for calculating the necessary efforts to achieve the objective set is the year 2010. There are two options (proposed by the EMCO Committee) for the technical methods of establishing the national targets which have as their calculation formula to reduce by half the gap recorded by each MS to the target of 75%. Given that, according to COM estimation, RO starts from an employment rate of 61.9% in 2010, by method I (option 1) it should be reached a benchmark of 72.5% and by method II (third option) a value of about 71.4%.

Redefining the indicators for establishing, monitoring and evaluation of the employment rate based on the new age group (20-64 years) involves significant changes in the labour market priorities.

Table 2

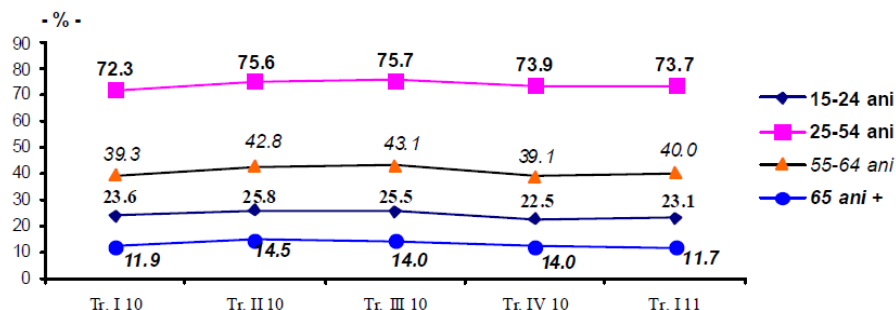
The evolution of indicators over the past 10 years

– % –

INDICATOR	2002	2003	2004	2005	2006	2007	2008	2009	2010
Employment Rate in Romania (20-64 years)	64.3	64.8	64.7	63.5	64.8	64.4	64.4	63.5	63.6

Source: The National Institute of Statistics.

According to the NIS data, in the I quarter 2011 the employment rate of the working population (15-64 years) was 58.0%. The BIM unemployment rate was 7.6%. The employment rate of the population aged 20-64 years was 62.5%, thus 7.5 percentage points lower than the national target of 70% set in the context of Europe 2020 strategy.



Source: The National Institute of Statistics.

Figure 6. The evolution of employment rate of the population aged 15 and over, by age group

This situation may be explained by the existence of certain factors of influence such as the socio-economic context (area of residence, development level of the area of residence, low labour market flexibility), individual factors (gender, education level, experience in employment, level of skills). Also in this context let us consider certain limitations and risks: limited budgetary resources to implement active employment measures, the low number of employees in the Public Employment Service; legislative and budgetary limitations in terms of providing incentives to employers who hire graduates and other unemployed people from the targeted categories; low attractiveness of apprenticeships; continuing the economic contraction, aging of population, low absorption capacity of structural funds in human resources development, increasing unemployment among people lacking basic skills, including the digital ones.

Table 3

Projections of indicators / scenarios for the evolution of the field

	- % -			
Employment Rate (20-64 years)	2011	2013	2015	2020
Optimistic scenario	-	-	-	71.5
Realistic scenario	63.9	64.7	66.2	70
Pessimistic scenario	-	-	-	68

Source: National Commission for Prognosis.

In terms of reform measures to increase the employment rate, they must meet the flagship initiative "An agenda for new skills and new jobs and guidelines for employment policies (proposed by COM on 4/27/2010)". Most of the measures identified so far aim at the realistic scenario for the horizon 2011-2013, and their

rapid implementation depends on removing certain rigidities in the labour market and the chance to record a positive development of the degree of flexicurity and employment rate in Romania. Thus, the main steps in this direction are:

- reform of the legal framework for stimulating employment and continuing professional training;
- designing and implementing the relevant instruments in qualification: the completion of the National Qualifications Framework, review of the classification of occupations in Romania, developing occupational analysis, standards and qualifications;
- investment in continuing vocational training involving the social partners in correlating the educational and training systems with the evolution of labour market);
- professional training of employees (dissemination campaigns, state aid schemes, co-financing);
- professional training of persons belonging to vulnerable groups, particularly those from rural areas and inactive people;
- carrying out studies on the correlation between the qualifications offered by the educational system and labour market requirements;
- the development of projections of developments in the labour market and anticipation of necessary skills;
- measures to support the transition from unemployment/inactivity to employment;
- extension of active life (legislative measures);
- flexibilisation of the legal framework for labour relations in the context of the principles of flexicurity;
- strengthening the social dialogue: the adoption of the National Pact for Employment and Stability; extension of collective negotiation, partnerships and other forms of dialogue at all levels, with impact on the implementation of flexicurity and the results of the European dialogue;
- the management of labour migration (appropriate legislation to address the priorities in the labour market);
- ensuring access to care services for dependent family members (children, elderly, disabled);
- the modernization of agriculture and diversification of economic activities in rural areas

The assessment of the financial impact determined by the envisaged measures aim at the the main types of expenditure to implement the action directions outlined above. They have as the main financing source the unemployment insurance budget and SOP HRD, funded by The European Social Fund. The estimated expenditure for implementing the active employment

measures of the unemployment insurance budget are reflected in the project of budget and fiscal strategy for the period 2011 – 2013, which is marked by difficulties arising from the economic situation which have a restrictive effect on the ability of the unemployment insurance budget to provide additional funding for the active employment measures. It is therefore estimated an increasing, slow trend allocation of the funds for the active measures. For the period 2014 – 2020, MMFPS expects a gradual increase of about 10% per year of investment in active employment measures financed from the unemployment insurance budget

5. A current approach of labor market flexicurity

Growth favorable to inclusion implies all citizens should have access and opportunities throughout life. Europe must fully capitalize the potential of workforce to cope with the challenges of an aging population and increasing global competition. It will be essential to implement the principles on flexicurity labor market and to give citizens the opportunity to acquire new skills to enable them to adapt to new conditions and potential career changes.

In the field of employment, education and vocational training we need to consider the following aspects:

- due to demographic changes, labor workforce is decreasing. Only 66% of our working population now has a job, compared to 70% in the US and Japan. The employment rate is particularly low among women and elderly workers. Young people were severely affected by the crisis, reaching an unemployment rate of over 21%. There is a high risk that people who are not integrated in the work field or who have weak ties with it will lose ground in the labor market;
- in terms of skills, approximately 80 million people have low or basic skills, although better educated people are benefiting from the possibilities of learning throughout life. By 2020, 16 million jobs will require a high skill level, while the number of jobs that require low skills will decline by 12 million;

Also, labor market policies are needed to reconcile flexibility and security. On flexicurity approach, supported by the interaction between macroeconomic policies that encourage employment, development of skills and lifelong learning, job search assistance, active labor market measures, appropriate social insurance and effective social dialogue provides an appropriate policy mix to balance flexibility and security for enterprises and workers. Reconciling paid work with family life and responsibilities were increasingly recognized as essential to the quality of active life. Work-family reconciliation policies can be a useful tool for

promoting gender equality in employment, as well as to neutralize the impact of the crisis on workers with family responsibilities.

Flexicurity must be seen as a solution to a European dilemma: "How to maintain and improve the competitiveness of European enterprises in global competition without sacrificing the European social model?" As a social policy, it aims to increase labor market flexibility and labor relations, without reducing social safety and employment of the working population, especially securing the existing or marginalized disadvantaged groups. The European concept of flexicurity means a synergistic relationship between labor market flexibility and security.

This implies a beneficial combination of flexible and serious contracts, comprehensive lifelong learning strategies, effective and active labor market policies and modern, social adequate and sustainable protection systems. Flexicurity should promote more open, more responsive and more inclusive labor markets to solve the problem of segmentation. It refers to both the employed population, as well as the unemployed. The economically inactive, unemployed, those with unreported, unstable jobs or at the margins of the labor market must be given better opportunities, economic incentives and support measures to have easier access to work or stages to help them find a stable and legally secure job. Support should be given to all who have a job so that they could stay fit for work, to advance and face the vertical and horizontal transitions from work, and between jobs.

Flexicurity is not just a single labor market or a single model of active life or a single strategy or policy, but should be adapted to specific situations of each Member State. Flexicurity implies a balance between rights and responsibilities of all parties involved. With the landmark of common principles, each Member State should prepare their own models of flexicurity.

Flexicurity policies that need to be upgraded according to the Green Paper Of European Commission, can be divided into four areas: a) flexible contractual agreements, dependable, which include flexible labor legislation and collective and individual contractual models, b) complex strategies and comprehensive lifelong learning (boosting investment in training and lifelong learning skills in order to increase the working population in the face of labor market dynamics), c) active employment of labor, d) modern social security systems that include public and private pension systems (assuring unemployment, health insurance, child and family protection).

It takes into account the concept of job security, which is replaced with that of employment security. To keep a job economically unjustified may be counter-productive. It is opposed to restructuring and streamlining. Instead, by investing in

developing new skills and abilities to an active person, it gives him a chance for a smoother transitions to a new direction in career by reorientation and retraining.

Complex components of flexicurity have been experienced by many countries of the European Union, which illustrates in the monitoring reports as a basis for analysis models. From these, four models were noted, namely: the Danish, Austrian, French and Finnish model.

The first model, the Danish, was distinguished mainly by introducing the practice of temporary replacement of staff displaced by companies for training with long-term unemployed who are temporarily reintegrated in the labor market. The second, the Austrian model, is highlighted by encouraging labor mobility. It made it mandatory for employers to transfer a fixed monthly sum into an individual savings account opened on behalf of each employee. They may benefit from these savings in case of dismissal. The French model focused on modernizing the labor market correlated with public employment service reform and developing a professional training system. The Finnish model focused on the existing flows in the labor market, on regulations regarding the transition from one job to another, correlated with the transition from unemployment to employment and quality of working life.

Flexibility of labor relations is a priority, along with other components of public policy in order to rebalance the rights and obligations of both contractual parties. However, concerns have been noted to flexicurity, lately, especially in defining a Romanian model of flexicurity. A draft Romanian model of flexicurity in the labor market requires three interdependent levels, each with a certain degree of autonomy, creating themes that should be kept in mind, namely:

- Increasing employment and reducing long term unemployment (by reducing the rigidity of the legislation concerning employment, particularly temporary employment, increasing geographical and occupational ascending mobility, increasing internal flexibility, new forms of work organization)
- Security development (by increasing social security guarantees, active policies for vulnerable groups, developing an effective and equitable educational system)
- Reducing labor market segmentation (measures of reducing unemployed work, vocational training opportunities for all workers, from those with low competence to the elderly, efficient tax system)

In the context of social economic crisis, there must be increasingly more concern for identifying a functional model that respects European principles of flexicurity, to be supple, adaptable to labor market dynamics, simplified bureaucratically, generating new and better jobs to open the way towards a sustainable recovery.

6. Conclusions

The crisis had a strong negative impact on the labour market. The total number of hours worked decreased either because of the reduction in the number of employees, or due to the reduction of hours worked by an employee. Flexicurity comes in response to this concern, combining labour market flexibility with employment and income security.

The European model shows that the use of schemes to reduce working time and temporary dismissal is an efficient alternative to rising unemployment. At the same time, it provides jobs and income for employees.

The EU labour market situation during the crisis reveals an evolution in two directions: reducing the number of employees and number of hours worked by an employee. Thus, the EU unemployment rate rose from 7.1% in 2008 to 9.5% in January 2011. The registered unemployment rate in Romania also had an upward trend from 5.8% in 2008 to 7.3% in the third quarter of 2010. In 2007-2009, the total number of hours worked decreased in all EU Member States except Luxembourg. Both in the European Union and Romania the number of people affected by reducing the number of hours worked tripled.

