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PROLOGUE

In October 2016, NEWTON College organized the 10th International Conference from the cycle European Entrepreneurship Forum with over 80 participants.

The topic of this conference was "Economic Growth and Economic Policy". The conference was held under the auspices of the Ministry of Industry and Trade of the Czech Republic. The conference was attended not only by academics but also practitioners and policy makers.

Among the keynote speakers were Mr. Jan Mládek (Minister of Industry and Trade of the Czech Republic), Mr. Miloslav Kala (President of the Supreme Audit Office), Mr. Martin Fassmann (Chief Economist of Czech-Moravian Confederation of Trade Unions), Mr. Petr Očko (Chairman of the Technology Agency of the Czech Republic), Ms. Eva Zamrazilová (Chief Economist of Czech Banking Association).

The tenth year of the European Entrepreneurship Forum laid conditions for active participation of domestic and foreign attendees.

Conference details are available at the web site of the conference at www.efp.cz.

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PERSONALITY TRAITS HAVE AN EFFECT ON THE WAY ACUTE STRESS INFLUENCES PERFORMANCE AND DECISION MAKING

Eva Ambrozová, David Mac Gillavry

Abstract

Being able to perform under acute stress conditions is of vital importance for those in management positions. How stress influences behaviour and performance is however less clear due to personality differences between people. The following exploratory study aims at the identification of personality traits which potentially influence people's ability to perform under acute stress conditions. For this study, test results on four tests, 2 personality tests (GPOP and SPARO), one intelligence test (IST, subtest Generalisations /GE) and one performance under pressure test (RČS), of 53 respondents were analysed. Our results show a positive correlation between several personality traits and the subtest GE of the IST test and RČS scores.

Keywords: connatural management, decision making processes, performance under stressful conditions, X– tream management training

JEL Classification: M14, M12

Introduction

It is widely recognised that stressful situations can influence decision making processes and performance (Essl & Jaussi 2015; Baumeister et al. 1993; Shields 2016). However, how stress influences people's ability to make accurate decisions varies greatly from person to person, indicating that the way we process stress into behaviour is largely depended on individual differences and personality traits (Dewberry et. al. 2013; Shields et al. 2015a; Ambrozova et. al. 2015). Consequently, it has proven extremely hard to develop both methods for predicting people's abilities to make accurate and rational decisions under stressful conditions and tools to train people to make better decisions under such circumstances. The following exploratory study addresses some of the potential correlations between personality differences and quality of decision making and performance under acute stress conditions.

The research into the effects of stress on performance and decision making broadly falls into two major currents; the effects of stress on executive functions[1] and personality differences in the way stress translates into performance and overall behaviour. The former research field has centred largely around the effects of the hormone cortisol on working memory, cognitive inhibition and cognitive flexibility and has yielded conflicting results. The effects of cortisol on working memory, for instance have been shown to be both positively and negatively related to working memory depending on the time-lapse between administering the hormone and subsequent testing, with a longer delay (more than an hour) leading up to enhanced working memory, whilst a short delay (less than an hour) had adverse effects (Shields et al. 2015b). A recent meta-study does however indicate that, generally speaking, stress negatively affects executive functions in favour of response inhibition (Shields et al. 2016). Hordacre et al. have, in addition, shown stress to be beneficial for perceptual motor-learning (2015), which further bolsters the notion that stress favours motor over executive functions.

[1] Executive functions is an umbrella term for working memory, cognitive inhibition and cognitive flexibility (Diamond 2013).

The latter research field, aimed at personality differences, has been more dispersed. There is considerable evidence for a link between personality and discussion making on the one hand and overall performance on the other (See for instance: Dewberry et. al. 2013; Davis 2007; Grant 2013; DiFabio & Palazzeschi 2011). However, how personality relates to decision making under acute stress is less clear. Several meta-studies into professional success, an indirect marker of reasonable to accurate decision making in real-life, which naturally includes stressful episodes as well, have shown contentiousness to be positively related to quality performance (Dudley et. al 2006; Salgado 1997). Other traits, such as anxiety (Erickson et. al. 2009) have been linked to negative work related outcomes. While yet others seem to have limited to no effects, positive or negative, introversion (Steward 1996, Barrick et. al. 2001) and extraversion (Barrick et. al. 1993, Furnham & Fudge 2008, Steward 1996) with their equilibrium, in this case ambiversion, linked to higher success rates (Grant 2013). Moreover, of the dark triad traits (narcissism, machiavellianism and psychopathy) only psychopathy has been shown to hinder social and economic success, with narcissism being positively related to income and machiavellianism to leadership positions (Spurk et. al. 2016). Narcissists, in addition, have been shown to be more successful at differentiating between true and false information (Byrne & Worthy 2013).

Another research direction is concentrated on the effects of certain personality traits, predominantly those which are related to psychological disorders, on the quality of people's performance and decision making. Both borderline personality traits (Paret et al. 2017; Preuss et al. 2016; Svaldi et al. 2012) and anxiety (Zao et al. 2015) have for instance been shown to impair accurate decision making. How non-disorder related traits affect performance and decision making under specific circumstances, rather than collections of circumstances as is the case with overall professional success, is less well known. The following study is an initial exploratory venture into potential correlations between certain personality traits and people's ability to perform well under acute stress conditions and should serve as an indicator for further research.

This study arose in the context the X-tream management project[2], which aims at the development of training tools for the improvement of performance under stressful conditions in both business and military settings (Ullrich & Pokorny 2012). The project emphasises the importance of individual differences and under its banner, a conceptual theme, Connatural Management (CNM), has been developed at Newton College (Ambrozova et. al. 2015). CNM centres around the idea that individual differences dictate people's abilities to react accurately under stressful conditions. The study presented over the following pages reflects this emphasis.

1. METHODOLOGY

Participants were tested after a training session within the X-tream management training program (for their ability to perform a complicated decision making task (the RČS test) and for their general intellectual capacity (the subtest Generalisations /GE of the IST test). Both tests apply time pressure to induce stress. We hypothesised that:

There exists an observable correlation between certain personality traits and elevated test scores on the RČS test and a subtest GE of the IST test (henceforth referred to as the IST GE test) in relation to pre-training results.

[2] The X-tream project is a joint project between the Czech military academy and Newton College, a private business university situated in Brno, Czech Republic.

To identify the expression of different personality traits in our sample, we used GPOP questionnaire (Golden Profiler of Personality 2009), and the SPARO questionnaire (Mikšík 1997). The GPOP questionnaire is a 'broad-spectrum personality survey' based on both 'Carl Jung's theory of psychological type' and the '"Big Five" model of personality' (Golden, 2005). It concentrates on five bipolar personality spectrums: Extravert/Introvert, Sensing/Intuiting, Thinking/Feeling, Judging/Perceiving and Tense/Calm (Golden 2005). The SPARO questionnaire (Mikšík, 1994) analyses personality variables in relation to situational influences. The quality of decision-making and performance was assessed using the Decision-Making Under Time Pressure (RČS [3]) test by Komárková (1993) and the Intelligence Structure Test General IST, subtest GE test by Amthauer et al. (2005). The RČS includes different stress conditions (environment, testing, presence of a psychologist) as well as a general stressor: time pressure (Komárková, 1993). The test analyses both the speed and accuracy with which a subject makes decisions in a test setting.

2. PARTICIPANTS

For this study 82 participants were recruited from the X-tream management training program, age 20-25). 53 respondents were used for statistical analysis. The remaining 29 were discarded because their test results were lower after training were lower than before training, indicating that their datasets would not yield information about character traits which are related to elevated levels of performance.

3. RESULTS

In order to establish the dependency between the different personality characteristics, as observed in the SPARO and GPOP tests, and the results of the RČS and the subtest GE (IST GE) tests, a Pearson chi-square test was used. We have, due to the exploratory nature of this study, opted to limit analysis to the test results of the complete population, mean scores, rather than subgroups or individual participants. Table one shows the overall scores on the IST GE and the RČS tests and serves as the focal point of this analysis.

Table 1 - Basic descriptive statistics of main variables

	IST GE	RČS
Mean	0,660	0,470
Std. deviation	0,478	0,504
Variance	0,229	0,254

Source: own research

The results of the GPOP test[4] show that the highest mean scores (max 10.0), which we assume are the traits responsible for elevated results on the IST GE and the RČS tests. Given the nature

[3] Because we made use of the Czech version of the test, we refer to it under the Czech abbreviations RČS.

[4] For a complete overview of the abbreviations used in tables 2 and 3 see: appendix. In the text we limit explanation to those which are important for the current analysis.

of the GPOP test, we do not consider the possibility that lower scores on one of the items might lead to higher performance. Especially SP (Reliability), Kon (Factualness) and Kri (Critical thought) are interesting in this respect because of their relatively high mean scores and because these variables have been observed to be most affected by self-improvement training (the X-tream management training program) in this particular sample (data not shown).

Table 2 - Basic descriptive statistics of GPOP field[5]

	SP	UV	KON	REA	AB	IMA	MY	OBJ
Mean	5,604	4,604	5,906	5,811	3,736	4,039	5,698	5,019
Std. deviation	2,231	1,8947	1,9242	1,8403	1,8517	1,7205	2,2239	2,0427
Variance	5,167	3,590	3,702	3,387	3,429	2,960	4,946	4,173
Contingency coefficient	0,3967	0,4115	0,3258	0,3167	0,4956	0,4260	0,3903	0,4070
	KRI	CIT	SUBJ	AKC	STR	DET	IMP	CEL
Mean	5,396	4,377	5,151	4,679	5,755	4,981	4,302	4,962
Std. deviation	1,8011	2,0118	1,9454	1,8890	2,0466	2,0333	2,2752	2,1210
Variance	3,244	4,047	3,784	3,568	4,189	4,134	5,176	4,499
Contingency coefficient	0,3338	0,4596	0,3777	0,4037	0,3556	0,4082	0,5289	0,4274

Source: own research

Table three presents the test scores for the SPARO test. For this analysis we have chosen to incorporate all four categories into the final analysis.

Table 3 - Basic descriptive statistics of SPARO field

	KO	RE	UR	PR
Mean	6,600	5,750	5,830	5,300
Std. deviation	1,9150	2,1830	1,7840	1,7820
Variance	3,667	4,766	3,182	3,176
Contingency coefficient	0,2902	0,3797	0,3060	0,3362

Source: own research

We observe, on the basis of their relatively high mean scores, that several categories of the GPOP test and all four of the SPARO test are interesting in relation to the current research (see highlighted cells). Table four shows the results of the Pearson chi-square tests we have

[5] Ibidem.

conducted to establish the dependency between the results from the IST GE and the RČS on the one hand and the results of the GPOP and the SPARO tests on the other.

Table 4 - Results of Pearson'S chi-square test

		SP	KON	REA	MY	KRI	SUBJ
IST GE	Chi-square value	0,040	0,715	0,298	0,643	0,774	0,500
	Contingency coefficient	0,572	0,448	0,539	0,578	0,348	0,448
RČS	Chi-square value	0,050	0,740	0,351	0,340	0,786	0,370
	Contingency coefficient	0,552	0,443	0,530	0,617	0,345	0,471

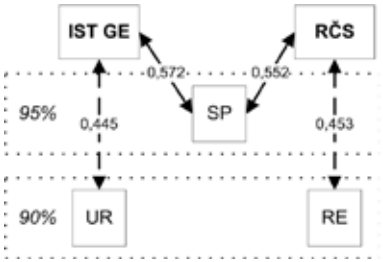
		STR	KO	RE	UR	PR	
IST GE	Chi-square value	0,303	0,659	0,508	0,070	0,868	
	Contingency coefficient	0,538	0,294	0,347	0,445	0,261	
RČS	Chi-square value	0,127	0,353	0,091	0,399	0,421	
	Contingency coefficient	0,575	0,358	0,453	0,348	0,365	

Source: own research

Maintaining a 95% reliability for the chi-square test, the observed values of the variables, taken from the GPOP, and the RČS and IST GE values were set off against 0,05 which represents a 5% reliability level. The results for the IST GE showed a value of $\alpha = 0{,}040$ for the variable SP and the RČS a value of $\alpha = 0{,}050$ for the same variable. Because these values are less than 0.05, it can be concluded that these values are not independent and thus that there exists a dependency between both the mean SP scores on the GPOP test the mean scores on the RČS and IST GE tests.

Maintaining a 90% reliability for the chi-square test of the independence of the SPARO scores and the RČS and IST GE values we observed an inverse correlation between IST GE scores and UR (Effective reasoning capacity) scores on the SPARO test; $\alpha = 0{,}070$. We also observed a dependency between the RČS test and RE (Emotional variability) scores on the SPARO test; $\alpha = 0{,}091$. The Figure 1 shows how these values relate to each other.

Figure 1 – The interrelationship IST GE, RČS, UR, RE



Source: own research

On the basis of these results we assume that, at least for our sample, a dependency exists between individual variables on the GPOP and SPARO tests on the on hand and mean scores on the RČS and IST GE tests on the other. In a subsequent analysis we analysed the extent of this dependency using contingency coefficients. Any score <0;1> in this test can be assumed to show a certain level of dependency with a higher value indicating a stronger dependency.

Previous results showed that there are relationships between individual variables and RČS and IST GE. Subsequently, the degree of such dependencies were examined. To that end, the intensity of dependency determined by means of contingency coefficient as per formula (1) was used. The intensity of dependency ranges between <0;1>.

Using the following formula: $C_p = \sqrt{\frac{\chi_p^2}{\chi_p^2+n}}$ where C_p stands for contingency coefficient, n for number of cases and – for Pearson's chi-square.

On the basis of this analysis we can say, with a 95% level of confidence, that there are two dependencies:

1. IST GE and SP with a value of 0,572 – intensity inclines to be medium to high
2. RČS and SP with a value of 0,552 – intensity inclines to be medium to high.

And two dependencies at a 90% confidence level:

1. IST GE and UR with value 0,445 – intensity inclines to be medium;
2. RČS and RE with value 0,453 – intensity inclines to be medium.

Conclusion

In this exploratory study, we observed, within a limited sample, a positive relationship between test results on the RČS test and a subtest of the IST GE test on the one hand, and Reliability, as tested for in the GPOP test. Within the context of the GPOP test, Reliability refers to a preference for order, organisation and structure. Related to Reliability in this sense is the ability to be goal orientated and focussed. The results of the SPARO test were more dispersed, with Effective reasoning capacity being positively correlated to the IST GE subtest scores and motional variability to RČS scores. Taking into consideration that this report contains the results of an exploratory study, it will be necessary to corroborate these relationships in future research. Especially Effective reasoning, which reflects cognitive approaches to dealing with difficult situations and tasks and our ability to mitigate the effects of emotional stimuli, and Emotional Variability, which involves self-control, are highly valued traits in for people in high ranking positions and further research into their effects on performance and decision making is thus warranted.

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Appendix:

SP (Reliability)

KON (Factualness)

KRI (Critical thought)

MY (Thought)

STR (Structuring)

UV (Caution)

AB (Abstractness)

IMA (Imagination)

OB (Objectivity)

CIT (Feeling)

AKC (Acceptance)

DET (Sense of the detail)

CEL (Sense of whole)

IMP (Impulsiveness)

RE (Emotional variability)

KO (Cognitive variability)

UR (Effectiveness of reasoning)

PR (The ability of self-regulation)

ANALYSIS OF SELECTED PERSONAL DEVELOPMENT METHODS FOR THE SUPPORT AND DEVELOPMENT OF PROFESSIONAL MANAGERS´ COMPETENCES

Eva Ambrozová, Jiří Koleňák

Abstract

This article presents the results of an analysis of selected personality development methods for managers, based on the criteria identified in the context of cognitive management with the aim to support and further the development of professional managers' competences. The survey was conducted on a sample of 40 managers in the form of structured interviews using the Focus Groups method and supported by questionnaires. The condition for inclusion in the survey was completing one of the following personal development programs: Managerial skills development, Coaching method, Silva method and Neuro-linguistic programming. Equilibrium, mental agility, independence and antifragility were chosen as the evaluation criteria for the analysis of the selected personal development models. These criteria reflect the requirements for the level of competences of present-day professional managers from the perspective of Cognitive management. It turns out that the least developed of the observed personal development models are personal traits related to the development of managers´ antifragility. In the context of this finding, we view the Connatural Management approach to be one of the possible answers to the need of developing managerial education towards the development and cultivation of people´s natural potentials. The practical application of this approach has long been verified and developed at Newton College.

Keywords: personality development, professional manager, corporate environment, Cognitive Management, subtle skills, Connatural Management

JEL Classification: M14, M12

Introduction

Development of the business environment, and indeed of the whole world, has accelerated multiple times over the last century. It changed the way people live and work. The political structure of the world and allocation of available resources has changed and is constantly changing. People´s and companies´ values have shifted significantly. The current environment is characterized by the "computerization" of relationships between people. In the environment of information overload, it is increasingly difficult to know what is real and what is just an electronically created illusion. The ability to think critically, the ability to perceive the complexity of the situation and the ability to cope with the pressure at work and outside of the work, is becoming increasingly necessary. Thus it has become a frequently discussed issue of personality development. Cognitive management specifically focuses on the qualities of potentials and of the abilities of people and of human systems useful for their existence and development within a modern, complex and rapidly-changing environment. It focuses, among others, also on the personality development of professional managers and the application of Connatural management approach.

1. PERSONALITY DEVELOPMENT OF PROFESSIONAL MANAGERS

Personality development is not the „classical" education. Moreover, it is hard to accurately distinguish the line between its benefits on the professional, expert level and on the level of private, out-of-work life. However, it is possible to define characteristics of current corporate environment and to identify requirements for qualities of modern leaders (Knap-Stefaniuk, Karna, 2016) and for modelling programmes of personality development (Pokorný, Ullrich, 2012).

We define personality development in the context of Cognitive Management as a conscious and targeted application of methods and practices for identification and development of skills and personality traits related to a specific profession and to management of people and processes within business and corporate environment. Cognitive management, and particularly Connatural management approach, focuses specifically on the methods of personality development which have a direct impact on the enhancement and maintenance of mental and psychophysical condition and relate to cognitive and decision-making optimum, balance and harmony of any individual´s inner environment.

A professional manager can be characterised as an individual with appropriate level of skills (competences) needed for effective decision-making and proper conduct, for creation, organisation, cultivation and the development of relations and processes in a specific human system and with its environment (as in respect to the environment), individuality, activity of each individual, responsibility; metaskills in the sense of reflected experience; and also mental maturity. These and other aspects lie in the foundation of what can be considered to be the mastery of professional manager (Ambrozová et.al, 2016).

In this context we present possible evaluation criteria for the analysis of selected personality development models. The criteria are: balance, mental agility, independence and antifragility. From the perspective of Cognitive Management, these criteria reflect the quality requirements for present-day professional managers.

Balance can be considered to be the best starting point for any kind of action, even managerial work. A conscious and practical state of balance reflects in to basic managerial functions of cognition, decision-making and action. It is connected to the ability to see the overall picture, to evaluate the context, to make the correct situational decision and to react adequately (proactively). To illustrate the possible approaches, we intentionally present concepts that are, on the first glance, interrelated only marginally. These are: MBTI personality model, ZEN approach (Deshimaru, 2003; Musashi, 2009) and work-life balance concept. What all these concepts have in common is the search of „centre", the state of balance, the conscious achievement of mental/psychic balance which is, for example by ZEN, described as „inner peace". This ultimately leads to pragmatic approach to effective way of existence and development of man in any kind of environment, even in the managerial one.

Mental agility is related, among other things, to the concepts of cognitive continuum (Kostroň, 1998) and cognitive dissonance (Tavrisová, Aronson, 2012) and refers to mobility in the inner and outer environments or in their relationship. From the perspective of modern corporate environment and its characteristics, mental agility reduces, for example, the impact of cognitive dissonance, fragility (Taleb, 2014), the risk of digital dementia (Spitzer, 2014) and last, but not least, is related to decision making processes in various situational contexts. Mental agility is related to one´s ability to define goals and to keep focus on them until they are met. It is also related to preserving one´s discipline needed to achieve the defined goals (the proactivity).

Independence can be explained, for example, with the help of self-efficacy concept, or by introduction of one of the Cognitive management principles – the Concentration principle. Self-efficacy is related to one's conviction that he/she has control over events and his/her own life (Bandura, 2004). It is linked to one´s self-confidence and thus to his/her psychological resilience which is currently a hot topic, particularly in the context of coping with work-load and stress. The purpose and goal of practicing the principle of concentration is the cultivation of one´s ability to concentrate fully on one (eg. process, activity, person, problem, idea, story etc.) This promotes independence which allows making independent decisions and bearing responsibility for them. Independence is positively influenced by one´s ability to create distance, insight and by his/her critical thinking ability (Ambrozová et. al. 2016).

Antifragility is one´s ability to view insecurity, chance and stressors as means of self-improvement. It is the ability to react immediately and without emotions to mistakes and to implement corrective measures. Antifragility means to spend minimum possible time on predictions and more time on the shifts along the fragility – robustness – antifragility axis in all areas (physical, mental and emotional) with the help of appropriate training. The basic idea of this approach is the assertion that there are things that benefit from shocks. They prosper when exposed to volatility, chance, disorders and stressors, danger and uncertainty (Taleb, 2014).

2. RESEARCH

The aim of the research is to analyse methods of managers´ personality development based on the criteria identified in the context of the Cognitive Management for the support and development of professional managers´ competences, to determine the perception of benefits of the individual educational models and to map the importance concept of the various criteria for specific managerial positions.

2.1 Selected Models and Methods of Personality Development

Educational program models focusing on personality development mostly border management, andragogy and professional psychology. Although some methods presented below may be problematic in terms of science, they have their place in the current management. They pragmatically provide what people in managerial positions need for their development. In the context of the above mentioned information we have selected the following models: Development of managerial skills, Coaching method, Silva method and Neuro-linguistic programming.

Developing managerial skills and the various forms of managerial skills development programs are among the most widespread educational programs. They mostly develop basic managerial skills needed for all managerial positions – regardless of whether it is organisational development, employee development or the development of managers, either through the development of hard or soft skills. The most demanded soft skills turn out to be healthy self-esteem, empathy, team spirit, the ability to accept critique and to critique effectively, analytical thinking, trustworthiness, discipline, self-control, curiosity, conflict resolution skills, assertiveness. The Connatural Management approach highlights the need for development of, so called, subtle skills. The subtle skills include, for example, mental and psychophysical condition (Ambrozová, et. al.2016).

Coaching is a commonly used method in management. In practice there are various types of coaching. For example, transactional coaching that focuses on increasing the performance of employee (client) in a certain area. Transformational coaching focuses on a fundamental

positive change that will lead to development of personality potentials and competences. It works with the client´s experience with the aim of removing barriers of his/her personal growth. This process leads to change of habits and thus brings a long-term, or ideally permanent, effect (Horská, 2009). The most widely used coaching school in the Czech Republic is the Systemic coaching.

The Silva Method theory is centred around the level of alpha brain activity. The method is based on the techniques used for reaching alpha frequency brain waves. The alpha frequency is often associated with, for example, excellent memory and concentration, activation of immunity system, harmonised activity of the left and the right hemispheres of the brain or access to the subconscious mind. This level can be accessed not only in times of rest, but also during a busy day, for example, during a stressful situation. During the course, the trainees learn to descend in to the alpha level, but they also learn numerous other techniques, e.g. techniques of harmonising work with family life, effective learning etc. Other techniques of improving memory, concentration, creativity and intuition are also useful for managerial work (Silva, 2003).

Neuro-linguistic programming was originally developer as a psychotherapeutic system, but it penetrated into training of managers, traders, consultants, advertising creators and other professionals who need to improve their communication skills. The basic paradigm is algorithmic sequence: sensory perception → language processing → behaviour (Knight, 2013). This means patterns or „programs" created by interaction between brain, tongue and body. From the neuro-linguistic programming´s perspective this interaction produces both effective and ineffective behaviour and is responsible for processes that allow the rise of both perfect and pathological traits (Dilts and Deloizer, 2000).

2.2 Research Methodology

The research sample consisted of 40 managers and business owners in the Czech Republic who completed some of the above stated personal development programs. 5 eight-member groups were created with the following homogeneity parameters.

- A random sample of managers with no information about their previous education and development (hence forth referred to only as OBM),
- Graduates of Neuro-linguistic programming courses (hence forth marked as NLP),
- Graduates of Silva Method courses (hence forth marked as SM),
- Coached managers (hence forth marked as KOU),
- Graduates of managerial skills courses (hence forth marked as MAN).

The research was conducted by means of structured interviews using the method of Focus Groups supported by questionnaires. The Focus Groups method is often used as one of the most progressive qualitative research methods for data acquisition (Miovský, 2006). I tis a research tool for obtaining information on a selected topic from groups that are characterised by shared characteristics or interests.

A research moderator presented to each group the development of business environment a resulting specific demands put on managers in a given time and environment. After that, the most significant parameters of current business environment were presented and clarified by the groups and modern development trends were outlined. Criteria for evaluation of individual models, approaches and systems of education and personal development were then presented and explained. Afterwards, the questionnaire survey was conducted.

The questionnaire was divided into three separate parts. The questions of the first part focused on gaining information about participants of the survey. The second part focused on the individual criteria and their importance for various models of management in companies. It also consists of the evaluation of each of the models by the selected criteria. It was necessary to indicate whether the respondent graduated from a particular type of education or training in order to assess this relationship. The third part of the questionnaire collected information about the respondent´s personal development, areas of the personal development, its forms and its current position in the business´s educational systems.

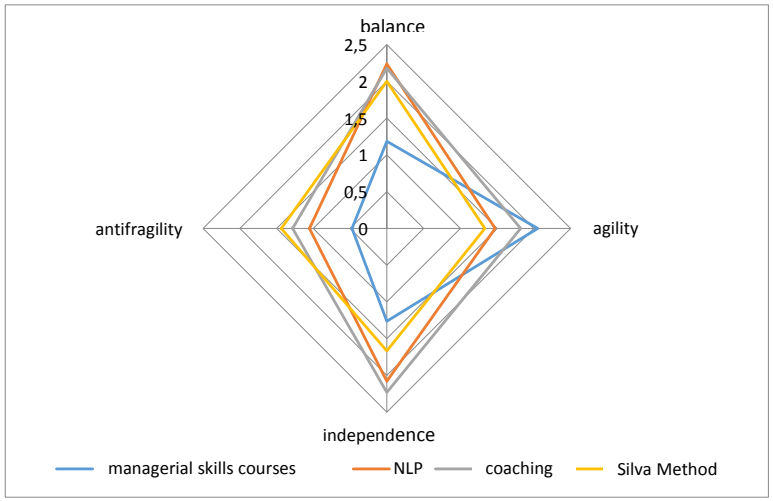
A factor analysis was used in statistical processing of the collected data. The Cronbach Alpha indicator was used to confirm the results of the factor analysis. This indicator is viewed as a reliability coefficient is used as a correlation coefficient replacement. Values of ⟨0;1⟩ can generally be obtained. The limiting value of 0 describes a situation where the individual variables are not correlated at all while value of 1 describes mutually correlated variables. The closer to 1, is the indicator value, the higher is degree of correlation (Hrach, 2006).

2.3 Results

The descriptive statistics of the conducted questionnaire survey is presented first. Its aim is to briefly present essential information about the collected data.

Management skills courses are viewed as a model with strongest impact on the development of the agility factor. Nevertheless, as Fig. 1 shows, these courses are limited only to this area whereas they significantly lag behind in other areas.

Figure 1 - Perception of the benefits of each educational model



Source: authors

According to the respondent´s opinions, antifragility is the least developed area of all. The results are basically the same for evaluation of both the coaching and the neuro-linguistic programming, particularly in the areas of balance and independence, which they develop the most. Coaching, however, significantly exceeds both the NLP and the Silva Method in agility. The advantage of the Silva Method is that it develops people in all the observed areas. This leads to a partial conclusion, that the Silva Method model is perceived as the most comprehensive educational system by the respondents. However, the balance of the various parameters is countered by lower efficiency in the individual areas. The Silva Method significantly exceeds other researched systems only in antifragility.

Essential for specific managerial positions are considered criteria with values exceeding 3,5 (where 4 is a maximum). They are highlighted in the following table (Tab.1).

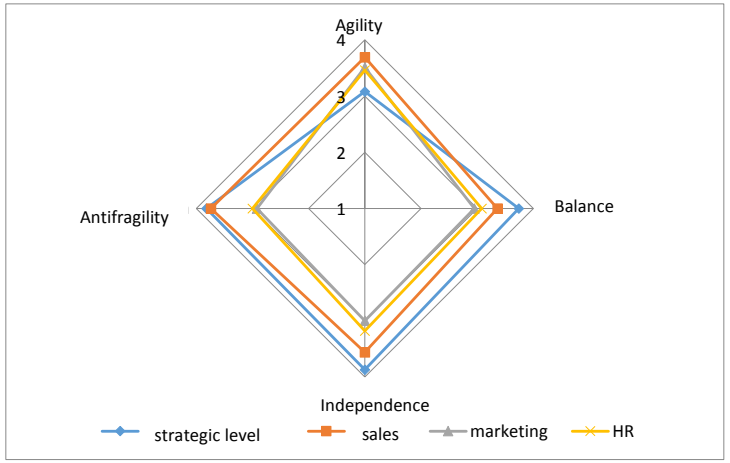
Table 1 - Perceived importance of individual criteria for specific managerial positions

	Agility	Balance	Independence	Antifragility
Strategic level	3,08	3,74	3,87	3,82
Sales	3,69	3,36	3,56	3,74
Research	3,33	2,77	3,13	3,18
Financial management	3,23	2,82	2,85	2,9
Production	3,21	2,64	2,59	2,74
Marketing	3,51	2,95	3	2,92
HR	3,46	3,08	3,18	3
Others	2,59	2,49	2,49	2,44

Source: authors

Fig. 2 shows the importance of specific criteria for the individual positions. It is clear, that personal qualities are more important on the strategic management level than knowledge of specific managerial tools for increasing agility of the manager. Other areas may show varying importance, but at the same time show significant symmetry of the individual criteria.

Figure 2 – Perceived importance of various criteria for specific managerial position



Source: authors

The research also showed that only 17% of managers are satisfied with the current level of active approach to their own personal development. 52% of the respondents see time as the main barrier and 22% of respondents view money as the biggest barrier of their education and personal development.

Group courses are the most commonly used form of personality development programs – they are used by 95% of the responding managers. Very popular form of development is self-study, which can also be considered to be the most affordable form. 59% of respondents chose this form. Individual coaching is, on the contrary to the self-study, still perceived as a kind of extra that is available to only about 25% of all respondents.

A positive finding is that the majority of companies (about 80%) include personal development of managers as part of their HR strategy.

Conclusion

Current corporate environment places very special requirements on manager´s job. These requirements must necessarily be reflected in their competences. It turns out, that apart from traditional managerial tools for effective planning, organisation, stimulation of people, controlling or decision making, manager´s personality should also develop in terms of attitudes, critical thinking or a kind of resilience. Current educational systems and models answer the needs of the market only partially. Theoretical concepts most of the time lag behind the reality of the market environment. It is therefore necessary to innovate, create and develop new systems.

The conducted research evaluated selected educational models in relation to criteria based on requirements of the entrepreneurial and corporate environment. It turns out that the least developed area in the researched models of personality development are groups of traits related to the development of managers´ antifragility. In this context, we consider connatural management to be a useful approach since it presents one of the possible ways to develop managerial education. It is a concept of a complex view on the managerial work which uses, so called, people´s natural potentials. Practical application of this approach is currently researched and further developed in X-tream management courses conducted at NEWTON College.

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THE LIBERALIZATION OF THE ELECTRICITY MARKET AS A PRECONDITION REDUCING ITS CONCENTRATION IN THE SLOVAK REPUBLIC

Alena Bašová

Abstract

Aim of the contribution is to point out the positive effects of the liberalization of the electricity market in Slovakia during the years 2011 to 2015. Therefore, in this contribution we analysed the time sequence of creation the single energy market. We focused only on the electricity market, while similar efforts about uniting we can see on the gas market in the EU. To achieve the objective, we used a variety of methods, from the collection of information, particularly from scientific papers, and then we organized this knowledge by sorting into chapters, so we divided this contribution into the several parts. Paired methods of induction and deduction, we have formulated partial conclusions. For better illustration of the obtained results, we have used graphic and mathematical methods that are used mainly for clear presentation of our results in tables and graphs.

Keywords: energy market, liberalization, electro energy sector, HHI index, energy package

JEL Classification: D4, O12, O16

Introduction

The beginnings of the formation of a coherent policy and cooperation in the energy sector in the EU are dated back to May 9, 1950, when French Foreign Minister Robert Schuman presented a plan for deeper cooperation among the six countries of Western Europe. The aim was closer economic and energy cooperation. Nowadays, the changes in priorities and policy in the energy sector brought many challenges. We mean, in particular the global climate changes, constantly diminishing reserves of oil, natural gas and the rapid increase of energy prices. The consequences are quite frequent supply disruptions, block outs of energy supplies and the growing rate of dependency on imports from third countries. The European Union must pay close attention to these issues because energy sources cannot be an instrument of global tension.

1. THE FIRST ENERGY LIBERALIZATION PACKAGE

The biggest problem of energy markets in the Member States, the European Commission (hereinafter EC) considered insufficient unbundling of each activity in the markets and the activity of national energy monopolies in the internal energy market. Even in these regulations there was used the concept of "unbundling" in Slovak translation it means decoupling of. It was only an accounting unbundling, which is an obligation of keeping separate accounts for the supply, distribution and transport of electricity. The main aim of unbundling was to prevent "cross subsidies" and so the energy companies compensated it by the higher selling prices for large enterprises.

This package was adopted by Directive 96/92/Ec of The European Parliament and of the Council of 19 December, 1996 concerning common rules for the internal market in electricity it should be taken into attention the following:

- creating of the internal electricity market is particularly important in order to increase efficiency in the production, transmission and distribution of this product, while reinforcing security of supply and the competitiveness of the European economy and respecting environmental protection;
- the establishment of the internal market in the electricity sector must support the interconnection and interoperability of nets;
- Council Directive 90/547/EEC of 29 October 1990 on the transit of electricity through transmission grids networks has to charge the same prices of electricity to industrial consumers.

First „package“ of energy liberalization demanded:

- the ownership of new generation,
- only accounting and functional unbundling,
- independent authority to solve disputes in the market (regulator),
- liberalization only for big customers.

This first package was adopted in EU in 1996 in electricity sector, and two years later it was adopted in natural gas sector.

The second liberalization package of electro energy market was adopted by Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity. The experiences gained in implementing this Directive shows the benefits that may result from the internal market in electricity, in terms of increasing efficiency, price reductions, higher standards of service and increasing competitiveness. However, significant shortcomings and possibilities for improving the functioning of the market remain, notably concrete measures are needed to secure the same level of conditions in generation and to reduce the risks of market dominance and predatory behaviour, secure non-discriminatory transmission and distribution tariffs, through access to the network on the basis of tariffs published before their entering into force, and ensuring that the rights of small and vulnerable customers were protected and the customers had complete information’s on energy sources for electricity generation, as well as reference to sources, which are providing information on their environmental impact. Execution of legal unbundling should be implemented not later than 7 July 2007.

2. THIRD LIBERALIZATION PACKAGE

By coincidence, the Third Energy Package was created for the Czech presidency of the European Union. In this package was a significant effort to support solidarity between Member States in case of threat to EU energy security. As an example of solidarity and cooperation among Member States could be considered aid that received Slovak Republic from Czech Republic at the time of the gas crisis in 2009. At that time, there were completely interrupted natural gas supplies for several days from Russia.

During the gas crisis there was delivered gas from Czech Republic to Slovakia by reverse flow. The third energy package aims to strengthen the status of consumers in the market. The Directive specifies that a consumer's application for a change of power supplier is to be the change made by the operator concerned within three days of the request. Consumers also have the right to receive complete informations on their consumption. The directive strengthens the

power of the national regulatory authority in the areas of competition and consumer protection with the adoption of an appropriate unbundling model. [5]

The latest round of EU energy market legislation, known as the third package, has been enacted to improve the functioning of the internal energy market and resolve structural problems. [3] It covers five main areas:

- unbundling energy suppliers from network operators,
- strengthening the independence of national regulators,
- establishment of the Agency for the Cooperation of Energy Regulators (hereinafter ACER),
- cross-border cooperation between transmission system operators and the creation of European Networks for Transmission System Operators (hereinafter ENTSO), in electro energy sector ENTSO- E,
- increased transparency on retail markets to benefit consumers. [11]

Unbundling means the disintegration of the vertical monopoly so that the company which supplied electricity did not own any transmission or distribution network. Under the third package, unbundling must take place in one of three ways, depending on the preferences of individual EU countries:

- Model OU (Ownership Unbundling), where all integrated energy companies had to sell their gas and electricity networks. In the case of such unbundling company must not produce or sell electricity energy and such company must not have property shares in the delivery company,
- Model ISO (Independent System Operator). The basic assumption of this model is the creation of an independent entity ISO, which will function as the company operating the transport of energy. This independent subject (ISO) should be nominated by Member State after the suggestion of company owning the transmission net. Then the appointment is approved by the European Commission. The role of ISO is to provide a third party access to transmission networks, charging for the access to the transport nets, maintenance and development of transport, as well as development planning. [4]
- Model ITO (Independent Transmission Operator) where energy supply companies may still own and operate gas or electricity networks, but must do so through a subsidiary. All an important decisions must be taken independent of the parent company.

The level of legal market opening and unbundling is sufficient, but opening of real market is lagging behind because regulated tariffs are set at a low level.

3. THE IMPACT OF LIBERALIZATION ON REDUCING THE CONCENTRATION OF ELECTROENERGY SECTOR

In the next part of the paper we point out on the direct impact on liberalization of the energy sector in the Slovak economy through The Herfindahl index. This index is used in developed countries to measure the degree of concentration of national industries. In the energy sector, there were operating vertically integrated monopolistic companies that abused their dominant market position.[7] By implementing liberalization packages adopted by the European Community into national law gradually reduced the degree of concentration also in Slovak Republic. HHI is known as the Herfindahl-Hirschman Index, and is named after economists Oorris C. Herfindahl and Albert O. Hirschman.

HHI is a measure of the size of companies in relation to the degree of concentration industries of national economy and is an indicator of the degree of concentration among them. It is defined as the sum of the squares of the market shares of the firms within the industry where the market shares are expressed as %. The result is the average market share, weighted by their market share. In calculation is sometimes the number of companies limited to the 50 largest firms in the analysed sector. [1]

The indexes involve the market share of the individual market competitors, squaring it, and add them together.

The formula is:

$$H = \sum s_i^2 \qquad (1)$$

Where

s_i = the market share i company in the market, and i is member of natural numbers.

Thus, in a market with two companies that each have 50 % market share, the Herfindahl index equals: $H = 0.50^2 + 0.50^2 = ½ = 0.5$.

HHI index is a measure of the size of the firms in relation to the industry and is an indicator of the amount of competition among them. [2]

The Herfindahl Index (HHI) ranges from 1/N to one, where N is the number of the companies in the market. Equivalently, if we use as whole numbers, as in 75 instead of 0.75, the index can range up to 1002, or 10,000.

An H below 0.01 (or 100) indicates a highly competitive industry.

An H below 0.15 (or 1,500) indicates an unconcentrated industry.

An H between 0.15 to 0.25 (or 1,500 to 2,500) indicates moderate concentration.

An H above 0.25 (above 2,500) indicates high concentration.

The closer the market is to the monopoly of the market, the higher the concentration and the lower the market competitiveness is. For example, if the market was only one company with a share of 100%, the HHI index would equal 10,000 (100ˆ2), which would indicate that the is entirely monopolistic. On the contrary if it were 1,000 companies on the market that would have market shares close to zero, the market would be close to perfect competition and would have the value of 0,01(0,1ˆ2).

4. PRACTICAL APPLICATION OF THE CALCULATION HHI IN SLOVAKIA IN THE PERIOD 2011-2015

In the next part of this contribution we will analyse the HHI index in individual years in the sector of the supply of electricity for households, which is still regulated. The regulator is the Net Office of Regulatory Industries (hereinafter RONI).

Table 1 – Market share of companies in 2011 in SR

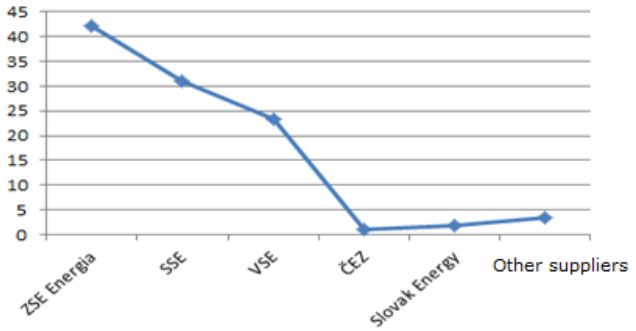
Supplier	Unit	Year 2011	Market share in %
ZSE Energia	GWh	1 986,37	40,12
SSE	GWh	1 602,10	31,11
VSE	GWh	1 175,25	23,24
ČEZ	GWh	126,62	1,1
Slovakia Energy	GWh	3,35	1,88
Other Supliers	GWh	194,11	3,35
Together	GWh	5 087,80	100

Source: own processing according of annual reports by regulated entities [10]

As shown in Table 1 consequently we get the HHI index as the sum of the individual market shares squared and we counted obtain a final value for 2011.

HHI 2011 = ZSE Energia(40,12%) + SSE(31,11%) + VSE(23,24%) + ČEZ(1,1%) + Slovak Energy(3,35%) + other suppliers(3,35˘) = 40,12ˆ2 + 31,11ˆ2 + 23,24ˆ2 + 1,1ˆ2 + 1,88ˆ2 + 3,35ˆ2 = 3 133,511

Chart 1 – HHI index in SR in 2011



Source: own processing according table 1

Table 2 – Market share of companies in 2012 in SR

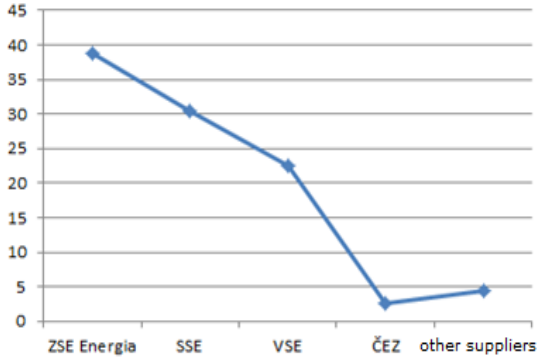
Supplier	Unit	Year 2012	Market share in %
ZSE Energia	GWh	1 973,00	39,85
SSE	GWh	1 503,00	30,36
VSE	GWh	1 074,00	22,45
ČEZ	GWh	132,10	2,55
Slovakia Energy	GWh	0,00	0
Other Suppliers	GWh	200,12	4,44
Together	GWh	4 882,22	100

Source: own processing according of annual reports by regulated entities [10]

As shown in Table 2 consequently we get the HHI index as the sum of the individual market shares squared and counted up we get a final value for 2012.

HHI 2012 = ZSE Energia(39,85%) + SSE(30,36%) + VSE(22,45%) + ČEZ(2,55%) + other suppliers(4,44%) = 39,85ˆ2 + 30,36ˆ2 + 22,45ˆ2 + 2,55ˆ2 + 4,44ˆ2 = 3 039,97

Chart 2 – HHI index in SR in 2012



Source: own processing according table 2

Table 3 – Market share of companies in 2013 in SR

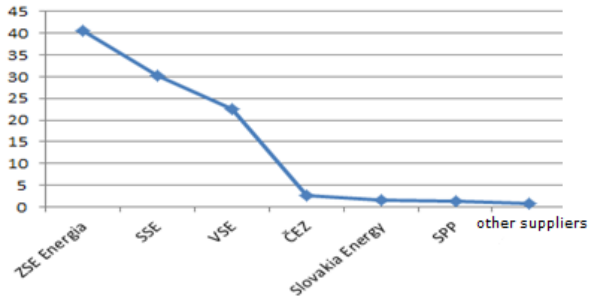
Supplier	Unit	Year 2013	Market share in %
ZSE Energia	GWh	1977,00	40,70
SSE	GWh	1466,00	30,18
VSE	GWh	1096,00	22,56
ČEZ	GWh	131,30	2,70
Slovakia Energy	GWh	83,50	1,72
SPP	GWh	63,40	1,31
Other Supliers	GWh	40,70	0,83
Together	GWh	4857,90	100,00

Source: own processing according of annual reports by regulated entities [10]

As shown in Table 3 consequently we get the HHI index as the sum of the individual market shares squared and counted up we get a final value for 2013.

