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EDITORIAL

The *Journal of International Studies* focuses on theoretical and policy-making issues faced by Central and Eastern European Countries' (CEEC) economies which were formerly command or centrally-planned. CEE countries are still facing the strategic and socio-economic choices in the transitional economy, bewareing their situation in global world transformations and challenges of globalization. CEE countries had different reactions towards the ways of their economic development. Designate veritable priorities in the economy form a system of strategic purposes and impact a mechanism of their realization.

The Journal also deals with the in-depth debates faced by both transitional and mature market economies, which could serve as a pattern or a plausible solution for the emerging economies. We believe that the *Journal of International Studies* will serve as a thought-provoking medium for numerous political, economic, social and cultural themes behind the concept of globalization and international economics, which have long been sought after by those involved in theoretical and practical considerations of the matter.

We are of the opinion that the elite of the society should be called for a close participation in the transformation processes, and an active role of the academia is most appreciated. The Journal is dedicated to enhancing the link between academic theory and its application at both micro and macro levels.

The authors are expected to critically interrogate the much-abused term of globalization and demonstrate, in a highly convincing and eminently readable manner, our need to adopt a far more creative socio-economic and strategic response to the forces currently transforming the society at different scales.

The Editorial team encourages all authors to present their material in such a way that the implications for economists and practitioners are fully explored. Thus, the research community benefits by linking academic activity to end-user concerned.

This *Journal* can extend your understanding of key issues and build a framework for future research and policy formulation. By highlighting new perspectives on major economic trends, the *Journal of International Studies* assists in finding solutions to the problems facing many economies around the world today.

The current *issue* of the *Journal of International Studies* focuses on two main topics: marketing perspective of places and destinations and company management in modern environment. The issue includes 12 articles from 17 authors from Ukrainian, Hungarian, Lithuanian, Australian and Polish academic establishments and non-governmental organizations.

Editors
dr Yuriy Bilan
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Stock exchanges indices and abnormal returns in the crisis condition

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Abstract. In the event study methodology it is recommended to use buy-and-hold abnormal return approach, based on reference portfolio or a stock exchange index, to estimate abnormal returns in the long-run. There is growing literature on the biased BHAR estimates problem, that can result from the common estimation procedures. However, in the crisis condition, application of appropriate reference portfolio seems to be crucial. The aim of this research is to identify the impact of application of different stock exchange indices, as reference portfolios, on results obtained in the BHAR methodology in the crisis condition.

The common practice is to use indices based on a sector in which the analysed company is operating or indices based on the size classification. The main thesis is that the application of one of these reference indices, especially in the crisis condition leads to rates of return, which can be considerably different in the case of another reference index. For analysis purposes two representative sectors of the Warsaw Stock Exchange were chosen. The research covers real BHAR calculations and comparative analyses of obtained results from different points of view: states of economy, market sectors and sizes of companies.

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INTRODUCTION

In order to assess the impact of certain events relating to a company on the company's share price, expected ("normal") rates of return on the share can be calculated. The models used in event studies, examining the response of the stock price around the announcement of the event, are based on comparison of normal and abnormal returns. In literature, several ways of estimating abnormal returns can be found. The most often such indicators are being applied as Cumulative Abnormal Returns (CAR), based on arithmetic sum of shares' prices, or Buy-and-Hold-Abnormal Returns (BHAR), based on geometric sums of shares' prices.

Cumulative abnormal return is the sum of abnormal returns in a certain period. Buy and hold abnormal return explains the rate of return on shares which are purchased at the beginning of the analysis period and kept until the end of the abnormal returns measurement period. The real rate of return is adjusted for the expected rate of return during this period. However in the long-run BHAR is claimed to be a standard measure of long-term abnormal returns (Mitchell, Stafford, 2000).

If the expected rates of return are obtained using the market-adjusted model, the index used to adjust the actual rates of return on the shares of companies to achieve abnormal rates of return, is often one of the stock exchange indices. The adjustment was proposed by R. J. Rosen (Rosen, 2006):

$$BHAR_{it} = \prod_{t=1}^T (1 + R_{it}) / \prod_{t=1}^T (1 + R_{index,t})$$

where:

- R_{it} – the return on the share on the day t
- $R_{index,t}$ – the return on the stock index on the day t (Rosen, 2006).

In such a case shareholders benefit if the value of BHAR is above 1, and lose when the value of BHAR is between 0 and 1. The other way of presenting results is to subtract 1, and then, the positive BHAR values mean that the share prices are relatively higher than the market average value while negative BHAR values mean relative loss.

On the one hand, BHAR is considered to be the appropriate estimator because of its ability to measure precisely investor experience (Barber and Lyon, 1997). On the other hand common estimation procedures can produce biased BHAR estimates. There is growing literature on the biased BHAR estimates problem. The problem can arise mainly as a result of the new listing bias, which occurs when the long-run return of a benchmark portfolio reflects new listings (Barber and Lyon, 1997). The index portfolio typically includes new firms that began trading after the event date and because of that have lower long-horizon returns.

Moreover, rebalancing bias can occur, which arises because of using equally weighted market indices, rebalanced to equal weights each month. The returns of sample firms are compounded without rebalancing, as a result an inflated long-run benchmark return occurs and that leads to a downward-biased abnormal return. (Barber and Lyon, 1997; Canina et al., 1998). The other bias occurs because of the fact that long-run abnormal returns are positively skewed.

In order to use BHAR and to avoid bias certain improvements can be made, for example: the winsorization of abnormal returns in the case of skewness bias. The procedure of winsorization “sets a limit on how far away from the rest of the sample an extreme observation is allowed to be”, by giving the most extreme observations a lower weight.

According to Mitchell and Stafford’s (2000) definition of BHAR, it measures “the average multi-year return from a strategy of investing in all firms that complete an event and selling at the end of a pre-specified holding period versus a comparable strategy using otherwise similar non-event firms.” As a proxy for non-event firms a stock exchange index can be applied into the BHAR formula, and then it is claimed to remove the impact of changes that are not directly related to the analysed event. The aim of this research is to identify the impact of application of different stock exchange indices, as reference portfolios, on results obtained in the BHAR methodology in the crisis condition. The main thesis is that the application of one of these reference indices, especially in the crisis condition leads to rates of return, which can be considerably different in the case of another reference index.

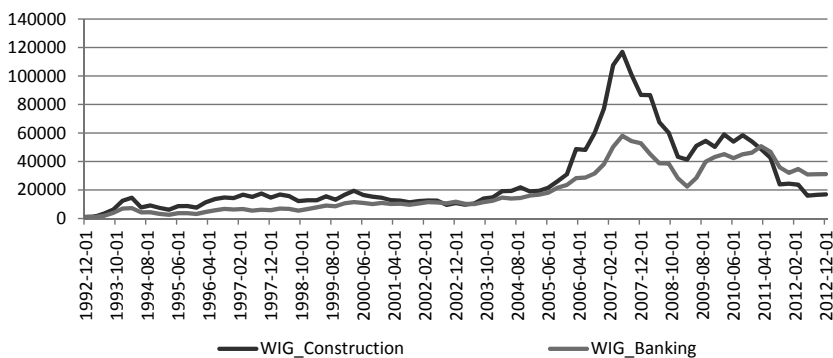
For analysis purposes two representative sectors of the Warsaw Stock Exchange were chosen. The research covers real BHAR calculations and comparative analyses of obtained results from the points of view of: states of economy, market sectors and sizes of companies.

STOCK EXCHANGE INDICES AND ECONOMIC GROWTH

There is a wide array of stock market indices that can be applied into BHAR calculations. For example in the Warsaw stock exchange the widest is the main market index WIG, but there are also other indices diversified in accordance to the size of a company such as WIG20 that includes shares of 20 major and most liquid companies in the WSE Main List. Similarly, WIG40 comprises of 40 medium sized companies listed on WSE Main List, and WIG80 is based on 80 smaller companies (all these are price indices). There are also various other indices, based on share prices in companies of a given sector and other indices based on dividends, etc.

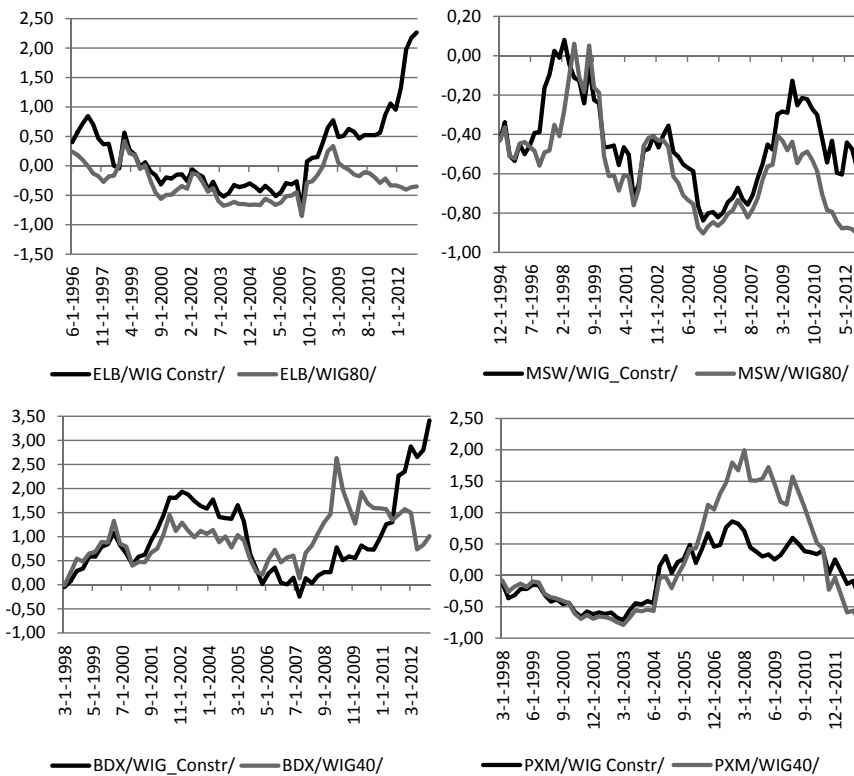
While analysing stock prices of a certain firm, a researcher has to choose the most appropriate index to be applied into BHAR methodology. To achieve buy-and hold abnormal returns the actual rates of return on shares can be for example adjusted by dividing them by the rate of return on the stock index for a certain industry. The common practise is to use either indices based on a given sector (branch) or on a group of companies of the similar size (WIG20, WIG40 or WIG80).

This research is based on share prices of companies listed in the Warsaw Stock Exchange. In order to identify the impact of application of different stock exchange indices, as reference portfolios, on results obtained in the BHAR methodology, two representative sector were chosen. The first one is the sector, which was strongly influenced by crisis that started in 2007: the Construction Sector. Before the crisis, the construction sector in Poland was bustling. Analysing the Warsaw Stock Exchange index for this sector (WIG_Construction, picture 1) a noticeable increase in the index can be seen. The index was soaring so high, that its value was denominated 10:1 on 30.03.2007. However, for the reasons of this research, in order to achieve comparable results, the values excluding denomination were applied.



Picture 1. WIG_Construction index vs. WIG_Banking index (excluding denominations)

Source: own compilation.



Picture 2. BHARs based on sector index vs. BHARs based on WIG80/WIG40 for representative companies of Construction sector

Source: own compilation.

Since the beginning of the crisis the Construction sector has still continued to suffer. One of the main reasons was the considerable increase in prices in the housing market. In 2011 the housing market in Poland was the second-worst performer in Europe. House prices went down by 10.55% in 2011 in inflation-adjusted terms (Poland..., 2012).

The values of WIG_Construction in the Warsaw Stock Exchange significantly dropped in the analysed crisis period. At the end of June 2012 it was 7.29 times lower than it was at the end of June 2007 (the maximum of WIG_Construction in the picture 1), and 2.66 times lower than a year before.

The second analysed sector is Banking, which relatively was not as strongly influenced by the crisis. As in the Construction sector (and many other sectors in the Polish economy), a higher increase in the Banking sector was noticed just before the beginning of the crisis. The value of WIG_Banking was also denominated 10:1 on the same day as WIG_Construction (30.03.2007). In this case values without denomination were also applied.

However, the slowdown in the Banking sector following the crisis was not as significant as in the case of the Construction sector. The current crisis started in the financial spheres of economies, so taking into consideration the situations of banking sectors in other countries, the Polish sector has been in surprisingly

good condition. The analyses conducted shows that at the beginning of 2011 WIG_Banking exceeded WIG_Construction, which is still decreasing (picture 1).

In order to find the most appropriate reference index to be applied into buy-and-hold abnormal returns methodology, BHARs for companies in Banking and Construction sectors were calculated. The main criterion for choosing companies for these analyses was the fact that the chosen company is included as a component of one of the following indices: WIG20, WIG40 or WIG80. Buy-and-hold abnormal returns were calculated as returns on the share price on the day of the oldest available data (in terms of a certain company or stock market index).

In the Construction sector there are a few companies that were also taken into consideration in WIG40 and WIG 80. None of them were listed in the WIG20 index. In cases of smaller companies (included in WIG80), as the crisis started, a wide spread between BHARs based on WIG_Construction and those based on WIG80 occurred (picture 2).

Indicators based on WIG80 were dropping as well as those for WIG_Construction, which means that smaller companies in the Construction sector achieved lower returns than other 'small' companies in other sectors of economy.

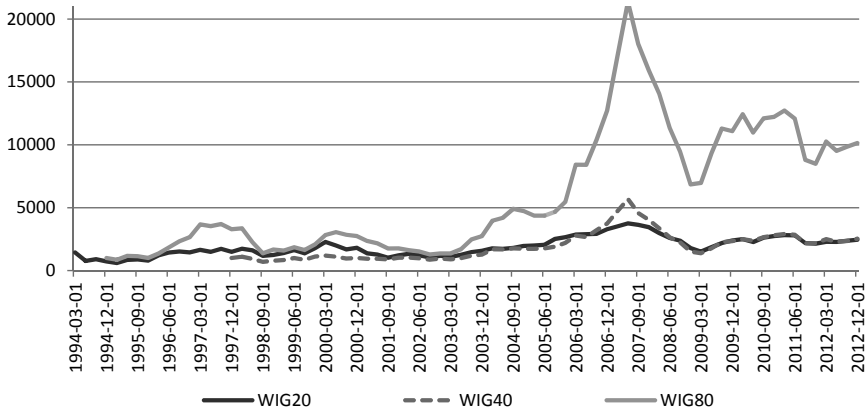
As WIG_Construction was decreasing, any firm, whose share prices was decreasing slower, seemed attractive to investors according to their BHARs based on this index. The situation of ELB shows that in comparison with other companies in the construction sector it was doing really well, but in comparison with other 'small' companies it achieved lower returns.

In the cases of 40 medium size companies listed on the WSE Main List, the situation was different. BHARs based on WIG_Construction illustrate relatively worse abnormal returns of medium companies in comparison with the whole sector (picture 2). The situation became better in the beginning of the crisis condition. Moreover, until 2011 BHARs based on WIG40 were higher than BHARs based on WIG_Construction¹, which means that medium companies in the Construction sector achieved higher returns than other companies in this sector and even much higher abnormal returns than medium companies in other sectors. Even though the Construction sector was doing bad, medium companies of the sector were relatively in a better situation. After 2011 the situation changed. There is one relationship that has held true for all analysed medium companies: BHARs based on WIG40 became lower than those based on WIG_Construction. One of the reasons was that the WIG_Construction was decreasing and WIG40 was increasing.

The different situation for companies included in WIG40 than for companies included in WIG80 results mainly for the fact that WIG80 was at a very high level in the analysed period. The result of application of different reference indices is especially explicit in the case of BDX company. BHARs calculated on WIG40 are positive and relatively high in the crisis condition, while BHARs based on WIG_Construction are negative.

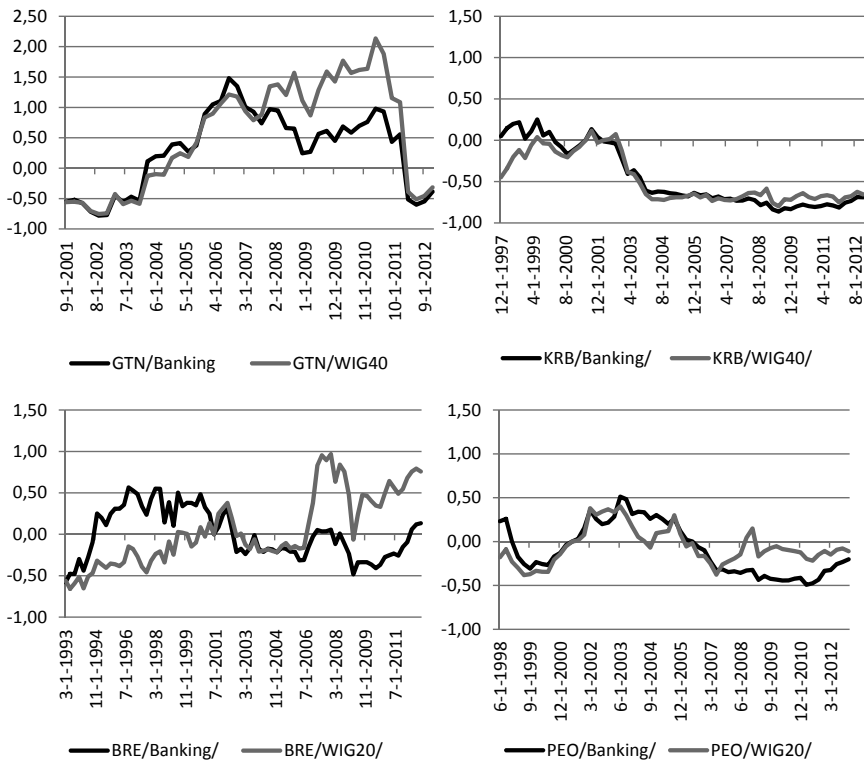
Comparison of index of 20 major and most liquid companies in the WSE Main List with index of 40 medium companies (WIG40) and with index of smaller companies (WIG80) indicates that the share prices of smaller companies are much more susceptible to changes in economy such as downturn in rate of economic growth. The bigger companies' shares are analysed, they are less susceptible to these changes (picture 3). This property of stock market indices influences results obtained by using BHAR methodology. As a result in the cases of bigger companies, changes in BHAR are not so considerable, which confirms the thesis of the article.

¹ In the case of the second of analysed companies (PXN) of the Construction sector the split (25:1) on 28.09.2007 was excluded.



Picture 3. Warsaw Stock Exchange Indices: WIG20, WIG40 and WIG80 in years 1994-2012

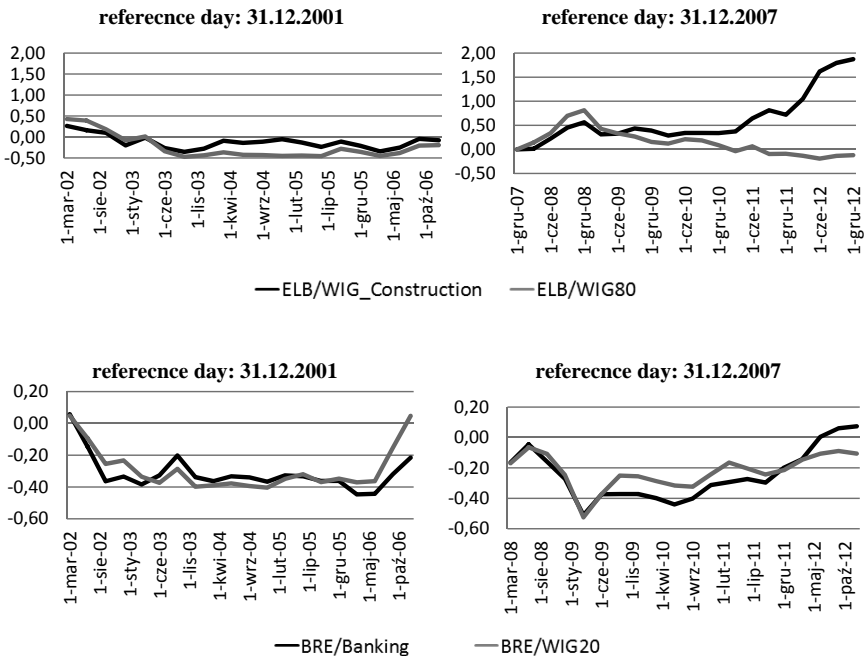
Source: own compilation.



Picture 4. BHARs based on sector index vs. BHARs based on WIG40/WIG20 for representative companies of Banking sector

Source: own compilation.

The next sector analysed was Banking, in which there were companies of that were also included in WIG20 and WIG40. In this case abnormal returns based on size indicators were higher. For some companies with negative BHARs based on WIG_Banking, abnormal returns based on size index were positive. That means that that even if some companies achieved lower abnormal returns than other companies in the banking sector, their returns were higher than returns of other companies of the same size. That confirms that results obtained by the application of different indices can lead to differentiated results. Furthermore, it also confirms that the Banking sector was not as strongly influenced by the crisis as other sectors. Generally, there is not one pattern of BHARs behaviour in the banking sector which results from the individual micro and meso-environmental factors of development for a given company.



Picture 5. BHARs based on different indices for representative companies of Construction sector and Banking sector
Source: Own calculations.

In order to check if the fact that BHARs above were calculated as returns on the share price on the day of the oldest available data (in terms of certain company or stock market index) influences the results obtained, new BHARs were calculated. The two following periods were indicated:

- the crisis period, from the beginning of 2002 to the end of 2006, where the reference day was 31.12.2001;
- the period before crisis, from the beginning of 2008 to the end of 2012, where the reference day was 31.12.2007.

Share prices in 2007 were excluded, because of their high variability, which can be seen not only in time series of analysed shares, but also in WIG_Construction, WIG_Banking (picture 1), etc., and particularly in the WIG80 time series (picture 3).

The results of this, calculations are similar to the previous BHARs. In the period before crisis BHARs based on the size indices and BHARs based on the sector indices are similar. The distance between them is not so high and variable as in the case of these indicators in the crisis period (picture 5).

Table 1

Standard deviation on differences between BHAR calculated on the basis of sector index and size index

Sector:	Construction				Banking			
company(ticker)	ELB	BDX	PXM	MSW	GTN	KRB	BRE	PEO
crisis	0.720	1.013	0.214	0.395	0.121	0.112	0.087	0.135
before crisis	0.165	0.150	0.901	0.205	0.222	0.068	0.086	0.125

Source: own calculations.

The last stage of the research was the analysis of differences between BHARs based on the size indices and BHARs based on the sector indices. It shows that the average deviation from the mean of these differences in the crisis period was more often higher than the average deviation in the period before crisis (table 1). In other words, in cases of most companies deviations in the crisis period were more disperse, which is consistent with the article thesis.

CONCLUSIONS

The research in stock exchanges indices and abnormal returns in the crisis condition was based on data of the Warsaw Stock Exchange. Two representative market sectors were selected. They were Construction and Banking. Then buy-and-hold abnormal returns were calculated on the basis of size indices and sector indices. Firstly, the reference day was indicated as the day for which the oldest data (of certain company or index) was available. Secondly, the analysed period was divided into the period before crisis and the crisis period. For each of periods the reference day for BHARs calculations was indicated. The reason for this division was to analyse separately BHARs in these two macroeconomic conditions, and to conduct the comparative analyses of obtained results. As a result, BHARs of all companies in each period were based on the same day.

Concluding above-mentioned stages of task realization, comparative analyses of obtained buy-and-hold abnormal returns from different points of view: states of economy, market sectors and sizes of companies, were conducted.

According to the research, buy-and-hold abnormal returns in the long-run, obtained by the applications of different reference indices lead to different results. In cases of most companies, these differences are even more considerable in the crisis period. Results of analyses conducted are consistent with the article thesis. As a result, in economic researches based on abnormal returns, it is crucial to determine properly the aim of calculating BHAR, before choosing the best reference index.

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Keynesian and Monetary Approach to the Liquidity Trap – looking for cointegration evidence from 2008 – Crisis in the United States.

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Abstract. The paper reflects on the phenomenon of the liquidity trap in the U.S. during 2008- financial crisis. The modern history of economics indentified strictly only one such a case: Japan since mid – 1990's. The main focus is to collect evidence on the liquidity trap using both: monetary approach and Neo-keynesian. Standard Johansen cointegration anlysis is used to catch the structural macroeconomic change since the Lehman Bros. collapse. Findings provide the evidence for: a) money demand function change due to zero-bond policy; b) the role of expectations in the liquidity trap condition; c) excessive raise of 'lemon' cost on the financial intermediation market.

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INTRODUCTION

Liquidity trap is the condition, when central bank increases the money supply with effect on neither prices nor output. The idea was discovered originally by J.M. Keynes and Hicks (1937), as it was said to occur during the great recession of the 1930's for the first time.

Since the 1970's central banks in the developed world was interested in fighting inflation rather to stimulate the economy by increasing money supply, as they follow Milton Friedman (1969, pp. 1-50) rule. In the 1990's and 2000's the main central bank's objective was to ensure the credible monetary policy with inflation target (Svensson, 2010) clearly stated. As economic agents used the same forecasting models as the central banks that time, they were able to predict monetary policy more accurate. This in turn led to decrease in economic aggregates volatility such as: output, inflation etc., which Bernanke (2004) called this period 'The Great Moderation'. Woodford (2003, p.268) shows the path of learning dynamics by economic agents, when the Taylor rule is satisfied much more in recent decade than in previous periods.

In the late 1990's B. Bernanke, L. Svensson, M. Woodford and P. Krugman (Krugman, 2010) researched the Japan's lost decade. Their outcome clearly shows that Japan's economy has been caught into the liquidity trap since mid-1990. Krugman (1998) argue that if liquidity trap has occurred in Japan, it can occur elsewhere anytime now.

Crisis 2008- and the quantitative easing policy in the United States, which was targeted not only to restore liquidity on the financial markets but also to lower right-tail of yield-curve, might cause elements of the liquidity trap. The aim of this paper so, is to find if some aspects of liquidity trap are visible in the United States.

The literature review shows two approaches to assessing liquidity trap. The standard Keynesian view augmented by rational expectation and the monetary, which focus on monetary aggregates cointegration. If evolutions of monetary aggregates become irrelevant to prices and output, economy may be caught into liquidity trap.

The paper is organized as follows: the two sections provide literature survey on Keynesian and monetary approach to liquidity trap. The third one assesses some cointegration evidence and the fourth concludes.

LIQUIDITY TRAP – KEYNESIAN APPROACH

Liquidity trap was originally discovered by J.M. Keynes (1936) and Hicks (1937). This phenomena is due to nominal interest rate positive only. When it is not possible to make lower nominal interest rate than zero, further monetary stimulation of aggregate demand is ineffective. Additionally LL curve is sloped upward since an increase of income and further it goes into perfect inelastic (Hicks, 1937). The model has got into standard macroeconomic textbook and was not developed much until famous Krugman's paper (1998). According to Krugman (1998), the lack of economists' interest in this field was due to the lack of faith that liquidity trap will ever happen.

Krugman (1998) sheds new light on liquidity trap, which was proposed by standard IS-LM model. Krugman's model combines interest rate, consumption, money supply and expectations:

$$1 + i = \frac{P^*}{DP} \left(\frac{y^*}{y} \right)^\rho \quad (1)$$

Where: i – interest rate, D – discount factor, P^* - future price level, P – current price level, y^*/y - the relation between future output (expected) and current output, ρ – relative risk aversion. The relation (1) can be viewed as a model, which assumes sticky or flexible futures prices. The risk aversion coefficient comes from agent's utility function, as they are to decide whether they won't buy bonds at interest rate i or spend money on consumption (which drives output). Therefore if future prices remain fixed (P^*), any raise in current prices (P) will produce future deflation, as higher P means lower i and i cannot be negative. If nominal interest rate was negative, agents would hold money instead of bonds. When interest rate is close to zero bonds and money become perfect substitutes and further increase in money supply will not change neither output nor price level.