At the European level, 89% of persons who diminished the number of hours worked had employment contracts of indefinite duration, namely 97% of Romanian were in the same situation, but only 0.1% of Romanian employees affected by the reduction of working time participated in training programs, compared to the European average of 5%.

The objective of a prudent approach is to limit the risk of financial crisis because they produce significant losses in real output and employment. By identifying common risk exposures and their systemic nature, a prudent approach would help in ensuring greater financial stability. Also, certain current problems that our country is facing must be taken into account, such as: identification of measures that may lead to reduced rigidity of the legislation concerning employment, including temporary occupation, identifying legislative or regulatory changes that should be made for more flexible contractual arrangements in labor, both in the collective labor contracts and in individual contracts, regulatory proposals considered to be adequate, with priority to increasing social security guarantees, finding a system of lifelong, effective and equitable learning, appropriate to the current situation in Romania etc.

Finally, we wish to point out that two of the five targets of the Europe Strategy 2020 aims the social domain – employment and social inclusion/poverty reduction – which is both a recognition of their essential nature in the process of sustainable development and social progress and a way to strengthen the social dimension of the European Union for the next ten years.

In the specific modalities of flexicurity pathways, reducing the number of hours worked and temporary dismissal are two tools that have helped to save jobs in times of crisis, the main advantages of these public schemes being: avoiding unemployment and lower costs for the state compared to those involved in unemployment (unemployment benefits for fewer people for a short period of time) encourage firms flexibility regarding working time, ensure job security and income; the free time acquired by employees through these two public schemes is used to participate in training courses.

Acknowledgement

This work was co financed from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 “Performance and excellence in postdoctoral research in Romanian economics science domain”.

References

- Aceleanu, M., Chenic (Crețu), A.Ș., „Caracteristicile pieței muncii din Suedia și implicațiile asupra managementului organizațional. Învățăminte pentru România”, *Management Comparat Internațional*, vol. 12, nr. 4, 2011
- Belan, P., Carre, M., Gregoir, S., „Subsidizing Low-Skilled Jobs In A Dual Labour Market”, *Labour Economics*, 14 May 2010
- De Beer P., Schils T., (2011). *The Labour Market Triangle: Employment Protection, Unemployment Compensation and Activation in Europe*, Cheltenham UK, Northampton M.A., USA
- Glodeanu, I. (coord.) (2009). *Noile paradigme ale inovării*, Editura Academiei Române, București
- Immervoll, H., Peichl, A., Tatsiramos, K., „Who Loses in the Downturn? Economic Crisis, Employment and Income Distribution”, *Emerald Books*, 2011, IZA, OECD
- Thakur, S., Keen, M., Horvath, B., Cerra, V., „Sweden s Welfare State”, *International Monetary Fund*, 2003, Washington D.C.
- *** European Innovation Scoreboard (2010), <http://www.proinno-europe.eu/inno-metrics/page/innovation-union-scoreboard-2010>
- *** Raportul Institutului de Proiecte pentru Inovație și Dezvoltare (2009), „Șansa României: investiția în oameni”
- *** OECD (2011), „*Better Life Initiative*”, <http://www.oecdbetterlifeindex.org/>
- *** Statistical Yearbook of Sweden, 2011, <http://www.scb.se/>
- The report „Extending flexicurity – The potential of short-time working schemes” published in 2010 by the *European Foundation for the Improvement of Living and Working Conditions*
- Eurostat: Statistics in Focus (56/2011)
- Institutul Național de Statistică, Biroul de Presă, Comunicat de presă nr. 131 din 27 iunie 2011

“Underground” Economy Nature – Conceptual Status

Cristina VOICU

Bucharest Academy of Economic Studies
cristina.voicu@economie.ase.ro

Abstract. *Economical experience is a projection of economic theory. What happens when the unintended consequences are more than those intended? We somehow managed to score the difference between what a science transmits and what we find in reality? We support such that the theory is the source of the crisis of a science? The economic theory of corporate capitalism is now the source of the economics science crisis? Investigations of the above can be multiplied up to a challenge, insufficiently tested, that of demystifying the nature of “underground” economy. Feel more acutely the need to rationally justify a right to conceptualize a reality that, at least statistically, can not be neglected.*

Keywords: “underground” economy; economics theory; human nature and human condition; epistemology; conceptualization.

JEL Codes: A14, B22, H26.

REL Code: 13I.

“I believe that most theorists would support that good economics theory is concerned with the results of interesting models that engage all inputs in maximizing individual behavior.”

George A. Akerlof

This paper does not aim to highlight any pattern of conduct in the “underground” economy, nor intends to give the wall some parts of the “underground” economy which almost gives up to moral. In this respect I propose to follow the invitation of my self conscience to this part of economic life that can not be left behind even more as many countries call for some underground resorts survive, perhaps today more than ever. The origin of writings in “underground” economics dates from 1971, when economic literature reported for the first time the term of “informal economy” used by Keith Hart in a study on the economy of Ghana, to characterize the dual employment model⁽¹⁾ from urban environment.

The phenomenon magnitude brings into the current the need for an accurate knowledge of the activities that forms this economical component, and also the need to find ways to counter its negative effects. In this respect, in 1977, Paul Gutmann, in his article “The Subterranean Economy”, published in the Financial Analysis Journal, launched the message that unregistered economic activity, statistically, can not be negligible. The fact that “underground” economy has come to have a considerable share of the economical activity and its growth rate is much higher than that achieved in the visible sector is an indication that we should be given attention to this phenomenon.

The research goal is to improve the understanding of the nature of the “underground” economy through a rational justification of its right to be conceptualized a reality that, at least statistically, can not be neglected anymore. If that has been said, does have “underground” economy the right to exist and to be conceptualized?

This research study falls into the category of conceptual research and methodological research. The subject is generated by the internal logic of research process and supported in the range of interest topics by the faith of a passionate researcher in such a prolific and controversial field. For completeness in analysis I choose an instrument for each objective. The methodology used is deductive and I intend to put the foundation of understanding the need for a theory of “underground” economic through a systematic analysis, comparative and comprehensive approach of the topic investigated, related to the finale and stage considered objectives.

Unlocking the "underground" economy nature

After the assessment of the theory underlying the "underground" economy study I concluded that a good knowledge of the history of economic thought is a must for any economic analysis paper. History is one that generates rules, specific laws to economic and social system and writes new pages of history for the next generation. A society without rules and without responsibility for the rules is doomed to failure. "Underground" economy is part of the branch of economics sciences, and it is a component that should not be neglected in economic analysis having increasingly strong impact on economic indicators. The subject is spectacular enough by its nature, so I consider it is necessary to bring the scientific perspective on it. In addition, the "underground" economy is an unavoidable ingredient of a country's economy. In most cases the most profitable side of the economy being the "underground" side. Lack of consideration of this component may lead to severe shortfalls of economic analysis leading to the adoption of unrealistic strategies. Since the beginning of the work I sustain that not the quantitative side will be my interest but I'll be essentially concerned with the epistemic logic issues which are specific for "underground" economy. I think the fundamental error in researching this topic is just pulling out of the analyses the human nature. It can be seen in economic theory that humans are out of spiritual record and they are only homo economics seeking for profits⁽²⁾.

Sterility of the term without concept

In terms of terminology, there is strong controversy in the literature, meeting over 40 terms that describe "underground" economy behavior. However, the literature leaves enough space for some order and terminological distinctions. The term used in this work is "underground" economy⁽³⁾, considered adequate to properly express the scope of activities from economic reality.

"Underground" economy asks today, more than ever, the right for conceptualization. This component of economic life can not be ignored, although it was attempted even by simple omission. Shyness and policemen attitude removed us away from a proper understanding and unlocking the nature of "underground" economy phenomenon. Avoiding the subject further deepens us in ignorance the more since the "underground" economy is strongly related with the existence of human existence and even with human nature. Sterility of the term without concept comes up to raise the issue of understanding the nature of the "underground" economy to justify the right to conceptualization.

I think that using only not sterile terminological investigations necessary for a correct understanding of the phenomenon, we can discern the nature of this phenomenon whose existence is guaranteed in any type of economy.

Existence, development, contextualization, size and consequence

Existence of “underground” economy is strongly related to the existence of two essential components of economic activity: individuals (human nature) and state (human condition). A large number of other causes underlying the existence and manifestation of the “underground” economy, of which we present in order of importance the following: psychological causes (mimesis of appropriation); tax burden; inconsistency and incoherence of legislative; bureaucracy; world phenomena such as poverty, wars, globalization; the contribution of transfer pricing; social, economic, political and communitarian causes; local and global causes; non-stimulating business environment; lack of specialization and specialists; increased tolerance to the causes and effects of the “underground” economy; ignoring standards or legal regulations; avoid joining some burden administrative and of course other specific causes. Psychological causes are considered in this paper as the most important motives to act in the sphere of “underground” economic activities. I believe that the essential behaviors are such as: propensity to win immediately; effortlessly; used strictly for personal need; exclusive competition; political, geopolitical and geostrategic interests for global control. The main cause, human nature, is what Rene’ Girard calls mimesis of appropriation or acquisitive imitation⁽⁴⁾. This, very clear, justifies the approximation with instinct of childhood, which is preserved in adulthood manifested through a series of circumvention behavior elements. According to R. Girard's conception, imitation of appropriation is the origin of all human behavior. The main interdicts, those on objects such as drugs, sexual interdicts and even some food, always refers to the nearest objects, the most accessible for cohabiting group. Items that are prohibited because every moment are available for all group members, is likely to become destructive for the group harmony. The fundamental cause of the “underground” economy lies in the very structure of the human being. Humanizing process involves also learning, imitation, association, community, reason and rivalry, prohibition, sacrifice and feeling. The failure in combining them can be seen through some of the “underground” economy components that are a natural reaction of mimetic rivalry. “Underground” economy is born from human desire for appropriation and assimilation; hence I sustain its eradication to be impossible. The refuse of accepting this reality comes from contemporary inability to understand that “simplicity” and “clarity”

are key concepts for any scientific exposure. Interestingly, like today "Simplicity and clarity are not fashionable" as Rene' Girard stated in his paper "On the hidden from the world foundation".

Evolution. "Underground" economy has made progress on various levels, both at the scale and manifestation level and also of analysis and research level. So today, we are talking about highly refined "underground" economic activities which covered the world economy and the writings in this area begin to feel incomplete with "policeman" approach that they have been used over time and behold a fine and bold analysis on its status and on its right of conceptualizing. An example of this proposals is already existing in the literature⁽⁵⁾ is not obstinately trying to annihilate "underground" economic component in the economic structure of a country but attempt to determine the natural rate of this component as there is the natural rate of unemployment.