HHI 2013 = ZSE Energia(40,70%) + SSE(30,18%) + VSE(22,56%) + ČEZ(2,70%) + Slovakia Energy(1,72%) + SPP(1,31%) + other suppliers(0,84%) = 40,70^2 + 30,18^2 +2,70^2 + 1,72^2 + 0,83^2 = 3 088,9461 = 3 088,95

Chart 3 – HHI index in SR in 2013



Source: own processing according table 3

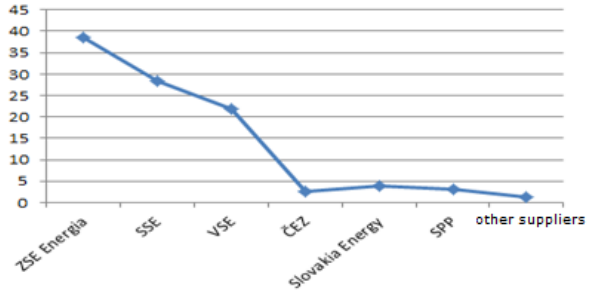
Table 4 – Market share of companies in 2014 in SR

Supplier	Unit	Year 2014	Market share in %
ZSE Energia	GWh	1912,00	38,62
SSE	GWh	1404,00	28,36
VSE	GWh	1086,00	21,94
ČEZ	GWh	132,10	2,67
Slovakia Energy	GWh	190,30	3,84
SPP	GWh	159,80	3,23
Other Suppliers	GWh	66,50	1,34
Together	GWh	4950,70	100,00

Source: own processing according of annual reports by regulated entities [10]

HHI 2014 = ZSE Energia (38,62%) + SSE(28,36%) + VSE(21,94%) + ČEZ(2,67%) + Slovakia Energy(3,84%) + SPP(3,23%) + others suppliers(1,34%) = 38,62ˆ2 + 28,36ˆ2 + 21,94ˆ2 + 2,67ˆ2 + 3,84ˆ2 + 3,23ˆ2 + 1,34^2 = 2 811,2606 = 2 811,26

Chart 4 – HHI index in 2014

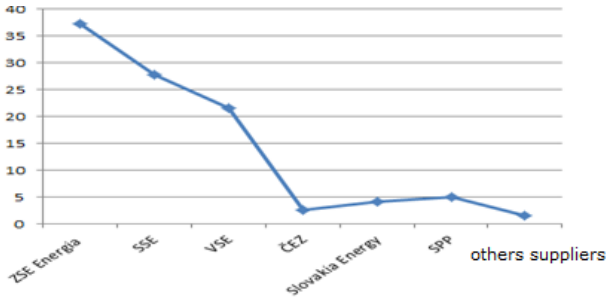


Source: own processing according table 4

The calculation of HHI index for 2015 is different because in the annual reports of regulated entities there are not available data in the same breakdowns as in previous years. Missing data for the quantity of delivered energy in MWh, so I calculate the following form:

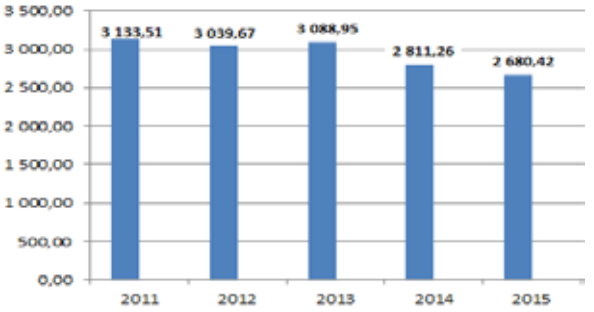
HHI 2015 = ZSE Energia(37, 32%) + SSE(27,77%) + VSE(21,56%) + ČEZ (2,65%) + Slovakia Energy(4,20%) + SPP(4,96%) + other supplies(1,54%) = 37,32^2 + 27,77^2 + 21,56^2 + 4,20^2 + 4,96^2 + 1,54^2 = 2 680,4246 = 2 680,42

Chart 5 – HHI index in SR in 2015



Source: own processing according of annual reports by regulated entities

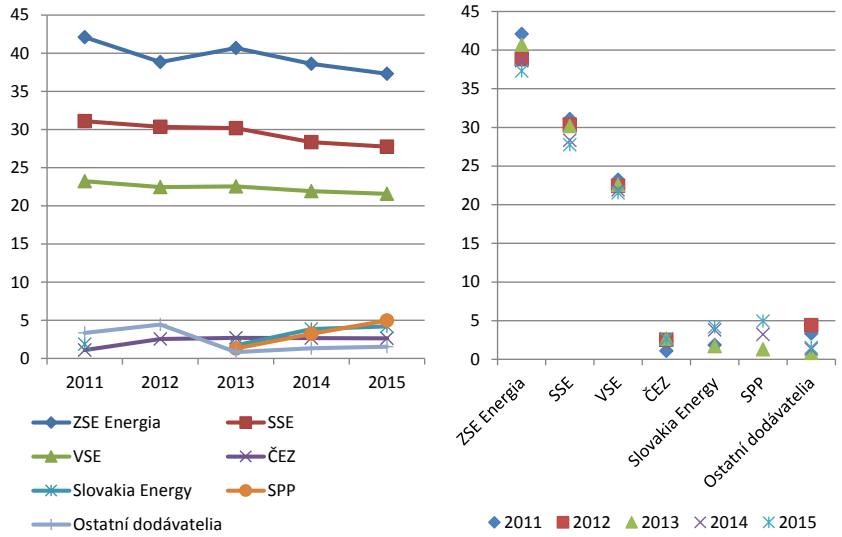
Chart 6 – HHI index in SR in analysed period 2011 – 2015



Source: own processing according calculations above

So the development of HHI index during years 2011 – 2015, we can depict by the following chart.

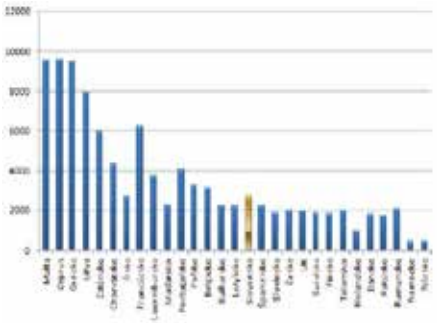
Chart 7 – Development of HHI in SR in 2011- 2015



Source: own processing according charts above

HHI index compared with other EU countries is obvious that Slovakia belongs to the countries with a higher degree of concentration in the electricity market. In some countries there is still a distinct very high level of concentration and the fact belongs to one of the main arguments for further regulatory action in the electro energy sector and increasing competitiveness in these markets. For comparison, the chart of HHI index in the EU in 2015.

Chart 8 – HHI index in electricity supply in the EU for 2015



Source: <http://www.finance.gov.sk/Default.aspx?CatID=1036> [11]

5. EVALUATION OF THE IMPACT OF LIBERALIZATION ON THE SLOVAK ENERGY MARKET

Increased competition in the electricity market is manifested not only in pricing, as well as new differentiated products and enhanced marketing. Until recently, in the market was offering only a homogeneous product, but there is the beginning of emerging innovation and product differentiation. [8] In EU, over the past two years there were appearing products of variable length of contract, fixation of prices for a certain period, a combination of electricity and gas in one package. [6] Additionally, the consumers who prefer renewables have the offer to supply electricity from clean renewable sources, or other additional services and facilities. ACER report states, those customers in Slovakia were able to choose their supplier of electricity from 19 companies. which is below the European average? Final consumers in the capitals of Netherlands, Germany, Finland, Sweden and Denmark can choose from a much wider choice, from an average of 330 offers from 65 suppliers. [9]

Conclusion

Reducing the concentration of the electricity market has a positive impact in several areas. Liberalization was manifested by differentiation of the products offered mainly for large customers who are able to support environmental objectives through their contracts. Today's offer involves the granting of discounts on long-term contract with a fixed term. ZSE, major supplier in the defined territory, for example, offers a program with the guarantee of electricity, which comprises covering emergency costs for electrical appliances of up to € 150. ZSE for communication with final consumers has started to use the services of external agencies since 2014.

The ZSE was the partner of Slovak Food Festival. All of these activities of the biggest player in the electricity market there are positive features of competition fight in the market. Level of competition in the market depends on the attitude of customers and their level of information. The survey of EU indicates that Slovak consumers are satisfied with the offers of suppliers, as well as the possibility of switching suppliers. Development of competition does not help the fact that market has developed a large number of suspicious swindlers and sellers, states RONI. For the development of competition would be appropriate to take real measures to help suppliers to increase the possibility of influencing the final price for consumers. Greater freedom in influencing the final prices would necessarily bring a higher level of competition and the entry of new companies into the market supply.

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DETERMINATION OF CONDITIONS OF GROWTH BY DEFORMATION OF KONDRATIEV CYCLES

Jiří Dobrylovský, Pavel Sirůček

Abstract

Economic growth is not fluent and its trend is not always stable either. During the economic growth long-term fluctuations of economical activity, caused by innovations of the highest order (so-called basic innovations) occur. The facts listed above are being examined by the economical theory in the context of individual theories of business cycles, especially by theories of long-term economic cycles. Basic innovations determine so called long-term cycles (also long waves), on which the process of medium-term business cycles then depends. The second phase of each long wave is characterized by stagnation phenomena in economics, which is a huge issue of the current situation, because at the moment we are in the final phase of one of these long waves. That is also the reason for the low success rate of the implemented pro-growth precautions. A really fundamental change can be expected in connection with the arrival of a new long wave, the fifth one in the order. Innovations, on which this wave depends, are already beginning to appear.

Keywords: K-wawe, innovation, business Cycles

JEL Classification: B15, E14, E44

Introduction

Developed countries in the world are facing a number of problems, the first one being low rates of growth or almost stagnation trends, which lead to many other maladies from high unemployment to huge indebtedness. This situation can be rationally explained by the theory of long-term economic cycles, or the so-called long waves. This theory describes not only why the current epoch differs in its course from economically successful period several decades ago so much, but it also creates a prognosis of renewed economic expansion in decades to come – under the assumption that some basic prerequisites enabling this expansion are met. Simply said the growth potential of outdated traditional technologies had been exhausted before the society managed to implement modern progressive ones.

The facts listed above are being examined by the economical theory in the context of individual theories of business cycles, especially by theories of long-term economic cycles. The basic idea of long waves (also called K-waves) theory is based on highlighting the role of technical and technological factors in economic development, or historical development in general, which the neoclassical economics does not take into account too much. Nevertheless, qualitatively new techniques and technology, together with many other factors lead – thanks to the wave of innovations of the highest orders - to gradual transformation of the society. By virtue of long-wave theory a hypotheses on an approximately 50-year period of these essential influences, which can also be reflected in occurrence and character of war conflicts, revolutionary events, etc. were created.

The main theorists of long-wave concept are Nikolaj Dmitrijevič Kondratiev and Josef Alois Schumpeter, the economists who are very difficult to be placed in any of traditional schools of economics.

1. IMPORTANCE OF LONG-TERM CYCLES

Economic development is not fluent and the same can be said about trends accompanying it. The study of long-term fluctuations in economic activity (e.g. monitored by fluctuations in production and mainly by easily accessible time series describing price dynamics) attracted more attention of economists at the break of the 19th and 20th centuries for the first time. However, a really essential approach connected with the exact formulation of long-wave theory falls into the first half of the 20th century, and, as it was said already in the introduction, it is connected with the names of Kondratiev (the 1920s) and Schumpeter about ten years later. He also gave long waves the name of his predecessor – Kondratiev cycles.

Kondratiev compiled empirical material dealing with changes in prices of goods, capital interests, wages, exploitation of natural resources, turnover in international trade, metal production, etc. over a period of 140 years. In the 1920s, based on this material, he made a conclusion about the existence of three "major cycles of the conjuncture":

Table 1 - Kondratiev´s dating of so-called "major cycles of the conjuncture"

First wave	Upturn phase from the period 1787-92 to the period 1810-17 Downturn phase from the period 1810-17 to the period of 1844-51
Second wave	Upturn phase from the period 1844-51 to the period 1870-75 Downturn phase from the period 1870-75 to the period of 1890-1896
Third wave	Upturn phase from the period 1890-96 to the period 1914-20

Source: Kondratiev, 1989

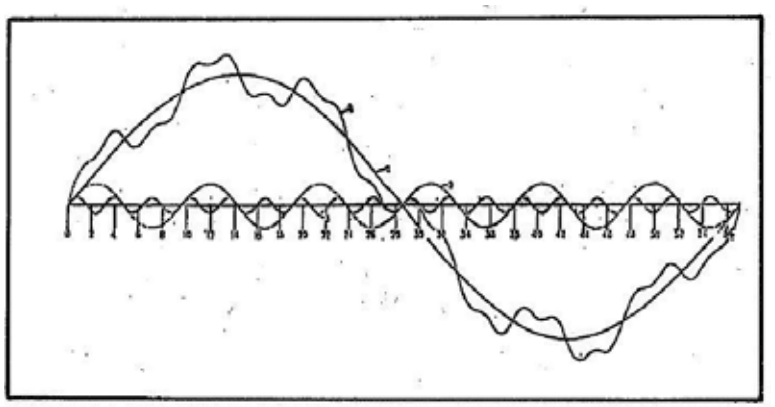
Although Kondratiev recognises the importance of innovations, in his concept he prefers an endogenous explanation based on capital investment causes.

On the contrary, according to Schumpeter it is necessary to prioritize exogenous reasons resulting from technological innovations of the highest order (so-called basic innovations) when explaining a long-term cycle. According to Schumpeter, innovations are staggered irregularly in time, they appear in waves (so-called innovation clusters), as adequate conditions must be created first so that these innovations can be practically applied and as soon as this happens, innovations spread explosively, which leads to technical revolutions. Based on the mentioned innovation clusters Schumpeter characterizes long waves as the longest economic cycles in capitalism.

Schumpeter´s important contribution is time differentiation of economic cycles. On the basis of a statistical analysis he determined the length of three basic types of cyclical fluctuation and named these cycles after their inventors. According to Schumpeter there are short-term Kitchin cycles lasting 3 – 5 years with the average length of 40 weeks, medium-term Juglar cycles lasting approximately 7-11 years and long-term cycles (Kondratiev long waves) lasting approximately 45-60 years (Schumpeter, 1987, p. 86-87).

Schumpeter emphasizes coherence of all economic cycles – individual cycles interfere with each other in a similar way as physical waves do. If all three cycles are in the same phase, especially in a crisis phase, "movement with extraordinary intensity" (Schumpeter, 1089, p. 433) can be expected. Schumpeter claims that in historical development he found three whole Kitchin cycles for each completed Juglar cycle and six whole Juglar cycles per each Kondratiev long-term cycle.

Figure 1 - Schumpeter´s scheme of multicyclical character of economic development



Source: Schumpeter, 1989, p. 175

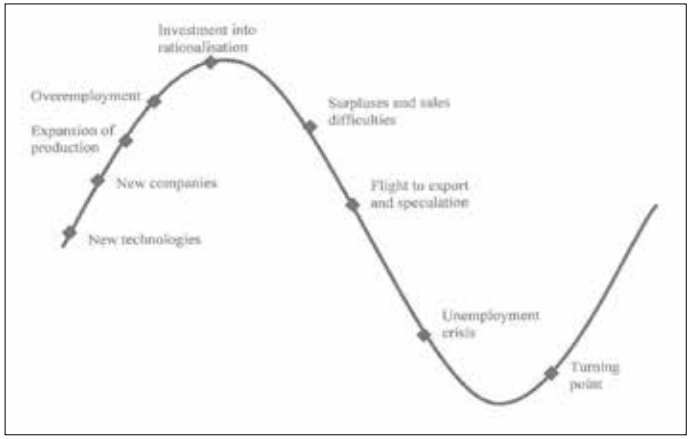
Each long wave consists of two basic phases of approximately the same length. These are phases of growth (a phase of growth, long-term expansion, i.e. the upturn phase of a long wave) and a decline phase (a period of a long-term depression as a downturn part of a long wave). The adequate phase of a long-term K-cycle determines the course of a medium-term Juglar cycle.

The upturn phase of so-called "long expansion" is characterized by the growing importance of new technologies, growing asset productivity, relatively fast growth in production, employment and wages. Old companies and industries are gradually being edged out. The upturn phase of a long wave within a medium-term economic cycle is characterized by the development with relatively short recessions represented by only a slowdown in the production growth and only lower unemployment. In this period economically "good years" prevail. New technologies facilitate a higher rate of growth in potential product.

The downturn phase, so-called "long depression", shows in principle falling asset productivity in the long run due to obsolete technology, which cannot be replaced by a new one immediately, and relatively lower rates of production growth. The market is starting to be saturated by new products and technologies, competition is growing, employment is decreasing and wages are being damped down. Short-run declines in investments and production within a medium-term economic cycle often already directly show an absolute slump in comparison with the previous year with features of so-called crises. In the long run there is a substantial slowdown in the growth of economic output and increase in mass unemployment. This is connected with the growth in the interest rate, which may, in repeating moments, exceed the rate of profit. In this period economically "bad years" usually prevail, which is conditioned by lower rates of growth in the potential product in consequence of complete exploitation of development capacities of old technologies. Pressure on accumulation and investments into production rationalisation and new more prospective technologies is simultaneously growing during this phase, too. New technologies, ways of accumulation, methods of management etc. are being searched.

An ideal course of a K-wave as a technological cycle can be depicted as an S-curve (Mensch, 1979). Its individual parts are determined by certain characteristic features in the economy. See Figure 2:

Figure 2 - “S-curve” of a long wave



Source: Mensch, 1979

The logics of an “s-curve” course of a long wave is based on the fact that at the beginning, about 20-25 years after launching new technologies, innovations push essential structural changes. Based on inventions and their mass applications, old companies and industries are gradually edged out, new companies and new industries are taking over. Hand in hand with the growth in the production there is growth in employment which results even in overemployment. Investments into rationalisation appear. Countries which succeed in the transformation to new technologies have also capacities for the growth in wages and consumption. Regions or countries which are late get into an unfavourable position (they must e.g. accumulate the resources needed for boosting a new cycle at the expense of workers).

However, the market is gradually saturated, which leads to surplus and sales difficulties. The upturn part of the s-curve changes into its downturn phase. Processes of competition are getting tougher, pressures on wages and other rationalisation measures stronger, employment is decreasing, crises are arising and there is a flight to export and speculations. Social peace disappears; the possibility of wars and revolutionary conflicts grows. Only radically new technologies can change the direction of the S-curve again, since when adequate conditions have been created, only they can turn the long-term cycle back into the upward phase.

Kondratiev and Schumpeter described only three long waves, the following fourth one, whose beginning is connected with World War II took place after their death. Its course was described only by Kondratiev´s and Schupeter´s most important follower G.O. Mensch, who dates K-cycles in the following way: 1785-1824 (67 years), 1842-1898 (55 years), 1897-1940 (43 years), 1940-1995 (55 years). Each cycle is characterized by the major industry (coal and iron, steam and steel, chemistry and automobiles, respectively astronautics, nuclear weapons and computers) and leading countries (Great Britain, Great Britain and Germany, the USA and Germany, respectively the USA and Japan). In Mensch´s opinion, the fifth cycle was supposed to start in 1995 and it was supposedly preceded by a wave of innovations in 1989; the “decade of innovations” was supposed to start in 1984. Production of microprocessors, genetic engineering, new materials and changes in the energy industry were most important.

The most important Czech author specialized in long waves was F. Valenta. In his works he develops “Schumpeter´s innovative legacy” and comes with ten orders of innovations, which

differ in their importance for the development of production. Valenta´s classification is briefly as follows (Valenta, 2001): order minus n (degeneration), order 0 (regeneration), rationalising innovations (orders 1-4), qualitative innovations (orders 5-8) and technological revolution – order 9. Table 2 brings a summary of ideas of major authorities in the field of long waves:

Table 2 - Chronology of long waves by some authors

	1st long wave		2nd long wave		3rd long wave		4th long wave	
	Trough of decline	Peak of growth	Trough of decline	Peak of growth	Trough of decline	Peak of growth	Trough of decline	Peak of growth
1. **Kondratjev** (1926)	1790	1810/17	1844/51	1870/75	1890/96	1914/20		
2. **Schumpeter** (1939)	1787	1813/14	1842/43	1869/70	1897/98	1924/25		
3. **Dupriez** (1978)	1789/92	1808/14	1846/51	1872/73	1895/96	1920	1939/46	1974
4. **Rostow** (1978)	1790	1815	1848	1873	1896	1920	1939/48	1967
5. **Mensch** (1979)	1785	1818	1842	1870	1897	1920	1940	1967
6. **Van Duijn** (1983)	–	–	1845	1872	1892	1929	1948	1973

Source: Van Duijn, 1983, p. 163. Own adjustments of the authors

Mensch is not the only one who believes that the 5th wave has already started. For example Rostow (cited in table 2) believes that the 5th wave already started in 1972. Some other authors are also convinced that at least the most developed economies in the world have already entered the 5th wave, even though Rostow´s dating is an exception in this regard; according to generally prevailing opinions, if the world (respectively at least its economically most developed part) is already in the 5th wave, then it is in its initial phase.

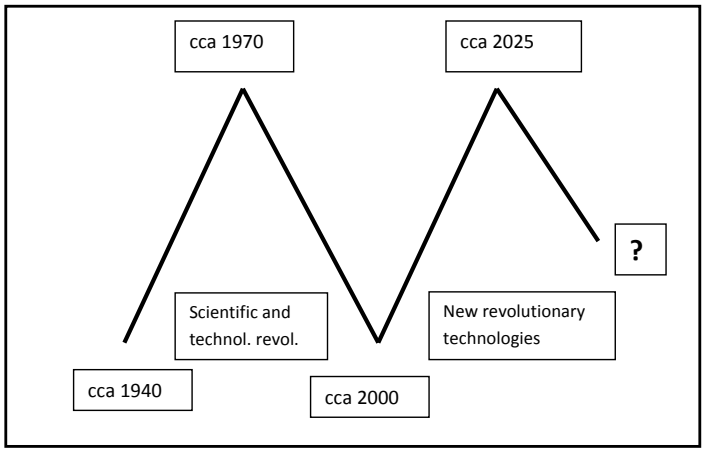
A hardly eliminable weakness of these statements, however, is the fact that while the initial halfwaves (see fig.1) of all preceding long waves were characterized by high rates of GDP growth, in the current world, particularly in the most developed countries, prevailing stagnation trends can be witnessed. The current economic development in developed countries reminds us more of a final phase of a declining halfwave of a long cycle, a phase which is becoming much longer compared with the common length of a standard K-wave.

SO WHERE IS THE FIFTH WAVE?

As mentioned above, according to some economists world economy should currently be somewhere in the upturn part of the 5th K-wave from the view of up-to-now history. However, if this is true, this fifth wave differs a lot from all preceding waves. The fact is that the end of the 4th long K-wave or commencement of the new 5th K-wave (especially on a global scale) often connected with e.g. the information revolution, still remains an open issue.

In case of expected (nevertheless, in reality not completed) commencement of the 5th K-cycle around 2000 a hypothetically similar situation should have arrived only at some time in the period 2020-2030, as can be seen from a working scheme (see fig.3). However, the fact that we are experiencing this situation now invalidates any thoughts of an already ongoing fifth wave.

Figure 3 - Model course of the fifth wave



Source: own adjustments

The main problem is that the upturn phase of a long cycle should be connected with a massive increase in the rate of GDP growth, often in double-digit figures. The current world economy, on the contrary, shows only a very low rate of growth; since 1995 (a hypothetical beginning of the 5th wave) it has reached on average only 2.9% (Cihelková, p. 14-16). How can this situation be explained?

Basically there are three possibilities:

1. Theoretical conclusions made by Mensch, Rostow, Van Duijn and others are false, there is no 5th K-wave in progress and the so-called the"information revolution" is in fact only a part of the exceptionally long 4th wave.
2. The 5th K-wave is currently really in progress, but in the same way as during the previous four waves, even this one, concerns primarily the countries and regions that represent an economic vanguard on the global scale. During the previous waves it was the Euro-American West, while the "rest of the world" stagnated to a considerable degree. With the current 5th wave the economic vanguard is represented by countries like China, India, South Korea, etc., while the post-industrial West has already passed its peak and is experiencing a gradual downturn.
3. The 5th wave is really in progress, however, its course differs from the previous ones, as this time it is not connected with any big war or their series. In the case of the 1st wave, there were Napoleon´s wars, in the case of the 2nd wave there was a series of revolutions in 1847-49 followed by the Crimean war (with involvement of all European powers) straight afterwards, and in the case of the 4th wave there was World War II. Apparently the 3rd wave beginning in the end of the 19th century seems to be an exception; however, it cannot be omitted that this period was connected with colonial wars and large armaments, leading in its consequences to World War I. It is true that these wars always resulted in mass destruction. However, this was also the reason why they also became a cause of ensuing mass reconstruction and as there are also radical political coups during each war, it can be assumed that this violence dismantled artificial social barriers, preventing the development of personal initiative in research and enterprise. The current 5th wave, however, has not been connected with any war on the global scale (at least so far), and this is also the reason why the current rates of growth do not correspond to what was typical for the previous long-term cycles.
4. Postponement of the fifth wave might be caused also by high costs of new technologies. Indications of validity of this cause can currently be seen. The imaginary "first herald" of the fifth wave in the form of outbreak of new superprogressive technologies represented by companies such as SpaceX, ATK Orbital and Blue Origin (rocket technique), Tesla Motors (electric cars), SolarCity (utilization of solar energy) or Gigafactory (electric batteries with extremely high capacity), with an outlook of dynamic commencement of space technologies introduced by already existing companies such as e.g. Bigelow Aerospace („inflatable" space stations, hotels and bases) or Planetary Resources or Deep Space Industries, planning exploitation of natural resources in space, activity for which the US Commercial Space Launch Competitiveness Act of November 2015 created a suitable legislation.

Without a doubt the question which of these explanations is the most true, will be answered in the near future. At the same time this will open possibilities of further research. It seems very probable that all the above mentioned causes somehow participate in anomalous transition between the fourth and fifth wave.

Conclusion

The chronology of long waves, identified by to the bottom and peak interval of the turning points, shows that most authors agree that we have experienced four long-term cycles since the first industrial wave. Most proponents of the long wave theory believe in cyclical character of these waves and they are convinced about their connection with innovations. Some studies suggest a possibility of onset of the 5th Kondratiev long-term cycle initiated by a new technological (i.e. information) revolution in the end of the 20th century. Questions concerning the end of the 4th wave and beginning of the 5th K-wave still remain open.

In the context of long waves identification there is, however, a key issue of empirical testing of various hypotheses referring to innovative cycles, respectively waves. It namely faces a lack of satisfying innovative statistics and other reliable comparable data for a longer time horizon. The sample so far contains only a short period of four identified long waves since the end of the 18th century. The so-far available sample is too small for an explanation of existing differences and discrepancies by application of mathematical and statistical methods. This is also a reason why a whole number of long wave concepts has not been empirically tested at all. Of course, a quantitative analysis can never absolutely replace a qualitative analysis. Hence the concepts of long waves shouldn´t slide into excessive and often ending-in-itself mathematization and formalization and so reduce the objective of the research only to creating adequate theoretical quantitative models. This also represents the main limitations as far as a reliable recognition of the so far hypothetical 5th long wave is concerned.

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    - http://www.planetaryresources.com
    - https://deepspaceindustries.com

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FISCAL RULE EFFICIENCY IN EU MEMBER STATES

Sabina Hodžić, Davor Galinec, Emira Bečić*

Abstract

The implementation of fiscal rules has been the central point of economic debates in the European Union institutions and Member States. They indicate the direction in which policymakers aim to improve public finances in the aftermath of the global financial crisis. The aim of this paper is to analyse the efficiency of the fiscal rule index and fiscal rule strength index in the European Union Member States, with special emphasis on Croatia. The methodology and data of the European Commission's DG ECFIN were used to analyse the efficiency of the fiscal rule index and fiscal rule strength index by type and government sectors in the European Union Member States during the 2007-2014 period. Our analysis shows that trends in the values of the fiscal rule strength index and standardized fiscal rule index indicate that fiscal rules are becoming more important and efficient as policy tools compared to the pre-crisis period, and that the situation in Croatia has been continuously improving since its accession to the EU in mid-2013.

Keywords: fiscal policy, fiscal rule index, fiscal rule strength index, fiscal rule efficiency

JEL Classification: H20, H60, H87

Introduction

In recent years, the public finances of the European Union Member States have been affected by two major changes in the economic and institutional setting: firstly, the establishment of the Economic and Monetary Union and, secondly, the progressive fiscal decentralisation in a significant number of EU Member States. In order to support the process of fiscal decentralisation, EU Member States have to have in force appropriate fiscal policy rules. They can stimulate policy coordination between different levels of government depending on their institutional coverage. According to the most widely accepted definition, fiscal policy rules set numerical targets for budgetary aggregates, i.e. they pose a permanent constraint(s) on the use of policy discretion in order to promote sound budgetary policy-making. Those constraints are usually expressed in terms of a summary indicator of fiscal outcomes, such as the government budget balance, debt, expenditure, or revenue developments. The primary objective of fiscal rules is to enhance budgetary discipline, especially if a particular Member State is under the Excessive Deficit Procedure (EDP). Moreover, they can foster policy coordination between different levels of government depending on their institutional coverage (second objective). In addition, fiscal rules may further contribute to the reduction of uncertainty about future fiscal policy developments. However, fiscal rules can only yield these benefits if appropriate national monitoring institutions and enforcement mechanisms are efficient and/or if they are supported by strong political commitment. The basic elements of fiscal rule creation are related to the statutory basis of the rule, the monitoring of budgetary developments against the fiscal targets, and the existence of corrective mechanisms (like EDP). Non-compliance should be carefully taken into account while designing fiscal rules in order to ensure their effective impact on the

*All views expressed in this paper are those of the authors and do not necessarily represent the views of the authors' institutions.

implementation of the fiscal policy. The Treaty and Stability and Growth Pact (SGP) obligations (including the EDP) apply to the general government sector as a whole, i.e. to all sub-sectors (central, regional and local governments, as well as social security funds). The growing decentralisation enhanced the role of territorial governments in ensuring compliance with SGP provisions, which has therefore considerably increased. The Council has repeatedly stressed the close link between national fiscal governance and the fulfilment of the Member States' commitments at the EU level. Fiscal relations across various levels of government should be designed to promote stability-oriented policies. All levels of government must comply with spending limits to ensure budgetary discipline; fiscal rules serve to foster compliance with the prevailing institutional fiscal framework and to support policy makers' accountability. Sound fiscal relations between all levels of government sectors in this coordination model require a fluent political dialogue supported by appropriate institutions, as well as the commitment of all general government sub-sectors to co-operation. The main aim of this paper is to analyse the efficiency of the fiscal rule index (FRI) and fiscal rule strength index (FRSI) in EU Member States during the 2007-2014 period, with special emphasis on trends in Croatia.

1. EVIDENCE FROM PREVIOUS STUDIES

EU Member States have a strong interest in the implementation of fiscal policy rules, with the main aim to reduce public sector deficits and debts. According to Hallerberg et al. (2007), "interest in fiscal rules is a reaction to the experience in many countries of rapidly rising debt levels and unsustainable deficits in the 1970s and 1980s." (p. 339). After the 2007/2008 financial crisis, the EU introduced several new regulations and amended several existing regulations to strengthen its fiscal governance and maintain sustainability of public finances. The most important new legal framework in the field of fiscal policy was adopted in December 2011 (so-called "six-pack") and May 2013 (so-called "two-pack"). Those two sets of EU legal acts ensured the strengthening of the rules of the Stability and Growth Pact (in order to reduce public deficits and macroeconomic imbalances), improved EU-level fiscal surveillance and enhanced economic policy coordination among the EU Member States. Consequently, EU Member States introduced fiscal rules, independent fiscal councils and more stringent medium-term budgeting frameworks. The objectives of these fiscal rules are to curb the deficit bias of governments, lead to balanced public finances and to assure the financial markets about the medium term fiscal goals. According to Marneffe et al. (2010), "fiscal rules, whether quantitative or not, indicate the direction in which policymakers aim the public finances to evolve and the public sector's role in macroeconomic processes. It also provides a solution to the deficit bias problem that is caused by the governments' short-sightedness and the common pool problem." (p. 2)

Fiscal policy rules define targets for annual government deficits, debts or spending. The European Commission (2006) points to significant heterogeneity of national fiscal frameworks within the EU and suggests that "stronger" fiscal rules are conductive to sound public finances (and ultimately more efficient and growth-enhancing economic policies). According to the European Commission (2010), "domestic fiscal frameworks are defined as the set of elements that form national fiscal governance, i.e. the overall system of arrangements, procedures and institutions that underlines the planning and implementation of budgetary policies (p. 73). The main elements of domestic fiscal frameworks are:

- Numerical fiscal rules (specify numerical targets for key budgetary aggregates, i.e. annual budget balance, expenditure, revenue or debt);
- Independent public institutions acting in the field of budgetary policies;

- Medium-term budgetary frameworks for multiannual fiscal planning (MTBFs) and
- Budgetary procedures governing the preparation, approval and implementation of the budget.

Kopits and Symanski (1998) state that a fiscal rule is "a permanent constraint on fiscal policy, expressed in terms of a summary indicator of fiscal performance, such as the government budget deficits, borrowing debt or a major component thereof." According to the EC (2010), "the main objective of fiscal rules is to establish constraints on the use of policy discretion in order to promote sound budgetary policy-making" (p.99). The impact of fiscal rules on fiscal outcomes is in budgetary discipline and macroeconomic stabilisation. The design of the appropriate fiscal framework depends on country-specific circumstances (Von Hagen 2006, Hallerberg et. al. 2007, 2009, Ljungman, 2008). There are several studies that attempt to evaluate the effectiveness of EU's fiscal rules and their impact on economic growth (Arestis et al. 2001, Warin 2005, Wyplosz 2006, Galli and Perotti 2003, Marinheiro 2004, Artis and Onorante 2006, Hein and Truger 2005, Savona and Viviani 2003, Soukiazis and Castro 2003, 2005). Sacchi and Salotti (2015) found that the aggressive use of discretionary fiscal policy, particularly of government consumption items, leads to higher volatility of output and, to a lesser extent, inflation. They found that the introduction of fiscal rules significantly affects the stabilisation function of fiscal policy. Castro (2011) provides evidence that, on average, growth is statistically higher in the period in which the fulfilment of the 3% criteria for the deficit started to be officially assessed. Reuter (2015) states that fiscal rules act as a kind of benchmark for policy makers and the public, and even though they might be complied with only in half of the years, they still tilt fiscal policy towards numerical limits in times of non-compliance.

2. METHODOLOGICAL FRAMEWORK

There are broad categories and types of numerical fiscal rules, i.e. budget balance, borrowing and debt rules, expenditure rules and revenue rules (European Commission 2006, p. 149).

According to the methodology applied in the European Commission's Public Finances in the EMU – 2006 report, the measurement of the fiscal rule strength index (FRSI) is based on five criteria (p. 163):

- Criterion 1: statutory base of the rule - a rule enshrined in the constitution or in law is considered stronger than a rule based on a simple political agreement or commitment;
- Criterion 2: nature of the body in charge of monitoring the respect of the rule - when the monitoring is carried out by an independent body that may send an early warning in case a risk of non-compliance is identified, the probability that the rule is respected can be expected to be higher;
- Criterion 3: nature of the body in charge of enforcement - like in the previous criterion, the resort to a non-partisan institution to ensure that appropriate measures will be adopted in case of non-compliance is considered to promote the respect of the rule;
- Criterion 4: enforcement mechanisms of the rule - the existence of automatic correction mechanisms and the possibility to impose them in case of deviation from the rule can be expected to foster compliance; and
- Criterion 5: media visibility - the effectiveness of fiscal rules is considered to be higher when they may benefit from large media visibility and non-compliance is likely to cause a public debate.

The methodology was based on a previous work by Deroose, et. al (2006). The fiscal rule strength index is calculated for each rule by aggregating the scores. "The scores of the five criteria were first standardised to run between 0 and 1. Then a random weights technique was

used following the method used by Sutherland et al. (2005). This technique uses 10 000 sets of randomly generated weights to calculate the synthetic indicator in 10 000 different ways. The random weights are drawn from a uniform distribution between zero and one and then normalised to sum to one. This measurement of strength of fiscal rules was combined with a measurement of the coverage by weighting the rule with the percentage share of the general government finances covered by the rule." (European Commission 2006, p. 164)

The standardised fiscal rule index (SFRI) contains all available information on national numerical fiscal rules. The indicator is calculated in two steps (PF EMU 2006, p. 165):

- *First*, it is necessary to calculate the potential contribution of each rule to the 'fiscal rule index' by multiplying the share of government finances covered by the rule by the indicator of the strength of the rule;
- *Second*, it is necessary to sum these indicators by country, taking into account their changes over time. In case two rules apply to the same general government sub-sector, it is necessary to follow the same methodology as for the calculation of the 'fiscal rule coverage index'. A weight of 1 is given to the rule which can be considered as the strongest one, based on the index of strength of fiscal rules, and a weight of 0.5 to the weaker rules.

According to DG ECFIN (2007), "the characteristics of fiscal rules vary depending on the sub-sector to which they apply. Fiscal rules applying to higher levels of government are usually incorporated into a multi-annual budgetary framework whereas most rules applied to regional and local governments rely preponderantly on annual schemes". (p. 76).

3. DATA ANALYSIS AND RESULTS

The fiscal rules database on domestic fiscal rules in force for EU Member States contains the time series from 1990 to 2014. The dataset covers all types of numerical fiscal rules (budget balance, debt, expenditure, and revenue rules) applicable at various levels of general government (central, regional and local government and social security funds). For the purpose of this paper, we analysed FRSI data according to the type of the numerical fiscal rule (Table 1) and SFRI trends (Appendix 1) for the 2007-2014 period.

Table 1 – Fiscal rule strength index (FRSI) by type of the numerical fiscal rule, 2007-2014

Country (No. of types)	Type[1]	2007	2008	2009	2010	2011	2012	2013	2014
AT (2)	BBR	6.65	6.92	6.92	6.92	7.5	8.81	8.81	8.81
	ER	-	-	6.4	6.4	6.4	6.4	6.4	6.4
BE (2)	BBR	6.02	6.02	6.02	6.02	6.02	6.68	6.68	6.68
	ER	7.57	7.57	7.57	7.57	7.57	7.57	7.57	7.57
BG (3)	BBR	-	-	-	-	5.24	7.06	7.06	7.45
	DR	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.73
	ER	4.72	4.72	4.72	4.72	4.72	5.72	5.72	5.72
CY (1)	BBR	-	-	-	-	-	-	6.52	7.78
CZ (2)	DR	6.6	6.6	6.12	6.12	6.12	6.12	6.12	6.12
	ER	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74
DE (2)	BBR	6.59	6.59	6.59	6.59	10	10	10	10
	ER	5.87	5.87	5.87	5.87	-	-	-	-
DK (3)	BBR	5.88	5.88	5.88	5.88	5.88	5.88	5.88	6.54
	ER	5.88	5.88	5.88	5.88	5.88	-	-	-
	RR	7.63	7.63	7.63	7.63	-	-	-	-
EE (2)	BBR	6.95	6.95	6.95	6.95	6.95	6.3	6.3	6.3
	DR	6.67	6.67	6.67	6.67	6.67	5.05	5.05	5.05
EL (1)	BBR	-	-	-	-	-	7.91	7.91	8.41
ES (3)	BBR	6.66	6.66	6.66	6.66	6.66	8.77	8.77	9.43
	DR	6.81	6.81	6.81	6.81	6.81	8.11	8.11	9.43
	ER	-	-	-	-	5.72	6.92	6.92	6.92
FI (4)	BBR	6.77	6.77	6.77	6.77	6.77	6.11	6.11	6.11
	DR	-	-	-	-	6.11	6.11	6.11	5.45
	ER	6.27	6.27	6.27	6.27	6.27	4.95	4.95	4.95
	RR	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98
FR (4)	BBR	7.73	7.73	7.73	7.73	7.73	7.73	8.91	8.91
	DR	7.62	7.62	7.62	7.62	7.62	7.62	7.62	7.62
	ER	4.71	4.71	4.71	4.71	7.33	7.33	7.33	7.33
	RR	6.27	6.27	7.62	7.62	7.62	7.62	7.62	7.62
HR (1)	ER	-	-	5.81	5.81	7.47	7.47	7.47	7.47
HU (2)	BBR	5.05	5.05	-	-	-	-	-	-
	DR	-	-	5.05	5.05	5.05	7.2	7.2	7.2
IE (3)	BBR	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25
	DR	-	-	-	-	-	-	8.23	8.23
	ER	5.72	5.72	5.72	5.72	5.72	5.72	6.14	6.14
IT (3)	BBR	6.78	6.78	6.78	6.78	6.78	6.78	6.78	7.95
	DR	-	-	-	-	-	-	-	7.95
	ER	6.14	6.14	6.14	6.14	6.14	6.8	7.2	7.3
LT (4)	BBR	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01
	DR	6.7	6.7	6.7	6.7	6.7	8.02	8.02	8.02
	ER	-	7.64	7.64	7.64	7.64	7.64	7.64	7.64
	RR	-	7.62	7.62	7.62	7.62	6.3	6.3	6.3
LU (3)	BBR	7.85	7.85	7.85	7.85	7.85	7.2	3.98	6.68
	DR	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98
	ER	4.66	4.66	4.66	3.3	3.3	3.98	3.98	5.05
LV (3)	BBR	-	-	-	-	-	-	7.21	7.87
	DR	6.07	6.07	6.07	6.07	6.07	6.07	6.01	6.67
	RR	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67
MT (2)	BBR	-	-	-	-	-	-	-	7.64

[1] BBR – budget balance rule; ER – expenditure rule; RR – revenue rule; DR – debt rule

	DR	-	-	-	-	-	-	-	7.24
NL (3)	BBR	-	-	-	-	-	-	-	8.3
	ER	5.64	5.64	5.64	5.64	5.64	6.3	6.3	7.47
	RR	6.09	6.09	6.09	6.09	6.09	6.09	6.09	6.09
PL (3)	BBR	6.51	-	-	-	7.24	6.58	6.58	6.58
	DR	9.05	9.05	9.05	9.05	9.05	9.05	9.05	9.71
	ER	-	-	-	-	6.81	7.47	7.47	-
PT (2)	BBR	4.78	4.78	4.78	4.78	4.78	5.74	5.74	5.74
	DR	-	-	-	-	-	-	7.07	7.07
RO (3)	BBR	5.05	5.05	5.05	5.05	5.05	5.05	5.05	7.07
	DR	5.72	5.72	5.72	5.72	5.72	5.72	5.72	6.98
	ER	-	-	-	-	-	-	-	6.01
SE (2)	BBR	6.66	6.66	6.66	6.66	6.66	6.66	6.66	6.66
	ER	6.84	6.84	6.84	8.02	8.02	8.02	8.02	8.02
SI (2)	DR	4.84	4.84	4.84	7.62	7.62	6.96	6.96	6.96
	ER	-	-	-	5.51	5.51	-	-	-
SK (3)	BBR	5.44	5.44	6.64	6.64	6.64	6.64	6.64	7.36
	DR	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01
	ER	8.04	8.04	8.04	8.04	8.04	7.38	7.38	7.38
UK (3)	BBR	7.85	7.85	-	7.36	7.62	7.62	7.62	7.62
	DR	8.14	8.14	-	8.02	7.62	7.62	7.62	7.62
	ER	-	-	-	-	-	-	-	7.48

Source: European Commission, (2015), DG ECFIN, Fiscal Rule Database, http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/documents/fiscal_rules_database_en.xls

Data presented in Table 1 show us that all EU Member States established some type of the numerical fiscal rule. On top of existing types of fiscal rules applied by Member States, some Member States (Ireland, Italy, Latvia, Netherlands, Portugal, Romania and the UK) introduced additional types of fiscal rules in 2013 and 2014. Simultaneously, Cyprus and Malta introduced their own fiscal rules for the first time. Almost all EU Member States (except Croatia and Slovenia) apply budget balance rules (BBR). Countries that apply all four types of numerical fiscal rules are Finland, France and Lithuania. The design of the appropriate national fiscal framework depends on country-specific circumstances as evidenced by the rules introduced in the 2005-2008 and 2009-2012 periods by country or entering into force after 31 December 2013.

Countries whose main policy target/constraint is defined as a structural balance as % of GDP are Austria, Belgium, Bulgaria, Cyprus, Germany, Croatia, Ireland, Italy, Latvia, Luxembourg, Lithuania, Malta, Portugal, Romania, Slovenia and Slovakia. The targets of all of these countries are set up at the level of the general government sector (with the most comprehensive coverage) and central government sector (BBR). The policy target/constraint defined as budget balance as a % of GDP is present in Austria, Belgium, Bulgaria, Cyprus, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Latvia, Luxembourg, Netherlands, Poland, Portugal, Romania, Sweden, Slovakia and the United Kingdom. The targets of all these countries are set up at the level of the general government, central

government, regional government and local government (BBR). With respect to the expenditure rule (ER), countries whose target/constraint should be the expenditure ceiling as % of GDP are Austria, Bulgaria, the Czech Republic, Germany, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Sweden, Slovenia, Slovakia and the United Kingdom. The targets of all of these countries are set up at the level of general government, but in some countries, like Bulgaria and Italy, they are set up on the local government level. An interesting situation can be found in Croatia where targets/constraints are defined as a debt ceiling in terms of debt/GDP ratio at the level of central government (DR) and structural balance (in % of GDP) at the level of general government (ER). Based on the fiscal rule strength index for each rule, a comprehensive time-varying composite fiscal rule index for each Member State was constructed by summing up all existing fiscal rule strength indices of respective EU Member States (Appendix 1). The Appendix 1 data indicate that, in the 2007-2014 period, countries with a positive FRI growth are Austria, Belgium, Bulgaria, Germany, Greece, Denmark, Spain, Croatia, Hungary, Luxembourg, Latvia, Netherlands, Poland, Sweden, Slovakia and the United Kingdom. Countries with a negative FRI growth are Cyprus, the Czech Republic, Ireland, Italy, Malta, Romania and Slovenia. Croatia's FRI for the 2007-2014 period continuously rose from -1.01 in 2007 to a high 1.62 in 2014, which is consistent with the findings quoted in Hodžić and Bečić (2015): "in the period 2003-2013 the FRI rose from -1.01 in 2008 to a high 1.43 in 2013" (p.431). This proves that Croatia is continuously and systematically improving its budget balance in the current economic situation.