The Krugman's (1998) model incorporated financial intermediation in the above. The evidence for financial intermediation to liquidity trap is also visible in the evolution of monetary aggregates. In Japan for example monetary base in years 1994-97 rose by 25.6 per cent, while bank credit rose only by .9 per cent (Krugman 1998, table 7). Similar data provided Friedman and Schwartz (1963, table A-1). Between 1930 and 1933 in the United States currency held by public rose by ca. 46 per cent, while commercial bank total deposits fell by ca. 41 per cent¹. As it was associated with banking crisis that had begun in the early 1930. Krugman's (1998) provides a way to escape the liquidity trap. This is a credible overshoot of inflation target by central bank. In other words central bank should set agent's expectations of the future price level to rise.

¹ Krugman (1998), figure 3, shows that high power money more than doubled this period

Sevensson (2001) sketched an open economy model that analysis the evolution of output gap, domestic inflation, CPI-inflation and real interest rate in a condition of liquidity trap:

Sevensson (2001) sketched an open economy model that analysis the evolution of output gap, domestic inflation, CPI-inflation and real interest rate in a condition of liquidity trap:

$$\pi_{t+1} = \alpha_{\pi}\pi_t + (1 - \alpha_{\pi})\pi_{t+2} + \alpha_y y_{t+1} + \alpha_q (q_{t+1} - q) + \epsilon_{t+1} \quad (2a)$$

$$y_t \equiv y_t^d + y_t^n \quad (2b)$$

$$y_{t+1}^n = \gamma_y^n y_t^n + \eta_{t+1}^n \quad (2c)$$

$$y_{t+1} = \beta_y y_t - \beta_{\rho} \rho_{t+1} + \beta_y^* y_{t+1}^* + \beta_q (q_{t+1} - q) - (\gamma_y^n - \beta_y) y_t^n + \eta_{t+1}^d - \eta_{t+1}^n \quad (2d)$$

$$\rho_t \equiv \sum_{\tau=0}^{\infty} (r_{t+\tau} - r) \quad (2e)$$

$$r_t \equiv i_t - \pi_{t+1} \quad (2f)$$

$$r_t^T = \frac{1}{T} \sum_{\tau=0}^T r_{t+\tau} \quad (2g)$$

$$\rho \approx T(r_t^T - r) \quad (2h)$$

Where: $\alpha, \beta, \gamma, \rho$ are parameters to estimate, above relation are in logarithms; asterisk (*) denotes the foreign economic aggregates (eg. y^* - rest of the world output).

The relation (2a) is a hybrid-forward-looking Phillips curve in which expected inflation rate π_{t+1} is determined by inflation inertia π_t , expected inflation rate in the future π_{t+2} and α_{π} parameter denotes rule-of-thumb of the hybrid-forward-looking expectation. In other words agent's expectations of the future price level are based on both past inflation evolution (inflation inertia) and expected future economic trends that will influence on the price level. The current output y_t (2b) is the outcome of the output gap and long term potential output (the model assumes exogenous shock as well - η_{t+1}^n).

The relation (2d) shows how liquidity trap condition enters the expected output. The expectation is the central issue in assessing liquidity trap in the Keynesian model. The future output (y_{t+1}) is caught into liquidity trap by ρ_{t+1} , the expected deviation of the real interest rate from the steady-state real interest rate (natural interest rate in Kunt Wicksell's sense). When agents expect the real interest rate not to fall, they will expect no raise in current output in the future; assuming everything equal domestic demand will not raise, until monetary authority lower the real interest rate in the future. The latter one is sensitive to the monetary policy credibility. (2f) explain real interest rate as the (log) difference between nominal interest rate and in-

flation. (2g and 2h) are the yield curve – relation between interest rate and instrument's maturity. Eggertson and Woodford (2003) concludes that in a condition of zero-interest bond, different maturity assets turn to be perfect substitutes

In the Keynesian approach liquidity trap condition can be seen through market friction in the financial intermediation sector. Bernanke and Gertler (1995) introduce the term 'external finance premium'. The premium comes from the 'lemons problem' directly. Financial intermediation assesses the borrowers' credit-worthiness, which cost is incorporated to the 'external finance premium'. The level of an average 'premium' is varying over the business cycle. Usually during the economic downturn 'premium' raises, which in turn makes the interest rate that entrepreneurs and consumers faces higher; even though central bank's short-term interest rate is very low. The raise in cost of 'lemons' in some circumstances can sharply decrease the transaction volume, as suggested by Akerlof (1970). Kacperczyk and Schnabl (2010) shows that financial market in the United States was blocked by the problem of 'lemons'. Liquidity trap in that sense should occur, when financial sector is reluctant to lend money to private sector in spite of high banks reserves. This condition is somehow similar to the mentioned above problem of natural interest rate, as the 'premium' raises the nominal interest rate. Martens and Raven (2011) evidence shows, that credit channel in the United States depressed the expectations and hence caused the liquidity trap recession recently.

LIQUIDITY TRAP – MONETARY APPROACH

Friedman's 'helicopter drop' in some way excluded the existence of liquidity trap. If there is an additional and unanticipated increase in money stocks that inhabitance holding, there will be an increase in spending due to change in relation between marginal utility of holding money and marginal utility of possession of goods and services which was in equilibrium before. In other words people will spend additional money, which is provided by eg. central bank, because the new money changes the marginal-utility relation and finally economy reaches its equilibrium with higher prices (Stein, 1970).

Among small number of publications, which were published in pre-Kurgman (1998) times, we can find an interesting example of Grandmont and Laroque (1976). They consider the statement: "the demand for money may tend to infinity when the rate of interest goes to zero" (Grandmont and Laroque, 1976, p. 132). They conclude that liquidity trap arises in the condition of trade-off between the short run demand for long-terms bonds and short run money stock. The model can be sketched briefly as follows:

In the closed economy are: central bank, which issues *fiat* money by open market bond purchase; there is the spot market for: goods, money and bonds; there are assets prices and good prices; on the spot market agents expect future prices of assets and goods

When central bank open market purchases tend to infinity, assets prices tend to infinity too; eventually the money value is rising as long as agents expect goods prices not to rise.

When agents expect rise in goods prices, the value of money tends to zero.

Eventually there is a short run trade-off between long-term bonds and money stock, which is depended on expectation of future goods prices or assets prices.

Bank accounting identity:

$$M = -(b^j - \sum_i b_i(t-1)) / r + \sum_i b_i(t-1) \quad (3)$$

Where M denotes money demand, b^i – amount of bonds outstanding held by central bank, b_i are bonds hold by investors, r – the interest rate set by central bank and t is time. The model assumes that M tends to infinity when r tends to zero under liquidity trap condition.

Japan is now the most vital example of liquidity trap since the middle of 1990’s, as there is a vast of papers exploring this case from monetary approach. Fujiki and Watanabe (2004) assumed the existence of liquidity trap “as a nonlinear M1 demand function with respect to the short-term nominal interest rate”. Cointegration between real M1, real cash, demand deposits and Indices of Industrial Production, call rate failed to reject the null hypothesis of no cointegration. Bae, Kakkar, Ogaki (2006) have also test the liquidity trap conditions in case when money demand is infinitely elastic as the consequence of zero-interests bond. They estimated the following money-demand equations:

$$\frac{M_t}{P_t Y_t} = \beta_0 + \beta_1 i_t + u_t \tag{4a}$$

$$\frac{M_t}{P_t Y_t} = \beta_0 + \beta_1 \ln \frac{1 + |i_t|}{|i_t|} + u_t \tag{4b}$$

Where: i – is the short-term interest rate, P is a price level, Y is the output and M is the money supply measure; all in logarithms. The test for liquidity trap was to check whether functional better fits the data. They conclude that non-linear money demand function fits better to the Japanese data and it is an evidence for liquidity trap

LIQUIDITY TRAP – LOOKING FOR THE U.S. EVIDENCE IN THE 2008- CRISIS

The aim of the study is to find evidence on liquidity trap in the United States during the unconventional monetary policy introduced by Ben Bernanke in period after Lehman Bros. collapse in september 2008. This example is somewhat different from Japanese case.

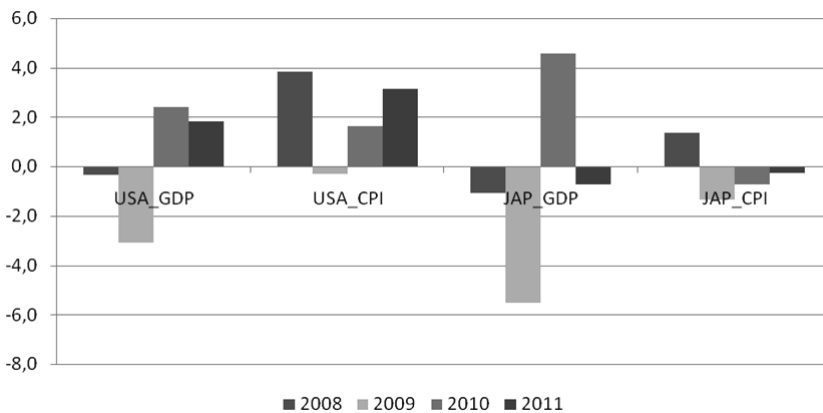


Figure 1. Real output growth and CPI (yoy) in the USA and Japan

Source: data FRED.

Figure 1 shows the evolution of the main economics aggregate in the USA and Japan. The Japan case, as stressed in the literature is the classical liquidity trap. In the USA overall inflation rate is positive and output rose in the 2010 and 2011.

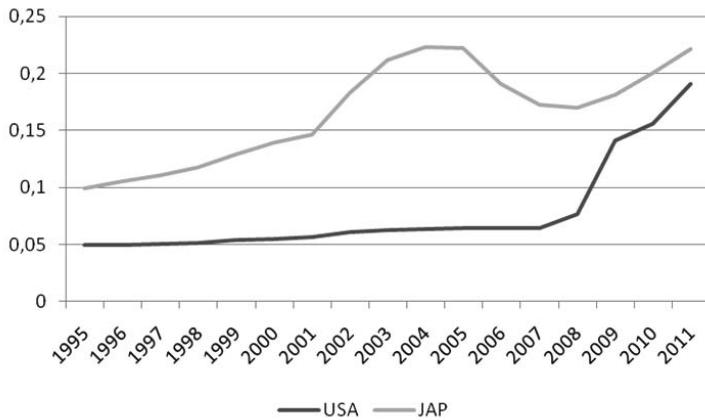


Figure 2. Monetary base as the share of real GDP in the U.S. and Japan

Source: data FRED and Bank of Japan.

On the other hand the share of the monetary base in GDP rose sharply in the US since quantitative easing policy was introduced (2008-2009), similar to the Japan’s case. In the beginning of the 2000’s National Bank of Japan introduced large-scale asset purchase, which caused the raise of the share of monetary base in real GDP (figure 2)

The monetary approach in the assessing the liquidity trap will be based on money demand equation. The theory of money assumes that real cash balance should be relevant to the real economic activities. As stated above liquidity trap can be assessed by transactional money demand function. Estimating long-run relation is limited by data availability – quarterly sample is too short. Kruszka (2004) estimated money demand using monthly data. This model measures income elasticity of money with respect to income a_1 , which should be positive and a_2 is money demand elasticity with respect to interest rate, which should be negative.

$$(m - p)_t = a_1 y_t + a_2 i_t + \epsilon_t \tag{5}$$

Where: $(m - p)$ is the real cash balance, y – measure of output, i – interest rate, π – inflation; all in logarithms. The first step in assessing the liquidity trap in the U.S. during 2008- crisis is to proof that long-run relation of money-demand equation changed or there is no cointegration between the money balance and interest rate or output measure (as Japan’s evidence suggests). Periods 1992m1 – 2008m8 and 2008m9 – 2012m11 will be compared. Standard Johansen test of contiegration applies for (5). The procedure need integrated time trends, so the first step is to run unit root test. The data used are: $(m - p)$ – monetary aggregate divided by price level. Monetary Base, M1, M2 and CPI; y – is the measure of economic activity, which provide transactional money demand – Industrial Production Index (INDPRO) and Real Retail and

Food Service Sales (RRSFS) are used; finally i is the interest rate 3-Month Treasury Constant Maturity Rate (DGS3MO).

The accounting procedure for U.S. monetary aggregates indicates that Monetary Base is the currency in circulation plus deposits held by all depository institutions. M1 on the other hand is currency in circulation without bank vaults. The raise in the Monetary Base was associated with the raise in bank reserves, which means that banks are reluctant to lend money to other banks and public and set aside excessive reserves. For this reason *bank reserves* (WRESBAL) will be in the analysis included.

Table 1

The KPSS Unit root test for data used in (5) in levels

Subsample	Monetary base in (m - p)	M1 in (m - p)	M2 in (m - p)	y - retail sales	y industrial production	i	Bank reserves
1992m1 - 2008m8	1,7134	0,5411	1,7108	1,7092	1,6039	0,4400	0,9950
2008m9 - 2012m11	0,8818	0,9421	0,9026	0,8714	0,7536	0,4523	0,8886
1992m1 - 2012m11	1,6173	0,6084	1,9948	1,7230	1,5348	1,2028	0,9140

Source: own calculations.

The critical value at the 5% level of significance is 0,463. All the variables in the table 1 are integrated processes. A questionable is the interest rate as the process is integrated in the period 1992m1 - 2012m11 and is not integrated in the subsamples.

Table 2

Johansen test of cointegration rank in (5)

Subsample	$H_0: r = 0$			$H_0: r = 1$
	monetary base in (m - p)			
	Eigenvalue	Trace Test	Eigenvalue	Trace Test
1992m1 - 2008m8	0,1262	55,46*	0,0999	29,15
2008m9 - 2012m11	0,5739	75,68*	0,3746	32,18*
	<i>M1 in (m - p)</i>			
1992m1 - 2008m8	0,1208	56,95*	0,0799	31,85*
2008m9 - 2012m11	0,4627	67,16*	0,3785	35,48*
	<i>M2 in (m - p)</i>			
1992m1 - 2008m8	0,1452	63,41*	0,0827	32,81*
2008m9 - 2012m11	0,4447	65,21*	0,3761	35,21*

Source: own calculations. Data: FRED (*) denotes rejection of the null hypothesis at 5% significance.

Findings in table 2 provide that there is at least one cointegrating vector among analyzed variables.

Table 3

Normalized cointegrating vectors for (5)

Subsample	$m - p$	y_1 (retail sales)	y_2 (industrial prod.)	i
<i>monetary base in (m - p)</i>				
1992m1 – 2008m8	1,000	-1,4405 (0,1383)	0,1282 (0,1147)	0,0492 (0,006)
	1,000	0,000	-0,7889 (0,0786)	0,0827 (0,018)
2008m9 – 2012m11	1,000	-0,5163 (2,2606)	-2,0299 (1,9548)	-0,0025 (0,0276)
	1,000	0,000	-2,4740 (0,4832)	0,0004 (0,0270)
<i>M1 in (m - p)</i>				
1992m1 – 2008m8	1,000	-0,9038 (0,2614)	1,1555 (0,2175)	0,0402 (0,014)
	1,000	0,0000	0,6787 (0,108)	0,0983 (0,0281)
2008m9 – 2012m11	1,000	17,73 (4,1)	-18,97 (3,6)	-0,0399 (0,0559)
	1,000	0,000	-2,4800 (0,4078)	-0,0460 (0,0223)
<i>M2 in (m - p)</i>				
1992m1 – 2008m8	1,000	-0,8428 (0,5448)	-0,6526 (0,4841)	0,0283 (0,0232)
	1,000	0,0000	-1,4568 (0,1267)	0,0320 (0,0265)
2008m9 – 2012m11	1,000	72,77 (14,0)	-69,47 (12,42)	-0,0794 (0,1827)
	1,000	0,000	-1,099 (0,2900)	-0,0500 (0,0158)

Source: own calculations; data: FRED. Standard errors are in parentheses.

Outcomes in the table 3 show the structural change between periods 1992-2008 and 2008-2012. The period 1992-2008 indicate a stable relation as suggested by (5). The elasticity of demand for money with respect to interest rate seems to be stable and is ca. 0,03 – 0,04, which means that raise in the interest rate by one pp. decrease the demand for legal tender by 0,03 – 0,04 percent. Kruska (2004) for example found similar elasticity in the Eastern Europe. In the period 2008 – 2012 the mentioned elasticity turns to be negative or insignificant. On the other hand income elasticity of demand for money increases, which indicate that money demand, tends to infinity, when the interest rate approaches to zero, as monetary approach to the liquidity trap suggests.

Table 4

Johansen test of cointegration rank between real money balance and bank reserves

Subsample	$H_0: r = 0$			$H_0: r = 1$
	monetary base in ($m - p$) and bank reserves			
	Eigenvalue	Trace Test	Eigenvalue	Trace Test
1992m1 – 2008m8	0,0373	9,8197	0,0122	2,3964
2008m9 – 2012m11	0,9736	187,97*	0,0500	2,6192

Source: own calculations. Data: FRED (*) denotes rejection of the null hypothesis at 5% significance.

Table 5

Normalized cointegrating vectors for real money balance and bank reserves

Subsample	$m - p$	<i>bank reserves</i>
	<i>monetary base in ($m - p$) and bank reserves</i>	
1992m1 – 2008m8	1,000	9,6436 (2,9873)
2008m9 – 2012m11	1,000	-0,5176 (0,0556)

Source: own calculations; data: FRED. Standard errors are in parentheses.

Findings in the table 4 and 5 assess the cointegration between real money balance and bank reserves. According to the credit channel theory, cost of ‘lemons’ catch the economy into liquidity trap. Raise in money supply will be not transmitted to the price level or output gap, as excessive money supply is set aside as a reserves in the central bank.

The cointegration between real money, when using Monetary Base as monetary aggregate is insignificant in the period 1992-2008.² In the period 2008 – 2012 the significance of cointegration is very high, which indicate that raising Monetary Base was strictly associated with the raise in bank reserves.

Neo-Keynesian approach to the liquidity trap comes from economic expectations strictly. Since expectations to the future economic growth are absent, aggregate demand will not raise, as stated in the relation (1) and (2). The data used to asses this approach are: the difference between the expected retail sales (University of Michigan Sentiment Index – y^*) and actual real retail sales (RRSFS) - y ; the interest rate: 3-Month Treasury Constant Maturity Rate (DGS3MO) – i . The data are presented as follows:

$$\frac{y^*}{y} = 1000 * \frac{\text{Sentiment Index}}{\text{Real Retail Sales}}$$

² Note that in the Monetary Base reserves held by credit institutions are included.

Table 6

The KPSS and PP Unit root test for in levels for y^*/y

Subsample	KPSS	PP
1992m1 – 2008m8	1,4397	-0,4804
2008m9 – 2012m6	0,1338	-2,8817
1992m1 – 2012m6	1,7541	-1,0170

Source: own calculations.

In the table 6 all the subsample are integrated according to PP unit root test at 5% significance level, but KPSS indicate that in the period 2008m9 – 2012m6 y^*/y is not integrated.

Table 7

Johansen test of cointegration rank between i and y^*/y

Subsample	$H_0: r = 0$		$H_0: r = 1$	
	Eigenvalue	Trace Test	Eigenvalue	Trace Test
1992m1 – 2008m8	0,0297	5,8927	0,000	3,8417
2008m9 – 2012m11	0,2393	19,22*	0,1344	6,6421*

Source: own calculations. Data: FRED (*) denotes rejection of the null hypothesis at 5% significance.

Table 8

Normalized cointegrating vectors for i and y^*/y

Subsample	i	y^*/y
<i>monetary base in (m – p) and bank reserves</i>		
1992m1 – 2008m8	1,000	-4,2459
2008m9 – 2012m11	1,000	-20,881

Source: own calculations. Data: FRED (*) denotes rejection of the null hypothesis at 5% significance.

Outcomes from cointegration shows that there is no cointegration in the period 1992 – 2008 between interest rate and the y^*/y . In the period 2008 – 2012 cointegration is significant at 5% level. The sign of normalized vector is consistent with the theory suggested in (1). In case of fixed future expectations (y^*), any raise in retail sales creates expected decrease in current sales, as real interest rate raises (higher y means higher i). Hence economy delivers equilibrium interest rate no matter the nominal production, as suggested by Krugman (1998).

CONCLUSIONS

Liquidity trap occurs, when violent monetary stimulation is not transformed by economy to rise in prices and output. Usually central bank enlarges monetary aggregates by bonds purchase. The aim of such a monetary policy is to: a) lower interest rates, as excessive demand raise bond's price, hence lower the interest rate, b) provide economy with more cash holding instead of holding longer-maturity assets. As monetary theory predicts larger cash holding and low interest rate should deter economy from deflation and depression as Friedman suggests that great depression of the 1930's was caused by decrease of money supply in the economy.

On the other hand Keynesian approach suggests that when demand is reluctant to grow, excessive money supply will not raise prices and output, as bonds and money turns to be perfect substitutes, when interest rate tends to zero. An expectations seems to be crucial in monetary transmission channel. Unsuccessful monetary policy can be caused by monetary intermediation frictions and associated cost of 'lemons'. Additional money supply will therefore be stored in banks' vaults instead of providing economy with the credit.

The aim of cointegration analysis is to confirm long-term relation between economic aggregate. The 2008- crisis has lasted only for four years, but using monthly data is possible to find some persistent economic relation. The analysis is based on comparison between 2008- crisis relation and those which were observed during the 1990's and 2000's. The outcome provides at least a structural change in the U.S. economy since Lehman Bros. collapse. The analysis provides evidence of structural economy change suggesting the liquidity trap condition in following aspects: a) money demand elasticity with respect to the interest rate; b) money demand elasticity with respect to the income; c) raise a cost of 'lemons' in the financial intermediation sector; d) increased sensitivity of output expectations with respect to the interest rate.

Further research can assess the relation between different maturity interest rate, economic expectation and monetary aggregates.

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Short run and alternative macroeconomic forecasts for Romania and strategies to improve their

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Abstract. For the same macroeconomic variables more predictions can be made, using different forecasting forecasting. The most important step is the choice of the prediction with the highest degree of accuracy, this being used in establishing the governmental policies or the monetary policy by the central bank. We made short run forecasts (January 2012-March 2012) for variables as inflation rate, unemployment rate and interest rate for Romania using techniques like: econometric modeling, exponential smoothing technique and moving average method. In order to improve the forecasts accuracy, we used two empirical strategies: making combined prognosis and building the forecasts based on historical accuracy indicators. The predictions based on exponential smoothing technique have the highest degree of accuracy, being superior to those got applying the strategies of improving the accuracy.

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INTRODUCTION

There are many quantitative methods used to build forecasts, two of the most popular being the econometric models and the exponential smoothing and moving average techniques. These can be used to develop alternative predictions for the same variable. We can chose the best prediction using the accuracy indicators. Some empirical strategies could be used to improve the accuracy, their effectiveness being in relation to the particular data. Making empirical researches for USA, Bratu (2012) showed that the best strategy for the accuracy improvement is keeping constant the historical errors. This strategy generated the best results also for Romania, but it does not exceed the performance of exponential smoothing techniques.

FORECASTS ACCURACY IN LITERATURE

Forecast accuracy is a large chapter in the literature related to the evaluation of forecasts uncertainty. There are two methods used in comparing the prediction quality : vertical methods (eg, mean squared error) and horizontal methods (such as distance in time). An exhaustive presentation of the problem taking into account all the achievements in literature is not possible, but will outline some important conclusions.

In order to evaluate the forecast performance, and also to order the predictions, statisticians have developed several measures of accuracy. Fildes R. and Steckler (2000) analyzed the problem of accuracy using statistics, indicating landmarks in the literature. For comparison between the MSE indicators of the forecasts, Granger and Newbold propose a statistic. Another statistic is presented by Diebold and Mariano in order to compare other quantitative measures of errors. Diebold and Mariano were proposed in 1995 a comparison test of two forecast's accuracy under the null hypothesis that states the lack of difference. The test proposed by them was later improved by Harvey and Ashley, who developed a new statistic based on a bootstrap inference. Later, Christoffersen and Diebold have developed a new way of measuring the accuracy that keeps the cointegration relationship between variables.

Armstrong and Fildes (1995) shows that the purpose of measuring forecast error is the provision of information about the shape of errors distribution and proposed a loss function for measuring the forecast error. Armstrong and Fildes show that it is not sufficient to use a single measure of accuracy.

Mariano R.S. (2000) presents the most significant tests of forecasts accuracy, including the changes of his test- Diebold Mariano (DM). Since the normal distribution is a poor approximation of the distribution of low volume data series, Harvey, Leybourne, and Newbold improve the properties of finite data sets, applying some corrections: the change of DM statistics in order to eliminate the bias and to make comparison not to normal distribution, but to the t-Student. Clark evaluates the power of some tests of equal forecast accuracy, such as modified versions of DM test or those of Newey and West, which are based on the Bartlett kernel and a fixed length of data series. Meese and Rogoff in their study from 1983, " The empirical exchange rate models of the seventies " compared the RMSE and the bias of exchange rate forecasts, that were based on structural models and they made a conclusion that was later used to improve macroeconomic forecasts performance. They have thus demonstrated that random walk process generates better forecasts than structural models.

In literature, there are several traditional ways of measurement, which can be ranked according to the dependence or independence of measurement scale. A complete classification is made by RJ Hyndman and AB Koehler (2005) in their reference study in the field, "Another Look at Measures of Forecast Accuracy ".

In practice, the most used measures of forecast error are:

- Root Mean Squared Error (RMSE)

$$RMSE = \sqrt{\frac{1}{n} \sum_{j=1}^n e_X^2(T_0 + j, k)}$$

- Mean error (ME)

$$ME = \frac{1}{n} \sum_{j=1}^n e_X(T_0 + j, k)$$

The sign of indicator value provides important information: if it has a positive value, then the current value of the variable was underestimated, which means expected average values too small. A negative value of the indicator shows expected values too high on average.

– Mean absolute error (MAE)

$$MAE = \frac{1}{n} \sum_{j=1}^n | e_x(T_0 + j, k) |$$

Recent studies target accuracy analysis using as comparison criterion different models used in making predictions or the analysis of forecasted values for the same macroeconomic indicators registered in several countries.

T. Teräsvirta, van Dijk D., Medeiros MC (2005) examine the accuracy of forecasts based on linear autoregressive models, autoregressive with smooth transition (STAR) and neural networks (neural network-NN) time series for 47 months of the macroeconomic variables of G7 economies. For each model is used a dynamic specification and it is showed that STAR models generate better forecasts than linear autoregressive ones. Neural networks over long horizon forecast generate better predictions than the models using an approach from private to general.

U. Heilemann and Stekler H. (2007) explain why macroeconomic forecast accuracy in the last 50 years in G7 has not improved. The first explanation refers to the critic brought to macroeconometrics models and to forecasting models, and the second one is related to the unrealistic expectations of forecast accuracy. Problems related to the forecasts bias, data quality, the forecast process, predicted indicators, the relationship between forecast accuracy and forecast horizon are analyzed.

Ruth K. (2008), using the empirical studies, obtained forecasts with a higher degree of accuracy for European macroeconomic variables by combining specific sub-groups predictions in comparison with forecasts based on a single model for the whole Union.

Gorr WL (2009) showed that the univariate method of prediction is suitable for normal conditions of forecasting while using conventional measures for accuracy, but multivariate models are recommended for predicting exceptional conditions when ROC curve is used to measure accuracy.

Dovern J. and J. Weisser (2011) used a broad set of individual forecasts to analyze four macroeconomic variables in G7 countries. Analyzing accuracy, bias and forecasts efficiency, resulted large discrepancies between countries and also in the same country for different variables. In general, the forecasts are biased and only a fraction of GDP forecasts are closer to the results registered in reality.

