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PREFACE

Dear readers!

It is my pleasure to present you with a collection of papers from the 1st annual International Scientific Conference of Business Economics, Marketing and Management (ISCOBEMM 2016) organized by the Department of Corporate Economy at the Faculty of Economics and Administration of Masaryk University in Brno, Czech Republic. The topic of this year's conference was Enterprises after the Financial Crisis, particularly Challenges and Solutions for the Industry 4.0; however, the scope of conference participants' papers was much wider, as it covered topics such as customer satisfaction, business performance, foreign direct investment, business environment, family business, industrial development, gender and personality traits in innovations, social business and others. I am proud that our conference was really international with participants from more than five countries from Europe and Asia.

These proceedings present the latest scientific findings in the mentioned area, which makes me believe that you will find reading it helpful and inspirational for your further scientific and research activities. Also, I would like to use this opportunity to invite you to attend another (the second) year of this conference, which is to be held next year.

I wish you pleasant reading.

Petr Suchánek

Head of the Department of Corporate Economy

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Arguments against the Insolvency of National States - Philosophical and Economical Foundations to Solve the Problem of Public Debt

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Abstract: *The goal of this paper is to construct and describe an ideal legal system (from the human rights perspective), that enables us to solve the more and more pressing problems of so called public debt. At the end you will find a worked out proposal that includes some very important fixes of the "debt based money system" currently used worldwide by private banks.*

1. Fundamental questions concerning the legal structure of the national state

If, on one hand, we consider national states to be subjects of international law and we follow democratic principles, then they represent the legislative communities themselves, including those institutions setting the legal standards as e.g. commercial law. It would make no sense whatever to implement rules of commercial law (like the rules of insolvency) for standard setting bodies governing commercial law and insolvency rules, we would end up in a recursive cycle. Standard setting bodies in democracies are not corporations, therefore insolvency rules cannot be applied onto them. Furthermore the right to create money (based on gold, based on human labour, based on the value of land or any other form of resources) is a central part of the sovereignty of national states for which reason it is not even thinkable that national states "borrow money from anyone". They just create it following the rules that they themselves have set.

If, on the other hand, we consider national states very well to be corporations to which the rules of insolvency (generally speaking commercial law) may be applied, then, we have to ask: "Who is the legal owner of those corporations?" When applying commercial law we must distinguish partnerships (with liable owners) from corporations (without personal liability of the owner). If we assume a partnership we must ask who the legal owner is, because he is liable in case of insolvency. If we consider the national state to be (or function in a similar way as) a corporation, we must ask in what legal position the government and the population must be regarded. Quite clearly government acts as the management and therefore as the decision maker. The population then acts as the employees of the corporation. But employees are never legally liable in case of insolvency, definitely not under the rules of commercial law: in case of insolvency they are creditors, never debtors! So when we consider austerity measurements of governments damaging infrastructure and reducing social budgets we see that it clearly runs counter even to existing commercial law. Liable are the shareholders as well as managers, the decision makers.

Another important question would be who the legal owners of the corporation are (the shareholders) and by which contract or similar legal act they became owners. If the national state is a corporation, then where is the accounting? Where are all the (known and unknown) assets, who bought them and at which price? Where are the liabilities and who are the creditors of the national states and what were the business events leading to public debt? Who signed the contracts? Where is public disclosure? And, last not least, where are the "free markets" where everyone can buy a share of the national state after carefully reading the highly valued information of the financial statements that certified public accountants audit so diligently every quarter? Anonymous shareholders owning stock of national states without all those central elements of the free market economy are not even thinkable because they run counter to all known and practiced rules of our western societies.

So the only possible conclusion is that neither on the ground of international law nor following commercial law can we justify or derive insolvency rules for national states. But when we accept the national state as the law giving body it is obvious that this includes the rules of money creation thereby defining even the very nature of money itself so that money creation needs not necessarily be linked to rising debt of the institution or legal entity creating it.

2. Origins of book money and public debt

In contrast to public wisdom more than 95% of our money doesn't consist of bills and coins but simply of bits and bytes in the computer memories of the banks. This is called "book money". Banks create this kind of money whenever they grant a loan. Money that you receive from your bank didn't exist beforehand (banks neither "lend out the savings of their customers" nor "lend out their reserves").

That's the main reason why today most enterprises, private households, banks and even national states are overly in debt. If you think in terms of conventional accounting you would think that for each liability there ought to be a claim (because assets equal liabilities and owner's equity in the balance sheet equation), but in fact, in reality it's not always the case.

The main cause for this problem is how private banks create about 97% of our „money"when they grant a loan. Legal tender are only the coins and bills that we carry in our wallets. The numbers we see on our bank accounts have a different history. They come into existence as the loan of a private bank to a bank customer (a private person or a business). But when banks grant a loan they create it only in their (electronic) accounts:

- On one hand banks create the claim against the debtor (in fact, banks want their money „back"), an IOU of the customer, but
- on the other hand the bank creates a debt too, an IOU for the bank to the customer,

So bank loans create twice a debt – for the customer as well as for the private bank!

All the electronic money we see on „our bank accounts" (in fact banks are the only legal owner of the „money" on the bank accounts, customers only have a claim against the bank from a legal perspective) are only debts of banks, that we „use as money" in circulation.

This fact has very well been verified (best documented in English language on the pages of http://www.positivemoney.org) and can't be neglected any more. But it creates three major problems:

- Bank loans only create money for the capital, never to pay interest. The money to pay interest must always be „earned" in the real economy, that means in the real economy we all have to compete against each other to take away enough money from each other to pay the interest the banks claim from us.
- Banks go more and more into debt when they grant more loans. Each and every bank loan is the debt for the bank, that means that on a certain point banks can't go on granting loans and this is the moment when the „credit crunch" takes place and banks collectively „want their money back".
- When banks „want their money back" and debtors pay back the bank loans, then the electronic money just disappears in the same way it was created when the loan was granted – by an accounting entry. This creates heavy deflation and mass insolvencies in the real economy, a phase where we are right now in economic history.

So when a bank grants a loan of 100,- it creates an accounting entry like that:

Claim (against customer): 100,- / Liability (to customer): 100,-

The liability of the bank is the asset of the debtor (the „money in the bank").

Later, when the debtor pays back the loan, the reverse accounting entry is used:

Liability (to customer): 100,- / Claim (against customer): 100,-

In this case the „money in the bank" disappears, it can't be used any more as a medium of exchange in the real economy and it creates deflation, joblessness, poverty and misery!

Moreover, when money itself is debt, then it is quite logical, that we can't use it to pay back debt at all! There will never be enough money to pay back our debt – at least not for the interest!

The community granted the banks (via legislation) the privilege of money creation. Then the national states borrow the money from those banks as an interest bearing debt. But because the accounting entries in the money creating process create twice as much debt as necessary (for the national state as well as for the bank, because the bank creates its fiat money as a promissory note instead of "lendig out gold coins") this debt can never be refunded. So in the money creation process itself the accounting is broken and has to be fixed instead of driving national states into insolvency!

3. Economic foundations of insolvency

Insolvency is always based on valuation principles and valuation depends on current information. As long as the standard setting bodies (i.e. the national states) can manage to implement new valuation principles or even completely new monetary systems, insolvency is out of question. If the currently valid valuation principles would be applied rigorously, nearly all banks would be insolvent. Most of our global banks have been "rescued" first in October 2008, only 3 weeks after the insolvency of Lehman Brothers bank, when the IASB (International Accounting Standards

Board) changed the valuation rules for commercial papers, but only for financial institutions. After that most banks had to be "rescued" a second time using tax payer's money under the slogan of "too big to fail".

When it was possible to "rescue" the banks simply by setting new valuation rules for commercial paper, it is equally possible to "rescue" national states simply by changing valuation rules and not by implementing austerity measurements devastating the living standards of millions of people.

The next chapters of this paper describe the proposal of a new monetary system that can very easily be implemented using todays information infrastructure that avoids taxes, interest, growing public as well as private debt and also wealth distribution.

4. Positive money – creating money without debt

A first step in a better direction can be the creation of money without creating debt at the same time. This method implies that „electronical tokens" (bits & bytes) represent our money and the owner of that will always be the bank customer, banks act only as custodians. When we create positive electronic money we use the following accounting entry:

Cash (person X): 100,- / Equity (person X): 100,-

This method implies that whenever new money is created, we have the legal right to do that, we create new equity at the same time (because we all are owners of the „democratic central bank", the only legal entity that has the right to create new money but only on the grounds of legal, democratic laws, that can be stored as electronic rules too, so the law would control money creation on a technical level like a key and a lock). Democratic rules, stored in an electronic rule base we use in knowledge bases today, can interactively manage the creation of positive money in a totally transparent and secure way unimaginable in our current world of „paper values" and „debt based money".

If we model electronic money after material tokens (e.g. coins) then we have two restrictions:

- Whatever I want to receive, someone has to pay for that (profit and loss have to be equal calculated over all accounts of the system) and that creates a zero-sum game where competition and perhaps even war can be the result and
- We have to find a way to destroy the positive money tokens in any way (e.g. using a uniform tax), just to avoid inflation, because if we use our positive money tokens as a medium of exchange they devaluate more and more if we create more and more of them and bring them into circulation.
-

So when paying with positive money we would use the accounting entry:

Cash Person A (receiving): 100,- / Cash Person B (paying): 100,-

This constructs the zero-sum game, whatever someone wants to sell, he has to find a customer who can afford to pay the exact same amount. To destroy the money and constrain the volume of money in circulation we would need a uniform tax, e.g. The accounting entry for that would be:

Tax (expense): 100,- / Cash Person A (paying): 100,-

The electronic tokens will be deleted using this accounting entry and not spended for public purpose as today when we pay taxes. So the meaning of the word „tax“ would change, it would be the same act, from an accountant's perspective, as today, when we „pay back our bank loans“ meaning to destroy electronic money.

5. Information money – welcome to post-materialism

To end the zero-sum game and to avoid inflation, deflation, taxes, debt and interest all at once we can take a huge step forward, if we view electronic money not as „material tokens“ (e.g. coins) but only as „numbers written down“ (similar to the Fei Lun system in ancient China). Information Money is no medium of exchange, but a medium of cooperation and it includes a system of Digital Democracy, where democratic laws are stored as electronic rules guarding creation and use (deletion) of information money tokens, as you will now learn.

In this system we create a separate set of accounts for each individual and create money and delete it on an individual level. The money creation works in the same way as for positive money:

Cash (person X): 100,- / Equity (person X): 100,-

Again this electronic way of money creation is controlled by electronic rules (democratic legal rules stored in an electronic knowledge base). But instead of „giving and taking coins“ when we pay for something, the vendor gets fresh money newly created and the customer gets some tokens deleted, so when vendor A sells something to customer B we use the following set of accounting entries:

Vendor (person A) Cash: 100,- / Equity (person A): 100,-

Vendor A „is payed“ by fresh created money from the „democratic central bank“ based on democratic rules (in the electronic knowledge base representing our democratic laws).

The customer B can pay a different (e.g. lower!) price, than vendor A received, based on democratic electronic rules, because their accounts are de-coupled and not linked together any more:

Expense (person B): 50,- / Cash (person B): 50,-

This way persons able to work in real economy can always stay busy and deliver their services to everyone even when their customers „can't afford“ to pay what the vendors want to earn. What they earn is regulated in democratic rules, and what customers pay is regulated in democratic rules too – but we can implement „asymmetrical prices“. Today many goods of our economy are much too high priced and cannot be sold any more to average customers because of the necessity of „symmetrical prices“ (after the model of „giving and taking coins“). But in the post-materialistic world of sheer accounting money we can manage different prices for vendors and customers. Vendors get their money newly created (on the grounds of transparent, democratic rules) and customers pay what they can afford (again on the basis of transparent, democratic rules for different demographic groups in our society).

This way money is always deleted when we spend it and not given away. Therefore no money volume exists, no risk of deflation nor does inflation threaten us anymore. Money circulation is irrelevant, because it doesn't „circulate" but „fluctuate"on an individual level. We don't make contracts between individual persons any more but every person has a „social contract" with the whole society, where all its needs and potentials are documented and where it can be changed permanently to make individual evolution and fulfilment possible. The „society" acts as a „dummy contract partner", because the whole social net is always flexible enough to support us as individuals with goods and services and if we start to cooperate and end competition all our intelligence combines to a massive, global „production factory".

Our current electronic money is an abstraction of a „physical medium of exchange (coins) that we give and take", which we simulate on our (bank) accounts. Information Money is the abstraction of the contract partner so that we can end the zero-sum game and the economic competition to switch to a cooperative economy, where we share all our ideas, needs and facilities for our common good and individual freedom.

The „Digital Democracy", where legal rules are graphically represented in such a simple, symbolic way, that every normal person can understand it and can engage in democratic processes without the need of formal law studies, can even today be implemented. The tools for that are already available and are used in everyday business in many industries: http://www.lpa.co.uk/vsr.htm

The result of „Information Money" and „Digital Democracy" would be the political system of „Cooperative Individualism" where we all can live a free, independent life and nevertheless freely cooperate wherever we want it or the need arises. The idea of Cooperative Individualism is also not a new one (http://www.cooperativeindividualism.org/), but only today we've got the tools and the knowledge to implement it and to explain it to our fellow citizens.

6. Implementing a new balance sheet structure for individuals

Today financial valuation of long lived assets lacks the possibility of falsification (empirical proof) because only current assets are sold, non-current assets are used. If there is no price for an asset the valuation principle might be arbitrary, but if lobbying groups enact those rules they can be "followed on legal grounds". To avoid this kind of complexity as well as the risk of abuse financial statements should only be implemented for individuals and not for legal entities (corporations or national states).

The individual financial statements are the technical instrument for individual money creation on grounds of consensual legal rules of the community. There are no liabilities on the "liabilities side" of the (individual) balance sheet, only "owner's equity". And since the individuals own themselves, they create money based on different legal rules that can be mapped onto the "equity side" of the balance sheet.

Today's balance sheets represent the following equation:

A = L + OE

Assets = Liabilities + Owner's Equity

Therefore

Owner's Equity = Assets – Liabilities

The property rights pertain to the amount of the assets that is left after the liabilities have been subtracted. When we grant the right of money creation to each single individual, then the new balance sheet equation will be:

Cash = Owner's Equity

Whenever individuals fulfil their commitments to the community they create their own "money" (purchasing power). As today in the financial statements of the commercial law the equity represents the legal foundation of property rights on the assets. Under the rules of Information Money the different kinds of equity represent different legal foundations for the newly created "cash" on the asset side: (unconditional) basic income or a premium for some achievement for the community.

The structure of the "equity" in the individual balance sheet should map the structure of the Human Rights Declaration so Human Rights would be the foundation for individual money creation. This would implement Art. 28: "Everyone is entitled to a social and international order in which the rights and freedoms set forth in this Declaration can be fully realized."

By implementing the individual balance sheet as the technical instrument for individual money creation Human Rights would become the legal as well as the technical foundation of a new way of accounting that leads us from the competitive world of debt-based and interest bearing materialistic money systems creating scarcity and slavery into a cooperative world of abundance and personal freedom for each and every one.

6. Examples how Info-Money can assist in implementing Human Rights

Each and every citizen gets a private info-money account that can only be manipulated by her-/himself. No banks, no tax offices and no consultants have the possibility to read or write on those private accounts. Money creation and money deletion (what is called a „financial transaction" today) can only be executed using software modules where the consensual rules of the community for money creation (for those who perform some task) and money deletion (for the consumers) are implemented.

All human beings can act towards one another in a spirit of brotherhood (Art. 1), because if info-money is used they each have only contracts with the community and not with one another. There won't be any contracts under the code of obligations between human beings any more.

There can be no slavery any more (Art. 4), because the whole community sets the producer's price (as a reward) in form of newly created info-money. This is the end of the economical dependence of workers from entrepreneurs and shareholders. Each human being will be an independent and fully responsible self employed citizen.

There will be no need for companies or corporations. The only legal entities are human beings with equal rights (Art. 7).

Interference and attacks (Art. 12) will vanish because when using info-money cooperation will replace the dogma of competition. Cooperation will bring abundance to the communities because scarcity is only an instrument of power in the hands of our current authorities.

The accounts of info-money are strictly private and only under the control of the self responsible individuals, therefore no one can be deprived of his property any more (Art. 17).

For products and services that exist in abundance within the community no „prices are paid“ (i.e. no info-money is deleted). The primary goal is therefore to produce everything that is needed by the community in abundance. Citizens helping in that are still rewarded with newly created info-money, but customers receive abundant products and services for free. This guarantees social security and a life standard in dignity (Art. 22).

The problems of our current monetary system as well as the advantages of info-money are documented in this short animation: „The New System“ (https://www.youtube.com/watch?v=2WRSt5GLxmc).

7. The Introduction of Info-Money under the control of the UN

Instead of an insolvency procedure for national states the introduction of info-money and a cooperative community under the guidance and control of the UN would guarantee that the people in those countries start into a self-responsible, creative and cooperative form of governance. In those countries the international banks would immediately lose their power and therefore there would be no incentive to drive certain states into bankruptcy any more.

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Succession in Family Business: The Case of the Czech Republic

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Abstract: *Transfer of ownership and leadership is still very actual topic abroad, but also in the Czech Republic. Succession is a long-term process of planning and managing while its aim is to ensure business continuity across the generations. As a family business grows older, the number of possible successors increases and also increases the risk of potential conflicts among them. Therefore, it is necessary to analyse principles that make succession successful. This article deals with family business succession. The aim of this article is to point out the importance of managing and planning the succession process in family businesses and to find out the main problems in succession. Theoretical part discusses what family business and succession are and also the current state of knowledge about the role of women in succession process. The literature review and an example from the Czech Republic emphasizes main issues that are influencing this long-term process. Focusing on these particular factors can help to families to make the succession more effective.*

Key words: family business, succession, gender in family business

JEL Code: G32, M14

1. Introduction

Importance of family business has been increasing in recent years and so a greater amount of research lately is focused on this area. Within the European Union family business have a share of GDP to around 80% (Hnilica, Machek, 2015). Family businesses are a source of economic growth in the future and also can be suppliers of better jobs in their regions. They have a better ability to survive the recession and other adverse periods and are focusing on long-term results, because the family business is more based on the good name of the business.

The future of family businesses will depend, among other things, on perception of the younger generation in family business. It is very important whether they find an opportunity to work in family businesses attractive or not. The number of cases where there is no a motivated successor is increasing. Young generation often believes that to continue a family tradition will not bring them any personal development (Žídek, 2015). On the other hand, a founder sometimes holds power in his hands as an absolute ruler and does not want to give it up (paternalism) (Odehnalová, 2011 according to Kets de Vries, 1996). Some even perceives thinking about a future successor as a weakness. But most owners of family business want to hand family business

over to family. The aim of this article is to point out the importance of managing and planning the succession process in family businesses and to find out the main problems in an intergenerational succession.

2. Succession in family business

Research conducted by PricewaterhouseCoopers in 2014 revealed that 80% of family business from all over the world have to deal with succession (pwc.com). Statistics of successful succession of family businesses from abroad are not very optimistic. A success rate of succession process from the first to the second generation is about 30%, in others cases it is even less (Zika, Krajíček, 2016).

Moreover, a lack of prior experience with succession in the Czech family firms due to several decades of communism makes the whole process even more challenging. Founders know that this is a difficult process, but very often do not want to solve it and rather addresses the operational issues. Then it may also happen that they will not have enough time to find a qualified candidate.

Therefore, it is essential to train and mentor a suitable successor. He or she should have a talent for business and an interest to take over the family business. It may also happen that there will be more than one potential successor. But which one to choose? Prioritizing one can disrupt family relationships. On the contrary, give each part means split effect.

How long the succession process takes and when to start them? There is no clear answer, but the entrepreneurial spirit should be developed in the family business since the beginning and the children should be involved already at an earlier age. If they find a different way of life and the family business was never interesting to them, it is too late. There is an opinion that founder should begin a succession process as soon as possible (Koráb, Hanzelková and Mihalisko, 2008). It is good to adapt also education in the field. Succession should take place gradually. First, it is necessary to solve the education, then to gain experience, hold an office in the family business and then to transfer the management of the company. Ownership should be followed as the last.

Family business is a significant part of the founder´s life and is not easy to imagine future after the handover. Sometimes it can happen that founder want to still remain after handover and wants to keep the main word in decision-making despite the formal organizational structure. But it causes unclear division of powers. But his role in the family business does not end, both generations should be in the family business for some time together. In the beginning founder should remain in the family business as an advisor.

Personal relations often take priority over value maximization in family firms. Potential successors need to look trustworthy in the eyes of other family members. Besides family´s commitment to the business, it is also the quality of the incumbent-successor relationship that affects succession planning and successor training. Since family firms are typical of long-term orientation (Lumpkin and Brigham, 2011). A father may see his daughter as a business partner, but at the same time, as his child that needs protection (Vera and Dean, 2005).

Another important factor affecting succession is the perspective of the next generation. Succession may fail, if there a parent is not willing to step aside, a parent don´t believes that successor is prepared to assume leadership, if a successor is not ready to assume leadership role, and finally a successor doesn´t want leadership role (Matthews et al., 1999). Next, the successor´s characteristics are also very important in successful succession process. Development of successor thus became another criterion reflecting successor's abilities to meet the strategic objectives of the family business. Successor training should be implemented into succession plans because incumbents generally tend to pass the baton to another generation rather than to hire professional management or to sell their business (Longenecker and Schoen, 1978).

3. Women in family business

Family businesses also represent a great opportunity for women. They have a better chance at leadership role than in other types of businesses. They do not hold senior positions for a short periods, but hold tightly family values and the family businesses under their leadership are achieving a long-term growth. But the role of women and their perception seems to be an under researched area. In the past, women were often seen as "family members" rather than owners or managers in family firms (Frishkoff and Brown, 1996). We can say that women have been, invisible in family business.

But the situation has changed for the better because the role of women in family business is gradually improving, so the transfer of leadership from fathers to daughters certainly deserves increased academic attention. Humphreys (2013) states that the family business literature yielded only five studies focusing exclusively on the experiences of daughter successors, with none post 2005. However gender stereotypes still exist in society, the same can be assumed in family firms, where the oldest son is historically predestined to take the reins of a family business. Incumbents typically determined their successors based on gender and age (Keating and Little, 1997), as birth right (primogeniture) is still a tradition in various cultures. Stavrou (1999) declare that first born daughters were rarely considered for succession, even if it meant that the owners had to sell the firm. Daughters were frequently nominated as successors only in crisis. Moreover parents tend to protect their daughters and don't want to put them into the stressful position of managing a business (Vera and Dean, 2005).

4. Succession in the Czech Republic

For family business in the Czech Republic is the succession a new experience and also a very urgent issue after 25 years of market economy. Approximately half (48 percent) of Czech entrepreneurs consider as a great advantage to work with their own relatives. The opposite view is held by 36 percent of entrepreneurs. Also half of entrepreneurs are planning to hand the family business into the hands of their children. Today, in the Czech Republic, a quarter of entrepreneurs is also working on a possible takeover of the family business to their children. Another quarter is planning this step prospectively (Eie, 2015).

93 percent of owners of family business believe that the family business will remain in the family (Pečený, 2013). Despite the fact that the great majority of entrepreneurs believe in their children,

the results show significant differences. The statistical data show that the successful transfer of the company to the second generation survive only 30 percent of them. The successful transfer of the company to the third generation survive only 13 percent and to the fourth generation only 3 percent and less than one percent to the fifth generation (Zika, Krajíček, 2015). The results suggest a high failure in keeping the business in the family for several generations.

One of the reasons, which is complicating the succession process is the increasing number of direct family members with each generation and often each of them has a different interests (Zika, Krajíček, 2015).

In comparison with the largest family business in the world a Czech family business have very short history, which is accompanied by problems in the question of succession. While the world family business owns or manages often the fourth-generation family, Czech family business are often still managed by their founders.

5. An example from the Czech Republic

The following example demonstrates the real problem of succession at the largest door manufacturer in the Czech Republic – Sapeli. History of this family business is long and currently faces the problem of succession. Procházka family continues the family tradition, which has begun in 1918. But during the Second World War the family business was destroyed during air raids in 1948 and nationalized in 1992 and after getting back the business in restitution descendant saved the family business from collapse and could start again from zero. Over time Mr. Vrtal has come to the company and today the company is in the influence of two families.

In 2011 there was a transfer of functions in the Procházka family. The ninety Henry Procházka gave his half-share to his granddaughter Renáta Halíčková and two years later he retired. Although granddaughter worked at that time for fifteen years in the company and managed the company well, she was not at all ready to take over. She said about the situation: "Grandpa threw me into the water with words swim and show what you can do." Today she realizes how important it is to prepare a successor for possible handover. Before taking over, she has made a number of functions in the family business and so adaption to the situation has been much easier for her. Today she is a chairwoman of the supervisory board and although she has two daughters, neither of them wants to continue in family business and to take over half of the shares.

The second half of the shares is owned by Jaroslav Vrtal, who is a chairman of the board. Together with Mr. Prochazka they never considered selling the business, but neither has ever solved the succession. He says that they still feel able to run the company themselves. He has started to think more frequently about the future after his 60s birthday. He has already decided to whom to pass his share. The family business is employing both his sons and the younger of them Dusan is going to take his place. Dusan worked in the company since 1992 and since then he has been consistently intensively prepared for succession. He has worked in the various departments within the family business, from marketing, warehousing, to manufacture or store. Today is a supervisory board member and a head of the production of doors. He says that he had not an easier way than others, rather on the contrary, father, as a parent was very strict on him (Neidermaierová, 2016).

6. Discussion and Conclusion

Succession is a complex and demanding process. It is critical to find a suitable successor. Statistics of successful succession of family businesses from abroad are not very positive. The success of a handover from the first to the second generation is about 30%, in others it is even less. Moreover, in the Czech Republic family businesses are lacking an experience, because the private enterprise has not been possible for several decades. They know that this is a difficult process, but they do not deal with the issue in the most cases and rather address the operational issues. Then it can also happen that they will not have enough time to perform a smooth succession.

Underestimation of succession process can have a very negative impact on the long-term operation of family business, since the transfer of management is a long and complex process. It is generally recommended that the successors (children of the founders) should be involved in the running of the family business at an early age. Involvement of the successors later may lead to not identifying with the family business and may complicate the issues of succession even more severely. Succession is complex also in terms of family relationships, because the founder is facing with the decision how to allocate control functions among children. Succession is a key factor for the survival of family businesses.

7. Acknowledgment

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8. References

An Examination of the Challenges Daughters Face in Family Business Succession - Vera - 2005 - Family Business Review - Wiley Online Library. (n.d.). Retrieved September 30, 2016, from http://onlinelibrary.wiley.com/doi/10.1111/j.1741-6248.2005.00051.x/full

David Krajíček: Český pohled na rodinné firmy je příliš lokální, chybí nám zahraniční zkušenosti. (2015, February 18). Retrieved September 30, 2016, from http://www.euro.cz/byznys/david-krajicek-cesky-pohled-na-rodinne-firmy-je-prilis-lokalni-chybi-nam-zahranicni-zkusenosti-1164154

Family Business Survey (2014), Retrieved September 30, 2016, from http://www.pwc.com/gx/en/pwc-family-business-survey/assets/family-business-survey-2014.pdf

Frishkoff, P. A., & Brown, B. M. (1993). Women on the move in family business. Business Horizons, 36(2), 66.

Hnilica, J., & Machek, O. (2015, March). Toward a Measurable Definition of Family Business: Surname Matching and its Application in the Czech Republic. International Advances in Economic Research, pp. 119–120.

Humphreys, M. M. C. (2013). Daughter succession : a predominance of human issues. Journal of Family Business Management : JFBM, 3(1), 24–44.

Keating, N. C., & Little, H. M. (1997). Choosing the Successor in New Zealand Family Farms. Family Business Review, 10(2), 157–171. https://doi.org/10.1111/j.1741-6248.1997.00157.x

Koráb, V., Hanzelková, A., & Mihalisko, M. (2008). Rodinné podnikání. Brno : Computer Press, 2008.

Lumpkin, G. T., & Brigham, K. H. (2011). Long-Term Orientation and Intertemporal Choice in Family Firms. Entrepreneurship: Theory & Practice, 35(6), 1149–1169.

Management succession in the family business - ProQuest. (n.d.). Retrieved September 30, 2016, from http://search.proquest.com/openview/1d568d0d30f3e8710509aebb001fde76/1?pq-origsite=gscholar

Matthews, C. H., Moore, T. W., & Fialko, A. S. (1999). Succession in the Family Firm:A Cognitive Categorization Perspective. Family Business Review, 12(2), 159–170. https://doi.org/10.1111/j.1741-6248.1999.00159.x

Odehnalová, P. (2011). Přednosti a meze rodinného podnikání. Brno : Masarykova univerzita, 2011.

Polovina českých podnikatelů chce předat firmu svým dětem, ukazuje průzkum. (n.d.). Retrieved September 30, 2016, from http://probyznysinfo.ihned.cz/lide-a-personalni-rizeni-manazerske-dovednosti/c1-64745330-polovina-ceskych-podnikatelu-chce-predat-firmu-svym-detem-ukazuje-pruzkum

Příběh firmy Sapeli: Když za sebou starší generace zavírá dveře. (n.d.). Retrieved September 30, 2016, from http://probyznysinfo.ihned.cz/inspirace-pribehy-uspesnych/c1-65203300-pribeh-firmy-sapeli-kdyz-za-sebou-starsi-generace-zavira-dvere

Rodinné firmy ničí výměna generací. (n.d.). Retrieved September 30, 2016, from http://zpravy.e15.cz/domaci/ekonomika/rodinne-firmy-nici-vymena-generaci-1034088

Stavrou, E. T. (1999). Succession in Family Businesses: Exploring the Effects of Demographic Factors on Offspring Intentions to Join and Take Over the Business. Journal of Small Business Management, 37(3), 43–61.

