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Outpatient Health Care in SR

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Abstract

Nowadays, outpatient surgery is associated with a variety of medical departments. The most common medical interventions are in departments of surgery, pediatric and plastic surgery, orthopedics, gynecology and obstetrics, urology, gastroenterology, and otorhinolaryngology. The significance of the outpatient interventions is recently increasing mainly due to the fact that surgery in general is not pleasant for anybody and the hospital environment is stressful for most people. Outpatient surgery clinics offer the possibility to undergo preoperative examinations, surgery, as well as postoperative examinations in one place. In this paper we present the information on the number of selected types of surgeries of individual surgical departments in institutional health care in SR in 2015, and on the number of patients treated through the outpatient health care.

Key words: *outpatient surgery -- institutional health care -- benefits of outpatient surgery -- number of patients treated through institutional health care -- number of patients treated through outpatient health care*

Introduction

The concept of outpatient surgery was established in the United States of America by health care providers, with the intention to save costs. It is a surgical procedure with a very short hospital stay, usually only one day. A new type of medical facilities, focused on outpatient surgery, has started in Europe and worldwide in the 90's of the last century, and in Slovakia it was established in 1998.

It is based on a philosophy that the hospital is an expensive hotel. Through an ambulatory surgery, it is possible to minimize the costs for treating the patient while maintaining the standard health care, return the patient to his/her home environment as quickly as possible, and an important part is a more personal approach from staff to patients and a more friendly environment than in the hospital. Its advantage is that a person does not become a patient, is not at a risk of hospital infections and under stress from hospitalisation, and in fact remains in the work regime. These were the reasons why same day surgery has become a common practise. However, a same day surgery is not just about saving costs of insurance companies. It provides advantages also for the medical staff, especially high efficiency and rationalisation of work. It requires top experts to be able to estimate the postoperative continuance and it is necessary to realize that the patient remains in their health care, as the complications and subsequent hospitalisation may have unpleasant consequences. In same day surgery, there are usually performed more simple surgeries, especially on patients who do not suffer from other illnesses. It is mostly used by departments of ophthalmology, surgery, gynecology, orthopedics and traumatology.

1. Advantages of outpatient surgery

Outpatient surgery represents a major movement ahead in the quality of patient care because it allows the patient to undergo more invasive intervention or diagnostics in one day and without being hospitalised. Hospitalisation is not always necessary in some surgical interventions, and it appears that same day surgery can also have a positive impact on the economy, as the patient avoids his/her own work incapacity. At the same time, the patient is not traumatized by staying at the hospital and may return home right after a surgery. However, in such interventions, the patient usually does not go home immediately but remains at the clinic for 24-hour observation for possible complications. Compared to a regular treatment with at least three days of hospitalisation, it is more convenient, comfortable for many people, and it helps them return to work and into an ordinary life. The main advantages of the same day surgery can be considered as follows:

- the total time of surgery and hospitalisation is a maximum of 24 hours but most often only a few hours during the day of surgery,
- is particularly suitable for people who are busy and cannot afford long-term hospitalisation for personal or work reasons,
- surgical interventions are performed by new modern methods that minimize the size of the surgical wound, resulting in an accelerated healing effect that allows fast release into home treatment; also it eases the postoperative pain,
- a short stay in a health care facility minimizes the possibility of infection, which is a frequent accompanying phenomenon of longer hospital stays,
- a short stay in the hospital leads to a faster wound healing in the home environment,
- a possibility of accompanying the patient by a family member throughout the patient's stay in the hospital is very conducive and this option is offered by several facilities of outpatient surgery.

2. Application of outpatient surgery in Slovakia

There are only 8 % of surgeries performed in outpatient surgery facilities in Slovakia, which is considerably behind advanced European as well as the world average. In the United States, this method is used by 70 % of patients, in Germany and the UK it is about 60 %.

A positive signal for Slovakia is the new expert guidance of the Ministry of Health, which contains more than 430 interventions of outpatient surgery, including about 130 interventions for children. The new range extends the current intervention spectrum by about 60 %.

Providers of outpatient surgery hold an opinion that its benefits are not being fully utilized because the patients continue to have a conservative approach. They believe that also the health insurance companies should be more interested in promoting this method due to the financial reasons.

In general, the interest of patients in this type of surgery has been increasing in recent years. The proportion of outpatient and classical surgeries varies depending on the region. It is most used in the large cities but it is gradually being extended to towns of districts. The limiting factor may be the fact that in the private centres it is the insurer who covers the care fee, but patients pay for the above standard care by themselves. Total outpatient surgery costs are around 10 % compared to 90 % of the costs we spend on hospitalisations in medical departments.

Data of the National Centre for Health Information of SR show that the number of patients having an operation in hospitals declined in 2015. However, the number of patients who underwent a surgery in outpatient care facilities increased.

In 2015, surgical outpatient clinics were visited by 2,684,199 patients. During these visits, 2,175,691 surgical interventions were performed. Particularly, surgical's wound care treatment (339,699), removal of skin and subcutaneous tumors (118,559), surgical procedures for purulent skin and subcutaneous disease (115,256), fracture and luxation repositioning (32,159), and treatment of

burns (26,125). The number of surgeries in surgical outpatient clinics increased by 4.1 % compared to the previous year.

In **institutional health care**, 270,758 patients underwent a total of 275,776 surgical operations. The number of patients being operated decreased by 3,892 compared to 2014. Children and adolescents under the age of 18 underwent the most frequent operations of an eye, ear and nose (31.2 %), musculoskeletal system surgeries (30.1 %), digestive system surgeries (16.2 %), and male genital surgeries (8.1 %). Surgeries among adult patients were mainly musculoskeletal system (28.0 %), gastrointestinal surgeries (18.6 %) and female genital surgeries (16.0 %).

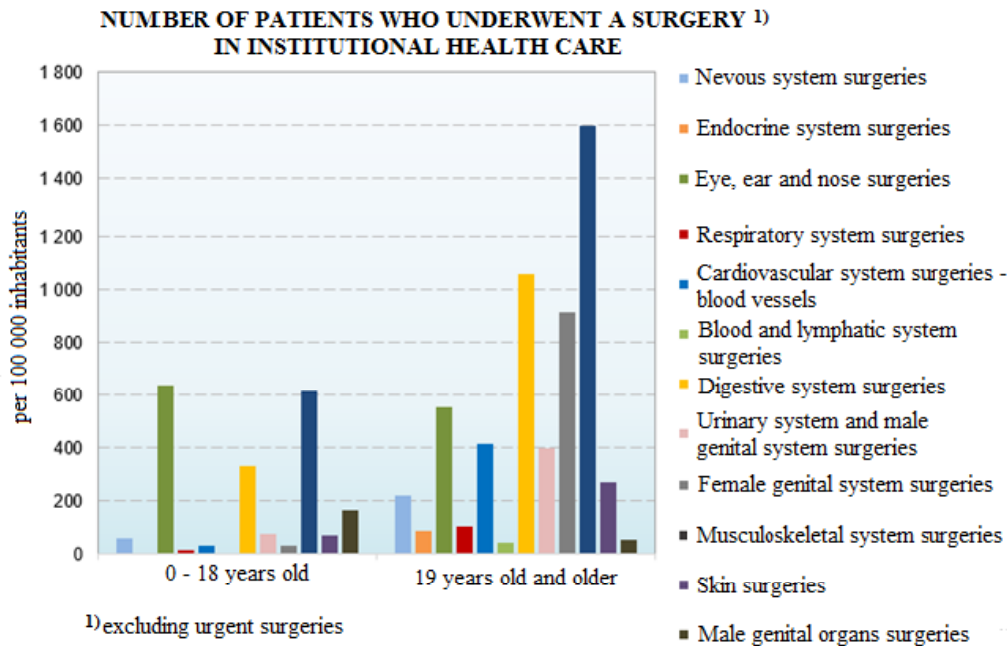


Fig. 1. Number of patients who underwent a surgery in institutional health care in SR in 2015
[Source: <http://www.nczisk.sk/Aktuality/Pages/Chirurgicka-a-jednodnova-starostlivost-v-SR-2015.aspx> (2016)]

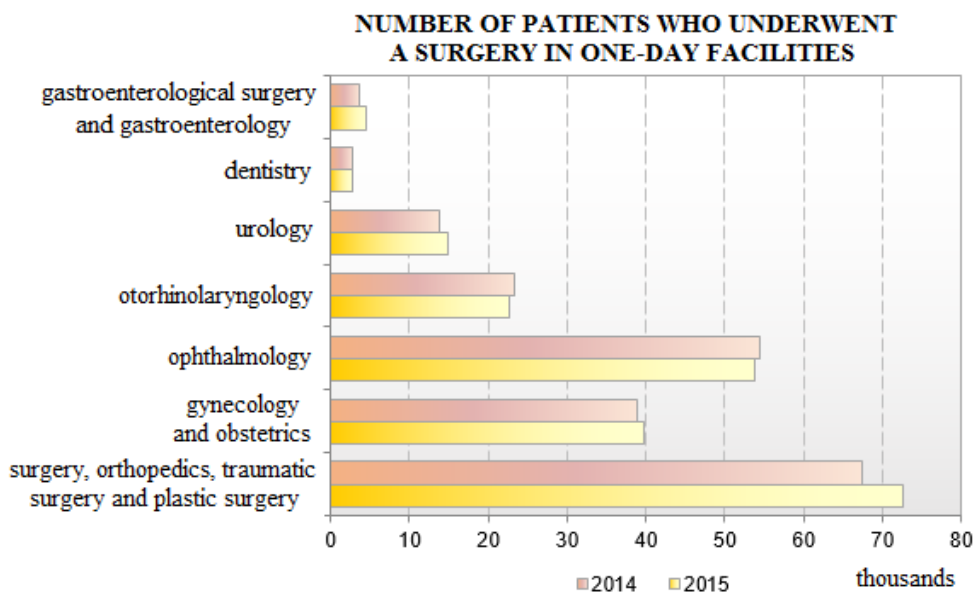


Fig. 2. Number of patients who underwent a surgery in outpatient facilities in SR in 2015
[Source: <http://www.nczisk.sk/Aktuality/Pages/Chirurgicka-a-jednodnova-starostlivost-v-SR-2015.aspx> (2016)]

211,416 patients underwent a surgical intervention **in outpatient health care facilities**, mostly in Bratislava region (37,182) and Košice region (32,285). Compared to 2014, the number of patients who underwent a surgery in same day health care facilities increased by 6,876, and compared to 2013 even by 44,612.

Adult patients underwent the most surgical interventions in outpatient health care in the department of surgery, orthopedics, traumatic surgery and plastic surgery (68,374), ophthalmology (53,752) and gynecology and obstetrics (39,418). Children and adolescents underwent the surgical interventions in outpatient health care mostly in department of otorhinolaryngology (10,269).

3. Ambulatory surgical procedures and a number of patients who underwent a surgery in outpatient health care facilities in Slovakia in 2015

The National Centre for Health Information issued in 2016 the publication of Surgical and Outpatient health care in SR 2015, using as a source the results of statistical surveys of the Ministry of Health of SR. The surveys were carried out and are a part of the State Statistical Surveys Program for years 2015 - 2017. According to data reported in *the annual reports on outpatient health care J (Ministry of Health of the SR) 1-01* for 2015, of which the return of patients was 88.5 %, the results in this area were as shown in the following tables.

Table 1. Clinical beds for patients in outpatient health care facilities
Source: [3]

Region	Number of facilities	Number of clinical beds up to December 31 st	Out of total for children (0 - 18 years)
Slovak republic	472	2 563	469
Bratislava region	74	385	50
Trnava region	36	216	31
Trenčín region	61	314	47
Nitra region	58	304	114
Žilina region	48	242	39
Banská Bystrica region	61	282	56
Prešov region	58	381	60
Košice region	76	439	72

Data presented in Table 1 show the number of clinical beds in outpatient health care facilities up to December 31, 2015, which was 2,563, out of which 469 were for children and adolescents. The highest number of beds is in Košice region (439) and the lowest in Trnava region (216).

Data in Table 2 show that there were 17,912 patients at the age of 0 – 18 who underwent a surgery, 193,504 patients at the age of 19 and more, total of 211,416 patients. Most of the patients underwent a surgery in Bratislava region 37,182 (1,851 + 35,331) and Košice region 32,285 (2,749 + 29,536).

Within 211,416 surgery interventions of outpatient health care, a following hospitalisation was required for 26,863 patients, representing 12.7 % of the patients who underwent a surgery. The National Centre for Health Information states that the highest share of hospitalised patients was in departments of gastroenterological surgery and gastroenterology (31.3 %), urology (18.3 %), and surgery, orthopedics, traumatic surgery, and plastic surgery (17.1 %).

Statistical data further present that in comparison to 2014, the number of patients who underwent a surgery in same day health care facilities increased by 6,876, while the number of clinical beds decreased by 142.

Table 2. Number of patients who underwent a surgery in outpatient health care facilities in 2015 by regions
Source: [3]

Area	Number of patients					
	Patients who underwent a surgery			Hospitalised after surgery		
	0 – 18 years	19 and more years	total	0 – 18 years	19 and more years	total
Slovak republic	17 912	193 504	211 416	2 110	24 753	26 863
Bratislava region (BA)	1 851	35 331	37 182	13	2 973	2 986
Trnava region (TT)	1 400	14 803	16 203	191	2 441	2 632
Trenčín region (TN)	1 623	25 879	27 502	832	4 462	5 294
Nitra region (NR)	977	19 110	20 087	162	1 950	2 112
Žilina region (ZA)	2 774	23 612	26 386	152	2 023	2 175
Banská Bystrica region (BB)	3 166	23 626	26 792	67	2 329	2 396
Prešov region (PO)	3 372	21 607	24 979	453	2 616	3 069
Košice region (KE)	2 749	29 536	32 285	240	5 959	6 199

Table 3. Number of 0 – 18 years old patients who underwent a surgery in outpatient health care facilities by regions. Source: [3]

Department of specialization	SR	Region							
		BA	TT	TN	NR	ZA	BB	PO	KE
Total	17 912	1 851	1 400	1 623	977	2 774	3 166	3 372	2 749
Surgery, orthopedics, traumatic and plastic surgery	4 356	516	323	447	162	561	1 027	751	569
Gynecology and obstetrics	372	2	29	19	146	16	81	31	48
Ophthalmology	116	13		20		15	7	41	20
Otorhinolaryngology	10 269	984	883	961	522	1 427	1 669	2 423	1 400
Urology	2 183	336	165	176	141	174	377	126	688
Dentistry	605					581			24
Gastroenterological surgery and gastroenterology	11				6		5		

Table 4. Number of 19 years old and older patients who underwent a surgery in outpatient health care facilities by regions. Source: [3]

Department of specialization	SR	Region							
		BA	TT	TN	NR	ZA	BB	PO	KE
Total	193 504	35 331	14 803	25 879	19 110	23 612	23 626	21 607	29 536
Surgery, orthopedics, traumatic and plastic surgery	68 374	12 096	5 091	11 901	7 125	6 103	9 495	8 222	8 341
Gynecology and obstetrics	39 418	4 879	3 590	4 593	4 258	5 635	4 770	4 663	7 030
Ophthalmology	53 752	13 719	3 471	7 283	5 140	5 680	5 391	3 576	9 492
Otorhinolaryngology	12 359	1 491	1 130	901	518	1 883	893	3 771	1 772
Urology	12 779	2 745	1 199	1 198	1 236	1 978	1 082	1 021	2 320
Dentistry	2 216					2 112		56	48
Gastroenterological surgery and gastroenterology	4 606	401	322	3	833	221	1 995	298	533

Out of the total number of patients of the age 0 – 18 years, who underwent a surgery in outpatient health care facilities by regions, the highest number was in the department of otorhinolaryngology (10,269).

Out of the total number of patients at the age of 19 years and older (adults), who underwent a surgery in outpatient health care facilities by regions, the highest numbers were in departments of surgery, orthopedics, traumatic surgery and plastic surgery (68,374), and ophthalmology (53,752).

The statistical data further show that compared to 2014, the highest year-over-year percentage increase occurred in the department of gastroenterological surgery and also increased the number of surgeries performed in departments of surgery, orthopedics, traumatic surgery and plastic surgery, urology, gynecology, and dental medicine.

Conclusion

In general it can be concluded that the relatively low percentage of surgeries performed in outpatient surgery clinics in the Slovak Republic will have a positive trend in the future. This is confirmed by year-over-year increases that have also been acknowledged in 2015. Outpatient health care is becoming more popular, the number of patients operated in hospitals is decreasing, and the number of patients undergoing same day surgery is increasing. The proportion of same day and classical surgeries varies depending on the region. It is most used in large cities but it is gradually being extended to towns of districts. Also the interest of the Ministry of Health represents a positive signal for increasing number of surgeries in outpatient health care. Health insurance companies also play a significant role in the positive development of this activity, as this method of health care is financially more attractive to them.

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Quo Vadis Tourism in Slovakia?

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Abstract

Recently, Slovakia has recorded favourable economic results in tourism. Numerous documents, marketing, branding, and legislation on tourism give the impression that there is currently a better understanding of tourism issues. The role of public-sector organizations is significant. These organizations have the power to make political and economic decisions. The political decision defines the space for the integration of tourism into the economic and political system and allows its full potential to be used towards fulfilment of the strategic goals of society. The aim of the thesis is to examine the approach of government to tourism in selected OECD member states, namely the Czech and Slovak Republic through selected economic indicators, organizational structures of relevant state authorities, to compare them and to make key policy recommendations.

Key words: *tourism, state policies, system approach, development barriers, branding*

Introduction

World Travel and Tourism Council (WTTC) has been monitoring the economic effects of travel and tourism in the individual regions and in OECD countries since 1991. Since the first published estimates to date, economic data show, that the importance of tourism has grown so much that it is a sector of global importance. For a large number of countries, tourism is the best-selling commodity in international trade. Tourism has rapidly become the main social and economic power in many countries [Goeldner, Richie, 2014].

The system of tourism policy is differentiated in individual countries. It depends on the political order of the country and on the overall state of the country's development [Tittelbachová, 2011]. The Organization for Economic Co-operation and Development (OECD) is an intergovernmental organization, which provides to the Member States a forum for expert discussions on economic policies, particularly concerning sustainable economic growth, employment and the environmental issues. It is a unique forum that provides the governments with assistance and gives the opportunity to compare political experiences, to find answers to common problems and to work on coordination of domestic and international policies. One of the main activities of the OECD is the development of expert studies, production of statistics on the main economic indicators and the peer country review. Institutions and organizations at international and national level influence policy making, decision-making, legislative measures in the field of tourism business, free movement of persons and capital movements [Kučerová, Strašík, Šebová, 2010].

Therefore, it is necessary to establish a tourism organization that will effectively coordinate the activities of all stakeholders (business, citizens, cultural organizations, state administration authorities,

local authorities and residents of the destination) in order to be able to adapt to changes in the market and will be responsible for the achieved results [Királ'ová, 2003]. At present, in real life, public relations and promotion become a necessity and a prerequisite for the existence of organizations, businesses. For the purpose of effective, unified public appearances, it is necessary to develop activities related to corporate identity. Its main task is to create a unified presentation in the process of internal and external communication, promoting a desirable image [Horáková, 2009].

Material and methods

The aim of the paper is to examine the approach of governmental structures to tourism in selected OECD member states through the selected economic results and evaluation of organizational structures of state authorities and their comparison. The OECD Member States are the main body of the survey: the Czech Republic and the Slovak Republic. The materials are both secondary and primary sources. Secondary data was surveyed in a standard manner through available professional literature, surveys and managed interviews published on the website, governmental Strategic Program Documents, OECD-Tourism Trends and Policies 2016. The report includes official OECD Country Economic Review studies published once every 18 months. The last surveyed year is 2014. At present, the organization has 35 members. The Czech Republic became a member in 1995 and the Slovak Republic in 2000. In the process of making of this article were used methods of analysis and synthesis, deduction and generalization and the focus group research based on 8 respondents.

Results and discussion

The OECD report states that the international arrivals of the Member States exceeded 1.1 billion in 2014, what is an increase of 6.4% compared to 2013. This growth rate is faster than the global average of 4.2%. It is expected that this growth in emerging economies will be twice as high as in advanced tourism economies until 2030. The economic importance of tourism is different in individual countries. In many developed countries, tourism is an important source of economic growth and development, stabilizer of employment and a source of income from foreign trade. The global financial and economic crisis in 2008 and 2009 has also affected this sector, but it is different in individual countries, as is shown in Figure 1. In some developed countries, tourism is a major sector of the economy, both in terms of its share of GDP and the share of total employment. Relatively favourable employment situation in sector of tourism is characteristic for city of Poprad that is centre of Slovak tourism and industry and Stará Ľubovňa with a large number of self-employed people and people migrating for work outside the region and abroad. These two factors also influence the share of registered unemployment in the district Bardejov [Hudáková, 2015]. Tourism in Slovakia has the potential to be a significant accelerator of economic development, a major employer but also a significant source of income from abroad. In 1993, Czechoslovakia was divided into Czech and Slovak republic – the two successor states. The economic results of the surveyed countries in the field of tourism are presented in Table 1.

Table 1. Economic indicators of tourism in selected countries
(Source: [14], custom graphic processing)

Region	Year	The share of tourism in GDP [%]	Share of Tourism in total employment [%]
Slovak Republic	2012	2.96	5.9
Czech Republic	2013	2.90	4.5
OECD average		4.1	5.9

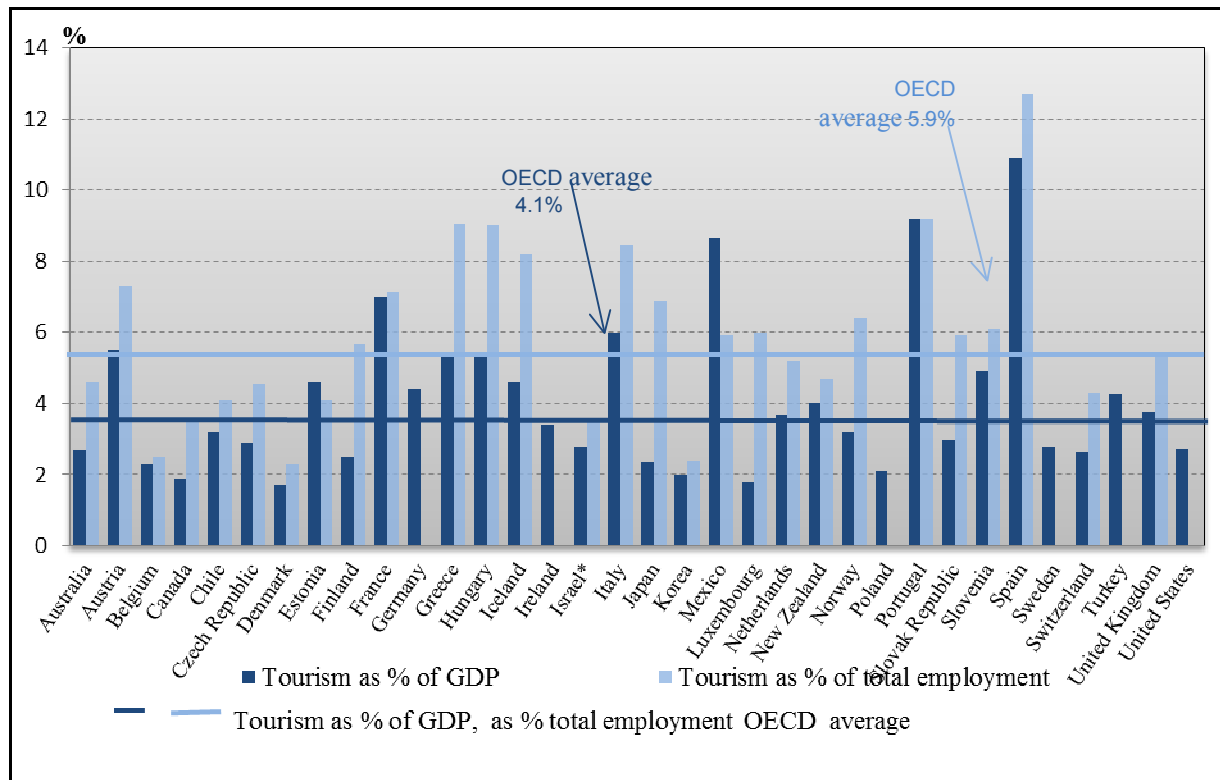


Fig. 1. The share of tourism in gross domestic product and total employment in OECD member countries (Source: [14])

At first glance, Slovakia appears to have more favourable results in comparison with Czech Republic. For a more complex assessment of the development of economic indicators of investigated countries, the analysis was expanded by the average annual rate of growth and growth rate, as shown in Figure 2.