Conclusion

Fiscal policy rules control targets for annual government deficits, debts or spending. The objective of fiscal rules is to enhance budgetary discipline and to foster policy coordination between different levels of government, depending on their institutional coverage. The Maastricht Treaty and the Stability and Growth Pact established a European fiscal framework. The characteristics of fiscal rules vary depending on the sector to which they apply. Fiscal rules applying to higher levels of government are usually incorporated into a multi-annual budgetary framework, whereas most rules applied to regional and local governments rely preponderantly on annual schemes. The country-based analysis showed the uncertainty and sensitivity of the fiscal rule index that arise from the fiscal rule coverage and criteria used in its construction considering specific circumstances of the country-specific fiscal framework and adopted fiscal rules. A comprehensive time-varying fiscal rule index for each Member State was constructed using the sum of fiscal rule strength indices for each rule in respective Member States, weighted by the coverage of general government finances covered with the respective rule (i.e. public expenditure of the government sub-sector(s) subject to the rule divided by total general government expenditure). The assigned weights are mainly determined by the fiscal strength of the rule and its coverage. In case of more than one rule covering the same government sub-sector, the second, third and fourth rule obtain weights ½, ⅓, and ¼ to reflect the decreasing marginal benefit of multiple rules applying to the same sub-sector. We can conclude that the final FRI score of a particular country mainly depends on the number of applied types of fiscal rules as well as the coverage of the government (sub)sectors covered with the respective rule.

Our analysis of FRSI and FRI has shown that all EU Member States, including Croatia, have some type of numerical fiscal rule in force. Countries that apply all four types of numerical fiscal rules are Finland, France and Lithuania, while all other countries (except Croatia, Netherlands and Slovenia) have budget balance rules established as the key pillar of their national fiscal rule system. In the observed 2007-2014 period, most of the analysed EU Member States recorded a positive growth of the FRI values. In 2014, countries with the highest FRI values were Bulgaria (3.54) and Spain (3.04). Croatia's FRI for the 2007-2014 period was

continually on the rise from -1.01 in 2007 to the highest (and positive) value of 1.62 in 2014. This proves that Croatia is continuously and systematically improving its fiscal discipline and, as a result, the budget balance in the current economic situation is improving (especially in 2015). Due to this improvement, it is expected that Croatia will reach its deficit target by the end of 2016 and successfully abrogate from the excessive deficit procedure.

Our recommendation for future research would be to examine fiscal rule efficiency across government levels in all other potential and non-potential candidate countries for the EU, given the significant heterogeneity of national fiscal frameworks and specific circumstances of the county-specific fiscal framework and adopted fiscal rules.

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Appendix 1:

Table A1 – Standardised fiscal rule index by EU Member States in the period 2007-2014

Country	2007	2008	2009	2010	2011	2012	2013	2014
AT	0.0738	0.0282	0.6110	0.6110	0.6969	0.8942	0.8942	0.8942
BE	-0,0375	-0,0375	-0,0375	-0,0375	-0,0375	-0.0061	-0.0061	1.5480
BG	1.1555	1.1555	1.1555	1.1555	1.5429	1.8056	1.8056	3.5475
CY	-1.0081	-1.0081	-1.0081	-1.0081	-1.0081	-1.0081	0.2656	0.5117
CZ	0.1096	0.1096	-0.1299	-0.1299	-0.1299	-0.1299	-0.1299	-0.1299
DE	0.2781	0.2781	0.9325	0.5633	1.0017	1.0017	2.8274	2.8274
DK	1.2856	1.2856	1.2856	1.2856	0.5715	-0.3859	1.3941	1.9054
EE	0.7805	0.7805	0.7805	0.9011	0.9011	0.4443	0.7618	0.7618
EL	-1.0081	-1.0081	-1.0081	-1.0081	-1.0081	0.7091	0.7091	0.8175
ES	1.2096	1.2096	1.2096	1.2096	2.0790	2.6901	2.6901	3.0439
FI	0.8594	0.4718	0.0896	0.0896	0.3271	0.2547	0.2547	0.2514
FR	0.3190	0.4423	0.7681	0.5734	1.2059	1.2059	3.1400	3.0472
HR	-1.0081	-1.0081	0.1211	0.1211	1.6232	1.6232	1.6232	1.6232
HU	0.2947	0.2947	0.0643	0.0643	0.0643	0.7780	0.7780	0.7780
IE	-0.7824	-0.7824	-0.7824	-0.7824	-0.7824	-0.7904	2.4094	2.4094
IT	-0.2613	-0.2806	-0.3277	-0.2893	-0.2799	-0.2784	-0.2615	2.8547
LT	-0.0454	0.5402	0.5402	0.5402	0.5402	0.5595	0.5595	0.5595
LU	1.5924	1.5924	1.5924	1.0088	1.0088	1.0175	1.4598	2.1531
LV	-0.0725	-0.0725	-0.0725	-0.0725	-0.0725	-0.0725	2.1437	2.8405
MT	-1.0081	-1.0081	-1.0081	-1.0081	-1.0081	-1.0081	-1.0081	1.4360
NL	1.4338	1.4338	1.4338	1.4338	1.4338	1.4999	1.4999	2.9776
PL	1.6841	0.9072	1.3130	1.3130	1.6501	1.6103	1.4483	1.7633
PT	-0,1720	-0,1720	-0,1720	-0,1720	-0,1720	-0.0251	1.5086	1.5497
RO	-0.6183	-0.6183	-0.6183	-0.6183	-0.6183	-0.6183	-0.6183	2.0679
SE	1.8534	1.8534	1.8534	1.9969	1.9969	1.9969	1.9969	1.9969
SI	0.2430	0.2430	0.2430	0.2584	0.3591	-0.8242	-0.8242	-0.8242
SK	0.1119	0.1119	0.0895	0.0895	0.0895	2.1516	2.1516	2.9496
UK	1.6101	1.6101	-1.0081	1.3386	1.2844	1.2844	1.2844	1.3764

Source: European Commission, (2015), DG ECFIN, Fiscal Rule Database, http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/fiscal_rules/index_en.htm

CREDIT INDEBTEDNESS OF STATUTORY CITIES IN THE CZECH REPUBLIC IN YEARS 2011-2015

Milan Lindner

Abstract

Credit forms of financing are one of the most common sources of assets coverage not only in businesses but also in public or not-for-profit organisations. The topic of this report is a comparison of the current credit indebtedness of statutory towns and cities in Czech Republic in years 2011 to 2015 followed by evaluation of adequacy of their total indebtedness. The aim of this paper is to point at the obvious risk of loan-financing overuse by some of the municipalities, as well as to uncover the municipalities that insufficiently use the current opportunity to gain economically advantageous external resources to finance their present and future needs. Recommendations for the individual statutory cities as well as for any related research are presented in the conclusion of this paper.

Keywords: credit indebtedness, municipality, statutory city, local budget, tax revenues

JEL Classification: H21, H71

Introduction

Credit relationships are one of the most common forms of financing investment and operational needs by means of external financial resources, both in business and in public organisations. Financial loans and credits are commonly used, for example, by local government´s public corporations, i.e. individual municipalities and counties. Data show that by year 2005 all municipalities of five thousand residents or more reported a certain degree of indebtedness; and this remains true until the present day (Provazníková, 2007; MoFCR, 2016 [1]).

Municipalities most often use loans and credits (namely bank loans) to secure external financial resources. Their largest providers are Česká spořitelna, a. s., Komerční banka, a.s. a Československá obchodní banka, a.s., and increasingly also European Investment Bank. Other external financial resources include also municipal bonds, repayable financial help and loans from the state budget or various other state funds as well as other sources (MoFCR, 2016 [2]).

Municipalities use the external resources of credit nature almost exclusively to finance the development, reconstruction or modernization of technical and civil infrastructure and of the municipal property (e.g. of municipal housing). Credits and loans are also commonly used to pre-finance projects co-financed by EU funds. Mostly, municipalities vouch their property for the loans, to a lesser extent they vouch with their future income (see Bailey, 1999; Provazníková, 2007; Ochrana, Pavel & Vítek et al., 2010; MoFCR, 2016 [2] etc.).

The level of Czech municipalities´ indebtedness grew steadily from early 1990s until 2006. Further development is covered in table 1.

Table 1: Aggregate data on the Czech municipalities´ indebtedness in years 2004-2015 (billions of CZK)

Indicator / Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Loans	38,5	43,7	47,1	46,7	47,4	55,8	59,9	60,9	68,3	68,8	67,7	66,1
Municipal bonds	23,9	23,5	22,9	22,6	22,7	14,7	15,8	14,0	13,8	15,0	11,8	10,7
Received repayable financial help and other debts	12,4	11,8	10,9	9,9	10,0	10,1	7,6	7,5	7,9	8,4	9,4	10,1
Total	74,8	79,0	80,9	79,2	80,1	80,6	83,3	82,4	90,0	92,2	88,9	86,9

Source: MoFCR, 2016 [2]

The total indebtedness rate varies greatly when the municipalities are compared to each other. More than half of all the local government´s debts belong to the four Czech largest cities, particularly the capital city of Prague and statutory cities of Brno, Ostrava and Pilsen (see table 2).

Table 2: Aggregate data on municipal indebtedness in the Czech Republic (excluding the capital city of Prague and statutory cities of Brno, Ostrava and Pilsen) in years 2004-2015 (billions of CZK)

Indicator / Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Loans	19,8	22,0	25,7	25,9	26,9	34,8	35,5	36,3	36,4	34,9	35,0	34,8
Municipal bonds	0,0	0,0	0,0	0,0	0,0	0,0	2,0	2,0	2,0	2,0	1,3	0,3
Received repayable financial help and other debts	9,1	8,6	7,8	7,0	7,4	6,5	5,7	5,7	6,1	6,1	7,3	8,0
Total	28,9	30,6	33,5	32,9	34,3	41,3	43,2	44,0	44,5	43,0	43,6	43,1

Source: MoFCR, 2016 [2]

According to the Czech Ministry of Finance, 3,255 out of 6,248 municipalities reported certain indebtedness in 2015, 92% of them reportedly met the presently prepared fiscal responsibility rules for local governments (MoFCR, 2016 [2]). This means that approximately 260 municipalities, probably mainly small and medium sized municipalities of population 1,5 thousand or less, show either increased or a high rate of indebtedness which presents substantial risks (given the total size of their budgets and property) (see Provazníková, 2007, Pařízková, 2008, Maaytová, Ochrana & Pavel et al., 2015 etc.).

This study focuses on the comparison and subsequent evaluation of the Czech statutory cities´ rate of indebtedness in years 2011 – 2015. Its aim is to identify risks of potential overuse of credit resources by particular municipalities, as well as cases of cities that insufficiently use the currently affordable and economically advantageous external financial resources to finance their present and future needs.

1. METHODS

The study uses the method of comparing behaviour of various subjects under similar conditions across multiple budget periods, namely between 2011 and 2015. The subject of the study has been defined as a group of statutory cities as defined by the Law on Municipalities (Czech Act no. 128/2000 Coll.)[1], later expanded to include the capital city of Prague.

Thought the status of the capital city of Prague is specific to certain extent (given the scope of its municipal competences and the competences it has as a higher territorial self-governed unit, as well as the mechanisms of budgetary allocation of tax revenues - Czech Act no. 131/2000 Coll.), it is certainly possible to compare it to statutory cities when indebtedness rate of the cities is examined.

The selection of statutory cities as subjects of this study contributes to the reliability and objectivity of the study as a whole since we can assume they all have similar structure of needs and interests (with a certain exception in the case of the capital city of Prague and three of the largest statutory cities), but also the ability to make qualified decisions about economic matters of the municipality, their relative stability including stable budgetary income etc.

Results of the conducted comparison are shown in a form of a table and charts. Outcomes of the study also include an outline of an optimality band for the degree of credit indebtedness in relation the cities´ annual tax and non-tax revenues.

2. DATA COLLECTION

Data on all the analysed subjects were obtained from publicly available sources. The set of input data used in the study can be considered as complete and consistent in the manner needed for the study.

Demographic data on the population in each of the statutory cities were updated to the date of 1 January 2015 and were obtained from the internet website and databases of the Czech Statistical Office.

The source of the economic data on the status of liabilities and indebtedness, as well as on the various categories of budgetary income of the examined statutory cities for years 2011 - 2015 was the Czech Finance Ministry´s internet portal MONITOR. Information presented by MONITOR comes from the Integrated Information System of Treasury (IISSP) and the Central System Accounting Information of State (CSÚIS). These systems are being updated on quarterly basis (MoFCR, 2016 [1]).

Data on balance of assets and liabilities including the D.II Long-term liabilities, D.II.1 Long term loans, and D.II.3 Long term liabilities on issued bonds (always to the date of 31 December of the calendar year) were collected during the liabilities and indebtedness analysis of the compared statutory cities and the capital city of Prague.

Revenues were analysed in a structure corresponding with the Decree of the Ministry of Finance No. 323/2002 Coll., on Budgetary Classification, as amended. The category of overall municipal budgetary revenues and their overall tax revenues (Class 1), particularly the property taxes revenues (immovable property revenues) (grouping of items 15) and non-tax revenues from own activities and surplus transfers from directly controlled organisations (grouping of

[1] The group of statutory cities currently consists of 25 cities; the cities of Jablonec nad Nisou and Prostějov have become statutory cities only as of 12th March 2012.

items 21). The grouping of items 21 includes both the mentioned transfers from organisations as well as rental income, own activities income and income from financial assets.

3. DATA ANALYSIS

All input data were arranged into look-up tables during the analysis. Financial ratio indicators showing the indebtedness rate of the individual compared statutory cities were calculated in the next step.

The quantifiable indicators included the following ratios:

- total long-term liabilities (*in the calendar year)* / number of inhabitants (to 1 Jan 2015)
- total long-term liabilities / total annual tax revenues (*both in the calendar year)*
- (long-term loans + liabilities on bonds) / total annual tax revenues (*both in the calendar year)*
- (long-term loans + liabilities on bonds) / (property tax revenues + non-tax income from own activities and from contributions) *(both in calendar year)*
- long-term loans + liabilities on bonds / (property tax revenues + non-tax income from own activities and from contributions) *(arithmetic average for 2011 – 2015)*
- long-term loans + liabilities on bonds (*in the calendar year)* / property tax revenues *(arithmetic average for 2011 – 2015)*

Results of the data analysis are clearly shown in the radar charts displaying relationship between levels of the individual Table 3 indicators.

4. RESULTS

Comparison of the above-identified indicators in the group of 26 evaluated subjects (Czech statutory cities and the capital city of Prague) leads to numerous interesting findings. The comparison results indicate that there are significant differences among the individual cities, not only in their indebtedness levels, but also in their ability to collect the corresponding tax and non-tax municipal budgetary revenues.

Of course, in the case of the second finding, it is necessary to take into account the existing legislative mechanisms of budgetary determination of taxes to the territorial self-governed units which favour the capital city of Prague and the three largest statutory cities (Brno, Ostrava and Pilsen). Hence, major conclusions can be made only in the comparison of the other 22 statutory cities. (see Czech Republic Act No. 243/2000 Coll., Maaytová, Ochrana & Pavel et al., 2015, Hamerníková & Maaytová, 2011, etc.).

Given the size of the input data, the Table 3 presents only some of the selected indicators characterising the indebtedness of statutory cities and the capital city of Prague in years 2011-2015, namely:

(1) The population of the capital city of Prague or a particular statutory city (to 1 January 2015)

(2) Development of long-term liabilities between 2011 and 2015 (year 2011 ≈ 100 %)

(3) Development of long-term loans and bonds between 2011 and 2015 (year 2011 ≈ 100 %)

(4) Development of long-term liabilities in the calendar year per capita to 1 January 2015 (in CZK)

(5) Ratio of long-term loans and bonds in a calendar year and the average annual property tax revenues and the non-tax income from own activities and surplus returns from directly controlled organisations between 2011 – 2015

(6) Ratio of long-term loans and bonds in a calendar year and the average annual property tax revenue in years 2011 and 2015.

Table 3: The development of selected indicators of Czech statutory cities indebtedness in years 2011-2015

City	Indicator	---	Indicator	2011	2012	2013	2014	2015
Prague (AA)	(1)	1 259 079	(4)	**21 144**	**24 843**	**27 134**	**26 654**	**25 976**
	(2)	122,85 %	(5)	**7,82**	**9,21**	**10,10**	**9,88**	**9,58**
	(3)	122,58 %	(6)	**34,08**	**40,17**	**44,04**	**43,06**	**41,77**
Brno (BM)	(1)	377 440	(4)	15 572	17 345	17 923	17 864	17 391
	(2)	111,69 %	(5)	5,76	6,47	6,15	5,84	5,53
	(3)	96,14 %	(6)	**22,74**	**25,54**	**24,28**	**23,06**	**21,86**
Ostrava (OT)	(1)	294 200	(4)	14 493	19 110	21 387	14 014	12 311
	(2)	84,94%	(5)	3,14	4,20	4,38	2,38	2,31
	(3)	73,59%	(6)	19,98	26,71	27,90	15,14	14,70
Plzeň / Pilsen (PM)	(1)	169 033	(4)	8 871	11 820	13 604	13 292	12 772
	(2)	143,97%	(5)	**1,34**	1,79	2,06	2,01	1,93
	(3)	143,74%	(6)	11,16	14,87	17,11	16,69	16,04
Liberec (LI)	(1)	102 562	(4)	**27 656**	**28 289**	**27 139**	**27 353**	**27 599**
	(2)	99,79%	(5)	9,70	10,01	9,45	6,27	1,70
	(3)	**17,48%**	(6)	17,24	17,79	16,80	11,14	**3,01**
Olomouc (OL)	(1)	99 809	(4)	**16 758**	**19 584**	**23,009**	**25 556**	**23 072**
	(2)	137,67%	(5)	**12,84**	**13,32**	**15,31**	**16,95**	**16,29**
	(3)	126,83%	(6)	18,21	18,89	**21,72**	**24,03**	**23,10**
Ústí nad Labem (UL)	(1)	93 409	(4)	16 509	15 530	14 667	13 983	15 857
	(2)	96,05%	(5)	**14,41**	**13,54**	**12,73**	**11,05**	**12,69**
	(3)	88,09%	(6)	14,76	13,87	13,05	11,33	13,01
České Budějovice (CB)	(1)	93 285	(4)	9 946	8 912	8 425	9 369	8 326
	(2)	83,71%	(5)	2,01	1,86	1,83	2,11	1,86
	(3)	92,53%	(6)	13,51	12,48	12,27	14,17	12,50
Hradec Králové (HK)	(1)	92 808	(4)	7 370	7 998	9 896	9 640	8 527
	(2)	115,71%	(5)	1,59	1,76	2,22	2,10	1,94
	(3)	122,23%	(6)	3,57	**3,95**	4,98	4,71	4,36
Pardubice (PA)	(1)	89 693	(4)	**2 365**	5 257	4 994	4 532	4 464
	(2)	**188,74%**	(5)	**0,68**	**1,52**	**1,40**	**1,28**	**1,16**
	(3)	**169,83%**	(6)	**1,51**	**3,38**	**3,11**	**2,84**	**2,57**
Zlín (ZL)	(1)	75 112	(4)	6 022	4 931	6 638	7 407	8 925
	(2)	148,22%	(5)	1,47	**1,16**	1,55	**1,65**	2,10
	(3)	143,62%	(6)	7,33	5,81	7,77	8,27	10,53
Havířov (*HA*)	(1)	75 049	(4)	5 644	10 508	15 102	14 431	7 653
	(2)	135,61%	(5)	6,04	7,86	9,62	9,01	6,98
	(3)	115,49%	(6)	11,13	14,49	17,71	16,60	12,85
Kladno (KD)	(1)	68 552	(4)	10 084	9 655	10 359	9 479	8 314
	(2)	82,45%	(5)	3,60	3,44	3,70	3,37	2,95
	(3)	81,91%	(6)	18,39	17,60	18,91	17,24	15,06
Most (MO)	(1)	67 089	(4)	5 271	6 292	6 025	6 400	4 040
	(2)	76,65%	(5)	2,92	2,73	2,56	2,14	1,73
	(3)	59,26%	(6)	4,48	4,18	3,92	**3,29**	**2,65**

Opava (OP)	(1)	57 772	(4)	10 767	11 841	9 886	9 589	8 875
	(2)	82,43%	(5)	3,86	4,17	3,49	3,10	2,96
	(3)	76,70%	(6)	10,20	11,05	9,22	8,21	7,83
Frýdek-Místek (FM)	(1)	56 945	(4)	6 465	5 713	3 929	6 037	4 393
	(2)	67,96%	(5)	1,76	1,57	**1,07**	1,69	**1,24**
	(3)	70,67%	(6)	7,26	6,48	4,41	6,98	5,13
Karviná (KI)	(1)	55 985	(4)	12 236	10 866	9 261	7 518	5 680
	(2)	**46,42%**	(5)	6,42	5,54	4,65	3,78	2,91
	(3)	45,36%	(6)	**24,22**	**20,89**	17,56	14,27	10,98
Jihlava (JI)	(1)	50 521	(4)	2 832	**3 098**	**1 651**	**1 180**	4 906
	(2)	**173,22%**	(5)	**0,93**	**0,80**	**0,34**	**0,23**	**1,56**
	(3)	**167,18%**	(6)	**2,81**	**2,42**	**1,03**	**0,68**	4,70
Teplice (TP)	(1)	50 079	(4)	**20**	**1 094**	**1 088**	**1 410**	**834**
	(2)	N/A	(5)	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
	(3)	N/A	(6)	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Děčín (DC)	(1)	49 833	(4)	6 094	12 407	7 982	4 046	**2 490**
	(2)	**40,86%**	(5)	6,79	7,64	3,73	3,81	2,44
	(3)	**35,96%**	(6)	11,15	12,55	6,12	6,26	4,01
Karlovy Vary (KV)	(1)	49 781	(4)	11 500	10 362	9 211	9 933	8 306
	(2)	72,23%	(5)	3,11	2,85	2,59	2,75	2,21
	(3)	71,16%	(6)	6,50	5,96	5,42	5,75	4,62
Chomutov (CV)	(1)	48 913	(4)	3 884	14 101	14 505	14 741	14 894
	(2)	**383,42%**	(5)	1,62	3,84	3,84	3,84	3,21
	(3)	**198,09%**	(6)	**3,52**	8,33	8,33	8,33	6,96
Jablonec nad Nisou (JN)	(1)	45 594	(4)	8 795	7 558	6 622	8 129	5 505
	(2)	**62,59%**	(5)	2,99	2,51	2,09	1,66	**1,23**
	(3)	**41,28%**	(6)	20,99	17,65	14,66	11,66	8,67
Mladá Boleslav (MB)	(1)	44 318	(4)	9 757	8 405	6 607	8 840	9 846
	(2)	100,90%	(5)	5,00	4,08	3,17	4,40	4,42
	(3)	88,38%	(6)	5,55	4,53	**3,52**	4,89	4,91
Přerov (PR)	(1)	44 278	(4)	9 284	8 720	8 311	8 844	5 821
	(2)	62,70%	(5)	3,33	3,23	3,08	3,34	2,20
	(3)	66,00%	(6)	11,40	11,06	10,56	11,45	7,53
Prostějov (*PV*)	(1)	44 094	(4)	**66**	**43**	**68**	**85**	**729**
	(2)	N/A	(5)	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
	(3)	N/A	(6)	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**

Sources: CZSO, 2015, MoFCR, 2016 [1], processed by author

Three highest and lowest values of each indicator are highlighted in bold, grey undercolour indicates the absolutely highest and the lowest values.

Results of Indicator (2) showing the development of total long-term liabilities between years 2011 and 2015 reveal that the statutory city of Chomutov experienced the highest growth of long-term liabilities (383,42% in comparison to year 2011), followed by Pardubice (188,74%), Jihlava, Zlín and Pilsen. In total, 13 out of 26 included municipalities experienced growth of liabilities in the monitored period.

Among them are also statutory cities of Teplice and Prostějov that reported growth of the overall debt in terms of thousands of percent. However, this information is strongly distorted by the fact that the debt of these cities started at minimum values; the resulting value of their overall debt is still very low as can be seen from the values of Indicator (4).

A significant decrease of long-term liabilities (ie. to at least 75% of the initial values) in 2011 – 2015 reported six statutory cities, especially Děčín (40, 86%), Karviná (46,42%) and Jablonec nad Nisou (62,59%).

Looking at Indicator (3) „Development of the long-term loans and bonds between 2011 and 2015 (year 2011 ≈ 100 %)“, we can arrive to similar conclusions as in the case of Indicator (2); but the growth of credit indebtedness (understood in the context of the study as indebtedness as a result of taking long-term loans and issue of communal bonds) was reported only by 9 out of the 26 evaluated cities.

Two statutory cities (Brno, Mladá Boleslav) reported a slight increase of the overall indebtedness while reducing their credit indebtedness, further two cities reported zero credit indebtedness over the monitored period.

Indicator (4) provides very interesting information. It shows the ratio of total long-term liabilities of the cities in each of the monitored years per capita, while each of the calculations is made using the number of inhabitants to 1 January 2015.

The Indicator (4) values for year 2015 varied between 729 CZK (Prostějov) and 27.599 CZK (Liberec) of total long-term liabilities per capita. Other municipalities with high values of the Indicator include Prague (25.976 CZK, Olomouc (23.072 CZK) and Brno and Ústí nad Labem (with values exceeding 15.000 CZK). On the other hand, Teplice (834 CZK), Děčín (2.490 CZK) and Most, Frýdek-Místek, Pardubice and Jihlava (all having value not exceeding 5.000 CZK per capita) belong to the group of cities with the lowest values.

In general, cities with higher population display higher values of Indicator (4). Exception to this are Ostrava (12.311 CZK) and Pilsen (12.772 CZK) and from among the smaller cities the city of Chomutov (14.894 CZK). The ratio of long-term liabilities per capita was declining in 17 of the 26 evaluated cities over the recent years. Other cities reported stagnation or slight increase.

Indicator (5) shows the ratio of long-term loans and issued communal bonds in calendar year and the average annual property revenues, non-tax income from own activities and surplus returns from directly controlled organisations between 2011 - 2015. Alternatively, the indicator can also be expressed as the number of years it would take to pay the principal of all long-term loans and issued communal bonds from the of property tax revenues (i.e. from revenues reported in grouping of items 15) and from non-tax income from own activities and contributions (as budget revenues reported in grouping of items 21).

The following Indicator (6) is designed in a similar fashion. It shows the ratio of long-term loans and the issued communal bonds in a calendar year compared to the average tax property tax revenues in years 2011 – 2015.

Indicators (5) and (6) have zero values in the cases of statutory cities of Teplice and Prostějov. These cities report zero credit indebtedness as well as very low overall long-term indebtedness.

Very low values of the Indicator (5) corresponding to the low level of credit indebtedness can be seen in cases of Jihlava, Frýdek-Místek, Most, Karlovy Vary and Jablonec nad Nisou, but also in cases of large cities, such as Pardubice, Zlín, České Budějovice, Hradec Králové, Pilsen and in some years even in Ostrava, where the balance of long-term loans and issued communal bonds do not exceed triple of the average annual budgetary revenues from the grouping of items 15 and 21.

The lowest values of a similar indicator (6) were reported in 2015 by statutory cities of Pardubice (2,57) , Most (2,65), Hradec Králové (4,35) and Jihlava (4,70), but situation in other cities, including large cities, is much worse. But this is not just the result of the existing credit

indebtedness, as it reflects more the levels of property tax coefficients set the individual municipalities.

The highest levels of the Indicator (5) in 2015 can be seen in statutory cities of Olomouc (16,29) and Ústí nad Labem (12,65) and in the capital city of Prague (9,58). The absolutely highest value of Indicator (6) in the same year can be observed in the capital city of Prague (41,77) followed by Olomouc (23,10) and Brno (21,86).

5. DISCUSSION

Findings and Interpretations

Graphic tools are used for clearer representation of the facts expressed in Table 3. In this case, we chose radar charts. Only selected data related to the last of the monitored years, i.e. year 2015, are presented here. This is purely due to the total volume of data that would otherwise have to be presented.

A set of Indicators (2) to (6) recorded in Table 3 is presented in the charts for each statutory city, supplemented by one additional indicator:

(7) Ratio of total long-term liabilities reported by 31 December 2015 and overall annual tax revenues in 2015

The beginning of each axis is in the centre of the chart and its value is 0 for each of the indicators. The range of values for each axis is included in its label. Units on each of the axis are as follows: Indicator (4) uses CZK per city resident, Indicators (5), (6) and (7) use the number of years needed to pay off current obligations from the relevant resources (excluding debt service costs).

Values obtained for each city are connected by lines marked with codes listed in Table 3.

Chart 1: Capital City of Prague and statutory cities with population exceeding 100.000 residents

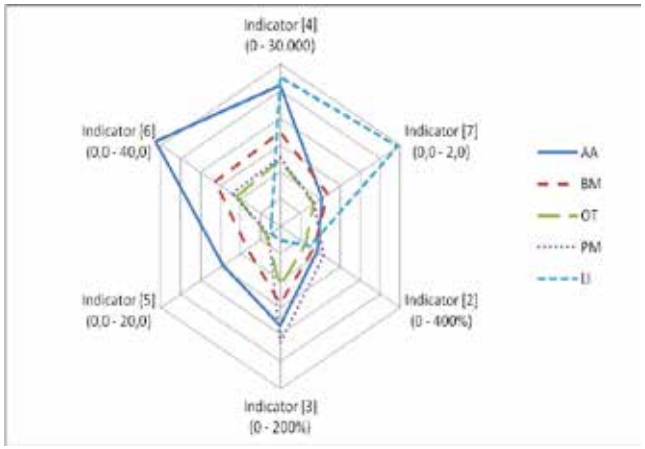


Chart 2: Statutory cities with population 75.000 to 99.999 residents

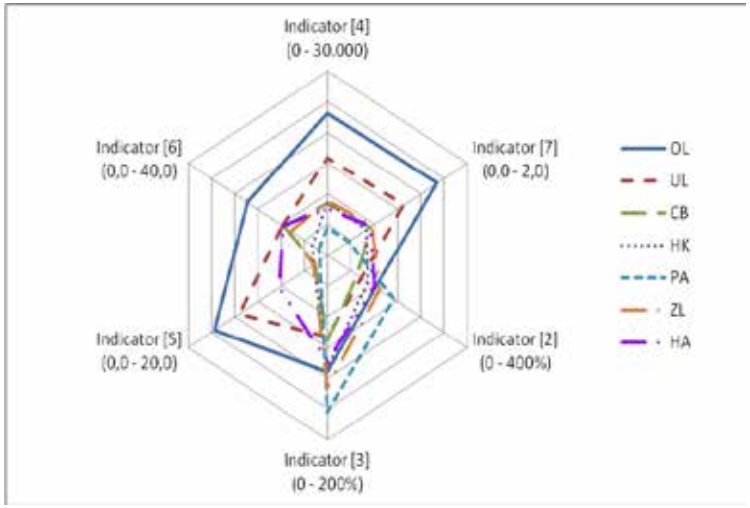


Chart 3: Statutory cities with population 50.000 to 74.999 residents

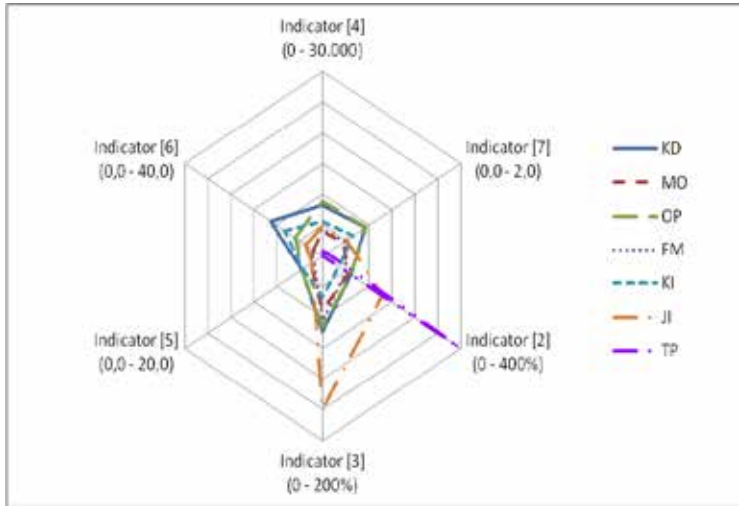
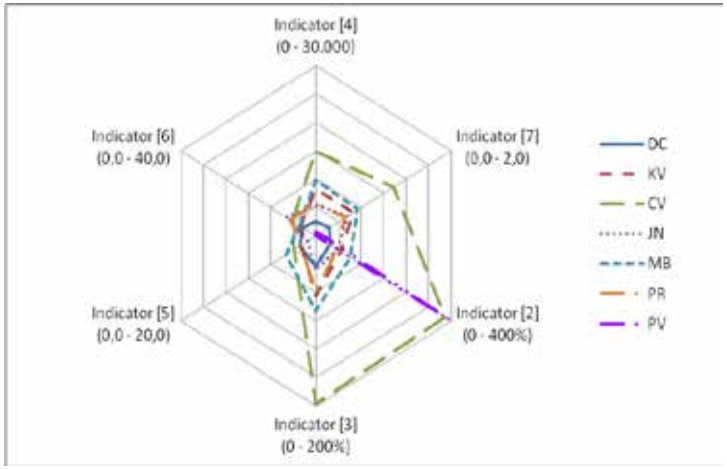


Chart 4: Statutory cities with population not exceeding 50.000 residents



Source: processed by author

From the values of the indicators displayed in the charts, we can say that statutory cities´ indebtedness is one of the most pressing economic problems in the Czech Republic.

From among the statutory cities with the highest increases in indebtedness we can state, that in the cases of Pardubice, Jihlava and Zlín, this is a rational step towards an adequate use of external resources to finance the needs of the city. However, the increase of long-term liabilities in the cases of Pilsen and Olomouc is controversial, though not risky. Although their liabilities grew over the whole period of 2011-2015, the growth rate either declined or entirely stopped, or the total debt started to decrease gradually over the past two years.

Growth of indebtedness cannot be considered as risky even in the cases of Teplice and Prostějov, as in both cases the absolute amount of debt is negligible. On the other hand, really dangerous is the situation in the Capital city of Prague whose liabilities are high both in values per capita and in relation to specific monitored resources of their possible coverage. Likewise, situation in Chomutov is also risky because both the municipal debt and the amount of liabilities per capita grew rapidly.

The graphic representation also shows that the rate of indebtedness clearly corresponds with the size of the monitored cities. The capital city of Prague and big statutory cities show greater total debt per capita while smaller statutory cities are more „cautious" about getting into debts – we can even postulate that these smaller cities often insufficiently exploit the potential of external resources to finance their needs.

It can therefore be concluded, that in addition to cities, that must pay adequate attention to their indebtedness otherwise it might become a serious problem in the future (this applies particularly to the capital city of Prague, Brno, Pilsen, Liberec, Olomouc, Ústí nad Labem, Havířov, Kladno and Chomutov), there are also cities that do not effectively use the possibility of getting into debt, i.e. they do not use external resources to finance their real needs (Prostějov, Teplice, Děčín, Frýdek-Místek and others).

The topic of optimal indebtedness or use of external financial resources is frequently discussed in economic literature that focuses on corporate finance (see Marek et al., 2009; Hrdý & Krechovská, 2013; Kalouda, 2011 etc.).

Specialised sources focusing on public finance address the same issue almost exclusively from the perspective of monitoring and regulation of over-indebtedness of territorial self-governed units or public organisations (see Maaytová, Ochrana & Pavel et al., 2015; Peková, 2011 etc.). Only some sources mention also other aspects for evaluation of the adequacy of the indebtedness, including the possibility or even advantages of using external financial resources adequately (see Bailey, 1999; Provazníková, 2007).

Implications for research and practice

Relatively straightforward recommendations stem from the conducted analysis. To complete the research, it was first necessary to better understand the structure of the monitored cities´ budgetary revenues and expenditures in order to precisely define resources that would serve both for the coverage of debt service costs associated with the increase of the cities´ debts and for the coverage of the debt´s principal.

Following the above mentioned facts, the main challenge was to correctly formulate general recommendations about the optimal amount and structure of external resources territorial self-governed units could potentially use to finance their needs.

Such recommendations can be formulated in their simplified form on the basis of the collected empirical data and their analysis:

1) Credit indebtedness (i.e. the amount of long-term liabilities from loans and issued bonds) of territorial self-governed units, converted into a per capita information, should be between 5,000 to 10,000 CZK.
2) Credit indebtedness of territorial self-governed units corresponds to approximately three times their annual property tax revenues (immovable property) (grouping of items 15) and non-tax income from own activities and surplus returns from directly controlled organisations (grouping of items 21).
3) Credit indebtedness of territorial self-governed units is about ten times their annual property tax revenues (immovable property tax) (grouping of items 15)

The above formulated recommendations can be considered as proposals of specific criteria that can serve for the evaluation of overall credit indebtedness of any territorial self-governed unit and whether this subject adequately uses external resources to finance its needs.

The criteria are deliberately designed not as unilateral regulation of maximum possible level of credit indebtedness, but as levels or bands of indebtedness rates that can be viewed as effective.

Discussions about the desirability of reasonable credit indebtedness is very up-to date, given the current very low (or zero or even negative) interest rates and the overall recovery of the economy. Advantageous credit conditions enable municipalities to consider larger investments than originally planned, or implementation of financially more demanding projects, or execution of investments in a shorter time-frame.

Even in this situation, it is necessary to invest wisely, with respect to real needs of the territorial self-governed unit and its inhabitants and to consistently apply all three components of the generally known 3E principle used in the public administration (Effectiveness, Efficiency, Economy) (Ochrana & Půček, 2012).

Limitations and Suggestions for Future Research

This contribution is limited by the use of publicly available sources of information and of insufficiently detailed data, which did not contain information on the structure of non-tax income from own activities of each of the monitored statutory cities, the relevance of this income in relation to the cities´ available property etc. This distorts the results of the analysis and the following comparison of the evaluated cities to a certain extent.

Given the scope of the contribution, research had to be limited purely to statutory cities within the Czech Republic – but very interesting would be also similar comparison with locally governed districts in other categories, including smaller towns, market towns and larger villages.

The above described limitations can also serve as recommendations for further research of the subject area.

Conclusion

Credit relationship tools are frequently used to finance investment and operations of both businesses and public organisations. According to sources from the Czech Ministry of Finance, more than half of all the debts are born by the four largest cities in the country (MoFCR, 2016 [2]). Findings from this paper confirm that the larger the city, the higher is its absolute and relative indebtedness.

The research focused on the assessment of the present situation and the development of credit indebtedness (ie. the amount of long-term liabilities from loans and issued bonds) within a set of, so called, Czech statutory cities and the capital city of Prague. The law on municipalities currently defines 25 public corporations – statutory cities. The whole research set therefore included 26 Czech cities, the largest of them being the capital city of Prague with 1,26 million residents and the smallest statutory city of Prostějov with 44 thousand residents.

The aim of the research was to map and analyse the size, level and adequacy of credit indebtedness of the evaluated cities in years 2011-2015, expressed both in relation to number of residents and to the level of tax and non-tax revenues. The aim of this paper was to highlight potential risk of excessive use of credit resources by some of the municipalities, but also to point out situations where municipalities insufficiently exploit the current possibility of gaining economically advantageous external resources for financing of their current and future needs.

Data on all the analysed subjects were obtained from publicly available resources, particularly from internet pages and databases of Czech Statistical Office and from the information portal MONITOR of Czech Finance Ministry.

The comparative table and the charts quite clearly show that the overall indebtedness of territorial self-governed units, such as the capital city of Prague and the statutory cities, as well as the trend of its development, do not pose a serious problem.

Of the 26 monitored cities, 15 of them reported decrease in their credit indebtedness over the years 2011-2015 and in the same period, 13 of them also reported drop in their overall long term liabilities. Nevertheless, some of the cities must pay great attention to their indebtedness, otherwise it might become a serious economic problem in the future. This applies mainly to the capital city of Prague and to statutory cities of Brno, Pilsen, Liberec, Olomouc, Ústí nad Labem, Havířov, Kladno and Chomutov.

On the other hand, there are also cities that do not effectively exploit the opportunity of obtaining additional finances from external resources to implement their investment projects

which would effectively contribute to meeting the real needs of the city and its inhabitants. Such cities include, for example, Prostějov, Teplice, Děčín or Frýdek-Místek. In their case and in light of the current economic recovery and availability of economically advantageous loans, it is quite acceptable to increase their credit indebtedness.

Three possible criteria were proposed in this paper for the assessment of overall se territorial self-governed units´ credit indebtedness. These include optimal credit indebtedness per capita, ratio between credit indebtedness and annual revenues from property taxes, own activities and surplus returns from directly controlled organisations.

Further investigation of this issue depends on the availability and quality of the input data. Limiting for the study are mainly missing information about the detailed structure of municipal budgetary revenues in the category of own activities or about the extent of compulsoriness of specific municipal expenditures. In light of this information, the greatest challenge for future research poses the formulation of general recommendations in relation to optimal amount and structure of external resources used by territorial self-governing units to finance their needs.

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ESTIMATION INVESTMENTS IN SHADOW ECONOMY AND ITS IMPACT ON ECONOMIC GROWTH IN RUSSIA

Igor Lukasevich

Abstract

The article considers the problem of estimation of investment activity in the informal sector of the Russian economy and its impact on GDP. The proposed approach and the evaluation model made a forecast of the size of the shadow investments in the Russian economy in 2016.

Keywords: shadow economy, GDP, investments, modelling, estimation

JEL Classification: C2, E26, E47

Introduction

The shadow economy is a multi-dimensional phenomenon, which inevitably accompanies formal economies throughout the world. During the crisis and post-crisis period the shadow economy can be a cause of decline in the GDP and in the investments, and can spread the crisis further.

The shadow economy becomes part of a vicious circle where one of the consequences of recession is flight from formal to shadow trading, which reduces tax revenue, thus increasing the fiscal deficit. The growing deficit must, in turn, be compensated for by higher tax rates: higher taxes drive more companies and workers into the shadow economy, or, even more devastatingly, out of the economy altogether. This downward spiral keeps repeating itself, always at a lower level of GDP and employment [2].

It is necessary to notice that the problem of investments in shadow economy is of interest on account not only of the qualitative point of view, considerable scientific interest represents the question of a quantitative estimation of the given economic category. There several classifications of investment activity valuation methods in shadow economy.

In our opinion, there is the most adequate estimation methods classification of shadow economy that divide these methods on direct and indirect [1, 5].

Thus direct methods are based on contact or supervision over the person who participates in investment activity in shadow economy. Two various research approaches are based on the analysis of discrepancy of incomes and costs of households.

The first approach reveals group of households with significant excess of costs over incomes. If they know a share of such households and average rupture of incomes and costs, they find general assessment of investments in a shadow sector of economic activity.

The second approach focuses attention not on cumulative costs of households, but on costs for certain groups of the goods and services.

The work of English economists A. Dilnot and Morris C. (1981)[1] became classical realization of the first approach. The comparison of incomes and costs of households of The Great Britain

[1] Dilnot A., Morris C. What do we know about the black economy? Fiscal Studies. 1981. Vol. 2. No. I. – P. 6-47.

has allowed evaluating not only scale of investments into a shadow sector of economic activity, but also the social-professional portrait of its representatives.

Indirect methods are based primarily on the use of economic aggregates, the official statistics, tax data and financial authorities. As a result, used in Russia, the division of methods into direct and indirect differs from the Western approach.

There are many indirect methods of assessing the extent of the shadow economy. The most common and, in our view, applicable in practice methods are[2]:

- monetary method of economic shadow sector investment activity estimation;
- alternative method of GDP calculation.

Monetary approach to the estimation of investment activity in the informal sector includes a wide range of techniques, which combines a basic premise: the shadow transactions, including those related to investment activities, prefer cash to avoid inspections, which increases the need for paper money and coins in comparison with that which would be expected based on the level of economic activity in the formal sector. In other words, evaluation of investment flows in the underground economy comes from the demand for cash, which can not be explained by economic activity in the formal sector.

For the first time the demand for cash was used to explain the dynamics of the shadow economy in the late 1950's in the United States. So Cagan P. (1958)[3] explained the sharp rise in demand for cash in the U.S. of war years it was the needs of illegal black market transactions. In modern literature monetary approach is connected, first of all, with the name Gutmann P. (1979), who made a great contribution to this line of the shadow economy research[4]. With reference to the USA this logic has realized Ross I. (1978)[5], in Great Britain – Freud D. (1978)[6], and also Tanzi V. [9, 10].

The attempt to evaluate the investment in shadow economy as a difference of profitable and account estimations of GDP has been undertaken by MacAfee K. [12].

For an estimation of investment scales activity in economic shadow sector it is expedient to offer a technique based on the using of economic parameters, considered by official statistics. The analogue of the given technique has been developed at the Institute of the strategic analysis and development of business for shadow economy estimation in the industry. The offered technique is based on the assumption of complete reflection in the statistical reporting of all expenses both on legal, and on the latent official activity.

In the technique is used the indicator of standard (normal) profitability that corresponds to a principle of the expediency firm functioning in this or that business field.

The offered technique is based on use of the following data:

- about divergences in dynamics of a production volume, works, services;
- about divergences in size of cash in circulation;

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- about divergences in size of an indicator of normal level of profitability.

Further the offered technique will be approved on Russian example with the purposes of the shadow turn-over in investment sector computation.

Also concealments of production volume and profit, the forecast for a near-term outlook will be made; performance evaluation of decrease in parameters of shadow activity will be calculated. On this basis the model of optimization of parity between level of shadow activity and the efforts of the state directed on its suppression, justifying necessity of restriction of shadow activity economically, socially and politically safe limits will be offered.

If to start with a condition that the total sum of expenses for production, fulfillment of works, rendering of services in a shadow sector of economic activity sums up of expenses for officially considered and latent activity the size of distortion of production volume should be equal in the statistical reporting to the sum of profit hidden from the taxation ΔP^1:

$$\Delta Q^1 = \Delta P^1 = Q^1 - Q, \qquad (1)$$

where

Q^1 – total volume of production, works, services with allowance for concealments;

Q – total volume of production, works, services according to the statistical reporting.