Žídek, J., 2015. Trůny bez následníků. In Lidové noviny. Retrieved September 30, 2016, from http://www.liko-s.cz/upload/1442814225.pdf

Business Environment and Foreign Direct Investments in Visegrad Countries

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Abstract: *This paper investigates the effect of selected business environment indicators on FDI inflows in case of Visegrad countries for the period of 2005-2014. Based on correlation and regression analysis, it is concluded that the business environment matters significantly for FDI inflows, however the direction and strength of dependence differs according to analysed factors. On one hand we found that the better global competitiveness of the country the higher volume of inward FDI the country receives. On the other hand, economically more free country; with better rating and easier conditions for doing business does not attract more FDI inflows, but rather the opposite. In case of Visegrad countries, the availability of free working forces (higher unemployment rate) is more likely, what leads to higher FDI inflows.*

Key words: *Business environment, foreign direct investments, ease of doing business, global competitiveness, economic freedom*

JEL codes: O24, O33

1. Introduction

Foreign direct investments (hereinafter also „FDI“) are widely discussed topic from different points of view. Generally, countries at a similar level of economic development, attracting more FDI are considered more competitive. Important role in this respect is attributed to a quality of business environment of a particular country. Besides partial factors describing level of business environment development, also more complex indicators of business environment are used within empirical studies. Specifically, Doing Business data (The World Bank) and their relation to FDI flows were examined in the recent work of Corcoran and Gillanders (2015), which is built on previous less complex studies. The authors showed that Doing Business rank is highly significant when included in a standard empirical foreign direct investment model, however, the significance of the overall Doing Business is driven by Ease of Trading Across Borders component. According to them, the relationship is significant for middle income countries, but not for the world´s poorest regions, where better business environments are not associated with greater levels of FDI.

Another recent study using composite indicator for evaluation the nation’s environment is a study performed by Sambharya and Rasheed (2015) where, besides the others, the relation between Index of Economic Freedom (The Heritage Foundation) and FDI inflows was investigated. Their results indicate that better economic management (monetary policy, fiscal burden and banking and finance), less government participation in the economy, less state

intervention (strong property rights, less regulation, low prevalence of informal markets and less corruption), absence of wage and price controls, and higher levels of political freedom lead to higher FDI inflows.

However, similar studies conducted specifically in the conditions of Central European countries are rather rare. Witkowska (2007) in her work dealt with foreign direct investments in the changing business environment of the European Union´s new member states, and without deeper quantitative analysis she generally concluded that business environment can be treated as an important location factor as far as FDI is concerned. Another similar study performed by Šimelyté and Liučvaitiené (2012), although focusing primarily on the FDI policy, showed that Baltic states, as well as Visegrad countries attempt to create a friendly business environment by means of similar methods. The results of attracting FDI are better in Visegrad countries, which implement financial incentives toward inward FDI along with fiscal incentives. According to empirical analysis, it is noticed that a higher intervention level and a higher support level guarantee the volume of inward FDI.

Our ambition is to contribute to existing literature by analysing the relation between a level of business environment measured by various indicators capturing different aspects of business environment and a level of inward FDI in Visegrad countries (Slovakia, Czech Republic, Hungary, Poland). The aim of the paper is to identify, whether the quality of business environment is associated with more FDI inflows.

2. Methodology

The dependent variable that we worked with in this paper is FDI inflows as reported by the FDI/TNC database of UNCTAD. As independent variables we used following complex of indicators to capture various aspects of business environment: *Ease of Doing Business* (The World Bank), *Global Competitiveness Index* (The World Economic Forum), where ranking of countries was used, which means that lower values indicate better position. In case of *Index of Economic Freedom* (The Heritage Foundation) and *Fragile State Index* (The Fund for Peace) the index values were used and higher values are associated with higher quality of business environment. The country credit *Rating* was evaluated according to Fitch and the letter rating was transformed into numbers. As additional indicators we used values of selected macroeconomic indicators such as *Unemployment rate, Real GDP growth, Inflation rate* derived from Eurostat.

We investigated the effect of the business environment on FDI inflows using pooled annual data for the period of 2005-2014 for four Visegrad countries. In this paper, the following regression model is used to assess the impact of all independent variables on FDI inflow (*FDI*):

$$FDI_{i,t} = \alpha_{i,t} + \boldsymbol{\beta} \boldsymbol{X}_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

In equation, *i* and *t* denote a country and time subscripts, respectively. $\alpha_{i,t}$ is a constant, and $\varepsilon_{i,t}$ is the error term. The dependent variable $FDI_{i,t}$ refers to the FDI inflow in time *t*, which is expected to be influenced by the vector of the independent variables $\boldsymbol{X}_{i,t-1}$ observed in the previous period *t-1*. $\boldsymbol{\beta}$ is the vector of parameter coefficients to be estimated. Before conducting the regression analysis, the correlations between all pairs of variables is performed.

Table 1 introduces the Pearson correlation coefficients between pairs of all variables. We did not find high correlation between pairs of independent variables, what leads to no suspicion of multicollinearity problem in a regression model. However, we use the VIF (Variance Inflation Factors) to test a possible collinearity problem in the model. Based on correlation coefficients, the positive effect of the variables *Ease of Doing Business*, *Unemployment rate*, *and Real GDP growth,* while the negative effect of the variables *Index of Economic Freedom, Global Competitiveness Index, Fragile State Index, Rating,* and *Inflation rate* on FDI inflow are expected in the regression model.

Table 1 *Pearson correlation matrix*

	Ease of Doing Business	Index of Economic Freedom	Global Competitiveness Index	Fragile State Index
FDI Inflow	0.431*** (0.009)	-0.700*** (0.000)	-0.216 (0.205)	-0.263 (0.122)
Ease of Doing Business	1.000	-0.391** (0.019)	-0.205 (0.230)	0.270 (0.111)
Index of Economic Freedom		1.000	-0.006 (0.971)	0.366** (0.028)
Global Competitiveness Index			1.000	0.173 (0.314)
Fragile State Index				1.000
	Rating	Unemployment rate	Real GDP growth	Inflation rate
FDI Inflow	-0.255 (0.133)	0.111 (0.518)	0.267 (0.116)	-0.201 (0.239)
Ease of Doing Business	0.042 (0.806)	-0.458*** (0.005)	-0.151 (0.379)	-0.061 (0.724)
Index of Economic Freedom	0.404** (0.015)	-0.100 (0.563)	-0.247 (0.147)	-0.115 (0.505)
Global Competitiveness Index	-0.247 (0.146)	0.475*** (0.003)	-0.253 (0.136)	0.112 (0.514)
Fragile State Index	0.225 (0.186)	-0.383** (0.021)	-0.465*** (0.004)	-0.029 (0.867)
Rating	1.000	-0.076 (0.658)	0.145 (0.400)	-0.372** (0.026)
Unemployment rate		1.000	0.139 (0.419)	-0.223 (0.192)
Real GDP growth			1.000	-0.067 (0.697)
Inflation rate				1.000

*Notes: The values in parentheses are the p-values for the Pearson correlation coefficient. According to p-values, *, **, *** and denotes a statistical significance at the level of .10, .05, and .01, respectively.*

Source: Authors´ calculations.

3. Empirical results and discussion

Table 2 shows the empirical results of pooled OLS parameter estimation of the model (1). The reported numbers for each variable are coefficients and their standard errors, t-ratios, p-values, and asterisks denoting levels of statistical significance, based on p-values. The variable *Index of Economic Freedom*, and constant are statistically significant at the level of .01, *Global Competitiveness Index* is statistically significant at the level of .05, and the variables *Ease of Doing Business*, *Unemployment rate*, and *Rating* are statistically significant at the level of .10. The variables *Fragile State Index*, *Real GDP growth*, and *Inflation rate* are not statistically significant determinants of FDI inflow in the model (1).

The value of the coefficient of determination indicates that the model can explain 69 % of the variation in the dependent variable. The low p-value of F-statistic confirms the significance of the regression model. Reported Durbin–Watson statistic does not indicate serial autocorrelation problem in the model. The White's test for heteroskedasticity with a high p-value does not lead to rejection of the null hypothesis that there is no heteroskedasticity problem in the model. The test for normality of residuals with a low p-value does not lead to rejection of null hypothesis that error is normally distributed. The high p-values of F-test of joint significance of differing group means, and Breusch-Pagan LM statistic does not lead to rejection of the null hypothesis that the pooled OLS model is adequate. These test results suggest that the application of fixed or random effects are not suitable in the model.

Table 2 Pooled OLS estimation of coefficients

FDI Inflow	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*
Constant	56819.7***	19094.2	2.9758	0.00610
Ease of Doing Business	129.8*	67.2122	1.9313	0.06401
Index of Economic Freedom	−761.6***	262.022	-2.9065	0.00722
Global Competitiveness Index	−158.6**	70.0983	-2.2631	0.03188
Fragile State Index	57.3	64.8083	0.8839	0.38455
Unemployment rate	582.8*	300.969	1.9365	0.06334
Real GDP growth	227.1	199.585	1.1379	0.26517
Inflation rate	−673.0	406.341	-1.6563	0.10923
Rating	−809.9*	427.801	-1.8932	0.06909
Sum of squared residuals	$3.31x10^8$		S.E.	3499.962
R^2	0.692622		Adjusted R^2	0.601547
F(8, 27)	7.604972		with p-value	0.000027
Durbin-Watson	2.165573		with p-value	0.541789
White's test	18.9395		with p-value	0.271811
Test for normality	4.41798		with p-value	0.109812
F-test	0.371927		with p-value	0.773968
Breusch-Pagan test	1.92821		with p-value	0.164954

Notes: The model tested for a collinearity problem with use of VIF (Variance Inflation Factors) test pass the test at cut-off value equal to 3. Since only values higher than 10.0 may indicate a collinearity problem, we do not need to correct for multicollinearity in the model.

*According to p-values, *, **, *** and denotes a statistical significance at the level of .10, .05, and .01, respectively.*

Source: Authors´ calculations.

The variable with the highest statistical significance in the model is *Index of Economic Freedom,* which has high negative impact on FDI inflow as expected. Higher values of the index indicating economically free society are associated with lower values of inward FDI a-vice-versa. This finding is rather in contrast with the results of Sambharya and Rasheed (2015).

The second highest statistical significance has *Global Competitiveness Index*, also with high negative impact on the dependent variable. However, in case of this index, the ranking of countries was used, so better position in the ranking of global competitiveness leads to higher FDI inflows. This finding is partially in line with conclusions of Prime, Subrahmanyam and Lin (2012) who explained receiving of substantially more FDI in China in comparison to India by China´s sustainable competitive advantage.

Negative, high, and statistically significant impact has also been found for the variable *Rating*. The higher values of country credit rating indicating less risky investment environment are surprisingly associated with lower FDI inflows that may be caused by expectations of the foreign investors that better country credit rating is associated with higher level of economic development and higher costs. Positive, and statistically significant impact is found for the variable *Ease of Doing Business,* where ranking of countries was used and similarly, as in case of country credit rating, better position from the ease of doing business point of view indicate lower FDI inflows. Another positive, and statistically significant relation is detected in case of *Unemployment rate*, thus countries with higher unemployment rate are attracting more foreign investments. The availability of free working forces seems to be important FDI determining factor as it was already notice e.g. by Wei and Zhu (2007).

Similarly, as Gani and Al-Abri (2013) for Gulf Cooperation Council countries we can also conclude that the business environment matters significantly for FDI inflows in Visegrad countries, however, the direction and strength of dependence differs according to analysed factors.

4. Conclusion

Our ambition within this empirical study was to verify the primary hypothesis, whether better quality of business environment, measured by different composite indicators, leads to higher inward FDI in conditions of Visegrad countries. Our results are rather controversial. On one hand we found that the better global competitiveness of the country the higher volume of inward FDI the country receives. On the other hand, economically more free country, with better rating and easier conditions for doing business, does not attract more FDI inflows, but rather the opposite. In case of Visegrad countries, the higher unemployment rate is more likely, what leads to higher FDI inflows. From the possible further areas of study point of view it would be interesting to study potential differences among studied countries as well as to analyse in more details partial aspects of studied indicators and their relation to FDI inflows.

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6. References

Corcoran, A., & Gillanders, R. (2015). Foreign direct investment and the ease of doing business. Review of World Economics, 151(1), 103–126. https://doi.org/10.1007/s10290-014-0194-5

Doing Business 2015 - Going Beyond Efficiency - World Bank Group. (n.d.). Retrieved September 30, 2016, from http://www.doingbusiness.org/reports/global-reports/doing-business-2015

Index of Economic Freedom Data, Maps and Book Chapters. (n.d.). Retrieved September 30, 2016, from http://www.heritage.org/index/download

Gani, A., & Al-Abri, A. S. (2013). Indicators of business environment, institutional quality and foreign direct investment in Gulf Cooperation Council (GCC) countries. International Review of Applied Economics, 27(4), 515–530. https://doi.org/10.1080/02692171.2012.760066

Prime, P. B., Subrahmanyam, V., & Lin, C. M. (2012). Competitiveness in India and China: the FDI puzzle. Asia Pacific Business Review, 18(3), 303–333. https://doi.org/10.1080/13602381.2011.605673

Sambharya, R. B., & Rasheed, A. A. (2015). Does economic freedom in host countries lead to increased foreign direct investment? Competitiveness Review, 25(1), 2–24. https://doi.org/10.1108/CR-05-2013-0047

Šimelytė, A., & Liučvaitienė, A. (2012). Foreign Direct Investment Policy–Friendly Business Environment in R&D Sectors: Baltic States versus Visegrad Countries. Journal of East-West Business, 18(1), 66–93. https://doi.org/10.1080/10669868.2012.663737

Song Zan Chiou Wei, & Zhen Zhu. (2007). A revisit to the outward FDI determinants: further evidence from count panel data models with fixed effects. Applied Economics Letters, 14(11), 809–812. https://doi.org/10.1080/13504850600689923

The Fund for Peace. (n.d.). Retrieved September 30, 2016, from http://fsi.fundforpeace.org/

The Global Competitiveness Report 2014-2015. (n.d.). Retrieved from http://wef.ch/1pxXIWS

Witkowska, J. (2007). Foreign Direct Investment in the Changing Business Environment of the European Union's New Member States. Global Economy Journal, 7(4), 1–30.

Potential Role of Social Media in Value Co-Creation

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Abstract: *The purpose of this paper is to investigate on the potential role of social media in value co-creation relationships in a marketing and management perspective. It goes without saying how we witness importance of social media in achieving general marketing goals. Moreover, concept of value co-creation implies management initiative to develop closer and mutually beneficial interactive relationships between company and customers in order to further jointly co-create acceptable outcome for parties involved. Authors will try to give a theoretical overview of potential portrayal of social media as a communicational channel/tool and its eventual footprint on value co-creation. What are the social media marketing and management elements useful to shape and influence the process of value co-creation? How did the academic public approach and elaborate this consanguinity? Primarily, by observing theoretical developments throughout academic prism, authors have been very much interested to tackle these questions. The research performed is theoretical, secondary-desk analysis. Publicly available sources of literature have been utilized. Academia shares contrasting attitudes when it comes to potential roles of social media in value co-creation. A group of analysed authors strongly supports this statement, whilst we have another cluster of authors who are severely opposing and claim that no solid findings are possible until more primary researches are performed.*

Keywords*: social media, value co-creation, influence, interactive relations, S-D logic*

JEL codes: M31, M32, G31, A13

1. Introduction

It is the turbulent, precarious and hard-to-forecast environment that makes individuals and companies to improvise and detour from already established ways of acting and doing a business. It is exactly in periods of economic crisis when companies do their very best to come up with

something extraordinary, in a way to deliver proper outcome to their clients, customers or stakeholders. Academia and public are to benefit from the fact that great financial crisis stroke back in 2008. From the pure academic standpoint of view we are able to observe and forecast trends, elaborate on the recent developments, make further predictions and set a firm foundations for further more extent researches for a given scientific area.

In context of marketing and of particular importance for this paper, are appearance, strong focus and researches on two promising nowadays and upcoming trends. First one is the sharp increasing development trend of S-D (service dominant) logic and (co)creation of value as a crucial and distinctive category within. The second one is appearance and unforeseen blast of social media.

The blast that completely distorted marketing world we were aware of previously, and burst that completely reshapes the way companies intent to engage and communicate with clients/customers/guests.

Worth mentioning is that both concepts go very much hand by hand and the room for further advancements, evolution and development is beyond our specialized skills and scope of our terminology to express. What is of even greater importance for the science and industry itself, is the potential amplitude of synergy to be expected when these two categories act as one.

Therefore we are going after following hypothesis: *social media does positively influence process of value co-creation*.

For the sake of testing the hypothesis following research goals are set in place:

- Profound screening of literature (SD logic and social media);
- Defining the research frontier regarding relation and influence between value co-creation and social media;
- Drawing a conclusion based on the findings.

2. Methodology Employed

The research performed is theoretical, secondary-desk analysis. Publicly available sources of literature have been utilized. Two mostly used are Google Scholar and discovery.muni.cz. Based on those, further elaborations have been formed. The work contributes to the marketing and management disciplines, increasing knowledge focusing the research on different aspects and perspectives in actors' relationships using social media as a marketing tool.

In total, over 45 relevant articles have been deeply screened for consistent information. However, citation from 27 of them have been used. Searching have been ultimately funnelled by three criteria: keywords, abstract analysis and date of publishing. Time span of approximately last eleven years (2005-2016) have been targeted in order to get updated and meticulous material. Given combination of methodology, sources and time stamps has been employed since it does not require enormous organizational and material resources to put in practice.

3. S-D logic, Value (co)creation and Definitions

To be able to fully understand the eventual bond between social media as such and value co-creation on the other side, we are going to firstly define and analyse what the public (scholars and practitioners) knows about concept of service dominant (hereby S-D) logic so far. This is primarily needed since the process of value (co)creation is considered to be an ultimate backbone of S-D logic nowadays.

Vargo and Lusch (2006) think that within S-D logic, companies must not focus their efforts solely on products. But should and have to focus to the offerings in relation to the services they can come up with in front of customers.

Payne, Storbacka and Frow (2008) strongly believe that S-D logic in marketing particularly pushes and shifts our focus away from "simple" creating a value for customers/clients/guests towards the new concept of co-creating value with our customers/clients/guests. Furthermore, they (Payne, Storbacka, Frow; 2008) convey their thoughts that concept of value as something that 'resides not in the product purchased, not in the object possessed, but rather in the consumption experience". To put in a simple way, companies must strive to co-create consumption experience in order to generate higher levels of values for all parties involved.

Another standpoint by Rihova, Buhalis, Moital and Gouthro (2014) is that S-D logic strongly and equivocally focuses on customers' proactive input in co-creating value and valuable experiences with the service organization. Again, we can see that these two definitions are overlapping in a conclusion that experience is one of the crucial concepts to support value (co)creation and that active participations of all involved is simply a must. This goes in line with Vargo' and Lusch' (2008) statement that S-D logic does not elaborate on differences between company and clients, instead it is based on relationship between all actors that are active on the market.

There are abundant number of definitions and attempts to get deeper and more profound into the core of S-D logic and, more narrowly, value (co)creation. As many authors concluded value (co)creation is a nerve of S-D logic (Vargo, Lusch, 2006). The nerve that might limit or embold development of S-D logic. Therefore, special attention has been dedicated to analyze definitions of value (co)creation.

First of all, value is considered to be a jointly created phenomena that emerges in interaction between the entities, organizations and consumers through the integration of resources (Piligrimiene, Dovaliene, Virvilaite; 2015).

Carrubo, Bruni and Antonucci (2014) found that in order for each actor in value creation to maximize its contribution, the ultimate need of highlighting the relations among the most influential stakeholders is a must. From here we could partially see that value (co)creation is the concept based on interactive relations with strong spotlight on mutual benefits that are to be expected. One way to enhance this relationship network is emerging social media. The same authors believe that there are two sorts of aims: internal (through tactics to generally improve product and services) and external (structural growth in terms of skills, opportunities etc.).

Value (co)creation performs very significant role as more and more customers/clients tend to interact and communicate with companies more frequently (Piligrimiene, Dovaliene, Virvilaite;

2015). By doing so they do define and create value. Important point stressed by these authors is that value (co)creation does not necessarily imply the tangible transactions, since companies and clients might be exchanging the whole range of different sort of resources. Completely in context of 21st century such an intangible transactions are made possible by introduction of modern communication technologies. As a direct support to Piligrimiene, Dovaliene and Virvilaite beliefs, comes a thought shared by Katzan (2008). He states that value is extrapolated from mutually beneficial process of coproduction, co-design, and co-marketing. This level of collaboration is possible by engaging multiple efforts from different parties, primarily thanks to the two-way sharing (information, resources, skills, risks, needs etc.).

Listed in table down below are some of the definitions that are being developed in approximately last ten years that are found relevant for the relevance of this paper. For the better understanding of value (co)creation and how different parties, researches and individuals understand concept Table 1 has been prepared. However, the list is far from exhausted.

Table 1. Various Definitions of Value (co)Creation in Period from 2008 to 2016

Authors	Year	Definition
Vargo, Maglio, Akaka	2008	Value co-creation occurs through the integration of existing resources with those available from a variety of service systems that can contribute to system well-being as determined by the system's environmental context. Each service system accesses resources from other service systems through exchange. These systems include internal, private and market-facing systems and resources. Value-exchange is a negotiated measurement offered and received among exchange partners.
Gebauer,Johnson, Enquist	2010	Value co-creation thus involves the customer and the provider in joint problem definition and joint problem solving within an experience environment in which consumers are engaged in active dialogue as they co-construct personalized experiences.
Spohrer, Maglio	2010	Value co-creation is the preferred change realized as a result of communication, planning and/or other purposeful interactions among multiple entities.
Gronroos, Ravald	2011	Co-creation of value is defined as joint activities by parties involved in dyadic direct interactions aimed at contributing to the value that emerges for one or both parties, or all parties in a larger network.
Ballantyne,Williams, Aitken	2011	Value co-creation refers to the involvement of customers in the creation or delivery of products or services; value co-creation implies an element of inseparability of the customer from the enterprise.
Lambert &Enz	2012	Value co-creation is an economic and social process in which individuals have established roles that condition their behaviors and perceptions.
Alves	2013	Joint creation of value by the company and the customer'. Both clients and suppliers create value (co-create): suppliers apply their knowledge and skills in the production

		and branding of the product, and the clients apply their knowledge and capacities in their daily utilization.
Choi &Burnes	2013	A collective process whose stakeholders include diverse businesses and consumers. Under the second condition, 'value develops and emerges over time, rather than being a discrete event.
Grönroos	2013	Co-creation is the joint, collaborative, concurrent, peer-like process of producing new value, both materially and symbolically. There is an ongoing debate in the literature about the differences between co-creation and co-production and the need to distinguish between them.
Sansone, Moretta Tartaglione, Bruni	2015	The value co-creation process is fulfilled when strategic compatibility between enterprises and place occurs and, in particular, when every subject choose the same path of value generation independently.

Source: Authors

There are several important conclusions that are to be drawn from the above listed interpretations.

In far the greatest number of the notations, the importance of two-way proactive relations and functional bonds between parties is the number one step - in order to expect some value to be created/added. This, primarily, having in mind that these relations imply full and unambiguous sharing of both tangible and intangible resources.

Process of value (co)creation has its foundations in synergy to be expected at a later stage. This is the primary goal of all parties participating in this relationship - interest.

Thirdly, some would put this point at the beginning, but for the purpose of this paper and its structure it might be better to be listed as a last one. Communication. Without smooth, coordinated, comprehensive, effective communication, value cannot be created and this particular case - (co)created.

4. Social Media and its Evolution

In continuation, as noted in previous paragraph – proper communication is an indispensable. This is the point where all benefits of social media might be exploited on unprecedented scale.

Nowadays, people witness massive and remarkable social media expansion, peaking in last ten years. Expansion on such a scale that almost every aspect of daily life has been affected to certain extent. Remarkable amount of information have been pushed and pulled every single day through various social media (Krajina, Mladenović, 2015). It does not take much to conclude that such a rapid and viral development has not been recorded so far in the marketing world, at any development stage throughout history.

The advancements in internet in recent years have made new systems available to businesses: social media, such as online communities being a good example (Hajli, 2014). Hajli further

believes that with rise of social media customers/clients share information and resources on an immense scale. Let us briefly recall definition by Piligrimiene, Dovaliene and Virvilaite, where they say that value (co)creation process must be strongly supported by exchanging of both tangible and intangible resources. A very decisive mark in a puzzle named S-D logic.

However, social media and its marketing footprint is now becoming increasingly important for academia (Gummesson, 2004). Primarily by investigating what relations and in what capacity social media influences marketing performance, and in our case value (co)creation as an end goal.

Social media sites are web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system (Boyd, Ellison, 2007). Here we see that social media as such represents a huge potential for companies to jump in and act. Moreover, some very visible and catchy advantages of social media (besides its unique viral and somewhat open source features (Krajina, Mladenović, Kunze, Ratilla, 2016) could be listed as following (Gilbert, Karahalios, 2011) :

1. Free of charge (in most of the cases);
2. Easily affordable and manageable;
3. Very popular;
4. Viral fluctuations of all sorts of information;
5. Provide opportunities for businesses to become more attractive universally (Füller, Mühlbacher, Matzler,Jawecki, 2009) etc.

Very interesting approach has been enforced by Caleb, Carr and Hayes (2015). Namely, they strongly support statement that digital technologies emphasize user-generated content or interaction (which is of tremendous importance for value generation). The very same group of authors represent a cutting-edge attitude that social media are primarily internet-based communication channel that made possible for users/companies to opportunistically interact and selectively self-present, with both broad and narrow audiences who derive value from user-generated content. Several points are important to be derived from last explanation. Firstly, social media represents amply field for value (co)creation. Secondly, exchange of user-generated content appears as a firm foretoken for future mutual value generation. And, least but not last, it strongly enforces communication and exchanges of experiences in many forms. Such a conclusions have been previously supported by Howard, Parks (2012). They believe that social media are:

1. Information infrastructure/tools used to produce and distribute content;
2. Content that takes digital forms;
3. People, organizations and industries that produce and consume digital content.

However, the question might arise what does social media defined by information infrastructure/tool has to do with value (co)creation. What does shareable digital content has to do with experiences and relationships between customers and companies?

5. Relationship between Social Media and Value (co)Creation

Hajli (2014) believes that consumers create added value through collaboration and social interactions on the internet (reviews, advices, experiences, impressions etc.). This is very strong and straight forward statement. Moreover, they (consumers) support business through the co-creation of value via their social interactions. One of the ways to interact and exchange resources/experiences in context of 21st century is via social media. Consumers are now tremendous content generators. This represents a full overlap with Howard and Parks (2012) logic that individuals and organizations produce and consume digital content (content might be equal to both tangible and intangible resources). From the strategic marketing perspective, social media offers various benefits: enhanced brand image, facilitating of word-of-mouth, sales increase, managing data and information and general social support for clients/customers.

As well, Füller, Mühlbacher, Matzler and Jawecki (2009) share the opinion that by using social media, companies can and do create content and offer invaluable information and advices to others.

They even go step forward by claiming that social media provide a company's solid opportunity for future value (co)creation. This statement is primarily based on collaborative efforts and sharing mind-set.

Social media can be considered as a conditional intermediary between companies and clients. It could be of remarkable significance since it is a channel throughout which communication is taking place recently (Lewis, 2010). From here it is straight forward that social media could be observed as an entry point of a kind, whereby both companies and customers can communicate and share their experiences.

6. Conclusion

All in all, as a direct result of the conducted research, first conclusion is that more on-field researches are required in order to handle properly the relationship between social media and process of value (co)creation. One of the greatest limitations of this paper is that it took only one-sided theoretical approach in explaining and elaborating potential footprint of social media on value generation. Although time span of eleven years have been covered and total of 45 relevant articles have been screened, result is somewhat inconclusive and vague leading to inability to both reject and accept hypothesis.

Respective scientific public has already been aware of link between social media and S-D logic. On one side, we have affluent number of authors who were researching value (co)creation so far. Whilst on the other hand, there is increasing but rather modest number of articles that have something to do with social media and their impact on collaborative value generation. As a generic remark, we do not possess overreaching literature that deeply elaborates the link between social media and process of value (co)creation.

From the sources that are publicly available it is visible that few authors have been investigating the issue more than others. To different extent they all agree and share opinions that social media deploying is to be translated into enhanced and mutually beneficial value creation in the future.

On the contrary, hard-liner portion of scientific public is sceptical toward these findings and are claiming that way more researches are needed in order to have a solid base for such a claims (see previous paragraphs).

In closing, we must conclude that academia shares contrasting attitudes when it comes to potential roles of social media in value co-creation. A group of analysed authors strongly supports this statement, whilst we have another cluster of authors who are severely opposing and claim that no solid findings are possible until more primary researches are performed.

7. References

Alves, H. (2013). Co-creation and innovation in public services. Service Industries Journal, 33(7/8), 671–682. https://doi.org/10.1080/02642069.2013.740468

Ballantyne, D., Williams, J., & Aitken, R. (2011). Introduction to service-dominant logic : from propositions to practice. Industrial Marketing Management : The International Journal for Industrial and High-Tech Firms, 40(2), 179–180.