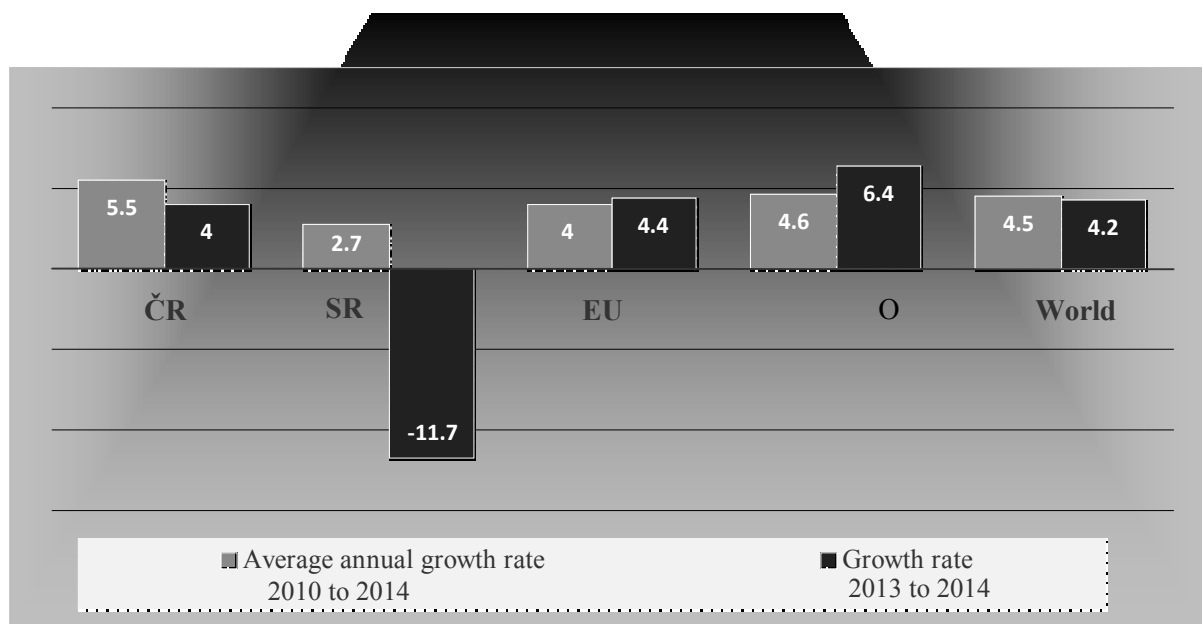


Fig. 2. Comparison of economic changes in tourism (Source: processed by the author from the database [14])

From OECD countries, Slovakia recorded the highest negative value of the growth rate of tourism. Negative values also were reported by Sweden 3.5%, Finland 3.3%, Israel 1.2% [14]. The report shows that states have different policy concepts and that the tourism industry does not have a clearly defined identity and its derived position in national economies. The role of tourism policy is to define the importance and place of tourism in the economy, to formulate objectives and policy makers, to identify and apply tourism policy instruments. International policy objectives are translated into national policy objectives and taken into account in the design of national tourism policies. The strategic objective of tourism policy in Slovakia was identical for the period 2007-2013 as well as the 2014-2020 period, and to: *"increase the competitiveness of tourism by making better use of its potential, with a view to balancing regional disparities and creating new jobs"*. Tourism policy is implemented in practice by different communities, different carriers. Policy holders at national, regional or local level are displayed on Figure 3.

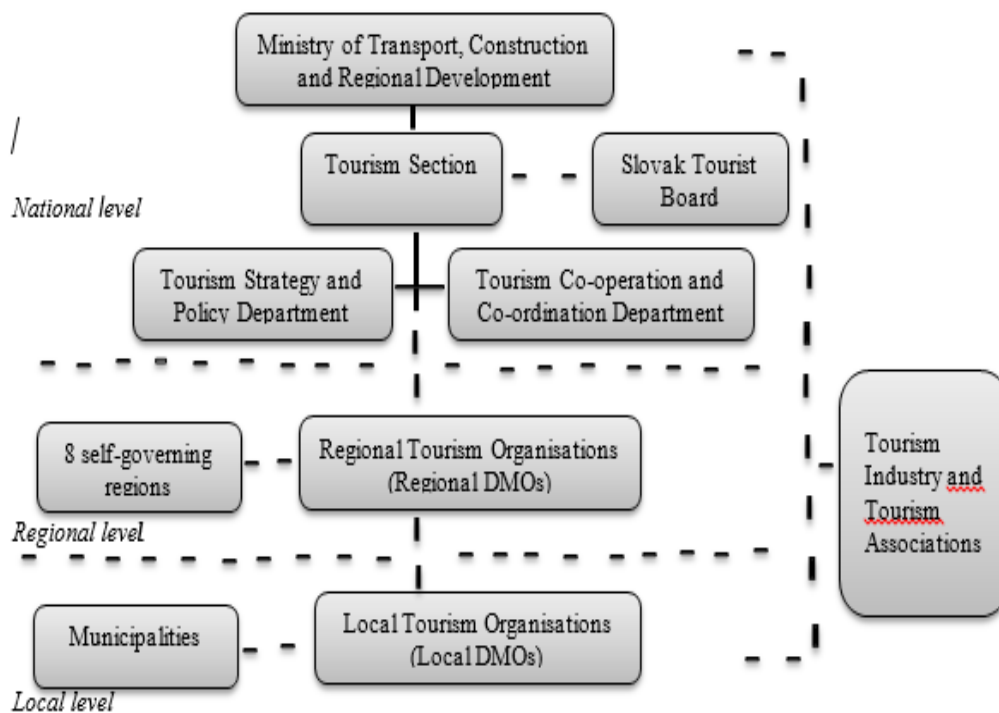


Fig. 3. Organizational structure of tourism organizations in the Slovak Republic (Source: [14])

The analysis shows that there are enough tourism businesses. Nevertheless, tourism in Slovakia is characterized by an unstable position in the structure of the national economy, the developmental sphere [Borovský et al. 2008], insufficient coordination of tourism subjects, insufficient tourism promotion program by the state, persistent low interest of the state in tourism, unreliability and lack of tourism development plans in regions and destinations, lack of coordination between management levels at different levels [Beresecká 2012] low willingness to cooperate on development and coordination, limited marketing activities [Gúčík, et al. 2006], lack of tourism landscape, incompleteness of products, unfavourable price-quality relationship [Pompurová 2009]. It fails to fulfil the tasks of policy makers, which have decision-making and coordinating powers. In Slovakia there is a problem in the institutionalisation of tourism, as is shown in Table 2.

Amending Act no. 347/1990 Coll. Of August 25, 1992 characterized the Ministry of Economy of the Slovak Republic as the central state administration body for trade and tourism as well. Since then, the tourism industry has experienced significant changes. There have also been changes to the

organizations set up by the ministry. January 1, 2017 state subsidy organization The Slovak Tourism Agency (STA), specializing in the marketing and promotion of tourism in Slovakia, was incorporated directly into the structures of the Ministry of Transport itself. Appropriate organizational - institutional, legislative, financial assumptions also show the achieved level of development of tourism. The establishment of the organizational structure should correspond to the stated objectives of the development of tourism.

Table 2. Development stages in the institutionalisation of tourism in the Slovak Republic
(Source: Ministry of Transport, Construction and Regional Development, processed by author)

Date	Tourism	Ministry	Sections	Unions	Contributing organizations (budget, state-owned)
Year 2005		Ministry of economy	Tourism Section	Policy and Regional Development Department Department of Foreign Relations in Tourism	Slovak Tourism Agency (STB) originated in 1995
July 1, 2010		Ministry of Culture and Tourism			
November 1, 2010		Ministry of Transport, Construction and Regional Development	Tourism Section	Department of Tourism Development Department of Foreign Relations in Tourism	
June 1, 2017		Ministry of Transport, Construction and Regional Development	Tourism Section	Department of International Cooperation in Tourism Department of Distillery Management Department of Strategy and Analysis Department of Relations with Foreign Markets Marketing and promotion department	STB cancelled 2017

The Slovak Republic did not have a legislative framework for the systemic development of tourism in Slovakia by 2010. In 2010, the Act no. 91/2010 Coll. On tourism promotion, which has so far been amended twice. Authorities at national level have recognized the need for a conceptual change in tourism support with its active participation. The current law is the first systemic element of tourism support, creates CR governance at local, regional, and national level, defines the way in which organizations are funded with the participation of the state. It has several important dimensions: integration, competitiveness, motivation and mobilization, professional, regional development, sustainability. Although this relatively new law has been edited and supplemented, systemic development cannot be said. Gecíková, Papcunová [2014] mention, that the development of strategic management is not random, but it occurs as a result of previous development and adaptation of management entities of local self-governments to conditions for development of the country.

One of the tools of strategic management, which is used by the local self-government, is strategy. Strategy addresses the most serious, critical and crucial issues relating to the quality of life of residents. Strategic decisions are usually general and have long-term nature. Successful organizations from unsuccessful do not differ by making sure they have a good strategy or worse one, but by that they can quickly and efficiently implement it.

In the Czech Republic, the bearer of tourism policy, which is affected by the social system, is the state. The performance of policy is reflected in the development of state tourism authorities, development of strategies and development concepts, support for regional development activities, including tourism. Policy holders in the country display Figure 4.

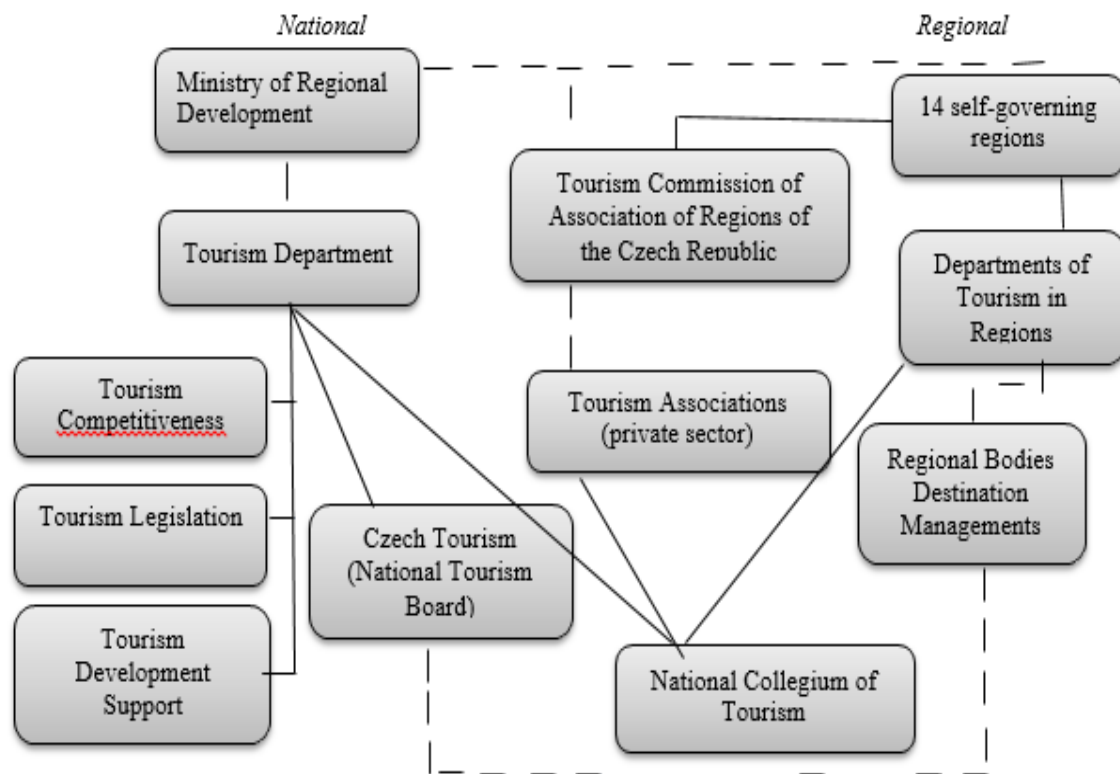


Fig. 4. Organizational structure of tourism organizations in the Czech Republic (Source: [14])

After 1990, at the national level, the issue of tourism came to the Ministry of Commerce. The change occurred in 1992, when this ministry was cancelled and the tourism sector fell under the competence of the Ministry of Economy. In 1996, this ministry was also abolished, and the Ministry for Regional Development was set up as the central authority of state administration in regional policy matters, which included the tourism sector. Regions and municipalities are doing things directly in the area of tourism within the self-government. Since 1. 4. 1993, the Czech Economy Ministry has set up a Contribution Organization of the Czech Ministry of Economy and that of the Czech Tourist Office (ČCCR). Today, called Czech Tourism. This organization supports inbound and domestic tourism in general and focuses on specific areas. They are spa, congress, incant, golf tourism. An important role of this organization is to present the Czech Republic as an attractive tourist destination abroad. It also cooperates with the regions and supports the creation of their products. They then promotes during his editorial activity, participation in exhibitions, events. Carries out marketing activities both in the Czech Republic and abroad.

The need to clearly define the position of tourism within the economy, policy and its bearers is becoming an increasingly urgent activity. Politics can stabilize economic relations and create the conditions for their development, as shown in Figure 5, or, on the contrary, to destabilize and to hinder its development.

It is clear from the data that in the Czech Republic international revenues have, compared to the years, decreasing trend of 7.043 mil. USD to 6.830 mil. USD. In Slovakia, we recorded a slight increase from 2,555 to 2,575 million. USD. In the Czech Republic, the situation is the opposite, from 4.637 mil. USD in 2013 recorded an increase of 504 mil. USD, in the Slovak Republic by 101 mil. USD. Due to the unfavourable development of travel revenues, we have identified countries, which markets are involved in the creation of selected economic indicators. In Figures 6 and 7 there are five TOP countries visiting Slovak and Czech Republic.

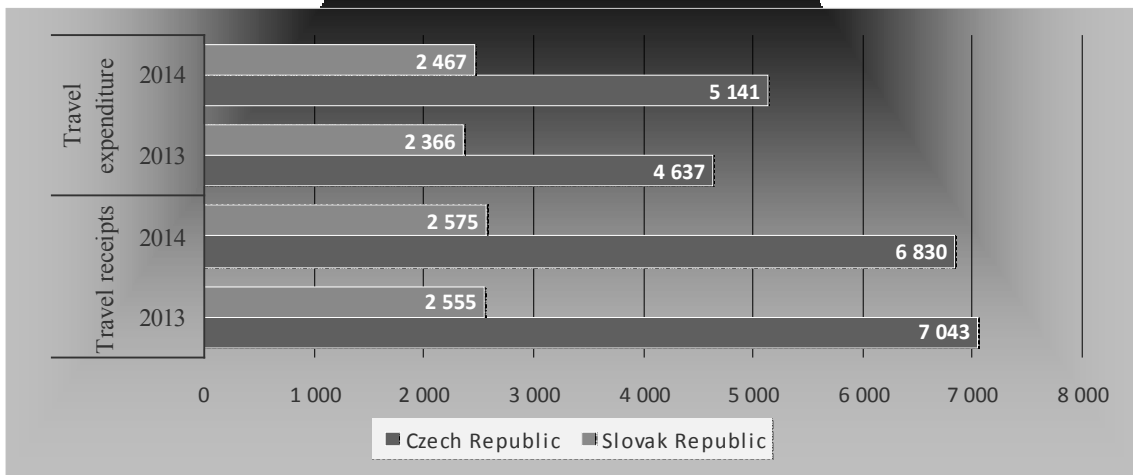


Fig. 5. International Income and Expenses (Source: OECD database, processed by author)

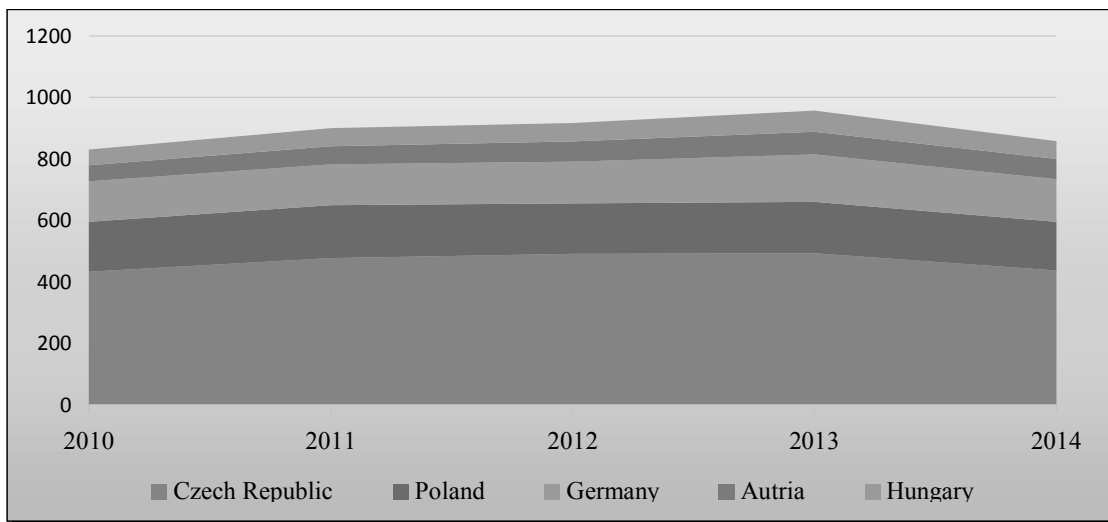


Fig. 6. The best markets in the Slovakia (Source: OECD database, processed by author)

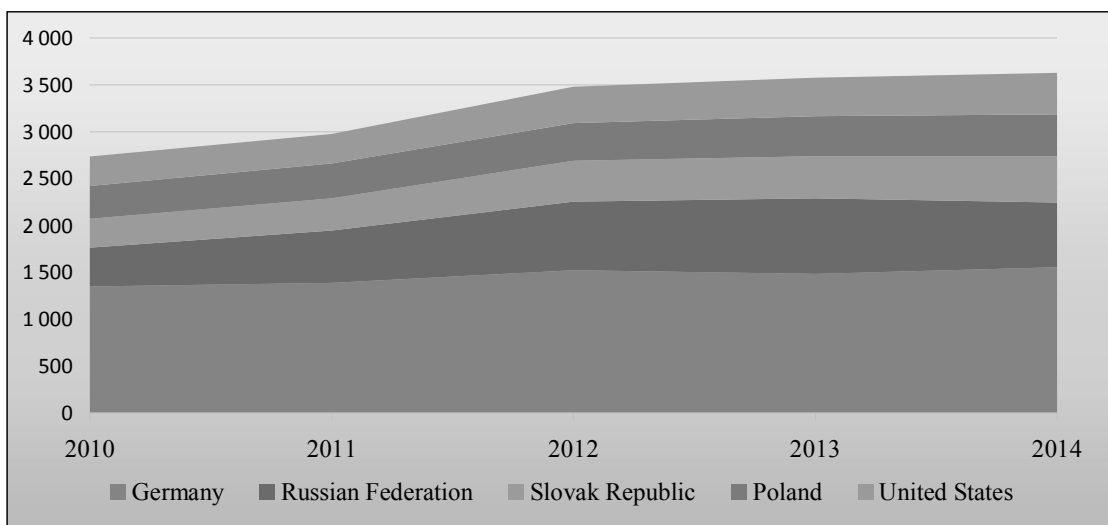


Fig. 7. The best markets in the Czech Republic (Source: OECD database, processed by author)

Slovakia is perceived as a safe country. In the period under review, there was a decline in international markets. At present, however, it benefits from this status, and in the databases and statistics of tourism there are visible positive changes and increases in international visitors to the country.

In the Czech Republic, as in the period under review, there is an increase in international arrivals as well. This is also the case when the country set itself the goal of significantly supporting domestic tourism. Chalupa, Rux, Hübel [2016], said that the increase in traffic in the country is influenced not only by the current international situation, but also by the fact that foreigners perceive the Czech Republic as a safe destination, but also a land market and market interesting with regard to the artificially maintained value of the crown against foreign currency.

The results of primary research show that one of the problems of negative economic outcomes can be an inconsistent, often changed, country presentation, as illustrated in Figure 8. Jarábková, Majstriková [2016] complements the barriers to tourism development of bureaucracy and corruption related to the acquisition of financial resources to support development Tourism, poor state of technical and social infrastructure, but also weak marketing.



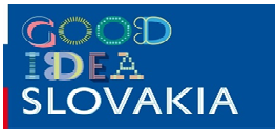
Slovak Republic		Czech Republic
	emerging year 2005	
	emerging year 2006	

Fig. 8. Identity - country mark

(Source: <https://www.etrend.sk/ekonomika/slovensko-ma-novu-znacku-bude-krajinou-napadov.html>)

Before 2005 Slovakia promoted the heart with the inscription Slovakia. I do not need Travel Agencies, because the heart had many countries in the logo and the logo was hard to remember. The heart was replaced by a butterfly with a red, blue and yellow color of the wings. It should be seen as a colourful and interesting landscape. As a small country with its size but with enormous potential. According to the logo makers, it was possible to introduce elements of folklore that represent the richness of traditional Slovak patterns.

At present, the Slovak Republic will present itself as a "good idea". It is expected that the concept of branding the landscape, the new "Slovakia brand", with the good slogan of Good Idea Slovakia, will increase the attractiveness of Slovakia and bring the desired economic results. Practice shows that creating the logo itself for a comprehensive goal is not enough. There is a need for the development barriers to be perceived in a wider context, which resonates repeatedly in the OECD report as well as in other media. Another is the close cooperation with various actors in development. The increase in international arrivals is closely related not only to cooperation but also to the state of technical infrastructure.

Slovakia has limited technical and capacity capabilities in Bratislava. Chairman of the Board of Directors and General Manager of MR Štefánik Airport in Bratislava for the media: "The airport with Bratislava, the Bratislava Self-governing Region (BSK) and the Slovak Tourist Agency (SACR) cooperates with some specific projects for Other airports and regions not only in Slovakia?" He said, "I have to say openly that I do not, and I am very sorry. Any effort is not rethought, and we cannot offer the initiative to infinity only from our side. It is necessary for the other side to come up with concrete proposals, because so far it has always been unilateral. We have not been able to develop any

cooperation effort and I do not understand why the organizations that have just been created to support tourism have the funds for years turning their backs at the domestic airport in Bratislava. Collaboration between cities, regions, or the airport's own tourism support organizations with airports in resolving and promoting new air links is a commonplace and standard issue in the world. We do not work with the city of Bratislava, BSK and SACR."