For the calculating volume of production, works, services with allowance for concealments for an accounting period it is necessary to consider dynamics volume of production, works, services and their cost:

$$\Delta Q^1 = Q_0^1 J_q J_p, \qquad (2)$$

where

Q_0^1 - Volume of production with allowance for concealments in the basic period;

J_q – physical volume index of the goods, works, services;

J_P – price index of the goods, works, services.

The volume of production with allowance for concealments in the basic period can be calculated on the basis of the data about normal level of profitability of production in branch:

$$Q_0^1 = Z_0(R_0 + 1), \qquad (3)$$

where

Z_0 - expenses for production, works, services in the basic period;

R_0 - normal level of profitability of production for the basic period.

During working out of the given technique it has been spent two series of computation with the constant design value of normal profitability R_o=0,221=const.

In the first case (a variant I) quantum indexes of made production, works, services J_q were used for reflection of the production volume dynamics. In the second (a variant II) case the indexes reflecting change of cash quantity in cash circulation J_H were used for reflection of dynamics of the production volume.

At use of constant value of the normal profitability indicator it is not considered that some factors that have been not connected with inflationary developments and change of quantity of

cash in circulation could influence level of yield of production the next years. For example, these factors are change of production structure, range of manufactured production, fulfillment of works, rendered services, use of various variants of technology, etc.

For objective reflection of the investment activity valid condition in the shadow sector of economics it is expedient to suggest to compute the indicator of normal level of profitability for each financial year separately R_{0j} as average significance for four-five previous years, including a current year. It will allow to reduce possible overestimate of results.

By working out of the offered approach indexes of physical volume (a variant III) and also reflecting change of cash in circulation (a variant IV) were used by analogy to an existing technique for reflection of output production volume dynamics, fulfillment of works, rendering of services.

The fifth computation variant of the share of the latent turn-over in an investment sector of economic activity is based on use of a known logic design: if rates of production volume falling fulfillment of works and rendering of the services, taken in dynamics, are below rates of falling of a cash money supply in circulation there are bases to assume that the part of money resources extracted from the circulation is used for investment in a shadow sector of economic activity.

The size of the latent volume of investments ΔQ_j^1 is calculated on the basis of divergences of indexes of output production volume, fulfillment of works, rendering of services and the index reflecting change of quantity of cash in circulation:

$$\Delta Q_j^1 = Q_0 (J_{нj}^0 - J_{Qj}^0), \qquad (4)$$

where

Q_0 - volume of production, fulfillment of works, rendering of services in a base year;

$J_{нj}^0$ - basic index of cash money supply in j-th year;

J_{Qj}^0 - basic index of output production volume, fulfillment of works, rendering of services in comparable prices in j-th year.

Further it is necessary to calculate previously indicator ΔQ_j^1 according to economy of Russia as a whole. On its basis the factor d_j, reflecting the proportion between sizes of the productive investment latent volume, fulfillment of works, rendering of services and statistically considered volume Qj settles up:

$$d_j = \frac{\Delta Q_j^1}{Q_j} \qquad (5)$$

After that indicators of the productive investment latent volume of the goods, fulfillment of works, rendering of services settle up Q_j^1:

$$Q_j^1 = Q_j (1 + d_j) \qquad (6)$$

The computation results of shares of the productive investment latent volume of the goods, fulfillment of works, rendering of services d_Q^1 and profit d_p^1 by five variants from 2010 for 2015 are presented to tab. 1.

Table 1 - Totals of productive investment latent volume share of the goods, fulfillment of works, rendering of services and profit by variants of computations

	2010		2011		2012		2013		2014		2015	
	d_Q^1	d_p^1	d_Q^1	d_p^1	d_Q^1	d_p^1	d_Q^1	d_p^1	d_Q^1	d_p^1	d_Q^1	d_p^1
Variant I with use of indicators R_0=const и J_{qj}	-	-	0,15	0,92	0,46	0,93	0,52	0,78	0,19	0,54	0,23	0,74
Variant II with use of indicators R_0=const и $J_{нj}$	-	-	0,27	0,82	0,23	0,83	0,23	0,91	0,42	0,78	0,43	0,88
Variant III with use of indicators R_{0j} и Jq_j	-	-	0,25	0,91	0,44	0,93	0,23	0,73	0,16	0,46	0,17	0,67
Variant IV with use of indicators R_{0j} и $J_{нj}$ и $J_{нj}$	-	-	0,26	0,91	0,22	0,83	0,48	0,89	0,38	0,75	0,38	0,86
Variant V with use of indicators d_j	0,26	0,69	0,84	0,26	0,86	0,28	0,27	0,77	0,27	0,65	0,26	0,77

Source: own calculation

From comparison of results by variants I and III, II and IV it follows that use of the indicator of current significance of profitability normal level R_0 instead of constant R_0=0,221 reduces settlement sizes of indicators d_Q^1 and d_p^1 a little. It ensures more computation precision as the changing significance of current level of normal profitability considers the developing tendencies connected with change of yield of investments in shadow sector of economy. Besides, the degree of display of the main defect of the techniques based on the account of divergences of known macroeconomic indicators - receptions of the overestimated estimations, decreases.

The variant V is less sensitive to sharp changes of price dynamics in the conditions of a crisis state of economy and allows to consider features of structure of economy shadow sector.

Thus, the offered approach to improvement of a technique of a quantitative estimation of the latent investment turn-over based on use of known parameters, considered by official statistics or calculated on the basis of popular indicators, ensure higher reliability of received results which appear the most suitable for forecasting of development of the investigated phenomenon.

It is necessary to notice that the forecast of level of shadow activity in investment sector even for very short period cannot be exact enough as it is impossible to consider the important factors of institutional character, not having quantitative expression and not giving in to measurement. Nevertheless, the comprehensible forecast of latent scales change of investment activity in Russia can be made on the basis of trends construction of dynamic numbers of the investments latent volume shares indicators received during use of computations results indicated above variants.

Input data were results of computations of investments latent volume shares d_Q in the Russian economy (see tab. 1).

For comparison and a choice of approximating function curve the similar indicator across Russia for 10 years was used. In the computations such kinds of approximating curve, as linear, logarithmic, power and exponential are approved.

For each of these curves predicted values of the hidden share turnover in the industry were obtained in accordance with marked variants calculations.

Table 2 - Results of the trend equations parameters estimation of the latent profit volume share in the Russian economy

The name of the trend equation	Kind of an approximating curve	Value of determination coefficient (R^2)
Linear trend	$d_p^1 = 0{,}3385 + 0{,}032 \cdot t$	0,2344
Square trend	$d_p^1 = 0{,}5363 - 0{,}0668 \cdot t + 0{,}008 \cdot t^2$	0,3525
Power trend	$d_p^1 = 0{,}3664 \cdot t^{0{,}1756}$	0,0948
Logarithmic trend	$d_Q^1 = 0{,}351 + 0{,}1085 Lnt$	0,1574
Exponential trend	$d_Q^1 = 0{,}3541 \cdot e^{0{,}0544\ t}$	0,1553

Source: own calculation

As shown in tab. 2, the greatest value of factor on the basis of the constructed curve the forecast of a profit latent volume share in Russian economy for 2016 will be executed. For this purpose, the values of forecasting period are substituted in the square-law trend equation of the predicted period (2016 year corresponds to 12-th period). Thus, a predicting share of latent profit volume in the Russian economy will be:

$$d_p^1 = 0{,}5363 - 0{,}0668 \cdot 12 + 0{,}008 \cdot 12^2 = 0{,}8867 \text{ or } 88{,}67\ \%.$$

Thus, predicting productive investment latent volume share of good, works fulfillment, rendering of services for 2016 has constituted 10,04 % while the predicting of the profit latent volume share in Russian economy for the given period has constituted 88,67 %.

Results of the forecast allow us to make a conclusion on decrease in the productive investment volume concealment share of good, works fulfillment, rendering of services against a considerable increase of the profit volume concealment share in the Russian economy. It is possible to explain decrease in the share of good productive investment volume concealment, works fulfillment, rendering of services by decrease in the rate of the VAT that has allowed lowering somewhat investment activity scales in shadow sector. At the same time, the given phenomenon will be accompanied further by moving bigger part of profit on the given investment activity in shadow sector that, in our opinion, is caused by a significant tax burden in the field of the taxation of fiscal effects of firms activity.

Economic effect of decrease in scales of shadow activity in investment sector is expressed in increase in tax revenues in the budget and in off-budget funds. The sums of the half-received taxes can be advanced as follows:

$$\begin{aligned} \Delta N_Q &= n_Q \Delta Q^1; \\ \Delta N_p &= n_p \Delta P^1; \\ \Delta N_c &= \frac{n_c d_з \Delta Q^1}{R+1}, \end{aligned} \qquad (7)$$

where

$\Delta N_Q\ \Delta N_p\ \Delta N_c$ - the sums half-received according to the VAT, the profit tax and deductions in off-budget funds;

n_Q, n_p, n_c - rates according to the VAT, the profit tax and deductions in off-budget funds;

$d_з$ - share of costs on the wage in general costs on production, fulfillment of works, rendering of services.

Computation of the total sum of the half-received tax revenues for some years is represented in the table 3.

Table 3 - Account of the half-received fiscal charges in the consolidated budget or Russia, millions rubles

Indicator and the computation formula	2010	2011	2012	2013	2014	2015
ΔQ_j^1 - size of the latent investments volume; ΔP_j^1 - size of the latent profit volume.	9144	10455	7448	9974	23171	25247
ΔZ_{mpj}^1 - size of the latent expenses for the wage volume $d_з$; $\Delta Q_j^1 : (R_j + 1)$	939	1402	1164	1180	2458	4163
ΔN_{Qj} - the sum of the half-received VAT; $0{,}18 \Delta Q_j^1$	366	418	298	399	927	1010
ΔN_{pj} - the sum of the half-received profit tax; $0{,}24 \Delta P_j^1$	3200	3659	2607	3491	8110	8836
ΔN_{Zj} - the sum of the half-received receipts of off-budget funds; $0{,}356 \Delta Z_{mpj}^1$	357	533	442	448	934	1582
ΔN_{TOT} - the total sum of the half-received tax revenues	3923	4610	3347	4338	9971	11428

Source: own calculation

As shown at the table 3, in the last years persistent growth of a total sum of the half-received tax revenues in the budget and off-budget funds takes place.

Conclusion

Such result allows us to draw a conclusion on increase in a shadow investment turn-over in economy of Russia that does actual acceptance of measures on its decrease.

As a whole, on the basis of this problem research of the quantitative estimation of investment activity in shadow economy in condition transformations it has been possible to make a number of generalizations and conclusions:

- Having considered classification of Russian shadow economy characteristic, it is possible to speak about increase of intensity of shadow processes in investment sector.
- Introduction of the expanded definition of investment activity in shadow economy where as an identifying sign it is used not only the fact of impossibility to register economic activities, but also such aspect as concealment of its true purposes, allows to specify a system structure of modern shadow economy with allowance for specificity of the transformations period.
- Measures and means of struggle against shadow economy should be focused not so much on liquidation of this phenomenon as that, but on restriction of shadow activity and its restraint at some admissible level.
- Revealing and the description of models of the processes focused on decrease of a transparency of financially-resource streams in investment sector for an abacus of deducing of money resources in a shadow turn-over; give the chance to justify a technique of a quantitative investments and profit latent volume share estimation.
- The offered variant of a technique of shadow investment activity scale quantitative estimation allows considering to carry out their forecasting. On this basis the investments and profit latent volume share estimation has been computed for Russia and the forecast for 2016 has been made.

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MANAGERIAL APPLICATION OF BUSINESS MODEL IN RESPECT TO MACROECONOMICAL DEVELOPMENT

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Abstract

Business models have become an indispensable tool for managers exploited at all stages of their business and its application is possible in all segments. Its use has been found in marketing (Trebaljevac, Bojovic, 2015; Wallnöfer, Hacklin, 2013) in the innovations (Bonazzi, Zilber, 2014; Euchner, Ganguly, 2014) in the management of multiple values (Kita, 2015; Kita, 2014) in the creation of a business plan (Hanshaw, 2015; Dudin, Kutsuri, Fedorova, Dzusova, Namitulina, 2015) and in strategic management (Stan, 2013; Jaakko, Juha-Antti, Arjo, Henrikki, 2011).

This article describes the application of Business Model Canvas as a management tool in the macroeconomic development of economy. The application is supported by the results of an investigating qualitative research, which took place in 2015 among IT managers in the Czech Republic. The elaboration of the questions in other segments is expected in the future.

Keywords: business model, manager, macroeconomical development

JEL Classification: E32, M15, M21

Introduction

Although the term Business model got attention of academics and experts only recently, it was part of expression of businessmen for longer period of time and its origins can be found already in publications from Peter Drucker (Veit, Clemons, Benlian, Buxmann, Hess, Kundisch, et al., 2014). Despite of increasing number of literature about this topic, there is no equal definition of it (Veit, Clemons, Benlian, Buxmann, Hess, Kundisch, et al., 2014; Afuah, 2004; Mullins, Komisar, 2010; Johnson, Christensen, Kagermann, 2008; Teece, 2010; Chesbrough, Rosenbloom, 2002; Zott, Amit, 2010; Demil, Lecocq, 2010; Wirtz, Schilke, Ullrich, 2010; Casadesus-Masanell, Ricart, 2011; Mcgrath, 2010; Yunus, Moingeon, Lehmann-Ortega, 2010; Shafer, Smith, Linder, 2005; Magretta, 2002; Osterwalder, Pigneur, Clark, 2010; Watson, 2005).

Concepts of Business models differ in degree of details and complexity of showcasing corporate sources and processes inside of the company or also related sources and processes in its surroundings (Magretta, 2002). The range goes from difficult and maximalist models, for example based on Osterwalder – Pigneur (2010), Watson (2005). Chesbrough (2002) continuing by models covering key sources and processes, for example models of Zotta and Amita (2010) end ending with simple and partial models, for example McGrath (2010). The degree of complexity and details of showcasing does not have to be essential condition of quality.

We have worked in our article with the Business Model Canvas, namely with the key resources element. These resources are further divided into tangible, intangible and human. We have decided to select this element for the best option to capture and convey its response to the operation in economic cycle, particularly in the breakpoints of the economic cycle.

To collect enough groundwork materials for monitoring the relations of the key elements in the breakpoints, we have conducted the projective interview on the group of medium and large enterprises. The questions in this research investigation were divided according to the investigated element's division and directed to the top management. The aim was to determine the response of the surveyed companies on the facts that influenced their behavior during the recent economic crisis and on the behavior in theoretical conditions of an economic cycle's peak.

We have worked on this topic as well because of the fact, that there is a demonstrable impact of an economic cycle on our daily lives. Such impact possesses large and serious consequences that an economic crisis leaves in our lives. The fact of an economic cycle is established, it can therefore be expected that after reaching the peak point, the economic cycle will fall back into economic crisis. I consider the effort to grasp and define the behaviour in these breakpoint situations in order to obtain the best response to be a meaningful thought that I do want to address.

The possibility of a practical use exists for enterprises moving within the industry in situation, which draws near the breakpoints of an economic cycle. Companies may gain preventive measures or prediction in situations approaching breakpoints of an economic cycle from the survey and further have prepared measures for elimination of possible negative impacts.

The survey may hit the restrictions of the limited number of companies in the area (information technology services) and the impact of the number of breakpoints in limited time.

1. THEORETICAL BACKGROUND

1.1 Economical cycle

Since the extensive work by Burns and Mitchell (1946), many economists have interpreted economic fluctuations in terms of business-cycle phases.

Economic cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions and revivals which merge into the expansion phase of the next cycle - this sequence of changes is recurrent (Burns, Mitchell, 1946).

Each economic cycle usually consists of four main periods: expansion, peak, recession, and trough (Uramová, Lacová, Hronec, 2010). The phase of the economic cycle between a trough and a subsequent peak is its expansionary phase and the phase of the business cycle between its peak and subsequent trough is its recessionary phase (Moore, 1967). Trough and peak symbolize points of change and expansion with recession are the main phases of the cycle (Beaudry, Koop, 1993).

Layton and Banerji (2003) defined the recession as a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real Gross Domestic product (GDP), real income, employment, industrial production and wholesale-retail sales.

Banerji, Layton and Achuthan (2012) state, that expansions are typically much longer than recessions, although recessions, when they occur, are fairly painful, with rapidly rising unemployment which, even after the country has entered back into an expansionary phase, can take many years to revert to pre-recession levels.

1.2 Business model

Much of the literature focuses on defining and describing Business models (Chesbrough, Rosenbloom, 2002), and identifying their elements (Osterwalder, Pigneur, Tucci, 2005). Business models are described as narratives (Magretta, 2002), schemas (Clarke, Freytag, 2011), mental models (Storbacka, Nenonen, 2011), and recipes (Baden-Fuller, Morgan, 2010).

A business model is nothing else than the architecture of a firm and its network of partners for creating, marketing and delivering value and relationship capital to one or several segments of customers in order to generate profitable and sustainable revenue streams (Dubosson-Torbay, Osterwalder, Pigneur, 2002).

Various authors describe different business models differently, the definition of the model, which I work with is as follows: A Business model is a fundamental principle how the company produces, sells and acquires a value (Osterwalder, Pigneur, Clark, 2010). Business model is one of the latest buzzwords in the Internet and electronic business world (Dubosson-Torbay, Osterwalder, Pigneur, 2002). The structure of the Business model Canvas is as follows: customer segments, value menus, channels, customer relationships, sources of income, key resources, key activities, key partnerships, source of income.

We work in this article with one element of the Business Model Canvas, in which the most obvious signs of the breakpoints of an economic cycle appear. These are key resources.

To create values, a company needs resources (Wernefelt, 1984). Grant (1995) distinguishes intangible and tangible human resources. Tangible resources include facilities and cash reserves. Intangible resources include patents, copyrights, reputation, trademark and trade secrets. Human resources are made by people, who are needed to create value tangible and intangible resources.

2. RESEARCH

2.1 Methodology

The research has been conducted by projective structured interviews in the selected companies. The projective interview has been used as a process whose aim is to provoke interactions between the interviewer and the respondent to obtain the information needed to understand the problem areas.

The evaluation of the research consists of the application of the inductive methods and of applying the deductive method of information search. It is possible to summarize and clarify the general facts based of empirical research results by this combination.

2.2 The area of examination

The area of examination is the influence of breakpoints of an economic cycle on enterprises in respect of one element of Business Model Canvas - key sources. All research was oriented within the limits of the economic cycle, especially at the bottom of the economic cycle.

This orientation has been based on logical reasons – not only because of the recent influence on companies (2008 - 2010), but also because of very negative impact of this phenomenon on companies compared to the opposite phenomenon - peak of an economic cycle.

Based on hardly detectable values of the peak of an economic cycle, the authors consider the peak to be a period before the economic crisis, namely the year 2006 - 2007. We work on this status to detect the changes in the element Business Model Canvas.

2.3 Respondents

Respondents are managers of selected companies operating in the field of information technology. The Enterprises have a place of business in the Czech Republic and meet the requirements of employees and the operation length on the market.

The discussions have been focused on key executives of the selected companies operating in these functions for a minimum of 10 years. It is their insights that can reveal the real impact of the last period of the business cycle - the years 2008 - 2010 on conduct business.

As the optimal sample for research, we have selected enterprises in size from 100 to 250 employees, which are according to some benchmarks considered to be medium to large. All studied companies have been operating on the IT market for at least 10 years.

Out of the total number of defined companies, we have conducted the research in 22 of them. Based on information received from SystemOnLine source, it is approximately 30% of the total.

3. DISCUSSION

Based on the research while at the bottom of the economic cycle, we have found very different effects on different parts of key resources. Those are tangible, intangible and human resources.

3.1 Tangible resources

When exposed to the bottom of the economic cycle, there is a minimal effect in the surveyed enterprises. It is necessary to take the researched sector of IT enterprises into account - it is not a productive sector. That fact has as well been evident due to the research clearly pointing on the IT companies following the trend of transferring the business possibilities from the field of manufacturing and industry into the field of public administration and the programs released by the European Union. Those factors occur logically in response of countries and the EU for boosting the economy towards industry and manufacturing companies. All of those initiatives are implemented at the level of project management, which is always supported by information technology.

The research also shows that when the peak of a business cycle, the area of tangible resources of monitored companies copies to a lesser extent the behavior of companies in other sectors. There is a massive increase of tangible resources in the areas of increasing space for both employees as well as for inventory, premises equipment, increase the number and quality of rolling stock and other tangible resources.

3.2 Intangible resources

There is not any noticeable impact at trough of an economic cycle in terms of monitored companies. There is no change in the image of the monitored companies, nor the change of know-how. There is a slight increase in the number of licenses for operating software that are tied to each employee of the company. There are no other detected effects in this area of research.

When exposed to the peak of an economic cycle on intangible resources of IT companies, there is an increase of know-how in the field of software development and deployment. Furthermore, there is as well increase in copying the behavior of firms in other sectors. Equally significant increase is also in the number of purchased licenses for software, especially in developing and

graphics programs. Also, the number of patents in the area of hardware and software solutions (inventions) has increased.

3.3 Human resources

The most interesting part of our research is the human resources. Based on research, it is clear that there is an increase in the number of employees in this area in spite of the expectation. As the research shows, the surveyed companies have accepted employees with high specialization in IT, such as programmers, project managers, analysts and architects of software solutions. Such particular phenomenon has occurred under specific circumstances, when the influence of the through of an economic cycle decreased the number of employees of those professions in the manufacturing sector or a different one, directly affected by the economic crisis.

While the peak of an economic cycle is affecting the human resources within business model, we due to research witness the increase of a problem in this sector. There is a workforce shortage on the market of skilled workers in the IT necessary for the development of companies in the field. Potential applicants can decide on the basis of financial offers from companies from all sectors and they select the highest offer. At the same time, the companies seeking qualified personnel cannot timely distinguish quality employees from candidates with no real experience, responsibility, loyalty and professionals that have their qualifications only in Excel spreadsheets. Bottom line, companies operating in the peak of an economic cycle have paradoxically significant problems with the availability of quality human resources.

Conclusions

There has been specific problem defined in the article, associated with the environment of medium and large enterprises in IT environment and the impact of an economic cycle on one element of Business model - the key resources that are subdivided into tangible, intangible and human resources.

Based on the research, we can define a pattern of behavior of companies active in the IT field in the breakpoints of a business cycle. We have as well described the differences in the behavior of the firms within the portfolio of companies from the whole market.

The results show that the impact of an economic cycle on the Business model of companies operating in the field of IT is greatly different than companies active in other spheres. This has been reflected mainly in the field of human resources, since there is a shortage of skilled labor whiles the peak of an economic cycle, whereas there is a sufficient meeting of labor requirements while at the trough. This work has met all the defined objectives.

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CZECH ECONOMY AND INDUSTRY 4.0

Jan Mládek

Abstract

The article deals with the issues of current economic growth of the Czech economy and identifies the main barriers of future growth especially in the manufacturing sector. The article describes the basic aspects of the so called fourth industrial revolution, presents the main aims of the Industry 4.0 Initiative that was prepared under the umbrella of the Ministry of Industry and Trade and finally the article deals with issues of technical education and other initiatives of the ministry.

Keywords: economics, employers, labour market, technical education, industry, industry 4.0, fourth industrial revolution, digitalisation

JEL classification: I2, J2, J6, L2, O1

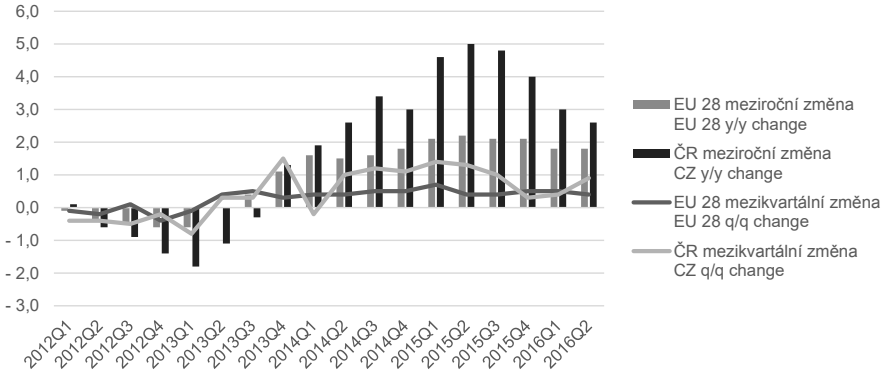
Introduction

Latest economic development

Since last year's dynamic economic growth (4.5%), Czech economy has slowed, with gross domestic product growing by 2.8% in the first half of 2016. This year's performance has been marked primarily by a diminishing of the significant pro-growth effect from the drawing of the 2007-2013 European funds, which had an extraordinary effect on economic growth in 2015, primarily due to gross capital formation, namely in the construction industry.

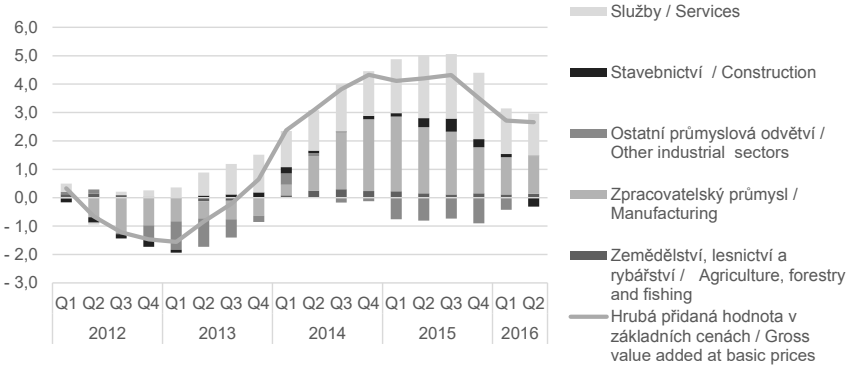
Industry is thriving, with a contribution of almost a third to the economy's performance. In the first half of the year 2016, industrial production grew by 4.3% year-on-year. The main pillar – manufacturing industry –grew by 5.4%. Nevertheless other industrial sectors, namely mining, quarrying and energy, declined year-on-year. Mining was adversely affected by the situation on the coal market, while the energy sector suffered from restrictions caused by shutdowns at nuclear power plants.

Graph 1 - GDP (c.p., seasonally and calendar adjusted data, in %)



Source: Eurostat

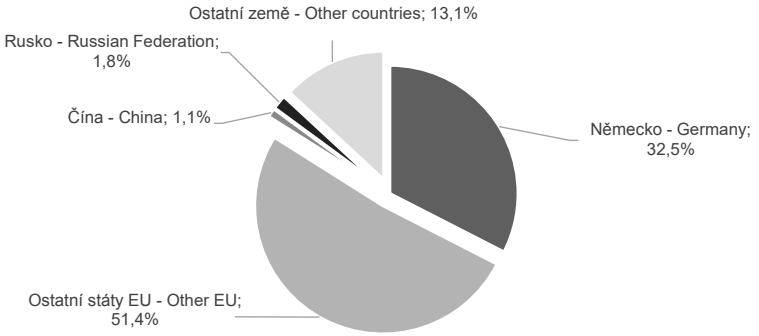
Graph 2 - Contributions of industries to variation in GVA (c.p., y/y, p.p., %)



Source: Czech Statistical Office

With regard to foreign trade, both exports and the balance are posting record values. In the first half of 2016, exports grew in the national concept by 3% year-on-year, while the trade balance posted a surplus of CZK 132 billion. The majority of Czech foreign trade was realized with developed market economies, in particular European Union Member States. Their share of domestic exports was over 80%. On the one hand, this result demonstrates the competitiveness of domestic exporters on developed markets (1/3 is directed to the most demanding market – Germany), although on the other it confirms the economy's high dependence on developments in the EU, and therefore also the risk of transmission of a potential economic downturn in this group.

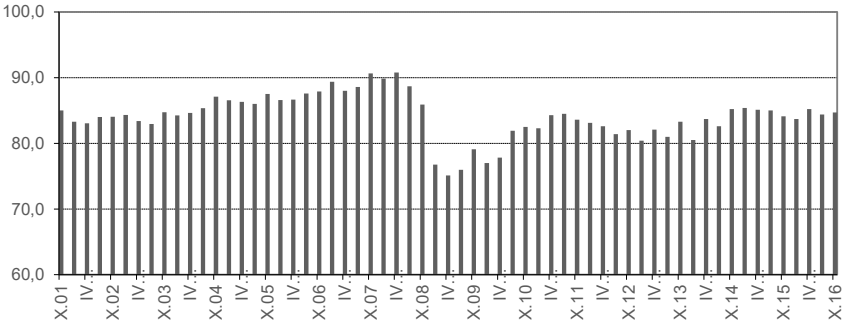
Graph 3 - Exports – territorial structure



Source: Czech Statistical Office

In terms of capacity utilisation in industry (85%) the economy is currently at around the long-term average (83%), although there is still space for further growth. Businesses indicate insufficient demand as the main barrier to growth. Concerns over a lack of employees are also rising.

Graph 4 - Production Capacity Utilisation in Manufacturing Industry in %

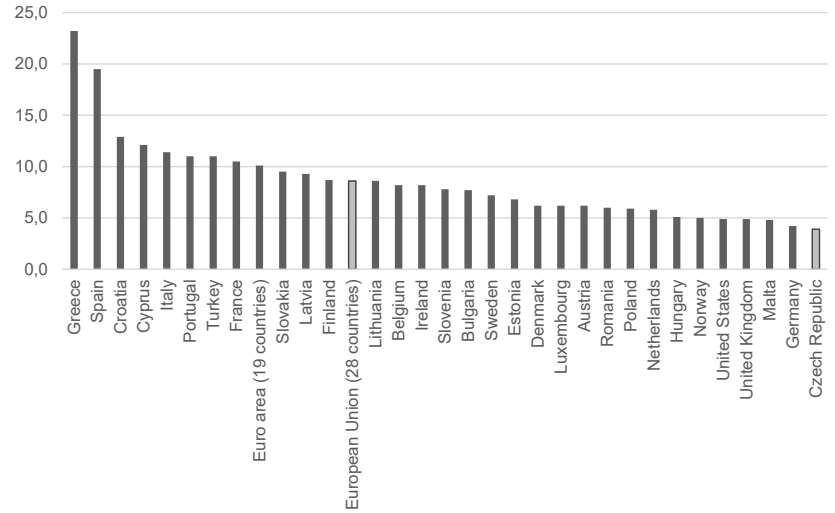


Source: Czech Statistical Office

The Czech Republic currently has the lowest unemployment rate in EU, at only 3.9% (of which over 40% are long-term unemployed). This signify that businesses cannot recruit from among the unemployed, but are starting to poach employees from other companies and overpay them.

This is being seen primarily in the lower-paid sectors (e.g. accommodation, catering, hospitality), but also in the manufacturing industry, where in the first half of the year the average gross monthly wage rose year-on-year by 4.3% to CZK 27,000.

Graph 5 - Unemployment in August 2016 (% of active population)

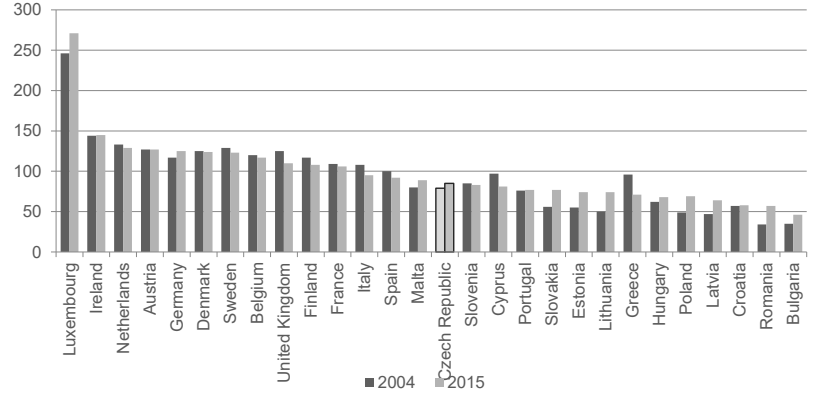


Source: Eurostat

Although the figures show positive trends in GDP, industrial production and foreign trade, international comparisons of wages and wage convergence does not evince such good results.

According to GDP per capita and its international comparison with the EU average and the most developed countries, Czech Republic is still very far - in terms of GDP per capita at 85% of the EU average, and only at 68% compared to Germany.

Graph 6 - GDP per capita (PPS, in %, EU28=100)



Source: Eurostat

1. BARRIERS TO GROWTH

In these circumstances the question of what are the main barriers to growth is necessary. Under conditions of low employment, it is a mismatch between supply and demand on the labour market and a gap between what people know and what is demanded of them on the labour market – in other words what is termed as “skills mismatch”.

This is very closely related to a second barrier to growth, one that however has a wider historical context. Even though the Czech Republic is a country of services, it also has a high share of industry. From the mid-nineties, foreign direct investment inflows were a basic factor in economic growth, while the domestic sector stagnated in terms of its share in domestic product creation. The result is that today industry is dominated by large foreign companies that have become the backbone of our economy. Our position in global value chains has shifted more towards lower value added, though with higher technological demands. For example, the share of domestic value added in our exports fell from 70% in 1995 to 55% in 2011. This is the lowest figure after Luxembourg, Hungary and the Slovak Republic. This share is still over 70% in Germany and Austria.

The fourth industrial revolution is a good opportunity to at least partially grow value added creation.

Following chapters extensively use excerpts from the document Industry 4.0 Initiative prepared by the Ministry of Industry and Trade.

2. FOURTH INDUSTRIAL REVOLUTION

Around thirty years ago computers became fully integrated into industry, supplementing mechanical equipment, and blue-collar workers with engineers. Today, high-speed internet access is becoming ever more prevalent, further refining production processes and simplifying manual work.

A phenomenon of today is the interconnection of the Internet of Things, the Internet of Services, and the Internet of People, and the related immense volume of generated data, whether through machine-machine, human-machine or human-human communication. The manufacturing environment is also being shaped by the advent of a series of other new technologies, like autonomous robots, big data, computer simulation and virtualisation, the cloud, additive manufacturing (3D printing), and augmented reality.

The impact of the technological changes which is taking place today - and will continue in the future - is so fundamental that it is being spoken of as the fourth industrial revolution.

Industry 4.0, as this phenomenon is also called, is mainly about mass information sharing and continuous communication supported by quality communications infrastructure (broadband internet). An important role is played by technology, such as big data, autonomous robots, sensors, cloud computing and data storage, as well as active manufacturing and augmented reality. The disciplines of cybernetics and artificial intelligence will be at the core. The anticipated benefits of Industry 4.0 will be derived from new ways to create added value, made possible in particular through the use of data from connected systems, and improving the capabilities of automated decision-making mechanisms in industrial practice.

Many developed countries have already grasped the opportunities and threats represented by these changes and have begun supporting Industry 4.0 through dedicated programmes and systemic measures. The Czech Republic must also react more intensively to these trends, as they will provide huge opportunities, primarily improvements in industrial production and

services productivity, which will however bring a loss of some traditional professions. Less qualified professions will be especially threatened. On the other hand the revolution will also bring new jobs, which will be associated with higher demands on the qualifications of the labour force, in particular digital and engineering skills, or will depend on timely and quality retraining.

3. THE INDUSTRY 4.0 INITIATIVE

The core of the fourth industrial revolution is connecting the virtual cybernetic world with the real, physical world. From the perspective of modern systems theory, therefore, there has recently been talk of a cybernetic-physical-social revolution engendering dynamic mutual interaction between virtual systems and social, ecological and demographic systems.

Industry and the whole economy of the Czech Republic are also undergoing fundamental changes caused by the introduction of information technologies, cybernetic-physical systems and artificial intelligence systems into manufacturing, services and all sectors of the national economy. The Czech Republic is one of the most industrialised countries in Europe and thus has a relatively good starting position. Industry 4.0 must be seen as a major existential challenge to strengthen competitive effectiveness both within Europe and worldwide. It is vital to prepare properly for this challenge to ensure that the Czech Republic does not lose its position in the industrial world, meaning to analyse the possibilities, obstacles and risks in time, and to activate the hidden potential of the country.

The Industry 4.0 Initiative has therefore been established at the initiative of the Ministry of Industry and Trade to present Industry 4.0 and encourage society-wide discussion. Work on the study began in 2015. It was completed and approved by the Government of the Czech Republic on 24 August 2016. It is basically a guideline as to how to realize the social transformation. The aims are to provide key information related to the topic, to show the possible developmental trends, and to outline proposals for measures that could help prepare the whole of society to absorb the technological changes and ultimately boost economic activity in the Czech Republic.

The initiative of the business sector is crucial in this respect and passivity will not result in success. This must be emphasised in particular at a time when lower input prices and the stabilisation of the exchange rate regime mean that companies are not sufficiently motivated to seek their own internal resources and introduce measures to improve productivity. Our businesses must be innovative if they want to sell their products to the world. It is the state's task to create favourable conditions for business and to keep global markets as open to them as possible. The Ministry of Trade and Industry are doing the best in this direction, whether this means concluding the TTIP or CETA trade agreements, efforts to reduce the administrative burden, or support for science, research and innovation.

4. TECHNICAL EDUCATION

At the same time, the appropriate workforce is needed to fulfil the ideas behind this initiative. Employers in industry are struggling with a lack of qualified employees in some technical professions. The disproportion between the number of experts retiring over the coming years and the number of quality graduates in key fields from secondary and tertiary education is a serious problem. We see specialist - especially technical - education as a key activity for maintaining and strengthening the competitiveness of our economy. Although the Ministry of Industry and Trade has no direct competency in this area, it is trying to influence the conditions for technical education.

Technical education today does not mean merely preparation for "standard" low-skilled blue-collar jobs. On the contrary, for Industry 4.0 a technically educated person must be highly flexible and capable of performing various activities and adapting to market and technological changes. Unfortunately we keep hearing permanently that technical professions are not sufficiently attractive for young people.

5. OTHER INITIATIVES OF THE MINISTRY OF INDUSTRY AND TRADE

Cooperation between schools and companies is of fundamental importance to improve the quality and attractiveness of technical fields. Primarily the greatest possible amount of practical training in a real business environment is essential. For this reason, in 2013 the Ministry initiated an amendment to the Income Tax Act, meaning that from 1 January 2014 employers that cooperate with schools have thus been able to take advantage of tax breaks for investments into training equipment and for the actual training of schoolchildren and students at the workplace (Senate Ordinance No 344/2013).

Furthermore, projects that include a contract with a school for the use of a training centre also for vocational training, vocational practice and internships for schoolchildren and students are given preference in the Training Centres programme of the Operational Programme Enterprise and Innovation for Competitiveness.

As a relationship with technology needs to be developed in children as early as possible, it is promoting a return of compulsory workshop training at primary schools and the use of technical construction sets during instruction in science and technical subjects. Opportunities for the use of construction sets to develop technical thinking and motor skills as early as in kindergarten. The Ministry supported - together with the Confederation of Industry of the Czech Republic and the Confederation of Employers' and Entrepreneurs' Associations of the Czech Republic – the Year of Industry and Technical Education 2015, which was a project to improve the image of industry and technical fields in the eyes of parents and children. In accordance with this aim, the Ministry of Industry and Trade is a partner of various competitions and shows related to the professional skills of schoolchildren, ranging from engineering to the textile industry. It is in constant contact with employers and try - and will continue to try - to promote their opinions in emerging concepts and legislation in education.

The Ministry support the introduction of compulsory school-leaving examinations in mathematics from 2021 as originally intended, meaning for all schools and disciplines, with the exception of art, and also sectoral agreements through which employers, politicians and educators can address problems of a lack of qualified workers at regional and sectoral level.

Another promising area is the dual education system. The dual education system as operated in Germany and Austria is very appropriate inspiration for importing selected elements and modifying them to the conditions in the Czech Republic, nevertheless the completely different role and position of employer organisations (unions, chambers) in these countries and here mean that such a system cannot be transferred completely. In Germany, it is a system primarily oriented on the labour market. It is characterised by a high level of professional stratification and standardisation of professional training. Responsibility for the vocational training of schoolchildren has been transferred to economic and industrial chambers.

The Ministry wants to ensure that more polytechnic training is introduced into general fields in the Czech Republic, and within the framework of technical fields to move as much practice as possible into real corporate environments so that schoolchildren and students can prepare for contemporary technologies to reduce graduate unemployment to the minimum possible level.

In addition to measures to improve the quality and attractiveness of technical disciplines, it is necessary to mention one more fundamental matter, without which it will not be possible to effectively face the impacts of negative demographic trends. The Ministry will promote the existence of a system through which employers will clarify the structure of graduates they will need around five years in advance, which will help in the effective allocation of funds and the setting up of the structure of disciplines in secondary, but also to a certain extent in tertiary, education.

Conclusion

Since last year's dynamic economic growth (4.5%), Czech economy has slowed, with gross domestic product growing by 2.8% in the first half of 2016. This year's performance has been marked primarily by a diminishing of the significant pro-growth effect from the drawing of the 2007-2013 European funds, which had an extraordinary effect on economic growth in 2015. Nevertheless, the Czech economy has continued to be in a god shape.

Industry is thriving, with a contribution of almost a third to the economy's performance. In the first half of the year 2016, industrial production grew by 4.3% year-on-year. Today industry is dominated by large foreign companies that have become the backbone of our economy. Czech position in global value chains, however, has shifted more towards lower value added, though with higher technological demands. To improve this situation, the fourth industrial revolution appears to be a good opportunity.

If the Czech Republic is to succeed in the global competition in the future, timely reaction to the latest trends is a necessity. The Industry 4.0 Initiative has opened a very important chapter and brought all the relevant players into the game – this is something that could move The Czech Republic forward and positively impact the so often mentioned insufficient speed of convergence with developed Western economies.

The Czech Republic is one of the most industrialised countries in Europe and thus has a relatively good starting position. The initiative of the business sector is crucial here, our businesses must be innovative if they want to sell their products to the world. At the same time it is the state's task to create favourable conditions for business and to keep global markets as open to them as possible.

The appropriate workforce is needed to fulfil the ideas behind this initiative. Employers in industry are struggling with a lack of qualified employees in some technical professions. In this respect there is a challenge for Ministry of Industry and Trade to promote the conditions for technical education.

As a relationship with technology needs to be developed in children as early as possible, it is promoting a return of compulsory workshop training at primary schools and the use of technical construction sets during instruction in science and technical subjects. Another promising area is the dual education system.

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PERFORMANCE OF PUBLIC SECTOR INSTITUTIONS AND ECONOMIC GROWTH: SLOVAK TAX ADMINISTRATION

Juraj Nemec, Peter Kristofik, Emil Burak, Pavol Cizmarik, Ladislav Pompura

Abstract

Functional public sector is one of main pre-conditions for sustainable development and economic growth. This paper evaluated the performance of the Slovak tax administration and the Slovak tax system as the whole, with focus on three possible performance lines - calculation of administrative costs of taxation (input – output measurement), calculation of compliance costs of taxation (measuring "administrative" burden caused by taxation) and the general opinion of experts about the system. Its findings are rather negative and highlight major deficiencies that should be addressed by future public policies and reforms.

Keywords: performance, tax administration, Slovakia, administrative costs, compliance costs

JEL Classification: H21, O43

Introduction

Many sources stress the importance of the functional public sector for sustainable development. For example the European Semester documents (http://ec.europa.eu/), as the main external public administration reform driving force for new EU member countries and all accession countries, clearly state: "Overregulation, inefficiencies and lack of stability of the public administration do not create a supportive environment for long-term growth".

The goal of this paper is to evaluate the institutional performance of the Slovak tax administration. Three lines are included – calculation of administrative costs of taxation (input – output measurement), calculation of compliance costs of taxation (measuring "administrative" burden caused by taxation) and the general opinion of experts about the system.

1. METHODOLOGY

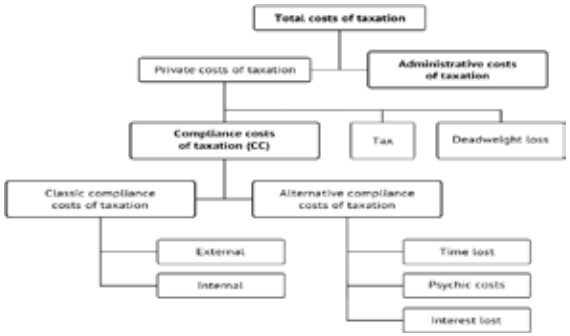
The terms "tax system performance" and "tax administration performance" do not have a fully unified meaning. The first integrated concept of how to construct tax systems was presented by Smith (2005), whose principles of taxation (justice, certainty, convenience, and efficiency), involved in the canons of taxation, formed the starting point for the study of the theory and practice of tax administration. However, this kind of approach needs operationalisation in order to be able to create benchmarks. One interesting framework, provided by Barbone et al. (1999), suggests that the performance of a tax system can be measured via a matrix, where the core areas to be investigated are policy formulation, accountability, and service delivery indicators. Many other authors (e.g. Tanzi, 1991, 1996; Gallagher, 2005; Das Gupta, 2002) do not include accountability as specific sub-area, focusing on two core levels of tax system performance: tax policy ('macro-level') and tax administration ('micro-level').

On the micro-level, academic studies focus particularly on costs of taxation (Figure 1). The costs of taxation may be analysed in one of two ways. One group of authors uses the term 'administrative costs of taxation' to cover only the expenses of the public sector (Sandford et

al., 1989). A second group of authors, most notably Stiglitz (1989), divides the costs into the administrative costs of taxation and the indirect expenses of the private sector (the incurred compliance expenses of taxation). In our paper we deal with both dimensions.