Boyd, D. M., & Ellison, N. B. (2007). Social Network Sites: Definition, History, and Scholarship. Journal of Computer-Mediated Communication, 13(1), 210.

Carr, C. T., & Hayes, R. A. (2015). Social Media: Defining, Developing, and Divining. Atlantic Journal of Communication, 23(1), 46–65. https://doi.org/10.1080/15456870.2015.972282

Carrubbo, L., Bruni, R., & Antonucci, E. (2014). Analyzing Place Boundaries Using the Service Science Paradigm. Business System Review, 3(1), 66-90.

Choi, H., & Burnes, B. (2013). The internet and value co-creation: the case of the popular music industry. Prometheus, 31(1), 35–53. https://doi.org/10.1080/08109028.2013.774595

Füller, J., Mühlbacher, H., Matzler, K., & Jawecki, G. (2009). Consumer Empowerment Through Internet-Based Co-creation. Journal of Management Information Systems, 26(3), 71–102.

Grönroos, C., & Voima, P. (2013). Critical service logic: making sense of value creation and co-creation. Journal of the Academy of Marketing Science, 41(2), 133–150. https://doi.org/10.1007/s11747-012-0308-3

Grönroos, C., & Ravald, A. (2011). Service as business logic: implications for value creation and marketing. Journal of Service Management, 22(1), 5-22.

Gilbert, E., & Karahalios, K. (2009, April). Predicting tie strength with social media. In Proceedings of the SIGCHI conference on human factors in computing systems (pp. 211-220). ACM.

Gummesson, E. (2004). From one-to-one to many-to-many marketing. In Service Excellence in Management: Interdisciplinary Contributions, Proceedings from the QUIS 9 Symposium, Karlstad University Karlstad, Sweden (pp. 16-25).

Grönroos, C., & Ravald, A. (2011). Service as business logic: implications for value creation and marketing. Journal of Service Management, 22(1), 5-22.

Hajli, M. N. (2014). A study of the impact of social media on consumers. International Journal of Market Research, 56(3), 387–404. https://doi.org/10.2501/IJMR-2014-025

Heiko Gebauer, Mikael Johnson, & Bo Enquist. (2010). Value co-creation as a determinant of success in public transport services: A study of the Swiss Federal Railway operator (SBB). Managing Service Quality, 20(6), 511–530.

Howard, P. N., & Parks, M. R. (2012). Social Media and Political Change: Capacity, Constraint, and Consequence. Journal of Communication, 62(2), 359–362. https://doi.org/10.1111/j.1460-2466.2012.01626.x

Lewis, B. K. (2009). Social media and strategic communication: Attitudes and perceptions among college students.

Lusch, R. F., & Vargo, S. L. (2014). The service-dominant logic of marketing: Dialog, debate, and directions. Routledge.

Katzan, H. (2011). Foundations of service science concepts and facilities. Journal of Service Science (JSS), 1(1), 1-22.

Krajina, A., Mladenović, D., Ratilla, M., & Kunze, J. (2016). Collecting online behavioral empirical data in order to utilize social media presence.

Krajina, A., & Mladenović, D. (2015). Social Media's Influence and Role on Public's Awareness Regarding Marketing Campaign. Proceedings of the European Conference on E-Learning, 638.

Lambert, D. M., & Enz, M. G. (2012). Managing and measuring value co-creation in business-to-business relationships. Journal of Marketing Management, 28(13–14), 1588–1625. https://doi.org/10.1080/0267257X.2012.736877

Piligrimiene, Z., Dovaliene, A., & Virvilaite, R. (2015). Consumer Engagement in Value Co-Creation: what Kind of Value it Creates for Company? Engineering Economics, 26(4), 452–460. https://doi.org/10.5755/j01.ee.26.4.12502

Rihova, I., Buhalis, D., Moital, M., & Gouthro, M.-B. (2015). Conceptualising Customer-to-customer Value Co-creation in Tourism. International Journal of Tourism Research, 17(4), 356–363. https://doi.org/10.1002/jtr.1993

Service station. (1996). Oxford University Press.

Sansone, M., Tartaglione, A. M., & Bruni, R. (2015). Enterprise-Place Relationship and Value Co-Creation: Advance in Research. International Journal of Business and Management, 10(1), 50.

Spohrer, J., & Maglio, P. P. (2008). The Emergence of Service Science: Toward Systematic Service Innovations to Accelerate Co-Creation of Value. Production & Operations Management, 17(3), 238–246. https://doi.org/10.3401/poms.1080.0027

Payne, A. F., Storbacka, K., & Frow, P. (2008). Managing the co-creation of value. Journal of the academy of marketing science, 36(1), 83-96.

Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: continuing the evolution. Journal of the Academy of marketing Science, 36(1), 1-10.

Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. European management journal, 26(3), 145-152.

Do gender and personality traits (BFI-10) influence self-perceived innovativeness?

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Abstract: *Innovativeness is a useful trait in many walks of life. The aim of this paper is to investigate if gender and personality traits influence rating of self-perceived innovativeness. There are two versions of the dependent variable used - innovativeness in the eyes of others, and innovativeness in one's own opinion. Big Five Inventory-10 is used to measure personality traits. Findings are that conscientiousness influences self-perceived innovativeness in the eyes of others, and openness to experience influences self-perceived innovativeness in one's own opinion. Conscientiousness also influences the difference between the two innovativeness variables.*

Keywords: innovativeness, personality traits, gender, empirical research, quantitative methods

JEL codes: B23, D12, D22

1. Introduction

Innovativeness became an important trait in today's world. The paper investigates whether gender and/or personality traits influence innovativeness. Recently, impact of the Big Five Inventory personality traits (Costa and McCrae 1992) on consumer innovation success was investigated by Stock, von Hippel and Gillert (2016).

Stock, von Hippel and Gillert (2016) provide a literature review supporting their hypotheses why innovativeness should be influenced by personality traits. According to Feist (1998), Rothmann and Coetzer (2003), Sung and Choi (2009) and Wolfradt and Pretz (2001), openness to experience and extraversion are positively linked to creativity. With regards to conscientious, e.g. Rothmann and Coetzer (2003) found a positive link while e.g. George and Zhou (2001) a negative one. In some studies, there was found a negative link between creativity and neuroticism (Rothmann and Coetzer, 2003) and agreeableness (King, Walker and Broyles, 1996).

Stock, von Hippel and Gillert (2016) tested multiple models and they found that:

1st stage - ideation - was influenced by openness to experience and gender,

2nd stage - prototyping - was influence by extraversion, conscientiousness and gender, and

3rd stage - a) peer-to-peer diffusion and b) commercial diffusion - were both influenced by conscientiousness.

Therefore, it is realistic to expect that most likely openness to experience, extraversion, conscientiousness and gender may turn out to be significant also in the analysis presented in this paper. Overall, the research presented in this paper can be considered as a replication of a part of Stock, von Hippel and Gillert (2016) model. The goal is to see whether the identified

relationships hold even if fewer items are used to measure the Big Five Inventory and innovativeness is measured differently.

The rest of the paper is organized as follows: The next section describes the questionnaire and the analysis, the following section contains results, and the final section summarizes the findings.

2. Data and Methodology

Data were collected in the spring semester 2014 using a broader on-line questionnaire dealing with personality traits. Respondents were students of Aalborg University. Of 186 students who started, 172 (of whom 106 were male and 66 female) fully filled in the questionnaire. Stock, von Hippel and Gillert's (2016) sample contained also more males than females.
The research presented in this paper measures innovativeness using two statements from (Gimpel, Sudzina and Petrovcikova, 2014); they used it to measure innovativeness as a part of a self-identity construct. The instruction was “Please indicate to what degree you agree with the following statements”:

“People consider me as somebody with an innovative mind”;

“I consider myself as somebody with an innovative mind”.

A 1-5 Likert scale was used where 1 meant strongly disagrees and 5 stood for strongly agree. Despite both answers are self-reported, they provide an insight in how respondents perceive their innovativeness in the eyes of others and in their own opinion.

Stock, von Hippel and Gillert (2016) used Costa and McCrae's (1992) instrument to measure the Big Five Inventory; the instrument contains 50 statements. The research presented in this paper is based on the newer version of the questionnaire (Rammstedt and John, 2007) which contains 10 statements. The aim is to test whether the instrument with one fifth of questions compared to Costa and McCrae's (1992) questionnaire for the Big Five Inventory can lead to significant results. The instruction was to rate “How well do the following statements describe your personality” with statements “I see myself as someone who...”

1. ... is reserved;
2. ... is generally trusting;
3. ... tends to be lazy;
4. ... is relaxed, handles stress well;
5. ... has few artistic interests;
6. ... is outgoing, sociable;
7. ... tends to find fault with others;
8. ... does a thorough job;
9. ... gets nervous easily;
10. ... has an active imagination…

…on a 1-5 Likert scale where 1 meant strongly disagrees and 5 stood for strongly agree. Extraversion was calculated as an average of the 1st (reversed-scored) and the 6th answer, agreeableness as an average of the 2nd and the 7th (reversed-scored) answer, conscientiousness as an average of the 3rd (reversed-scored) and the 8th answer, neuroticism as an average of the

4th (reversed-scored) and the 9th answer, and openness to experience as an average of the 5th (reversed-scored) and the 10th answer. Cronbach alphas for personality traits will not be reported since the Big Five Inventory-10 (Rammstedt and John, 2007) was not constructed with this statistics in mind.

This questionnaire was preceded by another questionnaire, approximately a week before, it contained the same Big Five Inventory-10, and respondents were asked to save the answers and provide then again later. So one of the questions not analyzed here is whether the respondents entered their answers from a week before or they filled in their current answers. Of 172 respondents, 63 personality traits ratings were from previous week, and 109 were recent.

A generalized linear model (GLM) was used to analyze impact of gender and of five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) in three models where the dependent variables were:

1. innovativeness in the eyes of others ("People consider me as somebody with an innovative mind");
2. innovativeness in one's own opinion ("I consider myself as somebody with an innovative mind");
3. Innovativeness in the eyes of others minus innovativeness in one's own opinion.

A multivariate approach to testing was used. Parameter estimates tables will be provided (instead of ANOVA-style tables) in order to be able to see signs of parameter estimates (not only p-values). The results should be equivalent to a multiple linear regression model estimates in case the dummy variable is set to 1 for male and to 0 for female. R^2 and R^2_{adj} are provided in order to be transparent about how much a model explains though it may be significant.

To measure correlation between answers for statements "People consider me as somebody with an innovative mind" and "I consider myself as somebody with an innovative mind", Pearson product-moment correlation coefficient is used. To test a difference between these two variables, a paired samples t-test was used. SPSS software was used for all the tests.

3. Results

Parameter estimates for the generalized linear model analysing impact of gender and of personality traits on self-perceived innovativeness in the eyes of others are provided in Table 1.

Table 1 Parameter estimates for model 1

Parameter	B	Std. Error		t	Sig.
Intercept	2.140	.641		3.339	.001
extraversion	.091	.097		.946	.346
agreeableness	-.106	.104		-1.017	.310
conscientiousness	.238	.094		2.534	.012
neuroticism	.019	.091		.208	.835
openness	.108	.092		1.168	.244
[gender=male]	-.045	.142		-.319	.750

Source: Author

The model per se is borderline significant (p-value = .064), R^2 = .069, R^2_{adj} = .035 and conscientiousness is the only significant variable.

Sub models were tested to see whether omissions of certain independent variables could improve p-values. Parameter estimates for the best sub model are provided in Table 2.

Table 2 Parameter estimates for streamlined model 1

Parameter	B	Std. Error	t	Sig.
Intercept	2.374	.307	7.738	.000
conscientiousness	.260	.085	3.055	.003

Source: Author

The streamlined model containing only conscientiousness is significant (p-value = .003), R^2 = .052, R^2_{adj} = .046.

Parameter estimates for the generalized linear model analysing impact of gender and of personality traits on self-perceived innovativeness in one's own opinion are provided in Table 3.

Table 3 Parameter estimates for model 2

Parameter	B	Std. Error	t	Sig.
Intercept	2.952	.631	4.677	.000
extraversion	.062	.095	.657	.512
agreeableness	-.151	.103	-1.467	.144
conscientiousness	.097	.093	1.050	.295
neuroticism	-.043	.090	-.475	.635
openness	.140	.091	1.543	.125
[gender=male]	.099	.140	.705	.482

Source: Author

The model per se is not significant (p-value = .247), R^2 = .046, R^2_{adj} = .011. Openness to experience and agreeableness had the lowest p-values. Sub models were tested to see whether omissions of certain independent variables could improve p-values. A model with agreeableness alone led to p-value = .477 and in combination with openness to experience to p-value = .312. Parameter estimates for the best sub model are provided in Table 4.

Table 4 Parameter estimates for streamlined model 2

Parameter	B	Std. Error	t	Sig.
Intercept	2.882	.283	10.172	.000
openness	.159	.088	1.816	.071

Source: Author

The model including only openness to experience is borderline significant (p-value = .071), R^2 = .019, R^2_{adj} = .013.

The correlation coefficient for innovativeness in the eyes of others and innovativeness in one's own opinion is .596, p-value < .001. (It is somewhat lower than .696 and .691 from an analogical analysis of impact of gender and personality traits on self-perceived tech-savviness (Sudzina, 2015) and on self-perceived opinion leadership (Sudzina, 2016).) The correlation coefficient of .596 translates into Cronbach's alpha of .747, i.e. higher than Nunnally's (1978) threshold of .7.

On average, innovativeness in the eyes of others was 3.29 and innovativeness in one's own opinion was 3.38; the difference 0.092 is not significant (p-value = .113).

Parameter estimates for the generalized linear model analysing impact of gender and of personality traits on the difference between self-perceived innovativeness in the eyes of others and in one's own opinion are provided in Table 5.

Table 5 Parameter estimates for model 3

Parameter	B	Std. Error	T	Sig.
Intercept	-.812	.577	-1.406	.162
extraversion	.029	.087	.332	.740
agreeableness	.045	.094	.474	.636
conscientiousness	.141	.085	1.665	.098
neuroticism	.062	.082	.751	.454
openness	-.032	.083	-.390	.697
[gender=male]	-.144	.128	-1.125	.262

Source: Author

The model per se is not significant (p-value = .316), R^2 = .041, R^2_{adj} = .007. Conscientiousness has the lowest p-value.

Parameter estimates for the sub model with only conscientiousness are provided in Table 6.

Table 6 Parameter estimates for streamlined model 3

Parameter	B	Std. Error	t	Sig.
Intercept	-.630	.277	-2.277	.024
conscientiousness	.152	.077	1.985	.049

Source: Author

The model including only conscientiousness is significant (p-value = .049), R^2 = .023, R^2_{adj} = .017.

4. Conclusion

The aim of the paper was to analyse impact of gender and of personality traits on self-perceived innovativeness. It was a replication of a part of a previously published model using constructs with fewer questions to measure both personality traits and different questions for innovativeness. There were two versions of the dependent variable used - innovativeness in the eyes of others, and innovativeness in one's own opinion. A 10- instead of a 50-item instrument was used to measure the Big Five Inventory.

The replication resulted in two findings consistent with Stock, von Hippel and Gillert's (2016) study, namely conscientiousness significantly influenced self-perceived innovativeness in the eyes of others, and openness to experience influenced self-perceived innovativeness in one's own opinion though the significance was borderline. Gender was not found to be significant.

Innovativeness in the eyes of others and innovativeness in one's own opinion correlate and can be used together as a construct due to reasonable value of Cronbach's alpha. There is no significant difference between averages of the two variables.

5. References

Costa, P. T., & McCrae, R. R. (1992). Revised NEO personality inventory (NEO PI-R) and NEO five-factor inventory (NEO FFI): Professional manual. Psychological Assessment Resources.

Feist, G. J. (1998). A meta-analysis of personality in scientific and artistic creativity. Personality and social psychology review, 2(4), 290-309.

Gimpel, G., Sudzina, F., & Petrovcikova, K. (2014). Mobile ICT Acceptance in Late Adopter Countries. In Proceedings of 13th International Conference on Mobile Business.

George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: an interactional approach. Journal of applied psychology, 86(3), 513-524.

King, L. A., Walker, L. M., & Broyles, S. J. (1996). Creativity and the five-factor model. Journal of research in personality, 30(2), 189-203.

Nunnally, J. C. (1978). Psychometric theory. New York : McGraw-Hill Publishing Company.

Rammstedt, B., & John, O. P. (2007). Brief report: Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. Journal of Research in Personality, 41, 203–212. https://doi.org/10.1016/j.jrp.2006.02.001

Rothmann, S., & Coetzer, E. P. (2003). The big five personality dimensions and job performance. South African Journal of Industrial Psychology, 29(1), 68-74.

Stock, R. M., von Hippel, E., & Gillert, N. L. (2016). Impacts of personality traits on consumer innovation success. Research Policy, 45, 757–769. https://doi.org/10.1016/j.respol.2015.12.002

Sudzina, F. (2015). Do gender and personality traits (BFI-10) influence self-perceived tech savviness?. Information Technology for Practice 2015, 87-94.

Sudzina, F. (2016). Do gender and personality traits (BFI-10) influence self-perceived opinion leadership? In 21st International Conference, Economics and Management.

Sung, S. Y., Choi, J. N. (2009). Do Big Five Personality Factors Affect Individual Creativity? The Moderating Role of Extrinsic Motivation. Social Behavior & Personality: An International Journal, 37(7), 941-956.

Wolfradt, U., & Pretz, J. E. (2001). Individual differences in creativity: Personality, storywriting, and hobbies. European journal of personality, 15(4), 297-310.

Do gender and personality traits (BFI-10) influence trust?

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Abstract: *Trust as a concept found its way to business literature and it became a widely-used variable. Societal trust is systematically measured since 1960s. Later, it was discovered that two statements, which were used as opposite ends of dichotomous questions, are not truly opposite. The aim of this paper is to investigate if gender and personality traits influence rating of these two statement. And if so, if it is possible to account for these factors and create a robust trust indicator from these two statements after all. Big Five Inventory-10 is used to measure personality traits. Findings are that agreeableness influences both measures of trust and it is not possible to create a single trust indicator with reasonable properties even with adding personality traits into the equation.*

Keywords: trust, personality traits, gender, empirical research, quantitative methods

JEL codes: B23, D12, D22

1. Introduction

Trust is not something solely in the domain of sociology anymore. It became a widely investigated concept in business research in the last two decades. It influences behavior when it comes to barter exchanges (Ostroy and Starr, 1990), off-line (Calvo Porral and Levy-Mangin, 2016) and on-line purchases (Delina and Drab, 2010). It influences organization behavior as well, e.g. the relationship between a superior and subordinated (Krasman, 2014) or knowledge-sharing (Peralta and Saldanha, 2014).

Historically, the most standard question to measure trust is to ask "Generally speaking, do you believe that most people can be trusted, or can't you be too careful in dealing with people?" It was used by Rosenberg (1956) for the first time in the United States. Almond and Verba (1963) used it for the first time on a larger scales in 1960, the study involved five countries. Since then, American National Election Studies included this question in many of its surveys.

According to (Smith. 1997), the order, in which questions are asked, influences answers to the standard question. Respondents tend to opt for the positive answer with a high probability when the standard question is located after several pro-social questions involving e.g. working on community projects or volunteering.

Now that we are aware of the order of questions influencing answers, it is possible to find a more suitable place for the standard question where it is not influenced by previous questions. Alternatively, it is possible to use an on-line questionnaire tool and randomize order of the questions - something that was not too realistic 20 years ago.

A more serious problem is that, according to Miller and Mitamura (2003) and Wuthnow (1998), two parts of the standard question, i.e. "most people can be trusted" and "you can't be too careful in dealing with people" are not true opposites but rather two separate questions. When Wuthnow (1998) asked the two questions separately, about one half to two thirds of respondents gave inconsistent answers.

Therefore, the research presented in this paper uses the two parts of the standard question as two questions. The aim is to investigate if gender and personality traits influence answers to these two questions. And if so, if it is possible to account for these factors and create a robust single-dimension trust indicator from these two statements after all.

The rest of the paper is organized in the following way: In the next section, there is a description what data were collected and how, and how they were analysed. In the following section, results of the analysis are presented. The last section offers conclusions.

2. Data and Methodology

Data were collected in the spring semester 2014 using an on-line questionnaire. Respondents were 284 university students from Denmark, of which 153 were male and 131 female. Most of them were from Aalborg and Aarhus universities in their first to fourth year of study. Trust was measured using the following two statements preceded by question "To what extent do you agree with the following statements?":

- most people can be trusted,
- you can't be too careful in dealing with people

on a 1-7 Likert scale where 1 meant strongly disagrees and 7 stood for strongly agree. For convenience, the former will be addressed in the paper as *trust* and the latter as *mistrust* (both in italics).

Personality traits were measured using the Big Five Inventory-10, i.e. a 10-item version of the questionnaire for the Big Five Inventory, developed by Rammstedt and John (2007). The instruction was to rate "How well do the following statements describe your personality" with statements "I see myself as someone who..."

... is reserved,
... is generally trusting,
... tends to be lazy,
... is relaxed, handles stress well,
... has few artistic interests,
... is outgoing, sociable,
... tends to find fault with others,
... does a thorough job,
... gets nervous easily,
... has an active imagination

on a 1-7 Likert scale where 1 meant strongly disagrees and 7 stood for strongly agree. *Extraversion* was calculated as an average of the 1st (reversed-scored) and the 6th answer, *agreeableness* as an average of the 2nd and the 7th (reversed-scored) answer, *conscientiousness*

as an average of the 3rd (reversed-scored) and the 8th answer, *neuroticism* as an average of the 4th (reversed-scored) and the 9th answer, and *openness to experience* as an average of the 5th (reversed-scored) and the 10th answer. The questionnaire contained additional questions which were not used in the analysis presented in this paper.
General linear model was used to analyse impact of *gender* and five personality traits (*extraversion*, *agreeableness*, *conscientiousness*, *neuroticism*, *openness to experience*) on trust. Parameter estimates are provided in tables in order to communicate the direction of relationships. A multivariate approach was used. Pearson product-moment correlation coefficient was used to measure correlation. SPSS software was used for the analysis.

3. Results

The correlation coefficient between *trust* and *mistrust* in the sample at hand is -.339 (p-value < .001). It confirms what Miller and Mitamura (2003) and Wuthnow (1998) discovered, i.e. that two statements in the standard question for measuring trust are not opposite. If they were opposite, the correlation coefficient would be (close to) -1.
Parameter estimates of general linear model explaining *trust* are provided in Table 1. With regards to the explanatory power, $R^2 = .157$, $R^2_{adj} = .138$, p-value < .001.

Table 1: Parameter estimates of impact of gender and personality traits on *trust*

Parameter	B	Std. Error	t	Sig.
Intercept	.599	.855	.701	.484
extraversion	.076	.081	.944	.346
agreeableness	.560	.091	6.155	.000
conscientiousness	-.016	.083	-.193	.847
neuroticism	.120	.073	1.637	.103
openness	.118	.086	1.383	.168
[gender=male]	-.170	.181	-.940	.348

Source: Author

Parameter estimates for a streamlined model are provided in Table 2. It is the best model with p-values < .1. $R^2 = .144$, i.e. it is a bit lower than for the full model but $R^2_{adj} = .138$, i.e. the same as for the full model, p-value < .001.

Table 2 on next page.

Table 2 Parameter estimates of impact of selected personality traits on *trust*

Parameter	B	Std. Error	T	Sig.
Intercept	1.154	.502	2.297	.022
agreeableness	.590	.087	6.805	.000
neuroticism	.129	.068	1.905	.058

Source: Author

Parameter estimates for a streamlined model with p-values < .05 are provided in Table 3. The explanatory power decreased marginally compared to the previous model, R^2 = .133, R^2_{adj} = .130, p-value < .001.

Table 3 Parameter estimates of impact of agreeableness on *trust*

Parameter	B	Std. Error	T	Sig.
Intercept	1.700	.415	4.099	.000
agreeableness	.569	.086	6.584	.000

Source: Author

Parameter estimates of general linear model explaining *mistrust* are provided in Table 4. The explanatory power (R^2 = .075, R^2_{adj} = .055, p-value = .001) is lower compared to the full model explaining *trust*.

Table 4 Parameter estimates of impact of gender and personality traits on *mistrust*

Parameter	B	Std. Error	t	Sig.
Intercept	4.369	.843	5.182	.000
extraversion	-.065	.080	-.814	.417
agreeableness	-.281	.090	-3.124	.002
conscientiousness	.123	.082	1.491	.137
neuroticism	.120	.072	1.660	.098
openness	.132	.085	1.566	.118
[gender=male]	.185	.178	1.035	.302

Source: Author

Parameter estimates for a streamlined model are provided in Table 5. There was no model with p-values between .05 and .1. The explanatory power decreased marginally compared to the previous model, R^2 = .056, R^2_{adj} = .049, p-value < .001.

Table 5 Parameter estimates of impact of agreeableness on *mistrust*

Parameter	B	Std. Error	t	Sig.
Intercept	5.960	.409	14.559	.000
agreeableness	-.323	.085	-3.784	.000

Source: Author

The second goal of the paper was to investigate if it is possible to account for personality traits and to create a robust single-dimension trust indicator from *trust* and *mistrust* questions. Parameter estimates of general linear model explaining *trust* using *mistrust*, gender and personality traits are provided in Table 6. The explanatory power of the model is higher than of the model without *mistrust* (R^2 = .234, R^2_{adj} = .215, p-value < .001).

Table 6 Parameter estimates of impact of *mistrust*, gender and personality traits on *trust*

Parameter	B	Std. Error	t	Sig.
Intercept	1.941	.854	2.272	.024
mistrust	-.307	.058	-5.283	.000
extraversion	.056	.077	.730	.466
agreeableness	.474	.088	5.362	.000
conscientiousness	.022	.080	.270	.787
neuroticism	.157	.070	2.231	.027
openness	.159	.082	1.937	.054
[gender=male]	-.113	.173	-.655	.513

Source: Author

Parameter estimates for a streamlined model are provided in Table 7. The explanatory power stayed almost the same, R^2 = .230, R^2_{adj} = .219, p-value < .001.

Table 7 Parameter estimates of impact of *mistrust* and selected personality traits on *trust*

Parameter	B	Std. Error	T	Sig.
Intercept	2.147	.672	3.194	.002
mistrust	-.311	.058	-5.393	.000
agreeableness	.501	.084	5.940	.000
neuroticism	.157	.065	2.433	.016
openness	.158	.081	1.952	.052

Source: Author

The correlation coefficient between *trust* and predicted *trust* from *mistrust*, agreeableness, neuroticism, and openness to experience is .480. This would mean Cronbach's alpha of .545. If

openness to experience is omitted, i.e. all p-values drop below .05, the correlation coefficient marginally decreases to .469 and related Cronbach's alpha to .530. These values are not good enough for establishing a single-dimension trust indicator because Cronbach's alphas are below Nunnally's (1978) threshold of .7.

A similar approach could be used to estimate *mistrust*. But since it is influenced by personality traits less than *trust*, the correlation coefficient between *mistrust* and predicted *mistrust* would be lower than between *trust* a predicted *trust*. So, it would not be suitable for a single-dimension indicator either.

4. Conclusions

The paper investigated impact of gender and personality traits on trust, namely on two measures of trust stemming from the standard trust question used for the last 60 years. These two measures of trust (*trust* and *mistrust*), though correlated, are not fully opposite to each other, as it was confirmed also here (the correlation coefficient estimated from data at hand is -.339, not -1).

Both measures of trust are significantly influenced by agreeableness. The finding is consistent, i.e. more agreeable people are more *trust*ful and less *mistrust*ful. Due to borderline significance, it is possible that neurotic people are more *trust*ful but neuroticism does not have any impact on *mistrust*. Remaining personality traits and gender were not found to be significant. Future research could use a longer version of the questionnaire for the Big Five Inventory or another personality traits framework.

The second goal of the paper was to investigate if it is possible to account for gender and personality traits and to create a robust single-dimension trust indicator from two measures of trust. Although personality traits can increase correlation between the two measures of trust, this improvement is not enough for creating a single-dimension indicator.

5. References

Almond, G. A., & Verba, S. (1963). The civic culture: Political attitudes and democracy in five nations. Princeton University Press.

Calvo Porral, C., & Levy-Mangin, J.-P. (2016). Food private label brands: the role of consumer trust on loyalty and purchase intention. British Food Journal, 118(3), 679-696.

Delina, R. & Drab, R. (2010). Socio-Economic Aspects of Trust Building for the Electronic Business Platforms. E&M Ekonomie a Management. 13(4), 110-122.

Krasman, J. (2014). Do my staff trust me? The influence of organizational structure on subordinate perceptions of supervisor trustworthiness. Leadership & Organization Development Journal, 35(5), 470-488.

Miller, A. & Mitamura, T. (2003). Are Surveys on Trust Untrustworthy? Social Psychology Quarterly, 66(1), 62-70.

Nunnally, J. C. (1978). Psychometric theory. New York: McGraw-Hill Publishing Company.

Ostroy, J. M., & Starr, R. M. (1990). The transactions role of money. Handbook of monetary economics, 1, 3-62

Peralta, C. F., & Saldanha, M. F. (2014). Knowledge-cantered culture and knowledge sharing: the moderator role of trust propensity. Journal of Knowledge Management, 18(3), 538-550.