Contextualization. "Man (...) imagines that he can arrange the members of society as easily as he arranges pieces on a chessboard. It does not take into account that parts of the chessboard have no other principle of motion than you hand prints, but on the great chessboard of society, each piece has its own principle of motion, quite different than that the legislature choose to print on it ...", says Adam Smith⁽⁶⁾. The words mentioned above are essential to highlight the context in which "underground" economy forms and grows. Individual is acting, so it is important to analyze his reactions, which are always accompanied by two restrictions: scarce resources and uncertainty. Most of the times these two determines the individual to act in the "underground" economy area and not in its visible, real surface component. "Underground" economy is seen as resulting from individual behavior. These activities meet with the need of individuals who are motivated to take advantage of some public services while avoiding paying taxes, thus exemplifying "stowaway" behavior⁽⁷⁾. It is well known that individuals are sensitive to income and price changes occurred at a time. It is at least as well known that in austere times, as we face today, individuals are looking for increasing their income source and more having "underground" source. It can be both, undeclared or declared fractional work or corruption and financial crime. Human nature is what justifies the behavior of "stowaway". Individual in all he is undertaking is trying, as Adam Smith well says, to maximize human happiness⁽⁸⁾. The author explains how the selfish desires of the people have a positive purpose and finality. When man seeks his own interest in the economic area, the society is the biggest beneficiary, because man, natural component of telos, contributing to overall human happiness. In this context, whether for an individual obtaining happiness involves accumulating as much wealth, then it should be left free to exercise and get them, but without altering the rights and freedoms of other people⁽⁹⁾.

Size of “underground” economy, today more than ever, does not allow us to advance in ignorance. Quantitative estimates of its size make us more responsible to identify the solutions that must be taken. Statistics pull strong alarm signals around world economy in which we deal with huge scale of “underground” economy with estimates of up to half of economic activity carried out. As shown already in my PhD thesis, “underground” economy is an ambiguous concept that is not to be quantified or eradicated. Arguments in favor of incommensurability are just the limitations of previous obsessive attempts to measure the “underground” economy. There is current trend toward global macroeconomic modeling in measurement of “underground” economy. An example that comes to support the above is just our country. Thus, data of National Institute of Statistics shows a percentage of “underground” economy of 20% of Romanian GDP while some experts, including those of the Romanian Intelligence Service estimated 45% of Romanian GDP. The differences are huge and come to broaden the possibility and relevance among the adverse for measuring “underground” economy. “Underground” economy is a ambiguous as the process can not be quantified or empirical tested, being difficult to report. According to previous pleading I disapprove the possibility to combat “underground” economic phenomenon, but I sustain the reduction of it. In conclusion, the “underground” economy can not be measured but only can be approximate, and can not be combated but can be diminished. Obsessive attempts to measure and combat the “underground” economy will only narrow spectrum of topics of scientific research and inevitably lead to distorted results.

Consequence. “Underground” economy appears as a parasite in industrialized Western countries, shortages of all kinds of penury at the time of old communist regimes in Eastern counties and development factor for third world countries. Until the collapse of old regimes, Eastern-European countries had their own “underground” economy, a special kind of parallel economy. Today, it seems to survive, in addition adapting on the fly to economic changes on progress from those countries. Developing countries, despite widely different economic situations, is characterized by a traditional sector that extended beyond any control of the state. This type of economy is there in a large number of cases and represents the dominant mode of production, competing registered economic sectors registered, if not in development, at least in terms of survival. In a general perspective, we can say that now, while Western countries tend to account and control a lot from “underground activities”, in developing countries the tendency is to tolerate this

kind of activities. In post-communist countries, at least so far, there is an ambiguous attitude regarding the control of "underground" activities. The estimates shows that the "underground" economy represents only a small part of the economy of Western countries, but in many cases this part exceeds the recorded economy for developing countries. In the case of Eastern countries, there is no clear global estimates within this issue⁽¹⁰⁾. The current System of National Accounts exclude by convention non-tradable "underground", particularly those in the domestic economy. This part of "forgotten accounting" has limited consequences for Western countries, especially European countries where undeclared legal activities represents the most important part of "underground" economy. In Developing countries, self-consumption is still important and non-official production still continues to be the most important part of tradable economy. Hence, "underground" economy is everywhere and there will be, because of its nature and its strong correlation with human nature. A real challenge in terms of scientific analysis is to highlight the impact on the level of economic development and not so obstinately measuring the percentage of its spreading. I believe that economist duty is to analyze economic concepts in terms of individual benefit and not limiting to sterile measurement, action that might is no more than mathematics, statistics and other sciences instrument.

The right to conceptualize a statistical reality that can not be neglected anymore

Epistemic and methodological elements in analyzing "underground" economy

The need for economic epistemology lies in the conceptual nature of the "underground" economy. Epistemology refers to the status of a scientific discipline, precisely represented by that critical discourse on scientific knowledge (Pohoată, 2011, p. 11). Etymology of the term epistemology clarifies the necessity and importance of this kind of approach that come unequivocally any critical analysis of a spectrum that is meant to be scientific. We can hardly talk about what the "underground" economy represents without dressing clothes of controversial and critical. Moreover, addressing this component of economic life regardless of methodological parameters will not pick us out of this tangle and obscure path that "underground" economy started. I believe that introducing some epistemic and methodological elements is necessary to complete the construction of "underground" economy nature. Only thus we can

complete the whole arguments map that can win in the court of logics and sustain its right to conceptualize a reality that statistically speaking can not be neglected anymore. Inevitable part of economic life, the “underground” economy must necessarily be conceptualized even more because “the economy as a science remains a form of Euclid, two-dimensional” and “mechanistic manner of levying duties remains the largest epistemic dysfunction of economics...”⁽¹¹⁾. “Underground” economy is subject of the same risk, especially since we observe the tendency of writings to quantification, measurement, calculation and identification. I have already argued this inconsistency with the “underground” economy since my PhD thesis.

Causal power of “underground” economy nature

Causal power of “underground” economy nature helps me to additionally justify the right of conceptualization. Relating “underground” economy in the field of economics, at world economic, macroeconomic, microeconomic and institutional level, is imperative for proper understanding of the phenomenon itself. Fundamentally, however, to highlight the causal power of “underground” economy nature is to correlate private and public sector. The link of “underground” economy with the private and public sector is sufficiently marked by Joseph E. Stiglitz who warns us that one of the main choices that any society faces is related to the role of government in the economy. He argues that “economic success requires a balance between government and market”. Balance, which Stiglitz points out, is different from one country to another and from one period to another, it could be the reason for which it leaves expected in most nations. Moreover, the author even blame globalization, which if is not implemented correctly can cause severe damage, making it difficult to establish that balance.

On the one hand, reality shows us that: “*Underground economy* is the first and most important sign of government failure.” As time has repeatedly demonstrated the most significant organization within a society is the state, stating in defense that it is concerned with social interest. What would be the reason why individuals should consider their contribution to be justified? Inequality of taxation and redistribution will always exist, regardless of the types of reforms implemented by the state. I believe that social inequality will exist as long as “Neither executive nor the legislative ... are not really what the theory says it should be, namely pure organs of the community, with no

other thought than to promote general welfare", said Wicksell in his paper "A New Principle of Just Taxation".

On the other hand, creating a competitive private sector is considered to be the correct solution for most professionals because the state is the most vulnerable in front of the mechanisms of "State Capture" when economic power is concentrated in only a few companies or industries or when competitive economic interests has no real access to political decision-making. Price liberalization, increased transparency of ownership and management structure of firms, introducing more competition can keep control of economic interest groups. Although the private sector is far more competitive than the public sector, does not mean that it is protected from the temptation of corruption. Reality shows that over time the private sector economy has brought new forms of "underground" economy.

We have enough reasons to believe that the economy "underground" can be studied only in relation to the private sector. "Underground" activities considered are mainly those that are subject of theft actions from "tax plucking", so we believe that the state, through its agents, would have no interest based on the principles of rationality of auto circumvention. From the above considerations I sustain that "underground" economy can be studied especially in relation to private agents because they are most concerned to protect their own resources used in the business, not state agents that operate with attracted resources. Human nature is built so that it tries to create as many means to satisfy his needs. Collective needs require contribution from the individual agent, who feels attacked when he is deprived of resources purchased with their own efforts. The more individual will feel that his contribution is not effectively used, the more he will consider this effort as unjustified and will try to escape taxes. Therefore, I consider the level of "underground" economy as fragility in the relationship between state and citizen, and so we strongly feel the need to improve it.

Hence the above, there is no reason to stand the test of rationality, for which "underground" economy has no independent right to exist and thus to be conceptualized, but more all these efforts are designed to serve man, for as Ragnar Frisch sais "I would not be happy if I did not believe that, ultimately, the results of our endeavors will be used in any way to improve the lives of common man."

Acknowledgements

This work received financial support through the project “Postdoctoral Studies in Economics: training program for elite researchers – SPODE” co-financed by European Social Fund, Operational Programme Resources Development Human 2007-2013, contract no. POSDRU/89/1.5/S/61755.

Notes

- (1) When I say dual employment model, I expect on its formal or informal character.
- (2) It is true that, as Ion Pohoata said in his paper “Epistemic and Methodological Fundamentals of Economic Science”, “the supreme task of economics and economist must be limited to what A. Smith stated” the author sustains that all “The purpose of economics is to learn how to get faster and more effectively to wealth”. Moreover, I believe in case of economic science the purpose should not justify the means in all circumstances. Today, more than ever, efficiency and wealth are inevitable for any economic activity, I believe, however, that these two are inconsistent in the absence of the concern for human nature.
- (3) I justify using this term, which I consider to properly and fully describe the concept investigated in my PhD thesis entitled “Quantitative and Qualitative Analysis of the Underground economy. The case of Romania”, Bucharest, 2009.
- (4) This principle is very simple presented by the author with a very handy example. It is presented an experiment that if we place more children with many toys around them, they will try each to approach (claim) as many toys and certainly those beautiful, similarly the adults in the real economy shall be surrounded by things needed will try to buy as much for himself. This example is based on a natural explanation feature supported by the selfish side of human nature.
- (5) Emil Dinga proposal in the paper “Studies of Economics. Contributions of logical analysis, Epistemological and Methodological”, Economical Publishing House, Bucharest, 2009.
- (6) The words of Adam Smith, in his paper “The Theory of Moral Sentiments”, 1982, Publishing House DD Raphael and A.L. Macfie, Glasgow Edition I of the works and correspondence of Adam Smith (Indianapolis: Liberty Fund).
- (7) Expression used to describe the behavior of a person who wants to gain an advantage without providing something in return, for example, a person who travels without a ticket. Such behavior is especially related to public goods whose consumption can be performed simultaneously by several individuals, without the utility felt by each one to be evaluated. The definition is taken from the Dictionary of Economics, Department of Economics and Economic Policy, Second Edition, Economical Publishing House, 2001, p. 326.
- (8) Today “Unusual nature of wealth was imposed in two versions: as illusion of equality of opportunity and support in statistical access of power.” (Marin Dinu, “Recharging the economy”, Theoretical and Applied Economics, no. 6 / 2011, 559).
- (9) For as J. S Mill argued: “The only freedom worthy of the name is to follow your own good in your own way, as long as you don’t try to deprive others of their good or to prevent them

from and to acquire it. Each is the true guardian of their health, whether bodily, mental or spiritual. Humanity has won more than leaving everyone to live as he thinks it's better than forcing everyone to live as others think would be good".

⁽¹⁰⁾ This is mainly due to the lack of data on the size of "underground" economy. During the communist regimes the subject was forbidden, while today the lack of relevant aggregate information is partly explained by the accelerated process of reforms, including in national accounting and tax laws.

⁽¹¹⁾ See Marin Dinu 11, 2009, "The Reconstruction of Economics", Theoretical and Applied Economics, no. 12/2009, p. 541.