The issue of costs of taxation is subject of many books and articles. We can mention for example There have been many important international studies about this topic (Alm, 1996; Evans, 2003; Hasseldine and Hansford, 2002; Chittenden et al., 2005; Lignier and Evans, 2012; Malmer, 1995; Mirrlees, 1971; Sandford, 1989 and 1995; Slemrod and Sorum, 1984; Susila and Pope, 2012; Tran Nam et al., 2000; Vaillancourt, 1987). There have also been some studies in the Central European region (Bayer, 2013; Klun 2004; Klun and Blazic, 2005; Pavel and Vitek, 2012; Pavel and Vitek, 2015; Solilova and Nerudova, 2013; Teperová and Kubantová, 2013; Vitek, 2008; Vitkova and Vitek, 2012).

Figure 1 - Costs of taxation



Source: Cizmarik, 2013

To calculate administrative costs of taxation we chose to quantify the relation between tax revenue and operational expenses, to facilitate comparison with other studies, especially with results from the Czech Republic (Vítková, Vítek, 2012). Thus our contribution is not a novel methodology, but is producing comparable Slovak results using existing methods. The data for calculation of the administrative costs of taxation were collected from existing sources.

To obtain the necessary data needed for estimating the compliance costs of taxation we used a questionnaire distributed by electronic post and accessible also on line. The total sample achieved was 88 responses, from which we had to exclude eight respondents for formal reasons. The statistical significance of the sample was tested by a Pearson test with a 5 % significance level and the achieved p-value was 0.844 for physical persons and 0.094 for legal persons as a group – this should mean that the sample has statistical relevance.

The last part of this paper is based on primary and secondary data; it combines qualitative and quantitative research methods. The primary data were collected in two rounds – by long-term research about the needs perceived by tax officials and by the 'Delphi method' (questioning a panel of experts). The long-term research was conducted between February 2013 and February 2016. During this period, we interviewed 282 executive tax officials participating in training at the tax school of the Slovak Financial Office. Our request was rather simple: 'Try to define the most significant elements of the possible optimisation of the Slovak tax system.'

Based on the results from the first phase, we created a 'matrix' of the main determinants of the performance of the Slovak tax system. Thirteen questions included in the questionnaire

mirrored the structure of the main responses collected from tax officials during our long-term research. Experts in political, administrative, and academic positions were asked to rank the proposed tax system performance determinants and also to provide proposals for other determinants and their own comments. This phase took place in April 2016. We received responses from 18 experts, a fully sufficient and significant number of responses.

2. ADMINISTRATIVE COSTS OF TAXATION IN SLOVAKIA

Using the recalculated employee estimates (Pompura, 2012), following the Czech methodology, the total administrative costs of the Slovak tax system were calculated according to the main tax types (see Table 1).

Table 1 - Total administrative costs of taxation in Slovakia according to main types of taxes (2004-2008 in thousands SKK, 2009-2011 in thousands €)

Years	2004	2005	2006	2007	2008	2009	2010	2011
Income tax of individuals – Employees	353 874	596 514	701 980	683 474	733 550	23 826	25 979	27 161
Income tax of individuals – Entrepreneurs	516 308	391 828	429 482	415 387	428 940	14 930	15 137	15 801
Corporate income tax	887 585	693 009	731 600	727 664	795 716	25 462	27 160	28 273
Income tax – lump sum form	75 416	93 571	97 744	67 758	90 140	2 513	3 114	3 228
Property tax	14 503	17 545	5 924	11 784	6 217	102	107	111
VAT	992 007	1067 292	938 936	992 805	1007 788	33 950	34 137	35 064
Road Tax	52 211	55 558	50 353	41 244	40 407	1 227	1 503	1 447
Total	2900 606	2924 089	2961 942	2946 008	3108 264	102 215	107 350	111 085

Source: own calculations from annual reports of the Tax Directorate of the Slovak Republic

To allow for comparative analysis the absolute data from Table 1 is presented in relative form in Table 2. The results suggest that the main problem is connected to the income tax paid by self-employed entrepreneurs – but also because the revenues from this tax step by step decrease resulting into the rise in the relative costs of collecting this tax.

Table 2 - Administrative costs as a percentage of tax revenues, by specified tax, 2004-2011

	%							
	2004	2005	2006	2007	2008	2009	2010	2011
Income tax of individuals – Employees	x	1,77	1,96	1,64	1,48	1,62	1,81	1,65
Income tax of individuals – Entrepreneurs	1,98	5,86	7,64	7,92	7,04	7,92	30,76	25,51
Corporate income tax	2,99	1,62	1,52	1,37	1,23	1,18	2,11	1,65
Income tax – lump sum form	1,33	2,43	2,01	1,19	1,45	1,61	2,04	2,25
Property tax	0,53	1,82	1,81	19,32	14,80	14,61	13,42	31,80
VAT	3,63	1,32	1,28	1,41	1,47	1,52	1,52	1,59
Road Tax	4,10	1,97	1,72	1,16	1,52	1,00	1,26	1,12

Source: own evaluation of data

To assess our results, it is needed to compare them – the Table 3 provides benchmark, which is not very positive for Slovakia.

Table 3 - Taxation level and administrative costs of taxation: selected countries

Countries according to the their administrative costs of taxation (%)	Countries according to their tax revenues to GDP			
	< 20%	20-30%	30-40%	Over 40%
- 0,60		USA		Sweden
0,61 - 0,80		Korea	Ireland, Spain, New Zealand	Austria, Denmark, Finland, Germany, Norway
0,81 - 1,00	Mexico	Turkey		France
1,01 - 1,20			Hungary, Netherlands, UK	Luxembourg
1,21 - 1,40			Canada	Belgium, Czech Republic
1,40 +		Japan	Poland, Portugal, **Slovakia**	

Source: OECD, 2011

3. COMPLIANCE COSTS OF TAXATION

The estimated compliance costs of the income taxation in Slovakia are presented in the Table 4 and discussed by the following text.

Table 4: Estimated costs of taxation in Slovakia in 2011: income taxation

Subject: Legal form	Average CC (EUR)	Total number of tax subjects	Total CC (EUR)	Total tax revenues (EUR)	Relative CC (%)	CC to GDP (%)
Self-employed	861	481 996	414 871 309	X	x	x
Other physical persons	770	75 754	58 354 569	X	x	x
Physical persons total			473 225 878	56 402 000	839,02%	0,69%
Limited companies	4 067	181 192	736 921 800	X	x	x
Other companies	3 186	12 191	38 841 609	X	x	x
Legal persons total			775 763 409	1 645 905 000	47,13%	1,12%
Total			1 248 989 287	1 702 307 000	73,37%	1,81%

Source: own calculations

Especially the estimates of compliance costs for income taxation of physical persons are very negative and this fact provides the impetus for a comprehensive discussion. To respond to this challenge we recalculated the results for the following possible biases – the total tax revenues from income tax, the real total number of legal persons, replacing average with median data, different values of the calculated proportion of total accounting costs (coefficient "A") and different monetary values of time.

The recalculated results for the total income tax revenues are shown as alternative A in Table 5. Reducing the total numbers of tax payers to more realistic estimate generates alternative B in Table 5. Replacing average with median data generates alternative C in Table 5. Recalculated

accounting costs with different percentages (90, 50 and 20 instead of 100, 60 and 30) lead to alternative D in Table 5. The recalculation of our results using the average wage to estimate value of time generates alternative E in Table 5. The most cautious calculation is generated by simultaneously applying the corrections A, B, and C to the compliance cost calculations – last row in Table 5.

Table 5 - Alternative recalculations

Alternative	CC to tax revenues total	CC to tax revenues physical persons	CC to tax revenues legal persons
Original results	73,37 %	839,02 %	47,13 %
Alternative „A“	53,11 %	242,29 %	35,98 %
Alternative „B“	62,36 %	713,17 %	40,06 %
Alternative „C“	40,12 %	637,04 %	19,67 %
Alternative „D“	61,36 %	734,61 %	38,29 %
Alternative „E“	62,99 %	599,71 %	44,59 %
Alternative „A+B+C“	24,69 %	156,37 %	12,76 %

Source: own calculations

4. TAX SYSTEM PERFORMANCE

Table 6 highlights the main responses (responses with the highest frequency or specific important responses) of the tax officials that were included in the first phase of our research.

Table 6 - Selected responses of tax officials

Most frequent responses – suggestions	Frequency
Simplify tax collection, decrease tax bureaucracy	158
Decrease the tax burden	145
Provide better information about the tax system to businesses and citizens	110
Increase the level of risk connected with tax evasion	86
It is difficult to optimise the tax policy and the tax system, because there is no optimum model available	80
Prevent the transfer of Slovak firms to tax havens by lowering the direct and indirect tax burden	43
Utilise existing international good practices	33
Educate taxpayers – taxes are not the worst issue in the world	31
Be administratively simple, using low and stable tax rates and providing effective tax administration services	27
Improve tax administration services	26
Important but infrequent response	Frequency
Create a whistle-blowing system for reporting tax evasion	4

Source: own research

The set of responses indicates that tax officials clearly perceive most of the main problems of the Slovak tax administration – as defined by the academic literature and by the opinion of international organisations. However, it also indicates that the tax officials interviewed are somehow biased and that they may be influenced by political rhetoric.

The fact that tax officials perceive the Slovak tax system as complicated, bureaucratic, expensive, and not customer friendly, generating significant tax administration and tax

compliance costs reflects the situation (see data on administrative and compliance costs above). However, the issues of tax avoidance and tax evasion (still major issues in Slovakia, despite some moderate improvements) are not so well reflected. Orviska and Hudson (2003) clearly indicate that tax evasion is a common approach in Slovak business, in part perhaps because the risk of punishment is low.

Compared to the tax officials from the first phase, the experts from the second phase prioritize the issue of tax evasion, which is a very topical issue for Slovakia. Somewhat surprisingly, they also ranked the issue of decreasing the tax burden relatively high. This fact can be explained by one statement of the owner of tax and audit advisory firm:

This issue shall be evaluated from the position of a taxpayer and his dilemmas, as: 'What do I get from the state as compensation for paid taxes? What level and quality of public services is provided? Is the scope of public services delivered by the Slovak state adequate to the tax burden?' The corruption and very low efficiency of the Slovak public administration has a really negative impact on what taxpayers understand by the term 'tax fairness'.

Conclusions

This paper evaluated the performance of the Slovak tax administration and the Slovak tax system as the whole. Its findings are rather negative and highlight major deficiencies. The fact that the Slovak tax system should improve was already reflected by the Slovak government. Reform UNITAS, which started in 2012, is expected to achieve this goal and we will be able to assess its results within a few years. Changes should be based on existing knowledge derived from studies focusing on the sphere in question, on issues like the size of tax offices, time-consuming agendas, the functional positions of employees, the structure of expenditures, the quality of tax control and the qualifications and motivation of all staff. One of the specific steps forward would be creating a "customer friendly" tax administration system which will provide tax payers with better information and increase their trust in the tax system.

Acknowledgements

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FACTORS OF INNOVATIVE DEVELOPMENT OF BANGLADESH ECONOMY IN MODERN CONDITIONS

Ataul Karim Rukon

Abstract

The activity level of innovative factors determines the dynamics and the quality of the current conditions of the world economic interaction system. In this connection the article specifies the possibility to foster innovations in Bangladesh in the context of globalization. Objective of the research is to conduct a comprehensive and systematic analysis of the problems and prospects of formation of innovation-oriented development model of the economic system of Bangladesh, and develop guidelines based on the obtained results for the use of innovative acceleration factors of industrialization and modernization of the Bangladesh economy. Several ways of prioritizing the Bangladesh innovative development course are proposed. The formation of innovation-based Bangladesh economy should be considered as a mechanism of joint cooperation between the public, private and non-governmental organizations and business entities, which involves the creation, storage and dissemination of new knowledge and technologies on the basis of the relevant regulatory support and within the state-implemented policy. The national system of innovation development of Bangladesh should provide a type of interaction between science, industry and society, where innovations would serve as the basis for the progress of the economic system and society, and the needs for development of innovative economy would acquire the status of an accelerator of improvement and deepening of scientific activity.

The ways and directions of innovative development of the economy of Bangladesh, as well as the most important stages in the formation of an innovative economy in the country are identified in this paper.

Keywords: innovation, economic development, innovation policy, economic growth, state economic policy

JEL Classification: O10, O38, O53

Introduction

The activity level of innovative factors determines the dynamics and the quality of the current conditions of the world economic interaction system. Using the innovative solutions, the economically developed countries have achieved nearly 85% of GDP growth, and the total share of the most dynamic of them (the US, Japan and Germany) is 43% of the world GDP (in dollar equivalent). Accordingly, they have a relatively high share in the innovation division of labor at the global level, which is 36% - US, 30% - Japan, and 17% - Germany (The World Bank World Development Report. – 2013/2014, 2015). The events of recent years show that the regions, in which countries had formed the mechanism of the accelerated development of science and technology, have achieved high rates of economic and social progress.

Researches of the problems in the development of an innovation-based economy are reflected in the works by a large number of foreign scientists and specialists. From the perspective of the study of the phenomenon of innovations, innovation processes in the economy, the most important works are those by J. Schumpeter, S. Freeman, P. Drucker, R. Solow, Sh. Tatsuno,

R. Robinson, M. Porter, J. Miyakava, K-H. Openlender, B. Twiss, F. Jansen, S. Metcalf, C. Edquist, S. Lall, D. Wiggins, D. Gibson, A. Goto, H. Odagiri, W. Becker, P. Wong, P. Brimble and others. We should also note the works by Bangladeshi scientists: M.K. Alamgiri, B. Deboprio, Nurul Islam, S. Reza, Rahman Sobhan, A.R. Khan, M. Hossein, and S.K. Chowdhury.

It should be noted that the formation of innovative contours of economic development takes place in less developed countries, one of which is Bangladesh. By forming the industries of modern type, increasing the scale of integration cooperation and improving the level of human potential, Bangladesh tries to achieve the dynamic development of the economy and take its rightful place in a globalized system of economic interaction.

All this causes the relevance of studying the general objective conditions and laws of formation of innovative economy in modern conditions, the prospects and key challenges of the implementation of the innovative development of Bangladesh economy, (for example, the establishment of export and production zones, the introduction of inclusive business models of the development of farms and contract farming, the introduction of innovative technologies in the agricultural and industrial areas), as it helps to strengthen interaction within the framework of regional cooperation in the field of innovations, as well as take advantage of the positive experience of the most developed countries in the region.

Despite the fact that quite an extensive amount of research has been devoted to this issue, many aspects still require its further study. Given this, it is very important to study the problems of effective implementation and management of the processes of innovation development in Bangladesh, as well as the experience of the advanced countries in the field of formation of the development model of innovative economic system as a unified system of measures and mechanisms aimed at large-scale implementation of innovations in all its branches and facilities, which ultimately will ensure a harmonious social and economic development of the country as a whole.

Objective of the research is to conduct a comprehensive and systematic analysis of the problems and prospects of formation of innovation-oriented development model of the economic system of Bangladesh, and develop guidelines based on the obtained results for the use of innovative acceleration factors of industrialization and modernization of the Bangladeshi economy.

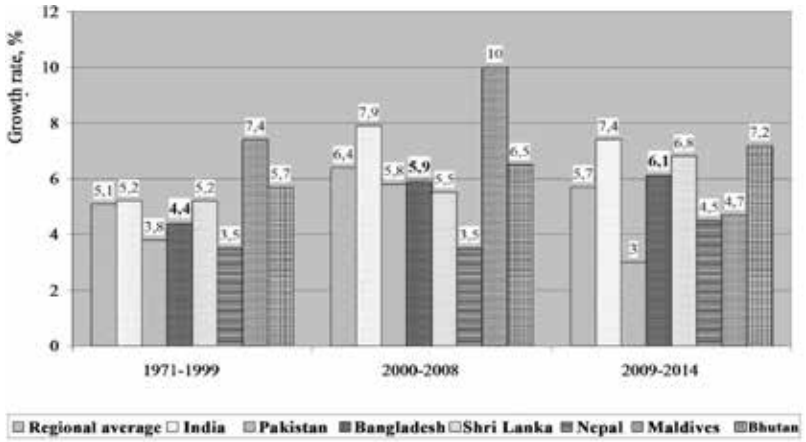
Main information: Despite the negative phenomena, observed in the international markets, South Asia entered the 21st Millennium as a dynamic region, which shows its steady economic growth.

South Asia is an important geopolitical region, which includes eight countries of the Indian subcontinent – Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

The states of South Asia differ markedly from each other in their socio-economic development, and five of them (Bhutan, Bangladesh, Afghanistan, Maldives, Nepal), according to the World Bank classification, refer to the least developed countries in the world (Bangladesh Bank, 2012). Most countries in South Asia are still agro-industrial (only India has an industrial-agrarian structure). On average, the share of agriculture in South Asia accounts for about 20% of GDP, industry – 25-30%, services – 50-55%, while these figures in Bangladesh are 63%, 26% and 11%, respectively (BBS, 2014).

In pre-crisis years, most countries of South Asia were developing quite dynamically. During 2000-2014, the GDP growth averaged 5.7% per year, which primarily was the result of a certain growth in the industrial sector in India, Bangladesh and Pakistan, as well as in the service sector of the agricultural industry in Nepal and Sri Lanka (Centre for Policy Dialogue, 2015).

Figure 1 – Average annual GDP growth dynamics in South Asia, %

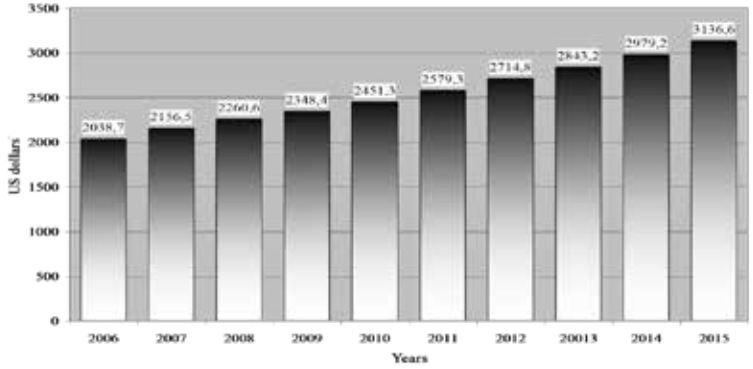


Source: The Bangladesh Observer; The World Bank // The World Development Report, 2014; The World Economic Outlook / International Monetary Fund, 2015. – P.174-175.

In recent decades, India, Bangladesh, Sri Lanka, Nepal, Pakistan and Maldives made notable progress in the implementation of export-oriented industrialization policies, which resulted in a visible increase in the volume of their exports – the average annual increase was 8.5%.

The dynamics in the development contributed to raising standard of living of the population, directly the gross national income per capita by PPP increased almost twice during 2000-2014. However, there is a quite difficult situation in Bangladesh, where the annual population growth reaches 1.7%. Even acceleration of the economic growth rate in the last fifteen years by 6% has not contributed to an increase in this indicator (Fig. 2) (GoB, 2015).

Figure 2 – PPP-based GDP in Bangladesh, US dollars

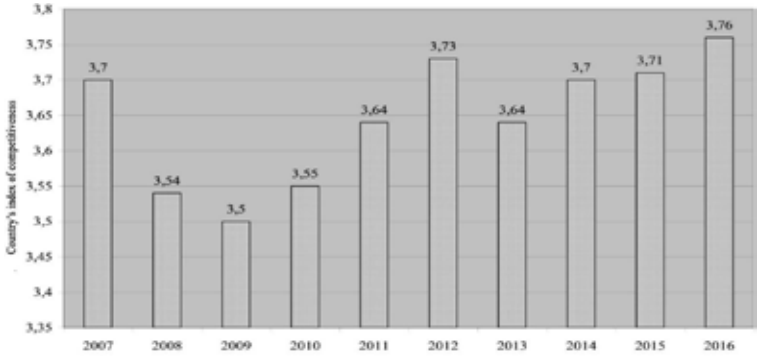


Source: Bangladesh: GDP per capita [Electronic resource]. Access mode: http// www ru.tradingeconomics.com/bangladesh/gdp-per-capita-ppp

To assess the level of competitiveness of Bangladesh and its place in the world community, we have referred to the Report on the competitiveness of countries and regions. Based on estimates of the factors used to calculate the Global Competitiveness Index of countries, Bangladesh can be referred to the countries with factor-oriented economy, where attention is paid to the basic requirements (institutions, infrastructure, macroeconomic environment, health care and education).

It is obvious that the further economic growth of Bangladesh depends on the consistent implementation of measures aimed at modernization of the economy, leveling of the territorial differentiation in the development, overcoming of problems in the infrastructure provision (lack of modern road facilities, electricity), and improvement of the quality level of human capital (approximately 1/3 of the adult population is illiterate).

Figure 3 – Bangladesh: index of competitiveness



Source: Bangladesh: index of competitiveness [Electronic resource]. Access mode: http// www http://ru.tradingeconomics.com/bangladesh/competitiveness-index/forecast

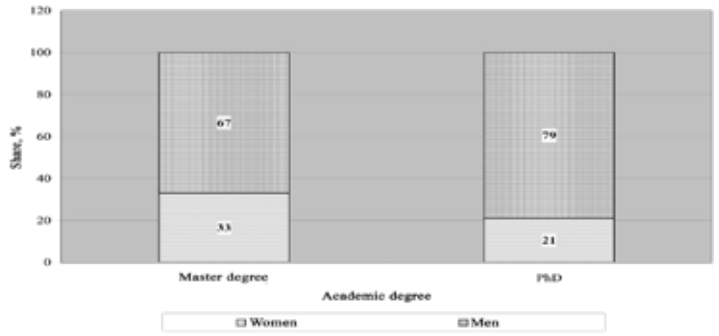
The obvious fact is that increase in the development rate of the Bangladesh economy must be achieved through the creation of new industries and jobs.

The solution to this problem is associated with the further improvement of the country's education system, which contributes to increase in the skill level of workers. Among the positive trends in the social sector of Bangladesh are a steady increase in expenditures for education – 3.3% of GDP, but only 0.2% are allocated to finance the higher education system. Moreover, in 2014, the International Bank for Reconstruction and Development has allocated $400 mil. as an additional financing of the *Third Primary Education* Development *Program* (PEDPIII) in Bangladesh (GoB, 2015). We should note that 85% of the budget for higher education is used to cover the current costs and the financing of programs of development, research and innovation in higher education institutions is still insufficient. In addition, there is still no effective mechanism for linking the university research with industry and business on both a national and international scale. It should be noted

A striking example of the role of education in the economy is the fact of training of 130 employees by Daewoo, 115 of whom established their own clothing companies in Bangladesh. This laid the foundation for the rapid development of the garment industry in Bangladesh and the inflow of foreign financial resources (Mahmud, W., Ahmed, S. and Mahajan S, 2008).

For the development of agrarian sphere, the US Agency for International Development, under the Joint research support program, supported the training of 20 Bangladeshi students, who earned various degrees of Master and Doctor of Philosophy in the field of animal husbandry, agronomy, economics, entomology, horticulture and sociology (BBS, 2014).

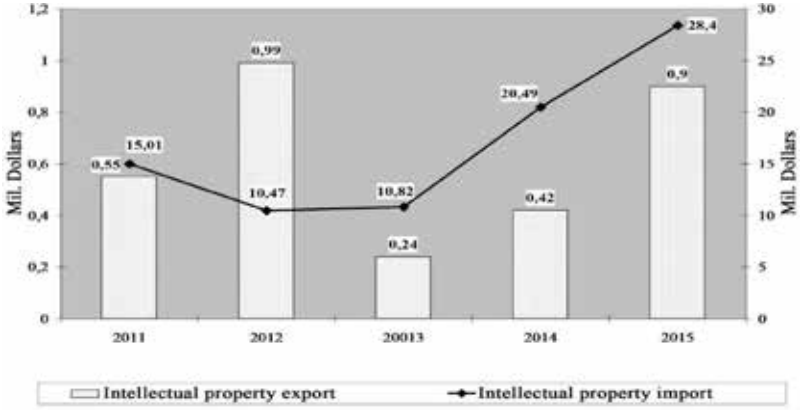
Figure 4 – The training quality of scientific personnel of Bangladesh with the support of the US Agency for International Development



Source: Innovation Labs for Collaborative Research and CRSP Activities in Bangladesh (2007–2013) [Electronic resource]. Access mode: http// www.crsps.net/wp-content/uploads/2013/08/Feed-the-Future-Country-Profile-Bangladesh.pdf

We should note that the majority of industries in Bangladesh are characterized by a "borrowing strategy", that is, the development of production, previously carried out in the developed countries, which allows to increase the domestic engineering and technical potential (Figure 4).

Figure 5 – Indicators of intellectual property export and import in Bangladesh



Source: Bangladesh: Intellectual property exports and imports [Electronic resource]. Access mode: http://www.ru.theglobaleconomy.com/ Bangladesh/ Intellectual_property_ exports _imports

In order to advance the process of economic growth, the Government of Bangladesh adopted the plan for the future development of Bangladesh for 2010-2021 aimed at combating chronic poverty and achieving the country's middle-income status. This document is a strategic articulation of the concept of development, mission and objective of the government with respect to achieving high rates of economic development of Bangladesh and is based on the provision of political and economic freedoms.

To address most of the objectives of this document in respect of sustainable development, the country has to increase its production volumes with minimal costs to meet growing consumer demand, mainly due to raising private investment.

It should be noted that the problems of integration in the processes of globalization are ambiguous for Bangladesh. Firstly, there is no alternative for inclusion into the current processes, and secondly - the internal problems form significant barriers for the implementation of these objective measures.

For example, the fact that Bangladesh becomes integrated into the system of economic cooperation, with a very distorted economic structure, and is a member of the processes of international division of labor as a supplier of goods of garment industry, ceramics and pharmaceuticals, and as import-oriented consumer of finished products, gives rise to concerns.

The solution to this situation is seen in the strengthening of the vector of innovative development of the country’s economic system. In other words, in the context of globalization of economic cooperation in achieving technological boundaries by raising the living standards, the possibility to increase the pace of development through the transfer of technologies is very limited, and the country should use the development factors of the innovation-based economy.

Under these circumstances, the implementation of innovation results forms the influence of external factors, innovation production facilities are established by the interaction of certain conditions, and the determining factor is the level of the specific economic efficiency per employee. In this indicator, Bangladesh is greatly behind the developed countries of the region. At the same time, this indicator characterizes not only the level of economic efficiency of the economic mechanism of interaction within the country, but also the level of remuneration, which determines the purchasing power and the level of consumer demand.

It is noted in the process of studying the features of economic development in the developed countries that the reproduction process in many economic systems is steadily intensive, and based on the use of new scientific and technological achievements. In this regard, the expanded reproduction is identified with an innovative type of development, and the reproduction itself is called innovative.

We should note that the understanding of innovations as a multidisciplinary process, which involves a certain number of participants with various levels of competence and capabilities, which constantly share knowledge and interact in order to manufacture a new product, process or other innovation, leads to an understanding of the principle of innovation system. Therefore, the lack of innovations hinders the establishment of an effective structure of economic cooperation system and ensuring of its high competitiveness. Achieving success in solving this problem largely depends on the activation level of innovative processes.

Today, the global system of economic interaction experiences the modification of reproduction, changes in the forms of accumulation and transformation of representations regarding the performance criteria of economic development.

Therefore, only the productions and economies, focused on innovation, are able to create products that have a high level of added value and high consumer demand, and achieve the

benefits on the basis of the possibilities offered by the processes of globalization of the world economic system.

Thus, in the framework of the innovative transformations of Bangladesh economy, we propose to consider a sequential process of transformation of the economy, which is implemented on the basis of deep intellectualization of the production system, which provides a fundamentally qualitative transformation of education and training of human capital. This will contribute to a fundamental change in the type of production based on innovative approaches to the formation, implementation and introduction into the economy of the new scientific and technological decisions.

Thus, the innovative development of Bangladesh economy is a mechanism of close cooperation between the state, private and public organizations and the entities of economic cooperation. This cooperation is provides for the creation, storage and dissemination of new knowledge and technologies, with appropriate regulatory support and adequately implemented the state policy. The system of innovative development of Bangladesh economy should be formed on the interaction between science, industry and society, which leads to the fact that innovations are the basis for economic growth and development of the social system, while the needs for development of innovation-based economy becomes accelerators of the improvement and deepening of scientific activity.

Thus, the main policy objectives of innovative economic development can be considered:
- development and improvement of innovative infrastructure provision;
- reproduction of advanced knowledge and technology through the implementation of fundamental and applied researches;
- implementation of targeted and technological researches (primarily at the research centers and organizations);
- close international cooperation in the field of technology transfer, as well as in the implementation of their results in the production of high technologies;
- enhancement of the quality of human capital through training the highly-qualified scientific specialists
- formation of an effective system of innovation processes management.

To form an effective innovation policy that will contribute to the economic development of Bangladesh, the following prerequisites are required:
- an open type of economic system of Bangladesh, i.e., integration into the system of global economic cooperation;
- consolidation of private property rights, in particular, the results of intellectual products at the legislative level;
- equal rights of the entities of economic cooperation;
- provision of the competitive environment at the legislative level, which will focus the producers on the interests of consumers and stimulates the continuous innovation;
- financial support for innovative development at the governmental level, and improvement of the quality of scientific potential; and
- regulation of interaction between the entities in the development of innovation-based economy at the state level.

Summarizing all the above, we should note the economic, political and organizational prerequisites that activate the organizational work on the formation of the economic development of Bangladesh on the basis of innovation, or, saying more precisely, the innovation policy of the state.

A systemic nature of innovation development of economy of Bangladesh implies that the development is not a cause-and-effect chain with a one-sided focus, which leads from research

and development to innovations, but the process of interaction and feedback throughout the system of socio-economic, political and institutional factors that determine the creation of innovations.

In this respect, the approach to the study of technological development, which is based on the concept of national innovation system, is promising, since it reflects the most current approaches to understanding the process of the development of innovation-based economy. We should emphasize that the supporting policy of innovative entrepreneurship must be based on the innovation system formation concept adequate to political and economic conditions.

Globalization processes contribute to the formation of positive elements for the operation of the Bangladesh economy, as in the globalization process both the new specific restrictions are formed, and the opportunities are presented, in particular, better instruments of innovation policy.

As a result of analysis of economists' publications on the formation of national innovation systems in different countries, it is possible to formulate recommendations for the improvement of the state policy of Bangladesh in the transformation of the innovation-based economy to achieve its greater integration into the global economy. They can be represented as follows:
- implementation of formation and institutional transformation of the scientific sphere and the sphere of high technologies in order to adapt them to the conditions of market interaction;
- provision of targeted work on the elimination of barriers that undermine the domestic demand for innovations;
- active development of research centers and technology parks, and the formation of the procedures of financial support for the early stages of innovative researches;
- legislative and institutional achievement of a comprehensive integration of scientific institutions, and the education and business spheres, as well as on the basis of tax and tariff preferences;
- provision of targeted state social policy in the field of fundamental and sectoral sciences and researches;
- an integrated resource provision of the scientific and technical development system; and
- development of scientific and technical potential of the subjects of economic cooperation of Bangladesh and improvement of its utilization efficiency.

Of course, these proposals for the improvement of scientific and technical policy in the Bangladesh economy in terms of the development of innovation-based economy are not exhaustive, and may be supplemented during improvement of the development of the country's innovation-based economy.

Conclusion

Therefore, summarizing the conducted studies, we should emphasize such provisions.

In the context of globalization, the basis for the sustainable economic development is the reorientation of national economies to the predominant development of production of high technology products and the provision of advanced positions in this field.

An innovative basis for the development of Bangladesh economy should be considered as a process of successive changes in the economic system, which is implemented by deep intellectualization of production processes, which provides for the fundamental transformation of education and training system of the human capital formation based on innovative approaches to the development of scientific and industrial technologies.

The formation of innovation-based Bangladesh economy should be considered as a mechanism of joint cooperation between the public, private and non-governmental organizations and business entities, which involves the creation, storage and dissemination of new knowledge and technologies on the basis of the relevant regulatory support and within the state-implemented policy. The national system of innovation development of Bangladesh should provide a type of interaction between science, industry and society, where innovations would serve as the basis for the progress of the economic system and society, and the needs for development of innovative economy would acquire the status of an accelerator of improvement and deepening of scientific activity.

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THE ROLE OF THE BUILDING INDUSTRY IN THE ECONOMY OF THE SLOVAK REPUBLIC

Peter Sika

Abstract

The building industry in the Slovak Republic and countries of the European Union represents one of the most important production sectors, which significantly contributes to the economic growth. The industry is in the leading position in the direct and indirect creation of work places. The building industry is also a main implementer of constructions and buildings, which are an important part of investments or more precisely the creation of the gross fixed capital in the whole economy. At the same time, it very quickly and sensitively reacts to a change of behaviour of investors, which makes it rather vulnerable with multiplications effects and impacts on other sectors as well as on the employment, often in regions with a high rate of unemployment. The building industry has wide ties at the input side in its implementation phase, since it receives products and services from almost all sectors, and also at the output side as a supplier of work and built structures for the whole production and non-production sphere and further users. The objective of the article is to evaluate the position of the building industry in the economy of the Slovak Republic by its share in the gross domestic product and in the national economy.

Keywords: construction, economy, employment

JEL Classification: E23, E30, F43, L74

Introduction

The Slovak building industry has undergone an extensive restructuring in recent 27 years, during which it was able to adapt to modern market conditions. The disintegration of the centrally planned economy and later the establishment of the independent Slovak Republic led to the effect that in the initial phases of transformation and independency there occurred a significant decline in the volume of building production. The gradual recovery of the building industry occurred in the years 1995 to 1997. The boom in the building industry began after the year 2000, when it experienced a significant growth of investment activities. Due to the necessary construction of new apartments, the building industry experienced a significant development and the building production became the most important indicator of the economic development (Vidová, 2015, s. 60).

The accession of Slovakia to the European Union caused the building industry to gain a significant advantage, which was mainly in the form of foreign investment and the participation in the European construction market, but it also had to grapple with a strong competitive environment. Even under the pressure of the global economy and the pressure of the European integration, there was not created a single European housing policy (Lux, M., Kostelecký, T. (eds.), 2011, p. 84). The Slovak building industry is today considered as one of the key sectors of the Slovak economy, despite the fact that it has experienced a turbulent period in recent years, which has been reflected mainly by a decline in private investment. Despite the positive macroeconomic indicators of the Slovak economy, we must state that the development of the building industry in 2014 continued in the negative trend associated with the global financial and economic crisis, which was reflected in the Slovak building industry especially in 2009.

The building production in 2014 in current prices reached the total volume of 4.489 billion €, and compared to 2013 it decreased by -2.9% (in constant prices 2010 – 4.315 billion €, decrease by -4.2%) (ÚEOS – Komercia, a.s., 2015, p. 23).

The building industry is an important indicator of the cyclical development of the whole economy, it is closely tied to variations and movements in the economy. The building industry has an important role as a multiplier of work places, creator of the living and working environment and a sensitive barometer of the current economic situation of the state.

In 2014, the share of the building industry in gross domestic product was 7.5% (Table 2) in current prices with the employment rate in the building industry of 7.1% (Table 6) of the total number of employed in the economy of the Slovak Republic.

1. THE BUILDING INDUSTRY AS A SIGNIFICANT COMPONENT OF THE MACROECONOMIC SITUATION IN THE SLOVAK REPUBLIC

The building industry can be defined as a set of all building enterprises in the national economy and it is considered as one of the key sectors of the economy of any developed economy.

The housing problem includes not only social, economic or technical matters, but in effect it has a significant impact on the success of the economic policy of the state and the satisfaction of citizens. (Sýkora, R., 2000, p. 35.)

In 2014, the annual growth of the Slovak economy intensified slightly to 2.2% from 2.0% in 2013 (Table 1). This trend continued during the year 2015, when once again the level of GDP in current prices increased by 3.3% to 78.071 billion €. In the 1st quarter of 2016, the annual economic growth slowed down to 3.4% in comparison to the end of last year, caused by a significant slowdown in the investment activity due to impact spending of EU funds.

From the perspective of production sectors, the annual increase in 2014 was related to the growth of value added in industry by 2.7%, in trade, transportation and storage by 3.8%, in information and communication by 1.9%. On the contrary, the volume of value added generated in agriculture, forestry and fishing fell by -5.5%, in construction by -0.5%, in professional, scientific and technical activities, administrative services by -1.9% and in recreation by -1.7%.

The volume of value added was mainly formed by industry at the level of 24.7%, trade, transportation and storage, accommodation and catering services at the level of 22.4%. The building industry participated in the volume of value added by 8.3% and real estate activities represented 7.1%.

The annual growth in gross domestic product in 2014 was affected by its expenditure components. The final consumption of household increased by 2.1% to 41.867 billion €. The highest items in the total final consumption of households were expenses of population for housing and for the purchase of food and beverages.

Table 1 – Gross domestic product of the Slovak Republic

Indicator		2010	2011	2012	2013	2014
Gross domestic product – current prices	**bill. €**	67,204	70,160	72,185	73,593	75,215
	index	105,3	104,4	102,9	102,0	102,2
Gross domestic product – constant prices 2010	**bill. €**	67,204	69,021	70,127	71,126	72,840
	index	104,8	102,7	101,6	101,4	102,4

Note: Methodology ESA 2010, according to the quarterly national accounts

Source: Ministry of Transport, Construction and Regional Development of the Slovak Republic

The economy of the Slovak Republic is based on a high proportion of industry, which represented 22.5% of GDP in current prices in 2014. The building industry accounted for 7.5% and recorded an annual decrease of -0.3 of percentage points compared to 2013. The share of the building industry in gross domestic product declined since 2008 from 9.6% to 7.5% in 2014, as indicated in Table 2.

Table 2 – Share of chosen sectors in gross domestic product in % (current prices)

Sector	2010	2011	2012	2013	2014
Agriculture, fishing	2,6	3,1	3,3	3,7	3,4
Sectors total	24,1	24,3	24,1	22,6	22,5
Building industry	8,2	8,0	8,2	7,8	7,5
Trade, transport, storage	19,9	19,6	19,6	20,1	20,4
Information and communication	4,1	4,0	4,3	4,2	4,2
Financial and insurance activities	3,3	3,4	3,3	3,3	3,6
Real estate activities	6,1	6,3	6,4	6,5	6,5
Other activities	22,8	22,0	22,3	23,1	22,9
Net taxes of products	8,9	9,4	8,4	8,8	9,0
GDP total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Source: Ministry of Transport, Construction and Regional Development of the Slovak Republic

Despite the above stated negative trends, the building industry remains an important sector in the structure of the Slovak economy and its multiplier effect increases this importance. The following Table 3 shows the evolution of basic indicators of the structure of building production by type of constructions.

Table 3 – Structure of the building production according to types of construction in %

Indicator	2010	2011	2012	2013	2014
Building production in the country, including:	**97,4**	**96,3**	**94,8**	**94,7**	**94,9**
Residential buildings	23,5	21,0	22,2	23,6	23,3
Non-residential buildings	44,6	45,2	47,0	43,1	43,1
Engineering constructions	28,6	28,7	24,5	26,9	27,2
Other works	0,6	1,4	1,1	1,1	1,3
Building production abroad	**2,6**	**3,7**	**5,2**	**5,3**	**5,1**
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Note: Other activities = Professional, scientific and technical activities; Public administration and defence, compulsory social security; Education, health care and social assistance; Arts, entertainment and recreation, other activities. Net taxes of products = Value added tax, excise duty (updated), import tax, minus subsidies.

Source: Ministry of Transport, Construction and Regional Development of the Slovak Republic

In the structure of the building production there significantly prevail so-called non-residential buildings such as business premises, warehouses, schools, hospitals, office buildings and so on. The main part of engineering constructions is represented by the transport infrastructure - road infrastructure. Despite the growth trajectory in recent years, the volume of construction output in 2014 did not reach the proportion from the year 2006, which amounted to 29.0%, although these strategic investments are closely linked to the regional development. The third important segment is the construction of apartments. The share of housing construction recorded a slight decrease in 2014, which was mainly caused by the consumer purchasing power and high interest rates for mortgage loans. In 2015, we expect the recovery of residential buildings, which will be caused by legislative changes in favour of citizens and by the favourable situation in the area of interest rates on loans for housing.

Inflation is one of the major problems which complicates the economic performance. It is shown as an increase of the overall price level; thus it leads to a decrease in the purchasing power of the monetary unit. It inherently disrupts the balance in the economy (Ivanička, K. Zubkov, M., Špirková, D., 2003, p. 32). The consumer prices in 2014 recorded a slight slowdown since they declined over the year by 0.1% (Table 4). The largest price decrease was recorded in the traffic with a price drop of -1.5%, followed by the prices of postal and telecommunication services by an average of -1.1%. Prices of housing, water, electricity, gas and other fuels declined by -0.6%. Primarily external factors through regulated prices of energy, fuel and food prices contribute to the continuing fall of prices. Prices of materials and products used in construction fell by -2.7%. By contrast, prices of construction works in 2014 compared to 2013 increased by 1.3%. In 2015, the inflation rate was 1%. The positive development of fundamentals of the ongoing wage growth and the reduction of unemployment is still not reflected through demand pressures in faster growth of prices of market services (NBS, Rýchly komentár 15. February 2016, p. 1).

Table 4 – Inflation rate and annual growth of prices of industrial producer prices and construction work (in %; previous year = 100)

Type of prices	2010	2011	2012	2013	2014
The rate of inflation - consumer prices	1,0	3,9	3,6	1,4	-0,1
Industrial producers together*	-2,8	2,7	3,9	-0,1	-3,6
Construction work*	1,0	1,2	0,6	0,7	1,3
Materials and products consumed in the building industry*	-3,3	1,8	1,5	-0,8	-2,7

Note: *based on 2010

Source: Ministry of Transport, Construction and Regional Development of the Slovak Republic

The employment is in every economy closely related to the dynamics and performance of the economy, its competitiveness (Rievajová, E., Klimko, R., 2015, p. 19). The building industry is a sector that brings positive results in addressing the problems of low employment. The advantage of the industry is the low skill requirements for certain professions in the building industry, which can also absorb the unskilled job seekers. The negative feature of the sector could be its sensitivity to the demand for construction products, which is heavily influenced by the business cycle and expectations of society (Hudcovský, M., 2013, p. 24). The current state of the labour market in Slovakia is characterized by its high imbalance between labour supply and labour demand. The labour market is essentially the main interest in all policies, with an objective of high employment, it means to ensure a high level of domestic production and consumption and its equitable distribution among the population as a whole. These contributing factors are shown through the GDP, in household consumption as well as in the formation and structure of fixed capital and the amount and structure of consumption of the public sector (Rievajová, E. Klimko, R., 2015, p. 40). The situation in the Slovak labour market has recently recorded positive changes. There is a growing number of workers and a reduced number of unemployed. The problem of the long-term unemployment remains, and the country fails to reduce the overall registered level of unemployment, which by LFS, reached in the year 2014 the rate of 13.2% and in the year 2015 decreased to 11.5%, representing 314.3 thousand of unemployed (Table 5). The positive trends in the labour market have been recorded also through the transfer of surplus labour force to work abroad. A number of workers abroad in 2014 amounted to 134.0 thousand people. From the regional perspective, the workers chose mainly the Czech Republic (39.4 thousand) and Austria (38.1 thousand). The work in the building industry (36.9 thousand) and industrial activities (33.1 thousand) was prevailing among people migrating for work.

Table 5 – Main characteristics of employment in the Slovak Republic according to the LFS

Indicator	2010	2011	2012	2013	2014	2015
Average number of employees (thousand)	2 317,5	2 351,4	2 329,0	2 329,3	2 363,0	2 424,0
Number of unemployed (average number, thousand)	389,0	367,9	377,5	386,0	358,7	314,3
Unemployment rate (%)	14,4	13,5	14,0	14,2	13,2	11,5

Source: Ministry of Transport, Construction and Regional Development of the Slovak Republic

The largest increase in employment was recorded in 2014 in accommodation and food services (+ 8.4%) and in information and communication by 8.2%. In industry, employment increased by 1.6%, in wholesale and retail trade and repairs by 1.3% and in the public administration by

1.4%. On the other hand, it declined the most in construction by -1.1% (by 1.8 thousand people) (Table 6). The decline in employment was reported in transportation and storage by -0.5% and in financial and insurance activities by -0.2% (ÚEOS - Komercia, a. s., 2015, p. 18). Also in the near future we can expect more positive dynamics of employment, but after the expiry of the stimuli from the EU funds, it is possible to expect moderation of the employment growth.

The development of employment is different in individual production sectors. The building industry contributed to the overall employment in the economy in the year 2008 to 2014 by 7.1% to 8.5%. In 2014, the most significant employment growth was recorded in accommodation and food services (by 8.4%).

Table 6 – The development of employment in selected sectors of the national economy of the Slovak Republic

Sector	Average number of employed - in thousands of natural persons								
	2012			**2013**			**2014**		
	a	**b**	**c**	**a**	**b**	**c**	**a**	**b**	**c**
NE SR total	2191,3	-0,1	100,0	2176,1	-0,7	100,0	2204,6	1,3	100,0
Industry	495,2	-0,9	22,6	491,5	-0,8	22,6	499,4	1,6	22,7
Building industry	165,3	-4,5	7,5	158,6	-4,0	7,3	156,8	-1,1	7,1
Trade	422,2	-1,0	19,3	408,8	-3,2	18,8	417,7	2,2	18,9
Transport	140,0	-1,6	6,4	143,4	2,4	6,6	142,6	-0,5	6,5

Legend: a – in thousands of natural persons; b - year change in %; c - the share of employment in the national economy of the SR

Source: Ministry of Transport, Construction and Regional Development of the Slovak Republic

In 2014, the employment decreased in all categories of building enterprises with more than 20 employees, except for enterprises employing 20-49 employees, where the employment increased by 9.2% (labour productivity fell by -3.0%). In enterprises with 50-249 employees there was the decrease in employment by -1.8%, and the growth of labour productivity of 11.8%. Employment decreased in enterprises employing 250-499 employees by -31.9% (labour productivity in building production decreased by -12.7%). In enterprises with 500 or more employees, employment fell by -16.9%, labour productivity increased in that category of enterprises by 25.1%. (ÚEOS - Komercia, a. s., 2015, p. 42)

The average monthly nominal wage of an employee in the economy of the Slovak Republic in 2015 reached 883.0 €, which means that it increased on average by 3% compared to 2014. The highest average nominal monthly wage had employees in the information and communication field (1,751 €). The lowest wage was in the sectors of accommodation and food services (533 €) and in the building industry (632 €). The pro-growth factors in the wage development are in particular the acceleration in labour productivity and the persistent lack of adequate staff, resulting from the growing demand for labour (NBS, Rýchly komentár, February 12, 2016, p. 2).