Rammstedt, B., & John, O. P. (2007). Brief report: Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. Journal of Research in Personality, 41, 203–212. https://doi.org/10.1016/j.jrp.2006.02.001

Rosenberg, M. (1956). Misanthropy and Political Ideology. American Sociological Review, 21(6), 690-695.

Smith, T. W. (1997). Factors Relating to Misanthropy in Contemporary American Society. Social Science Research, 26(2), 170–196.

Wuthnow, R. (1998). Loose Connections: Joining Together in America's Fragmented Communities. Cambridge: Harvard University Press.

Potential of open data in the Czech Republic

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Abstract: *The paper Potential of open data in the Czech Republic deals with the current situation of open data government and autonomous institutions in the Czech Republic in comparison with other European Union countries (Great Britain, France, Belgium, Austria, Estonia, ...) and defines the possibilities of open data economic development of the Czech Republic. Methodology of the paper includes a search resources dealing with the issue of open data in the Czech Republic and the European Union, comparing the obtained data, the analysis of obtained data and deduction provided for further development. The first part is an evaluation of the current situation and the situation compared with other EU countries. Further conditions for further development and evaluation of the potential of open data for the Czech Republic. The final section of the paper deals with evaluation of possibilities open application data management processes of companies in the Czech Republic in terms of strategic and innovation management. The result is an overview of the potential use of open data in the context of economic development and an estimate of the trend in applications open at the government level.*

Key words: economic and innovation potential, government data, open data

JEL codes: F43, L17

1. Introduction - Open data

Open data represents information, data and values which are freely available for using by anyone. The main parameters include free access, data structuring and clarity, machine readable treatment and availability without technical obstacles. Their format allows easy orientation and searching data needed for every single users. (MV, 2015; Open Definition, 2014).

Open data conceal significant potential for the development of the economic environment of the country. Open data provided by private companies or by government can lead to build an optimal business strategy, changes in strategy or finding new business activities and opportunities. With the closely related large influence on the innovation potential of companies which can consider suitability of innovation by using open data. Then it is possible to adequately manage and plan this innovation too. (Boček, 2012b; Lathrop, 2010; Open Knowledge Foundation, 2012; Saebi, 2015)

All of the above written application options of open data lead to reducing costs and help to intensive economic growth. From the perspective of government, open data represents indirect support for the economic efficiency of the state and elimination of the risks of market failure. Concurrently, open data serves as a tool for increasing transparency and reducing corruption in individual countries. (Open Knowledge International, 2016b; Pollock, 2012; Solom, 2012)

2. Methodology

The main research question of the paper is: What is the current level of application of open data by government and local government institutions in the Czech Republic and how is the potential development of open data in the Czech Republic?

The paper has a descriptive character. The paper represent a description of the current situation of the application of open government data in the Czech republic by international recognized quantifiers and finding opportunities for further development.

Methodology of the paper includes a literature review dealing with the issue of open government data in the Czech Republic and the European Union, comparison of obtained data, the analysis of information learned and draft of recommendations for the future development of open data in the Czech Republic.

3. Results - Open Data Index and Open Data Barometer

For comparing the level of application of open data in the Czech Republic and countries of the European Union are used an internationally recognized quantifiers - Open Data Index and Open Data Barometer which are published annually by the Open Knowledge International and by the World Wide Web Foundation, both since 2013. (Open Data Barometer, 2016a; Open Knowledge International, 2016a)

Open Data Index examines the level of application of various forms of open government data like government budget, national statistics, water quality or land ownership (all categories in Table 1). Open Knowledge International comprehensively evaluated the quality of open datasets in percentage. Specific data of the percentage data evaluation and order of the world ranking are shown in Table 1. (Open Knowledge International, 2016a)

Table 1: Open Data Index

	2013		2014		2015	
	Score	**Rank**	**Score**	**Rank**	**Score**	**Rank**
National Statistics	80%	12.	90%	16.	100%	1.
Government Budget	45%	36.	70%	22.	100%	1.
Legislation	45%	26.	45%	33.	60%	27.
Procurement tenders	-	-	-	-	60%	26.
Election results	100%	1.	100%	1.	100%	1.
National Map	30%	44.	100%	1.	45%	35.
Weather forecast	-	-	-	-	10%	77.
Pollutant Emissions	35%	35.	35%	51.	45%	30.
Company Register	50%	13.	90%	5.	15%	58.
Location datasets	20%	41.	70%	10.	70%	14.
Water quality	-	-	-	-	10%	46.
Land Ownership	-	-	-	-	45%	12.
Government Spending	0%	40.	10%	15.	10%	8.
Transport Timetables	45%	13.	45%	24.	-	-
Total	45%	29.	66%	13.	52%	21.

Source: Author

Czech Republic showed efforts to improve the quality of open data in 2014 when was recorded the percentage growth in eight out of the ten followed datasets. That meant a rise in the total percentage rating of 21 percentage points and a significant shift in the national rankings to 13th place. In 2015, the government of the Czech Republic focused on the development of the publication of government data and national statistics. However, in other sections there has been a stagnation or decline (especially in the company register section) of percentage rating. Czech Republic recorded a percentage positional fall which was caused by evaluation of new datasets in which the Czech Republic has a significant weaknesses (mainly in sections of water quality and weather forecasts - important figures for agriculture). (Open Knowledge International, 2016a)

Open Data Barometer comprehensively evaluate the application of open government data in 92 countries based on three basic sections - readiness, implementation and impact. Open Data Barometer published averages of countries in Europe and Central Asia which includes the Czech Republic. (Open Data Barometer, 2016b).
In each of the sections Open Data Barometer attach a numeric value, the maximum is 100 points and the minimum is 0 points. In essence, that is the percentage appreciation, “master" of the issue. (Open Data Barometer, 2016a).

Readiness section includes four main subsections - government policy, government action, citizens and civil rights and entrepreneurs and business. Between 2013 and 2014 the Czech Republic recorded a slight increase of two percentage points. But in 2015 there was a fall of 5 points. The most important position of the Czech Republic is in the section of citizens and civil rights which amounts to 83 points. Annual increase was 22 points. Czech Republic is above the European average as well as in government policy. Conversely, the Czech Republic lags in the section of government action (severe loss of 14 points) and in the section of entrepreneurs and business in comparison with European average. The data are reported in Table 2. (Open Data Barometer, 2016c)

Table 2: Open Data Barometer of Readiness

	Czech republic			Europe and Central Asia		
	2013	**2014**	**2015**	**2013**	**2014**	**2015**
Government Policies	43	44	56	64	68	36
Government Action	83	87	49	74	79	63
Citizens and civil rights	61	61	83	62	70	79
Entrepreneurs and business	36	58	56	54	54	64

Source: Author

On data about readiness is evident good basis for a stable political and legislative situation including the positive development in the last three years. The business environment in the Czech Republic is not compared to other countries in Europe and Central Asia assessed positively. Although between 2013 and 2014 there was a significant improvement, the situation continues to Czech Republic is less than the average. In 2015 there was a big criticism of government actions

and a slump in the value of index of almost 40 points. Despite the stable political situation, a series of government interventions can't be evaluated positively. (Open Data Barometer, 2016c)

The implementation involves three basic types of datasets - innovation cluster, social policy cluster and accountability cluster. Accountability cluster has a steady growth in the Czech Republic. This increases transparency of the policy which has a positive impact on reducing corruption. In this type of datasets the Czech Republic rather significantly above the average for Europe and Central Asia. Unfortunately, there is the opposite situation in the remaining datasets. The innovation cluster occurred a permanent reduction of the index in the last three years. The reasons may be two - weak innovation support from the government or the desire to protect information through copyright and information isn't shared in the form of open data. It wasn´t evaluated positively a big drop of social policy index in 2015. This wasn´t sufficiently opened and data in this sector are still below the European average. Specific figures are shown in Table 3. (Open Data Barometer, 2016c)

Table 3: Open Data Barometer of Implementation

	Czech republic			Europe and Central Asia		
	2013	**2014**	**2015**	**2013**	**2014**	**2015**
Innovation Cluster	57	53	47	52	54	54
Social Policy Cluster	27	65	33	42	44	58
Accountability Cluster	36	52	52	39	50	39

Source: Author

The impact sector covers political impact, social impact and economic impact. In the Czech Republic there is a very positive political impact primarily when the Czech Republic index exceeds the European average of 19 points, as can be seen in Table 4. Above all, political impact increased annual by 34 points in 2015. Social impact in all three years oscillated around the European average. It is evident that the Czech Republic is comparable with neighbouring countries in this sector. For positive can be considered economic impact that exceeds the European average of 20 points in the Czech Republic. From an economic perspective, opening data is beneficial for the Czech Republic and delivers economic returns. Overall score of Open Data Barometer of countries of European Union are shown in Table 5. (Open Data Barometer, 2016c).

Table 4: Open Data Barometer of Impact

	Czech republic			Europe and Central Asia		
	2013	**2014**	**2015**	**2013**	**2014**	**2015**
Political Impact	24	26	60	18	29	41
Social Impact	39	39	29	39	44	27
Economic Impact	-	-	56	-	-	36

Source: Author

Table 5: Overall Open Data Barometer score for European Unio countries

	2013	2014	2015		2013	2014	2015	
Great Britain	100	100	100	**Belgium**	34,8	47,29	52,62	
France	63,92	80,21	81,65	**Estonia**	49,45	60,18	50,63	
Denmark	71,78	70,13	76,62	**Czech republic**	43,18	58,7	49,15	
Netherlands	63,66	75,79	75,13	**Ireland**	35,76	40,74	46,53	
Sweden	85,75	83,7	69,26	**Portugal**	38,63	46,12	41,38	
Finland	49,44	66,49	65,45	**Poland**	-	36,99	39,95	
Germany	65,1	67,63	64,79	**Greece**	27,59	40,79	38,48	
Spain	48,19	59,89	64,35	**Slovakia**	-	-	37,16	
Austria	46,3	58,52	64,18	**Hungary**	26,9	38,26	25,54	
Italy	45,3	50,58	53,78					

Source: Author

4. Conclusion

Open data is a modern economic tool. They represent the future for the public and private sectors. Regardless they are still often neglected in the Czech Republic and their significance is still slightly underestimated. Great development experience open data across Europe, particularly in Great Britain. Yet the current range of information about open data is not sufficient in the Czech Republic. (Boček, 2012a; Saebi, 2015; Solom, 2012)

Generally it can be difficult to predict the future development of the application of open data in the Czech Republic because there are data from only three years. The positive economic impact is a motivation for opening data but the fall in evaluating the application of open data in 2015 was quite substantial. The Czech government has big gaps particularly in the evaluation of its activities which is necessary to change for better overall economic situation of the state, not only for open data situation. Likewise, there should be greater support for the business environment. Although the legislative environment is assessed positively in the Czech republic, some laws for entrepreneurs represent a ,,brake" for their development potential. Likewise, support for opening data is not on adequate level.

Political, social and economic impact should be a motivation for opening data. All these sections have a positive effect on the economic situation in the country, as well as to improve the business environment, reducing corruption and increasing the transparency of government institutions and private companies.

The power of open data is in the range of applicability. Data can be used practically in all parts of planning and management of companies and institutions. Can be expected a wider range of data use, not only in the Czech Republic. The reasons are mainly significant return of investment in the form of savings (minimization, unnecessary" costs) or in the form of increasing profits. Besides the positive economic impacts the open data contributes to increasing transparency which is also closely related to the elimination of corrupt practises in individual countries.

Generally, open data have a positive economic and social impact. Therefore it is necessary to support opening data and to foster economic growth by this way.

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6. References

ODSS (n.d.). Retrieved September 30, 2016, from http://www.osf.cz/wp-content/uploads/2015/08/ODSS_Text_web_01.pdf

Open Data Barometer 2015. (n.d.-a). Retrieved September 30, 2016, from http://opendatabarometer.org/data-explorer/?_year=2015&indicator=ODB&lang=en&open=CZE

Open Data Barometer 2015. (n.d.-b). Retrieved September 30, 2016, from http://opendatabarometer.org/data-explorer/?_year=2015&indicator=ODB&lang=en&open=CZE

Open Data Barometer 2015. (n.d.-c). Retrieved September 30, 2016, from http://opendatabarometer.org/data-explorer/?_year=2015&indicator=ODB&lang=en

Open Data Conference - Rufus Pollock - Open Knowledge Foundation & CK…. (n.d.). Retrieved September 30, 2016, from http://www.slideshare.net/OpeningUp/open-data-conference-rufus-pollock

Open Knowledge: Vision and Values. (n.d.). Retrieved September 30, 2016, from https://okfn.org/about/vision-and-values/

Otevřená data - Ministerstvo vnitra České republiky. (n.d.). Retrieved September 30, 2016, from http://www.mvcr.cz/clanek/otevrena-data.aspx

Research Method | Open Data Barometer. (n.d.). Retrieved September 30, 2016, from http://opendatabarometer.org/3rdEdition/methodology/

Lathrop, D., & Ruma, L. (2010). Open government: Collaboration, transparency, and participation in practice. " O'Reilly Media, Inc.".

Saebi, T., & Foss, N. J. (2015). Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. European Management Journal, 33, 201–213. https://doi.org/10.1016/j.emj.2014.11.002

Solomon, D. J. ., & Björk, B.-C. (2012). A study of open access journals using article processing charges. Journal of the American Society for Information Science & Technology, 63(8), 1485–1495. https://doi.org/10.1002/asi.22673

The Open Data Handbook. (n.d.). Retrieved September 30, 2016, from http://opendatahandbook.org/guide/en/

The Open Definition - Open Definition - Defining Open in Open Data, Open Content and Open Knowledge. (n.d.). Retrieved September 30, 2016, from http://opendefinition.org/

Úvod | Otevřená data. (n.d.). Retrieved September 30, 2016, from http://www.otevrenadata.cz/

The Socioeconomic Aspects and Macroeconomic Consequences of Industrial Development

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Abstract: *In recent years, we have been experiencing rapid structural changes in economy, which has huge consequences for the socioeconomic environment as a whole. The paper analyses these changes at macroeconomic level and their relationship to industry, employment, social systems behaviour and performance of businesses connected with human capital development, but also to the (microeconomic) position of individual subjects. The solutions that are rooted in the acquisition, maintaining and utilizing of human capital will be discussed. We will discuss new incentives for social investment and providing productive services, identify barriers of economic growth in current socioeconomic system and show selected obstacles that prevent productive utilization of human capital. Although these issues are controversial by nature, have deep systemic causes and they cannot be resolved immediately or by simple measures, we take a scientific effort to search for opportunities that support adaptive processes, utilize the human potential that is available and can be improved further when decreasing our dependency on material conditions of existence.*

Keywords: industrial development, productive employment, social investment, economic growth

JEL codes: L52, L69, L80

1. Introduction

Recently, we can observe in developed countries significant changes in the character of industry, employment and social systems. Their evaluation highly depends on the point of view that the evaluators take into account. Of course, when considering productivity and reliability of manufacturing process, the innovations are highly welcomed, however their real usage and adaptation to their effects is not a simple and spontaneous process.

We can understand the concept of so-called Fourth Industrial Revolution also as an expression of the inertial thinking in the historical turning point. Its consequences contain calculations that 40 % or even more people could be (on the labour market) unnecessary. In addition, once the system begins to exhibit the economic and social consequences of the current economic system and loses its effectiveness, not being able to open up new growth areas, the concept of 4th Industrial Revolution could be hijacked to social segregation and market discrimination.

2. Theoretical background and methodological approach

In this paper, we use the definition of the problem using the concept of "intensity of use of investment opportunities" in relation to human and social capital (Bourdieu, 1986; Valenčík, 2014, 2015). We are extending our thinking horizon in the direction of the path to the economy, which can be of the “produce nearly anything from almost nothing” character and consequently to possible extension to the existing type of civilization. We show how a new type of growth associated with the general nature of labour and the mechanisms of the economy of productive consumption. The aim of the paper is thus, within the above framework, perform a critical analysis of the concept, which is referred to as the vision of the Fourth Industrial Revolution, to put it into a broader socioeconomic context and show some limits of their usual understanding, including an effort to positive reinterpretation of their often problematic consequences presented.

Actually, we can hypothesize that on the background of the concept of the Fourth Industrial Revolution fundamental social changes are underway consisting in a transition to an economy based on productive services, i.e. the services making the dynamics of economic growth by enabling the acquisition, preservation and utilization of human capital. Afterwards they can significantly increase the intensity and character of innovation. Thus, we also want to show that besides the necessity of demanding adaptation processes it also provides significant development opportunities for broad participation in productive activities in areas such as the implementation and usage of modern technologies (Kůs, 2015) and productive services delivery (Valenčík, 2015).

From a theoretical point of view, we can see it as the fifth major change in the evolution of human civilization. The sequence of first four was from collecting to hunting, from hunting to shepherding, from shepherding to agriculture, from agriculture to industry. Now the fifth one is from industry to the economy of productive services (which is based on education, health care, culture, leisure services, and that all related to significant dynamic changes made possible by human knowledge).

The condition of these changes is to improve the market mechanism so that it is capable of much better and broader investments related to the acquisition, preservation and utilization of human capital. Another requirement is to create equal opportunities (chances), which means overcoming the long-term effects of various aspects of the current economic and social segregation, exclusion and closing various groups from the main direction of social development and even turning against the natural direction of social development.

These problems of adapting to the changes in the production process and the involvement of production factors have long tradition in socioeconomic analyses since the times of Marx (1974) and within innovative approaches of R. Richta (1966), which were at its time ahead of current concepts like the Fourth Industrial Revolution. They are also covered in economics of welfare and happiness (Klusoň, 2005; Mlčoch, 2007), social policy approaches (Krebs, 2015) and the theories of productive utilization of human capabilities and current reflection in this area (Valenčík, 2014, 2015). Because of the size of the paper is limited, we refer only here at theoretical background also to the problem income and wealth differentiation, which in parallel with the rise of the

Fourth Industrial Revolution is accelerating and is currently already clearly demonstrated statistically (Credit Suisse, 2015; IMF, 2015).

2. Results

The economic growth may be substantially simultaneously dynamic and sustainable. It even has to be considerably dynamic to be sustainable, of course given its real character changes accordingly.

The sustainability of growth is due to a significant increase in the intensity of innovation processes, and it is based on a fuller use of the investment opportunities, which a man possesses. Productive services (e.g. health care, education, culture, leisure services) play in increasing dynamics of economic growth while protecting its sustainability this dual role:

- First, they are themselves part of the economic growth (including how it is expressed in terms of GDP indicator).

- Second, by acting on the use of investment opportunities associated with the development of human capabilities (acquisition, preservation and utilization of human capital), allow to increase the useful effects for virtually all products while significantly lowering their costs of production (including costs in their expression through natural units).

If we understand the duality of targeting of the economic processes as meeting the experiential richness of the human life while increasing human productive capacities, which are becoming the most dynamic factor of growth, while they imprint economic growth a new quality (the higher level of fulfilment of human happiness), then we can postulate that to every natural restrictions of fulfilling this target such a sum of innovations exists, that can achieve such a target, despite the default restrictions posed by nature. The possibility to realize the innovation is then conditional on the use of investment opportunities associated with the development of human capabilities. In the event that the economic system develops inertia, i.e. if for the use of investment opportunities associated with the development of pro-innovative-oriented human capabilities are in the economic system not created conditions, then the opportunities for economic growth face natural and consequently various social barriers. This will in turn be reflected in the form of various crisis phenomena and conflicts. Current recurrences of financial crises have their origins in the fact that the inertial continuation of economic growth in its current form, with low consumption effects on the development of pro-innovative-oriented human capabilities, crashed to inherent limitations. Traditional methods of demand stimulation of economic growth are losing effectiveness in these conditions.

The decisive condition for the transition to an economy of productive services is the involvement of entities operating in the area of productive services associated with the acquisition, preservation and utilization of human capital, creating a feedback loop between the effects of productive services and the financing of these entities can contribute substantially to the higher dynamics of economic growth, positively change his the character and people's quality of life. Only the creation of these feedbacks (in the form of improving market mechanisms) allows you to create a competitive environment in which they created enough pressure to substantially increase innovative activities focused on the acquisition, preservation and utilization of human

capital - and thus the gradual gaining of equal opportunities in terms of their independence from the original wealth position.

The world that we live in (what is nature and what constitutes nature) has a potential to allow the creation of nearly anything from almost nothing.

The type of economy can be born that much more fully exploits investment opportunities in the acquisition, preservation and utilization of human capital, and which would characterizes much higher intensity of innovation processes. This can in next two hundred years lead, because of rapidly growing innovative potential of the society, to socioeconomic system being to the vast extent "relieved" (liberated) from the material conditions of its existence, i.e. from strict dependence on sources of raw materials and energy. Everything a man would need for a much richer life than that now can be produced with a lower burden of our natural environment. Moreover, even for a substantially higher population counts.

If someone is in doubt about those processes, he can also imagine how many resources today we use just for moving the goods around the planet. Extensive transport and carrying services often make great share of the product costs and price and many raw materials is consumed during extensive transports.

We should note that only a small fraction of people would act professionally as one who today is called the term "scientist", i.e. as someone who professionally "thinks up innovations". The large majority of people will work in productive services.

Once society has solved the historical role of liberation from the material conditions of their existence, will then tackle an even more important role in the liberation from the physical conditions of its existence, i.e. time-space limitations. Nevertheless, we can let this be for distant future generations. The current transition to a society whose economy is based on productive services gives sufficient space for future development.

3. Discussion

We can now pay detailed attention to the concept or issues called *4th* Industrial Revolution. We will try to discuss the following statements:

1. The concept of the so-called 4th Industrial Revolution is a manifestation of the inertial thinking in the historical turning point.
2. The concept of 4th Industrial Revolution is too narrow and not comprehensive in macroeconomic sense. It covers main certain external phenomena, does not grab all the essential aspects of the present development and to some extent lacks proper equipment for doing it.
3. Much more substantial breakpoint is going on, which is comparable with the original industrial revolution as we know it from nineteenth century, but perhaps it is a much more pronounced change. Let us recall that the industrial revolution gave birth to the industry as a very new phenomenon, quite radically transform the whole society in dramatic and sometimes drastic social upheaval, when the old schemes were trying to defend their privileges against the new, incoming ones.

4. We should not be talking about upgrading the old economic base, but the birth of a new economic base of society. That happens outside the industry, as the industry was born outside the agriculture.
5. At the theoretical core and main pitfalls of understanding of what is going on with all the "maintainers of the inertia of thinking" is the question of the role of free (leisure) time, which directly relates to understanding, what are the human capabilities. It seems trivial, but it is not - whoever has acquired habits rather than actual abilities, hardly understands what the real human abilities are.
6. As a consequence of its essential "structural" deficiencies could the concept of F*ourth Industrial Revolution* be diverted to hiding the real problems and their causes, ideological sterilizing political forces and organizations, to increase the degree of people's confusion.
Let us work with the passage, where one of the theorists of 4th Industrial Revolution P. Mason tries referring to Marx to justify the theoretical foundations of this concept:

"In the "Fragment on Machines" that he wrote in 1858 Marx imagines an economy in which the main role of machines is to produce, and the main role of people is to supervise them. He was clear that, in such an economy, the main productive force would be information. The productive power of such machines as the automated cotton-spinning machine, the telegraph and the steam locomotive did not depend on the amount of labour it took to produce them but on the state of social knowledge. Organisation and knowledge, in other words, made a bigger contribution to productive power than the work of making and running the machines.

Given what Marxism was to become – a theory of exploitation based on the theft of labour time – this is a revolutionary statement. It suggests that, once knowledge becomes a productive force in its own right, outweighing the actual labour spent creating a machine, the big question becomes not one of "wages versus profits" but who controls what Marx called the "power of knowledge".

In an economy where machines do most of the work, the nature of the knowledge locked inside the machines must, he writes, be "social". In a final late-night thought experiment, Marx imagined the end point of this trajectory: the creation of an "ideal machine", which lasts forever and costs nothing. A machine that could be built for nothing would, he said, add no value at all to the production process and rapidly, over several accounting periods, reduce the price, profit and labour costs of everything else it touched.

Once you understand that information is physical, and that software is a machine, and that storage, bandwidth and processing power are collapsing in price at exponential rates, the value of Marx's thinking becomes clear. We are surrounded by machines that cost nothing and could, if we wanted them to, last forever.

In these musings, not published until the mid-20th century, Marx imagined information coming to be stored and shared in something called a "general intellect" – which was the mind of everybody on Earth connected by social knowledge, in which every upgrade benefits everybody. In short, he had imagined something close to the information economy in which we live. And, he wrote, its existence would "blow capitalism sky high". (Mason, 2015)

The cited passage contains the fundamental problem of approach, which the concept of *the Fourth Industrial Revolution* is based on. What is the difference between what writes Marx, and how P. Mason interprets him? K. Marx emphasizes the expression of what form real human abilities have and what it means – the development of human capabilities. A person's ability to perform a "general labour", i.e. mediate and arrange together and conditionally interconnect processes within the area of his scope of authority. This specifically human capability can freely and almost infinitely develop, because it directly links to the development of scientific knowledge. A scientific knowledge is a process that also runs almost indefinitely. Therefore saving working time means an increase in available time *"for the full development of the individual, which in turn acts back on the productive power of labour as the greatest productive power"* (Marx, 1974, p. 343). Here is the basis of much higher levels of the new economy. Economy that will evolve significantly beyond the industry. The industry will absorb the results of this economy, just as agriculture had absorbed the results of the industry. On that basis, then the industry will develop with accelerating dynamics, as had once accelerated the pace of development of agriculture.

The main difference is that according to the vision of the Fourth Industrial Revolution the volume of labour is going to decrease, while according to Marx (and later to Richta, Kůs and ours) approach there will be plenty of labour available. Obviously, general labour. And so that productive services related to the acquisition, preservation and utilization of human capital could elevate every man (or at least most people) to the level of ability to perform general labour, you will need a lot of general labour in the area of productive services. The text interpreting Marx sees what is going on today very superficially. Therefore, it says that “the end of capitalism” in fact is to some extent already going on, through the natural technological evolution, the transition to the information society, the Fourth Industrial Revolution.

Marx's text very specifically shows the unlimited possibilities of human abilities, which is based on the ability to perform "general labour", i.e. the ability to arrange and mediate, put into mutual conditionality natural (and social) processes based on knowledge and understanding of its laws. Under certain social conditions is saving work time of the type of labour that takes the form of a trained workforce, the way to make a person could freely develop their ability to general labour, which in turn acts on the economy as the most productive forces.

What kind of social conditions is it? The conditions in which the free development of each person is the condition for the free development of every other person, mutually supporting free development of individuals.

To do this, we still have a long way ahead. One of the main problems of social relationships (which still prevent the efficient functioning of the economy in the sense Marx anticipated the possibility to convert the savings of working time - meaning “old type of work” - the development of the ability of a person as a basis for general work – “a new type of work” - which becomes the most productive force) is investing in social position. The purpose of this investment is to reduce the possibility of the use of investment opportunities, which have other businesses and thus increase revenue from its own investment opportunities. To this issue we pay particular attention.

The concept of the Fourth Industrial Revolution sees primarily that information technologies allow substantial (indeed radical) increase labour substitution by technologies, i.e. to replace work and create free time (leisure). Nevertheless, systemically fails in the following:

- The understanding of the content of what distinguishes the (old) forms of work that can be replaced by the (new) forms of work that are irreplaceable, which are specifically human.
- In answer to the question of in what form can specifically human, irreplaceable forms of work (what Marx called the general labour) to develop, what role in it plays the leisure time, how the free time acts back on the economy as the most productive force.
- In identifying the barriers that in the current state prevent the use of convertible free time (time for full, free development of skills) in a most productive factor of economic growth.

Let us try most clearly and comprehensibly express what is currently going on. To do this, we use the term "investment opportunities" interpreted in the area of development of human capabilities.

Below investment opportunities we see entities, where you can invest (not necessarily just financial resources can be e.g. as well as opportunity costs, i.e. free time etc.) and what has some revenue (future income in cash and non-cash form).

A man is born with some natural given dispositions and prerequisites, respectively. Prerequisites that can be or need not to be utilized. Since its birth a man offers through his existence certain investment opportunities (for investors of various kinds - family members, the state, and later others) associated with the development of his abilities. Specifically the development, preservation and application of his abilities.

In a society in which it would be created equal opportunities for the free development of each individual would be investment opportunities, which each of us possesses, used independently of external constraints which may be an asset position, integration into social structures (which can a man momentarily favour or vice versa discriminate) etc.

The society will never be perfect in the above sense. However, it may be imperfect only in the sense of partial imperfections, but also systemic imperfections, where some part of society discriminates against another part of the society in order to restrict the use of investment opportunities associated with the development (preservation and application) of their abilities, which in turn act as the most productive force in society.

The concept of the Fourth Industrial Revolution conceals the essence of what is going on, especially in the following points.

Unintentionally, but perhaps even deliberately ignores the current occurrence of investment in position rather than in human capital, its fatal effect on the conversion of free time in the most productive force, and then subsequently implications for growth, the economic role of productive services associated with the development, preservation and utilization of human abilities.

It offers a vision of “a slight improvement” of society with technologies that spare work without answering the question of what to do with your free time generated this way, thereby obscures the fact that the society is ahead of much deeper transformation.