THE ACCURACY EVALUATION OF THE MACROECONOMIC FORECASTS BASED ON ECONOMETRIC MODELS

The variables used in models are: the inflation rate calculated starting from the harmonized index of consumer prices, unemployment rate in BIM approach and interest rate on short term. The last indicator is calculated as average of daily values of interest rates on the market. The data series for the Romanian economy are monthly ones and they are taken from Eurostat website for the period from february 1999 to december 2011. The indicators are expressed in comparable prices, the reference base being the values from january 1999.

After applying the ADF test (Augmented Dickey-Fuller test) for 1, 2 and 4 lags, we got that interest rate series is stationary, while the inflation rate (denoted rin) and the unemployment rate (denoted rsn) series have one single unit root each of them. In order to stationarize the data we differenced the series, resulting stationary data series:

$$ri_t = rin_t - rin_{t-1}$$

$$rs_t = rsn_t - rsn_{t-1}$$

Taking into account that our objective is the achievement of one-month-ahead forecasts for January, February and March 2012, we considered necessary to update the models. We used two types of models: a VAR(2) model, an ARMA one and a model in which inflation and interest rate are explained using variables with lag. The models for each analyzed period are shown in the *Annex 1*. We developed one-month-ahead forecasts starting from these models, then we evaluated their accuracy.

U Theil's statistic is calculated in two variants by the Australian Treasury in order to evaluate the forecasts accuracy.

The following notations are used:

- a- the registered results
- p- the predicted results
- t- reference time
- e- the error (e=a-p)
- n- number of time periods

$$U_1 = \frac{\sqrt{\sum_{t=1}^n (a_t - p_t)^2}}{\sqrt{\sum_{t=1}^n a_t^2 + \sum_{t=1}^n p_t^2}}$$

The more closer of one is U_1 , the forecasts accuracy is higher.

$$U_2 = \sqrt{\frac{\sum_{t=1}^{n-1} \left(\frac{f_{t+1} - a_{t+1}}{a_t}\right)^2}{\sum_{t=1}^{n-1} \left(\frac{a_{t+1} - a_t}{a_t}\right)^2}}$$

If $U_2 = 1 \Rightarrow$ there are not differences in terms of accuracy between the two forecasts to compare

If $U_2 < 1 \Rightarrow$ the forecast to compare has a higher degree of accuracy than the naive one

If $U_2 > 1 \Rightarrow$ the forecast to compare has a lower degree of accuracy than the naive one

Table 1

Indicators of inflation forecasts accuracy for January 2012- March 2012

Inflation rate	Models used to build the forecasts		
	VAR(2)	ARMA	Models with lagged variables
Indicators of accuracy			
RMSM	0,33866552	0,129341	0,167367
ME	-0,1997	-0,1297	-0,0910
MAE	0,2660	0,2873	0,2893
MPE	-0,0072	-0,0030	-0,0017
U1	0,004882	0,005746	0,005672
U2	0,758272	1,261447	1,176748

Source: own calculations using Excel.

All these models tend to overestimate the predicted values of the inflation rate on the forecasts horizon. The predictions of inflation based on models with lagged variables have the better accuracy, the value close to zero for U1 statistic validating this conclusion, also like other accuracy indicators with small values such as ME and MPE. How U2 statistic of Theil is more than 1 for all one-step-ahead forecasts, excepting those based on VAR(2) model, the naïve predictions are more accurate than those based on ARMA models or those with lags for inflation rate.

Table 2

Indicators of forecasts accuracy for the unemployment rate for January 2012- March 2012

Unemployment rate	Models used to build the forecasts	
Indicators of accuracy	VAR(2)	ARMA
RMSE	0,17710637	0,113871
ME	0,02	-0,05667
MAE	0,153333	0,11
MPE	0,003319	-0,00803
U1	0,013386	0,008091
U2	1,070069	0,643847

Source: own calculations using Excel.

For the unemployment rate, the VAR(2) models underestimated the predicted values. The values registered by the accuracy indicators are contradictory, because some of them show a higher accuracy for forecasts based on VAR models (ME, MPE, U1) and others for predictions using ARMA procedure (RMSE, MAE, U1). However, the unemployment rate forecasts based on ARMA models are better than those got using the naïve model.

Table 3

Indicators of forecasts accuracy for the interest rate for January 2012- March 2012

Interest rate	Models used to build the forecasts		
Indicators of accuracy	VAR(2)	ARMA	Models with lagged variables
RMSE	0,62018841	0,5067925	0,6004235
ME	-0,61167	-0,47	-0,57833
MAE	0,611667	0,47	0,578333
MPE	-0,22003	-0,17015	-0,20812
U1	1,06343829	0,87779	1,039964
U2	0,105625	0,094318	0,091728

Source: own calculations using Excel.

The best forecasts for the interest rate are generated by the ARMA models, all the accuracy measures having low values. For all the mentioned econometric values we can see a tendency of overestimating the predicted values. Only the ARMA models provided a good accuracy, the value close to zero for U1 statistic (0,877) emphasizing this conclusion, unlike VAR models or those with lags where U1 registered values

greater than 1. All the forecasts based on the proposed econometric models are better than the predictions using the random walk model.

THE ACCURACY EVALUATION OF MACROECONOMIC FORECASTS BASED ON EXPONENTIAL SMOOTHING AND MOVING AVERAGE TECHNIQUES

Exponential smoothing is a technique used to make forecasts as the econometric modeling. It is a simple method that takes into account the more recent data. In other words, recent observations in the data series are given more weight in predicting than the older values. Exponential smoothing considers exponentially decreasing weights over time.

4. Simple exponential smoothing method (M1)

The technique can be applied for stationary data to make short run forecasts. Starting from $R_n = a + u_n$, where a is a constant and u_t – resid, s - seasonal frequency, the prediction for the next period is:

$$\hat{R}'_{n+1} = \alpha \times R'_n + (1 - \alpha) \times \hat{R}'_n, \quad n = 1, 2, \dots, t + k \quad (5)$$

α is a smoothing factor, with values between 0 and 1, being determined by minimizing the sum of squared prediction errors.

$$\min \frac{1}{n} \sum_{i=0}^{n-1} (R'_{n+1} - \hat{R}'_{n+1})^2 = \min \frac{1}{n} \sum_{i=0}^{n-1} e_{n+1}^2 \quad (6)$$

Each future smoothed value is calculated as a weighted average of the n past observations, resulting:

$$\hat{R}'_{n+1} = \alpha \times \sum_{i=1}^n (1 - \alpha)^i \times \hat{R}'_{n+1-s}. \quad (7)$$

5. Holt-Winters Simple exponential smoothing method (M2)

The method is recommended for data series with linear trend and without seasonal variations, the forecast being determined as:

$$R_{n+k} = a + b \times k. \quad (8)$$

$$\begin{aligned} a_n &= \alpha \times R_n + (1 - \alpha) \times (a_{n-1} + b_{n-1}) \\ b_n &= \beta \cdot (a_n - a_{n-1}) + (1 - \beta) \cdot b_{n-1} \end{aligned} \quad (9)$$

Finally, the prediction value on horizon k is:

$$\hat{R}_{n+k} = \hat{a}_n + \hat{b}_n \times k \quad (10)$$

6. Holt-Winters multiplicative exponential smoothing method (M3)

This technique is used when the trend is linear and the seasonal variation follows a multiplicative model. The smoothed data series is:

$$\hat{R}'_{n+k} = (a_n + b_n \times k) \times c_{n+k}, \quad (11)$$

where a-intercept, b- trend, c- multiplicative seasonal factor

$$\begin{aligned} a_n &= \alpha \times \frac{R'_n}{c_{n-s}} + (1-\alpha) \times (a_{n-1} + b_{n-1}) \\ b_n &= \beta \times (a_n - a_{n-1}) + (1-\beta) \times b_{n-1} \\ c_n &= \gamma \times \frac{R'_n}{a_n} + (1-\gamma) \times c_{n-s} \end{aligned} \quad (12)$$

The prediction is:

$$\hat{R}'_{n+k} = (\hat{a}_n + \hat{b}_n \times k) \times \hat{c}_{n+k}. \quad (13)$$

7. Holt-Winters additive exponential smoothing method (M4)

This technique is used when the trend is linear and the seasonal variation follows an additive model. The smoothed data series is:

$$\hat{R}'_{n+k} = a_n + b_n \times k + c_{n+k} \quad (14)$$

a- intercept, b- trend, c- additive seasonal factor

$$\begin{aligned} a_n &= \alpha \times (R'_n - c_{n-s}) + (1-\alpha) \times (a_{n-1} + b_{n-1}) \\ b_n &= \beta \times (a_n - a_{n-1}) + (1-\beta) \times b_{n-1} \\ c_n &= \gamma \times (R'_n - a_n) + (1-\gamma) \times c_{n-s} \end{aligned} \quad (15)$$

The prediction is:

$$\hat{R}'_{n+k} = \hat{a}_n + \hat{b}_n \times k + \hat{c}_{n+k} \quad (16)$$

8. Double exponential smoothing method (M5)

This technique is recommended when the trend is linear, two recursive equations being used:

$$\begin{aligned} S_n &= \alpha \times R_n + (1-\alpha) \times S_{n-1} \\ D_n &= \alpha \times S_n + (1-\alpha) \times D_{n-1} \end{aligned} \quad (17)$$

where S and D are simple, respectively double smoothed series.

9. Moving average method (M6)

The forecast based on moving average method starts from the hypothesis of a model with constant:

$$X_t = a + \varepsilon_t \tag{14}$$

The parameter at time T is the average of the last n observations, when n is the length of the interval:

$$\hat{a}_T = \frac{\sum_{t=T-n+1}^T X_t}{n} \tag{15}$$

The predicted value for X variable is:

$$\hat{X}_{T+\tau} = \hat{a}_T, \tau = 1,2,\dots \tag{16}$$

In *Annex 2* we presented the forecasts based on exponential smoothing and moving average techniques.

All the exponential and moving average methods overestimated the inflation and unemployment rate, because of the negative values of ME indicator.

For inflation and interest rate the Holt-Winters additive exponential smoothing method generated the best predictions on a prognosis horizon of 3 months. For unemployment rate the Holt-Winters additive and multiplicative exponential smoothing method are the best to be used. The predictions based on moving average have a higher degree of accuracy than many forecasts based on exponential smoothing techniques, but these are not better than simple prognoses that use the naive model.

Analyzing the U1 indicators, we can make comparisons between the forecasting methods. For the inflation rate the VAR model generated better predictions than the exponential smoothing or moving average techniques. For the unemployment rate ARMA procedure is recommended because of the highest accuracy of forecasts. The Holt-Winters multiplicative exponential smoothing is the best choice when we predict the interest rate, because the data series has recent changes different from the old values.

Table 4

Indicators of accuracy for forecasts based on exponential smoothing and moving average techniques

Inflation rate	M1	M2	M3	M4	M5	M6
1	2	3	4	5	6	7
RMSE	0,00055	0,2647886	0,2534423	0,266937	0,367554	0,12487594
ME	-0,5348	-0,3283	-0,3130	-0,3168	-0,4733	-0,6513
MAE	0,4938	0,2873	0,2720	0,2758	0,4323	0,6103
MPE	-0,0154	-0,0097	-0,0093	-0,0094	-0,0147	-0,0175
U1	0,0097	0,006165	0,004892	0,005636	0,008528	0,011352
U2	1,491662	0,323962	0,620037	0,386389	0,183338	1,744475
Unemployment rate	M1	M2	M3	M4	M5	M6
RMSE	0,14387495	0,1474506	0,1138713	0,1184005	0,225536	0,25942244
ME	-0,06333	-0,045	-0,01	-0,00533	-0,22	-0,02333

1	2	3	4	5	6	7
MAE	0,136667	0,138333	0,11	0,112	0,22	0,203333
MPE	-0,00863	-0,00601	-0,00113	-0,00045	-0,03104	-0,00756
U1	0,01022964	0,01047	0,008066	0,008384	0,016216	0,016389
U2	0,814291	0,835011	0,640899	0,667242	1,267296	1,296064
Interest rate	M1	M2	M3	M4	M5	M6
RMSE	2,19379428	1,2047268	1,0898012	3,500938	2,411383	1,49680771
ME	2,193333	1,143333	0,746667	3,416667	2,41	1,426667
MAE	2,193333	1,143333	0,78	3,416667	2,41	1,426667
MPE	0,790386	0,409659	0,264576	1,232735	0,868652	-0,00756
U1	0,28317872	0,179276	0,170325	0,388346	0,302792	0,204445
U2	2,780411	1,32536	0,933732	4,704357	3,071481	1,779033

Source: own calculations using Excel.

5. STRATEGIES OF POSSIBLE IMPROVEMENT OF FORECASTS ACCURACY

Bratu (2012) states some important strategies to be used in practice in order to improve the forecasts accuracy. One of these strategies is the building of combined forecasts in different variants: predictions based on linear combinations whose coefficients are determined using the previous forecasts and predictions based on correlation matrix, the use of regression models for large data bases of predicted and effective values. On the other hand, we can apply the historical errors method, which supposes that the same value of an accuracy indicator calculated for a previous period. The combined forecasts and those based on historical errors for inflation rate and interest rate are shown in *Annex 3*

Table 5

Indicators of combined forecasts accuracy for the inflation rate for January 2012- March 2012

Inflation rate	Combined forecasts		
Accuracy indicators	VAR(2) and ARMA	VAR(2) and models with lags	models with lags and ARMA
RMSE	0,10159396	3,3067566	3,9138178
ME	-0,6370	-2,6397	-3,6737
MAE	0,5960	2,5987	3,6327
MPE	-0,0179	-0,0882	-0,1241
U1	0,011336	0,065068	0,077034
U2	1,73899	8,699951	10,52527

Source: own calculations using Excel.

Table 6

Indicators of combined forecasts accuracy for the interest rate for January 2012- March 2012

Interest rate	Combined forecasts		
Accuracy indicators	VAR(2) and ARMA	VAR(2) and models with lags	models with lags and ARMA
RMSE	1,09718245	1,3469944	0,8899492
ME	1,154333	1,034	0,670333
MAE	1,154333	1,112	0,683
MPE	0,417874	0,374469	0,243553
U1	0,207529	0,201624	0,141956
U2	1,819578	1,740136	1,211989

Source: own calculations using Excel.

We improved the forecasts accuracy by using combined forecasts only for the interest rate. For the inflation rate we had a lower accuracy if we combined the predictions based on econometric models.

Another strategy to build new forecasts implies to maintain constant the historical indicators of accuracy. For example, we used MPE, ME, MAE and RMSE indicators of predictions based on econometric models for November-December 2011 to build new forecasts for January-March 2012.

$$MPE = \frac{X_{t+1} - X_t}{X_t} \Rightarrow \frac{X_{t+1}}{X_t} - 1 = MPE \Rightarrow X_{t+1} = (MPE + 1) \cdot X_t$$

$$ME = X_{t+1} - X_t \Rightarrow X_{t+1} = ME + X_t$$

$$MAE1 = X_{t+1} - X_t \Rightarrow X_{t+1} = MAE1 + X_t$$

$$MAE2 = -X_{t+1} + X_t \Rightarrow X_{t+1} = -MAE2 + X_t$$

$$RMSE^2 = X_{t+1} - X_t \Rightarrow X_{t+1} = RMSE^2 + X_t$$

Table 7

Indicators of accuracy for the inflation rate and interest rate forecasts based on historical measures of predictions for January 2012- March 2012

Indicators of forecasts accuracy for inflation rate (January 2012-March 2012)	Predictions based on MPE indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	0,2899638	0,5390536	0,4771306
ME	-0,3031	-0,6589	-0,4611
MAE	0,4587	0,6179	0,4393

MPE	-0,0122	-0,0210	-0,0143
U1	0,008193	0,011592	0,009079
U2	1,260882	0,653022	0,295286

Indicators of forecasts accuracy for interest rate (January 2012-March 2012)	Predictions based on MPE indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	0,77271226	0,9707928	2,0644222
ME	-0,76642	0,3871	1,010967
MAE	0,766418	0,7051	1,3503
MPE	-0,2759	0,134822	0,354858
U1	0,166805	0,159805	0,295423
U2	1,058594	0,826369	1,701469

Indicators of forecasts accuracy for inflation rate (January 2012-March 2012)	Predictions based on ME indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	0,28665252	0,5418994	0,4804807
ME	-0,3073	-0,6607	-0,4607
MAE	0,4603	0,6197	0,4403
MPE	-0,0123	-0,0211	-0,0142
U1	0,008237	0,011617	0,009092
U2	1,267545	0,658905	0,304909

Indicators of forecasts accuracy for interest rate (January 2012-March 2012)	Predictions based on ME indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	0,4721241	1,4637027	2,5080761
ME	-0,194	1,081	1,868333
MAE	0,485333	1,286333	2,163333
MPE	-0,07018	0,384522	0,663552
U1	0,090198	0,21625	0,324496
U2	0,61498	1,75126	2,686922

Indicators of forecasts accuracy for inflation rate (January 2012-March 2012)	Predictions based on MAE1 indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	0,36882878	0,3754717	0,3055738
ME	-0,1723	-0,4533	-0,3497
MAE	0,3253	0,4197	0,3293
MPE	-0,0077	-0,0140	-0,0105
U1	0,005841	0,008927	0,00685
U2	0,909527	0,185023	0,208883

Indicators of forecasts accuracy for interest rate (January 2012-March 2012)	Predictions based on MAE1 indicator		
	VAR(2)	ARMA	Model with lagged variables

RMSE	1,08753544	1,8986048	0,500999
ME	1,603333	-0,51	-0,48667
MAE	1,923333	1,603333	0,486667
MPE	0,587224	-0,17312	-0,17485
U1	0,309909	0,335344	0,098837
U2	3,304297	1,920489	0,564121

Indicators of forecasts accuracy for inflation rate (January 2012-March 2012)	Predictions based on MAE2 indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	0,30188077	0,3754717	0,4704714
ME	-0,8210	-0,5400	-0,6437
MAE	0,7800	0,4990	0,6027
MPE	-0,0205	-0,0170	-0,0205
U1	0,013949	0,009276	0,011355
U2	2,139033	0,427269	0,639328

Indicators of forecasts accuracy for interest rate (January 2012-March 2012)	Predictions based on MAE2 indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	2,88835593	0,8654286	0,1888562
ME	2,75	0,063333	0,006667
MAE	2,75	0,75	0,16
MPE	0,989958	0,01777	0,003102
U1	0,331438	0,150283	0,033935
U2	3,395113	1,002042	0,270369

Indicators of forecasts accuracy for inflation rate (January 2012- March 2012)	Predictions based on RMSE indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	0,21652084	0,3004148	0,2924571
ME	-0,3353	-0,4247	-0,4188
MAE	0,4100	0,3837	0,3778
MPE	-0,0119	-0,0130	-0,0128
U1	0,007785	0,008238	0,008064
U2	1,204588	0,265303	0,265379

Indicators of forecasts accuracy for interest rate (January 2012-March 2012)	Predictions based on RMSE indicator		
	VAR(2)	ARMA	Model with lagged variables
RMSE	3,11373457	2,6078793	0,3393762
ME	3,471219	1,98069	0,330105
MAE	3,471219	1,98069	0,330105
MPE	1,253772	0,707623	0,119029
U1	0,390858	0,33276	0,057669
U2	4,776603	2,36759	0,417691

Source: own calculations using Excel.

The inflation predictions on short run (January 2012-March 2012) based on historical accuracy indicators like MAE1 have the highest degree of accuracy. In this case, VAR(2) models determined the best forecasts for the following indicators: MAE, ME, MPE, U1. All the predictions based on MAE1 are superior, in terms of accuracy, to those based on the naïve model. For the rest of historical accuracy indicators, the forecasts using VAR models are inferior to those built using the naïve model, unlike ARMA models and models with lag.

The best predictions of the interest rate based on historical accuracy indicators are those that use the RMSE for models with lags. Good results appear when MAE1 is used for VAR models and MAE2 for models with lagged variables.

The accuracy for inflation forecasts based on historical errors is superior to those evaluated when the simple models are used, but the exponential smoothing techniques provide better results.

6. CONCLUSION

The choice of the best forecast from many alternative ones for the same variable, but elaborated using different methods is a rational step that is preceded before the establishment of governmental or monetary policies or before any decisional process based on the previous knowledge of some macroeconomic variables.

For data series of the Romanian economy, for short run forecasts on 3 months (January 2012-March 2012), the econometric models generated predictions with a rather good degree of accuracy, but these could be improved for the interest rate by combining the forecasts based on these econometric models. The prognoses for inflation and interest rate are closer of real values when the forecasts are based on an historical indicator of accuracy, more often the MAE and the RMSE corresponding to the previous two months from the forecast origin. However, the exponential smoothing methods determined the best predictions in terms of accuracy, because these techniques take into account only the recent values in the data series used to build forecasts

ANNEX 1

Econometric models used to build one-step-ahead forecasts on horizon January 2012- March 2012

Reference period for the data series	VAR(2)
February 1999-December 2011	$RI = - 0.2303012991*RI(-1) + 0.01690524458*RI(-2) + 0.7635057172*RS(-1) - 4.045179635*RS(-2) + 0.009459812909*RD(-1) + 0.01372850021*RD(-2) + 0.1784371173$ $RS = 0.0001183673666*RI(-1) + 0.000913245091*RI(-2) + 0.004531655955*RS(-1) + 0.1733869236*RS(-2) - 6.370296664e-06*RD(-1) + 8.205158788e-05*RD(-2) - 0.0001483905251$ $RD = 0.2043938188*RI(-1) + 0.1955891697*RI(-2) + 5.707574422*RS(-1) + 4.649473166*RS(-2) + 0.0200642759*RD(-1) + 0.04027759109*RD(-2) + 0.09565218477$

February 1999- January 2012	$RI = -0.304515527 \cdot RI(-1) - 0.06631998407 \cdot RI(-2) - 1.040458918 \cdot RS(-1) - 7.026360125 \cdot RS(-2) + 0.7778407167 \cdot RD(-1) - 0.404246351 \cdot RD(-2) + 0.145112499$ $RS = -2.344516219e-05 \cdot RI(-1) + 0.0007916728915 \cdot RI(-2) + 0.0005940877651 \cdot RS(-1) + 0.1695243629 \cdot RS(-2) - 0.00133333556 \cdot RD(-1) + 0.002036539678 \cdot RD(-2) - 0.0002191616153$ $RD = 0.03229810895 \cdot RI(-1) + 0.01229693648 \cdot RI(-2) + 1.27352077 \cdot RS(-1) - 0.09728647967 \cdot RS(-2) + 0.7345485482 \cdot RD(-1) + 0.1123912626 \cdot RD(-2) + 0.01381123609$
February 1999- February 2012	$RI = -0.3043419246 \cdot RI(-1) - 0.06624258531 \cdot RI(-2) - 0.9649453802 \cdot RS(-1) - 7.028635591 \cdot RS(-2) + 0.7784642521 \cdot RD(-1) - 0.4044845337 \cdot RD(-2) + 0.1448847522$ $RS = -4.411419007e-05 \cdot RI(-1) + 0.0007824578299 \cdot RI(-2) - 0.008396519856 \cdot RS(-1) + 0.1697952788 \cdot RS(-2) - 0.001407573395 \cdot RD(-1) + 0.002064897598 \cdot RD(-2) - 0.0001920461849$ $RD = 0.03257643527 \cdot RI(-1) + 0.01242102525 \cdot RI(-2) + 1.394587069 \cdot RS(-1) - 0.1009345956 \cdot RS(-2) + 0.7355482248 \cdot RD(-1) + 0.1120093987 \cdot RD(-2) + 0.01344610339$

Reference period for the data series	ARMA
February 1999-December 2011	$ri_t = 0,436 \cdot ri_{t-2} + \varepsilon_{1t}$ $rs_t = 0,178 \cdot rs_{t-2} + \varepsilon_{2t}$ $rd_t = 0,128 + 0,814 \cdot rd_{t-2} + \varepsilon_t$
February 1999-January 2012	$ri_t = 0,153 - 0,217 \cdot ri_{t-1} + \varepsilon_t$ $rs_t = 0,761 \cdot rs_{t-1} - 0,715 \cdot \varepsilon_{t-1} + \varepsilon_t$ $rd_t = 0,121 + 0,914 \cdot rd_{t-1} + \varepsilon_t$
February 1999- February 2012	$ri_t = 0,153 - 0,217 \cdot ri_{t-1} + \varepsilon_t$ $rs_t = 0,761 \cdot rs_{t-1} - 0,715 \cdot \varepsilon_{t-1} + \varepsilon_t$ $rd_t = 0,121 + 0,914 \cdot rd_{t-1} + \varepsilon_t$

Reference period for the data series	Model with lagged variables
February 1999-December 2011	$ri_t = 0,1106 + 0,226 \cdot rd_{t-1} + \varepsilon_{1t}$ $rd_t = 0,055 + 0,23 \cdot ri_t + 0,303 \cdot ri_{t-1} + 0,235 \cdot ri_{t-2} + \varepsilon_{2t}$
February 1999-January 2012	$rd_t = 0,095 + 0,249 \cdot ri_{t-2} + 0,257 \cdot ri_{t-1} + \varepsilon_t$ $ri_t = 0,110 + 0,226 \cdot rd_{t-1} + \varepsilon_t$
February 1999- February 2012	$rd_t = 0,094 + 0,251 \cdot ri_{t-2} + 0,258 \cdot ri_{t-1} + \varepsilon_t$ $ri_t = 0,11 + 0,226 \cdot rd_{t-1} + \varepsilon_t$

Source: own computations using EViews.

ANNEX 2

One-step-ahead forecasts based on econometric models and the techniques of exponential smoothing or moving average techniques

One-month-ahead forecasts based on VAR(2) models

	January	February	March
Inflation rate (ri) (1999=100)	29,06 %	29,12 %	29, 17 %
Interest rate (rd)	2,156 %	2,163 %	2,176 %
Unemployment rate (rs)	7,002 %	7,1 %	7,15 %

Inflation rate (%)	VAR	ARMA	Model with lags	Effective values
November	29,12783 %	28,55084 %	28,83468 %	28,71 %
December	29,18881 %	28,68428 %	28,95068 %	28,78 %

Interest rate (%)	VAR	ARMA	Model with lags	Effective values
November	2,055 %	3,896 %	5,59 %	5,47 %
December	2,138 %	4,58 %	6,5 %	4,97 %

One-month-ahead forecasts based on ARMA models

	January	February	March
Inflation rate (ri) (1999=100)	28,83 %	29,027 %	29,7047 %
Interest rate (rd)	2,626 %	2,148 %	2,146 %
Unemployment rate (rs)	7,053 %	7,18 %	6,7872 %

One-month-ahead forecasts of inflation and interest rate based on inflation rate from the previous period

	January	February	March
Inflation rate (ri) (1999=100)	29,02 %	29,016%	29,641 %
Interest rate (rd)	2,085 %	2,42%	2,09 %

One-month-ahead forecasts based on the techniques of exponential smoothing or moving average techniques

Inflation rate (%)	M1	M2	M3	M4	M5	M6 (n=10)
January 2012	28.78155	28.888	28.712	28.856	28.795	28.616
February 2012	28.78155	28.988	29.136	29.0486	28.843	28.652
March 2012	28.78155	29.088	29.162	29.094	28.891	28.727

Unemployment rate	M1	M2	M3	M4	M5	M6 (n=10)
January 2012	0.07	0.070	0.0710	0.0709	0.0695	0.0727
February 2012	0.07	0.07025	0.0702	0.07034	0.0684	0.073
March 2012	0.07	0.0703	0.0704	0.0705	0.0674	0.0655

Interest rate	M1	M2	M3	M4	M5	M6 (n=10)
January 2012	0.0497	0.0444	0.0466	0.0532	0.0514	0.043
February 2012	0.0497	0.0392	0.0324	0.0714	0.0519	0.0422
March 2012	0.0497	0.034	0.0267	0.0612	0.0523	0.0409

Source: own calculations using Excel.