The amount of monthly incomes is a limiting factor in the Slovak society affecting the construction industry through the construction of flats and houses. In case of big differences between incomes and prices of real estate, there arises a problem in assuring a property, or more precisely, their reconstruction. The costs of households for housing increased, as well as their indebtedness, thereby reducing the possibility of investing in better quality housing, since households have no option for generating of savings (Vidová, J., 2015, p. 46).

Average incomes of the Slovak population are low compared to housing prices, while the Slovaks pay significantly higher proportion of own incomes to secure their basic needs than it is advanced industrial countries in the world. With the current incomes of population, it is a difficult problem for many young families to obtain an apartment (Ivanička, K., Zúbková, M., Špirková, D., 2003, p. 14).

Housing conditions will naturally improve when there is an economic growth, which in turn improves the income situation of employees.

2. NEGATIVES REFLECTED IN THE BUILDING INDUSTRY AND THREATENING THE ECONOMY

The building industry has a high level of grey economy, which is shown in non-compliance with the Slovak law. In particular, it includes the purchases of building works without any accounting documents, which makes the Slovak Republic to lose the income from value added tax, income tax as well as contributions to the health and social funds. The customer of such building work voluntarily loses any future claims because there is no evidence of the legal basis for these works.

The last estimate, which was made by the Statistical Office of the Slovak Republic, based on a survey of hidden economy, indicates that in 2007 the total annual expenditure on the services of building workers without receiving a receipt was approximately 354.1 million €. Overall, it is estimated that the Slovak citizens spend annually about 250-350 million € for construction works, reconstructions of flats and houses without receiving an accounting document. It is also estimated that about 15 to 25 thousand workers of the building industry form the black economy. (ÚEOS – Komercia, a.s., 2015, p. 31)

A high degree of grey economy can be documented also in inconsistency between the statistics of building production and statistics of gross fixed capital formation (Table 7). However, we cannot automatically infer the grey economy, as it may also be a discrepancy due to the level of self-realization among the residents themselves.

Table 7 – Comparison of the development of building investments to the development of building production in the Slovak Republic

Indicator	Unit of measure	**2010**	**2011**	**2012**	**2013**	**2014**
Building part of gross fixed capital formation, current prices	bill. €	6,639	7,070	6,504	6,432	6,735
Construction production total, current prices	bill. €	5,649	5,543	4,987	4,639	4,489
The share of building production from construction investments together	%	85,1	78,4	76,7	72,1	66,7

Source: Ministry of Transport, Construction and Regional Development of the Slovak Republic

Another phenomenon that threatens the building industry can include illegal buildings and aggressive investors. Several buildings are constructed without the necessary papers with the fact that in the final phase of construction they will be added, regardless of how it will impact the other participants of the construction costs. Profit maximization is getting to the first place, without relevant consequences for example for life, transport connections, etc.

Conclusion

The building industry has shown a monthly increase of production for 12 months in a row and the dynamics of the annual growth accelerated. The building industry in Slovakia has recorded the fastest annual growth in construction minimally since the year 2001. This phenomenon is caused mainly by the public infrastructure spending and recovery in the segment of building. The public funds go mainly to reconstruction and repairs, in a lesser extent to new construction. We must point out, however, that private investments are absent, which is shown in the lack of orders, and then fall in employment in the building industry. Despite the current positive phenomenon shown in the building industry, it is necessary to realize that the stabilization of the Slovak building sector across its width is inevitable, which influences other sectors by its multiplication effect and thus affects the operation of the whole country.

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MACROREGIONAL STRATEGIES OF THE EUROPEAN UNION. WHAT CAN BE LEARNT FROM THE CURRENT TRANSNATIONAL APPROACH?

Jaroslava Szüdi

Abstract

Macroregional strategies represent integrated concept endorsed by the European Council, which may be supported by the European Structural and Investment Funds among other instruments, to maximize the effectiveness from stronger regional cooperation. The purpose of this paper is to reflect the implementation of present four macroregional strategies (the EU Strategy for the Baltic Sea Region, the EU Strategy for the Danube Region, the EU Strategy for the Adriatic and Ionian Region, the EU Strategy for the Alpine Region) and to bring a closer look at their governance and development of the macro-regions. In terms of the methodological approach, the paper combines desk-based study of key policy documents, annual reports and prior analyses with author's own experience from coordination of one of priority areas within the EU Strategy for the Danube Region. The findings of this paper can contribute to a wider academic and political discussion on macroregional cooperation, and the most suitable governance approach and involvement of various stakeholders.

Keywords: European union, macroregional strategies, policy implementation, governance, territorial cooperation

JEL Classification: R11, R58

Introduction

According to the official European union (EU) documents (European Council conclusion and European Commission reports) the concept of macroregions arose from a wish for a collective response to environmental deterioration of the Baltic Sea, and for concerted action on challenges and opportunities of that region, what resulted in the EU Strategy for the Baltic Sea Region (EUSBSR), adopted in 2009. Since its start, Europe has seen a growing potential in cooperation in greater European regions.

Macroregional strategies (Picture 1) represent new opportunities for comprehensive development of a larger region, addressing common challenges. They respond to matters such as:

- deterioration of the environmental state of the Baltic Sea;
- unused potential for improved navigability and water quality for attractive Danube Region;
- economic, social and environmental diversity and fragmentation in the Adriatic Ionian Region, and
- territorial, economic and social imbalances between cities and rural areas in the Alpine Region.

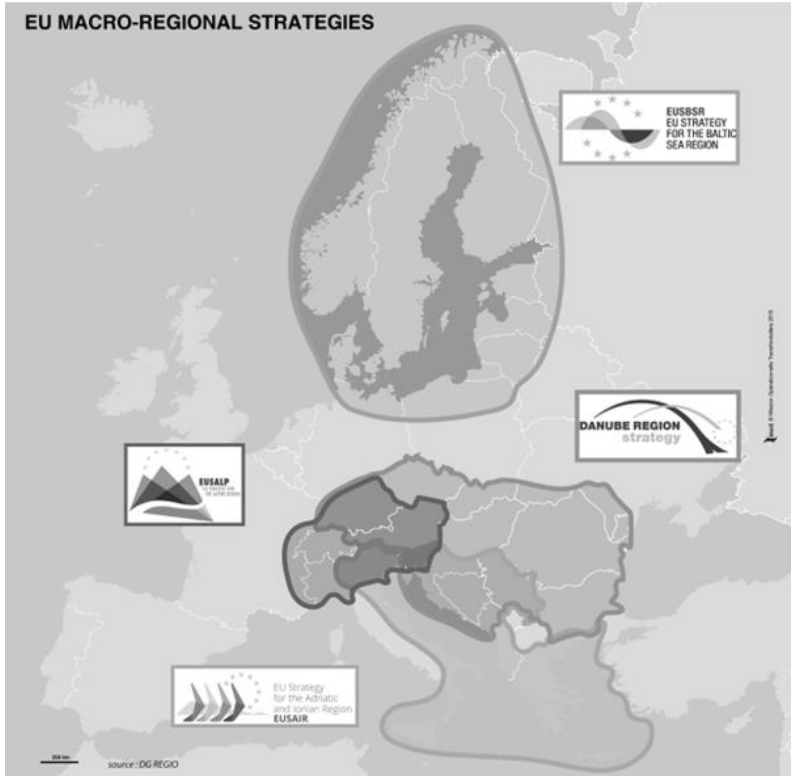
The aim of a macro-regional strategy is to mobilise various (existing and new) initiatives, projects and resources, creating a sense of common responsibility (European Commission, 2013a).

Good practice examples of successful macroregional actions already exist in the EU Strategy for the Baltic Sea Region and the EU Strategy for the Danube Region. The environmental status of the Baltic Sea is improving, through collective action to reduce pollution with projects like CleanShip. Navigation on the Danube is being made easier through reinforced maintenance work. Innovations concerning the environment, clean technology and eco-innovation are developed for example through the BONUS Baltic Sea Research and Development Programme, with similar work underway in the Danube Region (European Commission, 2014).

However, as work has gained momentum, experience has also revealed obstacles to implementation. Devastating flooding in the Danube region in 2013, for example, was, despite initiatives at high political level, not followed up by a sufficiently coordinated response (European Commission, 2012; European Commission, 2013b). Therefore we can see that there is still a space for changes.

In the following chapters we will summarize and compare the content of the four existing macroregional strategies, their governance and implementation, and draw conclusions on a potential added value of the macroregions.

Picture 1 – EU Macroregional Strategies: Division and Logos



Source: DG REGIO

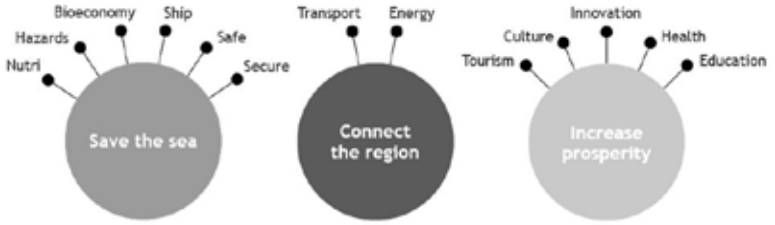
1. CURRENT MACROREGIONAL STRATEGIES

1.1 The EU Strategy for the Baltic Sea Region

The EU Strategy for the Baltic Sea Region (EUSBSR) was adopted by the European Council on the 26 October 2009. It is the first comprehensive European strategy to target a 'macro-region' including eight countries (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden) facing several common challenges which are reflected in the jointly-agreed Action Plan for the Strategy.

It includes a number of policy areas and horizontal actions to save the sea, connect the region and increase prosperity (Picture 2) - each accompanied by concrete flagships as well as by clearly identified targets and indicators.

Picture 2 – EUSBSR Objectives and policy areas



Source: EUSBSR

The Strategy helps to mobilise all relevant EU funding and policies and coordinate the actions of the European Union, EU countries, regions, pan-Baltic organisations, financing institutions and non-governmental bodies to promote a more balanced development of the Baltic Sea Region.

The European Commission publishes regular reports on the implementation of the EU Strategy for the Baltic Sea Region.

Achievements so far include:

- Support for new projects, including cooperation between farmers to reduce eutrophication and improved planning for transport infrastructure;
- Greater involvement of Russian partners in areas like environmental protection, water quality and innovation;
- Improved cooperation between regions and other partners, including the private sector.

Although the Strategy does not come along with extra EU financing, a considerable amount of funding is available to the region through EU regional policy and other EU programmes, financial instruments, and through various international financial institutions (The EU Strategy for the Baltic Sea Region, 2009).

1.2 The EU Strategy for the Danube Region

The EU Strategy for the Danube Region (EUSDR) was adopted by the European Commission in December 2010 and endorsed by the European Council in 2011. The Strategy was jointly

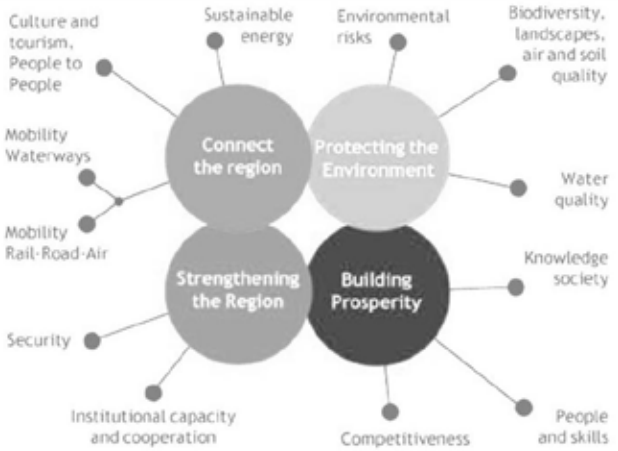
developed by the Commission, together with the Danube Region countries and stakeholders, in order to address common challenges together.

The Danube region covers parts of 9 EU countries (Germany, Austria, Hungary, Czech Republic, Slovak Republic, Slovenia, Bulgaria, Romania and Croatia) and 5 non-EU countries (Serbia, Bosnia and Herzegovina, Montenegro, Ukraine and Moldova). It seeks to create synergies and coordination between existing policies and initiatives taking place across the Danube Region. The Strategy itself is neither about funding, but closer cooperation.

The importance of the Danube Basin for the EU cannot be underestimated. Policies and the investments in the Basin undertaken through the EU's cohesion policy in particular have an impact on the livelihoods of 20 million citizens. Therefore Danube needs a specifically targeted strategy with policy that meets its ecological, transport and socio-economic needs.

The Danube Region Strategy addresses a wide range of issues divided among 4 pillars and 12 priority areas (Picture 3).

Picture 3 – EUSDR Pillars and priority areas



Source: EUSDR

When talking about the changes that the EUSDR brings to the region, it is key to remember that an integrated and balanced development of regional economic growth and social welfare does not emerge by itself; it requires an overall political concept which includes all relevant stakeholders in the process of implementation, the public sector, civil society, and the economy in its respective transnational inter-relations (The EU Strategy for the Danube Region, 2010).

1.3 The EU Strategy for the Adriatic and Ionian Region

Building on the lessons learnt and experience from the EU Strategy for the Baltic Sea Region and the EU Strategy for the Danube Region, the Commission adopted in 2014 a Communication on the EU Strategy for the Adriatic and Ionian region (EUSAIR), accompanied by an Action Plan.

The Strategy incorporates the Maritime Strategy for the Adriatic and Ionian Seas, adopted by the Commission in 2012 and endorsed by the General Affairs Council and subsequently by the European Council in 2014.

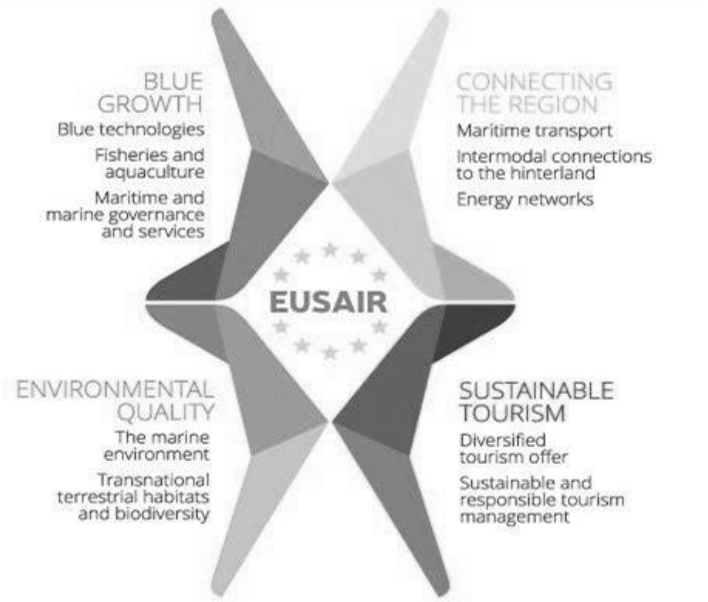
The Region is a functional area primarily defined by the Adriatic and Ionian Seas basin, covering the following 4 EU member countries (Croatia, Greece, Italy, Slovenia) and 4 non-EU countries (Albania, Bosnia and Herzegovina, Montenegro and Serbia). It treats the marine, coastal and terrestrial areas as interconnected systems.

With intensified movements of goods, services and peoples owing to Croatia's accession to the EU and with the prospect of EU accession for other countries in the Region, port hinterlands play a prominent role. Attention to land-sea linkages also highlights impacts of unsustainable land-based activities on coastal areas and marine ecosystems. Home to more than 70 million people, the Region plays a key role in strengthening geographical continuity in Europe (The EU Strategy the Adriatic and Ionian region, 2014).

EUSAIR has a limited focus on areas of mutual interest with high relevance for the Adriatic-Ionian countries. It is built on four thematic pillars (Picture 4):

- Blue growth
- Connecting the region (transport and energy networks)
- Environmental quality
- Sustainable tourism

Picture 4 – EUSAIR Pillars



Source: EUSAIR

1.4 The EU Strategy for the Alpine Region

The Commission adopted a Communication and an Action Plan on the EU Strategy for the Alpine Region (EUSALP) only in July 2015. This followed the invitation from the European Council in December 201 and took account – inter alia – of the on-line public consultation that was held in 2014, and the debates and discussions in the Stakeholder Conference on the EU Strategy for the Alpine Region.

EUSALP involves 7 countries of which 5 EU Member States (Austria, France, Germany, Italy and Slovenia) and 2 non-EU countries (Liechtenstein and Switzerland), and 48 Regions.

The Alpine area is composed of territories with contrasted demographic, social and economic trends and a great cultural and linguistic diversity. This diversity goes along with a great variety of governance systems and traditions. Both the common specificities of the Alpine area and its variety and diversity call for cooperation.

The Alpine region is a unique territory, which has an important potential for dynamism, but facing major challenges, such as:

- Economic globalisation that requires the territory to distinguish itself as competitive and innovative by developing the knowledge and information society;
- Demographic trends, characterised particularly by the combined effects of ageing and new migration models;
- Climate change and its foreseeable effects on the environment, biodiversity and on the living conditions of its inhabitants;
- The energy challenge at the European and worldwide scales, which consists in managing and meeting demand sustainably, securely and affordably.

Its specific geographical position in Europe, as a transit region but also as an area with unique geographical and natural features with set the frame for all future developments. An Alpine macro-regional strategy would provide an opportunity to improve cross-border cooperation in the Alpine States as well as identifying common goals and implementing them more effectively through transnational collaboration.

The overarching challenge for the Alpine Region is to balance development and protection through innovative approaches which strengthen this area located in the center of Europe as a living space for people and nature as well as a field for economic and social activities in a sustainable way. The EUSALP aims at ensuring mutually beneficial interaction between the mountain regions at its core and the surrounding lowlands and urban areas, flexibly taking into account the functional relationships existing between these areas.

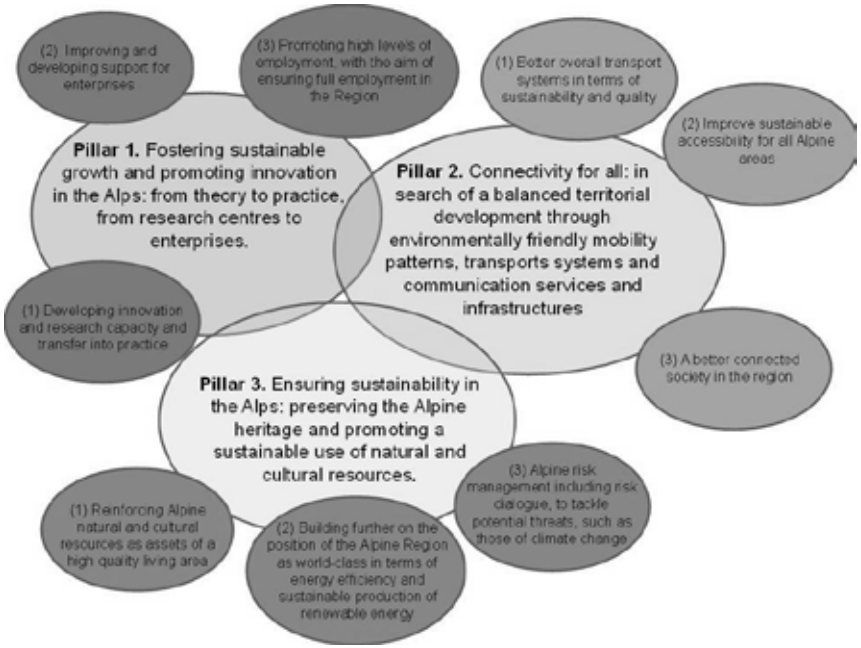
The EUSALP promotes the Alpine Region in its function as an EU laboratory for effective cross-sectorial and multi-level governance, strengthening cohesion within the Union, deepening the cross-border cooperation of institutions and actors in this environmentally sensitive key European area at the crossroads of cultures and traditions.

It is a unique example of a Strategy initiated in a bottom-up approach by the people and backed by the States and Regions. As its main objective, the EU Strategy for the Alpine Region aims to ensure that this region remains one of the most attractive areas in Europe, taking better advantage of its assets and seizing its opportunities for sustainable and innovative development in a European context.

The Strategy focuses on areas of (macro) regional mutual interest. Therefore, the priority areas and specific objectives selected should reflect genuine commitment to working together to

achieve common solutions to challenges or unused potential (The EU Strategy for the Alpine Region, 2015). The main objective above will be attained through the following 3 thematic pillars and priorities (Picture 5):

Picture 5 – EUSALP Pillars



Source: EUSALP

2. SYSTEM OF GOVERNANCE: STRENGHTS AND WEAKNESSES

The term "governance" describes the process to be addressed, i.e. how and by what means the macroregional strategies are implemented, joint actions initiated and financed. More specifically, current key elements of the governance of macroregional strategies include:

- Member State and Commission involvement at high political (i.e. governmental/ministerial) level providing political commitment and strategic orientation;
- National Contact Points, high level officials in each participating country coordinating work at senior administrative level;
- Experts, responsible for each thematic priority (e.g. environment, transport, research and innovation etc.), or horizontal issue (e.g. climate change, spatial planning), from each country involved, and normally forming a steering group for the topic at the level of the macro-region.

These elements constitute the structure to be reviewed and strengthened, to ensure that the implementation of the Strategies brings clear impact and better results.

Based on the analysis of the European Commission and on the experience gained from existing Strategies, we have learnt that improvements are especially required in the following fields:

- Stronger political leadership and decision making from countries and regions concerned: ministers and national authorities coordinating the work need to take full ownership, and more clearly direct what is happening on the ground;
- Greater clarity in the organisation of work: for authorities working on day-to-day implementation, there is a need for explicit lines of responsibility, effective coordination and sufficient resources.

As to conclude, we can say that better governance of macro-regional strategies is not about new funds or new institutions. Instead, it should aim at smarter use of existing resources, creating synergies and investing into development of the human potential. Furthermore, one size cannot fit all. The different strengths of the macro regions and participating countries must be understood and taken into account. In particular, good use should be made of current regional organisations and a balanced triple helix cooperation should be strengthened (European Commission, 2014 - 0284 final).

Conclusions

From the four currently existing macroregional strategies we could have learnt that a high-level and structured political dimension, providing overall direction, setting priorities and taking key decisions, is crucial for effective macro-regional strategies. This political level is responsible for the strategy, setting priorities, and addressing key matters, including the alignment of funding to the macro-regional approach. It should ensure that authorities involved in implementation are able to work effectively with sufficient resources, and adequate authority.

Problems unsolved at technical level, must be viewed at political level. The current system relies heavily on the European Commission for strategic leadership. It gives support to key actors, and is central to reporting and evaluation. The Commission is also a key facilitator, and guarantor of the EU dimension (Council of the European Union, 2013).

However, over-dependence on the Commission as the principle driving force is not desirable. To succeed, the macro-regional strategies need a better balance between the leadership provided by the countries and regions involved and the role of the Commission. The Commission invites other institutions, countries and regions involved, to work together on improvement of the governance of the Strategies to maximise results and impact, taking into account the different macro-regional contexts (European Commission, 2014).

In summary we can say that macro-regional strategies, delivering meaningful results and leveraging existing policies claim a well-performing governance system, requiring:

- political leadership and clearer responsibility, recognising the Strategies as horizontal interests and responsibilities at every level of government;
- improved mechanisms to ensure full engagement of non-EU countries at all levels;
- better use and complementing work of existing regional organisations, at the appropriate level;
- better synchronisation of existing funds and better coordination of sector-specific initiatives and programmes, through key implementers and the Commission, including the private sector and international financing institutions, where appropriate;

- continued involvement by the Commission, in partnership with countries and regions, ensuring a coordinated approach at EU level;
- better publicity and communication about the work, effective use of information and communication technologies to facilitate modern, fast and cheap communication between stakeholders;
- stronger involvement of civil society, including through national and regional parliaments and consultative networks or platforms, enhancing awareness for the strategic objectives and timetable.

Acknowledgement

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MONETARY POLICY THROUGH THE LENS OF FINANCIAL STABILITY

Pavel Štěpánek, Eva Zamrazilová

Abstract

The relatively long period of stability before the present crisis, also called the "Great Moderation" and "Golden Age of Central Banking", indicated that inflation targeting was a success story. Since 2008 much has changed and the debate about "leaning against the wind or cleaning up afterwards?" has been revisited by central bankers and academics. An important lesson from the crisis has been that price stability is not a sufficient condition for financial stability, so an operational framework for financial stability is being sought. Mainstream macroeconomic policy has chosen the option of creating a new economic policy toolkit of macroprudential measures. However, there are still remaining caveats in addressing the financial stability issues properly. New paradigms in this respect maybe useful how to incorporate the financial stability issues into monetary policy framework.

Keywords: monetary policy, inflation targeting, price stability, financial stability, macroprudential policy

JEL Classification: E44, E52, E58, G01

1. INFLATION TARGETING, FINANCIAL STABILITY AND MACROPRUDENTIAL POLICY

The situation in the pre-crisis period suggested that monetary policy makers had, in inflation targeting, truly discovered a system that not only had aided the disinflation process in the 1990s, but also stabilised the overall macroeconomic environment in the long run. Studies focusing on comparing the macroeconomic parameters of comparable economies (see Roger, 2009) show that inflation-targeting countries achieved much better price stability results than comparable economies with other monetary policy regimes.[1] This relatively long period of low inflation accompanied by economic growth has even been termed a golden age of central banking (see Gerlach, 2009).

The prevailing view at this time was that low inflation was the main way in which central banks can contribute to financial stability (IMF, 2010). In mid-2007, however, this myth began to collapse gradually, and in the three years since the crisis erupted, open problems related to inflation targeting have started to be discussed again. The debate has turned back to the question of what role asset prices, which are typically not included among the targeted consumer price inflation indicators, should play in monetary policy, as well as the related problem of whether and how monetary policy should respond to credit expansion. Closely related to these issues is the crucial theoretical problem of whether or to what extent money, or monetary aggregates, can be excluded from monetary policy decision-making. New issues are appearing for central banks associated with to what extent their mandate has been or will be extended to include

[1] The intensity of the disinflation was more pronounced in less advanced inflation-targeting economies. More advanced inflation-targeting economies maintained stable inflation amid higher economic growth, while economies with other monetary policy regimes paid for low inflation with weaker growth.

financial stability and how their modus operandi will have to be modified in this respect.

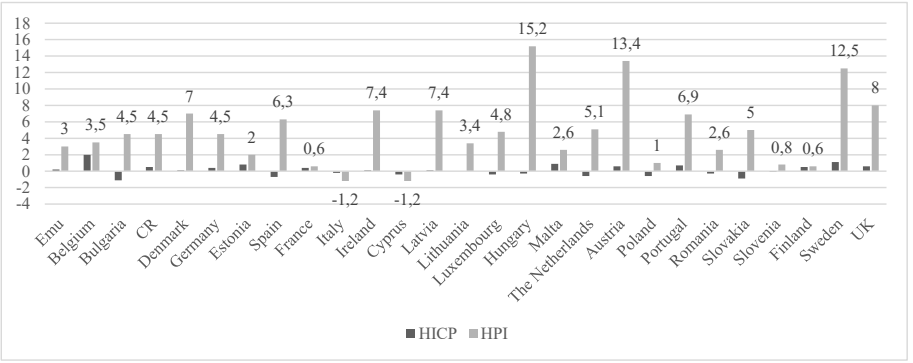
As a response to the problem that inflation targeting does not automatically guarantee financial stability, governments, regulators and central banks have preferred to rely on keeping monetary policy firmly focused on short-term output and inflation objectives and create new kind of economic policy called macro-prudential policy. Therefore, monetary policy and financial stability have become separate issues, even though they have much common in principle. In many countries, the financial stability has become a part of central banking with macro-prudential measures in the central bank toolkit. Most of these instruments are aimed to prevent the procyclicality of the financial system, most important of them being cap on loan–to value (LTV), loan loss provisions, cap on debt- to-income ratio (DIR), countercyclical capital requirements, cap on leverage, levy on non-core liabilities, time-varying reserve requirements. Moreover there are measures suggested to prevent the accumulation of excessive short-term debt, mainly liquidity coverage ratio, liquidity risk charges, capital requirement charges that penalize short-term funding, additional capital requirement surcharges on maturity mismatch.

In principle, monetary and macroprudential policies should be cooperative and supportive of one another, however, the recent experience suggests possible tensions or even contradictions between them. Almost ten years of exceptionally loose monetary policy has highlighted the tension between the perception of price stability and financial stability. In many developed market economies, interest rates have been kept extraordinarily low in order to raise inflation. In some cases, this has occurred even as strong credit and asset price increases have raised concerns about future vulnerabilities. In some cases, concerns about the impact of low interest rates on the profitability and soundness of financial institutions have been also on the table. All this has added fuel to the debate over whether existing monetary policy frameworks can adequately address the macroeconomic stability as a whole.

We can already see differentiation of the real estate price developments across the EMU, with excessive growth in real estate prices in some countries. Bubbles have been visible in stock markets as well. Reinhart and Rogoff (2009) have convincingly shown that housing prices are nearly at the top of the list of reliable indicators as for the banking crises anticipation. Therefore, the developments indicating bubbles in selected markets should not be disregarded as they could lead to further distortions.

Figure 1 shows the year-on –year inflation (measured by HICP, harmonized index of consumer prices) and year-on-year growth of housing prices (measured by house price index including all residential properties). Consumer inflation measured by HICP in eurozone was at 0.2 %, at the end of the first half of 2016. The dispersion among EU countries were not much pronounced wuth minimum of – 0.9 % in Slovakia and maximum of 0.9 % reported by Malta. The overall year on year growth of housing prices in Eurozone was at 3 %, which itself is not very alarming. However, the increases have been quite alarming in many countries, where housing bubble is evident. A dynamic increase in housing prices is also quite alarming as the resemblance with the US case is evident.

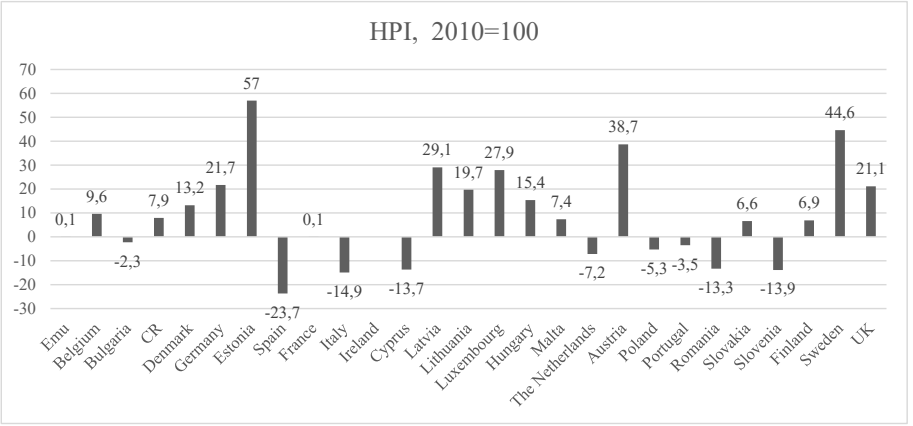
Figure 1 - HICP (harmonized index of consumer prices) and HPI (house price index), y/y, in %, July 2016



Source: Eurostat

The differentiation in the housing market is much deeper if the house prices are compared to the basis of 2010. Housing prices in Estonia and Sweden have increased most notably, by 57 % and 45 %, respectively. On the other hand house prices in Spain, Italy, Slovania or Cyprus have not reached the trough yet.

Figure 2 - House price index, 2010 =100, July 2016



Source: Eurostat

The fact which is really alarming is that in the countries with housing boom macroprudential measures have been previously already adopted. In mid-2016 there remained a few EU member states without LTVs or similar measures introduced (Belgium, Germany, Spain, Italy, Austria, Portugal, Romania, Slovenia and UK). At the same time, Austria was the only one without binding regulation on LTVs among five most visible housing boomers, This indicates that macroprudential policy or regulatory measures themselves have not been efficient enough to prevent or stop the housing boom.

2. LEANING AGAINST THE WIND REVISITED

The debate about whether monetary policy should or should not lean against the wind started back in the 1970s (see Poole, 1970) and is revisited fairly regularly whenever financial turmoil sets in. A wide discussion on whether, when and to what extent central banks should respond to asset prices was conducted in international economic periodicals at the turn of the millennium. This discussion subsided somewhat as the macroeconomic situation developed favourably, but returned with unprecedented strength when the crisis erupted in the U.S. sub-prime market and spread to the financial sector and the real economy at the global level.

At the start of the millennium the prevailing view – concentrated mainly around Fed experts – was that monetary policy should respond to asset prices only to the extent to which asset prices affect the inflation outlook or the inflation forecast. The inflation target represents a nominal anchor for inflation expectations, so a monetary policy reaction to asset prices might have dangerous psychological consequences for market behaviour. Volatility of economic growth and inflation is regarded as the main risk of taking asset prices into account in monetary policy. Macroeconomic stability safeguarded by inflation targeting presupposes a lower occurrence of financial disturbances that might destabilise the economy. This also implies that price stability accompanied by macroeconomic stability is a sufficient condition for financial stability (see, for example, Bernanke et al. 1999, Bernanke and Gertler 1999, 2001).

By contrast, advocates of a direct monetary policy reaction have always emphasised the importance of preventive action against excessive asset price growth, which can lead to misallocation of capital, the subsequent emergence of bubbles, and financial turbulence. Naturally, the question is, when is growth in asset prices excessive? Any monetary policy reaction under consideration should be preceded by solid analysis. Monetary policy should only respond to fundamental, demand-driven growth in asset prices. In this event, macroeconomic variables may become volatile, but only in the short term. On the other hand, greater macroeconomic stability can be expected in the medium and long term than in the situation where monetary policy ignores bubbles. The fact is that an effective monetary policy reaction depends on timely identification of bubbles and transparent and clear communication by the central bank. A representative view from this side of the debate prior to the current crisis is provided by Cecchetti et al. (2000), which sets out the basic challenge of estimating when movements in asset prices are warranted by underlying fundamentals[2] and how to incorporate this information into the formalised monetary policy decision-making process. This study introduces a heretical idea into the monetary policy deliberations of the inflation-targeting mainstream: monetary policy must focus primarily on price stability, but it should lean against the wind at times of increasing financial imbalance even if the inflation target is not at risk. Deviations from the inflation target can be tolerated in the short run if output and inflation variability will be limited in the long run and if such deviations will be significant in preventing future imbalances.

The key importance of whether asset price movements are linked to demand is also emphasised by Smets (1997), who also points out that if asset prices are driven by demand, their growth potentially creates an imbalance in the market and this imbalance should be neutralised by a

[2] This study also examines the frequently discussed issue of the measurability of asset price overvaluation. Although it is not easy to determine whether asset price growth is fundamentally excessive and assets are being misallocated, this is no reason to ignore the problem. The authors compare this problem to that of measuring variables such as potential output or the equilibrium interest rate – these variables are not easy to estimate either, and yet they are commonly used in central banking practice.

direct monetary policy reaction.[3] Goodhart and Hofman (2000) show that asset prices contain valuable information about future demand conditions.[4] This means, however, that if monetary policy disregards asset price movements, it is not based on a well-specified model of the economy and ignores relevant information. Ignoring the information contained in asset prices can thus lead to sub-optimal rate settings. Goodhart and Hoffman (2000b) even suggests that property prices should be included in the monetary policy rule, as does Cecchetti (2005), who also emphasises the need to include property prices in the consumer price index.

A distinction is made between property prices and security prices owing to the different nature of these assets, which is amplified by behavioural aspects. Property ownership is widespread and changes the behaviour of households, whereas ownership of securities is limited to a smaller set of wealthier households and does not alter their consumption behaviour. Cecchetti (2005) demonstrates that household consumption responds twice as intensively to property price growth as to growth in stock prices. The fact that asset prices are not usually among the targeted indicators of inflation, which consist solely of prices of consumer goods and services, is undoubtedly a problem area of inflation targeting.

Price stability focuses on inflation developments over a horizon of 12 to 24 months. However, financial stability risks develop over a much longer horizon, as systemic financial strains emerge only infrequently: the corresponding financial booms and busts last considerably longer than traditional business cycles. One lesson from the crisis is the need to look beyond short-term inflation stabilisation to ensure overall financial and macroeconomic stability. At the same time, information contained in monetary aggregates or various financial indicators should not be disregarded by monetary policy authorities, see Zamrazilová (2011).

3. IN SEARCH OF NEW PARADIGMS: FINANCIAL STABILITY-ORIENTED MONETARY POLICY

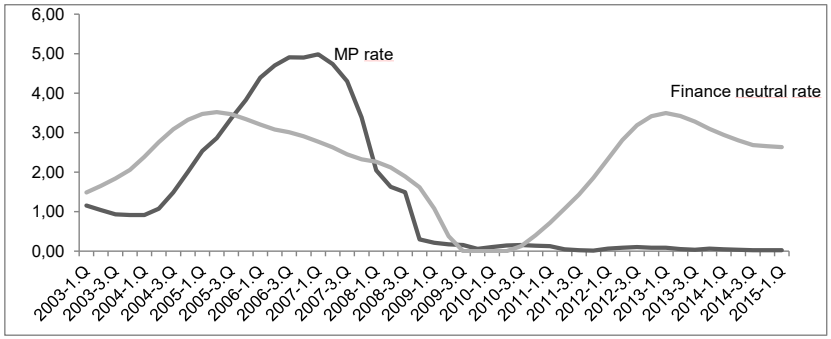
As a response to weaknesses in current monetary policy state-of-art, new approaches are being tried to look for more efficient solutions to address the issue that monetary policy might or even should respond to the financial cycle, see BIS (2016), Borio (2016), Filardo and Rungcharoenkitkul (2016). First, the natural rate concept is revisited. The basic hypothesis is that low and sustainable inflation does not guarantee that output is moving along sustainable path as financial imbalances may already accumulate on the horizon. Therefore, relying on the standard inflation measurement may be misleading and may generate distorted estimates of the natural interest rate. The alternative approach is adding financial-cycle proxies to estimate the (finance-neutral) output gap and natural rate. Those financial proxies suggested by BIS (2016) are the deviations of leverage and debt service burden (of the non-financial companies and household) from their respective long-run values. These indicators affect expenditures and output and provide an indication of the distance from financial equilibrium. According to the BIS (2016) research, finance-neutral estimates of the natural rate differ significantly from conventional measures – see Figure 3.

[3] In this study, the distinction between whether asset prices are driven by fundamentals (supply) or by demand is based on how asset prices are correlated with the past output gap. Where movements in asset prices contain information mainly about demand, the correlation with the output gap is positive and significant. Where asset price growth is driven by fundamentals, correlation with the output gap is not expected or may even be negative.

[4] The authors also model and compare two monetary conditions indices – one that includes asset prices (FCI) and one that excludes them (MCI). The FCI was more accurate than the MCI in forecasting inflation, confirming the importance of the information contained in asset prices. A comparison based on statistical significance shows that the future demand climate and inflation are both modelled better if assets prices are included.

A lot can be derived from this experiment, the most important being perhaps the fact that if financial factors are taken into account, the estimates of natural rates are higher than commonly thought. This is because financial factors, better than inflation, provide useful information about cyclical fluctuations of output around potential. In the US, inflation was low and stable before the crisis, and it was the financial boom of all kinds, that made the economy running above its potential.

Figure 3 - US monetary policy rate and finance neutral rate

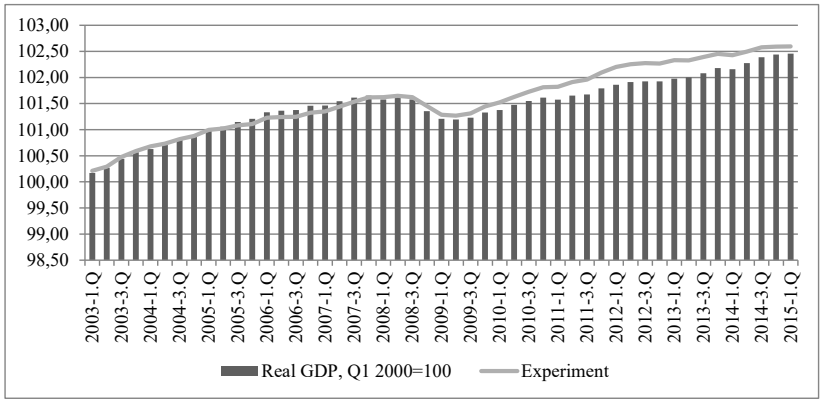


Source: Bank for International Settlements

On average, the finance-neutral rate is 1 percentage point higher until mid-2005, declining afterthat and increasing again in Q3 2010. In the period of 2012 – 2015, the finance neutral rate is considerably higher than standard monetary- policy rate.

Another question is the response of the output to finance-neutral interest rate. This is illustrated by counterfactual experiment provided by BIS (2016) on US data in the period 2003 – 2015 – see Figure 4.

Figure 4 - Monetary policy experiment on US data



Source: Bank for International Settlements

On average, economic downturn is estimated to have been lower in the case of using finance-neutral interest rate. Losses in the form of lower output in the short run are estimated to be more than offset in the longer run. According to the simulations, implementing the policy starting in 2003 could have resulted in output gains of roughly 1% per year, or 12% cumulatively. The medium-term gain exceeds the near-term cost during the leaning phase, which amounts to about 0.35% per year until 2007. The benefits become fully apparent after the September 2008 Lehman shock, which probably could have been avoided if monetary policy would have taken into account the build-up of financial imbalances from the same beginning. Leaning early to prevent the debt service burden from getting too far out of line could foster more stable financial conditions; a late response, once the signs of financial imbalances are all too evident, could precipitate a bust and a costly recession.

The counterfactual policy rate path indicates that policy leans early against the build-up of the imbalances and, as a result, gains considerable room for manoeuvre after the bust. In other words, smaller debt overhang would have resulted in a much shallower recession and would have allowed policymakers to start normalising policy as early as 2011. This experiment indicates that monetary policy rule that responds systematically to the financial cycle using the neutral-finance interest rate can improve macroeconomic outcomes in the long run.

Conclusions

Narrow focus on monetary policy on price stability over the horizon of 12 to 24 months may pose risks to price stability in the long run, if the potential consequences of financial instability for long-term price developments are underplayed. Price stability and financial stability have probably more common than the separation principle of the conduct of monetary policies and macroprudential policy may address nowadays. Macroprudential measures may not be sufficient in addressing those financial instabilities that stem from long-term ultra-accommodative monetary policy. Moreover, there may emerge an inconsistency between the two mandates of central banks, price stability and financial stability. On the one hand, commercial banks have been pressed to "more lending" by loose monetary policy, on the other they have to cope with new and more prudent regulation and macroprudential policy. Whatever measure that affects the price and/or availability of banking loans must be regarded as a monetary policy step, even though the label is different.

Therefore, the strand of research focused on leaning-against-the-wind monetary policy seems to be very promising to address the shortcomings of present state-of-art. Permanent swings in financial booms and busts hitting the real economy afterwards support to the case for leaning. As for real economy, easy monetary policy cannot clean up the mess after financial crisis – as Borio (2016) states: easy monetary policy cannot and in fact it should not – bring idle cranes back to life when there is an oversupply of buildings". Loose monetary policy not only contributes to costly financial booms and busts, but also creates a kind of vicious circle, when low rates in the past can then be seen as one reason for even lower rates today. New kinds of financial imbalances are created even before the "mess is cleaned".

Financial stability-oriented monetary policy applied over the whole financial cycle seems promising way to go ahead. The challenge is how to measure emerging financial instability in the period when price stability seems preserved or even threatened by low core inflation measured by standard ways of price developments of standard goods and services included in HICP, i.e. how to measure the financial cycle for monetary policy guidance. First experiments in this respect indicate that measures of unsustainability of indebtedness are meaningful. The experiment on US data indicates that implementation of such a systematic leaning strategy may result in significant output gains in the longer-term perspective. At the same time, the

experiments made by BIS suggest that the earlier the policy is implemented, the larger are the gains.

Couple of years of extra-loose monetary policy including non-standard measures is raising concerns about the potential easing bias in current monetary policy frameworks. Monetary policy which takes financial developments into account at all times would mitigate the financial cycle which would translate into output gains in the long run. Such a policy would also address the inconsistency between the two mandates of central banks which makes the transmission mechanism of monetary policy in dubious position.

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APPROACHES TO THEORETICAL ISSUES OF COMPETITION AND COMPETITIVENESS ANALYSIS

Mária Tokárová

Abstract

Market plays a key role in the allocation of resources and the distribution of impacts within the processes of interaction of individual economic entities. The market is the meeting place of supply and demand. The supply side consists of sovereign producers whose product, as a result of the selected combinations of the factors of production, tries to win the interest of demand under the conditions of competition with other competing producers. The demand side is represented by consumers with differing behaviour. There is a relatively large number of decision alternatives and product selections. Consumers can behave rationally as well as irrationally. These facts influence the market and the competition. The competition benefits consumers in case they behave rationally and have information, which enables them to choose from the offered products. These issues include traditional as well as new approaches, that will be outlined in this paper. These are mainly related to behavioural economics, which, in the analysis of economic processes and their behaviour, is based on psychological knowledge. This is also important in the field of competition as it defines how behavioural economics and deviations from rational behaviour influence the behaviour of consumers.