It follows the inertial vision of reality at a historical turning point. I.e. at a time when we do not see some next phase of the industrial revolution, but a change in its scope, distinctiveness, depth and complexity comparable to the industrial revolution as such. The change, which created an entirely new economic sector. Just as historically from the crafts, the industry was born, then today the services related to the care for the person's abilities can give birth to a new sector of productive services directly focused on the acquisition, preservation and utilization of human capabilities, which will become the foundation of the new economy. The economy, in which man will be fully engaged in technologically "irreplaceable" forms of (general) labour, when we will achieve the point of overcoming the historical division between work and free time.

4. Conclusions

Economic growth can be dynamic yet sustainable. To achieve this, however, its character needs to change, thus significantly increasing the role of those industries that support the development of the ability to perform creative work, the ability to participate in innovation. Economy with high intensity of innovation tends to create whatever is required to meet the needs of people and further develop their ability to create nearly anything from almost nothing.

The concept of the Fourth Industrial Revolution is significant in terms of changes in the number of traditional mechanisms of production and the nature of employment. According to our analysis, however, it has much broader causes and consequences, than what is presented in relation to the functioning of the economy and the need to adapt especially in industrial sector.

A refinement of the possibility of growth based on the dominant role of productive services sector is essential. In the short term within the framework of the concept of 4th Industrial Revolution, which is understood too narrowly and at some levels it can lead to deduction of dangerous conclusions. This concept is the result of the inertial thinking in historical turning point. It notices that a certain type of human performances is being replaced by (information) technology, but does not operate with the notion that where there is demand for creative (general) work. The danger of such vision lies in the fact that it can lead to (ultimately even real) conclusions of redundancy, uselessness and futility of large social groups.

In the long term, there is a danger that in the society the games will be played based on the growing social differentiation and social exclusion of large social groups. Unless the socioeconomic system is designed to provide equality of (starting) opportunity for every citizen, changes in the nature of production and employment could trigger the centrifugal effect (Myrdal, 1968), i.e. further increasing wealth of the rich and the impoverishment of the poor. This limits the participation of wider social groups on economic development, which hardly compensates for a solution using purely solidarity-based social policy instruments, such as the basic income, which are not applicable at current economic reality. That is why the focus should be on prevention of these games' playing.

Overall, it is clear that the adaptation to the concept of the Fourth Industrial Revolution is not automatic and requires systematic preparation of infrastructure and socioeconomic systems that will allow and encourage wider involvement of the population in economic activities in the new conditions. Without these adjustments, the fulfilment of the pessimistic vision relating to employment, structural crisis and socioeconomic turbulences is real. At the same time, however,

one can imagine a positive vision of exploiting the possibilities that are in the stage of development of civilization (which was partially anticipated by theorists) offer. It is significant to promote the inclusive nature of changes by focusing on equality of opportunity (chance), otherwise there is a risk of deepening the social differentiation and loss of important functions of large social systems (health, education, social security), that without a certain degree of social cohesion are not able to provide the expected functionality, regardless the quality of their construction.

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6. References

Bourdieu, P. (2011). The forms of capital.(1986). Cultural theory: An anthology, 81-93.

Busch, J. H., & Myrdal, G. (1968). Asian Drama: An Inquiry into the Poverty of Nations.

Dabla-Norris, M. E., Kochhar, M. K., Suphaphiphat, M. N., Ricka, M. F., & Tsounta, E. (2015). Causes and consequences of income inequality: a global perspective. International Monetary Fund.

Marathon 127 - lk_2015_perspektivy.pdf. (n.d.). Retrieved September 30, 2016, from http://www.vsfs.cz/prilohy/konference/lk_2015_perspektivy.pdf

Marx, K., Hrbek, M., & Hrbková, R. (1974). Rukopisy “Grundrisse” : (ekonomické rukopisy z let 1857-1859). Praha : Svoboda, 1974.

Mlčoch, L. (2007). Ekonomie a štěstí: proč více někdy není lépe. Politická ekonomie, 55(2), 147-163.

Marešová, D. (2006). Civilizace na rozcestí.

Klusoň, V. (2005). O ekonomické odpovědnosti. Politická ekonomie, 53(4).

Krebs, V. (2010). Sociální politika. Wolters Kluwer Česká republika.

OSEL.CZ. (n.d.). [Text]. Retrieved September 30, 2016, from http://www.osel.cz/8446-lidska-prace-mozna-nebude-dulezita.html

Suisse, C. (2015). Global Wealth Databook 2015. op. cit.

Postcapitalism: A Guide to Our Future. (2015). Publishers Weekly, (51), 73.

Průmyslová revoluce 4.0: Za 10 let se továrny budou řídit samy a produktivita vzroste o třetinu. (2015, May 17). Retrieved September 30, 2016, from http://byznys.ihned.cz/c1-64009970-prumyslova-revoluce-4-0-za-10-let-se-tovarny-budou-ridit-samy-a-produktivita-vzroste-o-tretinu

Štika, P., (2009). Ekonomie štěstí. Politická ekonomie, 56, No. 2. pp. 250-262.

Valenčík, R., et al., 2015. Čtvrtá průmyslová revoluce, nebo ekonomika produktivních služeb? Praha: VŠFS-EUPRESS. ISBN 978-80-7408-126-2.

Business Environment in V4 Countries

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Abstract: *The aim of the article is to investigate the relationship between different indices of the quality of business environment on one side and selected macroeconomic indicators and country's credit rating on the other side. The analysis concentrates on the countries of Visegrad four region (V4) – Slovakia, Czech Republic, Hungary and Poland. The following indices are analyzed: Ease of Doing Business created by the World Bank Group, Global Competitiveness Index, Index of Economic Freedom, rating from The World Competitiveness Yearbook and Fragile State Index. We use the real gross domestic product, unemployment rate and inflation rate as the macroeconomic indicators and the results of the country's credit rating evaluated by Moody's, Standard & Poor's and Fitch Ratings. The analysis is based on the country level data for the 2005 – 2014 period derived from the official statistical reports of World Bank, World Economic Forum, Institute for Management Development, The Heritage Foundation, Fund for Peace and Eurostat. The analysis is performed through correlation analysis using Pearson as well as Spearman correlation coefficients. The results of our analysis indicate that relationship between different indices of the quality of business environment and selected macroeconomic indicators or country's credit rating is country specific.*

Keywords: business conditions, quality of business environment, macroeconomic indicators, country's credit rating, V4 countries

JEL codes: E30, F21, F44

1. Introduction

Business environment can be defined as a set of economic, legal and institutional conditions that affect the firms' behavior in positive or negative way, but usually cannot be controlled by these firms. Demjanová (2009) describes the business environment as business conditions that promote or hinder the creation and development of enterprises.

Many economic studies use the business environment indicators as either the left- or right hand side of regressions. In each case, the authors report patterns that emerge in comparison across countries. In most cases, the concern is whether a particular indicator is correlated with aggregate or firm-level outcomes, or whether, if used as a left-hand side variable, the indicators are correlated with country characteristics, history, or institutions (Besley. 2015). The following literature review illustrates that the results of the studies are mixed.

2. Literature Review

Djankov, McLiesh and Ramalho (2006) found a positive relationship between economic growth and the Doing Business indicator. Similar results we can find in work of Gillanders and Whelan (2014). Their principal finding is that the Doing Business indicator emerges as the key explanatory variable in a wide range of instrumental variables regressions for income per capita and has significant explanatory power for longer-run growth.

The evidence of Bittlingmayer, Eathington and Hall (2005) suggests that for some indexes a business climate ranking predicts positive economic outcomes. They found that indexes more narrowly focused on tax policies are more likely to have positive relationships with growth than are broader measures, but also that indexes with these positive relationships explain little of the variation in economic growth. Kolko, Neumark and Mejia (2013) examined the relationship between a large set of state business climate indexes and state economic growth with focus on growth in employment, total wages and Gross State Product. They presented detailed information on what the indexes capture and analyzed whether they predict economic growth. Indexes focused on productivity do not predict economic growth while indexes emphasizing taxes and costs predict growth of employment, wages and output.

The results of Commander and Svejnar (2011) indicate that widely used country-level indicators of business environment provided by the Heritage Foundation and the World Bank do not provide much evidence of a negative relationship between the constraining environment and firm performance. VanMetre and Hall (2011) examined the relationship between six national indices that are often used as indicator of how “business friendly” is state and entrepreneurial activity among the fifty US states. They found that many of the business climate indices are not useful in explaining entrepreneurial activity and further research is needed to better understand the relationship between these indices and entrepreneurship.

The outlined literature review shows different findings on existence of relation between business climate indices and economic growth. There is also a gap in relevant literature focused on Central European countries in this field. Therefore, the aim of the article is to investigate the relationship between different indices of the quality of business environment on one side and selected macroeconomic indicators and country's credit rating on the other side. The analysis concentrates on the countries of V4 region.

3. Data and Methodology

Following indices of the quality of business environment are analyzed in this paper: Ease of Doing Business (*EoDB*) created by the World Bank Group, Global Competitiveness Index (*GCI*), Index of Economic Freedom (*IoEF*), rating from The World Competitiveness Yearbook (*WCY*) and Fragile State Index (*FSI*). For Ease of doing Business, Global Competitiveness Index and rating from The World Competitiveness Yearbook we used ranking, so that the lower value is better. In case of Index of Economic Freedom and Fragile State Index we used index value (a higher value of these indices means the higher quality of the environment).

We use the real gross domestic product growth rate (*RGDP*), unemployment rate (*Unempl*) and inflation rate (*Infl*) as the macroeconomic indicators and the results of the country's credit rating evaluated by Moody's (*M*), Standard & Poor's (*SP*) and Fitch Ratings (*F*).

The analysis is based on the country level data for the 2005 – 2014 periods in case of the values of the business environment indices. In case of the macroeconomic indicators and country's credit ratings we used data for the 2004 – 2013 periods in order to find out, whether the trends of development of these variables is reflected in the business environment indices. The focus is on four countries of Visegrad region – Slovakia (*SK*), Czech Republic (*CZ*), Hungary (*HU*) and Poland (*PL*). The dataset is derived from the official statistical reports of World Bank, World Economic Forum, and Institute for Management Development, The Heritage Foundation, Fund for Peace and Eurostat. The analysis is performed through correlation analysis using Pearson as well as Spearman correlation coefficients in which values of dependent variables business environment indices in particular period were correlated with values of explanatory variables in previous period.

4. Results and Discussion

Following table 1 shows basic descriptive characteristics and testing statistics of studied variables.

Table 1 Descriptive characteristics and testing statistics of studied variables for V4 countries

Variable	Mean	Std Dev	Median	Min.	Max.	Kolmogorov-Smirnov test	p Value
EoDB_SK	40.40000	5.75809	39.00000	32.00000	49.00000	0.22256354	>0.150
IoEF_SK	68.69000	1.39956	69.45000	66.40000	70.00000	0.29402820	0.015
GCI_SK	55.60000	16.98496	53.50000	32.00000	78.00000	0.19368760	>0.150
WCY_SK	41.20000	6.98888	42.50000	30.00000	49.00000	0.20668322	>0.150
FSI_SK	137.20000	13.62025	143.50000	111.00000	146.00000	0.40987621	<0.010
Unem_SK	13.67000	1.89798	13.50000	9.50000	16.30000	0.18410846	>0.150
RGDP_SK	4.20000	4.50111	5.20000	-5.50000	10.80000	0.17924041	>0.150
Infl_SK	3.13000	2.04072	3.25000	0.70000	7.50000	0.18321204	>0.150
M_SK	14.50000	0.70711	15.00000	13.00000	15.00000	0.36024994	<0.010
SP_SK	15.10000	0.87560	15.00000	13.00000	16.00000	0.35453644	<0.010
Fitch_SK	15.40000	0.96609	16.00000	13.00000	16.00000	0.33271960	<0.010
EoDB_HU	51.00000	6.91215	51.50000	41.00000	66.00000	0.23213749	0.128
IoEF_HU	66.18000	1.32648	66.70000	63.50000	67.60000	0.22423664	>0.150
GCI_HU	53.00000	8.85689	55.00000	39.00000	63.00000	0.21380409	>0.150
WCY_HU	42.80000	5.02881	43.50000	35.00000	50.00000	0.16911822	>0.150
FSI_HU	135.70000	10.43552	141.00000	116.00000	142.00000	0.38722063	<0.010
Unem_HU	8.94000	1.91903	8.90000	6.10000	11.20000	0.22376096	>0.150
RGDP_HU	1.04000	3.35963	1.30000	-6.60000	4.90000	0.22445977	>0.150
Infl_HU	4.82000	1.80296	4.35000	1.70000	7.90000	0.17537614	>0.150
M_HU	12.00000	2.53859	12.50000	9.00000	15.00000	0.18460444	>0.150
SP_HU	10.80000	1.39841	11.00000	9.00000	14.00000	0.34313743	<0.010
Fitch_HU	12.10000	1.79196	12.00000	10.00000	16.00000	0.20774791	>0.150

Variable	Mean	Std Dev	Median	Min.	Max.	Kolmogorov-Smirnov test	p Value
EoDB_CZ	60.90000	12.40475	63.50000	41.00000	75.00000	0.16721573	>0.150
IoEF_CZ	68.91000	2.28106	69.60000	64.60000	72.20000	0.18504331	>0.150
GCI_CZ	36.00000	4.83046	36.50000	29.00000	46.00000	0.16728040	>0.150
WCY_CZ	31.60000	2.67499	31.50000	28.00000	36.00000	0.13446660	>0.150
FSI_CZ	145.30000	14.29102	152.00000	118.00000	155.00000	0.37492608	<0.010
Unem_CZ	6.77000	1.14993	7.00000	4.40000	8.30000	0.27573002	0.030
RGDP_CZ	2.45000	3.70413	2.50000	-4.80000	6.90000	0.15165300	>0.150
Infl_CZ	2.44000	1.60914	2.10000	0.60000	6.30000	0.18367064	>0.150
M_CZ	15.00000	0	15.00000	15.00000	15.00000	--	--
SP_CZ	15.30000	1.25167	15.00000	14.00000	17.00000	0.29471108	0.015
Fitch_CZ	15.60000	0.51640	16.00000	15.00000	16.00000	0.38071099	<0.010
EoDB_PL	61.50000	14.80428	66.00000	32.00000	76.00000	0.21706967	>0.150
IoEF_PL	62.21000	3.07840	61.75000	58.10000	67.00000	0.23251984	0.127
GCI_PL	45.50000	4.99444	44.50000	39.00000	53.00000	0.19165835	>0.150
WCY_PL	42.40000	10.17841	40.00000	32.00000	58.00000	0.23525410	0.116
FSI_PL	140.00000	14.20485	144.50000	113.00000	153.00000	0.35598483	<0.010
Unem_PL	11.49000	4.04240	9.85000	7.10000	19.00000	0.31576606	<0.010
RGDP_PL	4.01000	1.90464	3.80000	1.30000	7.20000	0.12302755	>0.150
Infl_PL	2.90000	1.18415	3.15000	0.80000	4.20000	0.22278636	>0.150
M_PL	14.00000	0	14.00000	14.00000	14.00000	0.52408518	<0.010
SP_PL	13.90000	0.31623	14.00000	13.00000	14.00000	--	--
Fitch_PL	13.70000	0.48305	14.00000	13.00000	14.00000	0.43271960	<0.010

Source: own processing

Tables 2 and 3 show the results of correlation analysis using Pearson correlation coefficients and Spearman rank correlation coefficients. We used both correlations, because Pearson correlation strictly requires that the two variables follow the normal distribution, but Spearman rank correlation does not have such requirement. After checking the data set, we found that according to Kolmogorov-Smirnov test (Table 1) not all the variables are normally distributed. Use of Pearson correlation coefficient showed existence of considerably lot statistically not significant relations. Relatively more statistically significant relations among indices of business environment and macroeconomic indicators of particular country have been detected using Spearman rank correlation coefficient that can indicate existence of rather non-linear relationship between studied variables.

Table 2 Pearson correlation coefficients for V4 countries

	Unempl		RGDP		Infl		M		SP		Fitch	
EoDB_SK	-0.11952		-0.41456		-0.19403		0.16374		0.45399		0.54728	
IoEF_SK	-0.46162		0.24111		-0.41809		0.55576	*	0.35452		0.19229	
GCI_SK	-0.19099		-0.54196		-0.49744		0.22203		0.60068	*	0.76922	***
WCY_SK	0.31552		-0.80284	***	-0.28560		-0.11242		0.41398		0.39824	
FSI_SK	-0.73982	**	-0.23815		-0.54030		0.70375	**	0.66895	**	0.80388	***
EoDB_CZ	-0.72698	**	-0.17979		0.48895		--		0.25977		0.33997	
IoEF_CZ	-0.34002		-0.69743	**	-0.05340		--		0.81219	***	0.86215	***
GCI_CZ	0.27604		-0.52536		-0.11007		--		0.66158	**	0.48998	

	Unempl		RGDP		Infl		M		SP		Fitch	
WCY_CZ	0.64946	**	0.01682		-0.06557		--		0.27212		-0.04826	
FSI_CZ	-0.57815	*	-0.53430		0.10137		--		0.65284	**	0.71064	**
EoDB_HU	0.08795		0.38230		-0.47967		-0.09498		-0.13794		-0.10765	
IoEF_HU	0.64854	**	-0.50792		0.00390		-0.66982	**	-0.76911	***	-0.79839	***
GCI_HU	0.53082		-0.46527		0.05984		-0.63749	**	-0.74459	**	-0.70708	**
WCY_HU	0.80918	***	-0.37039		-0.32671		-0.85295	***	-0.70152	**	-0.84831	***
FSI_HU	0.68034	**	-0.59733	*	-0.10181		-0.67107	**	-0.65175	**	-0.74094	**
EoDB_PL	0.04447		0.62477	*	0.16543		--		0.17800		-0.28744	
IoEF_PL	-0.51090		-0.72715	**	0.01676		--		0.29790		0.71957	**
GCI_PL	0.55557	*	0.72360	**	-0.31187		--		-0.38693		-0.62175	*
WCY_PL	0.83428	***	0.47491		-0.24614		--		-0.50400		-0.89944	***
FSI_PL	-0.84231	***	-0.21684		-0.08257		--		0.66786	**	0.77727	***

Source: own processing

*Notes: Pearson correlation coefficients, ***, **, * denote significance at 1, 5 and 10 % levels, respectively*

Table 3 Spearman correlation coefficients for V4 countries

	Unempl		RGDP		Infl		M		SP		Fitch	
EoDB_SK	0.03049		-0.61587	*	-0.22561		-0.05931		0.45705		0.75012	**
IoEF_SK	-0.36970		0.52727		-0.32121		0.47161		0.20113		-0.27742	
GCI_SK	-0.15152		-0.69697	**	-0.41818		0.12484		0.49935		0.87386	***
WCY_SK	0.31611		-0.85107	***	-0.43161		-0.01739		0.65044	**	0.57739	*
FSI_SK	-0.21474		-0.60741	*	-0.41107		0.12638		0.37914		0.88465	***
EoDB_CZ	-0.70031	**	-0.20061		0.50610		--		0.47338		0.32077	
IoEF_CZ	-0.32318		-0.76970	***	-0.21277		--		0.89893	***	0.85280	***
GCI_CZ	0.14724		-0.60367	**	-0.01529		--		0.58788	*	0.46476	
WCY_CZ	0.57362	*	-0.14025		0.10703		--		0.13566		0.00000	
FSI_CZ	-0.52015		-0.75086	**	-0.04939		--		0.95851	***	0.86603	***
EoDB_HU	0.17847		0.36199		-0.56618	*	-0.26251		-0.44409		-0.38246	
IoEF_HU	0.48632		-0.61212	*	0.13982		-0.62356	*	-0.67858	**	-0.59457	*
GCI_HU	0.52134		-0.66870	**	0.10366		-0.70597	**	-0.75971	**	-0.66471	**
WCY_HU	0.80793	***	-0.46201		-0.25610		-0.84840	***	-0.76658	***	-0.94426	***
FSI_HU	0.92403	***	-0.66172	**	-0.10412		-0.82610	***	-0.50259		-0.82208	***
EoDB_PL	-0.16566		0.57576	*	-0.06667		--		0.29013		-0.26591	
IoEF_PL	-0.34463		-0.63830	**	0.15198		--		0.29101		0.80015	***
GCI_PL	0.50001		0.63416	**	-0.47562		--		-0.35028		-0.57329	*
WCY_PL	0.62964	*	0.48172		-0.46342		--		-0.40867		-0.80260	***
FSI_PL	-0.20924		-0.36474		-0.14590		--		0.52382		0.64774	**

Source: own processing

*Notes: Spearman correlation coefficients, ***, **, * denote significance at 1, 5 and 10 % levels, respectively*

Considering the results of the research, we cannot conclude that there are clear relations among business environment indices and macroeconomic indicators. Reasons can be sought in way of construction of analyzed indices of business environment, because they take into account official macroeconomic data of particular country on one hand as well as rather subjective perception of quality of business environment based on questionnaires on the other hand. Similarly, Körner, Kudrna and Vychodil (2002) argue that the indices are typically set to evaluate different aspects of the business environment and they are able to distinguish between strenghts and weaknesses of country's institutional framework. However, the indices themselves are unable to answer the

question of why some components are better or worse, they also do not answer the question of whether these differences are real, or if it is just the difference in the perception of respondents. This apparent incompleteness can be removed only through deeper penetration into the problem in studies focused on specific countries and in comparative studies.

The most controversial relationships were found among business environment indices and country's credit rating. It can be explained by the fact that rating agencies take into account slightly different and more limited views on the country's business environment especially from riskiness of doing business point of view and they are more rigid in their evaluation that is not changing on regular basis. Business environment indices are more flexible and published regularly on yearly basis. The investors by their decision making on location of their investment usually respect the view of reputable rating agencies more than results of country's evaluation from different nongovernment organizations. Also, the change in country's credit rating can cause significant fluctuations of investment activity. As Ozturk (2014) states, although sovereign credit ratings constitute a small part of the credit rating industry, the impact of unexpected downgrades or upgrades has a huge potential to distort a well-functioning financial system. The rating agencies have recognized this fact and they are quite cautious in changing their evaluation of particular countries. Only in case of Poland, the evaluation through indices of business environment corresponds with country's credit rating. The reasons might be found in the fact that Poland has relatively closed economy in comparison to Slovak economy that is generally considered to be small, open and export-oriented (Bobenič Hintošová, Hliboká, 2015).

We can conclude that such meanings of different private entities often do not correspondent with official macroeconomic view on the environment. Thus, the business environment indices connect "macroview" with more "microview". Different nature of relation among studied variables in different countries might evoke different view of respondents on microeconomic business environment in particular countries. Hence, the relation among business environment indices and macroeconomic indicators are according to us country specific. Similar results can be found in work of Commander and Svejnar (2011) or Besley (2015). Further research in this field, especially from the foreign direct investment point of view and their relationship to business environment indices respectively macroeconomic indicators could prove if the investors by their decision making on their investment abroad are driven by official evaluation of macroeconomic environment or rather by more complex indicators.

5. Conclusion

In our study, we identified the existence of statistically significant relationship among chosen of analyzed indices of the quality of business environment and macroeconomic indicators or country's credit rating in all four countries from Visegrad region. The contradictory relations were found among business environment indices and country's credit rating. We also cannot prove the clear and unambiguous relationship among business environment indices and macroeconomic indicators. According to results of our analysis we can conclude that relationship between different indices of the quality of business environment on one side and selected macroeconomic indicators and country's credit rating on the other side is country specific and it is hardly possible to generalize it. As Besley (2015) states, such differences reinforce the need to look beyond the

aggregate measures and to drill down into specific performances across the indicators. Also a use of panel data analysis would be a useful extension.

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7. References

Besley, T. (2015). Law, Regulation, and the Business Climate: The Nature and Influence of the World Bank Doing Business Project. The Journal of Economic Perspectives, (3), 99.

Bittlingmayer, G., Eathington, L., Hall, A. P., & Orazem, P. F. (2005). Business Climate Indexes: Which Work, Which Don't, and What Can They Say About the Kansas Economy?. Kansas Incorporated.

HINTOŠOVÁ, A. E. (2015). The Relationship between Industry Structure and International Competitiveness: Evidence from a Small Open Economy. Journal of Applied Economic Sciences, 10(5), 35.

Commander, S., & Svejnar, J. (2011). Business environment, exports, ownership, and firm performance. The Review of Economics and Statistics, 93(1), 309-337.

Djankov, S., McLiesh, C., & Ramalho, R. M. (2006). Regulation and growth. Economics Letters, 92(3), 395-401.

Dudáš, T. (2012). VÝVOJ KONKURENCIESCHOPNOSTI ŠTÁTOV VYŠEHRADSKEJ SKUPINY V ROKOCH 2001 - 2011 VO SVETLE MEDZINÁRODNÜCH INDEXOV KONKURENCIESCHOPNOSTI. (Slovak). USING INTERNATIONAL COMPETITIVENESS INDICES TO ANALYZE DEVELOPMENT OF VISEGRAD COUNTRIES COMPETITIVENESS IN 2001 - 2011. (English), (2), 58.

Gillanders, R., & Whelan, K. (2014). Open For Business? Institutions, Business Environment and Economic Development. Kyklos, 67(4), 535-558.

Kolko, J., Neumark, D., & Mejia, M. C. (2013). What do business climate indexes teach us about state policy and economic growth?. Journal of Regional Science, 53(2), 220-255.

Körner, P., Kudrna, Z., & Vychodil, O. (2002). Měření kvality podnikatelského prostředí ve střední Evropě. Czech Journal of Economics and Finance (Finance a uver), 52(12), 674-697.

Ozturk, H. (2014). The origin of bias in sovereign credit ratings: Reconciling agency views with institutional quality. The Journal of Developing Areas, 48(4), 161-188.

VanMetre, B., & Hall, J. C. (2011). How Friendly to Entrepreneurs are'Business Friendly'Policies? Some Preliminary Results. Some Preliminary Results (June 29, 2011).

Social Business in the Czech Republic – New Approach to Employment

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***Abstract**: Social entrepreneurship is characterised by a high degree of creativity and innovation, not only in technical terms but also in relation to management-social aspects. Social entrepreneurship is a relatively young sector which is not legally addressed in the Czech Republic. Its development dates back to the 19th century but its main development comes in the second half of the 20th century. In the CR there is a missing government conception of social entrepreneurship and legislative definition of the social business which would direct the formation and development of social businesses in a long–term horizon.*

Keywords: social entrepreneurship, social enterprise, social economy, disadvantaged people

JEL codes: M14, O35, P31, Z13

1. Introduction

The term social economy started appearing in the 1930s; however, the term social enterprise is much younger. In the past, the terms social entrepreneurship and social enterprise were almost unknown. Nevertheless, the term currently gains recognition and its popularity is on the rise (Dohnalova, 2012).

Social economy is believed to come from France. French economist Charles Dunoyer first published the term social economy in his publication titled Nouveau traité d'économie sociale where he advocated the moral conception of economy (Monzon, Chaves, 2012). One of the social entrepreneurship pioneer was Billa Drayton, the founder of Ashoka (1980s). Ashoka is the largest network of social entrepreneurs, with about 3,000 members from 70 countries (Ashoka, 2015).

The social economy and social entrepreneurship principles are based on triple benefits called"triple bottom line". A business following this triple bottom line or triple accountability presents to the citizens that it does not only focus on the economic side of business but also the environment and social capital. The triple bottom line was first created in 1994 by John Elkington. He split the three lines for businesses: the first of them is the profit and loss statement, the second is people and the third is the Planet (Meszaros, 2008).

Social entrepreneurship is also characterised by a high degree of creativity and innovation, not only in the technical sense, but also in the managerial and social perspectives (Svoboda, 2010). Social entrepreneurship is a relatively young sector which is not legally addressed. It is mainly viewed from the point of view of the NGO sector (Dohnalova, 2012). In the not-for-profit sector, the social business could have a form of a public benefit company or civic association (Halasova, 2013). However, this was only true until the end of 2013. Since 2014, these legal forms have disappeared and have been transformed into cooperatives, institutions and associations (Zakon, 2012). Furthermore, according to Malík Holasová, the legal forms of social businesses in the

Czech Republic are cooperatives and limited liability companies. Other legal forms defined by the Commercial Code are possible; however they are hardly ever used as they are not fitted for social entrepreneurship.

The key objective of social economy is to bring disadvantaged people to the labour market and thus reduce the dependence of people on public support in unemployment. The state encourages social entrepreneurship at the start of its activities, strives after facilitating the conditions for the formation and development of such an enterprise. Social enterprise is understood as a business employing people from target groups (the target groups are listed in chapter 1.1): „*It is built upon the partnership of the public and private sectors in providing public services and encouraging public employment policy*" (Hunčova, 2007). Thus, social business is quite unique as both these sectors closely cooperate and it may be understood as social policy executors. This is the main reason why the social enterprises receives abundant funds from the CR as well as EU budgets. Despite this funding, the social business remains independent and its decision-making on its business operation must not be influenced by anyone from the outside.

1.1. Social business

In her book titled Social Entrepreneurship and Social Business (2012), Christine K. Volkmann states that a uniform definition of social entrepreneurship has not been formed to date. Various definitions vary from very narrow to very broad understanding. Social entrepreneurship is described here as an opportunity for social changes rather than profit orientation in the traditional sense of the word. Social entrepreneurship is related to increasing the amounts of funds used to address social issues (Volkmann, Tokarski, Ernst, 2012).

In the Czech social environment we can find various definitions for the social business. According to Hunčová (2007), a social business usually provides specific services of general interest, including employment services and employment, and risk protection both for the members as well as local communities rather than amassing profits. Thus, social entrepreneurship is an activity performed not only to generate profits and at the same time it is not just about providing care to those in need (Holasova, 2013). According to Malík Holasová, continuous economic activity must also be performed.