References

- Akerlof, G.A. (2009). *Cartea cu povești a unui economist. Eseuri despre consecințele noilor ipoteze în teoria economică*, Editura Publica, București
- Aredht, H. (2007). *Condiția umană*, Editura Idea Design & Print și Casa Cărții de Știință, Cluj-Napoca
- Ariely, D. (2010). *Irațional în mod previzibil. Forțele ascunse care ne influențează deciziile*, Editura Publica, București
- Balcerowicz, L. (2001). *Libertate și dezvoltare. Economia pieței libere*, Editura Compania, București
- Barrow, J.D. (1999). *Despre imposibilitate. Limitele științei și știința limitelor*, Editura Tehnică, București
- Becker, G.S. (1994). *Comportamentul uman. O abordare economică*, Editura All, București
- Bodea, G., Dobrescu, E., Dumitru M., Maria M. (2005). *Dicționar de istorie economică și istoria gândirii economice*, Editura Ch Beck, București
- Cohen, D. (1998). *Bogăția lumii, sărăcia națiunilor*, Editura EuroSong & Book, București
- Covey, R.S. (1996). *Eficiența în șapte trepte. Un abecedar al înțelepciunii umane*, Editura All, București
- Dinga, E. (2009). *Studii de economie. Contribuții de analiză logică, epistemologică și metodologică*, Editura Economică, București
- Dinga, E., Erwin, H. (1994). *Teorie economică generală*, Editura Hyperion, București
- Dinu, M. (2010). *Economia de dicționar. Exerciții de îndemânare epistemică*, Editura Economică, București
- Dinu, M. (1987). *Performanțele dezvoltării. Semnificația binomului știință-economie*, Editura Științifică și Enciclopedică, București
- Dobrotă, N. (coord.) (1999). *Dicționar de economie*, Editura Economică, București
- Donatella, della P., „Corruption and democracy”, *Le Courier de l'UNESCO*, 1996
- Ernst, D., Schneider, F., „Increasing Shadow Economies all over the World, Fiction or Reality?”, *Department of Economics, University of Linz*, Decembrie 1998
- Girard, R. (2006). *Despre cele ascunse de la întemeierea lumii*, Editura Nemira & CO, București
- Kuhn, Th. (1982). *Tensiunea esențială: Studii despre tradiție și schimbare în știință*, Editura Științifică și Enciclopedică, București
- Kuhn, Th. (1976). *Structura revoluțiilor științifice*, Editura Științifică și Enciclopedică, București (Editura Humanitas, București, 2009)

- Menger, C. (2007). *Principles of Economics*, Ludwig von Mises Institut, Auburn
- Pârvu, I. (1981). *Teoria științifică. Modalități de reconstrucție și modele sistematice ale structurii și dinamicii teoriilor științifice*, Editura Științifică și Enciclopedică, București
- Pohoăță, I. (2011). *Epistemologie și metodologie în știința economică*, Editura Economică, București
- Popper, K.R. (1981). *Logica cercetării științifice*, Editura Științifică și Enciclopedică, București
- Popper, K.R. (2000). *Filosofie socială și filosofia omului*, Editura Trei, București
- Popper, K.R. (2001). *Conjecturi și infirmări. Cercetarea cunoașterii științifice*, Editura Trei, București
- Priest, G. (2007). *Dincolo de limitele gândirii*, Editura Paralela 45, Pitești
- Smith, A. (1992). *Avuția națiunilor. Cercetare asupra naturii și cauzelor ei*, Editura Universitas, Chișinău
- de Soto, H. (1999). *Cealaltă cărare*, Editura Sedona, Timișoara
- Weber, M. (2003). *Etica protestantă și spiritul capitalismului*, Editura Incitatus, București

The Analysis of the Representativeness of Results Obtained after Applying the Method of Job Evaluation through Tasks

Dorin Leonard NISTOR
“A.I. Cuza” University of Iași
nistor_dorin_leonard@yahoo.com

Abstract. *The results obtained by applying a new job evaluation method are reviewed in this paper. The research aims to highlight the extent to which job evaluation methodology through tasks ensures the obtaining of appropriate data. The study is applied in three fields – human resources, financial accounting and ointments production. I used two samples of professionals (holders of the positions evaluated) and laypersons from different companies. Analyses show that the methodology for assessing the tasks gets good results in the job evaluation.*

Keywords: method; evaluation; jobs; tasks; results.

JEL Codes: J33, M52.

REL Code: 14C.

1. Introduction

The definition of “job evaluation” was widely debated in the specialized literature. Doverspike et al. (1983, p. 476) define job evaluation as a series of procedures by which the organization seeks to measure the value of a job in order to scientifically determine wage levels. Armstrong (2003, p. 569) considers job evaluation as a process which establishes the relative values of jobs within an organization. Analyzing the definitions, we can identify the essential element of the process, namely determining the relative value of jobs.

We orient our research towards this area because we can consider the objectives to be met by carrying out such a process, to be true virtues of organizational ethics. Davis (1993) lists some of these objectives: minimizing the grievances of employees, increase of job satisfaction, wage-setting tool for new employees. Even if the targets are more than respectable, a number of critics, including Gilbert (2005, p. 9), point out that no job evaluation system, even the analytical one, has succeeded in the task for which it was designed in an objective manner. Looking to increase the objectivity of the process, we identified a new methodology of evaluating jobs: “evaluation through tasks”. A comprehensive analysis of the results obtained by the new method of evaluation is discussed in this article.

2. Method of job evaluation through tasks

A brief method for assessing the burden is initially needed to be done. The proposed evaluation method takes place from a prior evaluation and ranking of activities. The comparison is made only between the activities of the same area (human resources, financial accounting, production, and so on).

For each occupation, there can only be selected the criteria which ensure a real differentiation between the activities performed. An alternative method of hierarchizing is to achieve a comparison of activities without using criteria. The method is similar to that of comparison, the difference consisting in its application to the tasks, not jobs.

For each criterion, all activities specific to an occupation are ranked. It answers the question: Is activity X more important than activity Y only in terms of the Z criterion? Subsequently, the importance of each criterion coefficient is established. To do this, the activities that came first for each criterion are chosen, assessed, and then the process moves on to the awarding of the rates of importance. In this way, different weights are assigned for each occupation separately. To understand the reason for this approach we can use an example: accountants will confer a relative importance to both the necessary knowledge

and working conditions, clearly different from the relative importance chemists would have assigned to the two criteria, assuming that they would work in a toxic environment. Finally, the hierarchy of activities is achieved, taking into account the importance and assessments of each criterion. Specifications mentioned in this passage do not apply to the alternative by which the hierarchy is achieved through a comparison between activities, without using criteria.

We note that in the case of the ointments production specialists, a change in the methodology of data collection took place. Originally, a first ranking was done by an employee. The other two employees whose views were collected made changes to the existing hierarchy according to their own considerations. The method used by experts in production, although not fully consistent with the way the ranking was done in other areas, we believe that it is very important because it provides ideas for future improvements. The method, causing a large reduction in the averages of the standard deviation, shows that through the application of other data collection techniques significantly improved results can be obtained.

After obtaining this piece of information, we can proceed to determine the average pay for a person occupying a certain position.

3. Computing the mean, the standard deviation as well as the variation of confidence limits against the mean

The values presented in table 1, in the columns “averages”, were determined as the mean of the job evaluation indirectly computed by assessing the activities of each subject according to the formula:

$$M_{if} = \frac{\sum (M_{ij})}{n}, \quad (1)$$

where:

M_{if} – average or the final value of job i ;

M_{ij} – average or the value given by each evaluator (j) job i ;

N – number of subjects who rated the post, i (through activities).

Standard deviations were determined according to the classical formula, except that the data taken into consideration are considered relative values, related jobs evaluated.

The motivation to determine the variation confidence limits from the mean lies in the relativity of values obtained from stations evaluated. Therefore, we believe that the value of a job should not be limited to a fixed value, requiring the use of a range. Given the fact that what interests us is the confidence interval of the average and not the values composing it, we applied the formula:

$$L_i = \bar{x} \pm t(n-1) \frac{\sigma}{\sqrt{n}}, \quad (2)$$

where:

L_i – confidence interval limits;

\bar{x} – average;

$t(n-1)$ – t distribution with n-1 degrees of freedom;

N – number of subjects who rated item i.

Confidence limit values are relative values which do not express a certain salary level, so as a result in the subsequent steps it would have been necessary to determine three elements – the average and the two limits of the salary range. To avoid unnecessary complication and to compare the data obtained, we determined the variation of confidence limits against the average, according to the formula:

$$V = \frac{t(n-1) \frac{\sigma}{\sqrt{n}}}{\bar{x}}, \quad (3)$$

Where:

V – variation of the confidence interval limits against the mean.

Indicator values for confidence limits variation against the mean can be applied to salaries computed by different methods for each position in order to determine the limits of the salary confidence interval. The confidence interval was calculated in order to be able to estimate with a 80% probability that the relative values (averages) related to the evaluated jobs will be within the determined interval.

4. Defining the population and sampling

If we consider that by the implementation of job evaluation methodology through tasks it is intended to assess any position, regardless of the field of activity or geographical area, then we define people as the total of all jobs existing worldwide at a given time.

Due to the extensive range of the population, the complexity of the methodology, the need to provide advice on how to work with the software used and time constraints, the sample was limited to three areas of activity, respectively financial accounting, human resources and production, and the geographical area was limited to Romania. If in areas such as financial accounting and human resources, the jobs selected consist of support activities

that take place in the same way, regardless of the economic branch they support, in the case of production there was no such opportunity. However, for the reasons previously stated, the area had to be restricted. In this case, we opted for the drug manufacturing industry and more specifically for the production of ointments. Please note that the jobs in production that we have selected cannot be assimilated at a national or international level with other jobs, because of technological and organizational features specific to the ointments and suppositories plant of Antibiotice company.

The positions selected belong to the following fields:

1. In financial accounting – chief accountant and three positions of accountants which are distinguished by the complexity of the activities carried out.

2. HR – human resources specialist, human resources assistant, recruitment specialist, inspector human resources, payroll administrator.

3. In production – department manager, technologist and six positions of operator, jobs that are distinguished by the complexity of the tasks performed.

The selection of jobs was made starting from the original setting of activities to be evaluated, so that later it can be determined to which jobs those tasks belong. A final verification of the representativeness of activities for the selected jobs has been conducted.

In view of assessing the positions, it was resorted to the selection of a number of people to express their opinion. For each area there were selected two groups of people. A group considered to be the specialists, consisting of employees who have performed the activities evaluated and a group of laypersons, consisting of persons who have not fulfilled the respective responsibilities.

The selection of the two groups was aimed at infirming or confirming that the nature of the subjects affects the final results.

The number of participants for each of the three areas was:

1. Human resources – a total of five specialists and four laypersons.

2. For financial accounting, the group of experts consisted of three employees, while the laypersons group counted five people.

3. For the ointments production, three employees within the ointments and suppositories plant formed the experts' group and other four people formed the laypersons group.

In statistical terms, the number of opinions collected can be considered insufficient to determine the correct values and afterwards of the jobs in the case study. The small number however brings us close to the real situations encountered in practice. Conducting an evaluation of positions within any company is faced with a series of problems in the number of employees

who can be used in the process. The small number of staff that may be involved may be due either to natural causes (some areas have a small number of employees), either because of an inability to involve all staff in a particular field out of multiple reasons: the costs of closure, inexperienced staff, employees who know their own activity only, employees recognized as “opportunists”, who aim to deliberately overstate their position.