Various groups of actors, with different ties and interests, appear in tourism policy. They have certain expectations that need to be reconciled and coordinated. However, this calls for an integrated approach in tourism policy that would result in maximizing the benefits of tourism in the context of the environmental, economic and socio-cultural sustainability of the destination. To do this, it is necessary to correctly define, solve, and eliminate not only the barriers but also to know the development of current trends in tourism. The rapid growth of international tourism flows is expected, new consumer trends are developing, the economy is digitised, its key security issue has to be adapted to climate change. From the OECD countries' knowledge and the evolution of current trends, the report sets out the key policy recommendations for the individual countries of the Community:

- Governments need to find ways to take the opportunity to stimulate innovation and promote the development of tourism as a whole, while addressing challenges and new challenges,
- Promote seamless transport.
- Review policy incentives, better understand the policy environment, take advantage of the introduction of tourism policy and innovation laboratories, develop a performance-based and self-regulatory approach, promote best practice sharing and experience between all government levels (national, regional, local).

Conclusion

The tourism industry has a significant impact on many areas of every society. There are both positive and negative phenomena, whose effects are reflected in government policy. Uncoordinated development could cause undesirable effects in the economic and social development of the country. The state can stimulate this process by offering macroeconomic stability, a business environment suitable for tourism, attractive public goods, an innovative tourism policy. In Slovakia, tourism as a sector is not a priority; it is given little attention, although it is constantly declared that the potential for tourism development is great. Compared with selected states, political, institutional support, and state attention have made tourism less use of growth potential and its development does not reach the dynamics of the surrounding. In recent times, there has been a slight increase in visitors, but negative growth rates show that the growth is very slow. Therefore, we propose to stabilize the tourism industry in the national economy, to ensure closer formal and informal communication between the groups of actors at the various levels of governance, to ensure a common and coordinated formulation of policy objectives and tools, to bring the new brand to the country, to use all marketing activities to help meet Set the target for the programming period up to 2020. To make sure that greater policy coherence, the development of long-term and strategic approaches, cooperation with a wide range of public and private actors lead the country to seek new, more effective management tools and policy approaches to overcome sectoral fragmentation.

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Franchising as an Instrument for Activating Economic Entities

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Abstract

The aim of the article was to present franchising as an instrument to support the functioning of enterprises and to increase their economic activity. To this purpose, the functioning of franchising system in the countries of Central and Eastern Europe were described. Selected financial parameters were analysed, such as the number of networks, number of franchise locations, type of franchise system and its changes, number of employees, turnover of companies, in the period 2007-2015. It has been found that there are beneficial changes associated with the development of franchise networks. Poland and Czech Republic are leaders. Other countries surveyed show less growth dynamics.

Key words: *Franchising, companies, growth, countries of Central and Eastern Europe*

1. Introduction

In the bank-oriented system, which appears in many European countries, the institutions providing capital are characterised by a low level of specialisation. Commercial banks have a universal character i.e. common and their basic activity does not have any branch specialisation. Further development of enterprises in European markets require searching for new possibilities of access to capital regarding the specificity of this sector as well as limiting legal, tax and administration barriers. It is also emphasised that there are chances of extending opportunities of access to another form of capital and elimination of previously stated barriers. The solution increasing an access to such capital would be allow on existing non-banking institutions.

In the context of existing similarities and tendencies as well as attitudes in the financial market of the majority of European countries, it is essential to seek alternative forms of financial support for enterprises, in order to maintain the balance of the system. This problem regards the particular meaning, especially in the situation of world financial crisis, which revealed the drawbacks of functioning banking systems. One of the forms of system solutions could be introducing modern forms of gaining capital (franchising, venture capital) and their diversification.

During the economic downturn a good way for your own business is a franchising. Franchising involves the fact that the company lends his trademark willing and assists them in doing business.

2. Assumptions and research methods

The aim of the article was to show the state and development of franchising, which improve the financing environment for enterprises in Europe. Franchising has become an important driver of growth, especially in many developing economies [e.g., Michael, 2014, Filip 2006].

The research conducted by the author-analysed data on the impact of the franchise on economic growth in Central and Eastern Europe. The period of research was the period 2007-2015, directly after the global financial crisis. Analysed changes in the franchise systems operating in five selected EU countries - Czech Republic, Poland, Slovakia, Hungary and Ukraine due to the proximity of the potential for development and a large market. Source data for research was obtained from national franchise associations, Eurostat and information from the European Franchise Federation database. Under the assumptions need to research an analysis of selected financial ratios, which may determine whether and how the franchise influences the activity of economic entities in different countries. An analysis was made of selected financial parameters. Quantitative analysis was done by examining changes in parameters such as the number of networks, the number of open seats franchise, the number of systems and their changes, the number of employees, turnover of companies

Franchising is a new and dynamically developing financial instrument of great potential. Franchising is also a kind of financial activity. Franchising is a pooling of resources and capabilities to accomplish a strategic marketing, distribution and sales goal for a company. It typically involves a franchisor who grants to an individual or company (the franchisee), the right to run a business selling a product or service under the franchisor's successful business model and identified by the franchisor's trademark or brand. At present franchising is perceived as an indispensable financial instrument of modern economy and its popularity has been gaining for many years, especially in more difficult times for entrepreneurs in the period of recession or slowdown of economic growth. Entrepreneurs, who think of greater profits or at least more stable conditions for conducting economic activity, often choose the development by franchising (like we see in countries UE-15). There is a lack of reports presenting the ratio of entrepreneurs who benefit from this form of financing and its influence on the growth of a company's value coming from the concluded agreements. It is particularly a specific source of financing the development of enterprises. Franchising is an alternative - towards issuing shares or entry of a financial investor - the chance of development and a manner for fast extension of own network so as to effectively use the effects of scale.

The basic question of conducted by the researcher is whether and what effect franchising has on the development of the states of Central and Eastern Europe. There is no research for this region.

3. Franchising as along term sources of capital

A franchising contract is a form of using long term sources of external capital. Franchising relies on granting by one person (licensor) the second person (licensee) - by franchising fee – permission, which authorises the licensee to conduct business activity under the trademark or name of the licensee. The licensor is usually a known company of a solid position in the market. Usually a licensee grants exclusivity of his actions in a given area and at the same time, he strengthens its position in the market towards competition. A licensee pays various kinds of franchising fees for the licensor who may finance his investments. Franchising constitutes the protective umbrella under which it is possible to hide and wait the difficult period. Entering into the network, the activity is launched under a known brand; as a result, it is easier to win customers. The return on the capital invested in franchising is performed faster than in case of the business conducted behind own facade. Franchising, especially in the reality of newly accepted EU member states is a method of non-capital development of the market. It provides great opportunities for a company, which has problems or cares for a positive image in the market.

The basic advantage of franchising which encourages entrepreneurs to participate in franchising systems is the influence of the franchiser's brand and easier entry into the market. The main reason of selecting franchising as the method of conducting business activity is for many entrepreneurs a possibility of avoiding the demand barrier, as a significant limitation in commencing a sole business activity is competition or difficult entry into the market. Franchising in the Common EU market is chosen by the entrepreneurs who does not know a given market and thanks to franchising use a ready pattern for success and may count on support, which is given by a franchiser [Ramirez-Aleson M., 2016].

In the United Europe, due to free flow of goods, capital and information, franchising becomes a more available form of conducting own business activity. Relatively, there is a decrease of the cost of its acquiring i.e. licence on business. Franchising offers a proven way to create a distribution system that replaces inadequate distribution networks, channelling demand for consumer goods and services through technology transfer, rapid growth of new businesses and employment opportunities for entrepreneurs who own franchises or joint ventures, as well as staff working in these facilities. Compared to traditional forms of market expansion, based on the ownership principle. Franchising is characterized by lower costs, which in turn reduces the level of risk involved. It is an alternative to the costly and lengthy process of creating new companies or branches, as it allows for a profound market penetration and efficient use of economies of scale with little financial backing. That is why franchising is present in almost every field of business. However, the phenomenon of globalisation and the associated tightening of competition forces franchisers to look for new development concepts.

Geographical (spatial) expansion, for example from the local market to the regional market, is possible through the use of franchising. We can use all types of franchises but the most effective ones are: indirect, multiple or general franchising. We can distinguish two basic strategies of territorial expansion implemented by franchise systems:

- Diversification of the market,
- Creating global networks.

In the first case we are dealing with the internationalisation of our business. Entrenched systems in the field, they discount their financial success by entering unspent geographically new markets. At the heart of this process is the saturation of the domestic or local market, and thus exhaustion of the possibility of further development. Vertical diversification under this strategy is highly applicable to franchisees who are producers who can make "backwards" or "front" diversions by franchising e.g. producer with franchisee distributors. In the second case, it is about creating quite new systems, which by its nature can be termed global. The starting point here is a preconceptional concept, operating on a global market and adapting to it the organizational structure, marketing, product, etc. The subject innovation (industry), according to which the starting point for new concepts of franchising development is the slogan "think globally, act locally". It means more consolidated, central management of the system with a greater use of competitive advantage based on economies of scale, while more precisely defining the objectives of the business, responding to specific local needs. "Global thinking" is understood as a perception of reality from the point of view of macroeconomics, while "local action" as its practical implementation at microeconomic level. As the main directions of the subject expansion within franchise systems, there are:

- Search for niche markets;
- Product / service diversification;
- Product / service modification (refinement).

Franchising has its advantages and disadvantages both for the beneficiary and the donor of the franchise system. It should be emphasized that the franchise can include both foreign and domestic systems. As shown by the economy of many countries after the acquisition of franchise foreign systems, many national economies have created its own franchise networks, which then extended on domestic market and abroad.

4. Analysis of changes in franchise systems in Central and Eastern Europe – results of own research

The purpose of this article is to present franchising as an instrument to support economic activities. State and development of franchising was presented in Central Eastern European countries, i.e. Czech Republic, Poland, Slovakia, Ukraine, Hungary. An analysis was made of selected financial parameters, i.e. number of networks, number of franchise locations opened, number of system and its changes, number of employees, turnover of companies. The initial research period was 2007 year.

Tab. 1. Franchise systems (brands) in countries of Central and Eastern Europe in period 2007-2015
(Source: Own calculations based on European Franchise Federation, EFS 2016)

Countries	2007	2008	2009	2010	2011	2012	2013	2014	2015	Dynamics [%] 2015/2007
CZ – Czech Republic	131	137	150	150	168	180	215	219	227	173.2
PL – Poland	402	512	618	739	845	864	998	1062	1114	277.1
SK – Slovakia	36	37	48	57	62	72	72	75	78	216.6
UA - Ukraine	290	250	190	230	320	330	335	340	340	117.2
HU – Hungary	330	350	351	361	361	365	370	375	382	115.7

As the data in Table 1 show, the largest number of franchise systems is nowadays at Poland. Today it has over 1100. The second largest number of companies licensed under the famous brands in

Central and Eastern Europe has Hungary (with the number 382), which for many years has been the leader in this region. In neighbouring Ukraine there are 340 franchisees and in the Czech Republic 227 franchise systems. This is little more than in Serbia or Croatia, which are incomparably smaller in terms of area. The least franchise systems of the surveyed countries have Slovakia. The relatively small number of franchisees in the Slovakian market is due to the dominance of foreign operators. Franchisors want to reduce their franchise deployment costs by choosing one partner who entrusts brand development across the country.

The research shows that in the years 2007-2015, the number of franchisees increased systematically year per year, by 8 % on average. Poland positively stands out against other countries. In the analysed period, the number of franchisees in Poland increased by 10.5% year to year, and in nine years it reached dynamic about 277.1%. Recent developments have been reported in Slovakia, with a growth rate of about 217 percent. Systematic and stable development is also confirmed by the Czech Republic. Last year, the number of Czech entrepreneurs under license increased the most, there are now 6120 entities and business licenses sell 227 companies. In Poland and the Czech Republic, due to the much greater potential of the franchise business, most franchise companies choose to win individual franchisees. Small but stable growth dynamics are Hungary and Ukraine - about 115 percent. Ukraine is a new developing market and political troubles are slowing this development.

Tab. 2. Franchise outlets/Point of sale in countries of Central and Eastern Europe in period 2007-2015
(Source: Own calculations based on European Franchise Federation, EFS 2016)

Countries	2007	2008	2009	2010	2011	2012	2013	2014	2015	Dynamics [%] 2015/2007
Czech Republic	3200	3250	3320	3476	4360	5299	5650	5760	6120	191.2
Poland	22784	27229	34047	40760	49390	57290	63480	65984	68460	300.4
Slovakia	1213	1525	1527	1532	1540	1560	1575	1575	1590	131.0
Ukraine	28570	25000	20000	24000	32000	32100	32600	32700	32750	114.4
Hungary	17000	18000	19000	20000	20000	21000	20500	21300	21800	128.2

Statistical data show a similar trend in the number of franchise outlets (Tab. 2). In Poland there are already about 68.460 franchise points of sale. It is two times more than in Ukraine, almost three times more than in Hungary. In the Czech Republic there are 6120 franchise points, which is ten times less, which partly explains the proportion of the population (roughly 4:1). The number of franchise points until 2012 has grown in geometric progress. In recent years it has been established from 15 (Slovakia) to 2.500 (Poland) franchise companies every year. During this period the best was last year. In the richer countries (EU-15) development and power companies formed successive generations of owners.

The countries of Central and Eastern Europe are only at the beginning of the road. The dynamics of the development of franchise networks in these countries is satisfactory. The dynamics of newly opened franchise outlets is best in Poland and then in the Czech Republic. Slovakia, Hungary and Ukraine recorded a growth rate of 114.4 to 131%. The market verifies which franchise will maintain and which will be lost.

Tab. 3. Employment for franchised outlets in countries of Central and Eastern Europe in 2007-2015
(Source: Own calculations based on European Franchise Federation, www.eff-franchise.com)

Countries	2007	2008	2009	2010	2011	2012	2013	2014	2015
Czech Republic	22000	30000	30000	31000	32000	32000	33000	33500	34000
Poland	189000	191500	221000	280000	335000	357000	369000	365000	370500
Slovakia	6500	6800	6910	6910	6800	6950	6950	7500	7600
Ukraine	170000	175000	100000	120000	160000	165000	170000	178000	182000
Hungary	90000	95000	100000	100000	100000	105000	105000	108000	109000

Franchising also has a big impact on employment. According to the calculations in Table 3 in the franchise networks of analysed countries work is 0.7 million people. In the analysed period, the average employment per franchise was at 1 to 9 people. This is a significant level of employment. The best indications were in the Czech Republic. In Slovakia, at one point franchise works the least, recently 4.7 persons. In other countries, the employment level is 5-5.5 employees in the last year under study. This value refers to full-time employment and does not include franchisees or system operators. Franchise-based companies are typically small family businesses employing several people. This is one of the main ways of development of small entrepreneurship.

As the main reason for popularity of franchise are the economic slowdown and the associated stagnation in the labour market. Persons who have lost their jobs or are unable to find a job often decide to start a company and work on their own. Franchise eliminates the problem of lack of business idea and minimizes the risk of inability to assess the risks associated with doing business. An interesting aspect of research is to show the turnover of the franchise companies.

Realized sales turnover is an important financial result. Unfortunately, the author does not acquire the financial data for all countries. Based on available data the author compiled data on the turnover of companies only for Polish and Ukraine. Financial data are presented in current prices.

Interesting what, Poland is a stabilized country where the franchise system has been developing steadily since 1989. On the other hand, Ukraine enters European markets and gradually develops this business. Data for these countries is presented in Table 4.

In this ranking Poland has a better indication. Systematically, turnover from franchise networks increased year by year about 11% (in 2008-2010) and then the rate of change is less fluctuating around 4.7% to 9.1%. The period immediately after the financial crisis was a good impulse for the development of the Polish economy. In Ukraine there are large and irregular changes - big falls or big increases. The turnover is definitely low and the rate of change is also (10%), which is typical for the initial phase of the franchise market development. In Poland (2015), the increase relative to 2007 was large and at the level of 86.2%.

Tab. 4. Turnover for franchised outlets (billion Euro) and its dynamics in Poland and Ukraine
(Source: Own calculations, EFS 2007 –2016)

Countries	2007	2008	2009	2010	2011	2012	2013	2014	2015	Dynamics [%] 2015/2007
Poland	18.2	20.3	22.7	25.1	26.3	27.0	29.4	32.1	33.9	15.7
Dynamics year/year (%)	-	11.5	11.8	10.5	4.7	2.6	8.8	9.1	5.6	86.2
Ukraine	2.0	1.5	1.0	1.2	1.6	1.6	1.8	2.1	2.2	0.2
Dynamics year / year(%)		-25	-33	20	33.3	-	12.5	16.6	4.7	10.0

It was interesting to examine the maturity of the franchise market in Central and Eastern Europe. At mature markets among franchise systems should appear alongside foreign systems national systems (domestic brands). This testifies to strengthen the economy of the country.

Tab. 5. Share domestic brands within franchised systems in countries Central and Eastern Europe [%]
(Source: Own calculations based on European Franchise Federation, www.franchiseeurope.com)

Countries	2007	2015
AT – Austria	43	51
CZ - Czech Republic	49	60
DE - Germany	79	80
PL – Poland	71	75
SK – Slovakia	42	43
UA- Ukraine	13	13
HU - Hungary	55	60
FI - Finland	75	75
FR- France	85	85
GD- Germany	79	82
IT- Italy	90	85
ES-Spain	81	85
SE- Sweden	90	80
GB- Great Britain	80	80

How can we observe a trend in the growth of domestic brands in the EU member states, we see currently dominate national systems, which represent 51 to 85 percent all franchise brands. The exception is Slovakia, where the share of domestic brands is 43% and Ukraine with only 13%. At the Czech Republic and at Hungary share of national franchise systems is 60%. In Poland, the share of native franchisees is bigger 75%, almost equal to the EU average (72%). Until 95 Polish franchise systems have at least one outlet abroad (Profit System data, 2015). The most distrustful of foreign systems remain a franchisee from Italy, France and Great Britain. It is a natural stage of development, but rather for large companies that have been successful in the country. The best known franchisees of these brands that are recognizable have been operating for years and the business model has been tested in many establishments. Especially in the case of the most famous brands, it is necessary to invest a lot, stick to the rules of the contract, and choose a business location. Risk elements are still sudden competition.

5. Conclusion

Franchise as a system despite the difficulties of crisis time continues to trend. This is due to the fact that it offers opportunities to overcome barriers, mainly financial and demand. The research conducted on the franchise study indicates the rapid development of this market sector in the countries

of Central and Eastern Europe. Good financial indicators for the franchise are noted by Poland, Czechoslovakia and then Hungary. Franchising is a good solution for the European economy, because by creating new connections, the number of business entities operating in the market economy is increasing. Demand barriers that inhibit the growth of small and medium-sized enterprises in this way are also limited. The franchise market in the countries of Central and Eastern Europe is well organized. This is evidenced by the quantity and type of franchise systems. There will pass several years before - on the basis of Western European countries - this offer becomes a standard of newly accepted countries. Also, the prevailing dominance of native networks of foreign countries and expansion abroad are typical signs of franchise maturity.

Despite the fact that franchising profoundly eases the commencement of business activity, without cooperation of banks, their development is practically impossible. At the same time, among the offers of banks it is difficult to seek the one, which is prepared specially for the franchising companies. It is estimated that within the perspective of the following years, availability of franchising will be growing, especially that franchisers are aiming at decreasing costs of primary investment. Franchising is a specific way to stagnation through self-employment. As the main reason for popularity of franchise given the economic slowdown and the associated stagnation in the labour market. Persons who have lost their jobs or are unable to find a job often decide to start a company and work on their own. Franchise removes the problem of lack of business ideas and minimizes the risk of inadequate assessment of the risks associated with running a business.

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Comparison of Business Modelling Approaches: Pros and Cons

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Abstract

The purpose of this paper is to analyse and compare different approaches of business value modelling, specifically Value Network Analysis, Supply-chain operations reference model, e3-Value model, Capability analysis, and Resource-Event-Agent model. We discuss these concepts and provided their weaknesses and strength analysis by the particular concept in detail. The approaches enable quantitative analysis of business value in many emerging technologies markets like the Internet of Things environment and offer well developed concepts for a single organization, and with some limitation also for multiple organizations.

Key words: *Intangibles, Business Value, Value Modelling, Requirements Engineering*

Introduction

Today, there are many new business opportunities emerging in different enterprise environments. Many of them are based on value created by intangibles. In the paper we consider business model innovation as a process where intangibles capital is employed. Innovation focuses on discovery new values, and development or improvement of ways how values are created, exchanged and consumed. As renowned authors Osterwalder and Pigneur [2010] define business model as a human construct or presentation that describes the rationale of how an organization creates, delivers, and capture value.

An integral part of a business modelling framework is to identify customers, market segments and stakeholders, and business relationships with them, as well as define value propositions, which are related to the product and services that articulate the values delivered to them to satisfy their needs. There are also very important resources and activities that are required and applied to create the value. Identification of partners is crucial because via business relationships with suppliers and others the business creates value. For finishing the effort a profit and value calculation is essential. That defines the structures and related computation mechanics that can determine all relevant measurement of cost, revenues, related to the operations of the business, in the context of the business model.

The introduction new technologies like RFID and smart computing has already enabled many new application and business propositions in the business systems and domains like logistics, manufacturing and production, industrial automation, environment, transport, maintenance, health-care, services etc.

New emerging technologies and their applications require new business models or re-engineering or rebuilding of the traditional models. In the paper we analyse different business value

modelling approaches for creating a business model and modelling business value. We point at their pros as well as at cons, and we summarize them in a visual way. The paper is divided as follow – at beginning we discuss business modelling background and define business model itself. Then we provide an analysis of five most renowned quantitative approaches, we see their weaknesses and strengths in detail. All of them are analysed at the end of the paper.

1. Business modelling and business model

The basic questions to be answered in the business model are the fundamental questions of any business: What do we offer to the customer, who are they and how do we operate to deliver the product or service so that we can create a profitable and sustainable business? In other words, we need to identify and analyse the value proposition in the intended service, to which customer group the service is targeted and how we organise ourselves to deliver the service in the most efficient way. The business model can take two very different approaches: The value model and the process model.

As the name indicates, value modelling focuses on value creation; how value is created, by whom and for whom. It is thus foremost a strategic tool with the aim of identifying new business opportunities and how the firm can position itself strategically to derive maximum benefits from new and emerging opportunities, which may or may not require substantial redefinition of the enterprise infrastructure.

Process modelling is in many ways different from value modelling. Process modelling refers to business procedures of the same nature that are classified together into a model. One possible use of a process model is to prescribe how things must/should/could be done in contrast to the process itself, which is really what happens. The process models are thus best suited to provide an architectural overview in the implementation of business strategies in established infrastructures.

The value model and the process model reveal only superficial information about the profitability (quantification of revenues and costs) of the proposed eBusiness. In most cases the financial information can be very useful for evaluating and prioritising various instantiations of the model, but a serious analysis of revenue streams and pricing models and associated costs needs special modelling work. For this purpose, a series of revenue and pricing model methodologies exists. The notion of “business models” has increasingly been used in recent years to describe the utterly complex environment in which firms and organisations are operating; having to deal with new disruptive technologies, rapidly changing demand patterns, decreasing customer loyalty and constantly facing new entrants in the market. In this environment, firms and organisations must constantly move and re-position themselves. In order to do so in a structured way, they use so called “business models” to help them make the right choices.