ANNEX 3

Combined forecasts and predictions based on historical accuracy indicators for inflation and interest rate
Combined forecasts

Inflation rate (%)	Combined forecasts VAR(2) and ARMA	Combined forecasts VAR(2) and models with lags	Combined forecasts models with lags and ARMA	Effective values
January 2012	28,690	28,519	24,783	28,899
February 2012	28,688	23,340	23,494	29,525
March 2012	28,660	28,171	28,651	29,402

Interest rate (%)	Combined forecasts VAR(2) and ARMA	Combined forecasts VAR(2) and models with lags	Combined forecasts models with lags and ARMA	Effective values
January 2012	4,144	4,087	3,448	2,83
February 2012	2,876	2,663	2,761	2,78
March 2012	4,773	4,682	4,132	2,72

Historical indicator of accuracy	Monthly inflation forecasts (January 2012- March 2012) based on accuracy indicators of predictions made two months ago		
	VAR	ARMA	Model with lags
January 2012			
MPE	29,19383	28,65237	28,92783
ME	29,19	28,65	28,93
MAE1	29,19	28,91	28,93
MAE2	28,37	28,65	28,63
RMSE	29,07248	28,86416	28,85691
February 2012			
MPE	29,06457	28,69778	28,92559
ME	29,06	28,70	28,93
MAE1	29,06	28,78	28,95
MAE2	28,50	28,78	28,61
RMSE	28,87652	28,78696	28,80189
March 2012			
MPE	28,78129	28,62225	28,71235
ME	28,777	28,617	28,707
MAE1	29,182	28,899	29,02
MAE2	28,616	28,899	28,778
RMSE	28,99397	29,02389	29,03383

Historical indicator of accuracy	Monthly interest forecasts (January 2012- March 2012) based on accuracy indicators of predictions made two months ago		
January 2012	VAR	ARMA	Model with lags
MPE	2,204045	4,468382	6,371962
ME	2,35	4,49	6,30
MAE1	5,18	5,47	5,59
MAE2	5,76	5,47	5,35
RMSE	5,31122	6,784788	6,64765
February 2012			
MPE	1,686706	2,616964	2,893104
ME	0,00	2,44	4,36
MAE1	1,75	2,74	3,97
MAE2	3,91	2,92	1,69
RMSE	7,06725	2,926858	4,277963
March 2012			
MPE	2,140454	2,363802	2,234081
ME	2,18	2,41	2,28
MAE1	2,75	2,99	2,59
MAE2	2,81	2,57	2,97
RMSE	3,197483	3,00052	3,122313

Source: own calculations using Excel.

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The advantages and backdraws of the flat-rate personal income tax

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Abstract. It is not an easy task for governments fighting with economic and socio-political issues to establish a suitable tax system. International and national economists argue for and against the introduction of the flat-rate personal income tax. As the practical implementation of the flat-rate tax system and the experience related to it are not uniform, it is rather difficult to generalise.

My aim is to analyse what underpins most often heard pros and cons by describing the practice in some of the neighbouring countries. After that I give an overview of the relationships that further the application of the flat-rate personal income tax in Hungary. I also take some factors into consideration on the basis of which certain amendments to laws are difficult to justify. I will describe the process of how the national linear (flat-rate) personal income tax system was established, as well as, how tax revenues may be affected by amendments to laws.

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INTRODUCTION

When comparing the individual tax systems and considering their advantages and drawbacks, the following factors should be taken into account:

– Effect on work and performance.

Tax-payers do not react to the increase in tax burdens in the same way: some of them are incentivised to work more, others would rather prefer free-time; some others do not really deal with their actual income when building up their careers; instead typically enough they opt for tax evasion.

– Effect on savings and consumption.

People with lower incomes spend the majority of their incomes on consumption, although with increased progressivity the savings of those with higher incomes also decrease. It may result in a decline of investments. Willingness to save may rise if the tax rates are lower (Erdős, 2006).

- Effect on the size of tax incomes.

To ensure budgetary revenues the state cannot miss a major part of tax incomes. When more incomes are needed, a simple solution is to increase the tax rates. Practice shows various solutions, often contradicting all the previous theories (see subchapters).

- Effect on simplifying the tax system.

The main argument of those supporting the linear (flat-rate) tax is to emphasise the simplification of the system. Undoubtedly, the transparency of the tax system means competitiveness, especially in case of a moderate tax rate. Administrative burdens may decrease; tax collection may become more efficient. More tax-payers can be controlled, which – in addition to predictability – may lead to a decrease in the black economy. A growing number of tax-payers and/or a higher tax base may have a positive effect on tax incomes.

THE THEORETICAL APPROACH OF THE FLAT-RATE PERSONAL INCOME TAX

Until the 19th century the flat-rate method was widely used, after that progressive tax systems according to brackets gained popularity. In Hungary they were launched as a part of the 1909 tax reform attached to the name of Sándor Wekerle, but they entered into force only in 1922 (Burján et al, 2007). At present developed regions use a progressive tax system. It is also the same in Europe, although the picture is more diversified, because the member states of the EU insisted on the independence of their personal income tax system in the course of the tax harmonisation processes.

Due to the complexity of the systems, at the beginning of the 1980s Robert Hall and Alvin Rabushka (1995) supported the simplification of the system. They suggested that 19% rate should be imposed on all incomes; while families with incomes under 25,000 USD should be exempt from taxes. In their view the implementation of the principle of fairness is the task of the social policy not that of the tax policy. With the help of the flat-rate system considerable administrative costs can be saved (Rabushka, 2006), there is no need for tax returns, moreover, a more transparent system may also be controlled more efficiently. A classic version of a flat-rate system taxes incomes in the same way, independently of their sources: the personal income tax rate and the corporate income tax rate are the same. In practice the “flat-tax” is regarded as a type of income tax. However, according to the authors, it is closer to taxes levied on consumption, as it does not tax the accumulation of capital, or even by involving early child-care allowance that of human capital (Bauerné, 2010).

In addition to the above-mentioned facts, professional literature mentions several advantages of the flat-rate income tax, although the experiences in countries where it was launched are not homogeneous. For giving an overview of the possible advantages I regard the use of modal verbs expressing possibility to be necessary.

By the application of the flat-rate income tax:

- The tax system may become more simple (when not complicated by tax base corrections and tax allowances),
- It may encourage performance (if the tax rate is not too high),
- It may decrease tax avoidance (if the tax rate is low enough so that the tax-payer will not risk especially in case of an efficient control),
- Employment may rise (compound effect, it is influenced not only by the tax system),
- The tax incomes may rise (if one of the previous facts is implemented),

- Bureaucracy may be reduced (controlling and recording of a more transparent system requires a smaller apparatus),
- It may enhance economic growth (compound effect),
- It may enhance savings and investments,
- The country may become competitive (it is also a compound effect, but in the case of a well-structured and transparent system this comparison is more simple, and may be more attractive with a relatively low tax burden.

The flat-rate personal income tax (in addition to the application of a tax exempt bracket) is vertically unfair; therefore its opponents regard this as one of its drawbacks. This factor can especially become important, when – compared to the previous tax burden – the flat rate results in a surplus burden in the lower wage categories, while it leads to a tax cut in higher ones.

Changes in net incomes may lead to an increase in social tensions. This effect may be reduced with the help of correction items, although it may cause the system to become more complex. According to the supporters of the progressive personal income tax, in the era of modern information technology, it is not the brackets and the rates that should be emphasised, but ensuring the transparency of the tax law.

The effect on the tax incomes is very difficult to model. With a relative low tax rate tax revenues must decline in the short-run, a rise can be predicted only with some careful estimate in the long-run. The successful operation of a tax system highly depends on the tax payment willingness of tax-payers. This fact shows differences according to countries, at the same time a predictable tax system may influence the tax payment willingness in a positive direction by efficient control and/ or strict sanctions.

The applicable tax rate should be revised from the aspect of competitiveness among the advantages, because the yields of “the tax reduction rivalry” among the countries with a more comparable tax system for investors offer three opportunities for the budget.

With reference to the flat-rate system the notion of the tax cuts always emerges. In spite of the fact that the empirical verification of the relationships is unknown, the thesis by Arthur Laffer is often referred to according to which in case of a growing tax rate the tax revenues do not rise, but fall. However, in the course of econometric analyses Mária Lackó (2009) states that a reduction in the size of tax will not result in a rise in the tax revenues together with the tax variable combined with corruption according to the pattern of the Laffer-curve.

Based on the above-mentioned facts I think that the expected effects of the transition to the flat-rate system are very difficult to predict, even in a stable fiscal environment.

THE FLAT-RATE PERSONAL INCOME TAX IN EUROPE

The European Union proposes its member states a cut in (direct) taxes imposing a burden on wages and salaries and companies' profits, as well as, a rise in (indirect) taxes levied on consumption and green taxes. In addition to this, it is also an obvious aim to ensure the adequate amount of tax revenues – if possible by widening the tax base. The World Bank calls for an application of a stable and predictable tax system in addition to decreasing the administrative tasks (and costs) (Kiss et al, 2008).

Taking the compliance obligations into account, the amendments to income tax laws in the European countries can be traced back to three factors that are often related to each other: achieving/ preserving a more favourable position in the tax competition due to globalisation, reducing the taxes imposed on work, requiring the simplification of the tax system. These driving principles appeared in the flat-rate tax reforms of the East European countries (outside the EU) (Tonin, 2006).

It was first the Baltic countries that opened into the direction of the flat-rate system. In the pioneer Estonia the new 26% personal income tax rate approached the average of the previous progressive system, and also the corporate income tax rate decreased to the same amount by 9%. In Lithuania and Latvia the new rate of the personal income tax was implemented at the highest rate applied previously, which meant a higher tax burden than that of companies. The common feature about the tax reform of the three countries is that they chose a relatively high tax rate for transforming the personal income tax system. In Lithuania the limit of the tax-free incomes was tripled, it was also slightly raised in Latvia, while in Estonia the amount of tax has been reduced in recent years, in Lithuania it is only 15%. Besides the numerous advantages of simplifying the tax system, its positive effect on the tax revenues is disputable. In Latvia there was a significant fall after a rise in the beginning, and the crisis led to an extremely sharp decrease. In November 2009 the IMF proposed Latvia to abolish the flat-rate system (Figyelő, 2009).

Table 1

The introduction of the flat-rate personal income tax in Europe

Country	Flat-rate adopted	PIT rates before	PIT rate after	PIT rate in 2011
Estonia	1994	16-33	26	21
Lithuania	1994	18-33	33	15
Latvia	1995	10-20	25	25
Russia	2001	12-30	13	13
Serbia	2003	10-20	14	15
Slovakia	2004	10-38	19	19
Ukraine	2004	10-40	13	17
Georgia	2005	12-20	12	12
Romania	2005	18-40	16	16
Macedonia	2007	15-24	12	10
Montenegro	2007	16-24	15	12
Bulgaria	2008	10-24	10	10
Czech Republic	2008	12-32	15	15
Hungary	2011	17-32	16	16

Source: based on Gubucz (2010) in Balogh et al (2010) and KPGM (2011).

AFTER THE BALTIC STATES RUSSIA ALSO SWITCHED TO THE FLAT-RATE PERSONAL INCOME TAX

In contrast with the practice of the three countries, the size of the personal income tax was determined at a very low level. Before a sharp decrease in the tax rate – 13% flat rate – the average effective tax rate amounted to 14% in addition to the 12-30% progressive personal income tax rate. In spite of the flat rate progressivity partly remained, because the law ensured tax exemption up to 4800 roubles (Balogh et al, 2010). As a part of a comprehensive tax reform first of all the widening of the tax base led to a surplus income. An increase in the efficiency of the tax collection and that of control also enhanced the people's willingness to pay taxes. A curiosity of the Russian tax reform is that the difference between the personal income tax rate and the corporate income tax rate did not decrease but increase, the 37% tax imposed on corporations was regarded as extremely high. The tendency to reduce taxes was also predominant; since 2009 the corporate income tax rate has been 20%.

At the beginning of the 21st century the number of countries opting for the flat-rate personal income tax increased: Serbia, the Ukraine, Slovakia, Georgia and Romania also voted for it.

The 19% flat-rate tax that is uniformly applied to all tax types was introduced in the neighbouring Slovakia in 2004. Due to the foreign direct investments the economy showed a recovery, unemployment fell and compared with the previous year the tax incomes increased. In spite of these facts the relationship between cause and effect is not so clear. Investments in the car industry had already started in 2001, therefore the tax reform cannot have initiated the revival of the expansion, although it must have contributed to it later (Pogátsa, 2009). By launching a flat rate the tax allowances were dramatically cut, and as a result of this the tax burden on a considerable number of tax-payers has increased, in spite of the relatively high tax exempt bracket. In addition to determining a single rate, the government also started transforming the redistribution in order to ensure fiscal stability. At the same time, the tax reform was a part of a complex reform package. Within 10 years the GDP-related tax centralisation in Slovakia dropped by 8% to 29%, it was lower only in Romania and Latvia, while in Hungary the amount of redistribution exceeded this level by 10% in 2009 (Eurostat, 2010). Slovakia was able to launch the euro only by applying a consequent economic policy; therefore it also sharply reduced the expenditure side.

The Slovak example was also regarded as a key to success by many people in the neighbouring countries, first of all predicting an increase in tax income due to job creations resulting from tax cuts, although the PR-effect of the tax cuts was much stronger than its real economic consequences (Pogátsa, 2010).

The countries joining the trend include Montenegro, Macedonia, Albania, Bulgaria, the Czech Republic and since 2011 at last Hungary.

In the background of the decision the above-mentioned countries set similar objectives: decreasing tax avoidance, reducing administrative costs, enhancing employment, and as a possible positive result of all this increasing the tax revenues. The introduction of the flat-rate tax in the above-mentioned countries was not implemented in the same way, although the measures related to the transformation can be grouped according to the following factors:

- Imposing a flat rate on the major tax items (PIT, CIT, VAT) (Slovakia).
- The same size of the personal income tax and the corporate income tax (Latvia, Estonia, Romania, Macedonia).
- The personal income tax has become flat, but due to the allowances and/or a tax exempt bracket the tax burden of the incomes is not the same (in each country except Georgia).
- There is a flat-rate personal income tax without allowances (Georgia).

The above facts show that in the majority of the countries introducing a flat tax rate there was a linear tax burden. In general, it was important to maintain the tax exemption of the lowest incomes, and occasionally reinforce other – first of all – social elements through the tax system. For example in Romania tax allowance can be claimed on the basis of the tax-payer's health state and the number of dependents provided for by the tax-payer (Herich et al, 2010).

Several people tried to verify the effect of the flat rate tax system on the tax revenues, a comparison was made only for 2 years (Keen et al, 2006). Sometimes the studies describing the individual countries have come to controversial conclusions (Halmosi, 2008), therefore the significance of the positive effect cannot be justified.

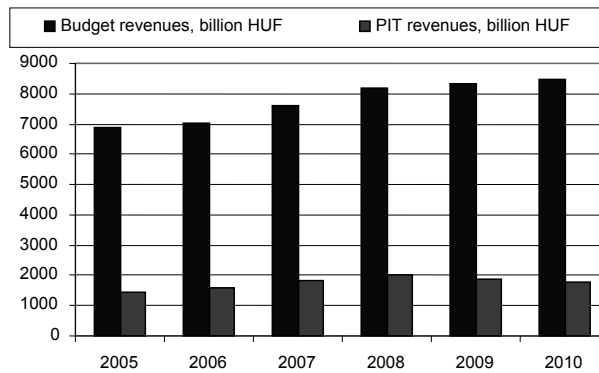
Summing up the experiences of the countries introducing the flat-rate tax system, it may be stated that the greatest advantage of its launch is not expressively the flat rate, but through it the system can be made more simple and transparent. By lowering the allowances administration has been simplified and by the abolition of (at least a part of) the loopholes the tax base could be widened. Mainly those reforms are successful, in case of which the labour costs decrease, incomes from work and capital are taxed in the same way, and the tax reform is implemented as a part of a comprehensive economic political restructuring. A (more) predictable tax political environment was more attractive for the investors.

The crisis revealed serious problems in countries with a flat-rate tax. Among the actual measures returning to the progressive taxation also emerged (Slovakia, Romania). The IMF proposed it to Latvia because of a decrease in tax incomes, while it was not introduced in Poland in spite of the proposals.

Since 2010 there have also been investigations in Finland relating to the introduction of the flat-rate tax as a result of the growing number of Estonian employees, and foreign capital investments in Estonia (Vörös et al, 2010). At present the classic Scandinavian welfare model is effective in Finland – high taxes, serious social benefits – in this way applying the tax political solutions of the East-European transition states would be surprising for many people.

THE ENVIRONMENT OF TAXATION BEFORE THE LAUNCH OF THE FLAT-RATE PERSONAL INCOME TAX IN HUNGARY

The proportion of the personal income tax among the budgetary revenues was increasing until 2008, after that it started to fall.



Picture 1: Personal income tax revenues in budget revenues between 2005 and 2010

Source: Own design based on data from the Hungarian Statistical Office¹.

In 2009 the amount of the declared incomes stagnated as a result of the crisis. The changes in tax burden may be traced back to the changes in the legal environment. The general tax burden on incomes belonging to the aggregate tax base was affected and changed by the system of allowances.

Table 2

The formation of the declared incomes and the average tax burden

	2005	2006	2007	2008	2009	2010
1	2	3	4	5	6	7
Incomes in consolidated tax base, billion HUF	6391	7001	8048	8670	8301	8471
Tax of consolidated incomes, billion HUF	1207	1332	1503	1636	1503	1384

¹ http://portal.ksh.hu/pls/ksh/docs/hun/xstadat/xstadat_eves/i_qse006c.html?144 (updated: 09.01.2012)

1	2	3	4	5	6	7
Tax burden %	18,9%	19,0%	18,7%	18,9%	18,1%	16,4%
Incomes taxing separately, billion HUF	644	753	945	580	574	402
Tax of incomes taxing separately, billion HUF	126	155	186	154	139	101
Tax burden %	19,6%	20,6%	19,6%	26,5%	24,3%	25,2%

Source: based on data from the Hungarian Tax Authorities².

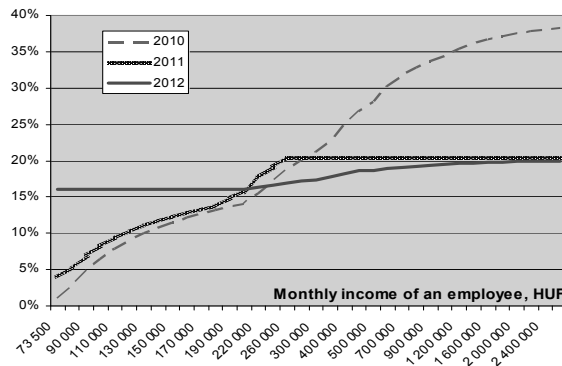
Although in Hungary the flat-rate personal income tax was launched only in 2011, the personal income tax system had already been approaching the flat-rate system. Considering the amendments to laws in recent years, regarding there was actually one rate attached to the lower bracket that played a role with regard to both tax-payers and the declared incomes.

In 2009 a higher tax rate meant a burden for 29% of the tax-payers. However, in 2010 as a result of the fact that the bracket was extended to 5 million Ft, 90% of the tax-payers paid a lower 17% rate. Less than 40% of the declared incomes belonged to the lower tax bracket in 2009, a year later more than two-thirds of the incomes fell into this bracket.

The effect of introducing the linear (flat-rate) tax in Hungary has been modelled in several research works. According to a study by Benedek – Lelkes (2006) applying a flat-rate personal income tax system might cause a significant change in the redistribution system.

THE PROCESS OF LAUNCHING THE LINEAR (FLAT-RATE) PERSONAL INCOME TAX

Since the change of government in 2011 when computing the personal income tax a 16% flat-rate has had to be imposed. Due to the tax credits the tax burden has become neither linear nor 16% as a result of “super-grossing” tax base correction (1,27) from the previous year. Therefore, the maximum amount of tax liability amounts to 20.32% in case of annual incomes (over 3,962,400 HUF) ineligible for tax credits.



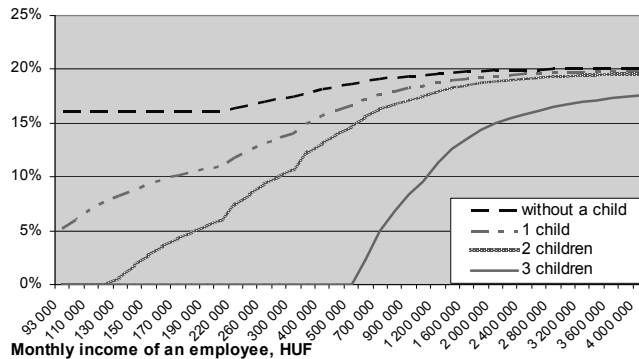
Picture 2: The formation of the proportion of tax burdens (2010-2012)

Source: Own design based on the amendments to Act CXVII/ 1995.

² http://www.apoh.hu/magyar_oldalok/adostatisztika/szja_111017.html (downloaded: 22.10.2011)

By phasing out the tax credit since 1st January 2012 progressivity has decreased, in compliance with the effective regulations the tax base should be further supplemented in case of incomes belonging to the aggregated tax base and exceeding 2,424,000Ft annually.

By abolishing the tax credit and phasing out the super-grossing tax base in 2013, the linear personal income tax may be implemented. Due to allowances to families there may be large differences in tax burdens as a result of the number of dependents (Picture 3), in this way the net income of people with children is considerably higher than that of their colleagues without children.



Picture 3: The tax burden with regard to the number of dependents (2012)

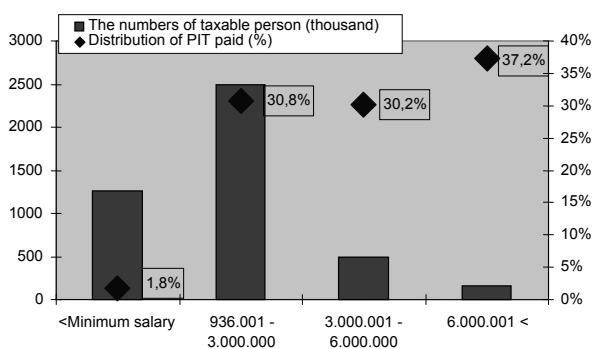
Source: Own design based on the amendments to Act CXVII/1995.

Allowances after children may seem to be a tax for childless people, although we must not forget about self-provision through generations besides the problems of the pension system. (Ambrusné, 2010). Studying the constitutional principles of public burden, Klicsu László (2008) came to the conclusion that the principle of taxation according to performance may be implemented by allowances after children.

Among the measures towards simplification the flat rate is an important parameter. Its greatest role is to tax incomes from different sources in almost the same way, because since 2011 the majority of incomes taxed separately have been taxed at 16%, therefore regulations for computing the advance tax payment and those for filing tax returns may become simpler.

THE EFFECT OF LAW AMENDMENTS ON TAX INCOMES

Decreasing the proportion of the personal income tax burden among the budgetary revenues must continue due to amendments to tax laws. Figure 4 presents that in 2010 more than two-thirds of the tax revenues derived from the payments of people with more than 3 million Ft income. As a result of the amendment to the laws, the tax burden of these incomes has been much lower since 2011. Thus, the amendment favours a smaller group of tax-payers, while it misses a considerable tax income.



Picture 4: The number of those who declare their incomes and the distribution of taxes paid by them according to income categories (2010)

Source: Own design based on data³ by the National Tax and Customs Administration of Hungary (NAV).

On the basis of the above-mentioned facts it is not surprising that in 2011 the amount of the collected personal income tax decreased by 404 billion Ft, as a part of which the launch of allowances for families led to a 156 billion Ft reduction. Based on the effective law for the year 2012 the budgetary revenues are expected to include a 13.8% revenue from personal income tax (Table 3).

This is mainly due to the abolition of the tax credit, when wages and salaries grow by 4% on average. Maintaining the level of the net wages and salaries would be ensured by a significant rise in the minimum wage and the guaranteed wage minimum, as well as, the application of a new – extremely complicated – compensation system⁴. In spite of the fact that the employers' cost increase would partly be offset contribution allowances, some companies are unable to increase wages and salaries according to the government decree on expected wage rise.

Table 3

Changes in revenues from personal income tax and tax burden

	2010. actual	2011. objective	2012. objective
Revenues from PIT, billion Ft	1767,9	1363,0	1550,7
General tax burden of aggregate incomes %	16,4	13,3	15,1
The proportion of PIT among budgetary revenues %	21,0	16,5	13,8
The proportion of PIT related to the GDP %	6,6	4,8	5,3

Source: Own design based on data from HSO⁵ and the Budgetary Plan⁶.

A lower level of revenues from personal income tax would be –first of all - replaced by the budgetary objective by increasing taxes on consumption. Besides the predicted rise in turnover a 27% tax rate was launched in 2012, which is the highest in Europe at present. In order to change the structure of tax cuts, as

³ http://apeh.hu/data/cms199863/sajtotajekoztato_20110913_tao_szja_eva.pdf (downloaded: 13.09. 2011.)

⁴ http://nav.gov.hu/data/cms211509/utmutato_elvart_beremeleshez_0102.pdf (downloaded: 12.01.2012)

⁵ http://portal.ksh.hu/pls/ksh/docs/hun/xstadat/xstadat_eves/i_qse006c.html?144 (updated: 09.01.2012.)

⁶ <http://www.parlament.hu/irom39/04365/adatok/fejzetek/42.pdf> (downloaded: 09.01.2012.)

well as, replace the missing revenues from personal income tax, excise duties were sharply raised in several steps and some new taxes (e.g. national health tax on consumption) were launched.

CONCLUSION

The supporters of the flat-rate tax emphasise the proportional tax burden and the simple system. Regarding the personal income tax a single rate is rarely applied. In countries that choose this method, the amount of tax is so low that there is no need for other allowances. The different correction items may decrease the transparency of the system. In some countries tax credits do not depend on income limit, therefore in spite of the flat rate the tax system is progressive. In a more complicated version people with higher incomes are excluded from the benefits. Because of the abolition of tax credits, the marginal tax rate will be higher, and above the income limit the tax will be linear. Romania also applies a model similar to that of Hungary. As a result of the correction items the average tax rate is not constant. Simplification may take place by the radical abolition of the allowances, even when applying a progressive tax system.

The proportional public burden may be supplemented by restructuring the tasks of the social welfare system with the aspect of fairness. Tax avoidance can be decreased by a reasonably chosen tax rate, as well as, by efficient control. The amount of this is very difficult to estimate. Even a consequent tax policy can influence a change in the tax morale with difficulty. However, many people agree that both employers and employees are interested in avoiding taxes due to the currently high tax wedge, therefore in addition to a cut in the personal income tax burdens only a reduction in the contribution burdens may lead to some considerable result.

The positive impact of the linear personal income tax on the recovery of the economy, as well as, a growth in the tax incomes in case of the investigated countries is not obvious. In addition to a growing GDP growth, the linear personal income tax is likely to become a tool for a successful economic policy. For ensuring competitiveness the restructuring of the tax system is a key but only one of the elements of the structural reforms.

When launching the flat-rate tax certain countries show similar features, yet there are some differences in the economic indicators. Comparison is extremely difficult, because the taxpayers come from a different economic and cultural environment, thus the consequences of the same (or similar) measures may differ.

With regard to the launching environment in Hungary, there should be a focus on the instable economic environment which especially makes the expectations related to the flat-rate tax system uncertain. During economic recession the budget may bear a significant reduction in the tax burdens only by sharply cutting expenditures. A predictable tax system that is in compliance with the social security system is an important pillar of the social security system.

It is a very complex issue to state whether the effects of the introduction of the flat-rate tax system result in positive changes. Predictions and even analyses following the launch are made difficult by the fact that the measure also involves tax cuts and is determined both in time and space and takes place in the actual external and internal economic environment.