5. Analysis of data obtained on the sample of laypersons

Analyzing the data in Table 1, the following findings can be highlighted:

Table 1

Relative values for each position (average), standard deviation, variation coefficient and confidence limits variation from the mean, computed according to the values given by lay persons, for the evaluation criteria

Position	Field	Criteria-free evaluation				Criteria-based evaluation			
		Average	σ	ν	V	Average	σ	ν	V
Technologist	Ointments manufacturing	475056	203683	0.43	0.35	495440	78585	0.16	0.13
Operator 1	Ointments manufacturing	908285	83084	0.09	0.07	780615	96931	0.12	0.10
Operator 2	Ointments manufacturing	472546	412426	0.87	0.71	655006	124954	0.19	0.16
Operator 3	Ointments manufacturing	564158	268443	0.48	0.39	432674	221448	0.51	0.42
Operator 4	Ointments manufacturing	453235	289719	0.64	0.52	408084	233794	0.57	0.47
Operator 5	Ointments manufacturing	708761	266119	0.38	0.31	662518	164965	0.25	0.20
Operator 6	Ointments manufacturing	773731	218633	0.28	0.23	782230	95188	0.12	0.10
Plant manager	Ointments manufacturing	313302	356877	1.14	0.93	304102	161264	0.53	0.43
Accountant 2	Financial accounting	459202	109696	0.24	0.16	412343	126998	0.31	0.21
Accountant 3	Financial accounting	547011	155331	0.28	0.19	469706	140007	0.30	0.20
Accountant 1	Financial accounting	661238	277701	0.42	0.29	679514	127963	0.19	0.13
Chief accountant	Financial accounting	235403	69771	0.30	0.20	218813	50776	0.23	0.16
HR Specialist	Human resources	196634	64222	0.33	0.27	248295	139308	0.56	0.46
Payroll administrator	Human resources	765969	73961	0.10	0.08	666665	62035	0.09	0.08
Human resources inspector	Human resources	745664	138813	0.19	0.15	666484	83120	0.12	0.10
Human resources assistant	Human resources	703238	248427	0.35	0.29	724696	230154	0.32	0.26
Recruitment specialist	Human resources	544444	367019	0.67	0.55	288376	78728	0.27	0.22

1. The highest mean square deviation is common in the evaluations that don't use criteria, for the Operator 2 position, and has a value of 412,426. The

following value obtained by the square mean deviation, which is higher (367,019), is commonly met with recruitment specialists, on the same criterion. The minimum standard deviation obtained is 64,222 on the human resources specialist position.

2. The maximum value of standard deviations in the evaluation using criteria is 233,794, for the position of Operator 4. It differs from the situation encountered in the analysis performed on total subjects because, in this case, several values related to the mean square deviations exceed 200,000. The minimum standard deviation obtained is 50,776 for the chief accountant position.

3. In the criteria-free assessment, the biggest difference between the values of square mean deviations is obtained in the ointments production, between Operator 2 and Operator 1 positions, these being 329,342 (412,426 – 83,084), and the smallest difference is obtained in the financial accounting field with a value of 179,083 (277,701 – 69,771), the resulting difference between the values related to positions accountant 1 and chief accountant.

4. In the criteria-based evaluation, the biggest difference between the values of square mean deviations, is obtained in human resources, between the HR assistant and payroll manager jobs and amounts to 168,119 (230,154 – 62,035), while the smallest difference is obtained in financial accounting with a value of 89,231 (140,007 – 50,776), the resulting difference between the values for the positions of accountant 3 and chief accountants.

5. The maximum and minimum variation coefficients obtained are not necessarily found on the same jobs where there were recorded the minimum and maximum standard deviations. For example, the highest value of the variation coefficient is 1.14 encountered in the criteria-free assessment, for the plant manager position. The Operator 2 position, which had the highest value of mean square deviation, now occupies the second position, with a significant difference compared to the first place, the coefficient being 0.87. For minimum values, the situation is similar. The human resources specialist position, which had the lowest mean square deviation, is, in terms of the variation coefficient, far from Operator 1 (the position with the lowest computed value for the coefficient of variation 0.09). The situation is similar if we analyze the variation coefficients obtained by the assessment using criteria for the minimum but not the maximum values where the position that recorded the highest mean square deviation, also records the highest value of the variation coefficient. Because there is a close correlation between the coefficients of variation and variations of the confidence interval limits from the mean, that we will analyze in detail below, we believe that a detailed analysis of the results is not necessary.

6. The highest value of the confidence interval limits variation from the mean is 0.93, found in the criteria-free evaluation, the position of department manager, the lowest being 0.07 for an Operator 1 position.

7. The highest value of the confidence interval limits variation from the mean is 0.47 in the evaluation using criteria, Operator 4 job, and the minimum value is 0.08 for a payroll administrator.

8. The biggest difference between the variations of the confidence interval limits from the mean is 0.85 (0.93 to 0.07) and it is obtained by the evaluation not using criteria, in the ointments production, between plant manager and operator 1, and the smallest difference is obtained in financial accounting and is 0.13 (from 0.29 to 0.16), as the difference between the values "133" 1011 EA#1# positions accountant 1 and accountant 2.

9. The biggest difference between the variations of the confidence interval limits from the mean is obtained by the evaluation using criteria, in the field of human resources, between the recruitment specialist positions and payroll administrator, this being 0.38 (0.46 to 0.08), and the smallest difference of 0.08 (from 0.21 to 0.13) is obtained in financial accounting, as the difference between the values for positions accountant 2 and accountant 1.

In conclusion we can say:

Standard deviation values, coefficients of variation and confidence interval limits variation from the average are significantly reduced in the criteria-based assessment compared to values obtained in the criteria-free assessment.

Analyzing the average of standard deviations presented in Table 2, we can draw the following conclusions:

The maximum value of the mean square deviation is 262,373 and it is obtained on the sample of non-specialists, the criteria-free evaluation, in the area of ointments production. The minimum value attached to the criteria-free evaluation is 153,125 obtained in the field of financial accounting.

Table 2

Standard deviations averages relative to positions (calculated for the sample of laypersons) and determined for the two types of assessment in each area of competence

Criteria-free/ Criteria-based evaluation	Field	σ
Criteria-free evaluation	Ointment production	262,373
Criteria-free evaluation	Human resources	178,488
Criteria-free evaluation	Financial accounting	153,125
Criteria-free evaluation	Ointment production	147,141
Criteria-free evaluation	Human resources	118,669
Criteria-free evaluation	Financial accounting	111,436

The maximum value on the sample of laypersons in the criteria-based evaluation of the standard deviation is 147,141 and it is obtained in the human resources area. The minimum value is 111,436, obtained in financial accounting. We notice that the interval between minimum and maximum values obtained in the criteria-free evaluation does not overlap on the interval between the highest and lowest values obtained in the criteria-based evaluation, and therefore we can issue the following hypotheses:

H0: The mean square standard deviation calculated on the sample of laypersons, in the criteria-free evaluation, isn't equal to the mean square standard deviation determined on the laypersons' group, in the criteria-based evaluation.

H1: The average standard deviation determined on the sample of laypersons in the criteria-free evaluation is different from the average standard deviation determined on the same sample, but using the criteria-free evaluation.

Analyzing the data obtained, we can say, given the value of $t = 3.266$ with $\text{sig} = 0.005 < 0.05$, with a 95% probability, that between the average standard deviation determined on the sample of laypersons, in the criteria-free assessment, differs from the average standard deviations determined using the criteria-based evaluation. This assertion is demonstrated by our lack of value 0 in the confidence interval. In conclusion, we reject the hypothesis *H0* and accept *H1*. It demonstrates that the use of job evaluation criteria ensures better results in terms of confidence in the final results (square deviations with a significantly lower value).

In the next step, we consider it very important to answer the question: To what extent can the relative values with respect to the jobs evaluated be considered representative? To conduct the research, we used the coefficient of variation. The results are presented in tables 3 and 4. Analyzing the data, the following conclusions can be drawn:

Table 3

**Analysis of job distribution, according to representativeness of the average
(criteria-free evaluation, the sample of laypersons)**

Field	[0 - 17]	(17 - 35]	(35 - 50]	(50 - ∞)	[0 - 50] / [0 - ∞) (%)
Ointments production	1	1	3	3	62.50
Financial accounting		3	1		100.00
Human resources	1	2	1	1	80.00
Total	2	6	5	4	76.47

We first observe that the percentage of representative means at least in the broad sense, obtained in the criteria-free evaluation, on the sample of non-

specialists, is the same with the result gained in the evaluation using criteria, namely 76.47%.

Although no variations were recorded in the final results, one can see an improvement in the positioning of the averages. Thus, in the range (35, 50], for the criteria-free evaluation, there were five positions that get to be redistributed in the case of average deviations on criteria, to the ranges [0-17] by an increase from two to five positions, respectively range (17-35], where the number of positions records an increase from 6 to 8.

Table 4

**Analysis of job distribution, according to representativeness of the average
(criteria-free evaluation, the sample of laypersons)**

Field	[0 - 17]	(17 - 35]	(35 - 50]	(50 - ∞)	[0 - 50] / [0 - ∞) (%)
Ointment production	3	2		3	62.50
Financial accounting		4			100.00
Human resources	2	2		1	80.00
Total	5	8	0	4	76.47

In conclusion, we can say that the use of job evaluation criteria, when analysing a group of laypersons, will provide better results in terms of their significance, compared with a criteria-free evaluation.

6. Analysis of data obtained on the sample of experts

Analyzing the data in Table 5, the following findings can be highlighted:

1. The highest mean square deviation is common in the criteria-free evaluations, for the accountant 3 position, and has a value of 319,923. The following value obtained by the mean square deviation, which is higher (311,083), is commonly met with recruitment specialists, on the same criterion. The minimum standard deviation obtained is 1,417, for a technologist job.

2. The maximum value of standard deviations in the evaluation using criteria is 306,639, for the position of recruitment specialist. The result obtained for recruitment specialist can be considered an exception because the next value in descending order is 194,865 for an accountant 1 position. The minimum standard deviation obtained is 10,657 for the position of plant manager.

3. In the criteria-free assessment, the biggest difference between the values of mean square deviations is obtained in financial accounting, between accountant 3 and chief accountant, these being 246,436 (319,923 – 73,487), and the smallest difference is obtained in the ointment production with a value of 42,822 (44,239 – 1,417), the resulting difference between the values related to positions operator 3 and chief accountant and technologist.

4. In the criteria-based evaluation, the biggest difference between the values of mean square deviations is obtained in human resources between the recruitment specialist and HR specialist and is 241,281 (306,639 – 65,358), while the smallest difference is obtained in the ointments production with a value of 13,096 (23,753 – 10,657), the resulting difference between the values for positions of operator 5 and plant manager.

5. The maximum and minimum coefficients of variation are not found on the same positions that recorded the minimum and maximum standard deviations. For example, on the position of accountant 3 which reported the highest mean square deviation in the criteria-free assessment, the variation coefficient is 0.63, far from the maximum value of 1.06. For minimum values, the situation is similar. The technologist position, which had the lowest mean square deviation, is, in terms of the variation coefficient, far from Operator 2 (the position with the lowest computed value for the coefficient of variation 0.02). The situation is similar if we analyze the variation coefficients obtained by the criteria-based assessment for the minimum but not the maximum values, where the position that recorded the highest mean square deviation also records the highest value of the variation coefficient. Because there is a close correlation between the coefficients of variation and variations of the confidence interval limits from the mean which we will analyze in detail below, we believe that a detailed analysis of the results is not necessary.

6. The highest value of the confidence interval limits from the mean is 0.73, found in the criteria-free evaluation, the post of recruitment specialist, the lowest value being 0.02 the position of operator 2.