In most cases, the notion of a “business model” is little more than a buzzword with no precise definition. Executives, reporters and analysts use the term without having a clear idea of what it means. They use it to describe everything from how a company earns revenue to how it structures its organization. In many cases, the business model is also confused with the strategic goal setting of the firm or organisation. However, research on business modelling is working closer to the definition of commonly understood and agreed business model ontology [Pigneur, 2005].

The need for business models in the case of services are of particular importance, as we shall see in the following, so we want to go beyond the buzzwords and develop a robust business model ontology for defining and analysing business opportunities. This approach will help us developing sustainable business models and business cases for the various applications that can be envisaged on the Internet of Things (IoT) platform.

In this approach, we prefer to see business models as an artefact, which aggregates the value a firm offers to one or several segments of customers, and the architecture of the firm and its network of

partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams.

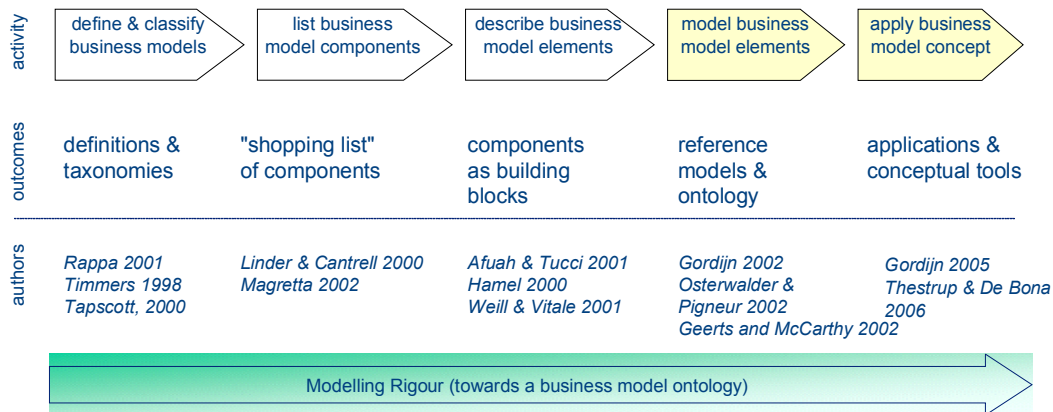


Figure 1. Evolution in business model concepts (Source: Thestrup [2006])

Hence, we use the following definition of the business model adopted from [Negelmann 2001]: “A business model defines and structures the fundamental way and form of the aspired added value of a firm. It contains the description of the exchange processes, the roles of the participants, the profits for business partners as well as the revenue sources to be realised.”

A firm with a strong business model have much better foundation for understanding the challenges of the IoT environment and sharing its understanding among stakeholders. Mapping and using business models facilitates change, because designers can easily modify certain elements of an existing model and simulate new businesses. This is a way of undertaking risk free experiments, without endangering an organisation. A business model is thus an abstract (or exemplary) description of a company’s entrepreneurial activity.

The basic questions to be answered in the business model are the fundamental questions of any business: What do we offer to the customer, who are they and how do we operate to deliver the product or service so that we can create a profitable and sustainable business?¹ In other words, we need to identify and analyse the value proposition in the intended service, to which customer group the service is targeted and how we organise ourselves to deliver the service in the most efficient way. As we shall argue later, the order in which these three steps are performed have a great impact on the choice of modelling approach to be taken. When the three questions have been answered, we can easily analyse the revenue streams and cost models and derive the financial return and thus evaluate the sustainability of the proposed business.

The value proposition is an overall view of a firm’s bundle of products and services that together represent a value for its customer. An important reason for the failure of many eBusiness ideas over the years is the lack of a sound value proposition to customers. It is thus of the utmost importance that value propositions based on specific applications are meticulously evaluated and assessed in an objective way.

Customer groups are targeted by the actual value proposition. When the customer group has been defined, the next step is to evaluate how the firm actually can gain access to this target group, i.e. which distribution channel can be activated. A distribution channel can be defined as a set of links or a network via which a firm “goes to market” and delivers its value proposition. This concept is well known and straight forward for physical products, but IoT services needs a whole new thinking in terms of re-defining “distribution channels”. As we shall see later, the need for innovation in distribution channel planning is high and concepts like bundling of services, value nets and dynamic value constellations can be successfully incorporated in this process.

¹ The methodology and illustrations in this chapter are adopted from Pigneur [2005].

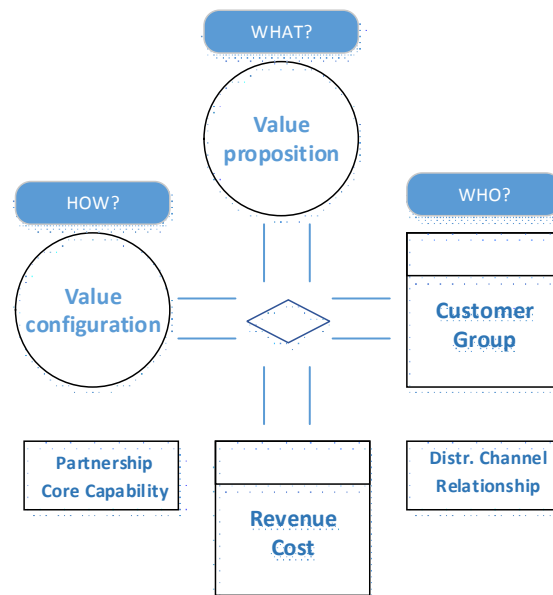


Figure 2. Fundamental elements of a business model (Source: own)

The value configuration involves structuring the firm's or organisation's infrastructure to be able to deliver the value propositions to the target groups. The value configuration is thus closely related to the firm's core competencies and operational infrastructure.

The overall rational and description of a firm's or organisation way of doing business is described in its business strategy. The business strategy describes the firm's vision, objectives and goals and the methods and tools it will deploy in order to achieve these goals. Ideally, the strategy does not describe in detail by which means (products and services) and for whom (customers and target groups) it will achieve its objectives. This information is added at the planning level. A firm separation of strategic and operational goals is the key to successful management of enterprises.

However, the changing business environment and global trends call for regular reality checks and revisions of the strategy. Especially the emerging technological trends in ICT calls for strategy revisions in many product oriented firms. We show how business models can assist the firm in effective implementation of revised or new strategies with focus on eBusiness, by providing a conceptual architecture of the new strategy for subsequent implementation in the firm's business processes.

At the strategic planning level, the firm or organisation evaluates overall business opportunities and emerging trends in markets and technologies. With special focus on the availability of new and disruptive services based on the IoT platform, the firm may wish to adjust its strategy accordingly.

However, before the strategy can be effectively implemented in the firm's business processes, opportunities and strength needs to be analysed at the architectural level. Value proposition, customer target groups, weaknesses in core elements, such as resources, distribution channels, etc., must be identified and new ways of business interaction must be created and evaluated. This is the role of the business model. The business model allows for visualisation and evaluation of the eBusiness opportunity, easy communication among stakeholders and rapid iterations and evaluation of different scenarios. Suitable modelling tools are essential for the successful and effective development of complex business models.

After the modelling has revealed the optimum business architecture for new service, the implementation phase can commence. First, the business model must be instantiated with the most promising combination of value proposition, customer groups, partner networks, etc. Founded in the firm's or organisation's overall strategy and adding the relevant industrial settings, other financial and market conditions, one arrives at a concrete business case for the new service, which can form the

basis for a management decision to go ahead. The business case is easily implemented in the business process via a suitable business plan.

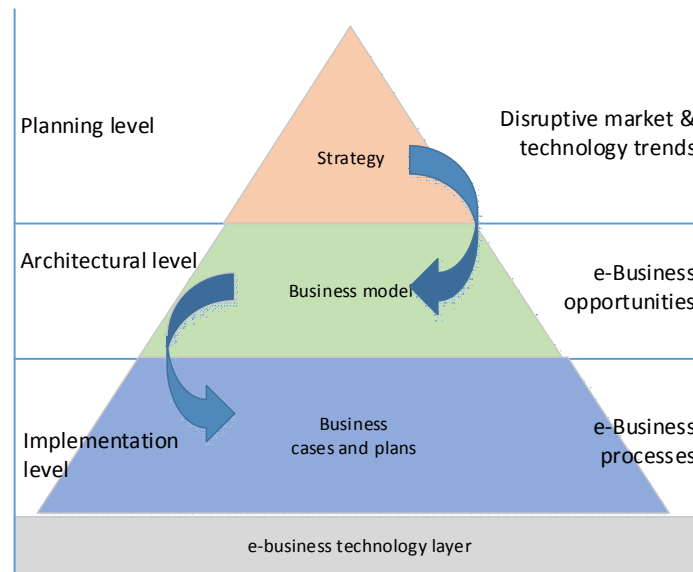


Figure 3. Business model as conceptual architecture (Source: own)

2. Analysis of business modelling approaches: pros and cons

In this chapter we discuss five specific approaches, which have been recognized as relevant for business value modelling and analysis of business value, specifically:

- Resource-Event-Agent (REA)
- Value Network Analysis (VNA)
- Supply-chain operations reference approach (SCOR)
- e3-Value model
- Capability Analysis

Resource-Event-Agent (REA) provides an accounting perspective on the creation, transformation and exchange of economic resources by economic agents. With other words it is a model of how an accounting system can be re-design for the computer age. According to Hruby et al. [2006] in REA, economic agents perform economic events that convert or exchange economic resources, i.e. real objects in the REA model are resources (goods, services or money), events (business transactions or agreements that affect resources), and agents (people or other human agencies, i.e. companies). REA does not deal with more subjective forms of value, but focuses on products, services and resources that have defined costs and prices.

Weaknesses

REA focuses only on economic value (price versus cost). The pattern that REA provides is rather abstract and it would be very restricted to make it adequate of modelling complete operations of a business model.

Strengths

Model provides explicit modelling of resources, clear distinction between the role resource and other resources, and works at the principle of reciprocity – something received is compensated by something provided.

Value Network Analysis (VNA) is a methodology for understanding, using, visualizing, optimising internal and external value networks and complex economic ecosystems. As discussed in Peppard and Rylander [2006], value network analysis addresses both financial and non-financial value. Every business relationship includes contractual or mandated activities between participants - and also informal exchanges of knowledge, favours, and benefits. According to Biem and Caswell [2008] the analysis begins with a visual map or diagram that first shows the essential contractual, tangible revenue - or funding-related business transactions and exchanges that occur between each node of the networks. After the value network diagram has been prepared, it can be used to perform three complementary analyses:

- exchange analysis: investigation of the general pattern of the exchanges in the network, sufficient reciprocity, existence of weak or inefficient links,
- impact analysis: can an involved party create value from the received inputs,
- value creation analysis: assessment of the value increases that an output triggers for the customer and how the company itself benefits from it.

Weaknesses

Every detail, including activity, resource and value detail that goes beyond the definition of roles and deliverable flows (exchanges between roles) is defined as formatted text.

Strengths

The concept of role collaboration and exchange of deliverables that convey tangible and intangible value is very useful. It is a natural pattern of how people or organizations interact and cooperate, and by doing so, exchanging value and/or together creating value. It also provides excellent basis for seeing the big picture (e.g. business networks or business eco-systems), as well as for drilling down into more detailed collaborations.

Supply-chain operations reference (SCOR) model is a process reference model that describes the business activities associated with satisfying a customer's demand, which include plan, source, make, deliver, and return. For a reference see Douglas [2008] or Bolstorff and Rosenbaum [2012]. Use of the model includes analysing the current state of a company's processes and goals, quantifying operational performance, and comparing company performance to benchmark data. SCOR has developed a set of metrics for supply chain performance, and Supply Chain Council members have formed industry groups to collect best practices information that companies can use to elevate their supply chain models. The model is based on 4 major "pillars":

- Process modelling and re-engineering
- Performance measurements
- Best practices
- Skills

Weaknesses

These approaches focus on performance and performance benchmarks as mentioned in Francis [2007]. Focus is on activity networks. Support for modelling business networks, organization alignment, resource use is limited. Levels of abstractions can be defined by isolated models, which are not aligned by the model itself. There is no explicit support for creation of integrated models with a scope that is broader than a single process. These approaches can't be used to model a business model or a structured model that represents the operation of a business model. Focus is more on administrative and control flows. There is no support for analysing parts of the same model in multiple contexts or scenarios.

Strengths

Particular strength of these approaches are that this approaches is an integrated measurement approach,

- Libraries for standardized reference model elements

- Activity network modelling
- Explicit modelling of resources and deliverables

e3-Value model was proposed by Gordijn [2002] for developing and describing e-business systems that do not necessarily need reflect the complexity and uncertainty of business operations. According to Gordijn and Akkermans [2003] e3-value is a modelling language for evaluation of the viability of e-commerce business models or value constellations.

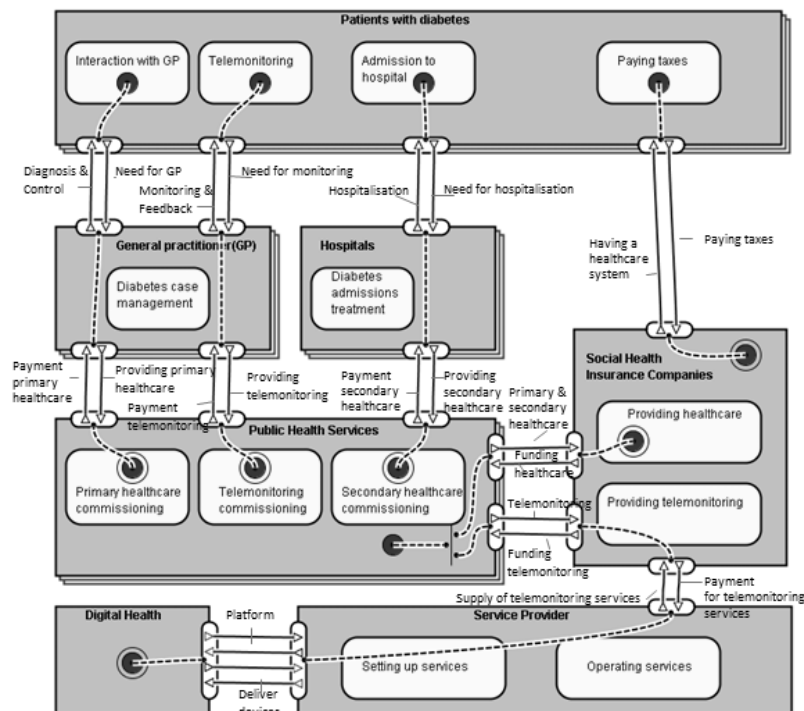


Figure 4. e3-Value business model (Source: own)

Weaknesses

The concept itself focuses on just economic value only (cost and revenues), and has no broader concept of value. The approach adopts a specific way in which inputs received are transformed into output created. It is just a computation structure or a set of expressions that are combined to transform the cost of inputs into cost of outputs. There is limited space to model more specific activities, resources involved and store of resources, so it is not a good approach to facilitate modelling and analysis of operations of business models in broader context.

Strengths

e3-Value is a good approach for quick assessment of business relationships, given cost prices of deliverables and given demand forecasts. It can support quantitative what-if analysis or simulation of profit, based on cost and revenue in complex exchanges. It also defines the deliverables that are produced and exchanged and enables what-if simulation of different scenarios.

Capability analysis defines a collection of capabilities that may be exercised to earn revenues in the marketplace and compete with other firms in the industry. According to Leonard there are three types of business capabilities that a firm might possess – core capabilities, enabling capabilities and supplemental capabilities. A business capability is what a company needs to do execute its business strategy. It is an assembly of people, process and technology for a specific purpose. Core capabilities comprise physical technical systems (machinery, databases, software, etc.), managerial systems (systems for the management of operations), skills and knowledge systems, and values and norms systems.

Usually a capability maps is used in capability analysis. It contains definitions of a hierarchy of capabilities required along with assessment of the importance and performance of these capabilities. According to Krohn [2011], the capability map is the framework for defining scope and analysing impact. A capability is “what” the business does. By focusing on the what, the map becomes very stable. “How” something is done changes frequently; with every system implementation or process improvement, it is altered. However, what is done remains relatively the same, year after year.

The map organizes these capabilities into a hierarchy, with each capability level providing progressively more detail. The hierarchy enables to start with a broad discussion and then dive into more detail where needed. Creating a capability map, containing commonly used or usable definitions of capabilities, with their associated detail, establishes a common vocabulary across the business. This will enforce productivity in design or re-design of business models

Weaknesses

Applying capabilities in value stream or value chain is essential, but it only provides a partial coverage of what a business model represents. From perspective of a business model it is not sufficient to identify capabilities alone and just create heat maps of capabilities.

Strengths

Capabilities definition and their application in value chains or value streams enforces a common vocabulary in the business, much better business design, better comparability and ability to separate “what” a business does, from “how” it is done, that helps in analysing and designing different levels of abstraction and detail.

3. Comparison and analysis of specific views

There are different approaches useful for business value analysis that allows a development of a business model that is accessible to multiple users. There are two main dimensions depending on the count of organisation – developed for one or for many organisations. Most of approaches are developed for a single organisation or for a limited interaction within partners. Considering multiple organisations, there are also strict limits for the complexity of describing the ecosystem. There is difficult or not efficient to build and model new relationships where many of the properties are shared with existing defined relationships.

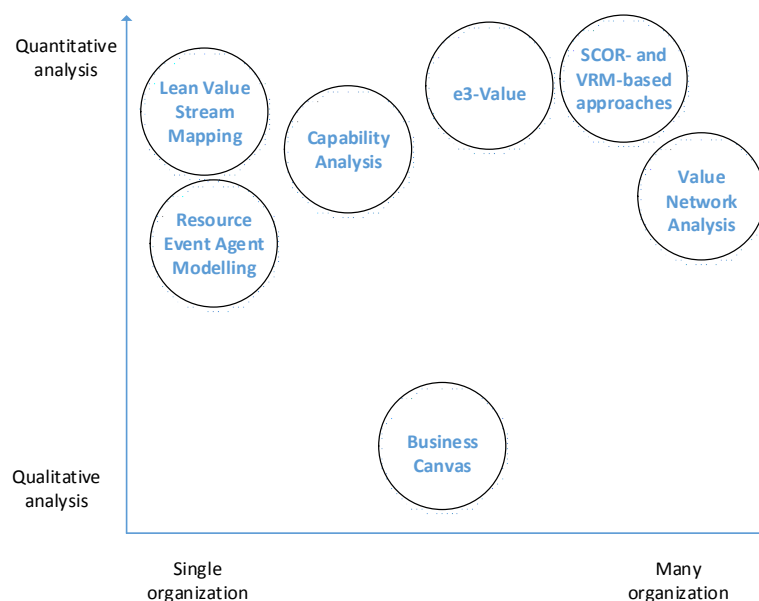


Figure 5. Comparison of business value modelling tools (Source: own)

As detailed shown in Figure 5 all of the model under consideration support quantitative factors. Specifically most approaches focus on a single organization, only e3-Value, SCOR and VNA might be suitable for multiple organizations, but there are limits to the complexity supported. More qualitative approach is Business model generation or Business Canvas proposed by Osterwalder and Pigneur [2010] and discussed in the introductory part of the paper.

Conclusion

Our paper has shown the importance and usefulness of applying a value-based approach to business modelling of new emerging technologies like the Internet of Things. It does not bring only detection of new value objects but also can bring an understanding how the emergence of new value objects can bring entirely new actors into the business system for improved sustainability and performance of the model. That is well known that new emerging technologies and their applications require new business models or re-engineering or rebuilding of the traditional models. Therefore in the paper we analyse different business value modelling approaches for creating a business model and modelling business value. We point at their pros as well as at cons, and we summarize them in a visual way. The paper shows a discussion of the business model with a detailed look at the particular modelling approaches within the analysis of five most renowned quantitative approaches.

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Electronic Registration of Sales – Analyse and Appraisal of Implementation of the New Obligation for Entrepreneurs in the Czech Republic

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Abstract

This article is focused on analyse and appraisal of the sequential implementation of the electronic registration of sales in the Czech Republic, the process of which started in April 2016 by a declaration of the act on electronic registration of sales in the statute book. In December 2016 a gradual achievement process of the law began to be realized in particularly prepared phases. The authors of the article have been focused on analyse of actual results of EET in numbers and data. They were also evaluating the implementation of this new obligation of entrepreneurs in connection with accounting as well as with tax impacts including the relatively extensive update of the legislative area that affected first of all the Act No. 586/1992 Coll. on income tax and Act No. 235/2004 Coll. on value added tax. The topic of the article is also a presentation of costs on the implementation of EET from the view of the state.

Key words: *electronic registration of sales, VAT, income tax, entrepreneur*

1. Introduction

Since December 2016 the process of a new obligation called electronic registration of sales has been gradually introduced in compliance with Act No. 112/2016 Coll. (hereafter AoEET). The implementation of the electronic registration of sales (hereafter EET) represents a significant intervention into the entrepreneurial environment in the Czech Republic. In fact, the new responsibility is not related only to entrepreneurs generating sales but indirectly it is relevant also for other areas, e.g. accounting, income taxes, value added tax, tax and administrative codes. System EET in the Czech Republic operates on the “on-line” principle, i.e. an immediate and continual reporting of sales that are generated by tax payers of the income tax within their business and the payment is performed in cash or through a payment card or other similar means based on the section 5 of AoEET. The registration of sales has been set off gradually in 4 phases (2016-2018). The entrepreneurs have to find out which field of their business is relevant for generating of sales and classify the particular activity according to the ranks based on NACE¹ classification.

¹ NACE is an abbreviation for the classification of economic activities issued by European Committee, which supports European Union to collect data in economic areas. The abbreviation NACE originates from French (Nomenclature statistique des activités économiques dans la Communauté européenne).

This classification is crucial for commencement of the duty of an entrepreneur to adopt the registration of sales. The registration itself is operating in a standard (common) mode or under certain circumstances in so called a simplified mode that enables to report sales with a delay up to 5 days. The registration of sales represents two responsibilities in connection with its execution. The first responsibility is to send information on sales in the prescribed format and structure to a server of Financial administration, subsequently a unique fiscal identification code (FIK) is sent back. This code is confirming the receipt of the data. The second responsibility is to provide a customer with a bill with information about FIK (in printed or electronic depiction or other form). With the help of the unique code the customer can verify if the sales was registered, recognized by the system and properly reported.

The verification can be performed within a special section of Tax portal website of Finance administration. As an incentive a bill lottery will be established and should be launched as of 1 November 2017 however, Ministry of Finance will additionally inform about the precise deadline later. The company Wincor Nixdorf s.r.o., who has won a competitive tendering for the complex arrangement of the bill lottery, will cover among others the registration of participants of the lottery, registration and acceptance of the bills, drawing and giving the prizes. The lottery shall support, based on a statement of the former Finance Minister, the desired effects of EET. Ministry of Finance is ready to distribute monetary and material prizes to the prize-winners in the amount of 65 million CZK each year. It is predicted that around 25 thousand winnings per month will be realized (MF CR, 2017). Within the bill lottery, a customer can register only one bill per one day. During the preparation of the bill lottery, Ministry of Finance has been inspired by similar events in abroad.