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The degree of economic freedom in the context of resistance to economic instability in EU countries¹

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Abstract. The model of public regulation has an impact on different areas of the economy. The paper focuses on the aspect of the level of public intervention in the context of stability of economic growth. The aim of the research is to examine the statistical relationship between the degree of economic freedom (measured by Index of Economic Freedom) and the intensity of the reaction of the economy to the financial crisis of 2008 (measured by the standard deviation of the real GDP growth rate). The research hypothesis is the statement that such relationship exists. The study is based on data from 2007-2011 for European Union countries. The following methods were used in the paper: statistical description and comparative analyses.

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INTRODUCTION

The two major regulators of economic processes are market mechanism and public regulation. As a reason for state intervention in the economy it is usually considered such phenomena as allocative inefficiency of the market mechanism, economic instability and social inequalities, however there's no agreement among economists, what level of government intervention is optimal and the discussion on that issue has a long history. Thus, it is reasonable to undertake studies on the optimal degree of public regulation, because economic processes are dynamic phenomena, and also instruments of public regulation changes, so there is a need for redefining the factors important for the economy according to present situation. It is especially

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accurate while the world faces the financial crisis. Present situation shows, that Lukas's statement from 1995 about the end of the problem connected with crisis is solved was too optimistic (Krugman 2012).

The paper focuses on the aspect of the level of public intervention in the context of stability of economic growth. The aim of the research is to examine the statistical relationship between the degree of economic freedom (measured by Index of Economic Freedom) and the intensity of the reaction of the economy to the financial crisis of 2008 (measured by the standard deviation of the real GDP growth rate). The research hypothesis is the statement that such relationship exists. The study is based on data from 2007-2011 for European Union countries. The following methods were used in the paper: statistical description and comparative analyses.

DIFFERENT APPROACHES TO PUBLIC REGULATION

An issue related to the regulation of markets is setting the optimal level of regulation, since it is possible to overshoot the market. Adjusting the markets is connected with a cost of acquiring information, people involved in the regulation and control bodies and other transaction costs (increasing with increasing regulation size), as well as the costs associated with the risk of error (decreasing with the increase in the number of participants in the legislative process (Wilkin, 2005).

Among economists there is also no the consensus about the capacity of public institutions to solve market problems. Advocates of economic freedom raises the question of government failure, such as the submission of private interests by public decision-makers, cognitive errors, a delay in time between the moment of applying the solution and the moment of appearing the results, obtaining or neutralization effects of public regulations by the market players due to predictability of government action and many more (Datta-Chaudhuri, 1990).

The quality of public institutions is main theme of considerations in many economic theories. For example, in economic theory of regulation there was formulated the model of optimal distribution of the benefits of price regulation and control inputs (Peltzman model), which maximizes political support function, where P is the price of the product, and Π -profits made by the company represents a pressure group. With the existence of many interest groups, the price is not on the socially optimal level or at the level of monopoly price, but between them and the benefits of public regulation are shared in proportion to the bargaining power possessed (Peltzman, 1976). In the Becker's model, in turn, competition among pressure groups leads to a favorable adjustment for this group, which is able to achieve the greatest advantage, while other groups bear the costs of regulation (Becker, 1983).

Regulation models have many expansions, including "capture theory" (Stigler, 1971) and the concept of "rent-seeking" which indicates the possibility of enforcement by market players such public regulation, which actually protects them from competition (Crew and Parker, 2006). It shows that public regulation is not always a response to the failure of the market mechanism or economic instability. If public institutions are imperfect, it may raise the question about necessity of regulating the economy.

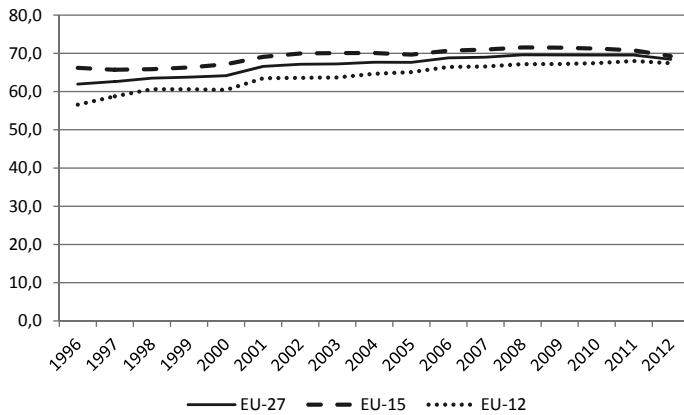
ECONOMIC FREEDOM IN EUROPEAN UNION

Public regulation includes many different areas of activity of public institutions. For measuring the scale of the activity of the state in the economy it might be used Index of Economic Freedom (IEF). IEF is an index published by The Wall Street Journal from 1995 year and is based on statistics from organizations like the World Bank, the International Monetary Fund, the Economist Intelligence Unit and various

government agencies, websites, news reports and journal articles. All data received from government sources are verified with independent, internationally recognized sources. In this index each country is rated on a scale from 0 to 100 points (where 100 is the maximum of economic freedom) according to the criteria divided into 10 categories (<http://www.heritage.org/index>):

- Business Freedom: measures the ability to start, operate, and close a business;
- Trade Freedom: measures the absence of barriers that affect imports and exports of goods and services;
- Monetary Freedom: measures price stability with an assessment of price controls;
- Government Spending: measures the level of government expenditures (including consumption and transfers) as a percentage of GDP;
- Fiscal Freedom: measures the tax burden imposed by government;
- Property Rights: measures the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state;
- Investment Freedom: measures the constraints on the flow of investment capital;
- Financial Freedom: measures banking efficiency, independence from government control and interference in the financial sector;
- Freedom from Corruption: measures the level of corruption (the higher the level of corruption, the lower the level of economic freedom score);
- Labor Freedom: measures the level of regulation of country's labor market.

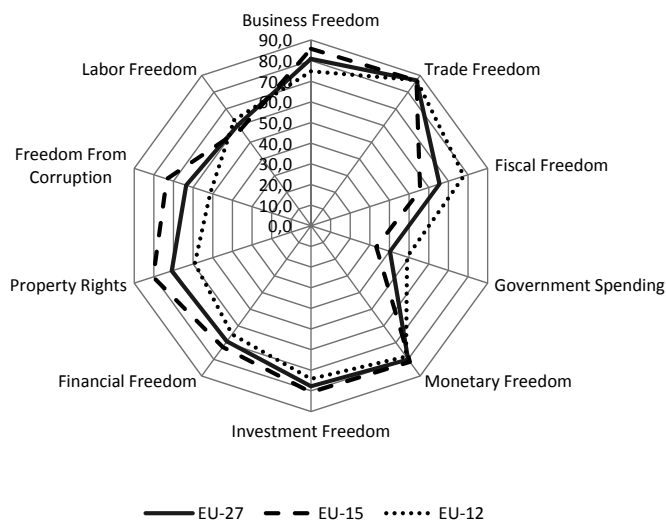
Total IEF is an average of scores obtained in the different areas by each country. The index was used in the research because of its complexity in terms of the impact of the public regulation on different areas of the economies.



Picture 1. The dynamics of IEF in European Union in 1995-2012

Source: <http://www.heritage.org/index>.

Picture 1 shows the dynamics of IEF in a period 1996-2012 in old and new members of European Union. The level of economic freedom generally shows an increasing trend, especially in EU-12 countries, however after financial crisis the economic freedom was slightly limited. The differences between old and new members decreases but “old” Union is still on the higher level of economic freedom than EU-12.



Picture 2. The level of IEF's components in European Union in 2012

Source: <http://www.heritage.org/index>.

Picture 2 shows the level of economic freedom in particular areas of government activity. The main differences between EU-15 and EU-12 appears in area of fiscal and government spending freedom, business freedom, the level of corruption and respecting the property rights. “Old” EU is more engaged in activities typical for welfare states but seems to show higher quality of public institutions (freedom from corruption) and also gives higher freedom for business activities undertaken by citizens. An analysis of relationship between this kind of differences and the level and stability of GDP in EU countries is the main aim of the next part of the paper.

THE RELATIONSHIP BETWEEN ECONOMIC FREEDOM AND THE LEVEL AND STABILITY OF THE ECONOMIC GROWTH IN EU COUNTRIES

The aim of this part of the research is to identify the statistical relationship between Index of Economic Freedom (and its components), the level of GDP per capita and the standard deviation of the real GDP growth rate in EU countries. In order to examine which countries (according to the level of economic freedom) have coped better with financial crisis of 2008, the study was conducted in the following stages:

- Checking of the level of economic freedom before the crisis (data from 2007);
- Checking of the level of GDP per capita in 2007 and the real GDP growth rate in a period 2007-2011;
- Calculating the standard deviation for the growth rate during the considered period to examine the intensity of instability of GDP during crisis period;
- Ranking the countries according to the intensity of the standard deviation;
- Calculating the Pearson's and Spearman's correlation coefficients for IEF, its components, GDP per capita and standard deviation of the GDP growth rate;

- Ranking the components of IEF according to its intensity of determining the level of GDP and the deviation from GDP growth rate.

Table 1 shows the level of economic freedom in 10 areas measured by IEF in the year before the crisis of 2008. Table 2 shows GDP per capita and the position in the ranking (first place means the highest GDP per capita), real GDP growth rate in period 2007-2011, standard deviation for the fluctuations of the rate and the position in the ranking (first place means the minor fluctuations).

The highest level of total IEF had Ireland, Denmark, Luxemburg, Estonia, The Netherland and United Kingdom. Last in the ranking were Italy and Greece. Except of Estonia, these are not the countries which has reacted most intensively to the financial crisis. The major fluctuation took place in following countries: Latvia, Lithuania, Estonia, Romania, Slovakia and Slovenia. The most stable situation was in Poland, Portugal, France and Belgium. There are also an interesting cases, where after strong decrease of GDP growth rate, the rate increased rapidly and reached the positive result in 2010 (Estonia, Lithuania). However, the ability to raising form the collapse doesn't provide the resistance to the fluctuations. It seems that total IEF doesn't have the major meaning for resistance of economies to the GDP growth rate instability. Correlation coefficients confirm that assumption.

Table 1

The level of Index of Economic Freedom and its components in EU countries in 2007

Country	Total IEF	Business Freedom	Trade Freedom	Fiscal Freedom	Government Spending	Monetary Freedom	Investment Freedom	Financial Freedom	Property Rights	Freedom From Corruption	Labor Freedom
1	2	3	4	5	6	7	8	9	10	11	12
Austria	71,9	81,7	86,6	50,3	24,7	86,0	70	70	90	87	70,1
Belgium	70,2	92,6	86,6	44,1	26,5	80,5	90	80	80	74	70,8
Bulgaria	64,9	70,3	70,8	82,4	57,8	75,8	60	60	30	40	79,8
Cyprus	73,3	70,0	81,6	79,4	44,8	84,7	70	70	90	57	70,0
Czech Republic	70,4	61,1	86,6	69,9	47,1	86,3	70	80	70	43	59,7
Denmark	78,6	94,8	86,6	34,2	12,8	86,8	80	90	90	95	99,9
Estonia	75,2	79,9	86,6	84,5	61,8	83,0	90	90	90	64	49,7
Finland	74,0	95,3	86,6	63,1	23,5	89,9	70	80	90	96	45,6
France	64,6	87,2	81,6	46,3	13,5	81,0	50	60	70	75	56,1
Germany	71,8	88,9	86,6	61,4	33,7	81,5	90	50	90	82	44,2
Greece	60,3	69,7	81,6	62,4	53,4	78,4	50	40	50	43	58,0
Hungary	66,6	70,2	86,6	68,8	26,8	76,6	70	60	70	50	68,7
Ireland	78,7	92,1	86,6	71,7	65,9	85,3	90	90	90	74	80,6
Italy	60,3	77,0	81,6	52,8	31,5	80,5	70	60	50	50	74,4
Latvia	65,8	74,5	86,6	83,9	61,3	74,2	70	70	50	42	66,9
Lithuania	71,3	84,3	86,6	86,5	70,8	81,1	70	80	50	48	57,3
Luxembourg	76,2	76,9	86,6	65,3	44,0	80,2	90	80	90	85	47,8
Malta	65,7	70,0	86,6	61,1	27,7	80,0	50	70	90	66	60,0
Poland	64,1	55,3	86,6	68,6	44,8	80,3	50	50	50	34	61,4

1	2	3	4	5	6	7	8	9	10	11	12
Portugal	64	78,6	86,6	62,3	35,4	80,4	70	50	70	65	41,5
Romania	64,7	73,2	84,0	85,9	71,0	69,7	50	60	30	30	58,0
Slovakia	69,5	70,7	86,6	89,5	53,7	76,6	70	80	50	43	76,1
Slovenia	64,6	72,9	86,6	54,6	30,9	78,9	70	50	50	61	41,2
Spain	70,2	78,0	86,6	55,2	54,8	78,5	70	80	70	70	49,3
Sweden	71,9	94,2	81,4	33,1	3,6	83,8	80	70	90	92	65,0
The Netherlands	74,7	88,4	86,6	48,8	34,9	87,2	90	80	90	86	62,7
United Kingdom	74,5	91,2	86,6	62	42,7	81,3	90	90	90	86	79,0

Source: <http://www.heritage.org/index>.

Table 2

The level of GDP per capita and real GDP growth rate in EU countries in 2007-2011

Country	GDP per capita (2007)	Position in the ranking	Real GDP growth rate						
			2007	2008	2009	2010	2011	Standard deviation	Position in the ranking
Austria	30 900	5	3,7	1,4	-3,8	2,1	2,7	2,62	10
Belgium	28 900	9	2,9	1	-2,8	2,4	1,8	2,03	4
Bulgaria	10 000	27	6,4	6,2	-5,5	0,4	1,7	4,38	20
Cyprus	23 600	14	5,1	3,6	-1,9	1,3	0,5	2,44	6
Czech Republic	20 700	17	5,7	3,1	-4,5	2,5	1,9	3,38	15
Denmark	30 600	6	1,6	-0,8	-5,7	1,6	1,1	2,77	12
Estonia	17 500	20	7,5	-4,2	-14,1	3,3	8,3	8,39	25
Finland	29 400	7	5,3	0,3	-8,5	3,3	2,7	4,83	21
France	26 900	11	2,3	-0,1	-3,1	1,7	1,7	1,97	3
Germany	28 900	10	3,3	1,1	-5,1	4,2	3	3,36	14
Greece	22 500	15	3,5	-0,2	-3,1	-4,9	-7,1	3,70	18
Hungary	15 400	22	0,1	0,9	-6,8	1,3	1,6	3,15	13
Ireland	36 600	2	5,4	-2,1	-5,5	-0,8	1,4	3,63	17
Italy	26 000	13	1,7	-1,2	-5,5	1,8	0,4	2,70	11
Latvia	14 300	24	9,6	-3,3	-17,7	-0,9	5,5	9,36	27
Lithuania	14 800	23	9,8	2,9	-14,8	1,5	5,9	8,43	26
Luxembourg	68 500	1	6,6	-0,7	-4,1	2,9	1,7	3,58	16
Malta	19 500	19	4,6	4	-2,4	3,4	1,9	2,52	8
Poland	13 600	25	6,8	5,1	1,6	3,9	4,3	1,69	1
Portugal	19 600	18	2,4	0	-2,9	1,4	-1,7	1,94	2
Romania	10 400	26	6,3	7,3	-6,6	-1,6	2,5	5,15	24
Slovakia	16 900	21	10,5	5,8	-4,9	4,4	3,2	5,01	23
Slovenia	22 100	16	7	3,4	-7,8	1,2	0,6	4,89	22
Spain	26 200	12	3,5	0,9	-3,7	-0,3	0,4	2,32	5
Sweden	31 200	4	3,3	-0,6	-5	6,6	3,7	4,02	19
The Netherlands	33 100	3	3,9	1,8	-3,7	1,6	1	2,51	7
United Kingdom	29 100	8	3,6	-1	-4	1,8	0,9	2,60	9

Source: own study on the basis of data from Eurostat.

Table 3 shows Pearson's and Spearman's correlation coefficients for Index of Economic Freedom, its components, GDP per capita and the standard deviation for GDP growth rate in EU countries. Pearson's correlation coefficient (r_p) measures the linear relationship between factors. For standard deviation negative result means, that the higher level of economic freedom is accompanied by a lower instability of GDP growth rate, therefore the minus result was treated as conducive factor for economic stability. For GDP per capita negative result means, that the higher level of economic freedom is accompanied by a lower level of GDP, therefore minus result was classified as not supportive for stability. Spearman's correlation coefficient (r_s) is based on the positions in the rankings, therefore positive result in all cases means the factor is supportive.

Table 3

Correlation coefficients for Index of Economic Freedom, its components, GDP per capita and the standard deviation for GDP growth rate

	Conductive			Unconductive		
	Kind of freedom	r_p	r_s	Kind of freedom	r_p	r_s
	Stability	Freedom From Corruption	-0,30	0,27	Fiscal Freedom	0,59
Property Rights		-0,30	0,14	Government Spending	0,54	-0,44
Monetary Freedom		-0,26	0,20	Financial Freedom	0,19	-0,11
Labor Freedom		-0,14	0,07	Total IEF	0,06	-0,12
Business Freedom		-0,01	0,00	Investment Freedom	0,07	0,02
Trade Freedom		0,05	0,03	Trade Freedom	0,05	0,03
Investment Freedom		0,07	0,02			
Level of GDP per capita	Conductive			Unconductive		
	Kind of freedom	r_p	r_s	Kind of freedom	r_p	r_s
	Freedom From Corruption	0,69	0,87	Fiscal Freedom	-0,44	-0,64
	Property Rights	0,61	0,74	Government Spending	-0,30	-0,51
	Investment Freedom	0,55	0,70	Labor Freedom	-0,06	0,08
	Total IEF	0,54	0,62			
	Business Freedom	0,43	0,66			
	Monetary Freedom	0,43	0,66			
	Financial Freedom	0,33	0,46			
	Trade Freedom	0,23	0,52			
Labor Freedom	-0,06	0,08				

Source: own study.

According to the calculations, the most conducive for resistance to GDP instability are: Freedom From Corruption, Property Rights, Monetary Freedom. Negative and relatively the strongest correlations has Fiscal Freedom and Government Spending. It suggest that welfare states economies are statistically more resistant to fluctuation of GDP growth rate, in condition of the high quality of public institutions. The correlation of Trade and Investment Freedom is not specified (contradictory results) and for other kinds of economic freedom the correlation is very low.

In case of the level of GDP per capita economic freedom seems to have greater importance. Freedom From Corruption, Property Rights and Investment Freedom are most correlated with GDP per capita. Also Business and Financial Freedom seems to be supportive for reaching the high level of GDP. There is negative correlation between Fiscal Freedom and Government Spending. Labor Freedom has contradictory results.

The common for the both areas (stability and the level of GDP) is positive correlation for Freedom From Corruption, Property Rights, Monetary Freedom, Business Freedom and negative correlation for Fiscal Freedom and Government Spending.

CONCLUSIONS

Public regulation in the context of the level and stability of economic growth is a complicated and wide issue, and it can't be simplified only to separated elements of economic policy. Such items as historical conditions or other elements of institutional environment can have a great importance. The correlation coefficients used in the article doesn't explain if components of IEF are the cause of resistance to economic instability. It might suggest however that that kind of institutional environment is supportive for the stability of economies. There are elements of economic freedom which seem to be conducive for both: high level of GDP per capita and the stability of GDP growth rate. These are: Freedom From Corruption, Property Rights, Monetary Freedom, Business Freedom. There are also two elements of economic policy (Fiscal Freedom and Government Spending) where high level of economic freedom doesn't seem to be a proper solution, at least in the countries with high level of development and high quality of public institutions. That issue requires further studies on individual cases and that's the direction of future researches.

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An input of european educational standards at higher school of Ukraine - modernisation of educational system

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Abstract. The article is sanctified to the problems of modernization of educational activity in Ukraine in the context of the European requirements. The necessity of harmonious combination of the European innovations and the best domestic traditions is considered.

Keywords: reform, higher education, Bologna process, educational standards.

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The processes of European integration embrace the all more spheres of public vital functions. Did not become an exception and education, especially higher school. Ukraine clearly defined a reference-point on included in educational space of Europe, carried out modernization of educational activity in the context of the European requirements. The primary objective of public policy in industry of education is conditioning for development of personality and creative self-realization of every citizen of Ukraine. Educational politics of Ukraine on the modern stage is based on principles of democratization and humanism, oriented to the achievement of world level of revival of original national character, native improvement of maintenance, forms and methods of studies of increase of intellectual potential of country¹. Tacking of our state to Bologna of agreement became a push for the row of reforms in educational industry. So, working on realization of order Department of education and science, to the young people and sport of Ukraine "About realization of pedagogical experiment from the credit-module system of organization of educational process", higher educational establishments passed to the second stage of pedagogical experiment. Today anybody does not have a doubt, that reformation of higher education is an objective necessity, and existent potential of the educational system of Ukraine not to a full degree answers the new necessities of society qualitatively. Exactly Bologna process became an educational brand and used as one of signs of our motion to European community.

During the last years the large volume of the advanced study is executed from the study of process of adaptation of the national system of education to Bologna process. The general issues of modernization of education and integration of Ukraine labours of V.Baydenko, V.Kremny are sanctified to in European

¹ Juravskyy, V.S., Zgurovskyy, M.Z. (2005), *Bologna process: main principles of included in European space of higher education*, Higher school, No. 5. , P.97.

space. Theoretical aspects of analysis of the educational systems, methodology of analytical comparisons, are the article of researches of K.Korsaka, V.Zubka. Bologna process is a process of recognition of one educational system other on European space. If the future of Ukraine is related to Europe, then it is impossible in future to assert that Bologna process has for us only an enlightening and cognitive value. The grant of high estimation to the national system of education must not calm us and restrain her deep reformation. V.Kremen underlines that at the same time participating of the system of higher education of Ukraine in Bologna transformations must be sent only to her development and acquisition of new quality signs, but not on the loss of the best domestic traditions, decline of national standards of her quality. Orientation on Bologna process must not result in excessive alteration of the domestic system of education.

Opposite, her state is necessary to be deeply comprehended, comparing to the European criteria and standards, and to define possibilities of her perfection on the new stage. Thus the evolution of the system of education it does not follow to dissociate from other spheres of society. She must develop in harmonic intercommunication with society on the whole, undertaking the role of him cultural explorer.

Beginning from 90th the phenomenon of the so-called europeanizing of on-line tutorials, that foremost called to guarantee the observance of educational standards and that entailed important changes in maintenance of curricula and programs of countries of Europe purchased popularity.

Modern on-line tutorials, plans and education materials of the European subjects, in the countries of Europe are based on conception of the European measuring in education that developed at the beginning of 90th, although knowledge about Europe in many countries of eastern and western Europe were traditionally part of on-line tutorials from many school objects, history, geography, foreign languages, articles of aesthetic cycle, civil education and humanity science. The modern European educational standards, on-line tutorials, textbooks, enter the all greater complex of concepts about Europe.

However, the idea of the European measuring today can not be limited by the specific scopes of educational objects. European measuring in education by the special school not objects, but is an educational orientation in modern education. This term means knowledge of traditions, culture, language, socio-economic position of the European countries. This concept includes confession of cultural variety, cultural heritage, civil values, and pluralism democracy also. Except that, a commonication on different languages is inalienable part of the European measuring. Commonications in different planes on the local and international levels of all participants of educational process by means of the most modern facilities(Internet, correspondence, exchanges, an e-mail by information, general multimedia projects and others like that) also provide support of the European measuring in an action.

Concrete introduction of maintenance of European education is the result of three fundamental principles, that European pedagogical society, introduction of international standards of education, adheres to; education is on the basis of general cultural values that are based on European traditions; formation of tolerance, respect to the difference, collaboration, respect of human rights and fundamental freedoms, and development of possibilities for life in democratic society.

The European subjects in maintenance of higher education of many European countries are effectively entered by bringing in of students and teachers in the numerous programs of European Union and CE. The feature of the east Europe countries is that, that, as these countries not so a long ago entered to European Union, the European subjects need bringing in of greater efforts and resources here, than in the West-European countries. Except that, in the east Europe countries the change of on-line tutorials the European measuring needs considerable money for the corresponding retraining of pedagogical shots, certain alteration of link of higher education and row of administrative measures. Success of becoming of Ukraine with European space depends on that, how the system of education reacts on the necessities of society of present time, in fact modern Ukrainian education put before itself sweep to assist development of democratic cul-

ture, forming, necessary for a residence in the European concord of competences, to acquisition of necessary for this purpose political and socio-economic knowledge. Priorities of European education consist in a grant to the young generation of knowledge about the general European inheritance and practical abilities to adapt oneself to life and studies in the different countries of Europe, to be mobile, socially capable, apt at communication and protection of the rights.

Taking into account irreversibility of Bologna process, we must realize that for our system of higher education he is very not simple. We are heavier, than to any other country that does not have such deep traditions in industry of fundamental natural and engineering education, to join to many European decisions, leveling own centuries-old revisions in this industry. The strategic task of reformation of higher education in Ukraine is transformation of quantitative indexes of educational services in quality. This transformation process must be based on such principles:

- To the national idea of higher school, maintenance of that consists in maintenance and increase of national educational traditions. Higher education is called to bring up the citizen of the state of Ukraine, harmoniously developed personality for that a requirement in fundamental knowledge and increase of general and professional level is associated with strengthening of the own state;
- Development of higher education must submit to the laws of market economy, that is to the law of changeableness of labor and law of competition, as an economic sphere is exceptionally important in forming of logic of community development. In fact Ukraine has a high index of form of citizens, that presents 98%%. Here we have obvious contradiction between human potential and rates of the economic converting into a country. At the same time it is necessary to take into account no less important factors - social, political, spiritual life, public consciousness, culture and morally-psychological values. Considerable part of problems that accumulated in the system of higher education, related first of all to the disbalance of complex of the marked factors of public transformations;
- coming to a head necessity substantially to correct the orientation of educational process . The world entered in a period when change of generations of people. From here obviously, that to teach a child it is impossible for life, that is why not necessary to erect studies only to mastering a student or student of certain volume of knowledge. Except this function of educational process, there is a task to teach independently to study, to seize new information, to produce for a student or student vitally important for him competences. Education must prepare a man, percipient changes, to create them, consider changeableness as organic constituent of own way of life. Innovative character of modern civilization and economy needs innovative type of man that innovative after the essence education can form only;
- modernisation of higher education it follows to examine in the context of progress of the world educational systems trends, including European. In particular, to bring a legislative and normatively-legal base over of higher education and her constituents, put in order the list of specialities, revise maintenance of higher education : to provide information of educational process and access to the international informative systems. It is necessary to be oriented higher school not only on market specialities but also to fill with maintenance of higher education the newest materials, inculcate modern technologies of studies with the high level of informatization of educational process, to go out on creative, business connections with the customers of specialists.

We advise to pay attention to **main factors of optimization of education**, in connection with integration of Ukraine there is European elucidative space.

For the first, **making alteration is envisaged to the current legislation** that regulates functioning of higher school. There is a base law on education. But they need changes that is dictated as by present terms, so by the perspective necessities of the state already.

For the second, on the first plan **quality of education guarantees** are pulled out. It is expedient in this connection to notice that without regard to the achievements of home education, that is provided by the new socialistic system, she, however, became less quality, and quite a bit graduating students of higher educational establishments uncompetitive at the European market labours.

The important moment of restructuring of educational process is an input of innovative technologies. The decision of these tasks is sent to:

- transition from pedagogical traditionalism to the new forms and methods of studies of oriented to forming of creative personality, that is able to combine theoretical knowledge in different variants, scientific achievements with the decision of questions that arise up in practice;
- an increase of creative activity of students is during audience employments by introduction of business and role-play games, of the playing planning, “keys-methods”, seminars of briefing, video of training and others like that;
- strengthening of motivation of students is to independent work with the aim of deepening of knowledge and receipt of abilities and skills;
- providing of through computerization of educational process and creation of the computer(informative) systems of his support;
- intensification of educational process with the aim of reduction of audience employments after participation of teacher at a grant to quality of educational process;
- development of interactive complexes of the educational and methodical providing of discipline (ICEMPD) and others like that.