Table 5

Relative values for each position (average), standard deviation, variation coefficient and confidence limits variation from the mean, computed according to the values given by lay specialists, for the evaluation criteria

Position	Field	Criteria-free evaluation				Criteria-based evaluation			
		Average	σ	v	V	Average	σ	v	V
HR Specialist	Human resources	234658	121756	0.52	0.36	240611	65358	0.27	0.19
Payroll administrator	Human resources	604009	132694	0.22	0.15	590984	116315	0.20	0.13
Human resources inspector	Human resources	659663	177447	0.27	0.18	707801	156102	0.22	0.15
Human resources assistant	Human resources	679808	214572	0.32	0.22	710798	170419	0.24	0.16
Recruitment Specialist	Human resources	294057	311083	1.06	0.73	403788	306639	0.76	0.52
Accountant 2	Financial accounting	527479	275721	0.52	0.57	503466	100578	0.20	0.22
Accountant 3	Financial accounting	511209	319923	0.63	0.68	534212	86229	0.16	0.18
Accountant 1	Financial accounting	686654	200596	0.29	0.32	733465	194865	0.27	0.29
Chief accountant	Financial accounting	254811	73487	0.29	0.31	139603	59488	0.43	0.46
Technologist	Ointment production	27367	1417	0.05	0.06	309834	13872	0.04	0.05
Operator 1	Ointment production	459071	14535	0.03	0.03	509646	18982	0.04	0.04
Operator 2	Ointment production	595605	13108	0.02	0.02	600539	13390	0.02	0.02

Position	Field	Criteria-free evaluation				Criteria-based evaluation			
		Average	σ	v	V	Average	σ	v	V
Operator 3	Ointment production	445854	44239	0.10	0.11	543490	23427	0.04	0.05
Operator 4	Ointment production	480160	18248	0.04	0.04	551137	16294	0.03	0.03
Operator 5	Ointment production	510215	37966	0.07	0.08	546250	23753	0.04	0.05
Operator 6	Ointment production	499614	34430	0.07	0.08	606778	12014	0.02	0.02
Plant manager	Ointment production	17353	1776	0.10	0.11	212566	10657	0.05	0.05

7. The highest value of the confidence interval limits variation from the mean is 0.52 in evaluation using criteria, recruitment specialist, and the minimum value is 0.02 for operator 2.

8. The biggest difference between the variations of the confidence interval limits from the mean is 0.85 (0.93 to 0.07) and it is obtained by the criteria-free evaluation, in human resources, between the recruitment specialist and payroll administrator positions, and the smallest difference obtained in the production of ointments is 0.09 (0.11 to 0.02), as the difference between the values of operator 3/plant manager and operator 2.

9. The biggest difference between the variations of the confidence interval limits from the mean is obtained by the evaluation using criteria, in the field of human resources, between the recruitment specialist position and payroll administrator, this being 0.39 (0.52 to 0.13), and the smallest difference of 0.03 (0.05 to 0.02) is obtained in ointment production, as the difference between the values for operator 2 or operator 6.

The conclusions drawn after analyzing the sample of laypersons remain valid, so far as the data offered by the sample of specialists is concerned.

Analyzing the standard deviation averages presented in Table 6, the following conclusions can be drawn:

The maximum standard deviation is 217,431 and it is obtained on the sample of experts, in a criteria-free evaluation, in financial accounting. The minimum value resulting from the criteria-free evaluation is 20,715, determined in the field of ointments production.

Table 6

Standard deviations averages relative to positions (calculated for the sample of specialists) and determined for the two types of assessment in each area of competence

Criteria-free/ Criteria-based evaluation	Field	σ
Criteria-free evaluation	Financial accounting	217.431
Criteria-free evaluation	Human resources	191.511
Criteria-free evaluation	Human resources	162.967
Criteria-free evaluation	Financial accounting	110.290
Criteria-free evaluation	Ointments production	20.715
Criteria-free evaluation	Ointments production	16.549

The maximum mean square deviation on the sample of experts in the evaluation using criteria is 110,290 and is obtained in human resources. The minimum value resulting from the criteria-free evaluation is 16,549, obtained in ointments production. We notice, in contrast to data given by the sample of non-specialists, an overlap between the values obtained in the criteria-free evaluation and the ones obtained in the criteria-based evaluation. These results are considered to be influenced by the different data collection methodology, used exclusively in the ointment production on the specialists' sample. However, we consider it is necessary to analyze whether the standard deviations mean related to the data presented by the criteria-free evaluation differs or not from the criteria-based evaluation. Therefore, we issue the following hypotheses:

H0: The mean square standard deviations calculated on the sample of experts, criteria-free evaluation, is equal to the mean square standard deviations determined on the sample of experts, in the criteria-based evaluation.

H1: The average standard deviations determined on the sample of experts in the criteria-free evaluation is different from the average standard deviations determined on the same sample, but using the criteria-based evaluation.

Analyzing the data obtained, we can say, given the value of $t = 2.197$ with $\text{sig} = 0.043 < 0.05$, and a probability of 95%, that the average standard deviation determined on the sample of laypersons, criteria-free evaluation, is different from the average standard deviation determined in the criteria-based evaluation. This assertion is demonstrated by the fact that the value 0 is not comprised within the confidence interval. In conclusion, we reject the hypothesis *H0* and accept *H1*. It demonstrates that the use of job evaluation criteria ensures better results in terms of confidence in the final results (square deviations significantly reduced in terms of value).

Similar to the analysis conducted on the sample of laypersons, we consider it necessary to answer the question: To what extent can be considered representative the relative values with respect to the jobs evaluated? To conduct the research, we used the coefficient of variation. The results are presented in tables 7 and 8. Analyzing the data, the following conclusions can be drawn:

First, there is a significant increase in the percentage of representative averages at least in the broad sense, from 76.47%, the result obtained in the criteria-free evaluation, on the sample of experts, to 94.12%, the criteria-based evaluation. The data are identical to those recorded on total subjects.

Table 7

**Analysis of job distribution, according to representativeness of the average
(criteria-free evaluation, the sample of experts)**

Field	[0 - 17]	(17 - 35]	(35 - 50]	(50 - ∞)	[0 - 50] / [0 - ∞) (%)
Human resources		3		2	60.00
Financial accounting		2		2	50.00
Ointment production	8				100.00
Total	8	5	0	4	76.47

Secondly, the variation is determined by both the positions in financial accounting (an increase from 50% to 100%) as well as those in human resources (an increase from 60% to 80%). An improvement in results can be seen in the job distribution on intervals.

Table 8

**Analysis of job distribution, according to representativeness of the average
(criteria based evaluation, the sample of experts)**

Field	[0 - 17]	(17 - 35]	(35 - 50]	(50 - ∞)	[0 - 50] / [0 - ∞) (%)
Human resources		4		1	80.00
Financial accounting	1	2	1		100.00
Ointment production	8				100.00
Total	9	6	1	1	94.12

In conclusion, we can say that the use of job evaluation criteria, when studying a group of specialists, will provide better results in terms of their significance, compared to an evaluation without criteria.

Note: the very good results obtained in the production of ointments are due to a different data collection methodology on the sample of specialists.

7. Conclusions

Taking into account the results of the tests on the two samples (professionals and lay persons), we reached the following conclusions:

Regardless of the sample, we can say that the use of job evaluation criteria will ensure the achievement of better results in terms of standard deviation, variation coefficient and variations of the confidence interval limits from the mean.

The data collection methodology essentially influences the final results. Our conclusion is demonstrated by much better results obtained by specialists in production, for the whole range of indicators used in this analysis.

The high values obtained for the computed indicators, regardless of the sample used (except for the sample of specialists in ointments production)

shows a mismatch between subjects' opinions, whatever category they belong to, which shows the existence of diametrically opposed views on the importance of certain tasks in the business activity. We consider the differences of opinion to be due to the lack of information and the preconceptions in the case of laypersons, while in the case of professionals we consider the differences in terms of the company's policies to be the main reason. For example, in the case of firms where the selection for several jobs becomes formal, the human resources staff will significantly reduce the importance of this activity. Things would happen differently in the case of a company where recruitment and selection are considered vital.

The maximum and minimum values recorded by the coefficients of variation and thus by the variations of the confidence interval limits from the mean occur on different positions than those where the standard deviations obtained maximum and minimum values. The motivation is due to the denominator, namely the relative value of the job. In normal conditions (data should be obtained as a result of real measurements, for example distances, size of certain objects, etc.) the values ascribed to the numerator wouldn't have been a problem. In the present situation the results can be erroneous, however. For example, the post of chief accountant, which reported the lowest value on the sample of specialists, the criteria-free assessment, with a standard deviation of 59,488, registers a 0.43 coefficient of variation. The methodology, as it has been established, assumed that the more the relative value increases, the lesser the value of the job becomes and vice versa. Suppose the methodology would have established that as the relative value increases, the job is becoming more valuable. Under these conditions, the value of the chief accountant position could be 860,397 ($1,000,000 - 139,603$) instead of 139,603. Suppose that the mean square deviation remained the same (because an increase in job's relative values does not imply an increase in variation), the coefficient of variation calculated would be $59,488/860,397 = 0.07$ and it would fit the range which determines us to consider the average as strictly representative.

Significant differences between the results obtained on the laypersons' sample compared to the professionals' demonstrate the impossibility of replacing the staff trained for the positions subject to evaluation with other categories of employees.

For the future we recommend an improvement in the assessment methodology in order to diminish the impact of the relative value the positions have on the variation coefficient.

Acknowledgements

This work was supported by the European Social Fund in Romania, under the responsibility of the Managing Authority for the Sectoral Operational Programme for Human Resources Development 2007-2013 [grant POSDRU/88/1.5/S/47646].

References

- Armstrong, M. (2003). *Managementul Resurselor Umane*, Editura Codecs, București
- Davis Jr., Kermit R., Sauser Jr., William I. „A comparison of factor weighting methods in job evaluation: implications for compensation systems”, *Public Personnel Management*, 1993, [Online]. Vol. 22, No. 1, p. 91+available at: <http://find.galegroup.com/gtx/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T002&prodId=SPJ.SP00&docId=A13689980&source=gale&srcprod=SP00&userGroupName=uaic&version=1.0> [Accessed 12 Apr. 2010].
- Doverspike, D., Carlisi, A.M., Barrett, G.V., Alexander, R.A., „Generalizability analysis of a point-method job evaluation instrument”, *Journal of Applied Psychology*, Vol. 68, 1983, pp. 476-483
- Kay, G., „The role of job evaluation in determining equal value in tribunals – Tool, weapon or cloaking device?”, *Employee Relations*, Vol. 27, No. 1, 2005, pp. 7-19

Implications of Educational Attainment on Labour Market

Claudia ȘERBAN

Bucharest Academy of Economic Studies

Andre_serban@yahoo.com

Abstract. *The main aim of this paper is to highlight the relationship between education and the labour force, now, when education is essential for any economy in order to increase and create value. This relation is reflected in an increasing supply of well-educated workers to promote economic development. Present education choices significantly affect labour market performance in the future, an assessment of the educational level of labour force being necessary in terms of changes in occupational structure and labour demand and supply.*

Keywords: skilled workers; employment; level of education; lifelong learning.

JEL Code: I25.

REL Codes: 12E, 12I

1. Introduction

Over time the principles referring to education have changed, evolved from one era, area, civilization to another, depending on existing specific conditions at that time and space, on the ideological and political framework.