In order to consider a business as social, it must meet 4 criteria:

- A minimum of 40 % of the employees must come from the target groups of disabled or otherwise socially excluded people.
- Effort to engage the employees to the decision-making process in the maximum possible extent.
- A minimum of 51 % of the profit must be reinvested in further business development.
- Orientation to the local community and use of local sources (Česke Socialni Podnikani, 2016).

The target groups defined for social entrepreneurship are mainly the following: disabled people, people approaching retirement age, migrants, mothers returning from maternity leave, mothers - single parents with small children, long-term unemployed, young people without work

experience, people released from prison, homeless people, adolescents from children's homes, people on a low income (Volkmann, Tokarski, Ernst, 2012).

In 1980, the National Council for relations between mutual companies, cooperatives and associations issued the Charter of Social Economy. It defines the social economy as *„a group of organisations that do not belong to the public sector, which are democratic and have a special profit allocation system for its further development and improvement of services for its members and the society."* (Dohnalova, 2012).

Main values listed in the Charter of Social Economy:

- Promotion of the democratic principle,
- Decision-making based on the principle: one person = one vote,
- Members are freely engaged in the organisation,
- Relationships are reinforced through education and awareness,
- Right to the entity development,
- Right to surplus: this may not be used for the benefit of people in the enterprise (Wildmannova, 2012).

One example of a special type of social business is WISE (Work Integration Social Enterprises), primarily aimed at people with disabilities. These enterprises emerged in Europe at the beginning of 1970 and are financed by long-term subsidies [7]. However, not all experts understand WISE as one of the potential variants of social business. It is a business with social responsibility but it need not meet the criteria of a social business.

In his book titled Social Business, economist Muhammad Yunus (2014) presents 7 principles of social business:

- Business objective will be to overcome poverty, or one or more problems which threaten society,
- Financial and economic sustainability.
- Investors get back their investment amount only. No dividend is given beyond investment money.
- When investment amount is paid back, company profit stays with the company for expansion and improvement.
- Environmentally conscious.
- Workforce gets market wage with better working conditions,
- The last but not least important message says: do it with joy! (Yunus, 2014)

Social enterprises can come up with innovative solutions in those areas where the market and the government fails or in those areas where their invisible or administrative hands have no reach. The innovativeness of social businesses can be captured by using Schumpeter's theory according to which the entrepreneur inventing and applying new combinations in the production contributes to economic development. These new production combinations are understood by Schumpeter as: changes in the launching a new product or new product quality, introducing new methods of production, opening up of new markets, acquiring new sources of raw material and new industry structure (Defourny, 2004). According to Defourny (2004) all these five combinations may be observed in social economy and social entrepreneurship.

Table 1. Principles of social business

Principles of social business	1. Social benefit	2. Economic benefit	3. Environmental and local benefit
Public beneficial objective formulated in the incorporation documents and via specific activities	a) the conducted activities benefit the society or a specific group of people b) participation of employees and members in the business orientation	a) potential profit is preferentially used to develop the social business a/or top meet public beneficial objectives b) independence of managerial decision-making and management on external founders or incorporators c) ability to manage economic risks d) at least a minimum share of revenues from the sale of products and services in the total revenues e) restricted assets disposal rights (the so-called Asset lock) f) systematic economic activity g) trend towards paid work.	a) preferential addressing of the needs of the local community and local demand b) preferable use of local resources c) respect for environmental aspects of production and consumption d) cooperation between social business and local stakeholders.

Source: Ceske Socialni Podnikani. 2016

2. Material and Methods

Accurate statistics on the number of social enterprises in the Czech Republic cannot be obtained from government sources. This is due to the fact that no such comprehensive study focusing on social enterprises has ever been developed. Such a study would in fact be very difficult especially in terms of classifying who falls under the social enterprise definition and who does not. The Czech Social business website currently registers about 224 social enterprises (Dohnalova, 2012).

This paper aims to assess the current problems faced by social enterprises in the Czech Republic. To evaluate the selected issues – legal and financial environment - the chosen questionnaire survey method was selected.

2.1. Empirical survey

In spring 2016, a questionnaire survey was conducted, which focused on the opinions and views of the social enterprises themselves on legal, financial and business environment. The questionnaire survey was carried out via an online questionnaire distributed in the Czech Republic to a total of 110 social enterprises. The selection of these enterprises was random for the purpose of objectivity from the social enterprises address book available on the website of the Czech Social Entrepreneurship. The online questionnaire contained 14 questions, of which 4 were open questions (they related to the legal form and, potentially, adopted legislation), other questions enabled multiple answers.

As part of the questionnaire survey, the following date were requested from the respondents: the legal form of social enterprise, strengths and weaknesses of the social enterprise in terms of basic principles, most frequent problems, financial environment (subsidies, profit distribution), assessment of legislative conditions for social businesses employing people.

The questionnaire response rate was 30%, of 110 questionnaires sent a total of 33 social enterprise responded, representing about 15% of the unofficial address book of social enterprises.

3. Results and Discussion

The questionnaire survey was most frequently reacted to by social enterprises with the legal form s.r.o. “limited” (34%), o.p.s. “civil society organisation” (24%), and cooperatives (9%). We also received responses from institutes (6%), self-employed and civil associations.

This question was directly followed up by another part, i.e. the reason behind selecting the legal form of social enterprise. The most common answers were: the will to be a “"normal” company (Ltd.), closest to the ideas of social entrepreneurship (mainly social cooperatives), clarity, credibility (mostly o.p.s.). Other reasons for the organisation included: simple formation, business experience with the specific legal form, possibility to apply for grants, possibility to work with people with disabilities.

The strengths of the social enterprise included employing marginalised groups (72%), followed by social benefits (57%) and publicly beneficial objective (27%), economic benefits (21%). Less than 20% of the respondents mentioned local benefits, use of local sources and environmental benefits.

Another question was aimed at identifying the most common problems of social enterprises. A total of 24% of the social enterprises mentioned financial resources and employees (amateurism, lack of employees) as the most common problem in their functioning. The respondents specified that in certain cases they needed to employ two people at the same time e.g. as part-time job - a disabled person and a person without any limitation. This was followed by inadequate legal definition to (18%) combined with a weak interest of the public administration in the third sector.

Most often, the social enterprises receive funds from contributions to employees (45.5%), which is followed by their own funds (33%). This is followed by grants (24%) and donations (18%).

In meeting the social, economic, environmental and public benefits, the social enterprises often need assistance at the start of their business and for its further functioning. The respondents use most often EU funds (54.5%) for their functioning and grants from other organisations (24%). A total of 24% of respondents stated that they did not receive any financial support.

The social enterprise status indicates that the social enterprise is not a business striving primarily after profits. Profit in this sense is understood as "surplus" or "good housekeeping" resulting in meeting the objectives of the social enterprise and its further development. When asked whether the social enterprise generated any profits in the past year a total of 70% respondents reported yes, 24% of the respondents said no (not all respondents answered this question in the survey).

As regards the adoption of the law on social entrepreneurship, a total of 58% of the respondents agreed. What they would appreciate as a change and support from the state would be the definition of social entrepreneurship, support or financial and tax relieves and preferential treatment in public procurement.

One of the positive effects of social enterprise on the society is the employment and integration of marginalised people into the society. The survey showed that the social enterprises employ most people with disabilities (66.6%) and the long-term unemployed (54.5%). Above all, it is a physical type of disability (51%) and mental disability (42%). A total of 30% of respondents stated that they did not employ people with disabilities.

4. Conclusion

The aim of this paper was to assess the current problems faced by social enterprises in the Czech Republic. The survey was based on the results of a questionnaire survey, the businesses were selected randomly from the database of the address book of social enterprises. The survey results clearly indicate that in the CR there is a lack of government conception of social entrepreneurship directing the formation and development of social enterprises in the long run. The businesses lack a unified financial and subsidy support and preferential treatment in public procurement. The most commonly employed groups are the long-term unemployed and people with disabilities.

The draft Social entrepreneurship Act is currently undergoing the comment proceedings. It is expected that the first version could be discussed in the Parliament at the turn of 2017.

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6. References

ASHOKA. 2015. *Innovators for the public*. Available from: http:// https://www.ashoka.org/about

ČESKÉ SOCIÁLNÍ PODNIKÁNÍ. 2016. *Co je sociální podnikání: základní atributy*. Available from: http://www.ceske-socialni-podnikani.cz/cz/component/content/article/9-uncategorised/519-co-je-socialni-podnikani-zakladni-atributy

ČESKÉ SOCIÁLNÍ PODNIKÁNÍ. 2016. Principy sociálního podniku. Available from: http://www.ceske-socialni-podnikani.cz/cz/socialni-podnikani/principy-a-definice

DEFOURNY, J., 2004. *Social Entreprise in Enlarged Europe. Concept and Realities*. Available from:http://www.emes.net/fileadmin/emes/PDF_files/Articles/Defourny/Defourny.Soc.ent.CEE.3.06.pdf

DOHNALOVÁ, M. a kol. 2012. *Sociální ekonomika, sociální podnikání. Podnikání pro každého*. Praha: Wolters Kluwer ČR

HUNČOVÁ, M. 2007. *Sociální ekonomika a sociální podnik*. Ústí nad Labem: Univerzita J. E. Purkyně v Ústí n. L.

MALÍK HOLASOVÁ, V. 2013. *Sociální práce v kontextu sociálního podnikání*. Ostrava: Marionetti press

MÉSZÁROS. P. et. al. 2008. *Sociální podnikání: 10 úspěšných příkladů z Evropy*. Praha: Nový prostor

MONZÓN, J. L., CHAVES, R. 2012. Sociální ekonomika v Evropské unii: Shrnutí zpraáv vypracované pro Evropský hospodářský a sociální výbor. *In: European Economic and Social Committee.* Available from http:// http://www.eesc.europa.eu/?i=portal.en.innovation-publications

SVOBODA, J. 2009. *Informace o konání a průběhu mezinárodní konference o sociální ekonomice*. Družstevní Asociace ČR. Available from: http://www.dacr.cz/info_socialni.php

VOLKMANN, Ch. K., TOKARSKI, K. O., ERNST, K. 2012. *Social entrepreneurship and Social Business. An Introduction and Discussion with Case Studies*. Publisher: Gabler Verlag

WILDMANNOVÁ, M. 2016.Blank Spots in Social Business Activities. Case Study at the Local Level. In Dagmar Špalková, Lenka Matějová. *Current Trends in Public Sector Research. Proceedings of the 20th International Conference*. Brno: Masaryk University, 432-440.

YUNUS, M., 2014. *Building Social Business: The New Kind of Capitalism that Serves Humanity´s Most Pressing Needs*. PublicAffairs. New York.

ZÁKON č. 89/2012 Sb., *občanský zákoník* § 306. (Act No. 89/2012 Coll.)

Are Engaged Employees More Satisfied and Personally Attached? A Process Model Approach

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Abstract: *The attractiveness of employee engagement between business employees has motivated numerous practitioner studies. But, those studies have been performing from the finance or marketing point of view. However, organizational behaviour point of view limited theoretical studies have been conducted, particularly how employee engagement important for employees. The purpose of this research was to investigate what are the consequences of employee engagement in service sector of Pakistan. The collection of data has been done through questionnaire which was prepared to gauge the variables. Overall 301 useable questionnaires are used from which average age and working experience are 25-29 years and 2-5 years respectively whereas on the flip side 67 percent respondents are said to be male. The results of multiple regression analysis and confirmatory factor analysis strongly support the hypothesized relationships. Human resources department of the Service sector may implement the findings of this research to enhance the employee engagement in their respective organizations.*

Keywords: Job satisfaction, intrinsic rewards, employee engagement, Personal Attachment

JEL codes: C22, O31

1. Introduction, theoretical basis and hypotheses

Work engagement has been a research area of great interest for researchers since last few decades. Academic research also shows that work engagement is related to organizational variables such as job satisfaction, turnover intentions, emotional demands, organizational commitment, social support, health, subjective well-being, organizational citizenship behaviors and task performance. Research has also demonstrated that work engagement is related to contextual variables, such as job control and workload. Personality variables such as optimism, self-efficacy, and conscientiousness have also demonstrated a moderate relationship to the construct of work engagement. At the same time, many consulting firms interpret the concept of employee engagement differently. As Harter et al. (2002) from the Gallup Organization interpret employee engagement as the satisfaction and involvement of individual with the assigned work (p. 269).

The purpose of this research is to observe the feasible consequences of the employee engagement in the service sector of Pakistan. The objectives of this research include; examine

the effect of employees' engagement on Job satisfaction. Observe the relationship among employees' engagement and Personal attachment with organization. Examine the association among employees' engagement and rewards from job and organization. And also examine the effect of employee engagement on relationship with supervisor.

Employee engagement has been conceived in three different prospective in previous research. Kahn (1990) advocated employee engagement as a multifaceted impression. Shuck and Wollard (2010) said that Kahn's work about the concept of employee engagement is groundwork in establishment of its theoretical framework. As stated by Kahn (1990) that people are expressed and emotionally involved in employee engagement. Cognitive fraction of employee engagement is associated with the thoughts of employees regarding their leaders, organization and work conditions while the feelings of employees are linked with the emotional component of employee's engagement. These feelings are on the subject of the above mentioned factors including the attitude of employees regarding their organizations and leaders.

On the flipside Burnout researchers pointed out towards the second method to the concept of engagement which was a positive antithesis or reverse to the burnout three aspects including inefficacy, cynicism and exhaustion (Shuck & Wollard, 2010). Consequently, burnout becomes "an erosion of engagement with the job" (Maslach, Leiter, & Schaufeli, 2001).The third method for the engagement of employees was introduced by Schaufeli et al (2002) they gave a special observation regarding burnout theory of engagement they were of the view that there is "A positive fulfilling, work –related state of mind that is characterized by vigor, dedication, and absorption".

The basis for this study was adopted from the work of Schaufeli et al (2001) which employ conceptualization as the expression of engagement because of the following three grounds Firstly the engagement of employees was not defined by Kahn (1990) even though he introduced a theoretical foundation for it (Kim et al., 2009); secondly Maslach & Leiter (1997) proposed a corresponding relationship between engagement and burnout and that is not an independent relationship; Lastly definition and the gauging of engagement (UWES) are refried and utilized many times in different researches and it is also comprehension discussed in the literature of engagement (Bakker & Schaufeli, 2008). So this study is focusing in the engagement of employee's definition by Schaufeli's.

Job Satisfaction is the "positive or pleasurable emotional state resulting from one's own appraisal of the job or of one's own work experience" (p.1300). The two factor theory also suggests that job satisfaction and dissatisfaction are independent and not inversely proportional to each other. As motivating factors will increase job satisfaction but will not decrease job dissatisfaction to decrease job dissatisfaction one has to reduce lack of hygiene factors but still it won't increase job satisfaction (Schermerhorn, Hunt, & Osborn, 2004).
Therefore, on the basis of research finding and relevant theories, the proposed hypotheses are:

H1: Employee engagement is positive association with personal attachment to organization
H2: Employee engagement is positively associated with job satisfaction
H3: There is a positive linkage among employee engagement and rewards from job and organization.
H4: There is a positive linkage between employee engagement and relationship with supervisor.

H5: Rewards from job and organization is significantly impact on job satisfaction.
H6: Relationship with supervisor is significantly impact on personal attachment to organization.
H7: Rewards from job and organization mediate the association among employee engagement and job satisfaction.
H8: Relationship with supervisor mediates the association among employee engagement and personal attachment to organization.

2. Methodology

Sample and Population: This study was conducted on four different sectors from overall services sector of Pakistan. The sector included Universities (Govt., Semi Govt. and private), Telecommunication (Ufone, Jazz, Warid, Telenor and zong), Banks (UBL, ABL, HBL, MCB and NBP) and Hospital (Govt. and private). However limited time and financial resources this study used 304 respondents. Data were collected from respondents from the services sector employees who are working in different cities of Pakistan.

Data Collection: In this study self-reported questionnaire was used for collection of data. The questionnaire was perception based and self-reported. By keeping in mind cost and benefit analysis questionnaire was sent to public and private employees of services sector through own personal visit, emails and courier services. About 600 questionnaires was send to population but 304 responses were good for study and after data screening 301 responses were reported due to outlier problem. AMOS 18 and Statistical Package for the Social Sciences (SPSS 16) program were used to analysis the data.

The questionnaire divided into six (6) parts. The first part of the questionnaire includes the personal information about the respondents, like age, nature of job, gender, qualification and work experience. Second part of the questionnaire included the questions regarding work engagement. Schaufeli and Bakker's (2003) 9 items work and wellbeing survey was used.

The third Part of the instrument was included the 3 items of job satisfaction. Cammann, Fichman, Henkins, and Klesh (1979) develop the employees' job satisfaction measurement scale, which is adopted in this study. Six items were adopted for measure the affective organizational commitment, out of which five questions were adopted from Affective commitment scale (Meyer, Allen, & Smith's 1993), and one item from Organizational commitment questionnaire (Mowday, Steers, & Porter's 1979). The remaining parts of the questionnaire were included the questions about Rewards from My Job & Organization and Relationship with My supervisor (Leader-Member Exchange: LMX). In reward variable eight items was used, out of which four items were adopted from Lawler and Hall's (1970) and other four items are adopted from Davenport and Prusak (1998).

3. Data Analysis and Results

301 responses are being taken as a sample size for the study in which majority of respondents are males having 203 responses (67.4%) while other 98 responses are of females having percentage of 32.6%. According to age groups taken in study, group of 25-29 years of age is having large number of respondents having percentage of 40.5% of total which are around 122

responses, age group of 20 or less is having 3 responses (1%). Further 59 (19.6%), 80 (26.6%), 31 (10.3%) and 31 (10.3%) respondents falls in age groups of 20-24, 30-39, 40-49 and more than 50 years respectively.

According to the nature of job, respondents who are employed on permanent basis are 162 having high percentage of 53.8% while other 139 respondents are having contract based job with percentage of 46.2% of all respondents. For the experience, respondents who have less than 1 year experience are 30 respondents having percentage of 10%. Major group of respondents which consist of 101 (33.6%) respondents are having 2-5 years of experience. Respondents who have 5-10 years of experience are 75 (24.9%) and respondents who have more than 10 years of experience are 31 (10.3%). According to the job position, large number of respondents 201 (66.8%) is employed on positions of non-managerial level while other 100 respondents are engaged of positions of managerial level having percentage of 33.3%. For the degree level, 61.2%, 29.2%, 6.6% and 2% respondents are having masters' degree, bachelor degree, M.phil and Intermediate degree accordingly.

Table 1: Profile of Respondents

Variable	**F**	**(%)**	**Variable**	**F**	**(%)**
Gender			Employed in your current organization.		
Male	203	67.4	Less than 1 year	44	14.6
Female	98	32.6	1-2 years	108	35.9
Age			2-5 years	98	32.6
20 or less	3	1.0	5-10 years	35	11.6
20-24	59	19.6	More than 10 years	16	5.3
25-29	122	40.5	Total Job Experience		
30-39	80	26.6	Less than 1 year	30	10.0
40-49	31	10.3	1-2 years	64	21.3
50-59	5	1.7	2-5 years	101	33.6
60 and above	1	0.3	5-10 years	75	24.9
Nature of Job			More than 10 years	31	10.3
Contract	139	46.2	Highest Qualification		
Permanent	162	53.8	Intermediate	6	2.0
Position			Bachelor	88	29.2
Manager	100	33.2	Master	187	62.1
Non- Manager	201	66.8	M.phil	20	6.6

Source: Authors

Table 2: Results of ANOVA test of Antecedents and Demographic Variables

Demographic Variables	Work Engagement		Job Satisfaction		Personal Attachment		Rewards		Relationship	
	F-Statistic	P-value	F-Statistic	P-value	F-Statistic	P-value	F-Statistic	P-value	F-Statistic	P-value

Gender	0.647	0.422	1.915	0.167	3.383	0.067	0.133	0.716	2.673	0.103
Age	1.956	0.072	2.477	0.024*	2.052	0.059	2.039	0.061	1.630	0.138
Nature of Job	0.029	0.864	2.317	0.129	0.002	0.966	2.403	0.122	0.044	0.834
Exp. current organization	1.193	0.314	0.733	0.570	2.230	0.066	1.031	0.391	3.672	.006**
Total job Experience	1.888	0.113	1.945	0.103	3.060	0.017*	2.757	0.028*	2.107	0.080
Position	0.021	0.884	2.322	0.129	0.092	0.762	5.187	0.023*	0.004	0.949
Qualification	0.414	0.743	1.289	0.278	1.605	0.188	0.009	0.999	3.779	0.011*

** Significant at α=0 .05 level. ** Significant at α=0 .01 level. *** Significant at α=0 .001 level.* Source: Authors

The table indicates the one – way ANOVA analysis results of variance of employee engagement and different consequences of employee engagement with demographic variables. Results shows that the work engagement is do not show the significant variation with all the demographic variables. Age of the respondent's show the significant variation with job satisfaction, total job experience show the significant variation with personal attachment and total job experience and position shows the significant variation with rewards from my job. Results also describe that the experience in current organization and highest qualification shows the significant variation with relationship with supervisor.

Table 3: Descriptive and Correlation Analysis

Variable	Mean	S.D	WE	JS	PA	RO	RS
Work Engagement	3.7512	0.55082	1				
Job Satisfaction	3.6600	0.79579	.413**	1			
Personal Attachment	3.6041	0.67389	.447**	.500**	1		
Rewards	3.6022	0.58953	.490**	.464**	.543**	1	
Relationship	3.6977	0.61572	.452**	.305**	.535**	.468**	1

Source: Authors

For the variable work engagement, value of Cronbach alpha was 0.789 which was clearly showing high consistency among the items and also advocated that items are correlated and measures the same thing. 0.686 cronbach alpha was obtain for the job satisfaction, 0.824 cronbach alpha was obtain for personal attachment with job and organization, 0.787 was obtain for the rewards from job and organization, and 0.794 was obtain for relationship with supervisor. Reliability of all items of questionnaire collectively was 0.773 which is the value of Cronbach alpha coefficients. This value showed that overall reliability is good. Overall value of Cronbach alpha determined whether internal consistency of items of questionnaire is relatively high or not.

Table 4 on the next page.

Table 4: Mediation

Hypothesis	Direct Beta w/o Med	Direct Beta w/Med	Indirect Beta	Mediation type observed	Sobel Test Value
H6	0.750***	0.709***	0.030	No Mediation	0.513
H7	0.719***	0.442***	0.226***	Partial	3.528***

**** Significant at α=0 .001 level.* Source: Authors

The above displays figure 2 indicates the path coefficients for the proposed theoretical model for consequences in this study. The statistics shows the acceptance of the model; with chi-square of 465.114 (*df*= 241), a RMSEA of 0.056, a GFI of 0.890, an AGFI of 0.863, an PGFI of 0.715, a CMIN/DF of 1.930, a RMR of 0.044, and a PCLOSE of 0.108. Overall the model was acceptable. In figure 2 the path coefficients shows the relationship among employee engagement, job satisfaction, personal attachment to my organization, rewards from my job and organization and relationship with my supervisor.

The path coefficients indicated that the relationship among the work engagement and job satisfaction was positive and statistically significant. Work engagement was also show the positive and significant effect on personal attachment to my organization. And work engagement has also significant effect on the rewards from my job and organization and relationship with my supervisor, it also shows the positive relationship among these variables.

The above figure 2 structural model of consequence of employee engagement shows the path coefficients. The first proposed Hypothesis that employee engagement is positive association with personal attachment with organization. The structural equation model results support first hypothesis (B = 0.442, p<.001), showing that the engaged employees are more committed with their jobs. The second hypothesis is that employee's engagement is positively connected with job satisfaction. The structural equation model results support second hypothesis (B = 0.709, p<.001), showing that the employees are more satisfied when they are engage in their work. The third hypothesis assumes a positive linkage between employee engagement and rewards from job and organization; the engage employees are possibly getting more rewards. The path coefficient results (B = 0.657, p<.001) indicate a positive and significant association among the employee engagement and rewards, and also support the third hypothesis. In hypothesis fourth, in this research assumed that there is a positive linkage between employee engagement and relationship with supervisor. The results support the hypothesis (B = 0.583, p<.001), and indicate a strong and positive association among employees engagement and relationship with supervisor. The fifth hypothesis assumes a significant impact of rewards from job and organization on job satisfaction. But the path coefficient results (B = 0.046, p=.605) indicate insignificant impact. Thus on the basis of results the fifth hypothesis was rejected. The 6th hypothesis assumes a significant impact of relationship with supervisor on personal attachment to organization. The path coefficient results (B=0.388, p<.001) indicate a significant impact, and also support the hypothesis. The 7th hypothesis assumes rewards from job and organization

mediate the association among employee engagement and job satisfaction. The mediation value (see table 4) shows no mediation among these variables and Sobel test value (see table 4) also support that there is no mediation among variables, thus on the basis of results the hypothesis was rejected. The 8th hypothesis assumes relationship with supervisor mediates the association among employee engagement and personal attachment to organization. The mediation value (see table 4) indicate that partial mediation was exist among the variables, the sobel test value (see table 4) also support the mediation, thus on the basis of results the hypothesis was accepted.

4. Implications/Limitations/Suggestions

Interdepartmental coordination and team interaction is of utmost importance in generating employee's engagement. So must be given due concern in service sector. Employee's engagement shall be given the top priority while drawing the strategy for organization success. Employee's relationship with the immediate supervisor is his primary bond with the organization and this bond can play an unimaginable role in ensuring personal job satisfaction and engagement of the employee. The size of the sample is low and data is gathering only from service sector of the Pakistan. For future researcher should increase the sample size and also collect the data from other sectors as well.

5. Conclusions

The results support the proposition that employee engagement is significantly and positively related with the job satisfaction of employees (Sonnentag, 2003; Saks, 2006; Schaufeli & Bakker, 2004). Engaged employees are satisfied with their jobs due to positive work experience, which they engrossed in their jobs. Engaged employees are not only satisfied because of positive work experience, but also from quality of relationship with supervisor i.e. employees receive more latitude and preferred work responsibilities to do job. So increased freedom to perform their job and support from their supervisors may increase employees' performance and leads to higher levels of job satisfaction (Uhl-Bien et al., 2000; Liden & Maslyn, 1998). According to Maslach et al. (2001), proper reward and recognition is important for employee engagement because lack of recognition and reward may increase the burnout. It is argued by Saks, (2006) that employee may engaged themselves at work up to the extent they consider rewards and recognition for their performance. Thus, it can be concluded that there is a bi-directional relation between employee engagement and intrinsic rewards but the effect of intrinsic reward is greater on employee engagement.

This study also found an association between employee engagement and affective organizational commitment (Sonnentan, 2003; Schaufeli & Bakker, 2004; Saks, 2006). Thus, engaged employees are committed with their organizations. In addition, from the point of view of LMX relationship, personification theory explains the relationship of employee engagement and organizational commitment. Employees with high quality LMX relationship may have positive and strong beliefs about their supervisor. This positive belief can be extended to organizational level, if supervisors act as agents of organization and facilitate affective attitudinal response toward organization.

6. References

Angle, H. L., & Perry, J. L. (1983). Organizational commitment individual and organizational influences. Work and Occupations, 10(2), 123-146.

Atchison, T., & Lefferts, E. A. (1972). The prediction of turnover using Herzberg's job satisfaction technique. Personnel Psychology, 25(1), 53-64.

Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations. Journal of Organizational Behavior, 29(2), 147-154.

Baumruk, R. (2006). Why managers are crucial to increasing engagement: Identifying steps managers can take to engage their workforce. Strategic HR Review, 5(2), 24-27.

Blau, P. M. (1964). Exchange and power in social life. Transaction Publishers.

Cammann, C., Fichman, M., Jenkins, D., & Klesh, J. (1979). The Michigan organizational assessment questionnaire. Unpublished manuscript, University of Michigan, Ann Arbor.

Cohen, A. (2000). The relationship between commitment forms and work outcomes: A comparison of three models. Human Relations, 53(3), 387-417.

Davenport, T. H., & Prusak, L. (1998). Working knowledge: How organizations manage what they know. Harvard Business Press.

Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. American sociological review, 161-178.

Graen, G., & Cashman, J. F. (1975). A role-making model of leadership in formal organizations: A developmental approach. Leadership frontiers, 143, 165.

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. Journal of applied psychology, 87(2), 268.

Houkes, I., Janssen, P. P., de Jonge, J., & Nijhuis, F. J. (2001). Specific relationships between work characteristics and intrinsic work motivation, burnout and turnover intention: A multi-sample analysis. European Journal of Work and Organizational Psychology, 10(1), 1-23.

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. Academy of management journal, 33(4), 692-724.

Kim, H. J., Shin, K. H., & Swanger, N. (2009). Burnout and engagement: A comparative analysis using the Big Five personality dimensions. International Journal of Hospitality Management, 28(1), 96-104.

Lawler, E. E., & Hall, D. T. (1970). Relationship of job characteristics to job involvement, satisfaction, and intrinsic motivation. Journal of Applied psychology, 54(4), 305.

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionafity of leader-member exchange: An empirical assessment through scale development. Journal of management, 24(1), 43-72.

Macey, W. H., & Schneider, B. (2008). The meaning of employee engagement. Industrial and organizational Psychology, 1(1), 3-30.

Martin, R., Thomas, G., Charles, K., Epitropaki, O., & McNamara, R. (2005). The role of leader-member exchanges in mediating the relationship between locus of control and work reactions. Journal of Occupational and Organizational Psychology, 78(1), 141-147.