It should be noted that for years independence, in connection with modernisation processes in a country, and at higher school in particular, by the change of curricula of directions and specializations, set time there were problems with the educational and methodical providing of educational disciplines².

Just our higher education only in engineering brought up the inventor of helicopters Igor Sikorsky, discoverer of space of Serhij Korolyov and Volodymyr Chalomeia, designer of unsurpassed aviation engines Arhup Liul’ka, founder of electronics Benziol Vul, she gave to the world of high-speed transport on a magnetic pillow. And this list can be long continued.

Therefore new calls we must accept not only carrying experience of other states on our soil but also offering to the European concord the revisions, achievements, suggestions, vision of problems. It is needed to attain harmonious combination of the European innovations and the best domestic traditions But we must frankly admit that in the last few years in the field of higher education of Ukraine, especially technical, thorny problems the decision of that remains be on the agenda accumulated, even without regard to a presence or absence of such factors, as Bologna process.

It is envisaged that gaining end of Bologna process is possible in Ukraine within the limits of decision of such basic tasks, as an input of the clear for Europe system of diplomas, degrees, academic qualifications, introduction of the two-stage system of higher education, use of the single system of credit units, forming of the European system of standards of quality of studies and professional preparation with application of comparative criteria, mechanisms and methods of evaluation and removal of barriers on the way of mobility of students, teachers, researchers and managers in industry of higher education.

On an idea of V.Petrenko “...standardization of education is one of basic links among necessary measures, due to that it is possible to decide all marked tasks and attain the aims of Bologna process. Without standardization of maintenance of education and maintenance of studies, without standardization of educa-

² Dmytrychenko, M.F., Horoshun, B.I., Yazvinska, O.M., Danchuk, O.M. tr. aid. (2006), *Higher education and Bologna process*, Knowledge of Ukraine, 440 p.

tional technologies and technologies of determination of quality of studies and professional preparation the idea of eurointegration of education can, to remain only slogans on a paper. And in this sense standardization, forgive for tautology, ideas about standardization of education and educational standards is the urgent problem of European elucidative community³.

Educational standards are perceived by a pedagogical association ambiguously. From humanitarian positions they are interpreted as some general reference-point for the self-appraisal of possibility to enter any social educational niche. Opposite look: educational standards are the consequence of dominating in society technocratic paradigm, that is why they are associated with canons and dogmas of authoritarian pedagogic. Between these positions there is a considerable spectrum of ideas that gravitate mainly to the social normative phenomenon about educational standards⁴.

Researchers of educational standards of V.Petrenko, N.Nychkalo, S.Goncharenko, B.Gershunsky, V.Lednyov, V.Baydenko, N.Seleznyov, V.Sokolov etc. all reasonably came to the conclusion, that an educational standard that represents the whole functioning and to development of the educational system is totality of social norms-requirements to the level of form, preparedness of graduating student, actually to the educational system. N.Nychkalo marks that normativeness of standard consists in the clear, detailed lineation of results of studies and education (both at the level of maintenance of education and at the level of requirements to preparation of students)⁵. Analogical opinion is expressed by V.Baydenko: an educational standard as social norm is viable only due to the orientation on the results of studies - descriptions of personality "increases" from the review of providing of effective vital functions of personality and society and increase of potential of her self-realization and competence within the limits of general and professional culture of moral, spirituality and social responsibility⁶.

To the obligatory functions of educational standards specialists belong providing of unity of educational space, objectification of estimation of functioning of formation of the system, providing of effective management the system of higher education of upgrading of preparation of graduating students.

Thus, standards of education are the substantial element of any national system of education the type of that is determined by political socio-economic terms, by traditions of certain country and others like that. In turn the type of the system educational influences on functions, kind and structure of educational standards. But regardless of it on the basis of the general going near standardization national standards on the signs of competence are developed and become firmly established at the level of the state, industry or organization⁷.

Development of accepted for all participating countries of Bologna of process, procedures of establishment of equivalence of educational standards id est academic qualifications, educational courses, diplomas, certificates and others like that, impossible without harmonization of requirements of the system of standards of higher education of Ukraine with the standards of professional associations and requirements of trade unions of the European countries and educational standards of leading universities on the criteria mechanisms and methods of evaluation of quality of professional preparation and education accepted in Europe⁸.

³ *Problems of education: SMC VO MES of Ukraine*, 2005. No. 45, Bologna process in Ukraine. - P.I. – 192p.

⁴ Kondrashova, L. (2008), *Problems of higher pedagogical education and his modernisation in the light of Bologna agreement*, It is Higher school, No. 1., P.26-34.

⁵ Nychkalo, N.G. ed. (2002), *State standards of higher education: theory and methodology*, Khmelnytskyi TUP, 334p.

⁶ Baydenok, V.I. (1999), *Educational standard. Experience of system research*, Novgorod: NovSU of Yaroslav Mudryy, 440p.

⁷ *Problems of education...*, 192p.

⁸ Dichkovskyy, S., Uvarkina, O. (2010), *Reform higher education is the first step to the European standards*, Scientific messages. Producing of LXXXVI (86), P. 61-67.

Process of changes of state standards in our country with the receipt of independence the problem of development of the national system of higher education appeared before Ukraine, that with simultaneous maintenance of acquisitions of domestic higher school would give an opportunity to adapt her to the new socio-economic terms and integrate in the world system preparations of specialists on higher education. But abandonment from adjusting of activity of the system of higher education on the basis of scientific reasonable regulation of structure and volumes of preparation of specialists, introduction of volitional and subjective decisions resulted in numerous negative displays, including to violation of accordance of list of professional qualifications and specialties to the necessities of society and sphere of labor, to the considerable decline of social security of higher educational establishments⁹.

Modernization of the national system of education in Ukraine takes place presently in the context of development of our state as European. Especially considerable transformations must be in trade education, as processes of globalization, integration and normalization of society cause deep civilization changes that affects requirements to professional preparation of specialists.

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⁹ *Problems of education...*, 192p.

The intellectual migration of the youth in Ukraine: the backgrounds for "brain circulation"

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Abstract. The migration of high-skilled youth is a natural phenomenon in terms of globalization and brings considerable benefits to countries that own the intellectual capital of these workers. The main trends related to the international youth migration that can cause the further threat of the "brain drain" in Ukraine are explored, namely: labour migration and "brain waste", educational migration, migration for international scientific cooperation and professional training and "idea migration". Some policy measures that can encourage an effective process of "brain circulation" in Ukraine are proposed.

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INTRODUCTION

Ukraine's admission to the Bologna process in 2005 has created favourable conditions for students, teachers and scientists for a gradual entry into the civilized mainstream of educational and scientific mobility (academic mobility). This caused an opportunity for their personal development, strengthening cooperation between researchers and research institutions at international level and within Ukraine, improving the quality of higher education and research activity.

But fortunately for many young people especially from developing countries, such as Ukraine, the process of studying abroad is the first step in establishing permanent residence in the host country and can cause the phenomenon of "brain drain" or intellectual emigration. The waste of skills or "brain waste" that occurs

when highly skilled workers migrate into forms of employment not requiring the application of the skills and experience applied in the former job, is the another chronic form and outcome of Ukrainian labour emigration. The new trend of "idea migration" appeared recently with the improvement of communicational technologies and new forms of work organization and training (as outsourcing, crowd-sourcing, e-learning) and does not involve physical movement of the creator, but leads to the outflow of progressive ideas abroad. In such context the problem of potential intellectual migration in Ukraine acquires a special significance of correct migration policy aimed to turn a negative phenomenon of "brain drain" (or even worse – "brain waste") into the "brain gain" and "brain circulation".

The problem of migration from Ukraine and factors affecting emigration mood has been challenging a great interest of Ukrainian researchers (Pirozhkov S., Malinovska O., Khomra O., 2003; Libanova E., Poznyak O., 2002; Balakireva, Valkovana, 2006). Thus, Nikolayevskyy (2010) studies recent trends in intellectual migration and consider it to be one of the main problem of modern Ukrainian society. O. P'yatkovska (2012) stresses that the fifth wave of immigration that has appeared today, refers to highly-skilled youth. V. Kipen (2011) asserts that the "pushing" factors (the counteraction between the individual development of needs, capabilities and the conditions to satisfy them), not "pulling", are dominant in emigration mood of young Ukrainians.

At the same time foreign experts (L. Lowell, A. Findlay and E. Stewart, 2004) emphasize that return migration is thought to generate significant benefits for the migrant-sending country. Especially in the case of skilled returnees, their newly accrued skills, taste for innovation, and networks can be advantageous.

Thus, **the main aims of the article are:** to highlight new tendencies in intellectual mobility of Ukrainian youth; to define if there is a potential danger of "brain drain"; and to find/suggest possible actions for its solution via "brain gain" to "brain circulation".

MIGRATION MOOD

There is no exact data on the number of citizens who have recently emigrated abroad, as well as no information about what part of all emigrants makes youth. But the fact that emigration from Ukraine is becoming more widespread can be proved by empirical evidence and social research.

According to the survey that was held by the Fund "Democratic Initiatives" jointly with the "Ukrainian Sociology Service" ("Europe without barriers", 2010) only 13.8% of youth aged 18-34 years had the intention to leave their own country for permanent residence. More often young Ukrainians were willing to stay abroad for some time (29.9%). The labour migration was the main purpose for visiting other countries (65.1%), 30.1% of youth realized their tourist interest. Compared with 2003 the desire of young Ukrainians to work abroad has increased 2.9 times (from 22.4% to 65.1%).

DEC Education Agency (N. Tarchenko, 2011) found that the number of Ukrainian students willing to study outside Ukraine for the past 5 years has increased ten times. The majority of Ukrainian students prefer to study for a master's degree abroad and 30% of students prefer going abroad to obtain a complete higher education.

Another survey (Ukrainian centre for social reform, 2009) figured out that 17% of Ukrainians working abroad had no desire or ability to return back Ukraine and more than half of them (55,9%) were young persons aged 15 to 34 years.

The main "pushing" factors, why young people from Ukraine with tertiary education and perspectives in scientific or innovation career are leaving the country today are (Pirozhkov S., Malinovska O., Khomra O., 2003; Balakireva, Valkovana, 2006): 1) the high unemployment rate in Ukraine; 2) the low level of

employment according to the specialty; 3) the low level of material and technical basis for scientific research; 4) the salary divergence in Ukraine and abroad; 5) institutional barriers to perform international cooperation; 6) the poor innovation infrastructure, complicated mechanism of knowledge transfer and imperfect venture capital market; 7) housing problems and others.

LABOUR MIGRATION AND “BRAIN WASTE”

According to the statistic data (2010) the number of Ukrainian youth working abroad has increased in the last ten years. In 2006 there was 25% share of Ukrainian youth working abroad that left Ukraine during the latest 2-3 years, in 2009 this share raised and now it counts 29%. The half part of these emigrants has gained higher education in Ukraine.

Thus, 47% of young people that have been working abroad for last years were engaged in construction, 19% fulfilled agricultural works, 12% were employed in trading. Housekeeping was the main job for the 10% of the youth, 8% took care after the retirees and children. The workplace of professionals, experts and technical staff occupied only 6.0% of migrant workers (Boyko Z. 2010). This evidence shows that a significant proportion of migrants had an unqualified job that didn't correspond to their educational level. It is worth to notice that in the presence of relevant vacant places in the national labour market, the main reason of labour migration is not a high unemployment rate in Ukraine but the low salary for the relevant work.

Migration processes between Ukraine and other countries have mainly “emigrational” nature, because the number of “gone” youth exceeds 2-20 times (it depends on the country) the number of “arrived” youth. In 2009 from Ukraine to Russia went 37801 person and came back 19427; to Germany went 9027 and came back 269; to USA went 4150 and came back only 319. Despite the illegal status, not prestigious job and adaptation difficulties there are still 15% of youth that decide not to return from different summer programs like Work&Travel (StarTravel agency, 2010).

EDUCATIONAL MIGRATION

The increasing number of foreign students in the world is driven by several factors. The first is the rising numbers of young people completing secondary education and continuing on to tertiary education. The second factor causing the rising number of foreign students is the increasing affluence in many developing countries, which has made it possible for more parents to afford the cost of educating their children abroad. The third factor behind growing student mobility is the globalization of education, be it through the establishment of foreign branches of prestigious Western universities in developing countries or via the promotion of student mobility within integrated markets, such as within the European Union or between the countries of the Pacific and Australia (United Nations, 2011).

The main forms of obtaining foreign education for Ukrainians are:

- Obtaining complete higher education in foreign country;
- Receiving a diploma simultaneously from Ukrainian and foreign university within the bilateral agreements between universities (several universities offer their students to gain basic Ukrainian higher education and get a foreign degree, but the quality of such education is often questionable);
- Student internships and exchange programs;
- Postgraduate 1-2 year educational programs based on students grants or at their own expense. Ukrainian students get such grants mostly from: Poland, Slovakia, USA and Germany;
- Short-term internship or targeted training for specific specialists (seminars, conferences etc.).

The greatest share of European Higher Education Area (EHEA) students enrolled for a degree study in another EHEA country come from Germany, and this is followed by France, Russia, Ukraine, Italy, Poland, Slovakia and Greece and their quantity tends to increase from year to year. Thus, if in 2007 20.336 Ukrainians have been gaining higher education in EHEA, then in 2009 their number has risen to 30459.[22] Most Ukrainian students have been studying in Germany (9222), Russia (6922), Poland (2672), USA (1912), Hungary (1475) and France (1099). The increasing tendency of the number of Ukrainian students studying abroad is shown (Table 1).

Table 1

The number of Ukrainian student studying abroad according to the host country

The host country	2004		2006		% of all foreign students from Ukraine (2006)
	Ukrainian students, number	% among all foreign students in host country	Ukrainian students, number	% among all foreign students in host country	
Germany	4959	2,6%	9222	3,6%	35,3%
Russia	-	-	6922	14,6%	26,5%
Poland	1800	23,9%	2672	20,5%	10,2%
USA	-	-	1912	7,1%	7,3%
Hungary	1005	8,2%	1475	9,8%	5,6%
France	-	-	1066	4%	4,0%
Czech Republic	302	2,9%	774	3,2%	2,9%
UK	-	-	524	1,9%	2,0%
The Republic of Moldova	-	-	512	26,6%	1,9%
Romania	782	8%	382	3,1%	1,4%
Bulgaria	435	5,4%	319	3,4%	1,2%
Greece	61	0,5%	202	1%	0,7%
Estonia	21	1,9%	95	4,3%	0,3%
Slovakia	135	8,2%	75	3,7%	0,2%

Source: Kelo M, Teichler U., Wächter B. (eds.) *EURODATA – Student mobility in European higher education – Bonn: Lemmens Verlags- & Mediengesellschaft, 2006; Mobility Barometer by Conor Cradden on behalf of Education International & the European Students Union Education International & European Students Union, Printed in Belgium, 2008; Teichler U, Ferencz I., Wächter B. (eds.) Mapping mobility in European higher education, Vol. I: Overview and trends, Brussels. June 2011.*

The data's shown in Table 1 demonstrate: 1) that the number of Ukrainian students studying abroad had an increasing tendency during 2004-2006 (fortunately, there is no more recent information) and 2) that increased student mobility has been happening and could continue happening without the Bologna Process.

With the ratification of Bologna agreements in Ukraine in 2005, several European students' mobility programs have started proceeding in the country, as DAAD (Germany), OAD (Austria), and TEMPUS (EU) and others. EU Socrates-Erasmus and Leonardo large-scale programs are of much importance for Ukraine. But, the scope of these entire programs share in Ukraine is extremely limited mainly because of the delay in reforming the higher education system in the country especially in the autonomy of universities.

Within the framework of the Tempus program since 1993 only 214 grants for individual mobility were given to Ukrainian students. Since 2004, just 158 Ukrainian students and 35 scientists received scholarships for study by Erasmus Mundus program (National Tempus office in Ukraine, 2010).

The more popular and available for Ukrainian youth are the Grande programs provided by the certain country, as DAAD (Germany) or Fulbright (USA). The number of grants intended for Eastern and Central Europe by DAAD has been increasing annually by 10%, in particular this includes Ukraine, where in 2010 about 1,100 students and 220 teachers received the scholarship (DAAD office, 2010). Another program held by Fulbright Foundation and American Councils enables near 120 students from Ukraine annually to establish their scientific practice in USA (Fulbright Ukraine, 2010).

This evidence shows that mobility is not likely being fully realized by the Bologna Process in Ukraine, but there is a constant tendency of increasing number of Ukrainian students studying abroad.

INTERNATIONAL SCIENTIFIC COOPERATION AND PROFESSIONAL TRAINING

The value of academic mobility must not be diminishing today, especially for doctoral students and young scientists, for whom mobility is an important tool for the immersion into the research process and the diversification of their research or teaching activities. There are different opportunities for youth to be involved into the interuniversity or international scientific cooperation within the European or other programs (TEMPUS-TACIS, TACIS-Delfa, EURECA, TIME, Marie Curie and others).

In 2007-2010, 601 Ukrainian teams took part in the 430 proposals submitted under 83 competitions according to the 7th framework program of EU. Only 112 of them won the tender offer and have been selected for funding in the amount of 7.96 million euro's. The success rate of Ukraine, defined as the ratio of the expected financing to the proposed financing (13,2%), is considerably less than the average for all countries FP7 participants (20.31%), but corresponds to the new EU countries (13.01%) (Y. Supel. 2010).

In the previous 6th Framework Programme for Research (FP6) Doctoral candidates from Ukraine were among the most active participants in Marie Curie Actions within EU neighbouring countries and provided 13% of the total number of participants and yielded only to Russia (Technopolis Group, 2010).

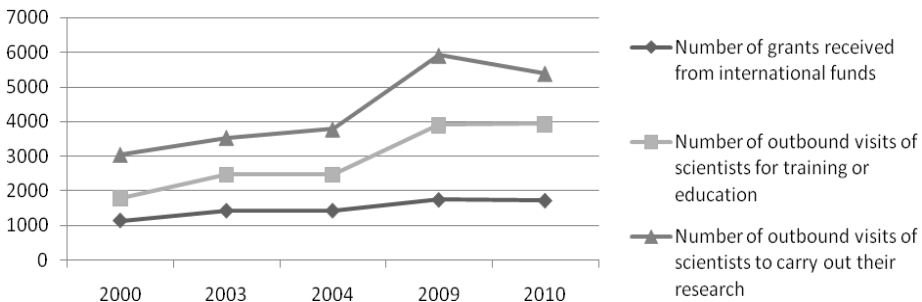


Fig.1 International cooperation of Ukrainian scientists (2000-2010)

Source: State Statistics Service of Ukraine

We can also observe an upward trend in the level of international cooperation of Ukrainian scientists in the last 10 years. In particular, there was an increase in the number of grants received from international funds (from 1,138 in 2000 to 1,723 in 2010), a growing number of outbound visits for training or education (1780 in 2000 to 3,933 in 2010), and the substantive growth of outbound visits for the purpose to carry out a scientific research (from 3052 in 2000 to 5,291 in 2010) (Figure 1).

Figure 1 shows that the level of scientific cooperation between Ukrainian scientists and international community has grown almost two times from 2000 till 2010. On the one hand this tendency is a good evidence of Ukrainian entry into the international scientific arena. On the other hand it must be realized that such temporary movements increases the likelihood for following emigration: after the return a specialist can realize his dissatisfaction with the quality of life in Ukraine, low technical base for scientific work, inability to use the research results, an occupied workplace, and therefore be willing to look for new trips abroad.

IDEA MIGRATION

A form of brain circulation unimpeded by physical borders and unconstrained by national boundaries or even better a new form of brain drain that does not directly involve mobility has emerged recently and grown in importance as outsourcing, overseas consultancy, scientific programs for foreign clients on grant basis have emerged as current day avenues of knowledge migration.

Today Ukraine shows the high rates of market growth and leaves other countries far behind in terms of the volume of IT outsourcing services exported and appears to be one of the biggest nearshore outsourcing country for Europe (especially for Central and Scandinavian countries) and offshore for USA, Canada and Asia countries. In 2010 Ukraine was at the 11th place in the top-20 world's largest centers of IT-outsourcing business entities (CEE IT Outsourcing Review, 2010).

Such a high position of Ukraine affirms that: 1) the education level of our specialists is high; 2) the level of confidence of foreign companies and international experts to Ukrainian IT-professionals is favourable; 3) companies and specialists working in Ukraine, pay taxes, spend their salary inside the country, and thus facilitate the economic development. However, it is also a symptom that there is a mass outflow of new information technologies and breakthrough ideas from Ukraine. Already in 1995 Russian scientists expressed a great concern of hiring their researchers and professionals on the territory of Russia to work for Western firms and asserted that it is one of the most dangerous forms of "brain drain" (Khromov, 1995).

FOREIGN EXPERIENCE TOWARDS "BRAIN GAIN" AND "BRAIN CIRCULATION"

At the end of XX century different countries mainly in Asia (India, China, Korea and Taiwan) have experienced the exodus of their habitants. Many qualified people have left their motherland. However these nations have managed to overcome this harmful phenomenon. They have created and implemented successful policies which have led to the brain circulation or even to the brain gain (Zweig, D., Fung C. S., 2008):

- The establishment of research funds with the purpose to fund returnees' scientific activities;
- The creation of postdoctoral centers in order to attract overseas Ph. D's to return for postdoctoral positions on the mainland;
- The implementation of new regulations on "incubators" in hi-tech zones for overseas returnees;
- The establishment of world-class universities;
- The attraction of venture capital;
- The development of digital infrastructure in order to attract IT companies;

- The remuneration of returnees corresponds to the payment in the U.S. (in purchasing power terms);
- The creation of good domestic conditions for returnees (preferential policies giving for returnees especially better living and working conditions);
- The diverse and active cooperation with scientific Diaspora.

Even European governors were concerned about the mass departure of their high-skilled citizens during 1980-1990's mainly to the United States and Canada. Thus, they conducted effective actions for the returning of their scientists and attracting promising young scientists from the third countries (R. Daugėlienė, R. Marcinkevičienė, 2009, P. Giannocolo, 2009):

- The creation and implementation of programmes stimulating scientists' mobility (Marie Curie, "Blue card" etc.);
- The accreditation of foreign diplomas;
- The simplified visa system for qualified professionals (particularly in UK and Germany);
- The reduction of cultural (linguistic) barriers (e.g. there is allowed to teach in English language, in universities);
- The incentives and facilitations to the researcher's family (the partner's career, children's education or day-care, suitable accommodation and obligations remaining in the home country etc.);
- The incentives and facilitations to the researchers and their career (personal assistance with legal and practical problems);
- Various Grants and Scholarships to young researches (UK, Germany, Finland, France etc.)
- The tax reduction and bilateral taxation;
- The marketing and recruiting policies (Some countries implement marketing and recruiting policies directly oriented to attract foreign researchers);
- The support for intellectual property rights (Financial support for start-ups and spin-offs varies widely from one Member State to another).
- The increase in financing of R&D (up to 3-4% of GDP).

RECOMMENDED ACTIONS FOR THE ESTABLISHMENT OF THE "BRAIN CIRCULATION" IN UKRAINE

Foreign experience stresses, that the brain drain phenomenon could be more effectively suppressed via brain gain policy measures, rather than searching for answers and focus on the reasons leading to emigration of highly skilled professionals. There could be highlighted that if a country becomes an attractive place for the international knowledge workers, it will also be attractive enough for the national "brain" to stay in the country (R. Daugėlienė, R. Marcinkevičienė, 2009).

In order to facilitate the phenomenon of "brain circulation" of Ukrainian scientists and taking into account Ukrainian realities of limited state funding possibilities, we highly recommend the following actions:

1. To remove administrative and institutional barriers which hinder the international cooperation in education and science, namely:
 - to accelerate the adoption of the new version of Law of Ukraine "About higher education", which ensures universities' autonomy for free coordination of internal and external academic mobility and brings the third cycle of higher education to the world requirements;
 - to establish a simplified visa system for researchers and their families with the most visited countries (in particular, an agreement on visa regime is already signed with Poland, but need also to be ratify with other countries as U.S., Canada, Germany, Israel, etc.);

- to achieve the accreditation of Ukrainian diplomas abroad and to simplify nostrification of foreign degrees in Ukraine;
 - to revise the conditions of labour contract with scientists who are on temporary internships abroad in order to save their workplace in Ukraine;
 - to establish a simplified customs barriers for transportation scientific equipment and units;
 - to create and to maintain the Ukrainian scientists' mobility Internet portal.
2. To development and implement the national program aimed to encourage the returning process of Ukrainian scientists from abroad. In this case it is important to use the experience of Asian and EU countries, like Czech Republic, Estonia, Hungary and others.
 3. To create the attractive domestic conditions for returnees on the basis of national research institutes and universities. Particularly:
 - to create the virtual research centers using modern interactive means of communication;
 - to create the "mirror laboratories", using the existing foreign lab as a model and its activities that are linked to the foreign work as the original (Semyanov, 2007);
 - to maintain and develop cooperation with Ukrainian scientists who already live and work abroad – migration network. There is a popular interpretation, that Diasporas are one of the most important factor stimulating brain circulation as well as economics development.
 - to give the organizational, informational, diplomatic and financial support to migration networks abroad, using their ability to spread the information among migrants about returning, employment or opening their own business in motherland;
 4. To stimulate Ukrainian attractiveness for researches and create favourable conditions for the professional growth of young scientists:
 - to create and maintain competitive "technological parks" that must be opened to international cooperation;
 - to develop and support the innovation infrastructure, technology transfer centers and to ensure their active representation via Internet;
 - to support centers for scientific and talented youth within the universities;
 - to enlist the business sector in order to increase laboratory's equipment base;
 - to establish of world-class universities;
 - to regulate the national venture market (in particular the list of entities that are subjected for venture financing);
 - to introduce the beneficial taxation system for researchers and idea creators;
 - to solve the housing problem of young scientists, their families and honored returnees (using the instruments of preferential credits or official dwelling).
 - to improve significantly the conditions of payment for scientific work, the number of existing domestic grants and the rate of scholarships for young scientists etc.
 5. To reduce the emergence of the negative side effects from academic mobility, it is extremely important to conduct the nationwide monitoring every 3-4 years concerning as many programs and areas of academic mobility as possible. Collected and analyzed data will allow both the government and universities to change the priorities and to direct the resources to the interesting fields of research.

"Brain circulation" is an excellent antidote to chronic "brain drain". Coherent and efficient migration regimes will help making the most of "brain circulation".

CONCLUSIONS

The analysis of the migration mood of Ukrainian youth based on the sociological surveys and empirical data enables to make the conclusion that the level of potential intellectual outflow of Ukrainian youth tends to increase. It includes the high rates of labour migration to the U.S., Russia, Germany and other countries; the ongoing number of students involved into the education and training mobility and also the increasing expansion of outsourcing international companies hiring youth in Ukraine but taking away their intellectual capital abroad. Such a tendency is one of the displays of labour force and capital globalization that sooner or later would appear in Ukraine.

The value of international cooperation shouldn't be diminishing, but the potential risks for the economic and demographic security of the country must be predicted. Considering Ukrainian realities, when it is almost impossible to increase the state financial input into R&D (even to the legitimate level of 1.7% of GDP) it is of a great importance to prevent the next wave of intellectual migration and to create an attractive conditions for "brain circulation" development. There were suggested recommended actions for the establishment of the "brain circulation" in Ukraine. Ukrainian's government should implement social and economical actions towards the establishment of this phenomenon. This includes the removal of administrative and institutional barriers which hinder the international cooperation in education and science, the development of the national program aimed to encourage the returning process of Ukrainian scientists from abroad, the establishment of good domestic conditions for returnees and periodic nationwide monitoring of the outbound flows of Ukrainian students and scientists.