We begin a retrospective on education approach with Platon that regarded education as the most beautiful gift you can acquire. From preparing (education) to be warrior to the Spartans to a universal view on culture to the ancient Greeks, guiding principles of education have been put into question and restated: usefulness in life, virtue, higher knowledge. Socrates points out the social function of education, the fact that the most important thing is not individually success, but the way in which ideas are disseminated and how they can change the society (Niskier, 2000, pp. 40-43). Many of these principles which have governed the philosophy of education through the centuries, remaining actual, stresses the fundamental importance of education for the development of society as a whole, recognizing the necessity of cooperation and dissemination.

In our days, education is essential for any economy, because, on the one hand, through education relations between man and society become more diverse and on the other hand, the current economy requires well-trained workforce in the context of globalization. Globalization requires skills, creativity, solid knowledge and increasing responsibility. In a world like ours, subject to permanent change, to stagnate in education is damaging or even dangerous behaviour for the contemporary people (Angelescu, 2003). In the knowledge society, people trained become the first true capital and resource which contribute to country's wealth creation.

Prime Minister Tony Blair, in presenting the results of the Summit of the G-7 in Köln in front of the House of Commons (June 21 1999), attracts the attention of the world on the requirements in terms of measures in response to the main challenge of the present, respectively: "the preparation and provision of all persons to be able to survive and thrive in the future knowledge-based economy. Education and lifelong learning are a passport to success in today's global economy, not only for our countries (most developed countries), but everywhere around the world" (Duță, 2011). The Lisbon strategy and the Europe 2020 consider education as priority of the Council of the European Union policy in the wider context of economic and social policies.

There are differences between countries in terms of education systems referring to the ages at which begin and end each phase of schooling, the duration of courses, what students are taught, what students expected to learn.

These differences generate the necessity to provide comparable statistics on educational attainment and also to provide explanations for the unexpected or atypically trends. We use in our research International Standard Classification of Education (ISCED) created by United Nations, which provides a basis for comparing different education and a standard terminology.

An overview of educational attainment of the population

On average, across EU countries, 31% of all adults have attained only primary and lower secondary levels of education, 46% upper secondary education and 23% tertiary level education. In Romania only 12% of population aged 15-64 years had tertiary education in 2010. Starting from 2004 the increase in population having tertiary education represented 3pp, both in European Union and in Romania. The warring difference comparing to European Union is that in EU the share of tertiary educated people is two times higher than in Romania. Upper secondary education is now the norm among younger adults in European Union and to a greater extend in Romania (Table 1).

Table 1

Level of education and employment									
Indicator (%)	Country/Area	ISCED97 Classification	2004	2005	2006	2007	2008	2009	2010
Population (15-64 years) by education attainment level	European Union	Pre-primary, primary and lower secondary education - levels 0-2 (ISCED 1997)	37	34	33	33	32	31	31
		Upper secondary and post-secondary non-tertiary education - levels 3-4 (ISCED 1997)	41	45	45	46	46	46	46
		Tertiary education - levels 5-6 (ISCED 1997)	20	20	20	20	21	22	23
	Romania	Pre-primary, primary and lower secondary education - levels 0-2 (ISCED 1997)	35	33	32	31	30	30	30
		Upper secondary and post-secondary non-tertiary education - levels 3-4 (ISCED 1997)	56	58	58	59	59	59	58
		Tertiary education - levels 5-6 (ISCED 1997)	9	9	10	10	11	11	12
Employment rates highest level of education	European Union	Total Employment Rate	65	64	65	65	66	65	64
		Pre-primary, primary and lower secondary education - levels 0-2 (ISCED 1997)	51	48	49	49	48	46	45
		Upper secondary and post-secondary non-tertiary education - levels 3-4 (ISCED 1997)	70	69	70	70	71	69	68
		Tertiary education - levels 5-6 (ISCED 1997)	83	83	83	84	84	83	82

Indicator (%)	Country/Area	ISCED97 Classification	2004	2005	2006	2007	2008	2009	2010
	Romania	Total Employment Rate	59	58	59	59	59	59	59
		Pre-primary, primary and lower secondary education - levels 0-2 (ISCED 1997)	40	40	40	40	41	42	43
		Upper secondary and post-secondary non-tertiary education - levels 3-4 (ISCED 1997)	66	64	65	64	64	62	62
		Tertiary education - levels 5-6 (ISCED 1997)	85	84	86	86	86	84	82

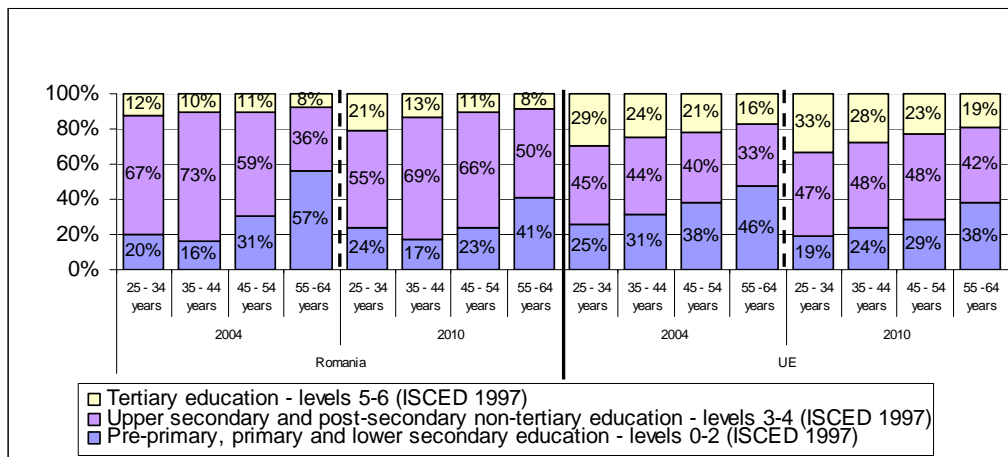
Source: Eurostat Statistics

Education is important for both the present and the future, giving individuals the knowledge, abilities, skills to participate effectively in society life, to expand the actual knowledge, to successfully activate, integrate and reintegrate on the labour market. The educational attainment can be used as a measure of human capital. The structure of education can be useful information to estimate the skills available in a population and labour force.

The role of education in providing access to employment is reflected in increasing employment opportunities for the educated people. People with higher levels of education have better job opportunities, reflected in a higher employment rates on labour market: 82% employment rate for tertiary educated persons comparing with 64%, average for EU, and 59% the corresponding rate in Romania in 2010. The differences from total employment rates are marked between those who have not attained upper secondary education and those who have. Persons with tertiary education are more likely to be in work than non-graduates.

The correlation between education and the labour market is not independent of conditions in the labour market, nor limited only to the worker's educational background. The distinction arises from labour's human aspect. Individuals decide how hard they work, and with what care. The environment affects their behaviour, including the incentives with which they are confronted (Stiglitz, 2002).

Increasing the share of population with tertiary education in Romania was carried out in utmost on behalf of the young population with age in range 25-34 years and 35-44 years. The share of population with tertiary education in the total population aged over 45 years has remained the same during the period 2004-2010 in Romania, unlike European Union, where the tertiary education level has increased for all age groups (Figure 1).



Source: Eurostat Statistics.

Figure 1. Educational attainment of population by age groups

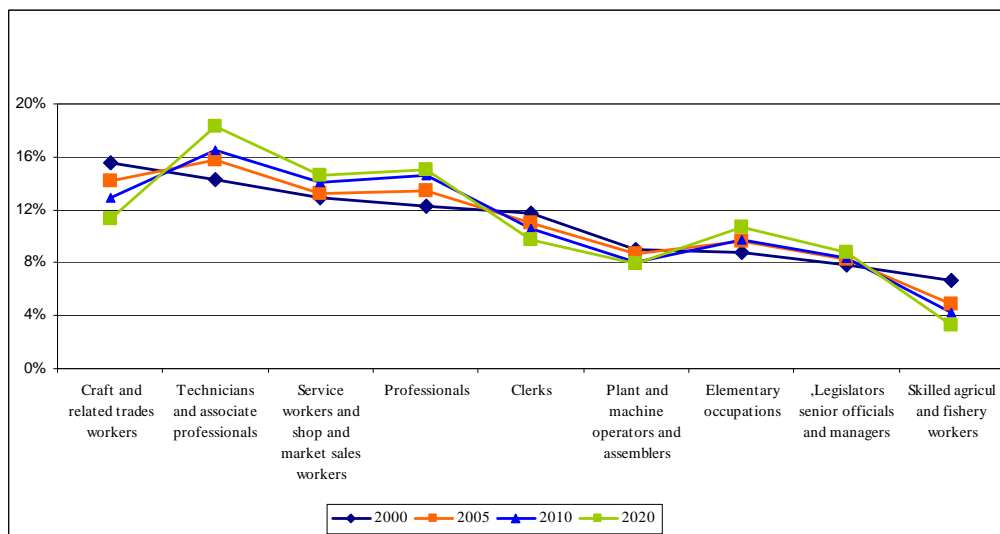
Comparing younger adults (25-34 years-old) with older adults (55-64 years-old) it is remarked progress with regard to attainment of upper secondary education in European Union. Across EU countries, the proportion of younger adults who have attained at least upper secondary education is 66%. Younger adults have higher levels of tertiary attainment than the generation about to leave the labour market. On average across EU countries, 23% of all adults have completed tertiary education, but among younger adults this level rises to 33% while among the older age group it falls to 19%. In Romania, 12% of all adults have completed tertiary education, with a higher difference between younger adults (21%) and older adults (8%). The situation in Romania's case is warring in terms of population with primary level of education that increased its share in population under 45 years (2004-2010).

The relationship between education and the labour force is reflected in an increasing supply of well-educated workers to promote economic development. This is reflected in changes in occupational structure in the present and prospect, according to Cedefop. The changes imposed by the advancement of science are reflected, as a consequence, in the structure of professions, in their contents, in professional mobility which becomes necessary through lifelong learning.

The analyses of occupational structure indicate some changing in the last 10 years, both in European Union and in Romania. The most evident increases

registered already in European Union for Professionals (such as physical, mathematical and life-science engineers, health and teaching professionals), on the one hand, and for Technicians and associate professionals (including physical, engineering, life science, health and teaching associate professionals), on the other hand. The increase was of 2 or 3 percentage points. The share of Skilled agricultural and fishery workers decrease, just like craft and related trades workers (Figure 2). Development is more than just the accumulation of capital and the reduction of distortions (inefficiencies) in the economy. It is a transformation of society, a departure from traditional ways of doing things and traditional modes of thinking (Stiglitz, 2002).

There are opinions considering that there's no doubt that sustained growth needs well-functioning labour market. Today, we all know that the right approach is not to protect jobs in existing industries, but to protect employment by giving people the chance to get training and retraining. This kind of mobility is absolutely essential (World Bank - Hübner, 2008).



Source: Eurostat Statistics and Cedefop 2010.

Figure 2. Changing Occupational Structure, 2000-2010, European Union

Cedefop consider that the main trends in recent period are expected to continue at least in the next decade, as a result of the decisions made in the past. It is noticed a considerable shift in labour demand towards skilled workers

implying that future jobs will become more knowledge – and skills – intensive. Most projected increases are expected for high-skilled non-manual occupations, such as management, professional and associate professional jobs. If in 2010 almost 40% of people were employed in higher level (knowledge - and skills intensive) jobs such as managers, professionals and technicians, in 2020 the share is expected to become more than 42% in European Union. These changes are linked to sectoral structural change, globalisation and technological progress which may displace many routine jobs (Cedefop, 2010).