Maslach, C., & Leiter, M. P. (1997). The truth about burnout.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. Annual Review of Psychology, 52, 397-422.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. Annual review of psychology, 52(1), 397-422.

Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. Human resource management review, 1(1), 61-89.

Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. Journal of applied psychology, 78(4), 538.

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. Journal of vocational behavior, 14(2), 224-247.

Organ, D. W., & Ryan, K. (1995). A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior. Personnel psychology, 48(4), 775-802.

Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. Journal of applied psychology, 59(5), 603.

Saari, L. M., & Judge, T. A. (2004). Employee attitudes and job satisfaction. Human resource management, 43(4), 395-407.

Saks, A. M. (2006). Antecedents and consequences of employee engagement. Journal of managerial psychology, 21(7), 600-619.

Schaufeli, W. B., & Bakker, A. B. (2003). UWES–Utrecht work engagement scale: test manual. Unpublished Manuscript: Department of Psychology, Utrecht University.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. Journal of organizational Behavior, 25(3), 293-315.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. Journal of Happiness studies, 3(1), 71-92.

Schaufeli, W. B., Taris, T. W., Le Blanc, P., Peeters, M. C. V., Bakker, A. B., & De Jonge, J. Maakt arbeid gezond? Op Zoek naar de bevlogen werknemer [May work produce health? The quest for the engaged worker] De PSycholoog. 2001; 36: 422–428.

Schermerhorn, J. R., Hunt, J. G., Osborn, R., & Osborn, R. (2004). Core concepts of organizational behavior (pp. 146-147). Hoboken, NJ: Wiley.

Sheldon, M. E. (1971). Investments and involvements as mechanisms producing commitment to the organization. Administrative science quarterly, 143-150.

Shuck, B., & Wollard, K. (2010). Employee engagement and HRD: A seminal review of the foundations. Human Resource Development Review, 9(1), 89-110.

Sonnentag, S. (2003). Recovery, work engagement, and proactive behavior: a new look at the interface between nonwork and work. Journal of applied psychology, 88(3), 518.

Stroud, R. N. (2009). The relationship between leadership competence and employee engagement (Doctoral dissertation, Rutgers University-Graduate School of Applied and Professional Psychology).

Wegge, J., Schmidt, K. H., Parkes, C., & Dick, R. (2007). Taking a sickie: Job satisfaction and job involvement as interactive predictors of absenteeism in a public organization. Journal of Occupational and Organizational Psychology, 80(1), 77-89.

Weiss, H. M., & Brief, A. P. (2001). Affect at work: A historical perspective. Emotions at work: theory, research and applications for management, 133-171.

Weiss, H. M. (2002). Deconstructing job satisfaction: Separating evaluations, beliefs and affective experiences. Human resource management review, 12(2), 173-194..

Use of Social Networks in Personnel Marketing

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Abstract: *The paper deals with two current topics, which are social networks and personnel marketing. The review of literature in the paper is focused on the synergy that results from this connection. Personnel marketing as a new field defines an employee as a customer. To achieve higher satisfaction of this customer specific communication channels are used and social networks are one of them. This paper presents a two-level primary research. We have chosen the topic of the paper to fill in the information gap in the application of personnel marketing. The primary qualitative research using in-depth interviews has been applied for this purpose. It resulted in the identification of opportunities in the use of social networks, which was the first partial objective. These attributes were then used in primary quantitative research using electronic questioning. It resulted in the comprehensive overview of the importance of different options for the HR work and in the achievement of the second partial objective. The research was also focused on determining whether the size of the company influences the research result. The paper presents an overall summary of ways how to use social networks and shows the importance of the various ways through which the main objective of the research was achieved. The paper may serve as basis for future theoretical research, as well as it can help companies to implement social networks in their activities and thus increase their competitiveness.*

Key words: personal marketing, social networks, market research, human resources
JEL codes: M37, C30, L14

1. Introduction

The project presented in this Article focuses on the current situation with implementation of innovative approaches in business practice. The contribution is focused on the new field of personnel marketing, of which use of social networks is a specific feature. The reason for the conducting of research and the subsequent creation of this Article is the large amount of staff level fluctuation in the industrial zones. The literary overview is focused on two areas: social networks and personnel marketing. Communication for HR purposes, conducted via social media, is included in a new field named "personnel marketing". This new field uses a set of activities in which both HR staff and marketing professionals are involved in (Altkorn 2002). Personnel marketing means an alternative approach to HR management and traditional marketing, using new communication channels. This opinion is backed by Szozda (2011), who says that personnel marketing represents an absolute change in the understanding of HR. From the perspective of personnel marketing, the employee is viewed as both an current and a potential customer. Personnel marketing is divided into external and internal types. The main purpose of external personnel marketing is to address and acquire new staff. The purpose of internal personnel marketing is to create quality conditions for work performed by already hired staff. Internal

communication contributes significantly to the creation and sustaining of business culture. In a well-functioning business, even an employee at the lowest position is important for the employer. Therefore, it is clear that internal communication with an employee is never a never-ending process. In the past, unidirectional communication were more frequent, but in the modern period bidirectional communication across the entire structure of the business is essential (Dvořáková, 2012). This is a view of HR applying the principle of personnel marketing. External communication involves an analysis of the labour market as well as identification of the needs and wishes of potential staff. The purpose of external communication is to ensure that an available job offer attracts many suitable candidates in a timely manner and with reasonable costs. A no less important task is obtaining reasonable information about individual applicants, so that based on that information it will be possible later to select the most suitable of them relatively reliably (Koubek, 2003).

Social media are online media based on uninterrupted mutual communication. Companies are increasingly using them for marketing communication and replacing them with traditional off-line searches (Klein and Ford 2013). According to Bush, social networks can be defined as online media, where content is created as well as shared by users. The main social media used in the Czech Republic are Facebook, Google plus, Twitter, Spolužáci.cz and Lidé.cz. The social network LinkedIn was created directly for professional networking purposes. The Czech version has approximately 200,000 users. This network serves for publishing personal professional CVs. Users can search for contact information for persons or groups of interest (Bednář, 2015). Social networks have already become an important source of information about job applicants and for searching for suitable candidates for key positions. Already today, many companies are realising their importance, and verification of candidates in various internet databases are among routine procedures before new staff are hired. From these sources, it is possible to obtain otherwise unavailable personal information, to check contact persons and to avoid the risk of a leak of important information to the competition as well as to analyse a party's regular social behaviour in society (Janča, 2008).

Setting the main objective is based on conducted research of literary sources and scientific databases. This objective has two sub-objective:

- Main objective: To identify the current opportunities for use of social networks for personnel marketing needs.
- Sub-objective 1: To define for which purposes social networks in the field of personnel marketing can be used.
- Sub-objective 2: To determine the importance of discovered attributes for use in HR.

2. Methodology

To fulfil the objectives, it is necessary to set up corresponding methodology precisely. The entire process of research began with detailed electronic and book research, the results of which served as a basic information resource for setting up scenarios for qualitative research. Information from research and subsequent results of qualitative research have been the main resource for preparation of a questionnaire for quantitative research. The research process consists of five phases, which are mutually interconnected.

Research methods: As far as used methods are concerned, both the quantitative method and the qualitative method have been applied in research. Both methods of research were applied in relation to each other. The qualitative method was preceded by bases used for the quantitative method (Molnár 2012).
Purpose of research: in view of the work objectives, an exploratory purpose can be identified in the research, which directly examines the degree of importance. The exploration purpose is normally used in a situation when there is not enough preliminary knowledge about the problem that will be examined. The descriptive purpose, which maps the current situation and monitors the frequency and degree of association, was used for prediction of the occurrence of the phenomenon (Saunders 2002).
Respondent selection: - for qualitative research, the selection of respondents was carried out via a method of multiple random selection, when a basic file was divided into four groups based on the applied business culture. From each category, a representative was selected, who was subjected to a subsequent in-depth interview. For qualitative research, direct random selection was chosen, where each unit of the basic set has the same probability that it will be selected.
Data collection method: qualitative research was conducted using an in-depth interview method, where it was necessary to consider in advance the contents of questions, their formulation, their sequence and the length of the interview. These matters were resolved in the preparatory part, when detailed planning was carried out, along with testing and final setting of the scene. The basic aim during specification of the questions was to reduce coercion of answers as much as possible through question formulation, and therefore the questions were open, neutral and clear (Hendl, 2008). For quantitative research, electronic questioning was used, which corresponded to arrangements made in advance.
Data evaluation method: In research three basic methods were applied: content analysis, descriptive statistics and testing of statistical hypotheses. *Content analysis* - captures respondents' answers in their natural form, which is a basic principle for qualitative research (Švaříček and Šeďová, 2007). *The descriptive statistic* determines and summarises information, processes it in the form of graphs and tables and calculates their numerical characteristics.
Data processing methods were used in research: average, standard deviation, median and the confidence interval. *Testing of statistical hypotheses* is a statistical method, which compares two hypotheses, and a single-factor analysis of variance (ANOVA) was used.

3. Research evaluation

The research was a combination of qualitative and quantitative research, where both parts corresponded to each other. First qualitative research was conducted, the aim of which was to identify whether HR staff use social networks in their work. If the use of this communication channel were to be proved, then it would be followed by identification of how social networks are currently used in HR. The identified attributes subsequently served as an informational basis for conducting of quantitative research. The results of quantitative data collection is the viewed as ordinal and cardinal variables. The research is added to by determination of what role the size of a company plays during use of social networks.

3.1. Qualitative research

The first part of the research consisted of qualitative research using in-depth interviews. Qualitative research involved addressing of companies that make use of personnel marketing. Before conducting of in-depth interviews, companies were exactly selected based on a set sorting parameter, which was the type of company culture. The in-depth interview captured the respondents' answers in their natural form, which is a basic advantage of this type of research. Table 1 presents the division.

Table. 1: Sorting parameters of respondents

Respondent	Number of employees	Area of activity	Origin of business culture
Company A	200	Services	Czech
Company B	250	Automotive	German
Company C	1,000	Automotive	American
Company D	2,100	Automotive	Japanese

Source: Own preparation

For the in-depth interviews, cooperation was agreed upon with four major employers in the Liberec Region. Company A is a provider of services, and although it was the smallest of the examined companies, it already had a lot of experience with application of personnel marketing. This company has been led by Czech management since its founding and is a typical example of application of Czech business culture. The other three companies are typical representatives of manufacturers, whose products are intended for the automotive industry. Companies from this field are the most important employers in the Liberec Region. The differences among these companies are in their sizes and business culture, which depend on the origin of the owner, meaning the origin of the foreign parent company. The business culture in companies involved in the automotive industry originates from Germany, the USA and Japan. Overall in all four companies, during preliminary interviews, the application of personnel marketing with the help of social networks was clearly confirmed, which was a basic condition for the in-depth interview. In order to protect the information from the competition, a step which was promised to the cooperating companies, the names of the companies have been changed.

The aim of this research was to identify that social networks are used for HR staff's work and identify for what purposes. The results can serve as a final basis for how to detail with current and potential future employees. A total list of eight attributes defines which communication methods HR staff consider important. The results of the in-depth interviews in terms of content analysis are presented in table 2.

Table 3 on the next page.

Table 2: Resulting attributes

Methods of use of social networks in HR
1. The option of addressing a specific group of applicants.
2. Lower costs compared to other recruitment methods
3. The option of adding “passive candidates” to the ranks of job applicants.
4. The option of obtaining references from colleagues or other persons known by applicants.
5. Vetting of potential employees
6. Vetting of current employees
7. Creation of an updated database of candidates
8. Checking of own or potential employees

Source: Own preparation

The results of the first partial objectives should define for what purposes social networks can be used in personnel marketing. Following the final synthesis, which was participated in by specialists in marketing and HR professionals, it was clearly proved that social networks are already being applied in work with human resources in eight fundamental areas. This finding has fulfilled the first partial objective, which, however, does not provide an overview of the level of importance assigned by HR staff.

3.2. Quantitative research

The most important companies from the Liberec Region across fields were involved in questioning. The importance of companies was evaluated based on the number of employees. Soon the companies were contacted personally or by phone with an inquiry about establishment of cooperation. The subject of the first contact was verification of the use of social networks in HR. A total of 58 fully completed questionnaires were included in the evaluation. The questionnaire consists of eight attributes obtained from qualitative research. Companies responded to these attributes on a scale of 1 to 7, where one meant maximum importance and seven meant maximum unimportance. These questions were added to with a sorting parameter, which was the size of the company.

A) Overall evaluation of ordinal variables

The overall evaluation of the analysis is presented by the following Table 3. Something considered important is the reason why the median is within the interval <1;2>, while the median in the interval <3;4> has neutral importance and the median in the interval <5;6> is unimportant.

Table 3: Ordinal variables

Importance of attributes on stabilisation of employees				
Attribute	**mid-sized businesses**		**large businesses**	
	Median	Importance	Median	Importance
1. The option of addressing a specific group of applicants.	1.5	important	2	important
2. Lower costs compared to other recruitment methods	1	important	2	important
3. The option of adding “passive candidates” to the ranks of job applicants.	2	important	2	important
4. The option of obtaining references from colleagues or other persons known by applicants	3.5	neutral	3	neutral
5. Vetting of potential employees	3	neutral	3	neutral
6. Vetting of current employees	4.5	unimportant	4	unimportant
7. Creation of an updated database of candidates	3	neutral	3	neutral
8. Checking of own or potential employees	2	important	2	important

Source: Own preparation

It would be accurate to state that the evaluation of the importance of individual reasons for use of social networks in personnel marketing is identical for both groups of respondents. It can also be stated with accuracy that the importance was determined to be small only in the case of one of the reasons, which is “Vetting of Current Employees”. For attributes 4, 5 and 7, the importance level was deemed to be neutral.

B) Overall evaluation of cardinal variables

For cardinal variables, the average was examined, along with a standard deviation and confidence interval. The overall evaluation is presented in the following Table 4.

Table 4: Cardinal variables

Attribute	Company size	$\overline{x}$	sd	$\overline{x} - t\frac{s}{\sqrt{n}}$	$\overline{x} + t\frac{s}{\sqrt{n}}$
8. Checking of own or potential employees	Medium	1.6	0.53	1.2	2
	large	1.6	0.49	1.4	1.8
1. The option of addressing a specific group of applicants.	Medium	2	1.55	0.5	3.5
	large	2.1	1.28	1.6	2.6
2. Lower costs compared to other recruitment methods	Medium	2	2	0	4
	large	2.1	1.39	1.5	2.6
3. The option of adding “passive candidates” to the ranks of job applicants.	Medium	2.2	1.17	1	3.3
	large	2.5	1.57	1.9	3.1
4. The option of obtaining references from colleagues	Medium	3.2	2.04	1.1	5.2
	large	3	1.53	2.4	3.6
5. Vetting of potential employees	Medium	3.5	1.64	1.9	5.1
	large	2.9	1.52	2.3	3.5
7. Creation of an updated database of candidates	Medium	4	1.67	2.3	5.7
	large	3.3	1.65	2.6	3.9
6. Vetting of current employees	Medium	4.5	1.38	3.1	5.9
	large	3.9	1.46	3.3	4.4

Source: Own preparation

Clearly the greatest importance of respondents was attributed to “vetting of own or potential employees”, and the largest number of respondents agreed on this attribute, which is evidenced by the lowest standard deviation. Respondents assigned great importance to the following three attributes no. 1, 2 and 3, which on a seven-place scale had average evaluations of between two and two and a half. However, the respondents assigned the least importance to “verification of current employees” both among medium-sized and large companies. Another partial objective was to determine which attributes the most important when are applying personnel marketing. The objective was fulfilled with results stemming from ordinal and cardinal evaluation, which were nearly identical.

C) Influence of the sorting parameter

Overall 19 representatives of companies with 50-249 employees each (32.8%) and 39 representatives of companies with more than 250 employees (67.2%) were included in the evaluation. The division into companies with 50-250 staff and those with more than 250 staff was based on information from the Association of Small and Medium-sized Enterprises of the Czech Republic. Enterprises with fewer than 50 employees were not included in the research, since the intent was to address the most important employers in the Liberec Region. Single-factor Analysis of Variance (ANOVA) as conducted at the level of importance □ = 0.05.

Defined hypotheses:

H0: During evaluation of importance, the size of a company has no effect on the resulting values. H1: non H0

Table 5: Results of evaluation of attributes (ANOVA)

Attribute	Statistic F	HV
1. The option of addressing a specific group of applicants.	0.013	0.908
2. Lower costs compared to other recruitment methods	0.011	0.916
3. The option of adding “passive candidates” to the ranks of job applicants.	0.215	0.646
4. The option of obtaining references from colleagues or other persons known by applicants	0.032	0.858
5. Vetting of potential employees	0.765	0.388
6. Vetting of current employees	0.985	0.329
7. Creation of an updated database of candidates	0.920	0.345
8. Checking of own or potential employees	0.116	0.735

Source: Own preparation

For all attributes, the HV value was higher than 0.05, which confirms the H0 hypothesis. It would be accurate to state that there are no statistically significant differences in the evaluation of importance of individual reasons for the use of social networks in personnel marketing between groups of respondents from large and medium-sized companies.

4. Conclusion

The main aim of the research, which is presented in the contribution, s to determine the current opportunities for use of social networks for personnel marketing in the Liberec Region. This area has not been examined either globally or within the entire Czech Republic, and there is not even information at the level of regions. This was the reason why qualitative research was first applied via in-depth interviews. The results were used for a corresponding step, which was quantitative research via electronic questioning. The aim of this research was exact determination of the importance of discovered ways of using social networks. In evaluation of quantitative research, responses were first viewed as ordinal variables. From this evaluation, the order of importance assigned by HR staff was clear. As far as cardinal variables are concerned, the exact value of importance assigned by HR staff to individual instruments was determined. Overall research was conducted in cooperation with the largest employers in the Liberec Region, which were divided into two groups based on the numbers of employees. Based on division, a hypothesis was defined about the influence of a company's size on the evaluation of tools. Via a single-factor analysis of deviation, it was proved that the sorting parameter (company size) has no influence on the evaluation of the importance of individual personnel market tools.

The identified tools can be divided based on evaluation of their importance into three groups.

1) The first group consists of the most important tools applied in social networks, used by HR staff in practice, which are: *Checking of own or potential employees; the option of addressing a specific group of applicants; lower costs compared to other recruitment methods; the option of adding “passive candidates” to the ranks of job applicants.* These four tools should be placed by

HR staff among tools used for searching for key employees. Social networks expand the option of addressing potential employees in this way more quickly, more inexpensively and more effectively.

2) Another group consists of tools with a neutral evaluation, specifically: *the option of obtaining references from co-workers, verification of potential employees, creation of an updated database of candidates*. Although personnel staff have not agreed on their fundamental importance, they may serve as an interesting additional feature during HR staff's work. This evaluation may be based on various penetration levels of social network use in the companies that participated in the research.

3) A third group consists of one personnel marketing tool, which is *"Verification of current employees"*. During evaluation of this tool, an important role was played by etiquette applied during work with own employees. HR staff leaned in the evaluation towards the opinion that interfering through vetting with the privacy of current employees was at variance with their work duties. However, this factor was not as significant in the approach to potential employees. This evaluation may be distorted by an attempt to avoid discrediting.

Although only part of the overall research has been presented, it has clearly confirmed that social networks already have a fixed position in use of HR in practice and at the regional level. Although the Liberec Region is an industrially developed area, its largest employer (Preciosa a.s.) employees approximately 3,000 staff, and the second largest company there (Denso manufacturing Czech s.r.o.) employees about 2,500 staff. The rest of the companies in the region have no more than 200,000 staff, but nonetheless it has been demonstrated that in many companies social networks are considered an important HR tool. There remains a certain time delay in implementing innovative approaches, but thanks to the interconnection of companies with their foreign based parents, this difference is being erased. Therefore, it has also been proved that there are no differences between the use of social networks in HR among large and medium-sized companies. It has also been confirmed that a separate field, which is personnel marketing, has split away from personnel management.

5. References

Altkorn, J. (2002). Promocja szkół wyższych. Zeszyty Naukowe/Akademia Ekonomiczna w Krakowie, (602), 7-13.

Molnár, Z. (2011). Jak využít sociální sítě v podnikání. Systémová integrace.

Bush, V. D., Bush, A. J., Clark, P., & Bush, R. P. (2005). Girl power and word-of-mouth behavior in the flourishing sports market. Journal of consumer Marketing, 22(5), 257-264.

KLEIBL, J., DVOŘÁKOVÁ, Z., & ŠUBRT, B. (2001). Řízení lidských zdrojů. 1. vyd. Praha: CH Beck, 2001. 264 s (No. s 33, p. 19). ISBN 80-7179-389-2

Hendl, J. (2008). Kvalitativní výzkum: základní teorie, metody a aplikace. Portál.

Koukolík, F. (2006). Sociální mozek. Karolinum.

Klein, L. R., & Ford, G. T. (2003). Consumer search for information in the digital age: An empirical study of prepurchase search for automobiles. Journal of interactive Marketing, 17(3), 29-49.

Molnár, Z., Mildeová, S., Řezanková, H., Brixí, R., & Kalina, J. (2012). Pokročilé metody vědecké práce. Zeleneč: Profess Consulting.

Saunders, M. N. (2011). Research methods for business students, 5/e. Pearson Education India.

Szozda, N. (2011). Instrumenty marketingu wewnętrznego w firmach usługowych branży. Zeszyty Naukowe Wyższej Szkoły Zarządzania Ochroną Pracy w Katowicach, 173-185.

Švaříček, R. (2007). Kritéria kvality kvalitativního výzkumu. Kvalitativní výzkum v pedagogických vědách. Pravidla hry, 28-50.

The Performance of Food Enterprises and the Satisfaction of Their Customers

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Abstract: *The subject of this article is an analysis of the relationship between a company's performance and the satisfaction of its customers. The aim of the article is to determine what relationship exists between business performance and customer satisfaction, whether such satisfaction is measured directly (by means of questions about customer satisfaction with the product) or indirectly, by means of questions about factors which influence satisfaction. The factors which influence customer satisfaction are image, customer expectation, perceived quality, perceived value and complaints. The research was carried out on a sample of 99 enterprises from the food industry in the Czech Republic and a sample of their customers. Performance was assessed using the financial indicators ROA, ROE and asset turnover (ATO). Customer satisfaction was determined using a questionnaire. Within the research, companies were divided into performing and underperforming using the financial indicators, and statistically significant differences in customer satisfaction were subsequently determined using a questionnaire for both groups of enterprises. It was found that these differences exist both within direct customer satisfaction and within almost all of the indirectly monitored satisfaction factors. The research shows that performing companies achieved higher customer satisfaction, including higher (better) image, customer expectation, perceived quality and value, and complaints (for this factor, a better result was a lower level of complaints).*

Keywords: Business performance, financial indicators, customer satisfaction

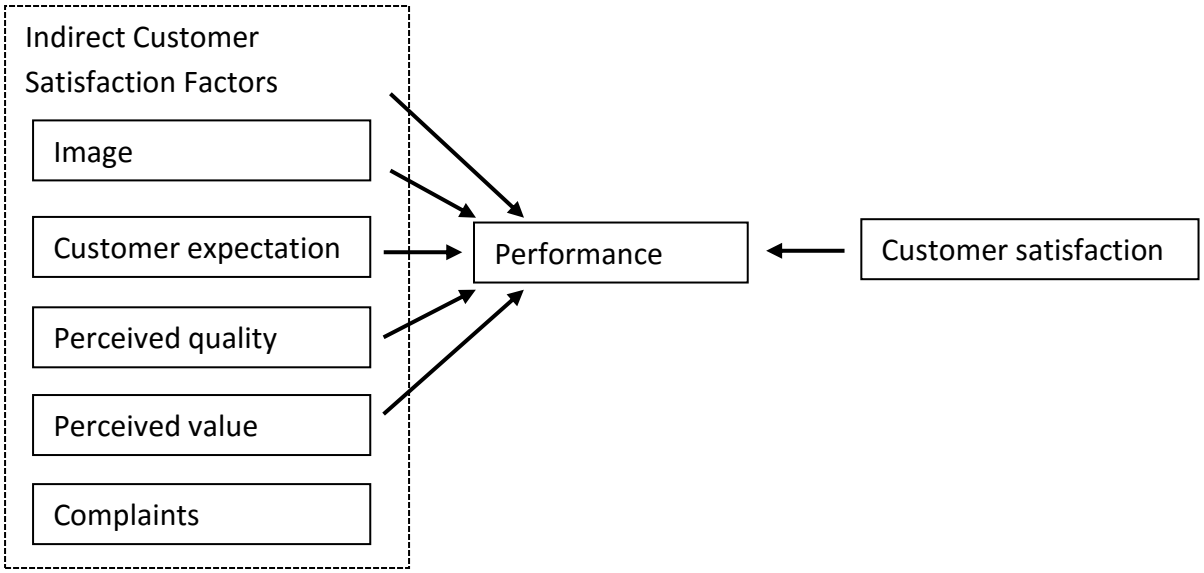
JEL codes: L21, L25, P17

1. Introduction

The research shows that customer satisfaction has a positive influence on a company's performance as measured by financial indicators (Anderson et al., 1997, Chi, Gursoy, 2009). This relationship can thus be considered a proven fact, and it has been used as the basis for our research and this article. However, there is disagreement among authors about whether this influence on performing companies is direct or indirect (Saedi et al., 2015). Here directness of the relationship is generally understood to mean a direct effect by customer satisfaction (including its factors) on business performance (Chi, Gursoy, 2009) and an indirect effect is understood to mean an effect mediated through another factor, usually customer loyalty (Gronholdt et al., 2000). In this article there is a different conception of the directness or

indirectness of the relationship. Here a direct relationship is understood to be the relationship of customer satisfaction to business performance where satisfaction is measured directly by specific questions from the questionnaire. By contrast, an indirect relationship is understood to be the assessment of customer satisfaction by means of certain factors represented by specific questions in the questionnaire from which the degree of customer satisfaction in specific areas related to satisfaction can subsequently be derived. The conception of the research is depicted in graphic form in figure 1.

Figure 1: Conception of the research into the relationship between a company's performance and the satisfaction of its customers



Source: Authors

The subject of the article is therefore an analysis of the relationship between a company's performance and the satisfaction of its customers. The aim of the article is to determine what relationship exists between business performance and customer satisfaction, whether this satisfaction is measured directly or indirectly.

"The literature identifies two types of satisfactions: transactional and overall (or cumulative) satisfaction" (Spitery, Dion, 2004). We based our research on this concept of cumulative customer satisfaction, which can be defined as the overall purchasing experience, i.e. general satisfaction (Fornell, 1992). The factors which influence general customer satisfaction are image, customer expectation, perceived quality, perceived value and complaints. These factors were identified and formulated in accordance with recognized customer satisfaction indices and basically originated through an adaptation of practical applications of the ACSI and ECSI indices (for more details see Türkyilmaz, Özkan, 2007, Fornell et al., 1996).

Both absolute indicators and financial ratios are used to measure business performance (Terpstra, Verbeeten, 2014). The authors' findings indicate that it is better to assess performance using more than one indicator, i.e. that several financial ratios are better able to classify a company's performance (Suchánek, Králová, 2015). Business performance in relation to

customer satisfaction is most often assessed using the indicator ROA (Aksoy et al., 2008). Another frequently used indicator is ROE (Combs et al., 2005). In view of the emphasis that researchers investigating business performance in relation to customer satisfaction have placed on revenue (Swaminathan et al., 2014), the measurement of performance was also carried out using the additional indicator asset turnover (ATO).

2. Methodology

Performance was assessed using the following financial indicators: ROA constructed as a proportion of EBIT (net profit + tax payable on income + interest) and total assets, ROE constructed as a proportion of net profit and equity, and asset turnover constructed as a proportion of total revenue and total assets. Mean and median values for the total sample of 99 enterprises were calculated for each indicator, and enterprises were subsequently categorized as performing if the values of at least two out of the three indicators were higher than the median value. The remaining enterprises were categorized as underperforming.

Customer satisfaction was determined using a questionnaire which contained a total of 25 scaled questions. The questionnaire examined product knowledge, direct customer satisfaction and a further five factors which influence customer satisfaction. With the exception of product knowledge, all of the factors were represented by three to five questions. All of the questions were designed as scaled questions, with the scale ranging from 1 (the worst evaluation) to 10 (the best evaluation). The only exception was the questions focusing on complaints (COMPLAINT 1-3), where the scale only ranged from 1 (complaint, dissatisfaction etc. – very frequent) to 4 (complaint, dissatisfaction etc. – never). As part of the division of enterprises into performing and underperforming (see above), statistically significant differences in the evaluation of all seven aforementioned factors were then determined for both groups of enterprises.

The research was carried out on a sample of 99 enterprises from the food industry in the Czech Republic and a sample of their customers. Specifically, these were companies from the manufacture of food and beverage products which manufacture products for everyday consumption (which are well known among consumers). Each company was represented by one product. The criterion for the selection of companies – of which there were 4,255 in this sector according to the Albertina database – was the availability of a balance sheet and a profit and loss statement, a condition fulfilled by 212 enterprises. Questionnaires were subsequently obtained from the customers of the 99 companies which made up the actual research sample. The research sample of customers comprised 1,530 customers of the aforementioned companies. This was a representative sample of respondents from the population of the Czech Republic in terms of age (18+), gender and region.