2. Implementation of electronic registration of sales in the Czech Republic

Based on arranging of a sufficient space for entrepreneurs and their adoption of the new concept and also continuity of the system, a gradual introduction has been established in four phases (see Tab. 1) because of more effective concentration of the audit activity by Financial administration in case of detected discrepancies. Concerning the sequential implementation of sales registration, the first area involved was represented by hotel and restaurant services (as of 1.12.2016). Three months later (from 1. 3. 2017) the segments of retail and wholesale joined the EET, and the next year (in 2018) the other business activities will converted to EET [Tax portal of Financial administration of the Czech Republic, 2017]. It is predicted that around 600 thousand entrepreneurs should join EET, during the first phase around 50-60 thousand and in the second phase around 200-300 thousand. For the implementation of EET there was necessary to adopt the following legal norms: Act No. 112/2016 Coll. on registration of sales, the attendant Act No. 113/2016 Coll., by which some acts have been changed based on the adoption of the act on registration of sales and Regulation No. 269/2016 Coll. on the form of creation of signature code of tax payer and security code of tax payer [Hakalová, Pšenková, 2017].

Table 1. Individual phases of implementation of electronic registration of sales from 1.12.2016 – 1.6.2018
(Source: MF CR, 2017)

Date of implementation		Groups CZ-NACE
From 1. 12. 2016	1. phase: restaurant and hotel services	55, 56
From 1. 3. 2017	2. phase: retail and wholesale	45.1, 45.3, 45.4, 46, 47
From 1. 3. 2018	3. phase: other activities not included in 1., 2. or 4. phase (e.g. agriculture, transport, building, insurance, education and others)	1-12, 18 – 20.3, 21, 24, 26-30, 34-42, 45.2, 45.4, 48-94, 97-99
From 1. 6. 2018	4. phase (selected hand trade and crafts)	13 – 17, 20.4, 22, 23, 25, 31-33, 43, 95, 96

3. Accounting in the context of electronic registration of sales in the Czech Republic

Introduction of the electronic registration of sales has had, of course, also an impact on the field of accounting. Ministry of Finance CR has prepared a detailed methodology for the registration of sales, e.g. for the areas related to:

- Principles of the system of the electronic registration of sales
- Definition of the subject of the sales registration, i.e. what income is subject to the electronic registration of sales
- Duties of a tax payer linked to the sales registration - when the duty to register the sales arises and what is the process of commencement
- Registration and information responsibilities – methods of the sales registration, designation of the seat of sales registration and the like
- Penalty for transgressions and administrative offences related to the sales registration
- Mode of performance of the electronic sales registration
- Sequential expansion of the scope of mandatory subjects to the sales registration – timing of the duty to register the sales linked to the domain of business activities
- Income tax relief caused by acquisition of the needed technical equipment
- VAT changes related to the act on sales registration – the rate at restaurant services and new rules for the electronic form of submissions relevant for VAT

With reference to the information mentioned above, the accountants and other involved persons have to be familiarized with the proposal of the act (AoEET) and with the practical procedure of the electronic sales registration. These demands brought necessary expenses for training. The costs for training have been oscillating around hundreds up to thousands crowns and the training lessons are still available for the public to support the further phases of EET implementation.

Union of Accountants CR considers the Act No. 112/2016 Coll. on electronic registration of sales as the tax relevant law with the objective to secure the more effective tax collection and also points out the registration duty is not primarily defined as a responsibility of accountants but of the persons who are real recipients of the turnover. The registered sales and coherent documents are integrated into elementary records and only subsequently they are posted. The obligation coming from AoEET is fully in competence of the statutory representatives of legal entities and physical persons who are running their own business and taking their full responsibility for that.

The implementation of EET has brought also other expenses necessarily invested by entrepreneurs. Purchase of the registration equipment is the one of the dominants. The act on electronic registration of sales does not regulate any specific facility. Then, entrepreneurs are independent in their choices. For small micro business entities there is the best and cheapest available solution to register their sales through a smartphone and a mobile application. The bill is, after the receipt of the code from a financial authority, printed out on a small wireless print machine. Another approach is the registration of sales on a tablet, where is a certain advantage of a larger screen. Of course, also for the tablet solution the print machine is needed. If an entrepreneur does not have any fixed cash point, a portable cash register can be used. The companies of a major size use for electronic sales registration the contact cash registers and adequate cash software which enables the true overview of sales and also can provide the companies with lots of useful statistics. Apart from one-time expenses related to the acquisition of the equipment, there are also additional costs for the operation, maintenance and material consumption.

4. Taxes in the context of electronic registration of sales in the Czech Republic

The electronic sale registration has impacts also on the tax area related to income tax and VAT. The implementation of EET has introduced a new tax relief of the income tax in the amount of 5 000 CZK already valid for the tax period 2016 and for the next years 2017 and 2018 (related to the first

implementation in a particular year). The tax discount is the amount that is maximally equal to a positive result between 15% of a partial tax base from independent activity and the basic tax discount for a tax payer. The discount related to the sales registration can be used only in the tax period when a tax payer realized the first registration of sales prescribed by the law. The discount cannot be used each year and it cannot be shifted to a further tax period. The relief will be always fixed on the amount of 5 000 CZK regardless of the real cost paid out by a tax payer because of the equipment and technique required for the implementation of EET in a particular phase of the process. The amount of the discount is not the subject to any verification. It should be noted that in the most cases the amount of the discount can hardly cover the real cost needed for the implementation of EET.

The electronic registration of sales significantly influenced also VAT rates, based on the Act No. 113/2016 Coll., there was a VAT reduction on the field of restaurant services from 21% onto 15% starting from the moment of the law came to force except alcoholic beverages.

5. Analyse of actual results

According to statistics of Ministry of Finance CR the sales of registered restaurants and hotels in December 2016 rose twice compared to December 2015. The registered sales in December 2016 reached the amount of 20 billion CZK while a year ago it was 10 billion CZK. Since the go-live of sales registration the inspections and audits have been executing and the cases of violation have been detected (non-issuing of a cash bill, non-sending data on sales to EET system, non-placement of information notice, invalid data on cash bills). After conversion of hotels and restaurants to EET, the retail and wholesale companies joined EET in March 2017 which affected around 250 000 entities [Tax portal of Electronic service of Financial administration of the Czech Republic 2017].

The sales growth in the sector of services as well as in the sector of trade will have another indirect effect. The data on the production of services undoubtedly increase the data related to growing of gross domestic product this year, where the services are, in a certain way, also relevant. It may be expected that just the indirect effect of EET is leading to a notable increase of the total GDP – of course, based on the same conditions. This effect can be already detected within the accelerating growth of GDP announcing by the first calculations of Czech Statistic Authority (hereafter CSA), although to detach the influence of faster increase of the service sector due to EET as of 1. 1. 2016 from its autonomous development, i.e. free from the influence of EET, is very complicated.

From the perspective of value added tax, the statewide VAT collection represented 122,1 billion CZK for the first four months of the year 2017. In comparison with the same months of the year 2016, it is about 12 billion CZK more. Expressed in percentage, it is higher about 10.9 %. The increase of VAT collection about almost 11% indicates that measures for the VAT collection, namely the EET introduction, bring anticipated effects. And it is necessary to add that EET implementation in the restaurant sector brought the reduction of VAT rate and thus the average VAT rate is currently lower.

Taking into consideration the economic growth, specifically the gross domestic product in common prices roughly about five percent during the first quarter 2017, the growth of VAT collection is doubled and therefore a growth of effectiveness of its collection can be expected and decrease of tax evasions (Speech of number. First results of the operation, 2017). EET is, of course, the subject of the audit from the side of the state. Almost 1,7 billion of cash bills have been already sent to the EET system and the total recognized amount is almost 600 billion CZK (GFD). The data reported by entrepreneurs within the system e-sales (EET) are under the control of Finance administration and within the audit activity they are subject to verification. The check of fulfilment of duties prescribed by the law is carried out by authorities of Finance administration of the Czech Republic and by authorities of Customs administration of the Czech Republic (sec. 2 of AoEET). Due to a possible break of the law, the violators can be imposed by penalties, because of e.g. intentional production and distribution of software designed to a circumvention of law duties specified in AoEET. According to sec. 28 of AoEET it is possible to impose a fine up to 500 000 CZK. The provision of sec. 29 of

AoEET defines administrative sanctions for legal entities and individual entrepreneurs who committed an offence based on that the persons obligatorily register their sales breached the obligation to report through the data message the information on registered sales to a tax administrator or rejected to provide a customer with a cash receipt. For these offences a penalty up to 500 000 CZK can be imposed. If those persons violate their duties and install the information announcement or misuse an authenticity duty or the certificate for sales registration to protect them against mistreatment, they committed an offence for which they could be penalized up to 50 000 CZK.

The amount of the penalty will be stipulated by an administrative authority based on the expert judgement and always will be in compliance with the relevancy of the duty violation. The imposition of penalty in its top limit amount can be prescribed only in the case of the repeated and serious violation of the law. According to sec. 31 of AoEET, if an audit authority detects an outstandingly significant violation of the duties to report the data of registered sales or distribution of cash receipts, the immediate closure of the shop or a temporary interruption of business activity relevant for the sales registration can be stipulated. These measures to enforcing a remedy will be used in exceptional cases, especially in occurrence of an intentional circumvention of the law.

Till now almost 50 000 audits focused on observance of EET duties have been performed and more than 7 000 law offences have been detected. Among the most frequent cases belong the non-issuing of a cash bill, non-reporting of data into the EET system, non-installment of information announcement and non-fulfilment of announcement duty. The audit authorities imposed the penalties in the amount of 9,87 mil CZK. Almost 3 515 cases are still open in the administrative process of making decisions [7].

Expenses related to EET implementation are not only on the side of entrepreneurs but also on the side of the state. The initial costs for the project e-sales and its operation for General Financial Directory (hereafter GFD) were in the amount of 365 986 042,87 CZK. More detailed information on expenses see Chart 1.

Chart 1. Costs related to project e-sales (Source: Expenses EET, 2017)

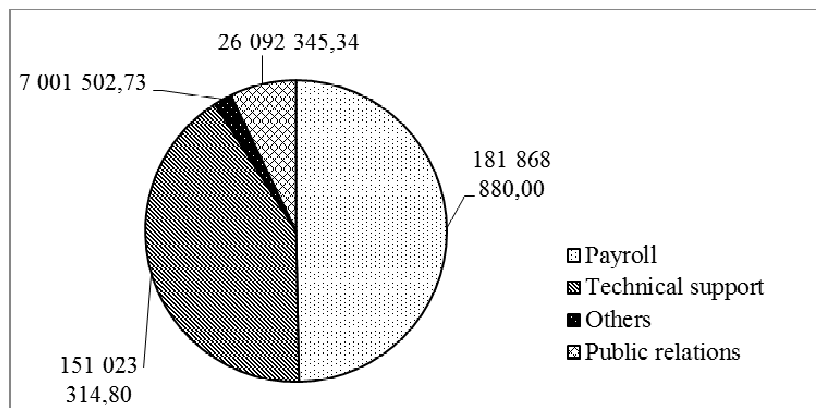
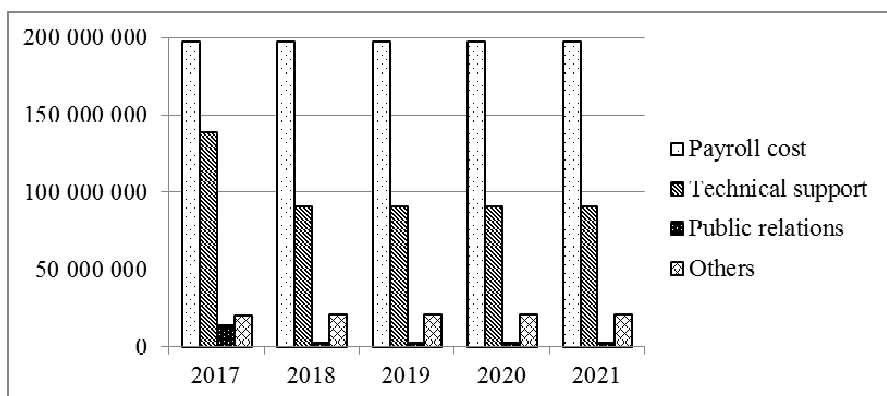


Chart 2. Cost related to operation of e-sales (Source: Expenses EET, 2017)



6. Conclusion

In conclusion it can be said the implementation of EET still has stayed as the one of the most discussed political topics. During its enforcement, lots of positives as well as negatives were pointed out that EET would bring. While supporters argued with the balance of competitive environment, opponents criticized administrative demands of this tool and strain putting on tax subjects because of additional duties. The indisputable fact is the implementation of electronic registration of sales based on Act No. 112/2016 Coll. has had as of 1. 12. 2016 the significant impact on entities operating in hotel and restaurant services and in further months and years (2017 and 2018) will affect all other entrepreneurs and legal entities in the Czech Republic due to the extra expenses, income taxes and VAT. Even after the passing of the law, we can still expect attempts to change or reduce the law or its annulment.

Despite the ignoring of EET from some entrepreneurs, the electronic sales registration as well as the control report can support financial discipline in the Czech economics. Modern communication with state administration and the more effective tax collection, that can balance business environment, belong to the dominant reasons that nominated the electronic sales registration among six key laws of the previous year. In the survey Act of the year, organized by the company Deloitte Legal already eight years, the crucial votes were those of entrepreneurs and representatives of the professional public. Based on their voting the EET has become the second best law in 2016, which can be disputed from the non-professional public point of view.

The authors of the presented article point out the pluses and minuses related to the implementation of EET. EET can be understood as a suitable tool supporting the increasing income of the state budget, but it can be confirmed only by a thorough analyse after the final completion of all phases in 2017 and 2018. They also consider that the amount of the compensation for a tax payer with a tax relief is insufficient. In addition, the compensation is relevant only for entrepreneurs – physical persons. Thus, the groups of legal entities are completely ignored. The question is whether introduction of the bill lottery can help to support desired effects of EET. All in all, it is possible to express the opinion supported e.g. by a sociology research of the company STEM which was done in December 2016 based on the requirement of General Finance Administration CR and which monitored the public opinion related to the electronic sales registration. Based on this research almost two thirds of citizens consider the implementation of electronic sales registration as a positive measure. This opinion has not been changed during the time despite critics of the opposition in media [14].

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Consolidation Composition as a Determinant of Fiscal Consolidation Success

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Abstract

Fiscal consolidation is necessary in each country, especially when the long-term development shows threats for countries' public finances sustainability. The success of the consolidation process is affected by many determinants, but the composition of consolidation is according to many researches considered as one of the most important determinants of its success. Main objective of the paper is, based on the synthesis of theoretical knowledge and empirical research about the fiscal consolidation composition, to analyse the composition of consolidation within EU member countries using a probit and bivariate Heckman selection model to assess the consolidation composition as a determinant of fiscal consolidation success. Using the Heckman bivariate two-step selection model the selection bias could be controlled. Both the binary probit and Heckman selection model have identified significant factors among the groups of macroeconomic, fiscal and political variables that had an impact on the consolidation success. Based on the research results can be concluded that the composition of consolidation expressed as expenditure-based consolidation is a significant determinant of consolidation success. The paper is supported by the grant VEGA No. 1/0967/15.

Key words: *fiscal consolidation, composition of consolidation, revenue-based consolidation, expenditure-based consolidation, probit and Heckman bivariate two-step model; EU member countries*

Introduction

Over the last thirty years, most countries have been struggling with high levels of public deficits and rising public debts [Rother et al., 2010]. Most EU countries, which were struggling to restore fiscal balance in the early 1980s, did not recover fiscally, as the consolidation of individual countries' was to a certain extent influenced by the formation of the monetary union [European Commission, 2007].

A large number of other factors contributed to the deepening of fiscal imbalances [Dellepiane and Hardiman, 2012], while the culmination of the country's current deficient economies development was the beginning of the crisis. As highlighted by the high levels of fiscal imbalances present in the EU countries [European Commission, 2015] and by domestic and foreign research [e.g. Koopman and Székely, 2009; Furceri and Mourougane, 2009; Dvořák, 2008], the crisis of public finance has negatively affected the overall economic development in all EU Member States, and therefore issues related to the regulatory mechanism in the context of fiscal consolidation process not only of the financial sector, but the economy as a whole, are more than justified. Fiscal consolidation is necessary

in each country, especially when the long-term development shows threats for countries' public finances sustainability.

1. Objective, methodology and methods

To achieve fiscal balance, stabilization of public finance and regulation of accumulated debt, is the fiscal consolidation desirable. However, the government's decision plays a significant role on the fiscal consolidation type and timing when it comes to its implementation. The focus of fiscal consolidation is to a certain extent a "stumbling block" among the indebted countries. Differences exist when defining the type of fiscal consolidation, its size and duration, the determination of the specific components of one-sided oriented consolidation, and not least the determinants of individual components [e.g. Mihóková, Harčariková and Martinková, 2016; Yang, Fidrmuc and Ghosh, 2015; Mirdala, 2013; etc.]. All these issues are important in order to help reduce the public debt and to support persistent long-term fiscal balance in the EU. The success of consolidation can be considered as the one leading to a reduction in the short-term and long-term fiscal imbalance indicator expressed as GDP ratio to a specified level within the defined time period from the beginning of the consolidation process [e.g. Afonso and Jalles, 2011; Alesina and Ardagna 2010; etc.]. The success of the consolidation process is affected by many determinants [e.g. Yang, Fidrmuc, Ghosh, 2015; Agnello, Castro and Sousa, 2013; etc.], but the composition of consolidation is according many research considered to be one of the most important determinants of its success. Based on the mentioned above, the paper is focused on the fiscal consolidation composition issue.

Main objective of the paper is, based on the synthesis of theoretical knowledge and empirical research about the fiscal consolidation composition, to analyse the composition of consolidation within European countries and to assess the consolidation composition as the determinants of fiscal consolidation success. The purpose of the paper in the context of theoretical implication is to present a systemization of knowledge about the theoretical aspects of the fiscal consolidation composition. In the context of practical implication is the purpose of the research to present the overview of fiscal consolidation measures in the context of fiscal consolidation composition and to empirically quantify the importance of fiscal consolidation composition as the determinants of consolidation success within EU member countries using quantitative economics.

The methodology of the paper is divided into several steps: (i) the collection of secondary scientific resources (full-text scientific databases), processing and systemization, (ii) analysis of fiscal consolidation episodes and their composition, (iii) synthesis of fiscal consolidation measures in selected countries, (iv) the summarization of empirical scientific research about the expected effect of expenditure-based and revenue-based consolidation, (iiv) performance of econometric analysis. The main research method used in the paper is analytic-synthetic method. In line with the methodology following general methods were used: in-depth research, analysis, comparison, induction and synthesis. Also mathematical and statistical methods, including graphical and numerical data description were used. As a specific econometric method was the probit and bivariate Heckman bivariate two-step selection model probit model used. The source for theoretical knowledge was in the form of scientific articles and research derived from the available full-text scientific databases.

2. Fiscal consolidation composition within EU member countries

Large parts of the literature and empirical studies have been focused mainly on the composition of fiscal consolidation. In particular, whether it should focus on spending cuts, increasing the revenue side, or be in "optimal" combination of both parts. Composition of consolidation is considered to be one of the most important determinants of its success. And what is a spending reduction or revenue increase in a consolidation plan? As OECD (2011) state, there is no uniform definition of what

constitutes a spending reduction or revenue measure, but can be considered as measures relating to the last (or the current) year's budget or a forecasted baseline assuming policies are unchanged.

In the past, two types of fiscal consolidation have been used in the EU (Table 1). The largest number of consolidation measures took place during the 1980s and 1990s of the 20th century. *Revenue-based consolidation* is characterized by an increase in public revenues, mainly through changes in tax revenues (changes in tax rates, tax base, etc.). Revenue-based consolidation was typical for the period of the second half of the 1970s to the end of the 1990s of the 20th century. In Europe, revenue-based consolidation has been repeatedly implemented in countries such as Austria, Greece, the Netherlands or the United Kingdom. *Expenditure-based consolidation* is typical by the cuts of two main spending groups, namely operational and program expenditures and investment, respectively of capital expenditures [Kickert et al., 2015]. Expenditure-based fiscal consolidation was implemented by countries such as France, Germany, Ireland, Italy, Luxembourg, Portugal, Spain, or Sweden. The most consolidation expenditure-based episodes were in countries established in the first half of the 1980s and the late 1990s of the 20th century. In the case of expenditure-based consolidations, they were mostly one-off consolidations, respectively less frequent implementation compared to revenue-based consolidation.

In practice, a combination of both types of fiscal consolidation has often been observed (e.g. Belgium, Denmark or Finland), in the form of consolidation focused on both revenues and expenditures sides, or in the form of consolidation that has changed during the period of its consolidation where after the end of one budget's side consolidation is the consolidation reorientated to the other side of the budget.

Table 1. Fiscal consolidation episodes (1970-2000) and their composition

(Source: own processing based on [Blöchliger, Song and Sutherland, 2012; Dellepiane and Hardiman, 2012])

Country	Expenditure-based consolidation	Revenue-based consolidation
Austria	-	1992-93; 1995-98
Belgium	1987-88	1977-78; 1982-85; 1993-98
Denmark	1983-87	1992-93; 1996-97; 1999-00
Finland	1971-72; 1998-99	1975-77; 1981-82; 1984-85; 1988-89; 1995-96
French	1980-81	1976-77; 1996-98
Deutschland	1982	1989-90
Greece	1994-2000	1974-75; 1982-83; 1986-88; 1991-92
Ireland	1983-85; 1991-95; 1996-99	1996-97
Italy	1976-78; 1997-00	1983-84; 1991-94
Luxembourg	1982-86	1977-78; 1996-97
Holland	1996-97	1972-73; 1977-78; 1985-86; 1988-89; 1991-94; 1999-00
Portugal	1982-84; 1986-87	1969-70; 1992-93; 1995-98
Spain	1996-00	1992-93
Sweden	1983-84; 1996-99	1976-77; 1986-90
United Kingdom	1969-70; 1996-00	1976-78; 1980-82; 1988-89

Fiscal consolidation in Greece (1990-1994) was based on an increase in government revenues, following the strategy of previous consolidation from the mid-1980s of the 20th century. Competitiveness from the relative labour costs point of view has worsened during the consolidation period. Greece has managed to increase its tax revenues through a more efficient administration, while tax rates remained unchanged. *The consolidation wave in Sweden (1981-1987)* was based on revenue increase. The next wave was based on a strict expenditure policy, which was reflected in the freezing of selected government spending over a three-year period and the reform of social transfers (by reducing child, family, pension, unemployment and sickness benefits). The economic recession, rising domestic demand and the inflation targeting policy has led to the abandonment of the ERM I.

mechanism in 1992 and has led to extensive consolidation in the United Kingdom (1994-1998) in 1994. The UK preferred a policy of implementing gradual government spending cuts. Strong control and preferential spending planning has led to a reduction in the government deficit and accumulated debt.

In the Slovak Republic, the consolidation period (2003-2005) was influenced by Slovakia's entry into the EU, favourable external environment development, realized structural reforms, the introduction of multi-annual and program budgeting and the launch of the Treasury and the Debt and Liquidity Management Agency. During this period, pension reforms and fiscal stimulus in the form of tax reform were introduced. It was an expenditure-based fiscal consolidation. In 2004 Slovakia was named by the World Bank as the top reformer of the business environment for the year in question. In these years, significant growth acceleration was recorded in the economy. Fiscal consolidation has reduced investors' concerns, which has led to a reduction in risk margins for government bond yields, attracting new investment and increasing Slovakia's export potential (over the three years it has grown by more than 36%). Ultimately, the 2003-2005 period saw a sharp reduction in the deficit from 8% of GDP to less than 3% of GDP, without the negative consequences of economic austerity measures, eliminated many ways of ineffective spending of public resources and increased credibility Slovakia on foreign markets.