Outcomes of educational attainment

Education and training are critical factors to develop the European Union's long-term potential for competitiveness as well as for social cohesion as Europe 2020 stated.

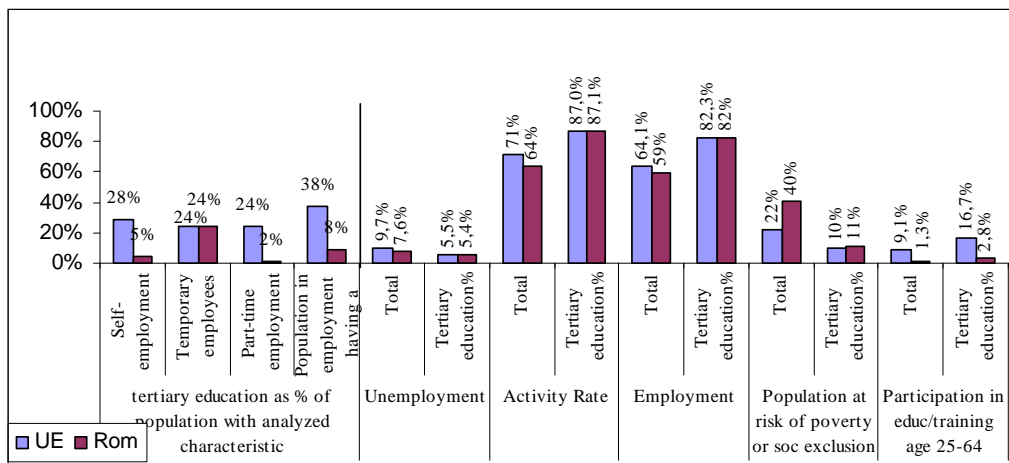
Education and training policies should increase efficiency by raising the average skills level of the population to ensure a better match between skills and labour market needs and therefore raise both employability and productivity. They should also reduce inequality by improving the employment perspectives of those most in need, including the disadvantaged and the immigrants.

The labour force is unevenly affected by the asymmetries of the labour market and/or of disagreements between the demand of qualifications and skills on the labour market and educational system supply.

The risk of unemployment, caused by the periodic fluctuations of the two markets – labour and education, is most strongly felt by both the youngest and oldest of the workers. Of course, regarding the variations in the rate of unemployment, including those with higher education on age group, naturally there are differences in time and space between member countries.

Unemployment rate of young people aged 15-24 years remain the highest, three times greater than the total unemployment rate (22% in Romania and 20.7% in the EU). For this age group, which presents the disadvantage of low or intermediate education, appears in addition the safety job problem, such young people entering through the disadvantaged categories on the labour market. In countries such as Spain, Greece, Estonia, Latvia, Lithuania, Slovakia, the rate of unemployment in this age group currently exceeded 30% in 2010.

The relationship between the unemployment rate and level of education is evident: unemployment rate decreases as we move from lower to higher education and from younger to older adults. We can appreciate that the unemployment rate – size and dynamic – is inversely proportional to the level of education: decreases as the level of education increases and vice versa. A person educated are more likely to join the labour market, to find a job according to its level of competence, skills and knowledge, has a greater mobility, with more opening to learning, to vocational reorientation, in the economic and social fields, the performances are superior. Education also has a particularly important role in reducing long-term unemployment through both initial training (by endowing the labour force with the ability to deal with the change) and lifelong learning.



Source: Eurostat Statistics.

Figure 3. Differences by educational attainment in 2010

Education and lifelong learning must be accessible to all, regardless of the level of education or other consideration, representing such an important factor in reducing inequalities and preventing marginalisation. Lifelong learning must not be accessible only to individuals with “good” job, with the higher level of education; this form of training is required for all.

The participation of adults in learning programs continues to show that those with tertiary education are the most “enlisted” in lifelong learning.

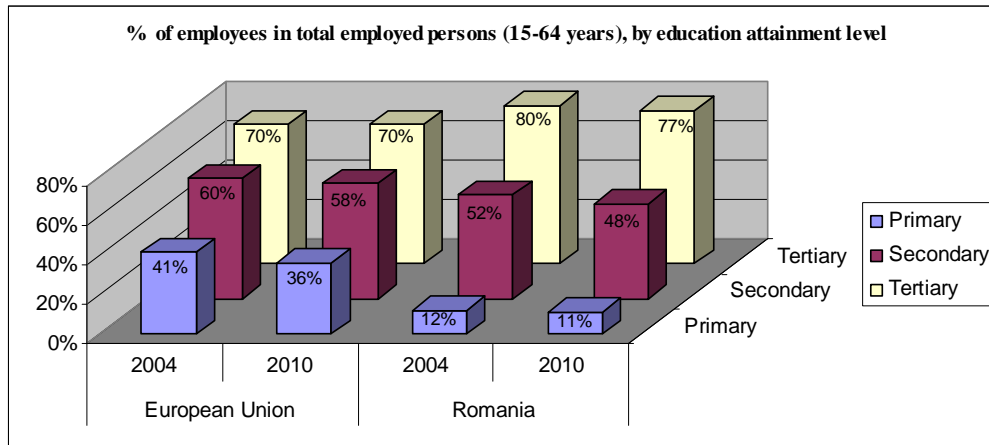
Romania is the penultimate place (before Bulgaria) in the EU, only 1,3% of the population being included in this process (EU average of 9%).

Lifelong learning is not only the one aspect of education and training, but it becomes, by the day, a fundamental principle of active participation of the individual in society, throughout his life. The lifelong learning becomes a necessity in today's society, in terms of permanent changes in the upward trend of knowledge gained throughout the world.

Self-employment. For Romania 21% of employed people are self-employed, the percentage being only 14% for the EU. At European Union level, 30% of self-employed persons have employees (are employers). The percentage is higher for people with higher education, 36% of self-employed with higher education have the quality of employers. For Romania, only 7% of the self-employed persons are employers, most of them having higher education (51%).

This relatively low risk of poverty for population with high educational level is associated with the easier possibility to find a job, higher wages, lower association with discouragement and voluntary exclusion from the labour market. Educated population is able to shift in times of crisis and is willing to learn in greater measure. This trend is not explained by the fact that better educated people with higher education has also accepted another job outside the main one. The situation is reflected in the Figure 3, where is a significant difference in the share of highly educated people who have secondary jobs in Romania comparing to EU. The situation could be explained by the fact that, in general, this population, with higher wages than the rest, is working a large enough period of the day so that no longer afford to accept a second job.

The share of employees. Differences from the European Union appear in terms of the share of employees in the total employed population on levels of education. For population with primary education level, the share of employees in total employed persons is only 12% in 2010, compared to 36% in the European Union. The situation is explained by the largest share (25.7% in Romania, comparing to the EU average of 5.4%) of the population employed in agriculture, mostly subsistence agriculture involving the existence of the large number of unpaid family workers and own-account workers (Figure 4).



Source: Eurostat Statistics.

Figure 4. *The share of employees in total employed persons*

Conclusions

The relationship education-labour is permanent and refers to the individual since the entry into the structures of institutional education. The crossing from ISCED 0 to 6 is just the first stage of accumulation of knowledge and skills that allow connection with labour market demand profile. Education continues in different forms throughout the period of active life, education and labour market must support each other. The targets of the Lisbon Strategy and Bologna process, Europe 2020 in terms of strengthening the knowledge-based society is the current pillars of support the (re)construction of educational model, having as background the lifelong learning process.

The knowledge-based economy requires a higher education system that contributes significantly to the development of the knowledge and skills. Students and employees have to be prepared for jobs that are rapidly changing due to dynamic developments in technology and work organization.

The purpose of the education of adults is to ensure the possibility of improving or supplementing the general knowledge and skills in order to create the necessary preconditions for an active participation of the individual in society. It also becomes of utmost importance the opportunity to benefit from lifelong learning, from general knowledge and relevant qualifications during individual's lives in order to reduce imbalances regarding unemployment

among the youth and long-term unemployment, the risk of poverty and the risk of social exclusion.

Education is an ornament in times of prosperity and a refuge in times of crisis (Aristotle), thereby ensuring the necessary prerequisites for overcoming adverse situations occurring in the labour market as a result of internal or global context and to advance to the knowledge society. The knowledge society requires, first of all, a qualitative leap in relation to education provided by educational processes during the active lifetime of the individual.

Education also became a way of leading social developments and underlies all transformations that happen in society. Vicious circle of education represents the system that creates values and rules, which it changes depending on the stage reached by the science, technology, knowledge. Therefore, any society and any individual are the fruit of this education, thereby generating effects and results that should be higher than the previous level of knowledge (Dobrescu, 2008).

Acknowledgements

This work was supported by the project „Post-Doctoral Studies in Economics: training program for elite researchers – SPODE” co-funded from the European Social Fund through the Development of Human Resources Operational Programme 2007-2013, contract no. POSDRU/89/1.5/S/61755.

References

- Angelescu, C. (2003). „Economic education in focus”, în *Educație economică. Actualitate și perspective*, Editura Economică, București
- Becker, G. (1997). *Capitalul uman*, Editura All, București
- Dobrescu, E., „Reforma educației și școlii românești în contextul integrării europene”, *Educație-identitate în procesul integrării României în Uniunea Europeană*, Lucrările simpozionului internațional Educație-identitate, 2008, Editura Academiei Române, București
- Duță, N., „Formarea cadrelor didactice universitare – opinii privind modalitățile necesare pentru perfecționarea activității didactice”, *Conferința Națională de Învățământ Virtual, 2010 – către o societate a cunoașterii – 2030*, București 2011, http://www.icvl.eu/2011/disc/cniv/documente/pdf/sectiuneaE/sectiuneaE_lucrarea01.pdf, [accesat 7 noiembrie 2011]
- Reich, R.L. (1996). *Munca națiunilor*, Editura Paidea, București

- Șerban, A.C., „Education in and for a Knowledge Based Society”, *The International Business Information Management Conference Proceedings (17th IBIMA)* 2011, ISBN 9780982148969
- Stiglitz, J.E., „Employment, Social justice and societal well-being”, *International Labour Review*, Vol. 141, No. 1-2, 2002, <http://www.ilo.org/public/english/revue/download/pdf/stiglitz.pdf>, [accesat 1 noiembrie 2011]
- Cedefop, „Skills supply and demand in Europe”, Cedefop Luxembourg 2010, www.cedefop.europa.eu/en/Files/3052_en.pdf, [accesat 1 octombrie 2011]
- Institutul European din România – Studii de strategie și politici (SPOS 2007), „Restructurarea sistemului de educație din România din perspectiva evoluțiilor pe piața internă și impactul asupra progresului cercetării”, disponibil online http://www.ier.ro/documente/SPOS2007_ro/Spos2007_studiu_2_ro.pdf, [accesat 1 octombrie 2011]
- OECD, Highlights from education at a glance 2010
www.sourceoecd.org/education/9789264084698 [accesat 15 octombrie 2011]
- OECD, „Investing in competencies for all”, *Meeting of OECD Education Ministers*, 2001, <http://www.oecd.org/dataoecd/48/20/1870557.pdf> [accesat 15 octombrie 2011]
- World Bank, „The growth Report. Strategies for Sustained Growth and Inclusive Development”, 2008 <http://www.growthcommission.org/storage/cgdev/documents/report/growthreportfrontmatter.pdf>, Washington, [accesat 15 octombrie 2011]