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Strategies for choosing influentials in buzz marketing

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Abstract. Present-day economy transforms profound changes, which are influenced by growing competition and opportunities of new technologies. One of the most important goals which the modern companies pursue is to find the right way of effective marketing communication with customers. The aim of this article is to analyze how to mark out, both in real and virtual world, these individuals who find it enjoyable to spread information about a brand and a product, and who are willing to share their opinions with other market participants, and whose recommendations help businesses accomplish their marketing objectives as well as conduct effective activities.

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INTRODUCTION

Talking, disseminating information through the grapevine and buzzing have always been present in people's lives, thus one cannot imagine today's world without verbal communication. However, it has been only recently that verbal communication has been considered a vitally important marketing aspect of modern communication between businesses and consumers. Fast changing markets have necessitated using other than traditional tools of marketing communication. Since advertising campaigns to date, especially those involving traditional advertising, have failed to be effective, entrepreneurs have been forced to seek alternative means of finding new channels of marketing communication. In 2000 Malcolm Gladwell's book titled 'The Tipping Point' was published, and it came as a turning point for contemporary marketing (Hughes, 2006), as it presented new opportunities of imparting information to consumers. The book generated widespread interest among media and marketing specialists as it depicted mechanisms, analogous to those of disseminating infectious diseases, of circulating information across social media. Gladwell noticed that information published on the Internet is immediately grasped by a number of people, and if it is interesting enough to attract the attention of an Internet user, it is disseminated in a virus-like manner, from one computer to another. The information sometimes evolves and changes, usually to the advantage of an enterprise, brand or product, however this is not a rule. Whether or not the information is profitable depends on its kind, construction, its recipient and sender. The purpose of spreading the information and the prior verification of emotions it is expected to evoke are important too. Spreading the information on the Internet or in real

life is called buzz marketing. Like virus, it can be controlled or just the opposite, it can get out of control and outside the rules.

The aim of this article is to mark out, both in real and virtual world, these individuals who find it enjoyable to spread information about a brand and a product, and who are willing to share their opinions with other market participants, and whose recommendations help businesses accomplish their marketing objectives as well as conduct effective activities.

THE ESSENCE AND TYPES OF BUZZ MARKETING

Buzz marketing is a part of a communication process between a company and a customer, and it is difficult to provide unambiguous definition. In the subject literature buzz marketing is also called Word of Mouth Marketing (abbr. WOMM). The lack of a clear definition of the process components causes that buzz marketing is defined as providing consumers with topics of conversation relating to the company's offer and skillful prompting of this kind of communication (Sernovitz, 2011). Both prompting and delivering information as messages can be divided into two groups (Pilarczyk, 2011):

- face-to-face buzz marketing – information and messages are passed on through direct contact,
- on-line buzz marketing – sending information and messages through the Internet or mobile devices such as mobile phones.

Face-to-face buzz marketing is mainly getting people talk about particular products, brands or trends in a particular environment aimed at boosting sales. On-line buzz marketing is a broad concept since it exists in all forms in hypermedia environment, i.e. in a Web 2.0 environment, in instruments of marketing communication present on the Internet, as well as in instruments which take advantage of mobile technologies. Buzz is widespread on Internet forums, in blogs, messengers and in social media. The Internet is a medium of viral marketing, which refers to spreading interesting content, links, films or audio files and sending them to other users.

Face-to-face buzz marketing is not an innovative technique. Conversations, recommendations and opinions about products and brands are intrinsic to human communication. On-line buzz marketing should be analysed from a completely different point of view. Most of all, a distinction between buzz marketing and buzz should be made. Buzz is an inherent feature of humans and thus it cannot be affected by any company. It is not governed by any rules, because it refers to genuine/real conversations between consumers (Sernovitz, 2011). Converting buzz into buzz marketing enables companies to undertake deliberate and conscious activities, which will produce the desired result.

Buzz marketing is therefore understood as defined, conscious marketing activities aimed at reaching consumers (recipients of marketing communication messages) in a direct, seemingly unintended, way, and triggering positive associations with the brand or product. For this reason buzz marketing is defined in the subject literature as skillful and well-thought-out utilizing interpersonal relations (Rosen, 2008). If such relations are utilized skillfully, they will serve as modern tools of communication between an enterprise and its customers, regardless of customer's loyalty and his status (potential or present).

The essence of buzz marketing is spreading information, which is based on interpersonal contacts and thus perceived as reliable, true and verified. Products and brands recommended by friends or family are more trusted and more probable to be purchased. A message sent by a well-known trustworthy person is more effective than other kinds of marketing, including advertising. Mass advertising has recently lost much of its impact in favour of new communication instruments. It should be noted that today a new type of consumers has emerged, i.e. consumers who are difficult to appeal through advertising designed for mass audience.

Today's consumer is an individualist lost in countless ambiguous marketing messages, who ignores them consciously or unconsciously. Today's consumer wants to be appreciated as an individual, therefore the message must be trustworthy and precisely targeted at him. It is by no means connected with direct marketing, as this instrument is not as effective as it used to be, or traditional direct marketing, since today's consumer is aware of 'persuaders', whose task is to persuade consumers to purchase.

Advertising slogans such as 'must have' discourage consumers from purchasing. Consumers react entirely different to slogans communicating 'I have bought the product, I have already tried it and I am satisfied;', especially when the opinion is given by a close, trustworthy person. Such a way of communication is called buzz marketing, the idea which determines the existence of today's businesses. That is why skillfully stimulated buzz is important.

POPULARITY OF BUZZ MARKETING

Marketing environment has willingly accepted this kind of customer marketing communication, mainly due to three reasons: buzz, skepticism and closeness (Śliwińska, Pacut, 2011). Buzz refers to information noise, which is caused by information overload concerning communication between a business and customers. Even the best message happens to be missed or forgotten by the target group as a result of information overload. Skepticism refers to consumers' awareness and their vast knowledge. Today's consumers' awareness has been determined by numerous messages saying that advertisements do not reliably inform about the quality, usefulness and functionality of the advertised product. A strictly advertising message is perceived as a sales pitch. Customers have a realistic approach, based on their experience, to that type of messages sent by companies. It is also worth mentioning that emotions triggering purchase are evoked by closeness which in fact means contacts between consumers, who share the same reality in which opinions about the product create needs and stimulate purchasing activities.

CHOOSING INFLUENTIALS

Businesses are aware of such a correlation and know that buzz marketing campaigns bring about highly beneficial effects (Hatałska, 2012), therefore people engaged in buzzing, recommending and giving opinions should be carefully chosen.

It depends on the product or service offered to an ultimate buyer, but according to research it also depends on the target group. Businesses sometimes use buzz marketing to build brand awareness, which means that influentials should be chosen in cooperation with PR specialists on the basis of prior marketing research.

The influential should be able to convince other market participants to chose a particular brand, product or service. The influential is tasked with giving opinions and recommendations to facilitate purchase decisions, promoting brand and offer, expressing opinions (mainly positive) about products, recommending a particular offer with reference to his own experience. The Internet is a hypermedia space where influentials can be found. The widespread availability of the Internet allows the spread of information and opinions that may be expressed by all Internet users. It is worth noticing, however, that about 90% of communication and buzzing about businesses and products take place off-line, that is in the real world (Hatałska, 2012). Therefore, buzz marketing must comprise on-line and off-line reality. Only concerted activities can produce positive effects, since these two worlds permeate, cooperate, become involved and both realities can be advantageous to a company. Buzzing in the real world is transferred to a Web 2.0 environment, but informa-

tion gained from the Internet also permeates and evolves in the real world, and is often transferred back to the hypermedia space.

In order to implement buzz marketing strategies, a company must find a suitable influential, who will be susceptible to information provided by the company and willing to pass on this information (Grzegorzczak, 2006). A final choice of influentials should prompt the company to choose mechanisms for reaching chosen influentials. These mechanisms may include the following activities (Siejak, 2011): product sampling, inviting for exclusive actions, product seeding, as well as reaching influentials through their blogs. Such activities aim at passing on information (or sometimes the product itself) to chosen influentials and encouraging them to recommend the products and create consumer needs.

There are a number of ways to find suitable people willing to act as influentials both in the real world and in a Web 2.0 environment. Andy Sernovitz lists seven types of interlocutors, among whom the most valuable for a company can be found (Sernovitz, 2011):

- customers satisfied with their purchases,
- employees satisfied with their work in a particular company,
- trademark fans,
- Internet users,
- normal listeners,
- hobbyists and fans,
- professionals.

Each group contains people who are willing to share, without any expected profits, information with others and to give recommendations. Thus, they create added value, which forms the basis for today's marketing communication between a business and its customers. For marketing-oriented companies, which look after customer relations, recommendations become components of marketing communication with customers. It has been observed that recommendations may lead to establishing long-term relations (Jantsch, 2011), which in turn makes them one of the best marketing tools in the long term.

It is worth mentioning that satisfied customers will return to the company, and they must be properly looked after to feel important and needed. If they are contented with the company's products or services, they will share this information with others soon. Customers tend to boast about their purchases, so they will circulate the information very soon. Apparently, the opinions may not relate to the product or service itself, they may refer to service or handling complaints (paradoxically, product or service complaints may evoke positive opinions on condition that the complaints are resolved to customer's advantage).

The same refers to eager employees, who are proud of being part of a company, willingly express their positive opinion about the company and share the information about it with their family, friends or customers. It has to be remembered, however, that not every satisfied employee is eager to pass on information about his/her company to others. However, careful observation may help choose individuals who will be pleased to share their positive opinions with others.

Undoubtedly, there exists a large group of followers among the so-called logo fans, i.e. individuals who are fond of logos printed on t-shirts, caps, bags, neck straps etc. The person who wears and is proud of wearing the logo, will definitely be willing to share information about a particular company with his/her friends. Wearing the logo or using products with a particular logo is a sign of belonging to a particular social group (sometimes very exclusive) and creates the need for identification with the company. Companies are therefore obliged to distribute promotional gadgets to logo fans and to cater for the need for belonging to a given group.

The Internet is the space where influentials should be sought. First, a satisfied customer expresses his positive opinion online. It should be noted here that the customer was willing to devote his/her time to

give a positive opinion about the product and to recommend it. Companies should aim at finding such customers, since they have higher motivation, which in turn makes them interlocutors (Sernovitz, 2011). It is worth mentioning that according to the latest research by European Trusted Brands, more than 60% of Polish people do not trust in messages transmitted by media. It mainly refers to radio, television and press. The Internet, as the only interactive medium, is trusted by almost 56% of the respondents. It is therefore necessary to cater for influential messages in a Web 2.0 environment, as best recommendations are given by Internet users themselves. Finding an influential is the most important task necessary for effective online buzzing and recommending. Interaction and interpersonal networking make a brand, product or service noticed and remembered. But most of all, the information about them is quickly passed on.

A. Sernovitz listed normal listeners as potential influentials. According to him, people who like and can listen, are also willing to talk and indeed talk most (Sernovitz, 2011). Therefore the conclusion can be drawn that if a consumer listens attentively to opinions about a particular brand or products, he/she will probably be willing to discuss the company and its offer and give recommendations. Selecting active 'listeners' on the Internet does not make any difficulties – it requires analysing the statistics and select users who pass the information received from a company to others. This activity can be regarded as a form of discussion in the virtual world.

Hobbyists and brand fans are a specific group of companies' interlocutors. Importantly, they do not have to be company's customers and they do not have to own any products offered by this company, sometimes due to financial reasons. However, they regard talking about products they appreciate as belonging to the social group whose members own the product. This is the case of luxury brands of cars, new technologies, or sophisticated services. Inability to buy a product (often because of financial reasons) does not determine their activities promoting the brand, since talking itself is the source of satisfaction.

Professionals are a completely different type of potential influentials, because they find nothing unusual in communicating, conveying information, giving opinions and recommendations. They are, however, highly skeptical as to expressing their opinions and commenting since their opinions must be verified and reliable. If their assessment of reality (here: brand, product, services) were inadequate, they would lose reliability (Sernovitz, 2011) on which their professionalism is based. These professional interlocutors are usually journalists, critics, authors of specialist publications, experts, professional bloggers, columnists. They are suspicious by nature and verify all information carefully. They are insightful, fair and trustworthy and therefore their recommendations are considered reliable.

CONCLUSIONS

It is well known that customers are affected by people from their immediate environment when they make purchase decisions. According to research (conducted by the author of the article in June 2012 with the use of a questionnaire), the decision process referring to buying fast-rotating products such as milk, bread, coffee, mainly foodstuffs, family members and friends are most influential (for 43% of the respondents). 43% of the respondents decide on their own. The research conducted in the same group of respondents concerning purchases of bigger value (a car, a computer, etc.) has shown that 32% of consumers ask their immediate environment for recommendations, while 23% of the respondents decide on their own. Therefore, if the consumer's choice is based on previous experience one can assume that his/her knowledge could have been acquired through influentials, and this fact might have been forgotten or not recorded by the customer. The customer may remember the message conveyed by the influential at the moment of

purchase. The above supports the need for influentials, who can influence a great number of consumers by appropriate recommendation of brand and products.

All mentioned groups mentioned above are company's interlocutors who include genuine, reliable and fair influentials. They are essential for building an efficient network of connections with a viral spread of opinions about the company. Thanks to activities undertaken by influentials, preferences of potential customers are formed and brand awareness is increased. It is therefore important to form a group comprising of influentials instead of contacting individual influentials individually. The best solution is to rely on a group of influentials that consists of individuals of different backgrounds and environments, operating on-line and off-line, different people with one aim in mind, that is to promote and recommend.

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Theoretical Insights into the Mode of the Environmental Movements

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Abstract. The article focuses on new social movements, the beginning of the activity of which is related to the years of 1960 – 1970. New social movements differ from older ones in their organisational structure, variety of actions taken, problems solved, members engaged in their activity as well as supporters of organisations. New social movements make an inherent part of today's society uniting feministic, anti-nuclear, environmental movements. U. Beck calls the modern society as the risk society that encounters environmental problems and tries to implement the greening policy on the global level. Environmental movements play an important role in the modern society emphasizing environmental problems, influencing decisions taken by the authorities in the field of environment protection, encouraging the green civic engagement. The importance of new social movements in the modern society is demonstrated by the theory by Meyer and Tarrow analysing the modern society as a society of social movements. The article will analyse factors conditioning the successful functioning of new social movements (environmental) in the society. The multi-functioning and complexity of the following factors are stressed, i.e. the role of science in the functioning of environmental movements, the structure of organisational networks, the media strategies, forms of activity.

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INTRODUCTION

The modern society is regarded ambiguously by theoreticians. Castells describes the existence of the modern society as the networking society that is characteristic of the network structure of organisation, organisations not only cooperate with one another, but they are also linked together by informational networks. U. Beck calls the modern society as the risk society that is characteristic of global natural catastrophes that are identified and solved with the help of scientific knowledge. Meyer and Tarrow describe the existence of the modern society as the society of social movements stating that social movements have become a pertual element in modern life, also the protest behavior is employed with greater

frequency, is used to represent a wider range of claims and professionalization and institutionalization. With regards to the aforementioned circumstances, the following aspects are typical to the successful functioning of environmental movements in the modern society, such as flexible and tight inter-organisational nets uniting organisations on the national and international levels, the high level of professionalism of organisations forming the environmental movement, engagement into informational networks as well as the choice of activity forms with regards to the organisational structure. Environmental movements, their functioning, the organisational structure, moral attitudes are amply analysed by the academic community as well as monitored and analysed by the public with the help of informational technologies. In Lithuania, the evolution of the environmental movements in post-Soviet society, in so-called risk society, is explored by Rinkevičius in his publications (2001: 25-32); (2001: 72-79); (2007: 37-53), Telešienė, Kriauciūnaitė (2009: 42-54); (2008: 93-102). Organisational networking of the new social movements (the environmental), the importance of media and science to the activities of the environmental movement are also analysed by foreign sociologists Eyerman and Jamison (1991), (2008: 272-278), Castells (2006), Melucci (1996) (1998); Tilly (2004); Habermas (2008: 201-205); Touraine (2008: 212-218); Diani (1995), Diani and Porta (1999), Hannigan (1995) and etc. The subject of the article: the mode of the environmental movements. The aim of the article: to analyse the factors conditioning the successful functioning of environmental movements in the society in the theoretical aspect. Research methods: the analysis of scientific literature.

THE INFLUENCE OF ORGANISATIONAL NETWORKING ON THE MODE OF THE ENVIRONMENTAL MOVEMENTS

The following influences of network organisational structure on the activities of the environmental movements can be identified:

- Functioning condition;
- Identity formation condition;
- Information dissemination;
- Resource mobilisation.

According to Porta and Diani (1999: 14) Movements may be conceived of as informal interaction networks between a plurality of individuals, groups and / or organisations. Such networks promote the circulation of essential resources for action (information, expertise, material resources) as well as of broader systems of meaning. Such networks contribute the creating the preconditions for mobilisation <...>. Network organisational structure settled by the environmental movements links together different types of organisations. According to Kriesi (1996) some organisations, which are a part of social movement, are described as movement associations. They are formed to meet specific needs among the movement's constituency. Other kind of organisations are described as supportive organisations. It could be service organisations such as newspapers, educational institutions while at the same time working on the open market (Porta et. al. 1999: 146).

The new social movements are characterised by inter-coalitions and cooperation. Many theorists claim that social networks are an important indicator in searching the answer why some people are involved into collective action, i.e. some belong to the social movement while others do not. Networks between organisations facilitate information dissemination, trust building and identity construction which stimulate the process of mobilisation (Kitts, 1999; Porta, Mosca, 2007, cited in Rojas, 2008:7). Immediate cooperation between different organisations encourages individual involvement because a person can act or have inter-

ests in several organisations that correspond best to individual interests. Tarrow (cited in Ruggiero et al. al. 2008), Melucci (cited in Ruggiero et al. al. 2008:224), Cahill (2002:123), Fitzpatrick (2002:123), Castells (2006:182), Diani (2003) treat contemporary social movements as social networks through which collective identity is formalized: "it is a network of social relations, created by intermediation of different groups / it is a space where collective identity is restructured and unified." Thus, collective identity is not only a factor determining the mobilisation of the new social movements, but its existence is impossible without the social movements as an expression of a network. Melucci (cited in Ruggiero et al. 2008:224) distinguishes a bipolar operation of such network, i.e. a latent period and a vitality period that directly determine the functioning and activities of the new social movements in present-day society:

1. Under normal conditions, the network of small groups is not visible; it is engaged in daily routine. The main functions are performed by the professional core. (Latent period).

2. In the case of ecological, political problem networks consisting of small, distinct groups become open and publicly visible, they receive a lot of members - rapid mobilisation and network expansion begins. Coming into the open increases the tension between local movements and political authorities through specific means (Vitality period). Both of these periods are directly related, although the goals they aim at are different, but latent period enables the existence of vitality period. New members' mobilisation, implemented during vitality period, strengthens barely visible networks of social movements, enhances the sense of solidarity and creates new groups which complement networks of social movements. Melucci (2008:225) sees the activism of social movements as a contact with political institutions and that is where mobilisation is invoked. Meanwhile, functions mentioned in latent period are carried out only by the professional core of social movements. Currently mobilisation process has nearly stopped since there is no particular problem raised and no proposed task for its solution. Tarrow (1998, cited in Cahill et al., 2002: 123) claims that social movements subside when they plunge into the daily routine and participate following political game rules. Diani (2000:326) emphasizes that quietude periods of social movements, when only organisations are visible and mobilisation of the masses is weak and not manifested, cannot be considered as the periods of social movements' absence. It is stressed that social movement only occasionally turns into direct / confrontational political actions and mobilisation of the masses; these are not constantly occurring processes. Tarrow (1994, cited in Porta et al. Al. In 1999, 2006: 188) identifies social movement's protest cycles as phases of intensified conflicts and disputes that display themselves in social system as: a sudden mobilisation of collective behaviour, shifting from more mobilised to less mobilised sectors, a rapid rate of innovations which is influenced by the context of competing society, new or varied attitudes in regard to collective behaviour, a linkage of organized and unorganized participation, a chain of collisions arising between opposition and authority which may evoke reforms, repressions and sometimes even revolutions. A 2009 research of Lithuanian environmental non-governmental organisations that have internet-based network organisational structure revealed that Lithuanian environmental non-governmental sector most intensively interacts with academic institutions at the local, national and international level. In environmental activities environmental NGOs mostly collaborated with Lithuanian universities and their departments. High schools are selected as partners in implementing various projects, carrying out scientific environmental activities (arranging seminars, reading reports, organising conferences). Often schools of various kinds, professional, secondary, gymnasiums and others are chosen to be the partners. Generally, schools become the partners of Lithuanian environmental NGO when participating in various civic campaigns. Schools can be identified as recipients of Lithuanian environmental NGO activities. Environmental organisations choose them as a receptive audience for their activities implementation; however, without the assistance of school communities most campaigns would simply be impossible. Very often for implementation of suction actions local communities, municipalities that are relied on when solving environmental problems of a particular area are

chosen to be partners, expecting help and cooperation from those, to whom environmental problems are most relevant. Whereas, mutual cooperation networks of Lithuanian environmental organisations that are engaged in the internet network are not developed on the local level. Seven environmental organisations of Lithuania cooperate on the formal level, i.e. they belong to the coalition of environmental NGOs of Lithuania. The cooperation of all other Lithuanian environmental NGOs is non-formal, related to the specifics of the particular environmental activity. The widest cooperation networks unite eight-nine environmental organisations of Lithuania. Lithuanian environmental organisations indicated the following reasons of cooperation with other organisations, namely: a) the activity of the functioning of the organisation in the environment protection field on the national level, b) the helplessness of the activity of a separate organisation in the modern society is underlined. The aforementioned statement is confirmed by U. Beck emphasizing the ineffectiveness of an individual action in the modern society. International networks of Lithuanian environmental organisations are also not developed. Environmental NGOs belonging to the local partnership networks are successfully involved in international networks, as well. It is noticed that most of Lithuanian environmental NGOs tend to cooperate with the branches of the same organisation in other countries, they also work together with international environmental NGOs of the same field.

THE INFLUENCE OF SCIENTIFIC KNOWLEDGE ON THE MODE OF THE ENVIRONMENTAL MOVEMENT

Scientific knowledge, academic institutions perform the following functions in the environmental movements practice: (see Fig. No. 1).

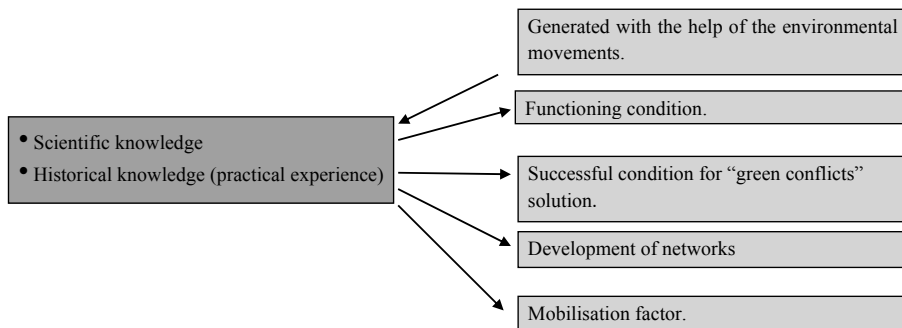


Fig. 1. Influence of scientific and empiric knowledge upon the functioning of environmental movements

According to Earley (cited in Lash et al. Al. 1996:158), science is very important for the environmental movement practice. It is claimed that through invoking science many environmental phenomena and problems become understandable and known to the public, e.g. global warming, acid rain and other problems. Jamison (1988) stated that today's environmental movements perform the function of "early warning providers" in society, i.e. they identify environmental problems, analyse them using knowledge and give them the form of threats or risks in the environment they act. Social movements are actively involved in the development of new disciplines and knowledge creation models. Jamison and Eyerman (1991) highlights science as one of the most significant condition for the functioning of the environmental movements: "Envi-

ronment protection can be called a social movement only when the consistent interest “grows into” an active and integral study, i.e. into continuing practical action between the environmental activists” (p. 66).

Castells (2006) claims that the environmental movements invoke scientific knowledge in order to take over the social control of man-made objects into their hands and to preclude the living space usurpation of so-called man-made “machines”. According to Castells, science is one of the main conditions for the environmental movement functioning. Castells (2006) argues that “the environmental movement must be primarily based on science which is characterised by the control over space and the assertion of place, the governance model of ordinary people (democratic governance)” (p.182-183). The majority of environmental movements function on the basis of values of the eco-centric attitude, the main aspect of which is sustainable development, i.e. the aim to restrict the human domination in the nature. Because of this reason, ecologists invoke science in order to be able to oppose the aim of science to dominate in animate nature, namely on behalf of animate nature. Environmental movements, as it is claimed by Castells (2006), speak up for the superior knowledge, the so-called holistic cognition of processes ongoing in the nature. Both Castells and Eyerman and Jamison distinguished science as well as cognitive knowledge as essential conditions for the functioning of the environmental movement. Jamison (1991: 55) claims that the uniqueness of the movement is described by cognitive practice, i.e. the formulation of new thoughts, ideas, and new knowledge that movements create themselves, which constitute the core of the environmental movements’ activities. Science determines the professional development of modern environmental movements. It means that new social movements attract a disproportionately large number of highly educated, relatively well-to-do people from the social, educational and cultural fields. Such people include teachers and college professors, journalists, social workers, artists, actors and writers (Bryman et. al. 2007:527). The importance of scientific excellence, according to Yerly (1996: 163), led to the division between the core of professional social movements and ordinary movements’ activists who contribute to the movement mobilisation aiming to implement specific environmental campaigns. Eyerman and Jamison (1991:45-50) and Castells (2006:182) noted that knowledge is a key component around which the social movement mobilises, but in this case, the intensity of the movement depends on the interaction between the level of interest in knowledge, implemented political strategies and implied opponents (2000:323). In such case, the environmental social movements are treated as the developers of knowledge about environment and specific environmental problem. The aim of these social movements is the mobilisation of professional experts. Science, as a factor of mobilization, is stressed not only among environmental movements. It is claimed that scientific knowledge influences the public interest in the problem as well as provide the attention of the authorities for environmental problems. As it is stated by Elliott (2004), „scientists have helped to mobilize public debate and force governments to act on environmental problems (115 p.). It is emphasized that the main role of science is „identifying risks...assessing environmental impact and designing and implementing measures to deal with them (Elliott, 2004:115, in WCED, 1987, P. 326).

Thus, the mode of modern environmental movement is inseparable from the professional core and cooperation with various scientific institutions.