EU Member States were badly prepared for the financial crisis. The sharp economic downturn and large imbalances in the private sector have put pressure on a partial change in the structure of public sector liabilities, leading to a drastic increase in the country's debt ratio by about 30 percentage points and the need for tightening the fiscal policy. During the crisis period onset in 2008, it are the consolidation realized in the 1980s and 90s of the 20th century in the form of complex studies, they have been the source for the current consolidation strategies. The "lessons and rules" had a significant impact on the rules proposed by international organizations, including the IMF, the ECB or the EC. Countries that have received greater loan volumes after 2008 have been controlled, with the aim reducing deficits, through fiscal adjustments [Dellepiane and Hardiman, 2012].

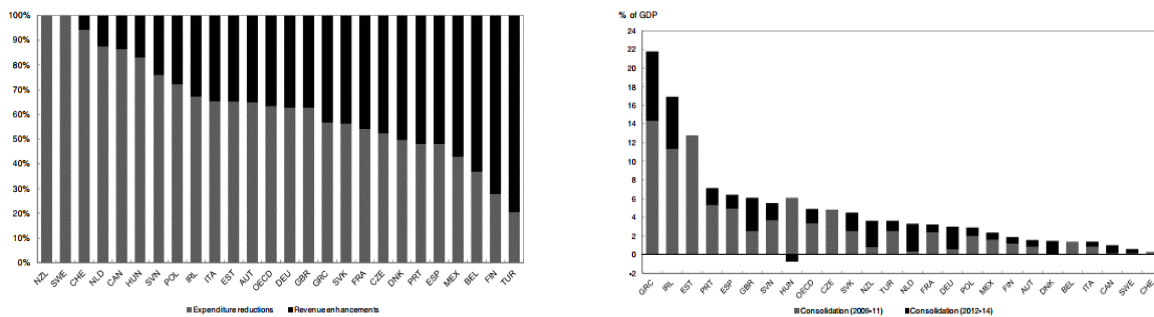


Fig. 1. Composition of fiscal consolidation within EU member countries during crisis period [Source: OECD, 2011]

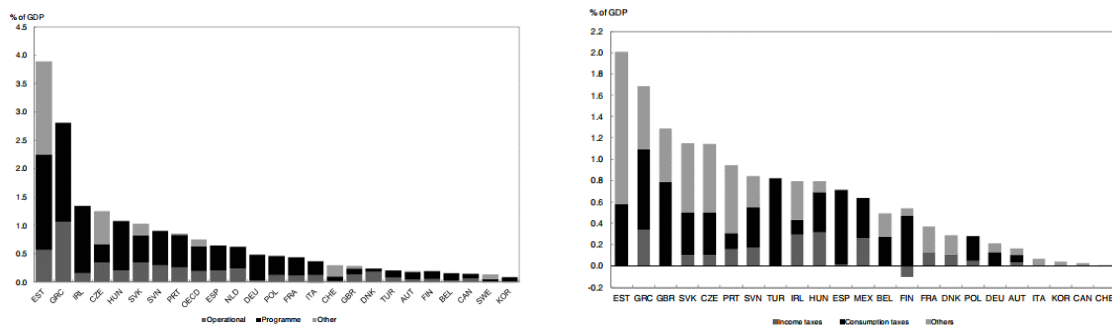


Fig. 2. Fiscal consolidation measures during crisis period [Source: OECD, 2011]

As OECD (2011) state, almost all countries have planned a decrease of fiscal imbalance until 2013. OECD (2011) has categorised countries into four groups: (1) countries that announced substantial consolidation in response to the market concerns about public finances (Greece, Hungary, Ireland, Portugal, Spain), (2) countries that announced pre-emptive packages in terms of relatively sizeable medium-term consolidation (Estonia, Germany, Netherlands, Slovak Republic and United Kingdom), (3) countries that have comparatively high fiscal consolidation needs but have yet to announce large or more detailed consolidation (France or Poland) and (4) countries that have comparatively low fiscal consolidation needs (Finland or Sweden).

Considering the composition of consolidation, there were also significant differences during the crisis period. Most countries focused on expenditure-oriented fiscal consolidations during the 2008-2011 crisis period (Fig. 1). Expenditure-based consolidation has been focused on three categories of expenditures (Fig. 2): operating measures (wage or staff reductions, government reorganisation and across-the-board efficiency reductions in the administration), programme measures (large expenditures by functional classification) and other initiatives (such as spending cuts or freezes on public consumption). On the other hand, countries such as Belgium, Finland and Turkey rely on tax increases for the majority of their consolidation (Fig. 1). As OECD (2011) state, the most frequently announced tax measures were raising consumption taxes followed by reducing tax expenditures and increasing income taxes (Fig. 2).

The experience of EU countries during the crisis period has led to significant fiscal changes, such as Six Pack (2011), Fical Compact (2012) and Two Pack (2013). During the period 2011-2014 the EU has tried to consolidate public finances in particular through revenue growth. In countries that were not members of the Eurozone, the EU has implemented a mixed consolidation policy (fiscal adjustments on the revenue and expenditure side). As an example can be the V4 countries (CZ, PL and HU) considered, which had implemented their consolidation efforts on both, the revenue and expenditure side, and therefore, in some cases, it was not clear what type of consolidation had the country applied (Table 2).

Table 2. Overview of selected fiscal consolidation measures in V4 countries [Source: Author, own processing].

Measure/year	2011	2012	2013
<i>Revenue measures</i>			
(1) Introduction new direct taxes and changes in tax rate or tax base in direct taxes	CZ, SK, PL	PL, HU	SK
(2) Introduction new indirect taxes and changes in tax rate or tax base in indirect taxes	CZ, SK, PL	PL, HU	SK, CZ
(3) Abolishing or introducing exceptions, tightening the rules or restricting deductions in taxes	CZ, PL	PL, HU	SK
(4) Changes in social security contributions (healthcare, pension or another type of insurance)	CZ, SK, PL	PL, HU	SK, CZ
(5) Abolishing exceptions, tightening the rules or restricting deductions social security contributions	SK, PL	PL	CZ
(6) Changes in tax collection, effectiveness or tax administration			SK
(7) Reform of the pension system (private or state pension funds)	PL	PL, HU	SK
<i>Expenditure measures</i>			
(1) Decrease in wage and salaries of the public sector, staff remuneration	CZ, SK, PL	PL, HU	SK
(2) Increase/Decrease in capital investments, public investment expenditures	CZ, SK		SK
(3) Decrease in operational costs of public sector (expenditures on goods and services or consumption expenditures)	SK	HU	SK
(4) Increase/Decrease of the social security contributions and social transfers or social insurance	CZ, SK	HU	SK
(5) Changes in subsidies capital subsidies or capital injections to municipalities or other subjects (farmers, Agencies, etc.)	SK, PL	PL	SK
(6) Changes in pension programme	CZ, PL	PL	
(7) Implementation of the measures focus on labour market	PL	PL, HU	
(8) Introduction new rules for various social benefits, exceptions or conditions of transferring expenditures	PL	PL, HU	

The revenue-based consolidation of the V4 countries was focused mainly in the taxation area. The countries focused on the tax burden shift into the indirect taxation field, the social contributions and into the VAT efficiency increase and issues of tax governance. Three out of four countries, took also the road of reforming the pension system. Expenditure-based consolidation in three countries was focused primarily on austerity measures in the form of spending cuts in essential areas such as staff salaries, expenditure on intermediate goods, capital expenditures and social transfers. The exception was PL, which was an implemented measure on the labour market, pension area system and social system.

In 2015, in line with the terms of the Stability and Growth Pact, investments and sustained structural reforms supporting the economic cycle were taken into account [Andrle et al., 2015]. Gradual revisions have been pursuing several goals, e.g. providing stronger economic fundamentals leading to debt reduction, better alignment of fiscal targets with the ultimate goal of debt stabilization, providing greater flexibility and strengthening enforcement mechanisms in line with their more precise definition.

3. Fiscal Consolidation Composition as a Determinant of Fiscal Consolidation Success

In line with the main objective, the empirical part of the paper was divided into two parts: (1) review of empirical research about the importance of fiscal composition within consolidation process and (2) empirical assessment of fiscal composition as a determinant within consolidation success using probit and Heckman bivariate model and discussion about the research results.

3.1 Fiscal Composition and Consolidation Success: Review of Empirical Research

Fiscal consolidation can be characterized as a specific policy focused on the public finance stabilization through the reduction of initial public finance deficit and accumulated debt, and thus without the negative effects for the economic development growth [e.g. Yang, Fidrmuc and Ghosh, 2015; OECD, 2011; etc.]. Theoretical and empirical researches define the "success" of consolidation differently. While the definition of a fiscal consolidation episode is quite homogenous across existing studies, the successful fiscal consolidation can be gauged in different ways [Alesina and Ardagna, 2010].

Based on the foreign empirical researches [e.g. Afonso and Jalles, 2011; Alesina and Ardagna 2010; etc.] can be stated that the "successful consolidation" is characterized as fiscal episodes leading to a reduction in the short-term and long-term fiscal imbalance indicator expressed as GDP ratio to a certain level within the defined time period from the beginning of the consolidation process. The success can be assessed by the changes in the level of deficit or debt; changes in indicators that are linked to GDP or it can be connected to the achievement of a set of economic growth values [Alesina and Ardagna, 2010].

As historical development and many researches point out, the success of fiscal consolidation is conditioned by political strategy, which the government have decides to implement. Composition of consolidation is considered to be one of the most important determinants of its success. In the past, for the most part, consolidations have been driven by fiscal adjustments in government spending, which have had a positive and relatively lasting impact on the performance of the economy. However, in the context of rising expenditure on population aging, according to the OECD (2012), spending reforms that improve the allocation role of the state (generally better use of resources) or improve productivity (reducing the unit cost of resources used) may be considered as the "pathway" to the sustainability of fiscal stability.

Research in the fiscal composition area confirms that a greater probability of success provide expenditure-based consolidations [e.g. Nickel, Rother and Zimmermann, 2010; Molnar, 2012; OECD, 2007; etc.]. A possible explanation for the higher efficiency of spending cuts versus tax increases is that they are often associated with reforms that increase the efficiency of budgetary procedures

[European Commission, 2007]. Reducing costs (particularly with respect to government consumption and transfers), indicate a greater probability of sustainable fiscal consolidation and improved economic performance [Alesina and Bayoumi, 1996]. The importance of expenditure-based fiscal consolidation confirm others research such as Bassanini et al. [2001], who by using dynamic general equilibrium model with overlapping generations, argue, that raising taxes is a much more expensive way. Alesina and Perroti [1995] also state that the consolidation programmes based on the decrease of government consumption and reduction of social transfers has a higher probability of success (in the form of strong economic growth and a reduction in the debt ratio) because of the positive impact on market demand and supply as well as because of the sustainability of expenditure in public sector.

Researches focused on the area of public spending are not consistent when identifying the composition of government expenditure cuts. Alesina and Perotti [1995] have proposed cuts in social spending and government wages, as confirmed by Nickel et al. [2010]. European Commission [2007] points to a positive effect of reducing primary expenditures. Molnar [2012] confirmed that the cuts in social spending and government wages are an effective instrument of consolidation, which may have only short-term effects, and should be accompanied by the reduction of subsidies.

Although, expenditure-based consolidation is mostly considered as successful, revenue-based consolidation can also be effective, especially in a country, where is a space for increasing tax revenues that are less harmful to economic growth [e.g. European Commission, 2011; OECD, 2007; etc.]. European Commission in Tax Reforms in EU in 2011 emphasized the necessity to devote special attention to the quality of the tax system and ensure a positive impact on economic growth: "growth-friendly". Also, from the perspective of the OECD [2012], fiscal consolidation requires revenue increases where there are unacceptable or politically unacceptable cuts in spending. As Tsibouris et al. [2006] state, revenue-based consolidation tends to be successful if the initial tax-to-GDP ratio is relatively low and the implementation of tax consolidation measures is gradual. The OECD [2007] state that on the basis of a comparison of the impact of changes in revenues and expenditures, concluded that in two-thirds of consolidation episodes, revenue growth was beneficial. The Europe 2020 has also highlighted the importance of the revenue side of the budget, in line with the concept of taxation, which aims to deliver high-quality consolidation potential across Europe [European Commission, 2011]. The revenue-based consolidation program should meet two basic requirements: a broad tax base should be used - the tax system should not only rely on an increase in "mass tax", and tax increases should be part of the concept of long-term public sector reform [Böheim et al., 2010].

Table 3. Overview of revenue and expenditure-based consolidation
[Source: Author, own processing]

Author	Measures	Success of consolidation
Larch a Turrini [2011]	Expenditure-based measures	Expenditure cuts within social policy, decrees of unemployment benefits
Tsibouris et al. [2006]	Revenue-based measures	Gradual implementation of taxes increase
OECD [2011]	Expenditure-based measures	Reduction of public expenditure, structural measures, pension reforms, reduced subsidies and support in the agricultural sector
	Revenue-based measures	VAT increase, consumption taxes increase
Molnar [2012]	Expenditure-based measures	Decrease in expenditure e.g. on social security and state wages
	Revenue-based measures	Release of monetary conditions - long-term interest rates, weakening of exchange rates

Real development and differences in empirical research (Table 3) point to the fact that it is not possible to determine strictly, what type of fiscal consolidation is correct and which measures undertaken during the fiscal consolidation do guarantee a successful consolidation. Experiences from previous successful consolidations suggest that fiscal consolidation should primarily address the expenditure side of the budget, but later countries should consider supplementing spending cuts

through increased tax revenues [Wöhlbier et al., 2014]. Alesina and Ardagna [2012] definitions of a successful consolidation are based on the need to find an effective combination of revenue growth and spending cuts measures that would assure a permanent reduction in the debt-to-GDP ratio.

3.2 Fiscal Composition as a Determinant of Consolidation Success: Empirical Research

The "success of the consolidation" process is affected by many determinants, like the initial conditions at the start of consolidation, factors that contribute to the duration and size of consolidation or its intensity [e.g. Yang, Fidrmuc and Ghosh, 2015; Barrios et al., 2010; etc]. Individual determinants affect all attributes of consolidation process and overall success of consolidation. Among the basic factors that can increase the probability of long-term sustainable and successful consolidations are strong government, complex long-term plan, strong institutional government abilities and strong fiscal concept. According to many research the composition of the consolidation is one of the most important determinants.

The aim of the paper's second part is to analyse the relations between selected determinants and success of consolidation with the emphasis on the consolidation composition and empirically assess the importance of consolidation composition as the determinant of fiscal consolidation success within EU member countries using probit and bivariate Heckman probit selection model. The endogenous variable of the analysis is a dummy variable – success of consolidation (SoC), which represents the success (1) or failure (0) of a consolidation as defined above. The successful consolidation episodes were identified during the period of 1995-2015 using annual data according to ESA 2010 from AMECO database and were determined in Mihóková, Dráb and Harčariková [2017].

The research takes into account that determinants of the fiscal consolidation success must be considered together with the factors influencing the decision to consolidate because the causes of fiscal consolidations are also likely to influence (at least partly) their probability of success. In line with this assumption were among the determinants included several determinants. The first group of determinants represent macroeconomic initial conditions: annual percentage growth of GDP (GDPGROWTH) and output gap (GDPGAP), inflation (INFL). The second group of determinants represents fiscal initial conditions: primary balance in % of GDP (PB) and gross public debt in % of GDP (DEBT). The group of political environment contains two dummy variables: election (general election) and election before a dummy controlling for an election that was prior to or in the year of consolidation start. The last determinant was the nature of consolidation: composition of consolidation expressed as the change between $t-1$ and $t+3$ of the cyclically adjusted primary expenditure (t represents the year where a fiscal consolidation observed).

To capture the effect of several macroeconomic factors as the preconditions for the success were these variables used also in their lagged form (with the time period of -1). In the first step a binary probit model for panel data was applied to the data and evaluated. As the dependent variable the SoC success of consolidation was used. All the independent variables were included in this model. Several intercorrelated variables were omitted.

To control for the possible bias through omitted factors and due to consideration of only cases where a consolidation was effectively implemented a Heckman two-stage procedure was applied. This type of model may result in a higher sample selection bias compared to the estimations reported in the probit model. A Heckman's selection model enables to control for the correlation between the decision to consolidate and the likelihood to achieve successful consolidation. In the first step, the selection equation, as the dependent variable was the dummy variable controlling for fiscal consolidation implementation selected. When applying Heckman's probit model at least one additional variable has to be used in the first step to explain the decision to undertake a fiscal consolidation. In this case a dummy indicating whether a general election took place in a country. This variable can have an effect on the decision to consolidate, but its direct effect on the consolidation outcome is not clear. This variable with the consolidation dummy variable was excluded from the second step of the Heckman's model where the dependent variable is the success of a fiscal consolidation.

Results of two models (binary probit and Heckman's 2 step) are in some variables very different (Table 4). This can be due to the selection bias, which is according the rho estimator in the Heckman's model negative and significant, indicating that the unobservables due to bias in the selection model are negatively correlated with those in the second stage model.

Table 4. Composition of consolidation as the determinant of consolidation success
[Source: Author, own processing according to AMECO]

Variable	Binary Probit model			Heckman selection 2step model		
	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
C	-3.679123	1.182232	0.0019	-0.211093	0.617980	0.7328
PB	0.389001	0.087950	0.0000	0.068047	0.043677	0.1200
DEBT	-0.050604	0.027062	0.0615	-0.031025	0.011695	0.0083
DEBTLAG	0.032184	0.026313	0.2213	0.027122	0.011984	0.0241
INFL	-0.042353	0.077881	0.5866	-0.019408	0.028654	0.4986
INFLLAG	0.068710	0.076692	0.3703	0.022625	0.028203	0.4229
COMPOSITION	-0.079609	0.035025	0.0230	-0.007288	0.017996	0.0685
ELECTIONBEFORE	0.626428	0.296557	0.0347	1.032619	0.256531	0.0001
Mean dependent var		0.319588		S.D. dependent var		0.468739
S.E. of regression		0.206761		Akaike info criterion		1.089947
Sum squared resid		18.25426		Schwarz criterion		1.282359
Log likelihood		-223.1482		Hannan-Quinn criter.		1.165798
<i>Notes:</i> The exogenous variable is a dummy – success of consolidation. Probit model uses Newton-Raphson optimisation and Marquardt steps. The second regression uses the bivariate Heckman selection model with the same dependent variable. The first step of the model is due to page limitations omitted and is upon request; the selection bias was present in most cases. As the dependent variable for the selection step the dummy for consolidation period was used. Reported coefficients are the marginal effects (i.e. the change in probability of the left-hand side variable if the explanatory variable increases by one unit).						

The assumptions about the macroeconomic variables significance weren't proved in neither of the models. According to significance levels is the inflation not connected to consolidation success. Regardless the effect of the inflation before the consolidation is in line with the assumptions [Hamann and Prati, 2002; Molnar, 2012]. Authors state that higher level of inflation before the stabilization leads to higher probability of consolidation success. On the other hand, the level of current inflation is very interesting result, because the increase in inflation should favor the debtor and in this case should help the government to decrease the debt servicing cost and to repay the debt.

Within the fiscal variables group, the statistically significant variables were identified: primary balance a public debt (also public debt before consolidation). Both the probit and Heckman model have identified a positive impact of the current PB value on the consolidation success. So the 1 pp increase in the PB surplus increase the likelihood of the consolidation success by 6.8% in case of Heckman. The result of Heckman model is in line with the assumption that the PB surplus boosting the stabilization of debt. According the probit as well as Hackman model can be state that the level of current public debt has a negative effect on fiscal consolidation success. So the 1 pp increase in the PB surplus decrease the likelihood of the consolidation success by 3.1% in case of Heckman. The research result can be explained due to increase in debt servicing costs, and so worsening of the PB. On the other hand, the lagged debt value supports the findings of Barrios et al. [2010] where an initial greater debt value fosters the likelihood of fiscal consolidation success, because a higher debt usually allows the countries to implement stronger and more lasting measures.

Both the probit and Heckman model have identified a positive effect of the election before on the fiscal consolidation success. The political variable was included in order to control an election that was prior to or in the year of consolidation start. The election before variable had a significant impact in both models and the effect is in line with the assumption. Kumar, Leigh and Plekhanov [2007] state

that about three quarters of the fiscal adjustments were initiated by newly-elected governments. As Alesina et al. [In: Arin et al., 2012] state, a successful consolidation is more likely to occur directly after an election, when governments enjoy the trust of the voters and when new elections are in the far future.

The main objective was to assess the impact consolidation composition. The composition of consolidation was expressed as the change in cyclically adjusted primary expenditure therefore the results of both models are necessary to interpret within this context. Both the probit and Heckman model have identified a negative impact of composition on the consolidation success. However, the overall effect of the composition is very weak. So the 1pp increase in expenditure-based consolidation decrease the likelihood of the consolidation success only by 0.7% in case of Heckman. The research result suggests that revenue-based consolidation has a higher likelihood to be successful as the expenditure-based consolidation. As OECD (2012) state, in the context of rising expenditure on population aging, revenue-based consolidation can also be effective as the "pathway" to the sustainability of fiscal stability. The result is in line also with the research such as Molnar [2012], European Commission [2011] or OECD [2007], which state that revenue-based consolidation can be more successful especially in a country, where is a space for increasing tax revenues and where there are unacceptable or politically unacceptable cuts in spending. On the other hand, the weak coefficient of composition effect should indicate that during the period there was implemented so-called "switching strategy" during the consolidation process. As Alesina and Ardagna [2012] or Wöhlbier et al. [2014] state, there is the need to find an effective combination of revenue growth and spending cuts measures that would assure a permanent reduction in the debt-to-GDP ratio.

4. Conclusion

The crisis of public finances has negatively affected the overall economic development in all EU Member States and therefore issues related to the regulatory mechanism in the context of fiscal consolidation process not only of the financial sector, but the economy as a whole, is more than justified. Fiscal consolidation is necessary in each country, especially when the long-term development shows threats for countries' public finances sustainability. Main objective of the paper was, based on the synthesis of theoretical knowledge and empirical research about the fiscal consolidation composition, to analyse the composition of consolidation within European countries and to assess the consolidation composition as the determinants of fiscal consolidation success.

The analysis of fiscal consolidation episodes and their composition pointed out that a combination of both types of fiscal consolidation has often been observed. EU member countries had implemented their consolidation efforts on both, the revenue and expenditure side, and therefore, in some cases, it was not clear which type of consolidation had the country applied. The research about consolidation composition differs and can be divided into two groups. Therefore, the composition of consolidation within EU member countries during the period 1995-2016 was empirically assessed using probit and Heckman bivariate selection model. Both the binary probit and Heckman model have identified significant factors among the groups of macroeconomic, fiscal and political variables that had an impact on the consolidation success. Several of the results could be supported by the relevant research carried out on a similar basis. Based on the research results can be concluded that the composition of consolidation expressed as expenditure-based consolidation is a significant determinant of consolidation success. The research also pointed out that the effect of composition on consolidation success is weak and should indicate that during the period there was often implemented a so-called "switching strategy" during the consolidation process. Further research that would include also the macroeconomic cycles as the precondition of consolidation success factor could be proposed and analysed.