Keywords: market, competition, traditional and new approaches, behavioural economics

JEL Classification: L2, L23

Introduction

Competition and its protection is based on the fact that it has to be beneficial, effective, and also benefit consumers in cases when they behave rationally and have information enabling them to choose from the offered goods. A market with functioning competition benefits consumers by forcing companies to offer a wide range of products. If the consumers behave rationally, it also helps the competition. The task of competition is different in a situation, when consumers behave irrationally, i.e. in cases, when not enough attention is being paid to information and when firms cannot benefit from the information they provided. Therefore, it is needed to know the behaviour of firms, as well as of consumers. The aim of this paper is to deal with the already known approaches to the behaviour of firms and consumers, which we view as traditional, as well as new approaches based on knowledge in the field of behavioural economics that are connected with competition.

1. BASIC THEORETICAL BACKGROUNG

In his paper marking the 100th anniversary of founding The Economic Journal, J. A. Kay noted wittily and realistically at the same time that one of the most characteristic standpoints of managers and entrepreneurs towards economics and economic research is the statement that economics is only an attempt to forecast the future economic development while having insufficient knowledge about the development in the present (Kay, 1991). And indeed, almost 240 years after Smith's "Wealth of Nations" was published as the basic philosophy of liberal market economy of private ownership, it seems that the conflict between implementing

Marshall's representative (average) firms, consumers and markets into the model of economic equilibrium, which is being related bilaterally to the scale of factors and indicators of macroeconomic dynamics, and between the differentiated reality of daily specific business and the boom of a specific market is very large and complicated. The phenomenon of "averageness" of the neoclassical marginal analysis proved to be invalid in practice even before it was defined in exact mathematical terms. However, is it then possible, using the traditional apparatus of analysing demand, supply, average costs and revenues within the logic of Pareto- or *quasi* Pareto-optimality, to analyse the dynamics of microsphere with the awareness (and conviction) of the correctness of a certain degree of competition in economy as a guarantee of efficiency, optimal allocation and distributive fairness? Are not our ambitions, specified in the formulation of the intentional policy of supporting and protecting the competitive environment in economy with regard to the desirable state of the overall performance and growth of the national economy, unrealistic? If we maintain our positive approach to these ambitions, we have to (and this is an ever-recurring task) define at least the framework conditions for assessing the state of competition. These basic characteristics, dominating the traditional approach, are outlined in the following text.

1.1 Characteristics of the traditional starting points influencing market generation

Albeit trivial, it is always worth repeating: the market plays a key role in resource allocation and income distribution in the processes of interaction of the individual economic entities. It is a place where demand and supply meet and where the market price as the basic information for all types and hierarchies of these entities is created. The supply side is created by sovereign producers, whose product as the outcome of a combination of production factors chosen by them tries to win the interest of the demand under the circumstances of competition with other competing producers. If we tried to formulate the production function of producers (supply side) while strictly adhering to the conditions of the neoclassical marginal analysis in the best way possible, we could do so using Hicks' multi-product and multi-factor firm.

This model is characterised by a production function, based on the following assumptions:

- the firm is not limited by the usability of the production factors, i.e. it can freely transform them to produce an almost infinite group of products,
- the production function is continuous (with first and second order partial derivatives other than zero) and assigns a combination of independent factor variables to combinations of independent production variables,
- the initial character of production function is determined by the existing technical conditions of the firm, implemented by its engineers and technicians,
- the firm's production function is characterised by a descending marginal rate of technical distribution between any two production factors, a descending marginal product and an increasing marginal rate of product transformation between any two products,
- all production factors and products of the firm are perfectly divisible,
- parameters determining the firm's production function are not variable during a typical production period of the firm (in unified form – day, month, year, etc.).
- parameters of the firm's production function cannot take on the character of random variables (Hicks, 1939).

Of course, defining the general shape of the production function is not sufficient to provide an overall characterisation of the firm's behaviour. Most importantly, the decision-making processes of the firm (or its managers) require a minimum of three different types of information:

– information on production methods,

– information on the supply of production factors,
– information on the character of demand for the manufactured products.

Under the circumstances of the neoclassical marginal analysis, the information on the demand for the products usually occurs in two basic forms. The firms either know prices of all products (here, it is assumed that they are constant), or they know the function of their total revenues. In the case of perfect competition, it is assumed that the prices of all products of the firm are constant and independent of the level of their output (quantity of products). In a different case, it can be assumed that the firm knows the function of its total revenues, i.e. the relation between the total revenue and quantity of individual products. All types of information are based on a certain degree and character of knowledge about the demand for given products. Theories of demand are general theories on the character of the relationship between the purchased quantities of products and a given level of their prices. Until now, three basic concepts of demand analyses have been defined:

1. demand analysis based on the utility theory (assuming that there is a continuous utility function of the cardinal type),
2. demand analysis based on the assumption of perfect indifference curves,
3. demand analysis with the assumption of unstable preference.

The basic starting points of the first two concepts of demand analysis are well known. The third concept is relatively younger (Samuelson, 1948; Houthakker, 1950; Hicks, 1956). The advantage of this more realistic approach is abandoning the requirement of a perfect knowledge and clarity of indifference curves on the part of the consumer. Here, an *ex post* understanding of the consumers' behaviour is dominant, while it is assumed that there is a relatively large number of decision-making alternatives and consumer's choices in the given static market situation, and that none of them is definitively the most preferred. Hicks' version of the demand theory is based on the following conditions:

- the consumer is confronted with a finite range of products, while their prices are constant and known,
- when purchasing different products, the consumer is limited by a fixed income,
- the consumer behaves according to the scale of preference,
- the order in the scale of preference is of a continual character,
- the consumer always prefers the opportunity to choose from a greater number of products rather than a smaller one,
- the scale of preference of a certain consumer is independent of the scales of preference of all other consumers,
- the model is of a static character and assumes perfect knowledge (Hicks, 1956).

Hicks' demand model is also defined based on these conditions, assuming continual preferences, and is characterised by a demand function with a negative slope. Hicks also defined the assumption that, while analysing demand, an exception, or invalidity of the classical demand rule is permissible (consumption grows if price is decreases, while other circumstances do not change), if three conditions are fulfilled:

1. the product has to have a character of inferior goods with a significant negative income elasticity of demand for it,
2. substitution effects are negligible,
3. the share of income spent on the consumption of this inferior good is significantly large.

The last mentioned exception from the classical assumptions is rather significant for the overall innovation of approach to the analysis of links between defining demand for a certain product as the sum of quantities of the product demanded by individual consumers at the given price,

and the knowledge, or use of information on demand defined in this way in the decision-making practice of firms. Of course, such an exception was originally defined earlier, in one of the papers of E. E. Slutsky from the beginning of the 20th century (Slutsky, 1915).

The decision of consumers and their impact on the character of the demand function are only one side of the demand analysis under the conditions of static equilibrium. The other side, which is even more relevant for us, is the degree of knowledge of the demand function on the part of the firms and the character of its utilisation. From this viewpoint, the models of market demand are most often classified on the basis of the following approaches:

1. importance of the specific individual firm for the overall market,
2. homogeneity of products sold in partial markets,
3. demand elasticity.

While analysing these approaches, traditionally, four types or models of market demand are defined – perfect competition, absolute monopoly, monopolistic competition, duopoly, and oligopoly (Tokárová, 2008). With respect to the aim of this paper, we shall not deal with the types in more detail. In the following part, we will point out new approaches connected with the behaviour of consumers, as well as competition policy.

2. NEW THEORETICAL APPROACHES CONNECTED WITH COMPETITIVENESS AND COMPETITION

New approaches connected to the behaviour of consumers are based on behavioural economics. It is a trend that makes use of psychological knowledge in the analyses of economic processes and behaviour of economic entities. Behavioural economics can also be described as a movement that tries to cope with the criticism of the economic concept of an independent individual thinking in a rational way exclusively, the so called *homo economicus*, who makes decisions based on good knowledge and sufficient information, in a rational way and always for their own benefit (Zháňalová, 2011). In reality, this is not the case. In fact, the actual behaviour of consumers diverges from rational behaviour. This also influences competition and the market. In the market, there needs to be efficient competition benefiting the competitors. It forces firms to offer a wide range of goods. Then, the consumers have a greater choice, whether they behave rationally or irrationally. If they behave rationally, competition benefits from it as well.

A different situation happens, when the consumer behaves irrationally. These are cases, when the consumer does not pay enough attention to information; in this case, firms cannot benefit from the information they provide. Thus, the competition does not benefit the consumer, leaving aside their rational behaviour. From the viewpoint of the consumer, this concerns demand for goods that they otherwise would not want. This is because competition meets demand of the consumer for goods they want rather than those, which would not be purchased in accordance with rational behaviour.

It can be stated that competition and its protection benefit the consumers in case they behave rationally, and have information enabling them to choose from the offered goods.

Thus, a question arises, whether the assumptions connected with the positive effect of competition for the consumer are not limited by rational or irrational behaviour of entities (Zháňalová, 2011).

At present, competition policy follows a Europe-wide trend, i.e. a formal assessment of competition cases is being exchanged for the so called economic approach. In the United States, economic trends have been emphasised for some time already. Therefore, the principal

competition institution in the United States, the Federal Trade Commission (hereinafter referred to as "FTC"), has been paying a great attention to behavioural economics. It was especially commissioner (until 2012) J. T. Rosch who, in his study (2010), described the relationship between behavioural economics and competition. This relationship is based on the principles of the Chicago school, more specifically the following:

- the seller and the buyer behave rationally, i.e. the seller tries to maximise their profit and the buyer tries to maximise their benefits of purchase,
- imperfect market corrects by itself and does so quickly,
- a rationally thinking seller can find out when predatory conduct is in conflict with their personal interests.

Also today, several economists confirm that entities do not behave rationally in the market. Theories of the already mentioned Chicago school have been valid and recognised for over forty years. However, it cannot be assumed that the seller and the buyer, as well as other entities in the market, always behave rationally in accordance with maximising profit. Some economists even believe that there are certain "predictably irrational patterns", according to which people behave when, for instance, in situations of risk assessment, the possibilities of success are often overrated and possibilities of failure are often underrated.

As far as irrationality on the side of the seller is concerned, the situation is more complex. It is known that the Chicago school is based on the opinion that sellers always behave rationally, because their aim is to maximise profit under the conditions of perfect knowledge and information about the market. Undertakings that do not behave rationally will be pushed out of the market by undertakings that do behave rationally. However, this theory does not reflect the fact that undertakings are composed of individuals. Moreover, it should also take into account knowledge from other disciplines, such as sociology and psychology, and consider the rationality of individuals, i.e. the facts that motivate their behaviour. Thus, the human being behaves within a limited rationality, which is different for every individual (Zháňalová, 2011).

The already-mentioned J. T. Rosch (2010) describes knowledge that should be taken into account in the field of competition. Most importantly, this is the fact that markets are asymmetric, as far as information is concerned. This means that not all buyers have the same information, and this applies the sellers as well. As far as available information is concerned, the supply side and the demand side are also different. Thus, in some cases, irrational behaviour can be a result of information asymmetry. Some sellers prefer a short-term rather than a long-term profit, so their behaviour does not take into account the future situation. Lastly, human beings have a tendency to become the so called *status quo* buyers, i.e. they purchase products and services that they know and they do not change their customs (Rosch, 2010; Zháňalová, 2011).

Advocates of the knowledge of behavioural economics include also the former FTC commissioner W. E: Kovacic. For some time already, he has been emphasising the importance of application of a more intensive empirical procedure in the field of competition. He claims that investments in knowledge mean a long-term benefit and "help ensure that the [competition] agency stays abreast of important developments in economic theory, empirical study, and legal analysis." Thanks to this, the competition agencies can face challenges in the form of "complex and demanding matters" (Kovacic, 2009). Empirical sciences and especially behavioural economics help these agencies better understand the dynamic market environment and also how legal and informal norms influence the norms of behaviour of individuals and the competition as a whole.

Conclusions

Market plays a key role in the resource allocation and income distribution. It is the place where supply and demand meet. The supply side is created by sovereign producers, whose product as the outcome of a combination of production factors chosen by them tries to win the interest of the demand under the circumstances of competition with other competing producers. These facts are connected with competition that is supposed to have an effect for the consumer. Knowledge of the behaviour of both producers and consumers is inevitable. In this paper, we deal with the known approaches to these issues (Hicks, 1939; Houthhaker, 1959; Samuelson, 1948; Slutsky, 1952), as well as new ones. We mention behavioural economics and using psychological knowledge, as well as how this scientific discipline and, more importantly, deviaton from rational behaviour influence the decision-making of economic entities in the market (Kahneman, Tversky, 1979). This knowledge can contribute to a new understanding of competition policy and effective competition.

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RELATIONS EMPLOYMENT AND HOUSING. EMPIRICAL STUDIES ON EXAMPLES SLOVAK REPUBLIC

Jarmila Vidová

Abstract

The European Union is founded on the concept of social market economy. Full employment, social progress, social inclusion, social protection, solidarity and social cohesion are priority objectives of economy growth. High level of employment, adequate social protection and fight against social exclusion is employment policy objectives and create conditions for a balance between labour supply and labour demand. The issue that is currently significant, unemployment and particularly of young people unemployment, which is also related to housing policy. In each country, the State faces problems related to housing policy, and it must take measures to ensure housing to socially weaker groups. At present, the Slovak state focuses more on supporting home ownership, which is reducing the flexibility of mobility for residents. It is therefore necessary for the state to create conditions for decent housing through rental housing, which is in Slovakia compared to other countries under-supported and prevents population to migrate for a work. The paper explores the relationship between home ownership, employment and workforce mobility in the Slovak Republic.

Keywords: housing, housing policy guidelines unemployment, labour market, migration

JEL Classification: O18, P25, R21, R31, Q42

Introduction

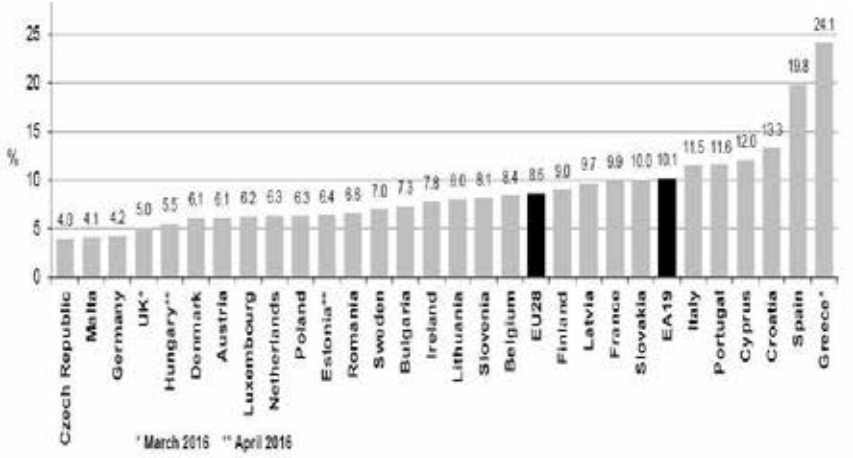
One of the main objectives included in the Europe 2020 Strategy is to achieve, by the end of the decade, work for 75% of the economically active population (aged 20-64 years). To assist in achieving this objective, the EU adopted a number of initiatives to encourage the creation of jobs and restore the dynamics of labour markets. The EU is working in particular to reduce youth unemployment, which is two times higher than the adult unemployment rate. It supports more focused and more integrated approach to the fight against youth unemployment. Being examined in this paper is the hypothesis that in the Slovak Republic has ownership of a property impact on employment and workforce mobility.

1. ECONOMIC REALITIES AND THEORETICAL RESOURCES

Within the European Union (EU), the unemployment rate in May 2016 reached 8.6% jobless total of 21.084 million men and women. Across the EU, the jobless are 4.197 million young people under 25 years of which 2.885 million are in the euro area. In the annual comparison, the number of young unemployed in May 2016 fell across the EU by 503,000 and in the euro area about the 270,000. Unemployment rate in this age group in May 2016 fell to 18.6% from 20.6% in May 2015 and in the euro area to 20.7% from 22.4%. The lowest youth unemployment was in May 2016 in Malta (6.9%), Germany (7.2%) and the Czech Republic (10.1%) and the highest in Greece (50.4% in March 2016), Spain (43 9%), Italy (36.9%) and Croatia (31.4% in the 1st quarter of 2016). The condition is caused by the fact that in countries with higher unemployment is also due to incorrect setting housing policy reduced mobility for work. Unemployment caused the 124.5 million of residents (24.8%) are at risk of poverty or social

exclusion. Moreover, around 10% of Europeans in working age and almost 40% aged 25-35 years, living in crowded households, as they are not able to arrange their own housing. The rate of overcrowding of dwellings expresses the proportion of people living in a crowded dwelling, which is defined based on the number of rooms in the household, household size and the age of its members and their family situation. In Slovakia, more than 50% of the population live in overcrowded homes, while the EU average is 17.6%. (Holková V., et al., 2013, p. 141) The economic crisis has undoubtedly worsened the situation and in the 21st century is clearly unacceptable. Therefore, one of the main objectives of the Europe 2020Strategy by the end of this decade to get out of poverty, at least 20 million people.

Figure 1 – Unemployment rates in EU



Source: Eurostat

The problem, which is also subject of this review, employment, housing and workforce mobility, are not addressed in the Slovak research enough attention. Workforce mobility of labor is one of the factors that positively affect the balance at the labour market, employment and thus on economic growth. Milton Friedman in his speech (1968) at the American Economic Association, communicated that the natural rate of unemployment depends on the degree of labor mobility in the economy.

Relationships of unemployment and mobility dealt Professor Oswald (1996), who observed that the unemployment rate rose most rapidly in countries with the fastest growth in home ownership, which concludes on the basis of five mutual relations. First, there is a direct effect from home ownership. Selling a home and moving is expensive. For this reason, indeed, many home owners who lose their jobs are willing to commute long distances to find work. Hence owner occupiers are less mobile than renters, and therefore more vulnerable to economic downturns in their region. Nevertheless, this probably cannot be the whole story. If we look at countries like Spain and the UK, a key part of the problem is young unemployed people living at home, unable to move out because the rental sector hardly exists. Therefore, second, part of the difficulty is not that unemployed people are themselves the home owners; it is that unemployed men and women cannot move into the right places. High home ownership levels block young people's ability to enter an area to find a job. Those without capital to buy are at a particular disadvantage in a world where ownership is the dominant form of housing tenure.

Third, in an economy in which people are immobile, workers do jobs for which they are not ideally suited. This inefficiency is harmful to everyone: it raises costs of production and lowers real incomes in a country. Prices thus have to be higher, and real wages lower, than in a more mobile society. Jobs get destroyed or more precisely priced out of existence by such inefficiencies. Fourth, areas with high home ownership levels may act to deter entrepreneurs from setting up new operations. Planning laws and restrictions on land development, enforced by the local political power of groups of home owners, may discourage business start-ups. Fifth, we know from survey data that home owners commute much more than renters, and over longer distances, and this may lead to transport congestion that makes getting to work more costly and difficult for everyone. Technically speaking, this acts like higher unemployment benefits, because it reduces the gain from having a job. If getting to work is more expensive, that has the same net effect as raising the attractiveness of not working. (Oswald, 1996, pp. 4).

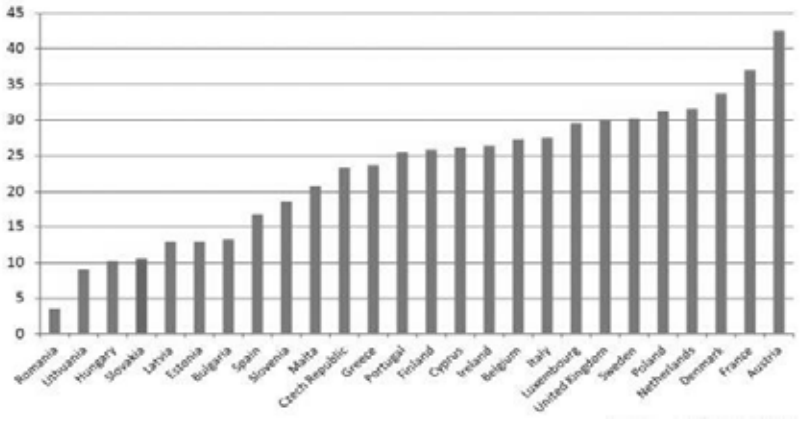
Schiller deals by Investment in housing, considers housing as terrible investment. (Schiller, 2013) For most people, represents the purchase of residential property only and most often a single investment. Residential property is for the individual and for the whole economy unproductive investment. Residential real estate is not without risk and does not bring any extra return. It does not create jobs, absorbs investment capital and in terms of real estate bubble is dangerous. Blanchflower and Oswald in his work confirmed that home ownership distorts the labor market and lower levels of mobility. (Blanchflower, A., Oswald, J. A., 2013, pp. 2).

2. AVAILABILITY OF HOUSING IN THE SLOVAK REPUBLIC IN THE EUROPEAN UNION

Slovakia is among the post-communist EU states one of the most powerful economies. The GDP per capita in Slovakia is ranked third and in labour productivity at the first place. Thus, we are not a poor country such that we could not afford better housing. In terms of the housing structure we have 95 % of people living in their own properties, while in Germany and Austria is 50 %. At first glance it looks as positive, but compared with other countries in Slovakia housing is hardly available. Looking at the situation regarding the ownership and rental market, dominated by owner-occupied housing in Slovakia and to its 95-percent share so the share of rental apartments in Slovakia compared to the state of the European Union is a several times lower (Figure 2).

The difference in the availability of the housing between the Slovak Republic and other countries in the different preferences of people and different housing policy. Preferred form of housing of young people in developed countries is rental housing. For young graduates without children and own savings is own dwelling not appropriate form. Not everyone immediately upon entering the labor market can afford a mortgage and not everyone needs to immediately settle permanently. Moving from one apartment to another is difficult with the mortgage. For example, in countries such as Austria and Germany, the state supports the construction of affordable rental housing. In Slovakia, by contrast, rental housing is very low, and therefore young people has to live with parents. (Figure 3)

Figure 2 – The share of the population living within the rented accommodation in the EU



Source: Eurostat

Population age group 25-39 year will be in the coming years gradually reduced as a result of entering the smaller younger age groups of men and women in this age category. Due to the accumulated deficit in meeting the housing needs will be that problem for several years still actual.

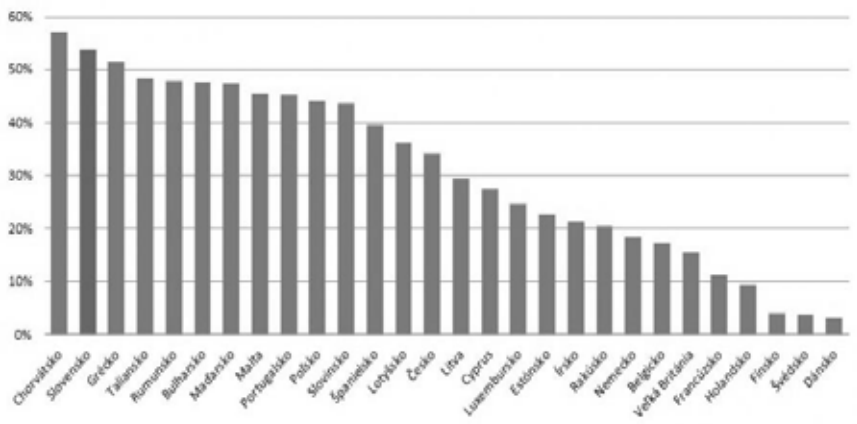
Table 1 – Slovak population forecast in group of 25-39 year

Year	The population		Percentage
	Total	25 – 39 year	
2011	5 397 036	1 326 988	24,6
2012	5 415 634	1 332 257	24,6
2013	5 426 639	1 328 075	24,5
2014	5 437 434	1 316 688	24,2
2015	5 448 310	1 305 569	24,0
2016	5 459 449	1 291 466	23,7
2017	5 470 804	1 273 899	23,3
2018	5 481 917	1 255 225	22,9
2019	5 492 678	1 229 649	22,4
2020	5 503 107	1 204 054	21,9

Source**:** Sika, P., 2013

Slovakia is a total acute housing shortage. Per 1000 inhabitants in our country accounts for only 339 flats, which ranks the penultimate place in the European Union. The availability of housing and overtake us much poorer countries, such as Romania and Bulgaria. The reason for the bad situation in the housing market is not comfort of the young nor bad economic situation in the country, but the shortcomings of state housing policy and the specifics of Slovak market resulting from unilateral preferences of the population. Our policy of housing support is unfair, inefficient, and in Europe have been blown away. In Slovakia, barely they do not build affordable rental housing.

Figure 3 – The share of people residing with their parents in Slovakia (25 to 39 year)



Source: Eurostat

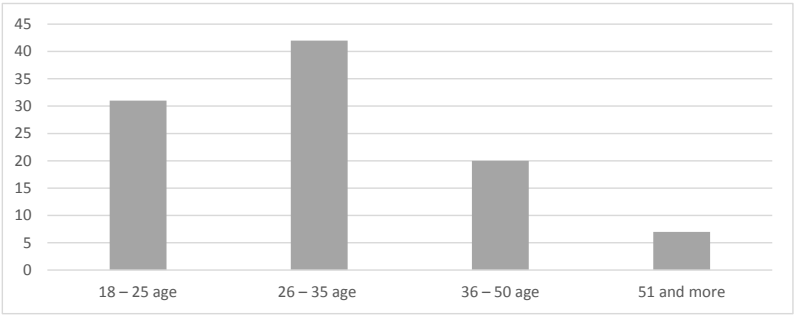
3. EMPIRICAL SURVEY AND ANALYSIS

In order to achieve the objectives of the research, we asked ourselves two basic research questions. Research question 1: They give respondents prefer to rent or own housing? Research question 2: What reasons prevent the respondent to move for work, respectively what it would convince them to relocate? Questionnaire survey was attended by 350 respondents from the whole territory of the Slovak Republic, of which 62% women and 38% men. Respondents ranged in age from 18 years to 51 years or more. In the age range at 18 to 25 years was only 7% of respondents in the age range of 26-35 years was 43% of respondents in the age range 36-50 years, 42% of the total number of respondents in the age range of 51 years and more was 8% respondents.

Most respondents attained tertiary education and 64% secondary education had 36% of respondents. Free, 50% of respondents, 41% of respondents were married / married, divorced respondents were 8% and 1% were widow / widower.

Of the respondents were employed on a permanent basis is 91.5% and 4.3% of respondents were unemployed. All unemployed in the survey responded that they would be willing to move for work in the event of getting a job. Being unemployed is causing serious financial problems that respondents are willing to solve by moving for work. It is more advantageous to move and thus get regular financial income as to stay in their homes, but have no job. If people are out of work they are getting into difficult situations. 83% of respondents living in an apartment respectively house owned and only 17% of respondents is not live in their own homes, respectively house. Invest in their own housing is convenient for respondents in terms of favourable market with low interest rates. Amount of rent and monthly payment mortgage financing is in many cases financially balanced, and therefore the respondents prefer to make decisions for financing their own property rather to pay rent.

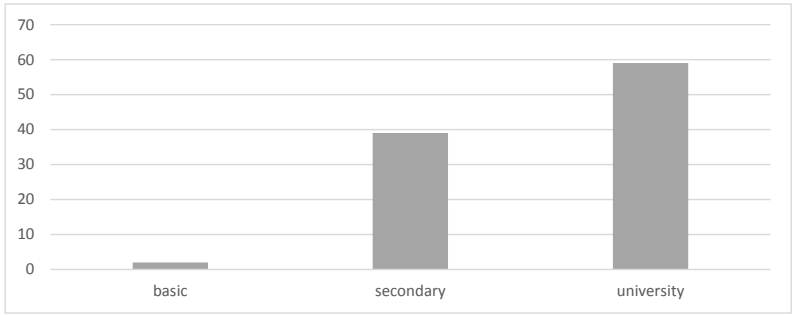
Figure 4 - The number of respondents willing to move for work by age



Source: custom processing - the results of empirical research

As part of the research we examined whether respondents are willing to relocate for work. Empirical research shows that 48% of respondents surveyed would be willing to relocate for work, 25% not willing and 27% not decided. Willing to move for work are more men than women. Up to 83.33% of the respondents with secondary education will not move for new job. Respondents with higher education are more mobile compared to respondents with lower educational attainment and are willing to move away from their permanent residence. 38% of the respondents in the age range of 26-35 years is willing to move for a job in another city. People in the age range of 36-50 years are not willing to move. The reason to stay is a family and the high cost of additional housing. Up to 36.58% of married respondents replied that they would not be willing to move to work.

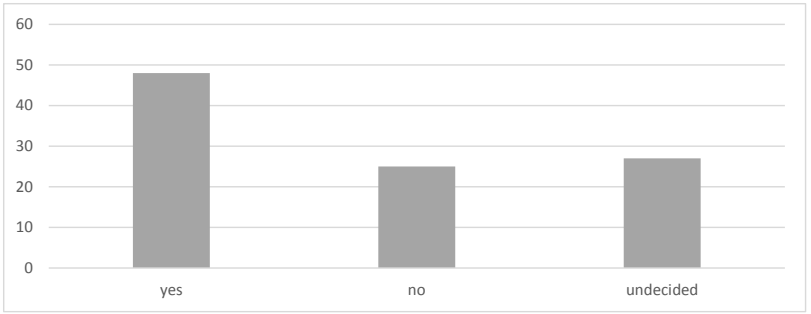
Figure 5 - The number of respondents willing to move for work by education



Source: custom processing - the results of empirical research

Respondents who have moved in our research to work in another city, make up 39.76% of respondents lives in an apartment or house owned. It follows that the respondents obtained housing after moving, but at the same time 60% of these respondents said that they will never move again to have work. Real estate ownership plays important role because it is tied to the place where their property is located. Housing is in this case the burden that limits respondents to seek job opportunities only in the area, where they have their own housing. Moving is the problem, because they have dilemma what to do with their housing. They should sell a real estate in current location and the look for new housing.

Figure 5 - Respondents' willingness to move for work



Source: custom processing - the results of empirical research

Furthermore, we investigated what reasons would persuade the respondents to move for work. Respondents could choose more than one answer at a time, which showed us that their decision making is influenced by several factors. Top preferential a better salary 64%, the possibility of working 54%, 15% better community and cultural opportunities. 68% of respondents prevents to move high cost of the new housing. 40% of respondents were dissatisfied with their current housing and almost 50% of respondents would be in the future, preferring rental housing. The reason is the increasing Endurance limit. It confirmed the second research question.

The problem of housing is not easy. As we found out, it's a problem that affects all ages, with different levels of education and economic activity. The empirical analysis confirmed the research question 1 that the people would welcome the opportunity to live in rented accommodation. Not everyone is interested to live in their own homes and be long term debt.

Conclusion

On this research, we confirmed the hypothesis that the ownership of the property has a large impact on employment and is the particular burdens which hinder the mobility of the population to work. The housing market contributes significantly to the gross domestic product. Acquisition of residential property has an effect on the amount of household expenditures. In Slovakia, expenditure on housing are the largest item, reflecting the orientation of housing policy for owner-occupied housing.

After twenty years of support mainly home ownership is greatly indebted Slovak households. While there is support for such investments through a substantial and multi-support systems, but rising real estate prices since 2004 have increased property prices in Bratislava from € 900 / m^2 to € 1,750 / m^2 in 2016. Interest rates in 2004 were on average of 5% while in 2016 is at 1.99%. However, starting to increase, as well as house prices. At present, the volume of housing loans is more than 20 billion € round 25 % of GDP. Another problem is the indebtedness of the retirees who gets possession of the property, but they are unable to pay the costs of its use and therefore use different loans and often become victims of foreclosures. Therefore, as residents in the age group 25-39 years, as well as the age group older than 60 years need to help solve the housing problem. Rental apartments could be a solution of the problem for young people who cannot afford their own housing, and so in adulthood more and more of them staying with their parents. Up to a one third of people in the Slovak Republic aged 31 to 35 years lives with their parents. This trend fraught with falling birth rates. For comparison: in 1950 in Slovakia,

one woman gave birth to an average of 3.5 child. After 1989, this proportion dropped to the current average of 1.4 infant. In a few years in the domestic economy will not be enough workers paying contributions to the pensions of today's pensioners. Therefore, it needs to think more on the correlation between the investment - savings - consumption and implement changes into economic policies that do not distort the housing market and will promote of domestic consumption. Currently in Slovakia there is a real risk of real estate bubbles, but it is not taken seriously yet.

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MACROECONOMIC CONVERGENCE OF THE CZECH ECONOMY – EFFECTS OF CNB'S EXCHANGE RATE COMMITMENT

Dana Viktorová, Jan Vlček[1]

Abstract

Authors are analyzing actual stage of the real and nominal convergence process of the Czech Republic and their mutual relationship in recent years affected by the world financial crisis. As fiscal policy through its structural effects can indirectly influence the real convergence process, and monetary policy is not able to boost economic activity and thus the convergence in the long run, the aim is to evaluate qualitatively contributions of fiscal and monetary policy, including asymmetric exchange rate commitment, to the renewal of real and nominal convergence in the Czech Republic. Analyzing the convergence process authors use a comparison with developments prior to the world financial crisis and also a comparison with the Visegrad group countries as they share similar key structural characteristics. The comparison of countries allows to quantitatively evaluate the contribution of macroeconomic policies, including the CNB's exchange rate commitment, to the renewal of the real convergence process.

Keywords: real convergence, nominal convergence, fiscal stimulus, monetary conditions, real exchange rate appreciation

JEL Classification: O11, E62, E31

MOTIVATION AND RESEARCH OBJECTIVE

Given a relatively good starting position (macroeconomic stability, a low external debt, and strong manufacturing and industrial production), it was assumed the transformation of the Czech economy would end up with a fast economic convergence towards advanced countries. This was supported by economic developments in the first half of the 90´s, as the economic slowdown was not as deep and drastic as in other countries going through the similar transformation process. However, further macroeconomic development was not so optimistic. In 1995 – 2015, i.e. 20 years, the Czech economy caught up with Germany by only 10 percent measured by GDP per capita in purchasing power parity (PPP), Figure 1. Hence, the average real convergence reached 0.5 percent annually in last 20 years. Given the GDP per capita about 68 percent compared to Germany, it would take next 64 years to catch up, assuming the same average speed of the convergence.

Real convergence in the long-run is driven by structural characteristics of the economy. Education, mobility and quality of labor force, and productivity as well as the level of investment are among the key factors determining the real convergence. Similarly, fiscal policy through its structural effects can indirectly influence the real convergence process. On the contrary, monetary policy is not able to boost economic activity and thus the convergence in the long run. Monetary policy is neutral in the long run with respect to the real economic activity.

[1] The views expressed here are those of the authors and do not necessarily represent the views of the institutions for which authors work. In particular, the views might not match the official position of the Czech National Bank and the CNB's Board.

However, the speed of convergence is driven by business cycle dynamics in the short and the medium term. The economic growth has to exceed the growth in advanced countries to deliver any convergence. Monetary and fiscal policy, in fact any macroeconomic policy which seeks to smooth business cycle, help also to stabilize a real growth at the equilibrium level given by country fundamentals, thus promoting the real convergence. On the contrary, recessions recorded in the Czech economy in 1997—1999, 2001—2002, 2008, and 2012—2013 slowed the real convergence process.[2]

Nominal convergence, i.e. convergence in price levels, is closely related to the real convergence. Advanced countries experience a higher price level compared to less advanced (in economic terms) countries. This is so called Penn effect. In fact, real convergence should imply the nominal convergence which is mirrored either in a nominal exchange rate appreciation or in a higher domestic inflation.

The objective of our work is to analyze the actual stage of the real and nominal convergence process of the Czech Republic and their mutual relationship in recent years affected by the world financial crisis. Our work does not analyze factors determining real and nominal convergence. On the contrary, we seek to evaluate qualitatively contributions of fiscal and monetary policy to the renewal of real and nominal convergence in the Czech Republic. Doing so, we are aware of the long term neutrality of the monetary policy. However, if the fiscal and monetary policy, including asymmetric exchange rate commitment, helped to renew real economic growth, then they also helped to return the economy to the convergence path given by structural characteristics of the Czech economy. Given the limited extend of this paper, we focus only on the main indicators of real and price convergence.[3]

Analyzing the convergence process of the Czech economy, we use a comparison with developments prior to the world financial crisis and also a comparison with the Visegrad group countries (V4). The Czech Republic (CR), Hungary (HU), Poland (PL), and Slovakia (SK), as V4 countries, share similar key structural characteristics. First, all countries are small open economies with strong trade links with the EU countries. With exception of SK, all countries have its own currency and thus independent monetary policy. The level of economic activity measured by GDP per capita is comparable across the countries and all V4 countries have been converging to the advanced countries. The comparison of countries allows us to quantitatively evaluate the contribution of macroeconomic policies, including the CNB's exchange rate commitment, to the renewal of the real convergence process.

The structure of our work is following. The second part briefly surveys the literature on nominal and real convergence with a special emphasis on research covering the issues of CR convergence. The third part discusses the stage of the convergence in V4 countries and reviews effects of monetary and fiscal policy on the convergence process. The fourth part discusses the price level convergence of V4 countries to the advanced ones. The last part summarizes our findings.

[2] Recessions at the early stage of the transformation process were related to institutional aspects and to the weak and fragile financial and banking system, see Mlčoch et al. (2000).

[3] Detailed summary of convergence indicators and the degree of economic alingment of the Czech Republic with EU countries can be found in CNB's publications: „Assessment of the Fulfilment of the Maastricht Convergence Criteria and the Degree of Economic Alignment of the Czech Republic with the Euro Area". The analyses and indicators in these publications are updated on annual basis. Similarly, the ECB publish „Convergence Report".

BRIEF OVERVIEW OF THE LITERATURE

The real and nominal convergence path of the CR was discussed in many research works, especially at the early stage of the transformation process. Čihák and Holub (2000) analyze the price convergence and emphasize the implications for relative prices. Janáčková (2004) and also Kozel (2004) and Žďárek (2007) discuss the issue of the price convergence which is falling behind the real one. Vintrová (2007) explains this phenomenon by the nominal exchange rate dynamics and tight monetary policy during the early stage of the transformation process in the 90´s.

Čihák and Holub (2001) discuss the relationship between the real and nominal convergence from the theoretical as well as empirical perspective based on available economic indicators. Nachtigal and Tomšík (2007) focus on the main indicators of the convergence as the growth rate of a real GDP and the level of real GDP per capita production, factor productivity, and dynamics of prices and real wages.

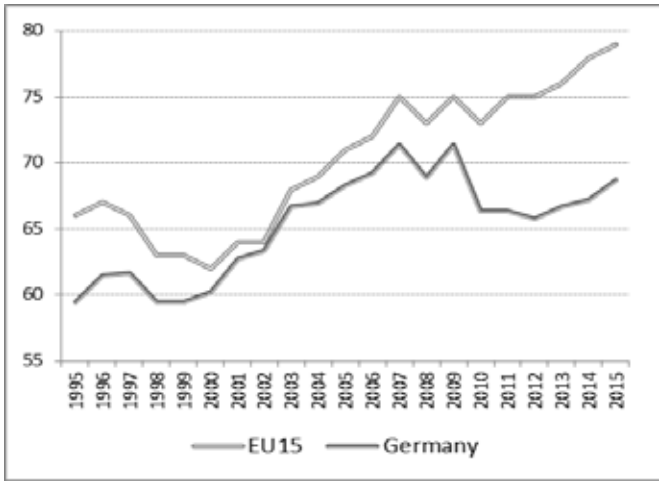
THE CURRENT STAGE OF REAL CONVERGENCE AND ITS DYNAMICS

Following Solow model of economic growth, low income countries, measured by GDP per capita, should converge to more advanced countries. Declining marginal product of capital in this model of economic growth is the main driving factor of the convergence process. Empirical evidence of real convergence, so called beta convergence, can be found in Ghoshray and Khan (2015) and it is described in details also in Aghion and Howitt (2009).

GDP per capita is considered as the basic indicator comparing the stage of economic development of countries and describing the production potential of the economy. This indicator is published in purchasing power parity by the Eurostat and it allows us to compare particular countries within the European Union. For purposes of our analysis we distinguish tree historical periods in our data. The first period starts in 2000 and ends in 2007. It is a period of the fast real growth and low inflation. The next period of 2008—2013 is characterized by the world financial crisis and by the debt crisis in Europe. At the end of 2013 the Czech National Bank (CNB) introduced the asymmetric exchange commitment. Hence, the last period then encompasses remaining years when the exchange rate commitment has been in place, i.e. 2014 and 2015.

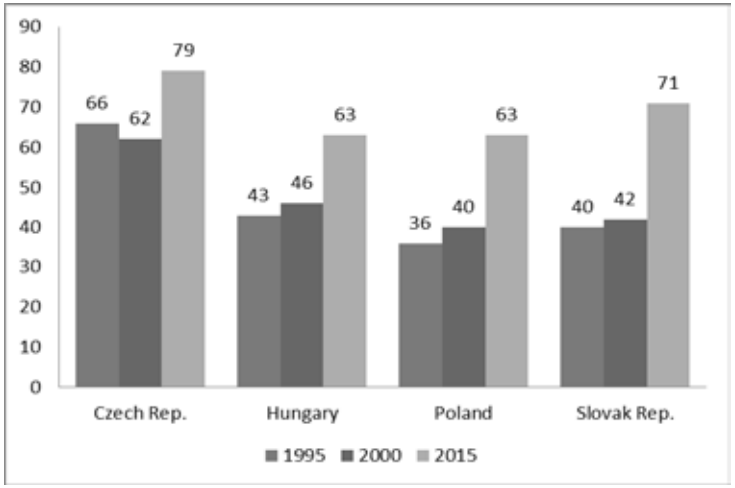
Measured by GDP per capita, the CR reached 79 percent of the EU15 average and 68 percent of Germany in 2015. Remaining V4 countries has remained slightly below the level of the CR as the SK reached 71 percent of the EU15 compared to HU and PL reaching 63 percent. Differences in economic levels of V4 countries are declining once HU, PL, and the SK have caught up with the CR. These countries simply grew faster than the CR, mainly in the last decade. On the contrary to the CR, other V4 countries have been able to keep the pace of the convergence since 1995.

Graph 1 - Real GDP per capita of the Czech Republic relative to the EU15 and Germany (percentage)



Source: Eurostat

Graph 2 - Real GDP per capita in purchasing power parity terms relative to the EU15 average (percentage)



Source: Eurostat

Real convergence stopped and even divergence was observed compared to Germany during the period of the world financial crisis which ended up in the debt crisis in Europe, Table 1. On the

contrary, real convergence continued in other V4 countries. The convergence slowed down, except of PL, but it continued.

Why the other countries continued to converge in 2009—2013 in real terms while the CR stopped its convergence to EU countries?

The break recorded in the convergence process can be driven by structural or cyclical factors. We suppose that factors behind the real convergence slowdown are rather cyclical than structural. We argue in this direction based on several observations. First, the convergence process stopped just temporarily for the period of five years. Second, it stopped during the world financial crisis and later on due to the European debt crisis. Third, there are no significant structural changes observed in the CR which are be able to explain the differences between the Czech Republic and other V4 countries. Finally, we observe the slowdown of the convergence process, but not a stop, in other countries V4 as well, with the only exception of Poland.

Table 1 - Average growth rate of real convergence to the EU15 and Germany, percentage p.a.

	Czech Rep.	Hungary	Poland	Slovak Rep.
EU15				
2000-2007	2.2	2.1	1.7	4.3
2008-2013	0.2	2.1	4.5	2.4
2014-2015	2.0	1.6	1.6	1.4
Germany				
2000-2007	2.3	2.2	1.8	4.4
2008-2013	-1.1	0.7	3.1	1.0
2014-2015	1.5	1.2	1.2	1.0

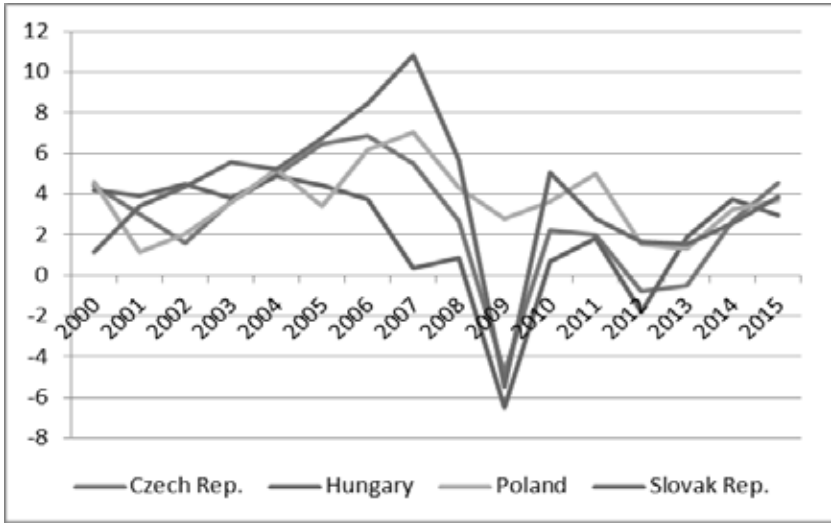
Note: Real convergence is measured by GDP per capita in purchasing power parity.