THE INFLUENCE OF THE FORMS OF MODE - THE PROTEST ON ENVIRONMENTAL MOVEMENTS’ ACTIONS

For most of theorists a choice of a suitable form of activism is the key condition for success environmental organisations’ activity. According to Wilson (1973:226) the choice of an appropriate form of activism is important, because <...> social movement are often remembered more for the methods of persuasion

adopted by them then for their objectives (cited in Porta et. al. 2006:168). Due to this reason, forms of activism, especially the protest, are directly applied in invoking the media. This has become one of the fundamental strategies of today's grand international environmental organisations. The protest, involving consumer boycotts, petition signing, and demonstrations is an integral form of the new social movements' (environmental) mode. It is also highlighted by Kriesi (1995, cited in Heijden, 2010:20) new social movement activists typically make use of new, unconventional forms of action <...> activists deliberately deploy their own bodies <...> in blockades, site occupations and physical confrontations with the police. These forms of protest must in nonroutinized ways affected political, social and cultural processes. Environmental movements are not the only ones that use protest in their activities, but it is classified as a typical form of activism of the environmental movements, since <...>they have fewer channels through which to access decision – makers (Porta et. al. 2006:168). Forms of activism, chosen by the environmental movements, aim at affecting as broad part of society as possible. In this case, it is not the number of participants taking place in the campaign that is most important but the uniqueness of the form of activism itself. Barry and Doherty (cited in Cahill et.al. 2001:122) highlight such a protest in which spectacular or emotionally powerful actions by small numbers can reach large numbers through the media. Griswold (2008:112) argues that movement activists will often use art – posters, masks, street theatre, or music – to reach the hearts of potential converts to their cause. Meanwhile Gertach (1971, Gertach, Hine 1970, cited in Porta et al. al. 1999, 2006:156-157), Barry (1999) and Doherty (1992, 2002) argues that the period of mass mobilisation of social movements has already elapsed which is evidenced by Lithuanian environmental non-governmental institutions' practice, except some exceptions, such as demonstrations against nuclear power energy. The main change in the scope of mobilisation process is related to the change of the form of activism itself (Cahill et al. 2002: 121-122). Lithuanian environmental non-governmental organisations in their actions emphasise theatrical, peaceful protests, the essence of which is to affect the addressee by the means of mass media (Kriauciunaite et al. 2009:48) “Šiauliai Natural and Cultural Heritage Protection Club “Aukuras” is organizing a group for protest rally. <...> We are preparing posters, banners and other stuff on Thursday <...> When going to the protest rally, you are asked to bring along musical instruments (drums, etc.) or other means of the expression of your opinion” (Protesto akcija pries mišku privatizacija. (2006). [Interactive, accessed on 2008-01-22]. Available online at: <http://www.aukuras.lt/data/protesto-akcija.php>). (Kriauciunaite et.al.2009:48). “With a wood-block and a huge axe, on early Thursday morning, near the residence of Forester General, a butcher appeared, calling himself an executor seeking to find out the wreckers of the forest. Behind him, there was a group of the “greens”, protesting against the planned forest management reform” (Pasitelkiant žaliųjų akcija užsimota stabdyti valstybinių mišku valdymo reforma. (2007). [Interactive, accessed on 2008-02-05]. Available on lineat: <http://www.forest.lt>), (Kriauciūnaitė et.al. 2009:48). However, as Tarrow (2008) and Lipsky (2008) argue, different forms of resistance should motivate people to involve in the environmental movement activities more than peaceful campaigns. According to Lithuanian environmental organisations' leaders, the success of their actions are determined by such modes of activity as festivals and parties, recreational activities, peaceful protests, environmental campaigns, political lobbying. It is also emphasised that most effective tactics in reaching environmental goals is the combination of several forms of activism, that is, complex activities: “complexity... I wouldn't focus on a single form of activism... all activities of our organisation are successful, but the highest effectiveness is reached by combining different activities <...>” (interview data) (Kriauciūnaitė et.al. 2009:50). Leaders of Lithuanian environmental non-governmental organisations identified the application of non-traditional forms in their activities, as having particularly great success in solving environmental problems and choosing suitable means of information transmission in problem solving.

THE INFLUENCE OF MEDIA ON THE MODE OF THE ENVIRONMENTAL MOVEMENTS

Theorists emphasize that the very existence of the environmental movement in society is a kind of a coded message concerning problems that exist in the environment. „Movements are media that speak through action <...>their primary message is the simple fact that they exist and act (Melucci, cituojama Larana 1994:126). According to Eyerman and Jamison (1991), the most difficult dilemma for the environmental movements is a way of transmitting information to the public, i.e. the choice of an appropriate form of activism that would draw media's attention (57). In today's informational-knowledge society, one of the guarantees of the environmental movements' successful activity is the use of media and cyber strategies (see Fig. 2)

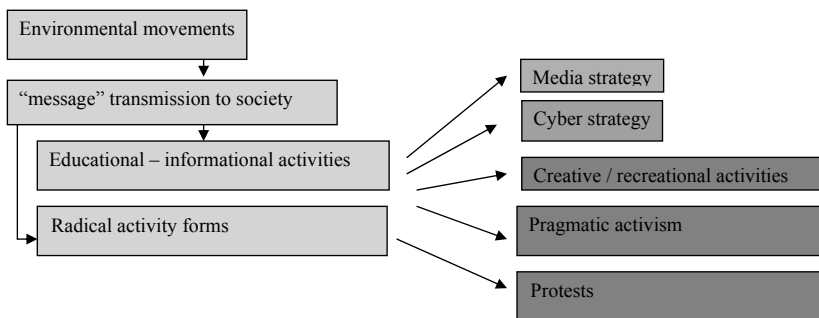


Figure 2. The relationship between the mode of the environmental movements and knowledge

Media are identified as one of the major factors determining the environmental movements' mobilisation and playing an important role in information transmission in today's knowledge society. Castells (2006) argues that the environmental movements <...> employ new communication technologies, particularly the Internet, as means of organisation and mobilisation (188 p.). Mobilisation of environmental movements via the Internet is described as "electronic advocacy" refers to "the use of high technology to influence the decision – making process, or to the use of technology in an effort to support policy-change efforts" (Porta et al. 2006:170, cited in Hick et al. 2002:8). Walgraave, Manssens (2000:235, cited in Porta et al. 2006:220) treat mass media as a tool, stimulating mobilisation and influencing resistance campaigns. Forms of online resistance are distinguished, which are applied in the activities of the new social movements, i.e. "netstriking". Another form of protest, similar to "netstriking", but more rarely used via the Internet is "mail bombing" (Porta et al. 2006:172). Porta and Diani emphasises the function of social movements in information dissemination that is implemented through mass media. Control of intellectual resources is an essential condition for successful collective action; rendering a form to so called risks becomes an unattainable goal, if it is impossible to use the media. Griswold also accentuates the issue of the environmental problem becoming the environmental risk. In this case, the main problem of the environmental movements is the actualisation of the environmental problem in the public space, i.e. constructing its, as risk's, importance to the entire society. Most of Lithuanian environmental non-governmental organizations' leaders stated that the successful mode of the environmental movements requires the following factors: a) legal knowledge, b) choice of channels for information transmission, c) relevance of the solved environmental problem d) time devoted to the environmental problem solution. However, the strongest emphasis is put on media strategy as mostly

attracting public attention. Media strategy is widely applied because it has the potential of quick spread of information to wide range of social groups - even those not interested in environmental issues (Kriaučiūnaitė et al. 2009:46). According to Jamison, modern environmental NGOs have developed effective media strategies, application of which makes the environmental organisations' activities and problems publicly visible. In this case, the exclusive role of professional organisations is emphasised, suggesting that the usage of media is more difficult to implement for less professional organisations. Castells (2006) argues that media strategy is chosen because it has a high level of society's confidence in the media. Meanwhile, cyber strategy is applied for spreading of information and attracting new members. Pursuant to Castells (2006), websites become the main gathering place for environmental movements. Thus they play an important role in informing the public about specific environmental movements' mode and problems they solve. According to Tarrow (2006), in order to create a unified cultural understanding, environmental movements compete with the media which transmit messages, created in the result of movements' practical activities, and they try to influence information transmitted by informational means (147). This is also endorsed by Griswold (113), the media can be the tool for presenting a problem and its possible solution. It is said, that the media can turn into entertaining news – news that sells. Thus, in this case, it is important for environmental organisations to reach the consumer, who would understand the message they convey and whose further actions, or even lifestyle, would be under their influence. The feature of mass media to transform complex scientific information into the popular, available to the public is emphasised by Cottle (1993:128, cited in Hannigan, 1995:68) <...> a journalistic prism which reduces <...> stories such as global warming to the more <...> mundane domestic and leisure concerns of ordinary consumers; for example, whether a beach holiday is likely this summer. Thus according to that it is stated that environmental catastrophes are the bread and butter of environmental news coverage (Hannigan, 1995:65). It should be noted that in order to get society's attention or favour, which is one of the major guarantees for successful environmental organisations' actions, in regard to a particular environmental problem, according to the environmental sociologist Hannigan (2011:237), the following six factors are necessary:

- Scientific validation and the public;
- The existence of “popularisers” who can bridge the gap between science and the public;
- Media interest in the issue;
- Dramatisation of the problem in symbolic and visual terms;
- Economic incentives for taking positive action;
- Institutional sponsors who ensure both legitimacy and continuing attention to the issue.

Therefore we can affirm that the most emphasis is put on the importance of mass media on the environmental movements' activities. In consideration of that, environmental movements are raised the following requirements and stages of their actions. The first one in this case is attracting mass media to specific environmental theme or problem. The assumption of mass media attraction is an unusual choice of form of activism, as aforementioned theatrical protest, a campaign that invokes scenic elements, sometimes dramatises events in order to achieve the desired addressee, i.e., mass media's assistance. Naturally, today various natural disasters receive an exceptional mass media's global attention without any additional efforts. In this case, mass media invokes experts of various fields, including environmentalists, professionals of environmental organisations, aiming to enhance the environmental topics, to emphasise the causality of processes in progress and their potential influence not only upon the regions hit by disasters, but also on zones that are far away from them. In this respect, mass media plays a role of so-called “populariser”, capable of combining scientific knowledge and society in a simple, everyday way. One of the ways of scientific knowledge dissemination is educational as well as documentary films for the audience of all ages, where well-known public figures are acting: politicians, actors or children's film heroes. Scientific recognition in this instance is

also relevant. This is a public recognition that specific scientific information is really important and topical and eloquent not only among academic communities but is related to further prosperity and life quality sustaining of the entire society. The success of the environmental movements' mode is directly associated with material resources, i.e. not only with organisation's financial situation but also institutional resources, combined by the movement, are also emphasised. In consideration of this, stress is laid on the importance of movement's cooperation with various organisations, i.e. organisations of the same field, academic communities, organisations whose members could be used for implementing various forms of activism; also it is a part of organisations that provide financial support or legal advices. Giugni (2004) claims that "members and money are perhaps the two most important international resources of social movements" (153 p.).

CONCLUSIONS

1. New social movements (environmental) are an inherent constitutive part of today's society that is called as the risk society, the society of social movements by theoreticians and it carries out an important role in the process of implementation of "greening policy", stimulating the green civic engagement, emphasizing environment protection problems in the society, contributing to the creation of public discourse of environment protection.
2. The successfulness of the mode of activity of environmental movements is influenced by the following aspects in the modern society: the organisational structure based on networking, the choice of right forms of activism in order to solve environmental problems, usage of communication channels as well as the level of professionalism of the organisation.
3. The networking structure of environmental movements performs the functions of the organisation's operation, formation of the identity, mobilization, distribution of information. The bi-pole structure of organisations making up the environmental movement determines their adjustment to the changing circumstances of the mode of activity, and it is one of the conditions of the survival of the movement.
4. The successfulness of the functioning of environmental movements is directly related to the choice of the right form of activism and the choice of the mediator between the society and the environmental movement. The condition of the successful functioning of the environmental organisation is: the selection of the mode of activity that would be interesting for the media, with the help of which communication technologies are invoked and the information as wanted by the environmental organisation is transferred to the society.
5. The condition of the successful functioning of the environmental organisation is science. It conditions the functioning, mobilization of organisations, the creation of cooperation networks, successful solution of "green" conflicts; environmental organisations also actively participate themselves in generating scientific knowledge.

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Flexible Employment Forms as an Element of Flexicurity

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Abstract. Flexible employment forms are one of the elements of active labour market policy which is connected with flexicurity system. The new option on labour market in the present times. Results of the global economic crisis and the demographic situation related to ageing societies cause a need to implement solutions on the labour market which shall be both flexible and protective. Flexible forms of work are forms of work which deviate from the typical form of employment such as a permanent employment contract. These are atypical forms of employment whose characteristics include flexible working time and place, the form of employment, other relations between the employee and the employer. They are a truly new approach in the labour law as they more and more depart from the classical job under a permanent employment contract.

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INTRODUCTION

The globalisation phenomenon in the present times causes numerous fears in various countries, despite their social and economic development level. Almost day after day, globalisation has become the most urgent problem of our times, something discussed from conference rooms to newspapers and universities all over the world (Stiglitz, 2004, p.22). Economic processes resulting from that phenomenon are followed by numerous changes, including ones on the labour market, causing break of social bonds by growing unemployment. Societies in low and middle developed countries, Poland included, expect globalisation with human face, one which by changing the labour market shall contribute to improve the level of life for the whole of society. Such expectations induce an analysis of changes occurring on the labour market in globalisation conditions (Księżyk, 2005, p.288).

Results of the global economic crisis and the demographic situation related to ageing societies cause a need to implement solutions on the labour market which shall be both flexible and protective. Processes occurring on the labour market strongly impact the feeling of stability and welfare of households. The situation

in this sector of the economy has been the subject of many political debates, media discussions and academic discourses. Discussions on the labour market reveal authentic dilemmas related to making a choice between flexibility and safety of citizens.

In the article, the author has stressed the meaning of flexible forms of employment in the present times, presented a concept of a model labour market that exists in Denmark and is recommended by the European Union. Attention should be paid to the fact that flexible forms of work make an important element of the flexicurity concept which contributes to modernisation of labour markets across Europe and to more effective meeting of globalisation challenges.

FLEXICURITY AS A NEW MODEL OF THE LABOUR MARKET

Across Europe labour markets change, the flexicurity model is being implemented. The model was created in Denmark as a reform programme for the labour market. The term *flexicurity* derives from the English language and was made of two words: *flexibility* (elasticity, susceptability) and *security* (safety, guarantee, protection). Flexicurity is a model of flexible security upon which the present labour markets should be based which link making employment more flexible with improvement of employment security. This mainly refers to groups which are in difficult circumstances that is women returning to the labour market after a break caused by having a baby, the disabled, people 50+ and fresh graduates. This term can also be interpreted as an integrated strategy of simultaneous increase of labour market flexibility and security. A strategy which should ensure a swift transfer from the moment of completing education to commencing work and finally retiring. Flexicurity refers to looking for solutions beneficial for both parties on the labour market, i.e. employers and employees. As a concept, it is a complex approach to creating a labour market policy that binds satisfactory flexibility of contracts with ensuring security for employees in respect of keeping their jobs or finding a new one in a short period of time. It is equally important to ensure proper incomes for an employee in a period before commencing work. Such a solution may be beneficial both for employees and companies. Such flexibility means creating conditions where employees will be able to easily get or change a job, and when improvement of their qualifications shall increase employer's safety and benefits (Kuklak-Dolata, 2010, p. 146). Flexibility of this model allows to adapt to the continuously changing labour market. In its assumptions, it sees individuals at each phase of their professional and private life. On one hand it assumes flexible work organisation which facilitates combining career and private life and improving or changing professional qualifications in a short perspective, on the other it ensures social safety in case of losing jobs by providing support to those laid off by possibilities of quick requalification and to the unemployed by a good motivation system. The model is recommended by the European Union as the example to be followed by other member states. Also, the EU has found the flexicurity concept as the best method to adapt European labour markets to changes and therefore to fulfil the Lisbon Strategy objectives. The flexicurity model has become the leading element of the labour market and employment policy in the European Union which, however, does not assume creation of a uniform model in all the EU states.

THE FLEXICURITY MODEL IN EUROPE

There are currently two flexicurity models in Europe: Danish and Dutch. However, these are not the only countries where changes have been introduced to the labour market. In Germany, Austria, Belgium and Spain attempts have been made to implement concepts which bind labour market flexibility with social security, though the final result has been different in each of these states. For instance, German regulations

guarantee employees a possibility to transfer from a full-time job to a part-time job. In Austria conditions are created for vocational mobility and attempts are made to reduce employers' costs of paying gratuities. The Belgian system stresses supporting job seekers in the transitory period by establishing vocational consultancy and supporting professional reorientation (Arczewska, 2008, p.80).

The Danish model, which is set as an example, which joins flexibility with social security was established in 1990s. The social-democrats who ruled at that time allowed employers to dismiss employees more easily but at the same time guaranteed generous benefits which allowed to survive the period of looking for a new job.

Flexicurity in Denmark is based on abandoning actions which stress employment stability in favour of high numerical flexibility which means accepting employers' freedom in employing and dismissing staff and therefore lower employment protection. This approach is counterbalanced with a high level of social protection for the unemployed and availability of activating programmes. Ability to use a full range of social benefits depends on participation in an activating programme. Obviously, the Danish model is not cheap but what is more important it is effective (Analiza..., 2011, p. 5).

The essence of the Dutch model involves development of temporary employment and part-time employment with gradual expansion of social protection over atypical forms of employment. Interest in part-time jobs comes mainly from women as they allow them to combine professional career with rising children. Within the Dutch flexicurity, part-time employees enjoy almost equal social security as full-time staff which is guaranteed by the structure of the pension scheme. Another characteristic is a dynamic growth of temporary employment agencies which act as agents in employment relations between the employee and the company. This mechanism gives employers numerical and functional flexibility and does not deprive employees of social security which is ensured by their employment relationship with an agency (Arczewska, 2008, p. 80).

Another country which attempted to introduce the flexicurity model is Spain. In the 1980s and 1990s, as a result of implemented reforms, fixed-time and part-time employment increased but only for specific groups of employees. That mainly referred to young, well-educated people who could not achieve a stable situation on the labour market and whose competencies outdated. Another group were employees with a longer employment record, with lower skills who were usually employed for an indefinite period. It should be noted that actions taken in Spain did not result in creating a flexicurity model but contributed to a division of the labour market according to the economic concept of *insider-outsider*. The Spanish reform resulted in establishing a structural factor of social stratification where part-time or fixed-time jobs with lower salaries/wages became available for young people, yet without any guarantee of a full-time employment. In mid-1990s Spanish authorities noticed the problem and took respective recovery actions. However, their effectiveness is limited as "the division of employees into insiders and outsiders is easier to introduce than to terminate" (Arczewska, 2008, p. 80).

COMPONENTS OF THE FLEXICURITY MODEL

In order to implement the flexicurity model, i.e. to balance flexibility and safety on the labour market, four conditions which comprise the so called flexicurity components have to be fulfilled:

1. Effective active policy of the labour market
2. Complex strategies of lifelong education
3. Modern systems of social security
4. Availability of proper (flexible and reliable) contractual arrangements

Table 1

The four components of the Flexicurity Model

Flexicurity Model			
Active labour market policy	Complex strategy of lifelong education	Modern systems of social security	Flexible contract conditions.
Focused on activation of and support for people in particularly hard situation on labour market, especially the unemployed	A process striving at continuous increase of human capital and improvement of employees adaptation to any changes on the labour market.	A proper support of income which facilitates employment and mobility on the labour market. Social benefits should not permanently replace incomes from work.	Legal grounds to legally use flexible employment forms which ensure work flexibility and reduce market segmentation and the extent of unregistered employment.

Source: author’s research on the basis of: *Flexicurity*. Information campaign for promotion of flexible employment forms, a project co-financed by the European Union within the European Social Fund, 2011, p. 5

Bearing in mind that the flexicurity model is supposed to ensure work safety for employees on one hand, and on the other to make employment more flexible for the employer, the labour market institutions should develop the following components of this model:

1. **Active market labour policy** - regardless of the labour market situation, there have always been groups of people who due to various reasons have smaller chances to get and keep a job. The flexicurity model is supposed to improve the vocational situation of such people by providing them with opportunities to find employment and appropriate job. This refers to women, the disabled, the elderly or youth entering the labour market for the first time. This, however, requires support from institutions which deal with the labour market and are capable to identify best maladjustments on the labour market and react in an appropriate manner assisting in finding a job.
2. **Complex strategy of lifelong education** – a prerequisite for a success of the model is introduction to the educational system, as early as in kindergarten, elements which prepare young people to independently manage on the labour market and shaping awareness that the school education is the beginning of a path which leads to work. In order to keep employment and develop professionally, it is necessary to improve qualifications throughout entire life through various forms of continuing education (self-education, trainings, studies, internship, traineeship). A strategy of lifelong education should ensure constant ability of employees to adapt to changes and to be employed in various jobs and places.
3. **Modern social security systems** – the most important binder for flexicurity is ensuring safety during unemployment periods. A cohesive and transparent system of social security should be a guarantee here. It should include temporary financial support in the form of benefits and aid. This type of social security aims at balancing negative impact of job loss upon incomes of the unemployed but in amounts which should not discourage from reemployment.
4. **Flexible contract conditions** – the basic pillar of the approach which regulates employment relationships between employees and employers is differentiation of contract conditions in respect of employment time, place of work, remuneration rules or stability of employment. Flexible contract conditions are achieved due to a modern labour law, collective agreements and modern organisation of work (Flexicurity..., 2011, p. 5-6).

As economic analyses show, simultaneous use of the four components influences improvement of capability to employ people, increase the human capital and reduce the risk of poverty.

FLEXIBLE FORMS OF WORK

When analysing flexicurity, attention should be paid to one of the key elements of an active labour market policy, namely atypical or flexible forms of work. In the times of such dynamic changes as globalisation of economic processes, development of information and telecommunication technology or expansion of services, the traditional model of work is being gradually abandoned. Growing competition forces companies to be flexible when choosing forms of employment and organisation of the working time. Competitiveness is based on ability to quickly react to changes or even to be ahead of them. Productive employment becomes essential, that is one which is needed and fully used by a company. It shows adaptation of the number and type of employees to quantitative, qualitative and time demand for work. Gradually, the society is changing the stereotype of employment concepts. Until now such ideas as: permanent, unchangeable, full-time have been desired by labour market participants, now the following terms are more and more popular: flexible, dynamic, variable, mobile. Currently, companies may be more competitive where employees show flexibility, continuous search for better solutions and innovativeness. It can be more frequently observed that employees are trying to understand that evolution, observing changes occurring in the world.

The term of flexible forms of work may be defined as work performed under a legal employment relationship but provided in part-time, under non-standard time schedule or for fixed period. The term may also be understood as employment on a basis other than employment relationship. Such employment is then exempted from the labour law discipline especially in terms of working time and remuneration amount. The traditional employment, understood as employment on the basis of a permanent employment contract of time is being replaced to still higher extent with flexible forms of employment (Arczewska, 2008, p. 78).

Nowadays, the adjective 'flexible' accompanies numerous nouns and often denotes ability to adapt to changing conditions of one's environment. Flexibility on the labour market is a more and more desired feature and refers to: the scope of work (readiness to take new tasks, unrelated to the current scope of obligations), the working time (often understood as a synonym of availability) and the form of contract signed with the employer. Such an approach to flexibility results in problems with discriminating between flexible and atypical solutions, positive and negative flexibility and we do not know which solutions among those frequently listed in our strategic documents and operating programmes would be helpful in activating numerous people who suffer from special difficulties related to entering and staying on the labour market (Elastyczne..., 2011, p.10).

The subject literature presents the following most popular division of flexible forms work:

1. **Employment under employment contract** within a classical employment relationship which includes such forms as: **fixed-time contracts** (for a fixed period, until completion of a given job, probationary period, substitution, part-time employment), **labour leasing, telework, on-call job, job sharing.**
2. **Employment without employment contract** which is not subject to labour law discipline, especially in respect of the working time and the place of work. This category includes: employment on the basis of **civil law contracts** (mandate contract, contract for specific work, agency contract) and **home based work.**
3. **Other** which do not match the aforementioned categories: **outsourcing** (permanent order of providing external services), **self-employment, job rotation**

Making employment more flexible is obviously beneficial for reducing labour costs and soothing unemployment effects. People are employed who would not get a traditional employment due to higher labour costs. On the other hand, it should be remembered that labour law objective is to protect employees. Therefore, European labour law regulations stress balance between flexibility and security. Development of flexible

forms of work is also appreciated by employees. Atypical employment is considered a beneficial form e.g. by women who want to combine professional duties with upbringing children. Also, this is a convenient form of employment for highly-qualified staff who value their time, for the disabled for whom commuting itself is a problem and also for regular employees working within the classical pattern of employment relationship whose remuneration is low and who are forced to look for additional work (Planowania kariery Zawodowej, 2011, p.10).

In the Polish conditions, the basic and superior strategic document which specifies objectives and priorities for social and economic development and conditions which should ensure that development is the National Development Strategy 2007-2015. The Strategy sets forth objectives and identifies key areas to achieve the goals upon which national actions shall focus. Priorities approved within the strategy define essential directions and main actions which should allow to reach the main objective. The priority regarding growth of employment and improving the quality of life strongly stresses a need for promotion and use, to a higher extent, of flexible and alternative forms of employment and organisation of working time and conditions (Elastyczne formy zatrudnienia, 2009, p.6).

Flexible employment forms are still a novelty on the Polish labour market. Nevertheless, the current situation in Poland which characterises with dynamic economic and technological changes together with labour-related migration of Poles causes an increase of demand for temporary workers and other representatives of atypical forms of employment. Flexible employment is becoming attractive not only for employers. It is becoming more and more popular among employees and representatives of public services of employment. That is because its broader application may restrict unemployment and work on the black market, increase mobility and activity on the labour market and enhance competitiveness among companies as well as influence reduction of public spending on benefits for the unemployed. When it is the labour efficiency per hour which matters more and more rather than the number of hours spent in an office, an important factor to popularise non-standard forms of employment is a necessity to escalate employees' efficiency. Its growth may be achieved by reducing the number of hours spent at the workplace, allowing individual organisation of a working day which should lead to better use of employees. Differentiation of the working time is willingly accepted by staff as it allows better adaptation of the working hours to their current needs. This allows employees to individually arrange their time, approach their tasks, work at their own pace and combine professional and private life. Then employers use the opportunities brought by flexible employment to increase company attractiveness on the labour market and to keep specialist with required qualifications in the company (Arczewska, 2008, p. 26).

Currently, entire Europe, Poland included, turns attention to flexible methods of labour and working time organisation which give a chance to: improve the quality of work, increase employment, develop competitiveness, help combine work with private life of employees. Flexible employment forms are more often perceived as a desired reaction to the current challenges on the labour market.

CONCLUSION

“Flexible forms of work” as a term operating on the labour market is difficult to define. It is often identified with a statement that these are forms of work which deviate from the typical form of employment such as a permanent employment contract. Therefore, these are atypical forms of employment whose characteristics include flexible working time and place, the form of employment, other relations between the employee and the employer. They are a truly new approach in the labour law as they more and more depart from the classical job under a permanent employment contract. They are gaining popularity as the

Polish labour market, just like the European one, is continuously changing due to growing competitiveness, needs to introduce innovative solutions and a risk of economic crisis. Facing the global economic crisis, new and unused solutions gain remarkable importance which link flexibility with security creating the so called flexicurity model. The precursor of this model on the labour market was Denmark followed by other Nordic countries. The modern labour market requires adaptation from all players who have to be ready to face big variability which demands continuous education. Qualifications become still more important condition of success on the labour market as they allow higher flexibility both for employers and employees.

It should be noted that the tendency to use flexible employment forms carries numerous benefits as it involves lower labour costs, better adaptation of the infrastructure and employment size, staff rotation and reduction of social benefits. Unfortunately, untypical employment clashes against employees' fears mainly caused by missing stability of employment as compared to the traditional model. It should though be expected that in the years to come, flexible employment shall act more and more significant role by increasing the total number of working people through activation of groups which so far have been vocationally passive.

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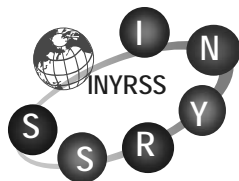
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PROMOTION OF INTERNATIONAL SCIENTIFIC NETWORKS

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The online reviewed (refereed) publication of **International Journal of Research Trends in Social Sciences (IJORTISS)** has been initiated by the founders of the **International Network of Young Researchers in Social Sciences (INYRSS)** in 2005 as an outcome of the 5th IGYS (International Group of Young Scientists, based at Kaunas Faculty of Humanities, Vilnius University, Lithuania) International Scientific Conference for Senior and Junior Researchers "Postmodern Society and Consumption Patterns from the Perspective of Social Sciences", organised on 15-16th April, 2005 in Kaunas, Lithuania.

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On behalf of TIBE Editorial Board
Prof. habil. dr. Dainora Grundey,
Deputy Editor-in-Chief



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Finally, papers, as with all other aspects of the Journal, can be addressed to the Editorial Office: Journal of Scientific Papers „Economics & Sociology“, Konovalca Str, 10/49, 46020, Ternopil, Ukraine, www.economics-sociology.eu

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