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Categorisation of the Member Countries of the EU in the Context of Value Added Tax with the Use of Cluster Analysis

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Abstract

These paper deals with the categorization of the member countries of the European union through the use of cluster analysis. The main aim is to create clusters of countries via Ward's method. The Ward's method is the most used by economists and the most appreciated as well. The paper focuses on the value added tax and the determinants, which are affected by it's change. Attention is given also to the changes of the base rate VAT and tax reforms and their impact on the economy of the country. The categorization of countries was carried out on the basis of the entrance indicators: the customer consumption, government incomes, government expenditure, export and import of a country. The cluster analysis was carried out for the year 2015.

Key words: *tax burden, tax revenue, cluster analysis, country categorization*

1. Introduction

In the present day VAT forms approximately 20% of the total amount of taxes in the world (Keen, Lockwood, 2010). VAT was created because of the financial problems Germany was facing after the Second World War in 1948. In 1962 the European Community recommended the application of the tax to the member countries of the EU and in 1966 the recommendation was accepted. In the present day VAT is used in more than 140 countries of the world [Samimi, Abdolahi, Abedini, 2012]. Alm and El-Ganainy [2013] proved, that the growth of VAT by 1% leads to the lowering by 1% of the total consumption. The proponents of the VAT claim that the taxation of consumption should be given priority before the taxation of incomes. Another savings are generated what leads to a higher economic growth. Bigger use of VAT led to a lower consumption and higher savings in the member countries. According to Metcalfe [1995] there are no definite answers whether the change of VAT is going to increase the rate of savings. His studies state that the impact of the tax on the consumption is important. Sledmrod [2011] outlines two groups of economists who have opposite opinions on the impact of VAT on export. One group claims that the countries that use VAT have an advantage in the international economic competition. The other group claims that VAT is too idealized and has no impact on the economic competition regardless of how the competitiveness is defined. Desai and Hines [2015] claim that the countries using VAT have a significantly lower export than the countries without VAT. The countries with a strong natural inclination to export are more inclined to implementation or increasing VAT since it presents a source of income for them. Samimi, Abdolahi

and Abedini [2012] agree with one of many empirical rules that refer to VAT which says that the countries using VAT have a higher the level of GDP per capita and are more dependent on the international trade.

The analysis of the change of VAT from 19% to 20% in Slovakia indicated that despite the gradual increase of the tax incomes in the state budget, the ratio of VAT to total tax incomes after the increase of VAT did not raise. Other tax incomes increased more significantly than the VAT incomes resulting in a decrease of the VAT rate in the total tax incomes [Hajdúchová, Sedliačková, Vizslai, 2015]. In case of a change of the percentual VAT rate is the reaction of the tax incomes on the change in the tax base quick. As for the added value we would intuitively expect that the flexibility of incomes is going to equal one. However in a study of the Czech tax system a long-term elasticity with the value of 0.9 was achieved. Unofficially we could say that the impact of tax evasion in VAT collection is responsible for this. That would explain why the elasticity is under one [Havranek, Iršová, Schwarz, 2012]. On the basis of their research Andrejovská a Martinová [2015] state that a decrease of GDP leads to changes in VAT. At the same time it leads to an increase in export. However, if the government does not make a change in the VAT rate the economy of a country is expanding because GDP, consumption and export increased throughout the year and the unemployment rate was gradually decreasing. The most frequent changes in the price were an increase of 1% or 2%. The most frequent change in VAT also met this range.

In his study, Claus [2013] refuted the claim that VAT is a macroeconomical stabilization tool as it was initially designed. His claim applies to a small open economy, which operates under a flexible exchange rate with an imperfect competition. The variable VAT rate should not have more distortive effects on the economy than other taxes. Otherwise, the relationship between current and future consumption could be impaired, i.e., between savings and investment decisions, and hence the economic cost of taxation could increase. VAT is less effective in mitigating business cycles than conventional stabilization instruments, interest rates. The change in interest rates affects savings and investment decisions in the current period, while the variable VAT rate affects savings and investment decisions over time. Therefore it is not likely for VAT to be a useful tool in stabilization.

2. Aim, material and methods

The main objective is to categorize the member states of the EU by means of cluster analysis in the context of value added tax in 2015. The cluster analysis was performed using the Ward method, which is one of the hierarchical methods. After the formation of the individual clusters, the common features of the countries located in the same cluster were found. One of the conditions for applying cluster analysis is the absence of remote observations and missing values. It is also important for the values to be standardized. Only uncorrelated variables enter the cluster analysis. If there is a correlation between variables, it must be removed [King, 2009]. For Ward's agglomeration method, the square of the Euclidean distance is used. The calculation of the Euclidean distance is based on Pythagoras' sentence [Gregorová, 2008].

The selected analysed countries are all EU member states, 28 in total. The source used was the Eurostat database. Indicators are expressed as a percentage of the GDP of each country. It is about:

- *Basic VAT rate (%)*: VAT rate on consumer goods and services
- *Household consumption*: The indicator reflects the household spending on the purchase of goods and services, the consumption of own production and rent from occupied dwellings
- *Government revenue*: represents the revenue of the state budget, which is usually comprised of compulsory taxes levied by the government in the form of taxes and social allowances
- *Government spending*: as total expenditure consists of common and capital expenditures
- *Export*: This is the export of goods and services and includes transactions with goods and services from non-resident to residents
- *Import*: Imports of goods and services that includes transactions in goods and services from non-residents to residents

3. The division of the member states of EU based on the Ward method

The correlation of input data was confirmed by the Kaiser - Meyer - Olkin criterion as well as by the Bartlett test of sphericity. The correlation between the selected indicators has not been confirmed. The KMO test was 0.46. Based on the Bartlett test of sphericity (p -value = 1.610346×10^{-35}) we can reject the hypothesis H_0 (the correlation matrix is unitary) and the alternative hypothesis H_1 , which refers to the non-unitary correlation matrix, applies. This test also confirmed the uncorrelation of the variables. The input data were standardized and the Euclidean distances between them were determined. The distances have been adjusted to four decimal places. The layout of the division of countries was made using a dendrogram.

Luxembourg and Ireland are significantly different from other EU countries. They have been removed from the database as extreme values. These countries will form a separate cluster, as the aim is to rank all EU countries, not excluding countries, which, in some indicators, are significantly higher than other countries. Another analysis of the data revealed that both Malta and Hungary also have higher export and import values than other countries and were therefore removed from the database and assigned to the "extreme" group of countries. All four countries reach a higher percentage of exports or imports to the country's GDP or very close to 100%. After removing these four countries, none of the countries have been reported as extreme.

CLUSTER 1

The first group consists of these countries: Slovakia (20%), Estonia (20%), Czech Republic (21%), the Netherlands (21%), Belgium (21%) and Slovenia (22%). This group does not achieve any average or maximum of individual pointers. It is the group that achieves the second highest export and import values after countries that have been excluded as "extreme countries". Slovakia (1.7%) and Slovenia (1.5%) recorded the highest year-on-year growth in GDP while the EU 28 average was 0.9%. In the case of the highest year-on-year increase in the import rates in GDP, Slovakia has become a "pulling country" not only for this group, but also for the whole EU, as the growth rate was up to 2.9%. The EU-28 average was only 0.1% in 2015. The unusual situation was recorded by the Netherlands, which did not change its share of GDP on a year-to-year basis and remained at the original 71.7% in 2014.

These countries exported mainly within the EU member states. For Slovakia, it was 85%, followed immediately by the Czech Republic - 83%, Slovenia and the Netherlands by 76%, and Estonia - by 75%. Belgium is one of the main exporters for Luxembourg, whose import into the country was up to 28% in 2015. Imports from these countries were mainly from the EU Member States. On the top of the list was Slovakia, whose import accounted for up to 79% of other EU members in the total import of the country. Greater share was achieved only in Estonia - 82%, followed by Czech Republic 77%. The Netherlands, as the only EU country, contributed less than half to imports, namely 46%. In the case of the Czech Republic, only imports into Germany accounted for 30% of total imports [Pravda, 2016].

CLUSTER 2

The second group is composed of Romania (20%), Spain (21%), Great Britain (20%), Cyprus (19%), Lithuania (21%), Bulgaria (20%) and Latvia (21%). It is characterized by the highest rate of household consumption in the country's GDP. It accounts for approximately 64% on average. Cyprus has the highest value, up to 77%. All countries, with the share of household consumption in the GDP of the country, made it far above the average consumption of EU 28. A significant upward trend is set in Cyprus where, since 2009, household consumption has grown from one year to the next.

Also the European Commission's forecasts for the development of the EU countries are talking about Cyprus as a country where private sector demand has dragged Cyprus out of recession [Trend, 2015].

Based on research, Metcalf [1995] notes that there is no clear relationship between VAT change and savings. For EU Member States, this statement applies. In some countries, the relationship is

positive in others negative. In case of these countries, it is acceptable to say that the impact of the tax on consumption is important. Fluctuations in savings are recorded mainly by Bulgaria. However, these fluctuations are not linked to a change in the VAT rate because Bulgaria has not changed the basic VAT rate since 1999. In the long run, this country creates a negative value for savings. The last known value from 2014 says - 14.26%. The countries of cluster 2 keep their gross domestic savings below the EU average, ranging from 10% to 13%. The exception was 2008 and 2009 for Latvia, when they recorded an increase of more than 12%, but in the following year they reached 4% and have only negative values since then.

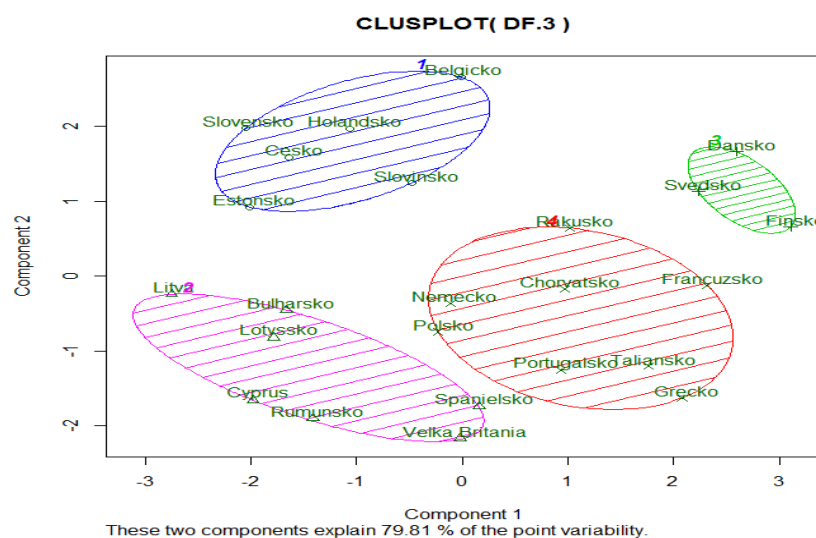


Fig. 1. Clusters of EU Member States by the Ward Method
(Source: Output from the R - commander program)

CLUSTER 3

The third group is the countries of Northern Europe, Finland (24%), Denmark (25%) and Sweden (25%), whose basic VAT rate is among the highest. This cluster reaches the other two highest averages. It achieves the highest rate of government spending (53%) and government revenue (55%) in the country's GDP. Maximum values are recorded in Finland, where the share of expenditures is up to 55% and revenue 58%.

It is generally known that the northern countries of Europe are so called social states and have a higher tax rate than other countries, which affects the amount of government revenue. But they are also known for their health system and a degree of solidarity that increases government spending. Individual nations tax systems differ from one another. In Finland, the tax system and legislation are simple, which cannot be said about Denmark, which has one of the most complex tax systems. Finland began to use VAT only after the country joined the EU. Skatteverket is a Swedish special tax administration that manages taxes. Penalties for tax fraud or non-payment of taxes in this country are very strict. In all three countries progressive taxation is used, which (according to some economists) is unfair for groups of people located on the border of taxing zones. The economics leadership in these countries has its adherents, but also opponents. The opponents are talking about an unreasonably high tax burden, which may be reflected in a loss of work initiative and a decline in savings [Ďurinová, 2013].

One of the supporters of VAT is Blaha [2008]. He says that for social state progressive taxes is the most common way of having enough money in the state treasury. He refuses to identify with neoliberals, who say that progressive taxation is demotivating. He also disagrees with the claims of neoclassicists who say it is slowing growth in the case of a strong social state. Blaha points to Sweden, where economic growth is not in the first place but the value of equality is. He shares the views of another supporter of social states, economist Juhana Vartiainen.

The social states opponent is Munkhammar [2006]. He considers the state of high taxes, regulations and social monopolies a source of trouble. The success of the Nordic countries is seen in a more market-oriented economy and lower taxes.

CLUSTER 4

The fourth group consists of these countries: Germany (19%), France (20%), Austria (21%), Croatia (25%), Poland (23%), Greece (23%), Italy (22%) and Portugal (23%). Three of the six founding EU countries are in the group. Even in this cluster, the maximum indicator metrics are not reached. The rate of average household consumption is the second highest of the five clusters. The most powerful country between the eighth is Greece. In the long run, it exceeds the EU average by 20%. This is followed by Portugal, which has "lost" to Greece in the last year only 6.2% of household consumption in the GDP of the country. According to the Greek National Statistical Office, although GDP in the last year of 2016 has stagnated, household spending has increased by 1.4% over the previous year. Government spending declined by 2.1% [SME, 2017].

The Greek Central Bank expects to strengthen the economy in 2017, partially thanks to growing private consumption. The condition is that this enormously indebted country continues to follow the rescue program rules [Teraz.sk, 2017].

CLUSTER 5

The fifth group is made up of discarded countries. These are Luxembourg (17%), Ireland (23%), Malta (18%) and Hungary (27%). Fifth cluster is a cluster comprised of countries that show extreme values of indicators. This is the share of export and import. The average export value is approximately 148%, where Luxembourg has a maximum export share of up to 236%. The average import share of the country's GDP is 129%. The maximum is reached by Luxembourg 203%. Luxembourg's main export or import partners are not countries with which they are in the same cluster.

Research [Desai, Hines, 2005], which found that countries with VAT have significantly lower exports than countries that do not apply this tax, cannot apply to these five countries. In the example of Luxembourg, we see that the introduction of the rate did not reduce their exports. Every year, the share of exports to GDP is growing. Based on data from the World Bank, it made it to the first place. It is a historic first, since the best position was the second bar. It was followed by China, Singapore, and again the EU countries - Malta and Ireland. Hungary has moved to the ninth position from all countries of the world. In the year when the country introduced the VAT rate (1970), it was ranked second right after Singapore. Using the earliest available data from the 1960s, even in this case, Luxembourg, as a country without VAT, was placed in the same place as ten years later. Also, we could say that these countries do not tend to increase the income tax rate in order to get more money into the state treasury. Again, we can rebut this fact in Luxembourg, as this country has the lowest VAT rate in the EU.

4. Conclusion

Using Ward's method, we have identified export-import countries in the European Union. These are Luxembourg, Malta, Ireland and Hungary. In the long run, these countries are at the forefront of export and import rate of the country's GDP globally. The study has not confirmed the claims that export countries are trying to achieve high rates by increasing VAT. It has been confirmed that consumption has a significant impact on saving. In this case, it is the Southern European countries, which have been making negative savings for a long time. Based on our study, it is not possible to join the supporters or critics of the northern European countries. We can say that the high rate of VAT in these countries is not demotivating for consumers, as in these countries the share of tax revenues in the state treasury is the largest among the countries of the European Union. Value added tax is an important tool of fiscal policy that influences the overall state of the national economy. The question is whether tax harmonization in the EU countries can be applied in the future and to what extent is it going to affect the country.

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The Fiscal Impulse of the Selected EU Countries

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Abstract

The fiscal policy should stimulate the potential economic growth and maintain the macroeconomic stability. The main aim of this article is to calculate the fiscal impulse and to show the effectiveness of fiscal policy on the economy. In the article, we point our attention on the fiscal stance in Germany and France, as two leading countries in the European Union. According to our results, we can conclude that the fiscal policy could boost the economic growth after crisis and maintain the sustainability of public finances. The main conclusions of our analysis are, that: (i) long-term shortening of public expenditure and cyclical tightening cause the stagnation of economy and open a negative output gap; and (ii) an increase of public expenditure in short-term period and countercyclical loosening could start economic growth.

Keywords: *fiscal policy, fiscal impulse, fiscal stance, global financial crisis, consolidation of public finance in EU countries*

1. Introduction

The fiscal policy and its instruments contribute to a stable economic development, to start economic activity after recession and to long-term economic growth. If government applies appropriate fiscal arrangements, then fiscal policy can reduce volatility in the macroeconomic development, and so to increase real growth in a country. However, in a short-term point of view fiscal measurements can be ineffective and could lead to raise public deficit.

The main aim of this article is to point out an influence of fiscal policy to the economic activity. There is calculated and analysed the fiscal impulse in the selected EU countries (Germany and France), and characterized the impact of a type of fiscal policy on the economic stability. According to comparing pre-crisis period with current period in Germany and France, this article notifies of significant share of fiscal policy to restart economic growth after crisis. In current times, the most of EU countries have got some difficulties with their high public debt and sustainability of public finance due to global financial crisis in 2009. Therefore the topic of fiscal policy is very recent.

2. Research methodology

There are a lot of studies that analyse fiscal position and determine methodology of the fiscal impulse in the literature. Castro, Kremer & Warmerdinger [2010] analysed an impact of fiscal packages on economic downturn. To their research, they used data from Euro zone as a whole, Spain and Germany in a period of 2008-2009. Authors provide two ways how to calculating fiscal impulse –

“input-side” method and “output-side” method. The first one comes from changes in public finance (in change of cyclical balance), and it is appropriate for comparing results between two countries. The input-side method has better practical benefits because it includes year-to-year changes in budget balance. On the other side, potential disadvantage of this approach can be that it is dependable on system of national accounts. The output-side approach measures fiscal impulse through effects in the macroeconomic development. According output side approach, fiscal impulse is estimated with econometric model in which is estimated an impact of fiscal multipliers on macroeconomic development. The main drawback is quantity of various methodology of evaluating macroeconomic effects.

The next approach how to determinate fiscal impulse, is analysing influence of fiscal packages. This one provides only aggregate view on fiscal development and there can be more errors when comparing data internationally. This approach used for example, Tudyka [2013] who analysed impact and efficiency of government expenditures on economic activity. Similarly, Strulik, Trimborn [2013] pointed out that fiscal stimulus have got a negative influence during economic recession.

Another method of calculating fiscal impulse is through calculating discretionary fiscal effort (DFE) and changes in cyclical adjusted primary balance (CAPB). Discretionary fiscal effort comes out of changes in cyclical adjusted balance. The higher discretionary effort, the higher is an increase of structural balance. Also, there are some frauds that can happen when we consider fiscal structural balance. Morris et al. [2009] deal with these errors and they analysed fiscal stance of Euro zone countries and changes in tax and social distribution.

To calculate fiscal impulse is possible to use structural dynamic-stochastic models of general equilibrium (DSGE). DSGE models are used by international institutions, such as IMF (global GIMF model) or ECB (NAWM model), and they come out of general equilibrium theory and explain economic growth, economic cycle and effects of monetary and fiscal policy. The main benefit of DSGE models is that they take into account an impact of macroeconomic indicators in time. However, DSGE models are quiet inaccurate from a long-term point of view.

3. Fiscal impulse

The fiscal impulse is a macroeconomic indicator that measures an effect of fiscal policy on real economic output. It considers an impact of changing fiscal budget on real economic development. That means it measures contribution of public budgets to year-to-year change of aggregate demand. Fiscal impulse compares changes in government revenues and expenditures. It often is changed with fiscal multipliers, which measure influence of fiscal policy on economic activity (a change in aggregate demand and tax). Fiscal impulse determines how fiscal policy is changed in time. In association with output gap it analyses if government fiscal policy has got cyclical or countercyclical character, and determines if there is fiscal tightening (positive FI), or fiscal loosening (negative FI) in the economy. The higher positive value of fiscal impulse, the more restrictive fiscal policy is, and similar on the other way, higher negative value indicates more expansionary fiscal policy. The main drawback of fiscal impulse represents various methods and approaches of its calculating. Various methods can cause difficulties with interpretation.

In this article, there is analysed fiscal impulse according to statistical data (such as real economic growth, government balance) gained from Eurostat, and from national Stability Programs (Deutsche Stabilitätsprogramm and Programme de Stabilité de la France). We estimate the output gap as a difference between real and potential product. The output gap expresses if the economy is overheated, or if the economy is under its potential. It is only estimated indicator; therefore, it is necessary to take into account an uncertainty when interpreting conclusions. To determine the output gap, we use Hodrick-Prescott filter in MS Excel. Parameters of this method are possible to write as:

$$Hpfilter = \{(GDP_{real})\}; \lambda = 1600\} \quad (1)$$

where λ is a parameter for cyclical smoothing.

3.1 Fiscal impulse in Germany

The output gap in Germany was in a period of 2006-2008 significantly positive, what stimulated economic growth. After that, the output gap was closed and in the German economy occurred deeply decrease in economic growth. From 2009 to 2010 Q3 was output gap deeply negative because of the global financial crisis. Afterwards, the German economy was started to rise and the output gap was started to widen positively. In recent years 2015-2016 has German economy raise behind its potential, and it is supposed that in 2017 the output gap will be closed [Eurostat, 2017].

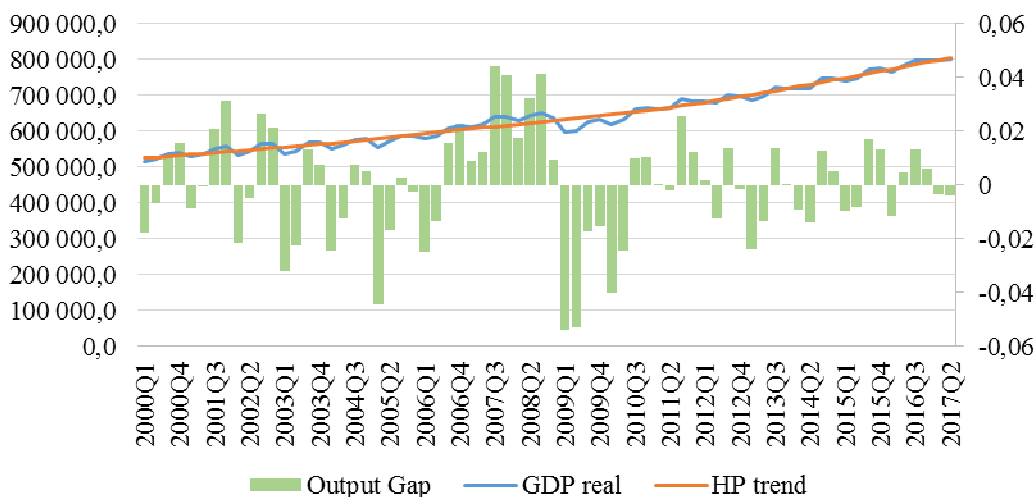


Figure 1. The output gap in Germany, quarterly data 2000-Q2 2017
(Source: Own proceeding based on Eurostat)

According to German Stability Program, we can tell that public finance and character of fiscal policy in Germany recorded significant change during analysed period. In 2008, there was fiscal loosening (0.4%), but due to the financial crisis and increase in public debt in 2010 government tightened fiscal policy radically (-3.4%). There were automatic stabilizers in the economy that protected the next economic fall. Since notable increase in public budget debt (72.4% GDP in 2009), German government approved new fiscal law called “debt brake” in 2010, which limited continuing expenditure growth rate. In 2011, fiscal policy had restricted character, and moreover, it ended fiscal package for commercial banks, what caused continuing reducing in government expenditures.