Source: Eurostat and authors' computations

Similarly to other V4 countries, the CR was not directly hit by the world financial crisis. Only HU faced financial sector issues of the foreign exchange rate loans to households. Other V4 countries were affected by the world financial crisis only indirectly through the decline of foreign demand. Therefore, we observe adverse effects of the world financial crisis in 2008 to 2013 in all the examined countries. Namely, a significant slowdown of real GDP growth or even a decline of the GDP level is observed during the world financial crisis, Graph 3.

Effective foreign demand, asymmetric effects of a shock to the world oil and food prices, domestic demand, sentiment and expectations, and the setting of macroeconomic policies are the cyclical factors which may affect the convergence of the Czech Republic towards advanced countries. Given a similar territorial structure of the foreign trade, we suppose the same effective demand for all other V4 countries. Similarly, effects of world energy and food prices on the external balance of V4 countries should be similar as all countries are net importers of oil. Given the above, the stop of the real convergence in the Czech Republic can be explained only by domestic slowdown and sentiment or by the setting of macroeconomic policies as the other V4 countries have continued to converge. However, robust identification of domestic shocks in the CR would require a construction of a structural macroeconomic model of the Czech economy. This is beyond the scale of this paper. Hence, we will focus only on an assessment of macroeconomic policies, i.e. fiscal and monetary policy, and their comparison across the V4 countries.

Graph 3 - Real GDP growth (percentage)



Source: Eurostat and authors' computations

Fiscal policy

Assessing the contribution of fiscal policy to the real growth, we may apply the setup of fiscal stimulus. However, the quantification of a fiscal stimulus for the V4 countries in the period of our interest cannot be obtained from local government or central banks. If we decide to estimate the fiscal stimulus by ourselves, it would require adjusting deficits by cyclical developments and estimate the fiscal multipliers. Therefore, we do not estimate the stimulus. We approximate fiscal stimulus using the change of cyclically-adjusted deficit on GDP, where the cyclically adjusted deficit on GDP is published by the European Commission.

The fiscal stimulus and cyclically adjusted proficits, as reported in Table 2, show procyclical effects of fiscal policy in the case of the CR and HU. Both cumulative as well as average fiscal stimulus supported the real economic growth in the very first period. On the contrary, fiscal stimulus indicators are negative as affected by the world financial crisis during the second period, and thus suggesting adverse effects to real economic growth. Similar findings are supported by the estimates of cyclically-adjusted deficits. Fiscal policy in the CR and HU generated deficits in 2008—2013. However, these deficits were less negative measured as a share on GDP compared to the first assessed period. There are even proficits recorded in the case of HU. Fiscal policy was supportive for real growth measured by fiscal stimulus as well as by cyclically-adjusted deficits on GDP in the last assessed period.

To sum up, only mildly expansionary fiscal policy was not able to sufficiently attenuate the adverse effects of falling foreign demand in 2008 – 2013 in the CR and HU. At the same time, fiscal stimulus helped to renew the real growth and convergence in 2014—2015.

Fiscal policy was counter-cyclical or acyclical in the entire period of our interest in PL and in the SK. Cyclically adjusted deficits on GDP are more negative during the world financial crisis than in the pre-crisis period. Similarly, cumulative fiscal impulse indicates positive effects of

fiscal policy during the world financial crisis on the real growth in those countries. Average fiscal stimulus is negative but less than in a pre-crisis phase.

Table 2 - Cyclically adjusted proficits on GDP (percentage)

	Czech Rep.	**Hungary**	**Poland**	**Slovak Rep.**
Cumulative fiscal stimulus				
2001-2007	1.1	5.1	-1.0	-3.2
2008-2013	-4.3	-7.1	0.2	0.6
2014-2015	0.3	1.0	-1.1	0.0
Average fiscal stimulus				
2001-2007	0.2	0.7	-0.1	-0.8
2008-2013	-0.7	-1.2	0.0	-0.5
2014-2015	0.2	0.3	-0.6	0.3
Average cyclically adjusted proficit on GDP				
2001-2007	-4.5	-7.6	-3.8	-4.5
2008-2013	-3.6	0.9	-5.7	-5.4
2014-2015	-0.2	-1.5	-2.4	-2.1

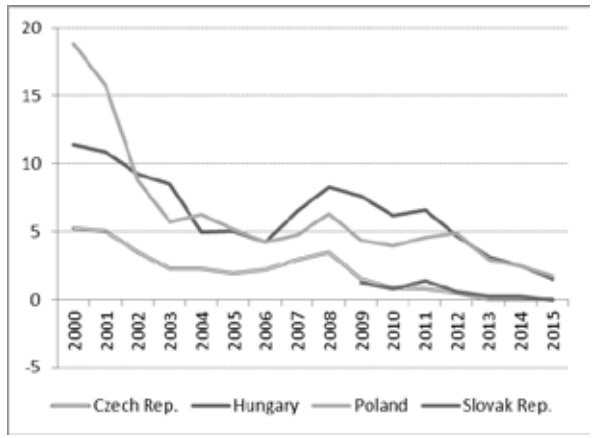
Note: A positive fiscal impulse suggests deeper cyclically adjusted deficit on GDP compared to the previous year and thus it is supportive for the real growth. A positive fiscal stimulus is highlighted by green color. On the contrary, a negative fiscal stimulus indicates adverse effects on real economic growth as the cyclically adjusted deficit on GDP declined. Negative fiscal impulse is highlighted in red. The negative sign detects deficit, the positive sign is proficit.

Source: European Commission and authors' computations

Monetary policy

Central banks of the V4 countries gradually cut down their policy interest rates from the very beginning of the world financial crisis, Graph 4. The CNB cut the 2-weeks repo rate to technical zero already at the end of 2012. Similarly, interest rates declined in the SK, as the country is a Eurozone member and the ECB cut the repo rate to zero at the end of 2012. On the contrary, HU and PL cut down their policy rates only gradually and even in 2015 they did not reach the zero bound. These two countries did not fight with the risk of deflation as the CR.

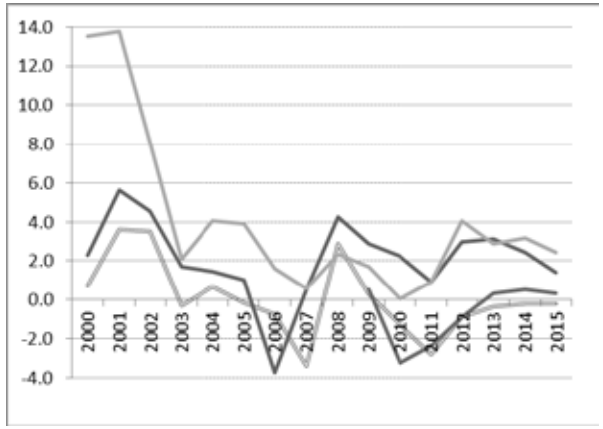
Graph 4 - Nominal interest rates (percentage p.a.)



Note: CR – 2T repo rate, HU – 3M interbank rate, PL – 3M interbank rate, SK – ECB's repo rate.

Source: Central banks of the countries

Graph 5 - Real interest rates (percentage p.a.)



Note: Real rates computed using Fisher equation where the expected inflation is replaced by the actual next year

Source: authors' computations

Effects of monetary policy on the real economy can be described by the index of real monetary conditions (RMCI – Real monetary condition index). The index consists of two parts for a small open economy. First, the real interest rate, respective the real interest rate gap, captures the effects of the monetary policy on intertemporal substitutions. The second part, the real exchange rate gap characterizes the effects of the monetary policy on substitution between domestic and

foreign goods. This substitution is affected by the relative price, i.e. the real exchange rate. Weights of both RMCI components can vary across countries given the differences in openness and import intensity of domestic consumption and investment.

We construct own proxy of the RMCI using the estimates of gaps in the real interest rates and the real exchange rate gap. Although estimates of the RMCI for the CR can be found in the Inflation Reports of the CNB, estimates for other V4 countries are not available over the whole horizon of our interest. Repo rates of central banks are used to compute the real interest rates in the CR and the SK. Three months interbank rates were used for HU and PL. Real rates are computed using Fisher equation where the expected inflation is replaced by the observed inflation next year. In order to keep our analysis comparable across countries, HICP indexes instead of local CPI´s are used. The real exchange rate is computed using the nominal exchange rate, country's HICP, and the EU15 HICP as a proxy for the foreign trade counterpart.

Real interest rates suggest easy monetary policy in the CR and SK since 2009, Graph 5. The real rates in these countries are even negative. Monetary policy had been easing through the real interest rates peaks in 2010/2011. It gradually declined afterwards, as the nominal interest rates reached the zero interest rate bound and inflation continued to decline below the inflation target in 2011—2013.[4] In the last assessed period, the real interest rates were observed close to zero which means mildly easy monetary policy, assuming positive neutral (equilibrium) real interest rates. To sum up, monetary policy in the CZ and SK was easy although its easing through the real interest rates gradually declined.

Real interest rates were easy or neutral since the beginning of the world financial crisis in HU and PL. The real interest rates in those countries declined below the long term average at the beginning of the world financial crisis, returning back to the average and staying there afterwards. There is no significant easing of the monetary policy through real interest rates in the last observed period in those countries.

Table 3 - Real exchange rate gap

	Czech Rep.	**Hungary**	**Poland**	**Slovak Rep.**
Cumulative gap of the real exchange rate				
2000-2007	4.6	-5.2	-5.5	-4.0
2008-2013	-17.1	-5.9	-5.2	-8.6
2014-2015	9.5	6.6	2.0	7.2
Average real exchange rate gap				
2000-2007	0.6	-0.7	-0.7	-0.5
2008-2013	-2.8	-1.0	-0.9	-1.4
2014-2015	4.8	3.3	1.0	3.6

Note: The real exchange rate gaps are estimated by applying HP filter on the real exchange rate. The real exchange rate is computed from the nominal one against EUR and HICP of the EU15 and each particular country. EU15 approximates effective foreign counterpart. A positive real exchange rate implies easy monetary conditions and it is in green. Tight monetary conditions, a negative real exchange rate, are denoted in red.

Source: authors´ computations

[4] Estimates of the gap in real interest rates using HP filter would indentify quantitatively similar results. Given uncertainty about the neutral level of real interest rate in the set of our contries, the gaps are not used and a simple comparison with historical average is employed.

The identified real exchange rate gaps indicate easy monetary policy in 2014—2015 in all the V4 countries. The most significant is the monetary easing in the case of the CR, where the CNB introduced the asymmetric exchange rate commitment at the end of 2013.[5]

On the contrary, the real exchange rate gap suggest tight monetary conditions in 2008—2013. However, such assessment of monetary conditions as restrictive in the real exchange rate is questionable as all the countries, except of the SK, faced higher exchange rate variability during the world financial crisis. The higher nominal exchange rate variability mirrored uncertainty on the world financial markets and capital flow swings. Under such circumstances, it is challenging to find out the neutral level of real exchange rate using univariate filtration as the HP filter. For example, the CNB assesses the real exchange rate only as mildly over appreciated in 2013.

To sum up, monetary policy stance in the V4 countries can be considered as easy from the beginning of the world financial crisis. Easy monetary policy was ensured mainly through low real interest rates initially. Later, after the space for a further decline of nominal interest rates became limited in the CR and the SK, monetary policy easing was realized through the real exchange rate. Significant depreciation of the real exchange rate after the announcement of the asymmetric exchange rate commitment helped boost the real economic growth in the CR and returned the Czech economy to the long term convergence path.

Overall effects of fiscal and monetary policy in the CR

Based on the analysis presented above, accommodative fiscal and monetary policy helped to renew real economic growth in the CR after its slowdown triggered by the world financial crisis. As a result, monetary and fiscal policy helped return the Czech economy to the real convergence path towards the EU15. This convergence process was hindered and stopped by the real economy slowdown on the back of the world financial crisis and European debt crisis. Our methodology of the assessment of the monetary and fiscal policy does not allow us to identify contributions of each policy measured to the recovery of economic growth. An estimate of contributions can be found in Singer (2016).

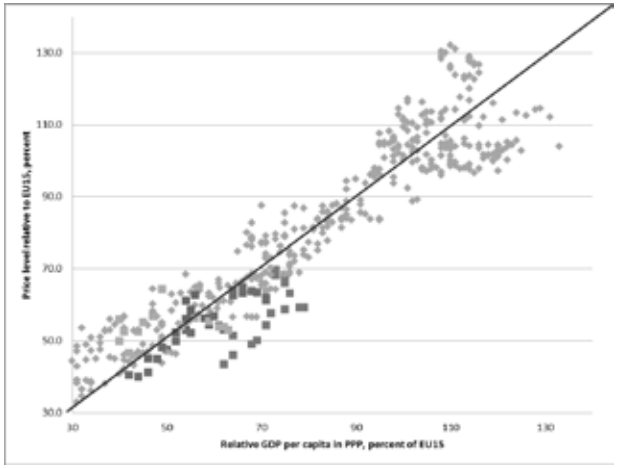
PRICE CONVERGENCE

Advanced countries experience higher price levels compared to emerging or less advanced countries, Graph 6. It is so called Penn effect. Hence, real and nominal convergences are linked as the real convergence is accompanied by the nominal convergence of price levels towards advanced countries. Therefore, nominal and real convergence should be proportional.

The Penn effect also implies that observed nominal exchange rates do not compensate for price level differentials and thus the law of one price does not hold in absolute terms in the short and medium term horizon. Besides economic factors, the nominal convergence is also affected by institutional, demographic, and political factors.

[5] Details related to the assymetric exchange rate commitment are described in https://www.cnb.cz/en/faq/the_exchange_rate_commitment.htm

Graph 6 - Real and price convergence towards the EU15



Note: Gray dots represent 29 European countries since 2000 till 2015. In order to make the graph readable, the following advanced countries are removed: Island, Luxembourg, Switzerland, and a Norway. Blue point stand for the CR, red for HU, green for PL, and magenta for SK. The red line exhibits slope of 45° and it marks points where the relative price level and relative GDP level are consistent

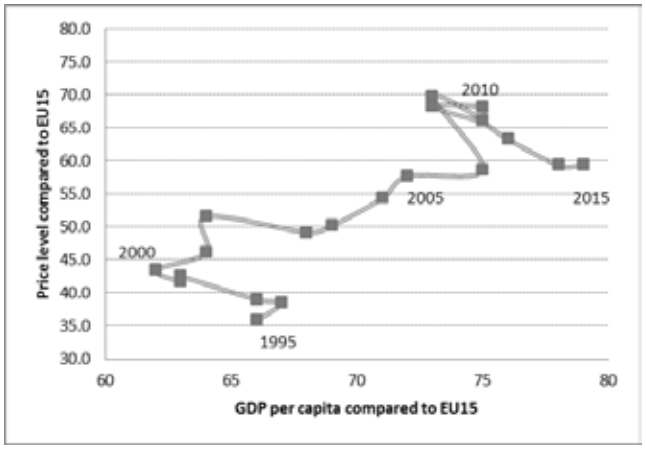
Source: Eurostat

The Penn effect is commonly explained by Balassa-Samuelson hypothesis. This explanation is based on assumption of a faster growing productivity in tradable sector compared to non-tradable sector. However, the nominal wage growth needs to be comparable in both sectors to prevent movements in labor force across the sectors. Therefore, the non-tradable sector has to experience higher inflation in order to ensure comparable wage growth with the tradable sector given the productivity differentials.

In line with the theory, the V4 countries experienced nominal convergence on the back of real convergence towards the EU15 countries, Graph 7. All countries converged on average in 2000—2015. However, stylized facts presented in the graph indicate a discrepancy between real and nominal convergence. While the V4 countries reach about 70-80 percent of EU15 in terms of GDP per capita, the price level computed based on purchasing power parity is about 55-65 percent of the EU15. Hence, the price level is lower than consistent with real convergence. The consistent combinations of real and nominal convergence are represented by 45° line.

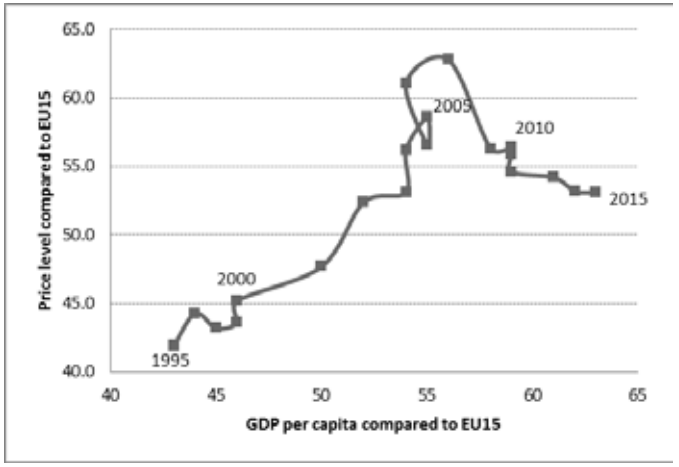
Similar results can be inferred from Graph 6. All countries with an exception of PL were below the 45° line in the most of observed periods. Nominal convergence is falling behind the real one. This observation is valid for all countries, the CR in particular. The CR exhibits price levels which are on the lower edge observed in the data. Higher discrepancy between nominal and real convergence is observed only in very advanced countries which are highly above the EU15 average.

Graph 7a - CR – Real and nominal convergence in purchasing power parity (percentage of EU15)



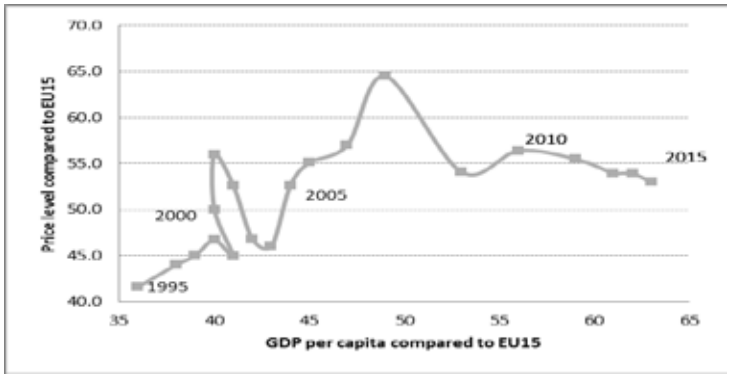
Source: Eurostat

Graph 7b - HU – Real and nominal convergence in purchasing power parity (percentage of EU15)



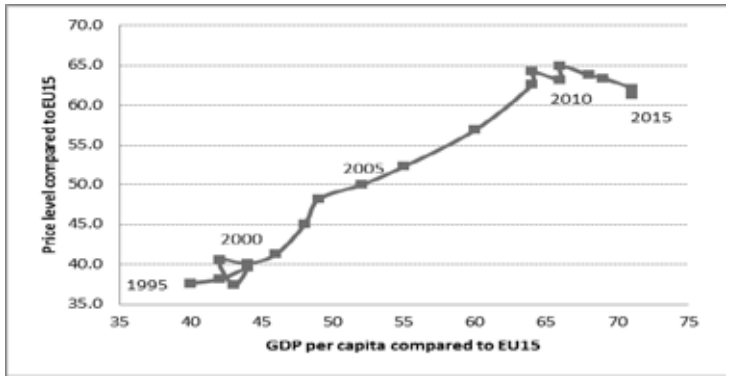
Source: Eurostat

Graph 7c - PL – Real and nominal convergence in purchasing power parity (percentage of EU15)



Source: Eurostat

Graph 7d - SK – Real and nominal convergence in purchasing power parity (percentage of EU15)



Source: Eurostat

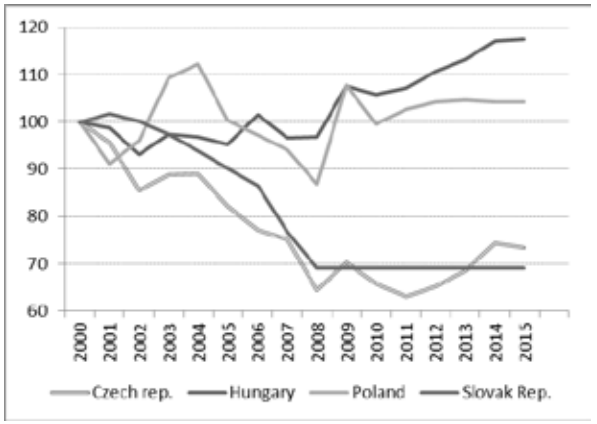
A significant difference between relative GDP per capita and the relative price level as observed in the CR might be related with nominal convergence measurement. In particular, the measure of price levels does not take into account the quality of products, see Janáčková (2004). The process of nominal convergence might go through innovations or higher quality of production which are difficult to quantitatively measure. On the contrary, Lein-Rupprecht et al. (2007) suggest and empirically prove that the higher openness of a country dampens costs and margins. Thus, both push towards the lower inflation. This observation would be in line with the CR case as the Czech economy is highly opened, exhibiting a high share of a foreign trade turnover on the GDP.

Graph 6 also shows that nominal convergence has stopped while the real one has been renewed after 2014. In some of the V4 countries, a divergence from the price levels consistent with the

real convergence was observed. This can be explained by asymmetric effects of shocks in the V4 region and the EU15. The drop of the world oil prices and the embargo on food imports to Russia can be accounted among the shocks with asymmetric effects.

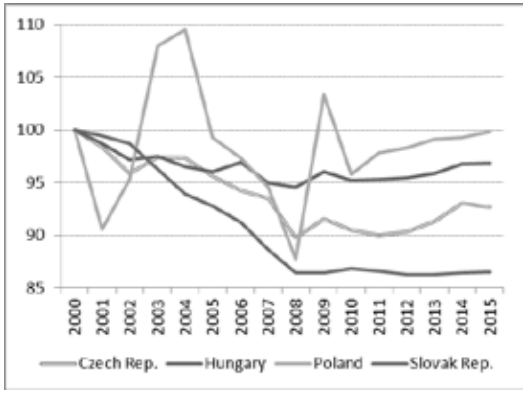
Balassa-Samuelson effect as the explanation of the Pen effect implies real exchange rate appreciation. The real exchange rate appreciation is independent of the monetary policy and exchange rate regime. Real appreciation can be achieved either through nominal exchange rate appreciation or through positive inflation differential. Monetary policy choosing the exchange rate regime just determines whether the price convergence would process through the nominal appreciation or through the positive inflation differential.

Graph 8 - Nominal exchange rate index (100 times log, normalized to 100 in 2000)



Source: Central banks and authors' computations

Graph 9: Real exchange rate (100 times log, normalized to 100 in 2000)



Source: authors' computations

Real exchange rate appreciation and the nominal exchange rate dynamics is documented in Graphs 8 and 9. While CZK and SKK appreciated in nominal terms, HUF and PLN depreciated. In spite of that all countries experienced real exchange rate appreciation till 2008 in line with real GDP per capita convergence. Once the real convergence slowed down, the real exchange rate appreciation stopped. Surprisingly, the real exchange rate continues to depreciate even in the last two years despite renewed real convergence. However, the last observed period is too short and the real exchange rate dynamics can be heavily affected by the nominal exchange rate developments as there are significant price rigidities.[6]

Conclusion

The world financial crisis and its real implications to the world economic developments slowed down the real growth and convergence in the V4 countries. The real convergence even stopped in the CR. We found out that the halted real convergence of the Czech economy was mainly driven by temporal business cycle factors. Monetary and fiscal policy significantly contributed to the restart of real convergence in the last two years. Monetary policy easing was materialized mainly through asymmetric exchange rate commitment while the easing through the real interest rates gradually declined due to diminishing inflation. Similarly, fiscal policy indicators suggest a positive fiscal stimulus in the last two years.

Price level convergence and consequently real exchange rate appreciation are linked with the real convergence. However, empirical observations suggest that nominal convergence is lagging behind the real one. This is the case of the CR in particular. This empirical observation can be at least partly explained by structural characteristics of the economy, namely its openness, and by potential issue of the price level measurement. While real convergence has been renewed in last years, the price level in V4 countries compared to the EU15 has remained unchanged. In line with that, the real exchange rate has not renewed its appreciation which was observed prior to the world financial crisis. However, the stop of the price level convergence should be temporal, reflecting price rigidities and asymmetric effects of shocks to world oil prices and food import embargo in the V4 countries compared to the EU15. Once these factors fade out, the real convergence would renew.

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CROWDFUNDING - THE FUTURE OF FINANCE FOR GENERATION Y?

Aneta Ewa Waszkiewicz

Abstract

Crowdfunding as a form of financing social ideas and business is growing very rapidly in the last 5 years. As the reason indicated technological progress, demographic changes, but also the financial turmoil. This article is devoted to the analysis of one of the major factors affecting the development of crowdfunding - the expectations and behavior of Generation Y. They are the agent of change in shifting behaviors, especially on the credit market. For them are important not only profits from the investment and the price of credit, but above all the transparency and credibility of the participants of financial transactions, the availability and quality of financial services and products. Therefore, it seems that crowdfunding is a form of financing that generation Y will choose in the future.

The purpose of empirical research was to check whether Polish generation Y has knowledge of alternative forms of financing, and whether it intends to use crowdfunding to achieve its social objectives or business. Conducted quantitative research (a survey of 310 students) were designed to test knowledge of the forms of financing and knowledge of the development of innovative funding methods. The main findings demonstrated gap education for innovative methods of funding but also indicated recommendations for potential changes in the education of the Y generation.

Keywords: crowdfunding, generation Y, P2P, alternative finance

JEL: Classification: A14, D12, O33

Introduction

Generation Y or Millennium is people born between 1980 and 2000 (Gurau, 2012) who stand out with their new technology skills so lacked by older generations. They are active in all social media and they incorporate IT innovation in all aspects of their life. Since they are more tolerant and open-minded when it comes to new solutions, they are also socially committed and open to team work more than the previous generations. (Pew Research Center 2010; Debevec et al. 2013). To show their generation revolt they dislike the economic and political order and, less frequently than their predecessors, use banking services. At the same time they expect greater transparency and availability of financial service (Terry et al. 2015). Therefore crowdfunding seems to be the financial solution tailor-made Gen Y.

The dynamic growth of crowdfunding as observed in the recent years is associated not only with new technology but mainly changes in demographics. Crowdfunding has spun as a bottom-up initiative aimed at financing social and business projects and omitting banks (World Bank 2013). The Internet community is willing to provide finance for their favourite music band or local firm in exchange for minor rewards (items or services). On the other hand, young people starting up new innovative businesses could never stand up to the required credit rating or bank's eligibility criteria – this is where crowdfunding or p2p lending have become helpful. The key objective of the research was to answer the following questions: does Generation Y in Poland know and understand crowdfunding and p2p lending? Are these solutions perceived as

an opportunity to finance their business initiatives in the future? The research hypothesis is that Generation Y in Poland uses IT solutions but still lacks knowledge about crowdfunding and does not consider it as a potential source of finance. The topic is crucial as crowdfunding is considered one of the forms of supporting growth of entrepreneurship, and as such could contribute to the economic growth which, in the case of Poland, is founded mainly on the SME sector. The lack of knowledge and awareness of new solutions has been noticed by the European Commission which has taken actions within the framework of the Capital Market Union to reinforce alternative sources of finance – the crowdfunding (EC 2016).

1. CROWDFUNDING – DEFINITION AND DRIVERS

Crowdfunding is relatively new but has already been defined extensively in the literature. It is referred to as the new financial system (Ramos 2014), the specific ecosystem (World Bank, 2013), the market (Oxera 2015) and one of the alternative types of financing (Wardrob et al. 2015) mainly in the SME sector (EC 2016; ECN 2014).

Crowdfunding is a form of public collection of money via an Internet platform, intended to provide finance for a given social or business project. As the name itself implies (crowd), the collection gathers a big number of people with the respective sums being rather minor, which does not mean that total value of the project is low (Kibry and Worner 2014). The record-breaking sum of USD 20 million was achieved in 2015 on the US crowdfunding platform called Kickstarter where the Pebble Health project was launched. Pebble Health are watches which use applications to track physical activity of users and provide feedback about their demand for exercise, sleep, oxygen and about the resulting overall condition of health. The project was supported by over 78 thousand users (Terry et al. 2015).

However, regardless of the perspective on it crowdfunding has three basic elements in it (Tomczak and Brem, 2013; García, Estellés–Arolas 2015), namely:

- the entity notifying a financial need for a certain concept or business;
- crowd of potential lenders, investors or donation givers; and
- an Internet platform used for communication purposes.

In the literature, there are four basic crowdfunding models distinguished (Dziuba 2012, Ramos 2014, EC 2016):

- ***equity-based crowdfunding*** *(or investment-based crowdfunding)* – investors use a platform to give a sum and become the shareholders of a company (*equity model)* or bondholder *(debt model),* thus supporting implementation of a business project.
- ***lending-based crowdfunding*** *(peer to peer/p2p lending)* – a loan agreement is made between a borrower and lenders with a fixed price (interest) and a specified schedule
- ***reward-based crowdfunding*** *(sponsorship crowdfunding)* – a form of pre-ordering where investors make payments to finance production of goods or services that they will get in exchange, however the reward could be another item or service, as well (for example, a meeting with the author, such as a musician or an actor).
- ***donations crowdfunding*** – a form of charity collection without rewards for investors.

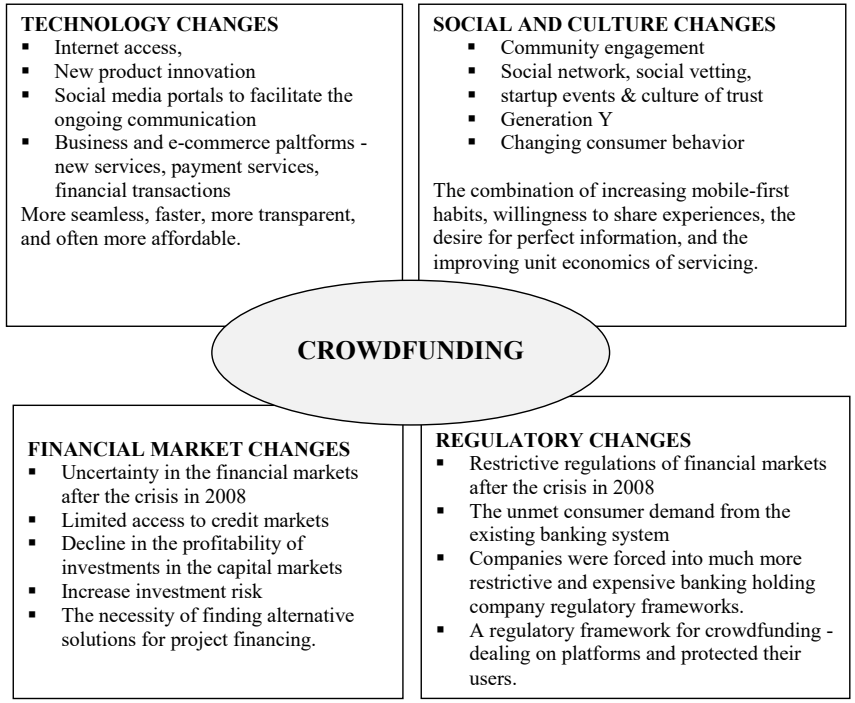
Crowdfunding has been developing very dynamically and is reaching record values of projects year after year. According to a report by Massolution, the global value of the crowdfunding sector in 2013 (based on the total value of implemented projects) was USD 6.1 billion. In 2014, it was 167% more at 16.2 billion. In 2015, the global crowdfunding sector reached USD 34.4 billion (Massolution 2015).

The biggest crowdfunding market is the North America (USA and Canada) where 2014 saw projects for almost USD 10 billion (9.46). The runner-up is Asia where the crowdfunding market grew by 320% in 2014 year on year and reached USD 3.4 billion. The European crowdfunding platforms managed to finance projects for USD 3.26 billion – the third biggest market in the world.

The causes of the emergence and growth of crowdfunding can be traced back mainly to the **technological changes** which took place at the turn of the 20th and 21st century. This was the time of developing web services, on-line blogs, consumer and business portals. Surprisingly, the break of dot.com bubble in 2001 has contributed even further to the development of the Internet and IT technology. The Web 2.0 revolution made communities more digitized and the total count of Internet users rose in 2001-2016 by 619% to reach over 3.5 billion. Europe is 17% of the global population of Internet users (Internet World Stat 2016, Internet Live Stat 2016). As access to the Internet was expanding the social media platforms were born and started providing new means of instant communication, sources of information, entertainment and even tools for buying and selling items and services. After some time the social and platforms were adapted for business purposes and today provide job recruitment utilities (LinkedIn, Xing), marketing tools Fecebook, Twitter), e-commerce channels (Allegro, iTunes, opineo) as well as sources of project finance (Kickstarter, Crodcube, polakpotrafi) (Oxera 2015).

Along the lines of the technology revolution certain **changes in demographics** occurred, as well. Millennium or Generation Y has entered the market and is referred to as the first high-tech generation (Norum 2003) which, unlike other generations, has two distinct features: mobile technology and on-line social network. So it seems obvious that it is primarily the generation Y is the Internet user. In global view, people aged 15-24 (Younger Millenials or YM) are 26.5% of Internet users while Old Millenials aged 25-34 (OM) make 26.7% (Debevec et al. 2013). In Europe, there are 19.7% of YM and 23.5% of OM. People aged 55 and more are 12.5% of the Internet user population (Statista, 2016). Another key driver of crowdfunding is **changes in the macroeconomy and regulatory environment** (World Bank, 2013; EC 2016). The financial breakdown of 2008 resulted in limited access to loans and credits, dropping profitability of investments as well as rise of operational and systemic risks. All these have led financial markets to seek alternative solutions for project finance and investments, thus intensifying focus on crowdfunding as the "no intermediaries" concept of financing. On the other hand, regulators had to accept the innovative and bottom-up changes on the credit market and implemented regulations that enabled dealings on crowdfunding platforms and protected their users (ECN 2014). The need to regulate such new area was accompanied also by such new concept that crowdfunding could contribute to the economic growth (EC 2016). The driving force for new opportunities are always people here seems to be that the Generation Y here is the most important element in creating a new reality.

Figure 1 - Crowdfunding Drivers



Source: Terry et al (2015); World Bank (2013)

2. GENERATION Y VS. CROWDFUNDING

The Millenials are described using 7C model: *connection, community, communication, creation, content, control, customization*, meaning that they stay in continuous contact with peers or even a social network, thus creating a certain community, and they want to impact the reality where they live by sharing and controlling content among each other to create own profile of a person, a product or a service (Karolczak 2015). Could this series be extended with another one – the financial C for Crowdfunding?

The reasons for the involvement of Generation Y in crowdfunding divided into two groups.

The first group is behavioural factors which are linked more to emotions than to calculations (*alternative economy*), with the second group being financial factors and cost-to-profit relation *(for-profit economy)* (Ramos 2014).

The first group of the factors is based on the *sharing economy* trend where products and services are exchanged between users of on-line platforms (Dervojeda et al. 2013), with cooperation and joint creation of common goods and services (*collaborative economy*) (Owyang 2013). There are also the *ethical economy* concepts which make important transparency, fairness, collaboration, reliability and creation of an information community linked via IT network (Castells 2009). It means that Generation Y wants to participate in creation of products or

services, share comments, evaluate and impact the final result (7C model). In addition, crowdfunding is an effective method for financing new and highly innovative projects thanks to mainly the involvement of the Generation Y investors who are open to unconventional solutions that are not always focused on conventional profits.

The financial aspect of crowdfunding (the second group of factors) is linked to its profitability, lower transaction costs and automated processes of financing making this format cheaper than other sources of project finance (Baeck and Collin and Westlake 2012). Also, fees paid for platforms are much lower than in the conventional banking (Steinier and De Maria 2012).

In addition to the economic factors, attention is drawn also to the marketing drivers which include market research, advertising, product/service evaluation by consumers (Ramos, 2014).

According to US market research, Generation Y is engaged with crowdfunding (47% respondents, 30% in generation X, 4% of seniors), mainly thanks to transparency of transactions, opportunity to control projects, product testing capacities and the ability to influence and develop products (Terry, 2015). For this reason Millenials are less eager to invest in the equity crowdfunding, and more in the reward-based model. That trend has been confirmed on the Polish market where the sponsorship crowdfunding platform (polakpotrafi.pl) has the biggest following and includes mainly music projects (198 out of 1007), films, computer games (1123 out of 1007) and books (110 out of 1007) (Waszkiewicz, 2016). Notably, Generation Y is also more willing to engage in projects that are linked to values than high profits, and when choosing the shareholder crowdfunding they look for projects that reflect social, political and environmental virtues. US Trust research demonstrated that Millennial's show high willingness to accept lower return on investment or higher investment risk in a company that shows positive impact on community and natural environment, and are less likely to invest in companies which do not meet their social expectations regardless of high profits (Terry et al. 2015). From the perspective of Generation Y as businesses, the alternative forms of project finance are perceived much better than the traditional banking system. Research of Western economies shows that Millenials are less willing to use bank loans because of lengthy procedures, bureaucracy and no influence on cost of credit (41% in Generation Y, 53% in Generation X). Another key factor is also feedback which businesses get thanks to crowdfunding platforms. Even if a project never gets implemented, still its reviews or lack of interest from Internet users provide a marketing research (Oxera 2015).

3. METHODOLOGY

The survey-based research was conducted in Poland among students of the Warsaw School of Economics (SGH), Warsaw Technical University (PW), Białystok Technical University (PB) and the University of Białystok, in June 2016. The main objective behind the research was to evaluate knowledge among Generation Y about alternative sources of business finance, focusing chiefly on crowdfunding. The research was expected to show that crowdfunding is a potential method of seeking finance for businesses. The survey covered 310 students: 54% female and 43% male, with 95% of respondents aged 18-25, out of which 24% declared to have at a bachelor's degree. The survey was divided to three parts: Part A concerned the use of the Internet; Part B evaluated one's perspective on running a business and knowledge of business financing. Part C assessed knowledge about crowdfunding and p2p as the alternative source of business finance. The questionnaire consisted of 24 questions, including open-end and closed-end questions with multiple- and single-choice answers. The survey was introduced with a short discussion of the objective of the research.

4. RESEARCH RESULTS

In the first part of the survey, the respondents answered a question concerning frequency and extent of their use of the Internet. 100% of respondents use the Internet and spend 3-4 hours daily (64%), mainly for entertainment: games, films, music (76%), extra knowledge needed during studies (73%) and communication (68%). Only 4% of the respondents use the Internet for on-line banking or shopping.

In the second part of the survey, the students were asked whether they expected to run own business, and if yes, then what type of business would that be and how they would finance their current or future businesses? The aim of this survey part was to investigate whether the Internet is a locale suitable for business, as well. Can Generation Y show crowdfunding as the method of financing as early as at the stage of planning one's business (trend presented in the literature)?

Among the generation Y 39% of people intend to start a business, offering services (57%) or leading trading company (39%).A firm that would merge physical presence and on-line business was declared by 47%, and Internet-only business by 12% out of the potential entrepreneurs. This is an intriguing result in view of the fact that the surveyed generation shops on-line and uses web services. The start-up amount was declared mainly at a level of 25-50 thousand PLN (35%), with such funding to come chiefly from own savings (64%). As 66% of the respondents are unemployed, this is a surprising result. However, research shows notably that Generation Y is largely dependent on parents, including financial links because they earn less than the other generation in analogous period of life, implying that they are not as willing to take on long-term obligations such as marriage and parenthood (Goldman Sachs Research, 2014), and so this result could be interpreted with a view to the demographic shift. The question about familiar sources of business finance included both respondents who wanted to start a business as well as others who were not planning any business of their own. A bank loan was the most frequent answer (40%), followed by EU subsidies or government aid (35%), and then own resources (18%). This result is quite interesting because it is contrary to the general trend shown in studies. Generation Y is defined as having little trust for the financial markets (69%), non-banked (holding no bank account 12.5%, vs 8% of generation X), not using traditional financial services (24.7%) and if it already, on-line banking (84% are banking services users). Goldman Sachs Research 2014). For this research, the key answer was 6% for crowdfunding.

The third part of the survey concerned knowledge of the alternative methods of financing a business and was aimed at demonstrating what Generation Y knows about innovative sources of finance. The results were interesting because the following question: What are the alternative forms of financing? Almost half of the respondents indicated to Internet platforms. However, only 31% of the respondents was familiar with the name of crowdfunding and 22% with p2p-lending. Of course, the students got their knowledge of crowdfunding mainly from the Internet (77%), and also from their school (22%). Notably, when asked about a definition, the respondents had various concepts of crowdfunding and, in some cases, even specified names of Polish and foreign crowdfunding platforms. P2p lending was linked more with the sharing economy which was described as *"economy of sharing things where partners of equal rights exchange goods or payments"* and explained in rather literal terms as lending of goods or money "from man to man".

Among those familiar with crowdfunding, 16% would use this source of finance, because they could get feedback about own project (73%) or perceive it as more profitable than other sources of finance (29%). Only 10% said that they would use crowdfunding because of unavailability of bank loans. Notably, among the respondents familiar with crowdfunding there were some who would not use it because of crowdfunding is difficult (76%) and risky (38%). An

interesting result was that, regardless of being familiar with crowdfunding, as many as 11% of the respondents was not sure whether they would use that source at all.

P2p lending would be used by mere 24% of the respondents because they would obtain the required (requested) value (67%) and because this source is more profitable (60%). People reluctant to use p2p lending stressed that, like in the case of crowdfunding, it is risky (55%), difficult (27%) and expensive (23%). Notably, as many as 50% of those familiar with p2p lending had no opinion when asked whether they would use is as a source of finance.

Table 1 - Results of Generation Y – Crowdfunding research

Question No.	**1**	**2**	**3**	**4**	**5**
1.Have you heard about crowdfunding?					
Yes	31%				
No	66%				
2.What was your source of information about crowdfunding?					
Internet		77%			
school/university		24%			
friends		14%			
other		5%			
3.Would you use crowdfunding as a source of finance?					
Yes			16%		
No			7%		
Not sure			11%		
4.YES, I would use crowdfunding, because:					
because I am not eligible for a bank loan				10%	
because it is easier				22%	
because I will get the appropriate amount				22%	
because it is more profitable				29%	
because I can verify feedback				73%	
other				8%	
5. NO, I would not use crowdfunding, because:					
because I can get a bank loan easier					10%
because it is difficult					76%
because it is risky					38%
because it is expensive					10%
because I have no Internet access					0%
other					10%

Source: student survey

The question about investing in p2p or crowdfunding was answered only by 40 people, out of whom 18 said to have no clear opinion and 10 said that they would invest a minor amount only. It means that the respondents evaluate crowdfunding chiefly as a method for gathering finance rather than as profitable investment.

5. MAIN FINDINGS

In summary of the above, Generation Y in Poland uses the Internet mainly for entertainment or studying, as observed also on the Western markets. The generation does not perceive the

Internet as a locale for own business – it is surprising when we consider that this generation finds information on-line and uses e-commerce widely.

It is also interesting that the generation is widely unemployed (66%) but would finance own business with savings expected at a level of PLN 50 thousand. This reflects the description of the generation found in the literature which calls it highly dependent on parents (including financial dependency).

As the main objective behind the research was to investigate knowledge of crowdfunding, we found out that over half of the respondents were not familiar with this name while those familiar would still not use this source of finance. When starting up a new business Generation Y in Poland is hoping for money from their families or bank loans. Crowdfunding is perceived rather as an additional and back-up source of finance and it is not linked to exclusion from the banking sector or unavailability of other forms of financing. For Generation Y it is rather a marketing tool which enables presentation of a concept to a wider community and the related feedback. P2p lending is not known to generation Y in Poland, hence it should be assumed that this kind of platform use the older generation.

That trend corresponds to features of Generation Y which values community, ethics and creation of the final product – and a p2p loan does not fulfil these values.

6. DISCUSSION

The issue of familiarity with the alternative sources of finance, such as crowdfunding and p2p lending, was researched because these systems have been developing dynamically across Europe. Generation Y will be the new businesses entering the market within a few years and they will need to choose how to finance their operations. Would they choose crowdfunding? According to the research, the level of knowledge of crowdfunding is low among Polish students. This is a good starting point for further study in such areas as education, credit and loan market, marketing and regulatory.

First, the small group of respondents who are interested in crowdfunding get their knowledge from the Internet (77%). It means that there is an educational gap on the part of schools and universities in the field of innovative financial solutions. Those issues have been discussed in scientific works but are not popular enough and so there is a room for improvement in the educational sector. Knowledge of the crowdfunding concept and methods is important because it is a source of finance for SME, but could be used at any stage of developing a firm. With that in mind, it seems purposeful that the European Commission has already taken actions to support initiatives that bring knowledge about crowdfunding. In addition, the research conducted by the European Commission showed that the alternative sources of finance are the main stimulant of economic growth and to a certain degree enable independence of the SME sector from the bank lending. For this reason the results appear interesting also from the credit sector. In Poland, Generation Y perceives bank loans (and EU subsidies) as the chief source of finance for businesses. It means that even though crowdfunding has been developing dynamically, at the current stage it still cannot compete with the bank sector in Poland. Unlike bank loans crowdfunding was evaluated as risky, difficult and even expensive. However, notably 66% of the surveyed members of Generation Y remain unemployed and their knowledge of availability and costs of loans and EU subsidies is theoretical only. Comparing the features and values of Generation Y (7C model) crowdfunding should not be ignored by the bank sector as a potential source of finance for SME. Notably, banks have been participating more and more in the shareholder model of crowdfunding not only in the highly-developed markets but Poland, as well (beesfund.com).

As the research has demonstrated crowdfunding is perceived by Generation Y as a marketing tool – an important information from the perspective of creators of marketing strategies (Łazorko 2015). Millenials will be the future crowdfunding investors and business projects should incorporate the values which they appreciate, such as joint creation of products, exchange of information and control over the investment (7C model).

Looking at the Western markets as well as the crowdfunding platforms in Poland, crowdfunding will be developing further, however for its development to be stable and sound in both Poland and CEE not only the changes in new technology and regulatory environment need to be controlled but also shifts in demographics.

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