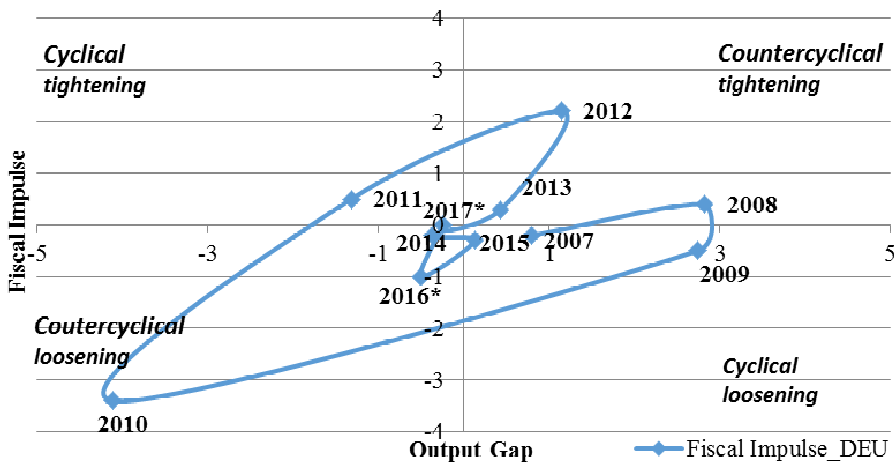


Figure 2. The fiscal impulse in Germany, 2007-2017
(Source: Own proceeding based on Eurostat)

Period of 2012-2013 influenced German liability to European Commission to sustain fiscal rules and to eliminate structural balance in 0.5% GDP, so fiscal policy had countercyclical character. As a result, stricter fiscal policy with government measures helped to achieve surplus in public finance. Since there was improved economic environment in 2014-2015 in Germany, fiscal policy has had expansionary character, which was influenced by ended period of refinancing sources from Euro funds. In upcoming years it is expected fiscal loosening and rising investment capacity, consumer's expenditures and tax decreasing. The value of fiscal impulse is lowering slowly, and in 2017 according prognosis of Stability Program, there should be macroeconomic stability in German economy (-1% in 2016, 0.00% in 2017) [Deutsche Stabilitätsprogramm, 2007-2015].

3.2 Fiscal impulse in France

The development of French output is similar than in Germany, although there is a little time movement. In period of 2000-2002 was output gap closed (average level was 0.2%), and after the year 2003 started to widen negatively (-3.5% in 2003 Q3). In 2006-2008, was recorded the highest economic growth (at level of 2.4%), but afterwards happened steep decrease of economic growth due to global crisis (-4.4% in 2009 Q3). Since that time, French economy has stagnated. Nowadays, in economy arises appropriate time to improve domestic demand through fiscal policy instruments (for example, through fiscal expansion because of low interest rate for state's bonds). In near future, France needs a fiscal consolidation reform to reduce gross public debt (which is currently almost at level 100% GDP) [Eurostat, 2017].

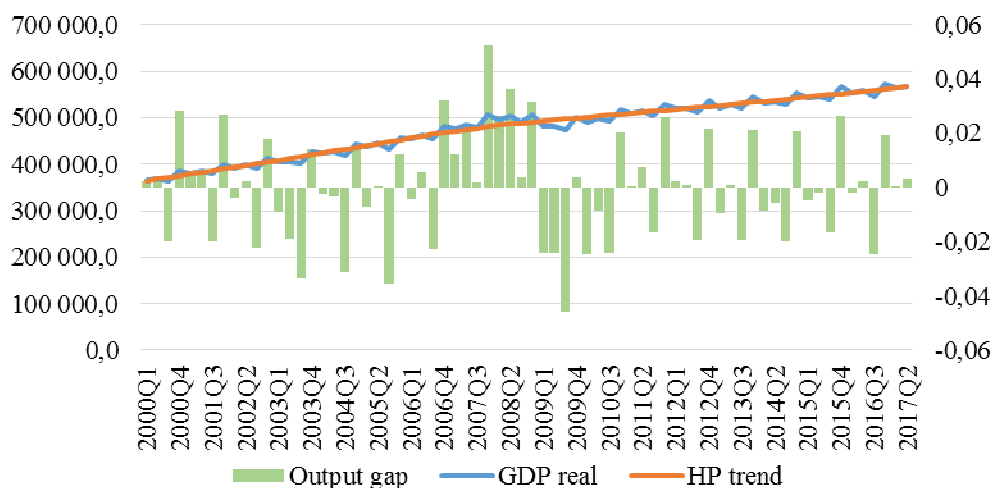


Figure 3. The output gap in France, quarterly data 2000-Q2 2017
(Source: Own proceeding based on Eurostat)

Before the global financial crisis (2007-2008) government applied cyclical loosening (-0.2% GDP, and 0.1% GDP respectively), and approved a structural reform, which supported employment rate of lower qualified employees and helped to arise competitiveness of corporate sector. The serious problem caused the global financial crisis and immediate closing of output gap (from 4.8% GDP in 2008 to -0.7% GDP in 2009). The public deficit, as well as gross debt was arisen, and therefore French government turned its attention to control public expenditures and tightened fiscal policy. In 2009 although the economic growth was insignificant, government focused on job market and reducing of public debt, so the character of fiscal policy was restrictive. In 2010 raised public expenditures due to increasing cost for presidential election. Therefore, government in effort to reduce high deficit realized restrictive fiscal policy, and fiscal impulse was at level 0.5%. In the next year 2011 fiscal policy had significant countercyclical aspect (1.4%), and there were automatic stabilizers, which protected the economy from dropping. Similarly as in Germany, France in 2011 applied “debt-brake” into French law. In 2012-2014, there was mild fiscal loosening (from 1.2% to -0.2% in 2014) with an aim to restart

economy and diminish high unemployment rate of young people. But there was still risen public deficit and debt, and therefore in 2015 government tightened fiscal policy again. Too strict control of public expenditures caused that year growth rate of expenditures in share of GDP was only 0.9% v nominal terms. This has been the least growth for ten years (7.1% in 2009). On the one side, fiscal tightening is a good step how to reduce debt. But on the other side, French public debt is rising although restrictive fiscal policy. Therefore, there is necessary to realize fiscal reform [Programme de Stabilité de la France, 2011-2018].

With the main aim to reach neutral structural balance, and to reduce public debt, it is expected cyclical fiscal tightening in 2016 and 2017 again (0.5%, respectively 1.3%GDP). Also, there is a good economic environment for fiscal consolidation in French economy (low interest rate for bonds, unchanged tax rate and social contributions) that could help to eliminate deficit and gross debt.

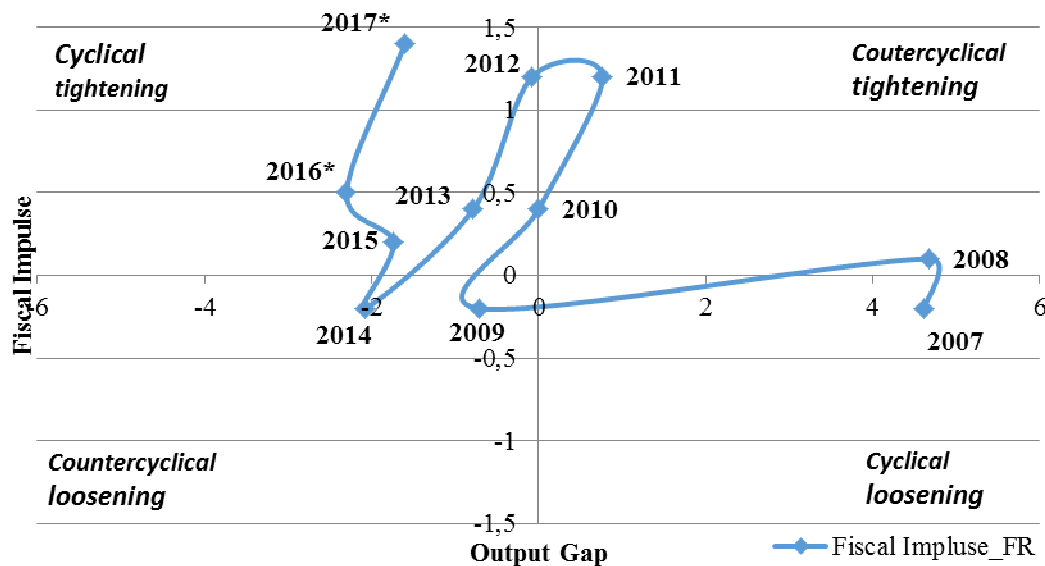


Figure 4. The Fiscal impulse in France, 2007-2017
(Source: Own proceeding based on Eurostat)

To sum up, our analysis shows that German fiscal policy after global crisis has stabilized the national economy, and has started the economic activities (from fiscal loosening in 2010 to boost the economy, to fiscal tightening to maintain public debt balance in the following years). On the other hand, French fiscal policy and government measurements have pointed attention to budgetary aims and public expenditure shortening due to the macroeconomic imbalances (high unemployment rate, high public gross debt and high deficit). Since the year 2010 to current times, there has been restrictive fiscal policy in France.

We can conclude that if one country realizes one type of fiscal policy in a long-term view, it has got a negative influence on the economic activities, and the national economy is instable.

Table 1. The comparison of fiscal stance in Germany and France, 2008-2017
(Source: Deutsche Stabilitätsprogramm, Programme de Stabilité de la France)

Factor	2008	2009	2010	2011	2012	2013	2014	2015	2016*	2017*
FI – DEU	0.4	-0.5	-3.4	0.5	2.2	0.3	-0.2	-0.3	-1.0	0
OG -DEU	2.83	2.74	-4.11	-1.32	1.15	0.43	-0.37	0.13	-0.1	-0.3
FI – FR	0.1	-0.2	0.4	1.2	1.2	0.4	-0.2	0.8	0.3	1.3
OG – FR	4.68	-0.71	0.00	0.76	-0.08	-0.78	-2.08	-1.74	-3.5	-3.5

Note: (+) fiscal loosening; (-) fiscal tightening; FI = fiscal impulse, OG = output gap

4. Conclusion

The effectiveness of fiscal policy's instruments to reach the stability of the macroeconomic product, as well as long-term sustainability of public finance are dependable on a lot of factors, such as total character of economic environment in selected country, or government measurements. Our article analysed the influence of the fiscal impulse in Germany and in France. The development in Germany provides evidence that if government reacts to economic cycle and changes aims of fiscal policy appropriately, then it is probable to achieve macroeconomic balance. However, as French example shows, if a country has got problems with high public gross debt and public deficit and government approves strict fiscal tightening for a long time, then the economic activity is worsening.

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Foreign Experience in Increasing the Efficiency of Use the Innovative Potential of Agrarian-Industrial Production

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Abstract

The problems of formation of a holistic innovation-technological system of agrarian-industrial complex are considered. The role of regional policy in shaping the scientific and production components of the innovation potential of the regions is determined, the use of which is a important prerequisite for state innovation policy and one of the main factors of economic growth and competitiveness of the agrarian sector. Rules on the practical implementation of innovation culture are outlined. Cluster strategies in the state innovation policy of foreign countries are presented, when the state contributes to the formation of clusters, and even becomes a participant in the named networks. The university model of conducting of fundamental and applied researches is considered. The ways of realization of innovative potential of development and enterprise are considered.

Keywords: *innovation potential of agrarian and industrial complex, efficiency, market, competitiveness, innovative product, agricultural cooperatives, clusters, enterprises, universities*

Introduction

Ukraine is lagging far behind all European Union member states in terms of productivity and efficiency of agricultural production, and only on the basis of innovative development is possible to achieve a significant increase in the efficiency of agriculture and the processing sector, competitive food products, as well as to undertake radical technological, organizational, economic and social environmental modernization of all spheres of agrarian-industrial complex and rural areas. The course for innovative development of the national agrarian-industrial complex should be considered as a strategic task. Accordingly, it should be noted that there is now an objective need to study the innovative development of the agrarian sector of the economy, and to assess its innovative potential.

Material and Methods

The works of such foreign and domestic scholars as A. Verbb, T. Gerwilliger, D. Farrell, S. Fokin and others are devoted to research of innovational development problems. Problems of analysis of scientific technical and innovation potential are devoted the works of scientists: I. V. Kosmydailo, S. I. Pyrozhkov, A. I. Sukhorukov, S. O. Tulchynska, V. H. Chaban, H. P. Shestopalov et al.

However, the category of agricultural innovation potential is one of the least studied in agrarian science and practice. Many aspects of the formation of the innovative potential of the agrarian-industrial complex have not yet been studied, in particular, the expansion of commercialization opportunities for innovative developments and transfer of new technologies, deepening of the information and economic interrelations of scientific activity, the sector of production in the process of using innovative products, and therefore they need further research.

The purpose of the article is the study of foreign experience in raising the efficiency of using the innovative potential of agrarian-industrial complex and identifying the possibility of its application in Ukraine.

Results and Discussion

Effective development of the world economy is carried out on the widespread use of the intellectual factor, which is formed by the results of scientific research, the ability to translate the results of creative work into the production of innovative types of products or services. Research of researchers suggests that in developed countries, 80-90% of gross domestic product growth is formed at the expense of patents, know-how, and the use of state-of-the-art technologies. In the United States and Japan the increase in the efficiency of agricultural production almost 60% is provided by the latest technologies, a qualitative reorientation of the mechanism of management and intensification of innovation processes [4]. Unfortunately, the indicators of the Ukrainian economy on the scale of using the results of intellectual achievements compared with developed countries are much lower.

In the agrarian sector of the Ukrainian economy only a small part of the scientific and industrial components of the agrarian-industrial complex's innovative potential are used. This, in particular, is due to the following reasons: lack of financing of perspective projects and their commercial implementation, insufficient legal protection of intellectual property objects outside the state, lack of modern macroeconomic studies of the international market of agri-food products, etc.

Development of innovative potential of agrarian-industrial complex is possible only with significant state support. However, in practice there is a constant underfunding of scientific and applied research. According to Ukrainian legislation, annual funding for scientific and applied research from the state budget is set at 1.7% of GDP, but in fact this indicator has not reached the established norm for one year [3]. Ukraine in terms of the number and professional level of scientific personnel is at the level of developed countries of Europe, but when comparing GDP and public expenditures per scientist, it is at the level of third world countries.

The problematic issue in the development of the scientific component of the innovative potential of the agrarian-industrial complex is the low level of spending of private sources on science (13.5% of the budget). Highly developed countries spend on science development many times more money, while the share of identified costs from private funds is steadily increasing.

Only 0.16% of GDP is allocated to scientific research in agriculture in Ukraine, which is a very low indicator. At the same time, the share of gross national product on research and development of agriculture in foreign countries is much higher, may even exceed 3% [1].

Such a significant lag makes it impossible to conduct research work at the world level and to obtain competitive scientific results. In addition, such significant discrepancy also leads to the ineffectiveness of the use of financial and logistical resources in the field of scientific research works.

Ukraine is the only state in Europe that does not stimulate investment in scientific research despite the availability of free funds and common strategic interests.

In the US, mechanism of write-off from a basic amount of taxation of 100% of research and development costs is used. In the UK, grants in 50% of the costs of small and medium-sized enterprises for research and design works are paid. In France is created the special bank for long and medium-term lending on preferential terms for the purchase of scientific equipment, the National Agency for the Implementation of Research Results has been set up, which compensates for up to 50% of R & D expenditures and up to 35% of the costs of implementation, is in place.

Foreign experience shows that rapid innovative development takes place in a context of massive involvement of private capital in research works, which contributes to strengthening integration processes in the system of "scientific – production potential". For Ukraine such processes are completely natural and real, since strategic interests of the state, national business and science must coincide. The state should take care of raising the level of education, which in turn is the basis for a professional strategy and develops science that reproduces innovation processes. An effective direction in preserving and increasing the scientific potential is the integration of scientific, agrarian-industrial and financial structures and the creation on their basis of high-tech corporations.

Regional policy plays an important role in shaping the scientific and production components of innovation potential. The use of scientific and production components of the innovation potential of the regions is a mandatory condition for state innovation policy and one of the main factors of economic growth and competitiveness of the agrarian sector. Statistical materials testify about the stable state of innovation activity of regional enterprises and its compliance with general tendencies of innovation development in general in Ukraine. At the same time, the most innovative activity of agrarian enterprises is observed in Kyiv, Vinnytsia, Lviv, Kharkiv, Ivano-Frankivsk, and Ternopil regions. There is also a rather uneven placement of scientific organizations in the regions of Ukraine. More than a quarter of all scientific organizations are located in the metropolitan area, more than 16% in the Kharkiv region [7].

In some American companies all research activities are divided into several stages, each of which uses its own model for the interaction of research laboratories [2]. Such companies have created a certain innovative culture, the essence of which is that with business grows it is important to delegate responsibility and encourage initiative, with initiative people deciding themselves how to do better; errors that may arise in this case are insignificant, in comparison with the mistakes of the authoritarian leadership; excessively critical attitude to mistakes can lead to the loss of the initiative.

The practical implementation of the innovation culture is based on the following two rules. The first of these is that the company uses a variety of methods to evaluate the success of inventors and managers. At the same time failure of the first cannot be regarded as a collapse, because then stop looking for something new. The second rule is the rule of 15%, according to which work companies with an official authorization spend more than 15% of their working time on the development of their own innovative ideas. They lack not only time to develop their ideas, but also the funds allocated for the purchase of equipment. In order for an idea to be included in the company's development plan in next year, it should receive support from at least one member of the board of directors. In this case, a special team of scientists, engineers, accountants, marketers and managers is working on the development of this project [6].

In the 90th years of the XX century in state innovation policy of Western European countries stimulation by the state of research and technological cooperation are intensified. The state thus acts as an intermediary between the research area and business. In Great Britain, Belgium, Denmark, Portugal, Germany centers for cooperation between universities and industry, interdisciplinary centers,

innovation centers for the transfer of new technologies to small and medium businesses have been established. As a rule, they operate at regional levels.

Since the 1990s, the cluster philosophy in the state innovation policy of foreign countries is dominated, which consists in the fact that governments of the countries concentrate efforts on maintaining of existing clusters and creating of new networks of companies that have not previously been in contact with each other in certain segments and sectors of the economy. At the same time, the state contributes to the formation of clusters, and even becomes a member of the named networks. Clustering strategies are widely used in the UK, Germany, Denmark, the Netherlands and other countries. For example, in Germany since 1995 a program for the creation of biotech clusters is acted [5].

In Western countries, the state not only promotes the expansion of cooperation between firms and research institutions, but also with the help of companies determines the directions of perspective cooperation in the creation of competitive innovations. Thus, in 1993 the Prediction program was implemented in Great Britain, which, based on the collaboration of scientists and business representatives, predicts the prospects for the development of the market and technologies for the next 10-20 years, as well as identifies the measures that are necessary for preserving the international competitiveness of the country.

In developed European countries and the United States, a significant proportion of scientific research is carried out by universities. Most EU countries have research institutes that funded by state for conducting of fundamental and applied research. Thus, in France, the National Center for Research and Science has been set up, which has over 1200 separate units, in which employing over 26,000 scholars.

In developed countries, fundamental research on crop issues (genetics, biochemistry, physiology, biotechnology, etc.) is concentrated mainly at universities and is financed from the state budget on a competitive basis. Applied research (the creation of varieties, seed production, technology development) is concentrated in firms that are partially financed from the budget, and the main funds are received on a self-supporting basis.

In Germany, breeding in crop production is engaged in sectoral institutes. They are the originators of all sorts and hybrids, and seeds are engaged in government-defined agricultural cooperatives. They perform the functions of providing regions (lands) with high quality seed material.

In the United States, the university model of conduction of fundamental and applied research conducted at state universities has been proven positively. In this case, universities have appropriate land. Completed scientific developments are distributed to farmers by universities and services "Extension service". The latter is an analogue of domestic agricultural advisory services.

In foreign countries, certain state support for innovation is provided. In the UK, tax deductions have been reduced by 25%, programs of research works have been developed in state-funded institutions.

The main performers of research works in the world are economically developed countries. Among the relatively large group of developed countries, the USA, Japan, Germany, France and the United Kingdom are allotted to the highest level of scientific and technical potential. They spend on their own research about 80% of world science allocations and control about 59% of the employed scientific personnel.

In some European countries (Denmark, Holland), there is an experience of financing from the state budget both a fundamental and a applied research in any field of the food and processing industry during the period of the establishment and development of this industry. When stabilizing the industry, state support is provided only for basic research by funding industry research institutions or research laboratories at universities. The conduction of applied research is carried out at the expense of large industrial corporations. Technological polises, technoparks, science parks, innovation centers, etc., are created in order to support and stimulate innovation activity in most developed countries.

Implementation of innovative potential for development and enterprise should be carried out in such a way that in the organizational structure of the agricultural enterprise the main directions of production, scientific, testing, informational and advisory activity are closely combined. In this case, the coordination centers can be scientific laboratories of plant growing and livestock, which would work in close relationship with the production units of the enterprise. Their work should be aimed at utilizing the needs of both experimental and industrial production, the formation of a holistic innovation-technological system. At the same time, activities of seminars, consultations, field days, exhibitions, presentations, etc. should be promoted by the promotion of specialists of production units to scientific and practical activities.

Innovative design and business planning should include the development of promising directions for the technical re-equipment of the main agricultural sectors, primary processing with the definition of project capacities and profitability. These projects and business plans should become the basis for the formation of perspective plans of the enterprise, which envisages the possibility of developing an innovative strategy for enterprise development.

The application of the mechanism of innovative forecasting involves: establishing of cooperation with scientific institutions on the selection of implemented technologies, testing; use of Internet resources, forecasting of demand and prices for innovative products by market segments; study of foreign and domestic experience, participation in exhibitions, seminars, presentations, conferences, etc.; approbation of new developments, their adaptation to production conditions; organization of test ranges, experimentation; analysis of technical-technological and economic properties of innovative technologies and other objects of intellectual property.

Application of the mechanism of innovative planning involves: technical and infrastructural re-equipment of production; optimization of production and introduction of innovative technologies in crop and livestock production; organization of personnel retraining system and material incentives for employees of the innovation sphere; development of social and domestic infrastructure; drawing up of the perspective plan of innovative development of the enterprise; formation of commercial tasks; conclusion of collective agreements; forecasting of the portfolio of orders and development of a comprehensive business plan for the planned year; adaptive planning in accordance with changes in market conditions.

The organization of scientific-industrial relations and informational-advertising measures includes: selection and organization of work with personnel; sales of high-tech products with advisory support; contests with the use of bonuses and preferential prices for regular customers; carrying out of educational-methodical seminars, conferences; coverage of suggestions on own web site.

Conclusion

Consequently, under the current conditions of orientation of the agrarian-industrial sector of Ukraine to increase competitiveness, an assessment and determination of ways to increase the innovation potential of the agrarian-industrial complex becomes important, as without it is impossible to carry out progressive structural changes in the country. An important condition for this is the study and introduction of foreign experience in raising the efficiency of the use of the innovative potential of the agrarian-industrial complex.

Thus, in the organizational structure of agricultural enterprises, the main directions of industrial, scientific, testing and informational and advisory activity should be closely coordinated; for this purpose it is necessary to create scientific laboratories of plant growing and livestock farming, which would work in close relationship with production units of the enterprise and direct their activities to meet the scientific and production needs, should develop innovative investment projects and business plans for the production of science-intensive products, to intensify marketing activities, organization of work in the field of advertising, ordering and marketing of products.

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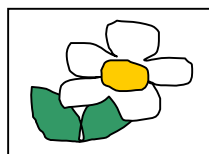


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