The variable PRODUCT KNOWLEDGE served to ensure that respondents were actually familiar with the product. Consequently, no evaluations by respondents who stated that they did not know the product were included in the research. Within the questionnaire, the evaluation of the products of the various companies was performed in such a way as to ensure randomness in the selection of customers evaluating individual products and at the same time to provide an adequate number of questionnaires (a minimum of ten) for each product. Therefore, each respondent was first presented with a random selection of ten products from the companies

under research and specified how well he/she knew these products, after which one product was selected by the questioner, taking into account the degree of knowledge and the number of evaluations (responses) already obtained for this product. The resulting evaluations (responses) were subsequently averaged for each product and compared between the groups of performing and underperforming companies, and differences in satisfaction between performing and underperforming companies were determined and statistically evaluated.

The research hypothesis assumes that higher customer satisfaction leads to higher business performance. This hypothesis was assessed on the basis of a comparison of each of the variables measuring customer satisfaction between the group of performing companies and the group of underperforming companies. If the research hypothesis corresponds to the data, then the values of the individual satisfaction variables should be higher in the group of performing enterprises. The statistical significance of differences in favour of performing companies was assessed on the basis of Welch approximation of two-sample right-tailed t-tests. This approximation handles the unequal variances in both groups of enterprises.

3. Results

The companies under research were first divided into performing and underperforming according to the median values of all three indicators being monitored. In the research sample of 99 enterprises, the following median values were obtained: ROE = 0.0855, ROA = 0.0585, ATO = 1.6077. There were 48 performing companies (i.e. those for which at least two of the three financial ratios were higher than the relevant median) and 51 underperforming companies.

Research was also carried out into differences in customer satisfaction, either directly (the variable CUSTOMER SATISFACTION 1-3) or indirectly, by means of the aforementioned factors. The results are depicted in table 1.

Table 1: Factors influencing customer satisfaction including actual customer satisfaction within performing and underperforming companies

	statistic	**df**	**p.value.g**	**mean. perf**	**mean. non.perf**	**N.perf**	**N.non.perf**
PRODUCT KNOWLEDGE	2,2389	95,3203	**0,0137**	6,2875	5,533	48	51
IMAGE1	3,2031	94,5716	**0,0009**	6,9917	6,4138	48	51
IMAGE2	2,2991	94,999	**0,0118**	6,9944	6,6415	48	51
IMAGE3	1,1484	93,8131	0,1269	6,2306	6,0806	48	51
IMAGE4	1,7895	90,3805	**0,0384**	5,7153	5,382	48	51
CUSTOMER EXPECTATION1	3,0949	96,0226	**0,0013**	7,3694	6,8684	48	51
CUSTOMER EXPECTATION2	2,8849	91,3125	**0,0024**	7,6194	7,191	48	51
CUSTOMER EXPECTATION3	2,6536	93,0843	**0,0047**	7,1347	6,7545	48	51
CUSTOMER EXPECTATION4	3,002	96,2804	**0,0017**	6,9958	6,6182	48	51
PERCEIVED QUALITY1	4,3195	94,3211	**0**	7,6875	7,1133	48	51
PERCEIVED QUALITY2	2,8535	96,2615	**0,0026**	7,1292	6,7259	48	51
PERCEIVED QUALITY3	3,8793	95,7479	**0,0001**	7,4417	6,9235	48	51
PERCEIVED QUALITY4	2,9105	94,9932	**0,0022**	6,8139	6,3381	48	51
PERCEIVED QUALITY5	2,8116	90,3376	**0,003**	7,3986	7,0019	48	51
PERCEIVED VALUE1	1,8966	96,9706	**0,0304**	6,5292	6,3064	48	51
PERCEIVED VALUE2	2,6409	95,7608	**0,0048**	6,5986	6,2976	48	51
PERCEIVED VALUE3	2,6497	94,0711	**0,0047**	6,6472	6,3456	48	51

	statistic	df	p.value.g	mean. perf	mean. non.perf	N.perf	N.non.perf
PERCEIVED VALUE4	2,438	93,8799	**0,0083**	6,6042	6,3129	48	51
PERCEIVED VALUE5	3,2825	96,5479	**0,0007**	6,6736	6,3368	48	51
CUSTOMER SATISFACTION1	3,2237	90,6657	**0,0009**	7,6139	7,1653	48	51
CUSTOMER SATISFACTION2	2,7768	94,4028	**0,0033**	7,2097	6,8662	48	51
CUSTOMER SATISFACTION3	2,9253	92,4762	**0,0022**	7,0778	6,6637	48	51
COMPLAINT1	2,0407	83,9736	**0,0222**	3,9806	3,9556	48	51
COMPLAINT2	0,947	93,6108	0,173	3,9347	3,9176	48	51
COMPLAINT3	0,4093	96,9161	0,3416	3,6403	3,6246	48	51

Source: Own calculations

The results show that statistically significant differences between performing and underperforming companies were determined across all of the factors monitored. The results show that performing companies achieved better results within customer satisfaction (whether it was measured directly or indirectly). On the other hand, the differences in satisfaction are not very pronounced, and with the variables IMAGE 3 and COMPLAINT 2 and 3 they are not statistically significant, although even with these variables performing companies attain higher (better) values than underperforming companies. However, the results for these variables are in the correct direction, i.e. higher values for these variables were achieved by performing companies.

4. Discussion and conclusions

Although the product knowledge variable was primarily used for the selection of respondents, so that the product would be evaluated by respondents who were familiar with it and the research would indeed examine general (cumulative) customer satisfaction, this variable also proved to be important from the perspective of business performance. The research shows that product knowledge has an influence on a company's performance, i.e. that higher product knowledge is characteristic of performing companies. This has also been established in the case of services (Selnes, 1993). With reference to Armstrong, it can be asserted that higher product knowledge is typical of better performing companies due to the fact that this knowledge translates into higher customer satisfaction (Anderson, 1973).

Directly measured general customer satisfaction was higher for companies with better performance. Likewise, indirectly measured customer satisfaction was higher for better performing companies. Unambiguous results were achieved with the factors customer expectation, perceived quality and perceived value. Conversely, with the factors image and complaints the results were ambiguous (this particularly applies to complaints). The variable IMAGE3 evaluated the image of the relevant product with regard to its price in comparison with competitors, with the evaluation of performing companies being better (price with regard to image was evaluated as lower in comparison with competitors in companies with poorer performance) but not statistically significant. The same result was also obtained for the variable COMPLAINT2 (have you ever wanted to make a complaint about the product because of the quality, where a higher value means that the customer has not) and COMPLAINT3 (have you ever

experienced any degree of dissatisfaction with any aspect of the product, where a higher value means that the customer has not).

To sum up, it can be stated that the research demonstrated a positive relationship (both direct and indirect) between the performance of food enterprises and the satisfaction of their customers. Directly measured customer satisfaction and customer satisfaction mediated by other factors are thus in accordance (and higher customer satisfaction leads to higher business performance). The indirect measurement of customer satisfaction, however, makes it easier to search for specific causes of higher or lower customer satisfaction – in other words, it makes it possible to increase customer satisfaction in specific areas of the enterprise (specifically in the areas of image, customer expectation, perceived quality, perceived value and complaints) and thereby positively affect its performance.

The research is limited by its focus on companies from the food industry, and in this sense on products. It can be assumed (also in the light of existing studies) that research could yield different results in the area of services. A further limitation of the research was determining the independent influence of the various customer satisfaction factors on business performance when customer satisfaction was being measured indirectly. As part of ongoing research, the authors will thus focus on the combined effect of customer satisfaction factors on business performance using complex models.

5. Appendix

Table 2: List of examined variables and related questions

PRODUCT KNOWLEDGE	How well do You know the product?
IMAGE 1	How do You evaluate the image of the product with respect to its brand (tradition, reputation, prestige) compared with the competition?
IMAGE 2	How do You evaluate the image of the product with respect to its overall quality (ie. nutritional value, taste, composition, appearance or packaging, etc.) compared to the competition?
IMAGE 3	How do You evaluate the image of the product considering its price compared to the competition? How much prestige (good) You consider the product**?**
IMAGE 4	How do You evaluate the image of the product with regard to the level of marketing communications (interest, memorability, the intensity of advertising, sales promotion, etc.), which relates to the product compared to the competition**?**
CUSTOMER EXPECTATION 1	To what extent does the product fulfills Your needs and requirements**?**
CUSTOMER EXPECTATION 2	To what extent is the quality of the product as long as the product I know stable, compared with the expected characteristics of the product (ie. no changes in taste, appearance, composition, nutritional value, etc.)**?**
CUSTOMER EXPECTATION 3	To what extent does the product fulfills Your expectations (needs and requirements) compared with the promises (product information, advertising, etc.)**?**

CUSTOMER EXPECTATION 4	How do You evaluate the product in comparison with the expectation that You always have before its purchase and consumption**?**
PERCEIVED QUALITY 1	How do You evaluate the quality of the product with respect to its taste**?**
PERCEIVED QUALITY 2	How do You evaluate the quality of the product with respect to its composition (raw materials, their origins, ratio of content etc.)**?**
PERCEIVED QUALITY 3	How do You evaluate the quality of the product with respect to its appearance**?**
PERCEIVED QUALITY 4	How do You evaluate the quality of the product with respect to its nutritional value (especially in terms of functionality - energy, health, sweet, refreshing etc.)**?**
PERCEIVED QUALITY 5	How do You evaluate the overall quality of the product (the overall evaluation of its taste, content, nutritional value, freshness, durability, appearance, smell, ev. packaging, etc.)**?**
PERCEIVED VALUE 1	How do You evaluate the overall quality of the product in comparison with the price of the product (You usually pay)**?**
PERCEIVED VALUE 2	How do You evaluate the taste, content, appearance and flavor of the product, ie. product properties, compared with the price of the product (you usually pay)**?**
PERCEIVED VALUE 3	How do You evaluate the functionality of the product (ie. the rate of fulfilment of those functions that You expect from the product, for example satiation, enjoying of food, refreshments, etc.) compared with the price of the product (You usually pay)**?**
PERCEIVED VALUE 4	How do You evaluate the cost that you spend on a product (its gaining - sometimes you have to "hunt" it?, storage, disposal and cost of product) for durability, with the time of its consumption, usage, freshness**?**
PERCEIVED VALUE 5	How do You evaluate the overall quality of the product, ie. the attributes and functionality in comparison to the overall cost of the product (including product price, the cost of storing, the product disposal, time costs related to, for example, opening or closing of the package, the time cost of "hunting" product, it is not always available, etc.)**?**
CUSTOMER SATISFACTION 1	How are You overall satisfied with the provided product?
CUSTOMER SATISFACTION 2	How much does Your satisfaction correspond to the product expectation (the expected satisfaction)?
CUSTOMER SATISFACTION 3	What is Your overall satisfaction with the evaluated product in comparison with the ideal product?
COMPLAINT 1	Did You complain the product thanks to its quality?
COMPLAINT 2	Would You (ever) complain the product thanks to its quality**?**
COMPLAINT 3	Did you feel (sometimes) any even a little dissatisfaction with any of the characteristics of the product**?**

Source: Authors

6. References

Aksoy, L., Cooil, B., Groening, C., Keiningham, T. L., & Yalçın, A. (2008). The Long-Term Stock Market Valuation of Customer Satisfaction. Journal of Marketing, 72(4), 105–122. https://doi.org/10.1509/jmkg.72.4.105

Anderson, E. W., Fornell, C., & Rust, R. T. (1997). Customer Satisfaction, Productivity, and Profitability: Differences between Goods and Services. Marketing Science, (2), 129.

Anderson, R. E. (1973). Consumer Dissatisfaction: The Effect of Disconfirmed Expectancy on Perceived Product Performance. Journal of Marketing Research (JMR), 10(1), 38–44.

Chi, C. G., & Gursoy, D. (2009). Employee satisfaction, customer satisfaction, and financial performance: An empirical examination. International Journal of Hospitality Management, 28, 245–253. https://doi.org/10.1016/j.ijhm.2008.08.003

Combs, J. G., Crook, T. R., & Shook, C. L. (2005). The dimensionality of organizational performance and its implications for strategic management research. Research methodology in strategy and management, 2(05), 259-286.

Fornell, C., Johnson, M. D., Anderson, E. W., Jaesung Cha, & Bryant, B. E. (1996). The American Customer Satisfaction Index: Nature, Purpose, and Findings. Journal of Marketing, 60(4), 7–18.

Fornell, C. (1992). A national customer satisfaction barometer: The Swedish experience. the Journal of Marketing, 6-21.

Gronholdt, L., Martensen, A., & Kristensen, K. (2000). The relationship between customer satisfaction and loyalty: cross-industry differences. Total quality management, 11(4-6), 509-514.

Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., & Saaeidi, S. A. (2015). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. Journal of Business Research, 68, 341–350. https://doi.org/10.1016/j.jbusres.2014.06.024

Suchánek, P., & Králová, M. (2015). The Possibility of Evaluating an Enterprise's Performance in Terms of Evaluating Its Customer Satisfaction. International Multidisciplinary Scientific Conference on Social Sciences & Arts SGEM, 491.

Selnes, F. (2013). An examination of the effect of product performance on brand reputation, satisfaction and loyalty. Journal of Product & Brand Management.

Spiteri, J. M., & Dion, P. A. (2004). Customer value, overall satisfaction, end-user loyalty, and market performance in detail intensive industries. Industrial marketing management, 33(8), 675-687.

Swaminathan, V. (1), Thomaz, F. (1), Groening, C. (2), & Mittal, V. (3). (2014). How Achieving the Dual Goal of Customer Satisfaction and Efficiency in Mergers Affects a Firm's Long-Term Financial Performance. Journal of Service Research, 17(2), 182–194. https://doi.org/10.1177/1094670513510196

Terpstra, M., & Verbeeten, F. H. M. (2014). Customer satisfaction: Cost driver or value driver? Empirical evidence from the financial services industry. European Management Journal, 32, 499–508. https://doi.org/10.1016/j.emj.2013.07.001

Türkyilmaz, A. (1), & Özkan, C. (2). (2007). Development of a customer satisfaction index model: An application to the Turkish mobile phone sector. Industrial Management and Data Systems, 107(5), 672–687. https://doi.org/10.1108/02635570710750426

Management of Intellectual Resources: The Problem of Development of Human Capital in Modern Society

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Abstract: *In article the problem of development of human capital in modern society is analysed. The concept of human capital plays a central role in modern economic analysis. It gives new possibilities for the study of such key issues as economic growth, income distribution, and the place and role of education in social reproduction. Human capital is the most valuable resource of modern society. Globalization in the development of modern society eliminates barriers to movement of capital, technology, information. A significant part of the capital is concentrated in the production and distribution of information. The most important driving force behind these changes was Informatization - the penetration of information and communication technologies in all spheres of life and human activities. It is emphasized, that interest of an economic science to human creative abilities, ways of their activation today has considerably grown. It is marked, that the major active of the human capital is education which becomes a determinative of economic growth and scientific and technical potential of a modern society.*

Keywords: management of intellectual resources, economic science, the social and economic analysis, the human capital, economic growth, scientific and technical potential

JEL codes: O15, E23, J24

1. The concept of human capital

The concept of human capital plays a central role in modern economic analysis. It gives new possibilities for the study of such key issues as economic growth, income distribution, and the place and role of education in social reproduction, the content of the process of labour and so on (Gaponenko A. L., Orlova T. M., 2008).

More and more supporters position is that human capital is the most valuable resource of modern society, the most important than wealth (Latuha O. A., Pushkarev Y. V., 2012, 2013, 2014).

You must learn how to measure the value of this wealth. The more a society consciously invests in human development, so it is more democratic.

Globalization in the development of modern society eliminates barriers to movement of capital, technology, information, and skilled labor (Leonov A. M., 2004, Mayer B. O., 2012).

This allows us to concentrate our resources on an international scale on the most promising directions. If in earlier forms of society, the bulk of the capital was concentrated in the production of material resources necessary for the life of the human community (Mayer B.O., Tkachev A.V.,

2011), in the modern information society, the share of such capital is not dominant, a significant part of the capital is concentrated in the production and distribution of information.

The most important driving force behind these changes was Informatization - the penetration of information and communication technologies in all spheres of life and human activities (Castells M., 2001, Masuda E., 1981, 2006).

Become more and more widespread new, especially information technology. Formed covering the planet of communication and transportation networks, the flows of capital, strengthens the processes of migration (Drucker P. F., 1993, Webster F., 2002), as a leading resource development becomes "human capital".

Under human capital is usually understood as the quantity and quality of physical, intellectual health of a population with a guarantee of continuity of generations, maintaining this continuity.

Thus, human capital, essentially consists of two interdependent social levels:

– Firstly, reproduction, reproductive potential of a population, its spiritual, marital status, the formation of the young generation;

– Secondly, the effective entry of the younger generation in the social world, where the basic principles involve education, goal setting, spirituality, commitment, creative labor activity in the social sphere (Gaponenko A. L., Orlova T. M., 2008).

Today has increased the interest of economic science to the human creative abilities, ways of their activation, which coincides with the universal law of development of modern science: concentration of research on the problem of man.

This, in turn, requires understanding the role of education as a leading spheres of reproduction creative human qualities, human capital accumulation (Neimatov Y. M., 2002, Pushkarev Y. V., Pushkareva E. A., 2012, Šmajs J., 2013).

2. The role of education as a leading spheres of reproduction creative human qualities, human capital accumulation

The most important asset of human capital is education, which is becoming a decisive factor of economic growth and scientific and technical potential. Developed human personality plays in modern society as a decisive factor and the main information resource (Bukatov N., Kalanda E., Lysenko S., Pushkarev Yu.V. 2013).

This especially becomes important that the main sources of economic growth and improving the welfare of the society, the move from physical capital to accumulated knowledge and information resources.

Education has always played a key role in the history of mankind. Giving impetus to new technologies, shaping the public consciousness, it was a tool that allowed you to save society itself.

Education now has become the subject of great attention from scientists because of the following circumstances:

– new requirements to the quality of training, in particular, by increasing the specific weight of the scientific potential in society and acceleration on the basis of economic development, put forward the problem of the "pull" of the education system to the level of development of economy and science;

– increase the number of people involved in the field of education;

– the reduction of the period of depreciation of knowledge " in the past, engineers were able to use their special knowledge in the next 20-25 years, now it lasts for 7-10 years, and this, in turn, aims to improve knowledge practically in their lifetime;

– the increase in the number of jobs requiring higher and secondary education;

– the changing correlation between mental and physical labor all the more boldly serving a trend in favor of the first, which means there is a real and very intense process of intellectualization of labor;

– changing social roles and functions of education in modern society.

However, unregulated market economic processes have a negative impact on social development (Pryanikov B. P., 2006) and contribute to the leveling of the value of education in the contemporary social development.

According to C. A. Sadovnichy specifics of development of educational space in the modern world, primarily related to its devaluation: "I would like to discuss the meaning I mean by "education" (Sadovnichij V. A., 2002, p. 93). We are talking about a fundamental education. It is education, getting that person can continue to work independently, learn and relearn. He knows the laws of nature, the laws of development of society, able to reason logically, to analyze and relate the facts to make decisions, to study the phenomenon from a scientific point of view. This education has always been famous for Russia in tsarist times, and in the Soviet, and in our days. This "heavy" education leading role is always held several universities. They created the glory of our education system and asked her level and today in our country there are dozens of such universities.

Experience shows that it is not always economic downturn are accompanied by a reduction of the role of higher education (Semenov E. V., Semenov N. N., Jurevich A. V., 2004, Segal B. A., 2014).

On the contrary, higher school in the interests of the state and society should form the workforce of the future economy, to develop socio-economic development of structural, technological, social innovations, warning youth unemployment and, mainly, to preserve the cultural, educational and scientific potential, invest in the concept of intellectual culture.

Education is the Foundation of intellectual culture, its basis, and society cannot function normally and to develop without a system of cultural values (Šmajs, J. 2013). Structures of education belong to one of the first places in the formation of culture.

Intellectual culture, covering the most significant facets of a person, contributes to the formation of a professional.

It is understood in the broad sense of the word intellectual culture of a society accumulates, reproduces and creates special information in the form of a system of values, ideas, ideals, traditions, forms and norms of communication and behaviour, and so on).

Intellectual culture creates freedom in diversity, which contributes to the self-organization of major social forces and movements.

3. Innovative Activity in High School in Russia for Development of a National Economy

In the conditions of market economy, post-industrial civilization crucial for the stability of social development acquires scientific-educational sphere (Pushkarev Y. V., Pushkareva E. A., 2012). Today, the priority development of science and education in relation to other human activities.

Now, in Russia occur set of the processes mentioning system of higher education. One of the most important reforms is selection of the best high schools and formation of system of national high schools of the country. Criteria of selection the most different the rate, basically, on maintenance of a qualitative level of higher education, however, is made. It speaks that the satisfaction of needs of a society and realization of those hopes which it assigns to higher education, depends, finally, on qualification of teaching structure, a qualitative level of programs and knowledge of students, and also from an infrastructure of higher education and a condition of the academic environment. Quality of formation directly depends on quality of its components? Educational, scientific and methodical base. Parameters of quality change depending on qualitative and quantitative structure of consumers of educational services, subjective opinion of their parents, requirements of the employers, changing conditions of a labour market, policy of bodies of the government in the field of higher education and other conditions. In present clause there is no opportunity to characterize all these aspects, therefore we shall be guided by a problem of high school to provide needs of a national economy for qualified personnel for changing conditions of modern economy. Transition from a planned economy to market attitudes in the Russian Federation has served as the reason of a choice of economy of our country of the trajectory of development. For its formation it is necessary to solve a number of the problems connected both with a situation inside of Russia, and with world tendencies. Reform of economic attitudes in the country has dictated necessity not only real changes in a control system of branches, but also revision of a condition of a fixed capital of establishments and the organizations. In Russia it is necessary to carry to number of the most significant negative consequences of extensive development of economy prevalence at the enterprises of many branches of an obsolete fixed capital with the big degree of deterioration, old "know-how", etc. to All this finally has led to that many enterprises on a labor productivity level and quality of let out production mismatch rigid competitive requirements of the world commodity markets. These processes occur on a background of the next world economic crisis, struggle for commodity markets, globalization and re-structuring of economy of leading world powers. Everything, described in the literature, economic crisis's came to an end with re-structuring of manufacture and introduction of innovative technologies, the goods and services. Unfortunately, now, a weak part of the organizational-economic mechanism of management of national economy is the mechanism of management of innovations which should promote

intensive development of economy, provide acceleration of introduction of last achievements of science and technology in manufacture, is fuller satisfy inquiries of consumers in various high-quality production and services.

Innovative activity as process of creation, development and distributions of innovations, is base for development of any system including economy of the state, higher education and high school. In the developed conditions at high school a dual problem. On the one hand to raise the competitiveness due to quality of formation, on the other hand to prepare innovatively active staff for development of a national economy. Considering a problem of influence of innovative activity of high school on quality of formation, it is necessary to pay attention to three processes, proceeding in high school. First, in high school activity on creation of innovations to which kinds of the works concern, creations concerning process, development and distribution of innovations is carried out.

Secondly, in high school there is a training innovative activity? It is a special kind of work of high school which stimulates its development, both in the high school, and in branch that has essential value in conditions of formation of the economy based on knowledge. Besides this process reproduces the innovative staff. Thirdly, directly educational activity of high school is the factor of support and development of innovations. In spite of the fact that this process is traditional for high schools, modern market attitudes give to it new sense. During when the information becomes way of attraction of investments, in high schools courses of improvement of qualification, seminars-trainings and round tables on problems of development of branch became widely demanded. It allows high schools to distribute the information on innovative activity of branch, stimulating that its development. Thus, analyzing quality of formation in high school, it is necessary to pay attention to those moments which characterize innovative activity of high school. We shall consider them in more detail.

The modern higher education should be guided by new achievements in branch. Technologically prepared students, as are necessary to modern economy? Knowledge of the maintenance? Is not more ultimate goal of the formation, the student should use the received knowledge for creation of new knowledge, decisions of problems, decision-making, creations of production and interaction with an environment. For this purpose it is necessary to change the developed system of preparation, to focus it on interdisciplinary interactions, to increase a share of independent work of the student, to stimulate its research work, to develop at students skills of the analysis of situations, self-estimations, communications, public performances, decision-making, search of new knowledge, etc. as Criterion of quality of this process employment of graduates of high school in scientific research institutes, on the innovative enterprises, in developmental laboratories and other innovative organizations of branch can serve.

Preparation, both students, and listeners of a post degree grade level should form innovative thinking. In this case the branch will receive innovatively active staff. As the modern cycle of obsolescence of the information makes nearby 3 - 5 years improvement of professional skill of the staff should occur to the same frequency. Continuous interaction of high school with the enterprises from here follows. Therefore as criteria of quality of formation the parameters used at accreditation can serve aspect: - number of branches of a science on specialties of science officers (postgraduate study); - number of post-graduate students on 100 students of the

contingent led the internal form of training; - percent of the post-graduate students who have protected the dissertations not later than in year after the termination of postgraduate study (from number acted); - presence of doctoral studies; - dissertational advice; - realization of educational programs of professional retraining and (or) improvements of professional skill of executives and experts, scientific and scientific and pedagogical workers; - a mid-annual contingent trained on educational programs of professional retraining and (or) improvements of professional skill. On the other hand cooperation between high school and the enterprises of branch is not limited to preparation innovative active staff, the exchange of innovative ideas which will serve development of innovative activity of region is necessary. Forms of such interaction are the organization of training and industrial practices on the basis of innovative firms, the consultations rendered by employees of high school for development of innovative process of given firms, purchase of innovative ideas of employees of high school by the innovative enterprise, etc. It is a kind of innovative cooperation it can be carried out with all innovative firms and be registered in corresponding documents.

For innovatively active high school important that the greatest quantity of faculties has been involved in preparation, retraining and improvement of professional skill of experts for innovative activity of branch as interdisciplinary preparation raises quality of innovatively active staff, allowing them to be guided in unforeseen situations which often arise in the market of innovative activity. And, undoubtedly, for such training the teaching personnel with innovative style of thinking are required. Having studied an innovative cycle of creation of new production, we have come to conclusion, that its base part is research work which is an integral part of activity of high school. Hence, quality of formation should depend not only on vocational training students, but also from their participation in research work, conferences, grants, scientific training in Russia and abroad. Attraction to innovative activity of students increases a level of preparation of experts. Besides use of an individual approach in training and selection of capable students to creative activity focus them on continuation of work in high schools and scientific research institute. Criteria of quality of formation are reduced to quantity of publications, patents, the licenses, the deposited manuscripts, reports on grants, diplomas in passage of training, awards, letters and other acknowledgement of research work of students. Process of constant self-improvement of teachers necessary for qualitative formation cannot be torn off from practical scientific activity.

The teacher of high school cannot teach up to the mark a subject matter, getting the knowledge only from textbooks, not having any practical experience of use of the received knowledge. The above the level of scientific potential of the teacher, the is more at it than an opportunity to prepare the expert, capable to carry out progress in practical activities. In this case criteria of quality standard: quantity of grants, publications in the magazines recommended by the Maximum certifying commission, monographies of the deposited manuscripts, the documents registering results of intellectual property, scientific premiums and other awards. Without large-scale use in educational process of new educational technologies today it is impossible to provide new quality of formation and competitiveness. High schools are the main keepers of the mental potential which has been saved up by a society. In new system of higher education there are requirements, in many respects caused by necessity of interdisciplinary rates and programs, especially in areas which have strong interrelation with branch. Innovative activity of modern

high school represents an innovation of methodical maintenance of educational process, technologies of process of training, rendering of innovative educational services, etc. Such innovative educational technologies can be shined in clauses, methodical recommendations for teachers, monographies, in mass media, etc.

Summing up to all above told, it is possible to draw a conclusion that from a position of development of a national economy, quality of formation depends on ability of graduates innovatively to think, create, master and distribute new technologies and to introduce them both on a level of production of the goods and service, and at a level of branch. The cycle of a life of knowledge is rod process around of which will organize the activity high school. In turn process of updating of knowledge, realization of fundamental discoveries are obligatory elements of ability to live of high school. In it the new knowledge, old models is generated, new experimental effects which require an explanation turn out, new technologies are formed, and all this in aggregate is a basis for qualitative formation and increase of competitiveness of high school.

Distinctions between traditional and innovative education systems consist, first of all, in a purpose which is realized by means of different educational technologies. It is necessary not only let out the expert who has received preparation of a high level, but also to include it already at a stage of training in development of new technologies, to adapt for conditions of the concrete industrial environment, to make its conductor of new decisions which are successfully carrying out functions of the manager. Experts who are prepared by high school, should correspond not only to the latest requirements of various fields of activity of a society, but also should be ready to realization of progress in all these areas. Therefore, from our point of view parameters of quality of formation should reflect productivity of innovative activity in high school.

4. References

Aleksandrovna, L. O., & Aleksandrovna, P. E. (2014). BUSINESS KNOWLEDGE SOCIETY: SCIENTIFIC AND EDUCATIONAL DEVELOPMENT PRIORITIES. (English). Novosibirsk State Pedagogical University Bulletin, 21(5), 99.

Bukatov, N., Kalanda, E., Lysenko, S., & Pushkarev Yu, V. (2013). Integration of educational systems and the problem of formation of new person in the higher education. Novosibirsk State Pedagogical University Bulletin, (1), 43-49.

Canterbery, E. R. (1995). Post-Capitalist Society. Society, 32(4), 84–88.

Castells, M. (2003). The internet galaxy : reflections on the internet, business, and society. Oxford : Oxford University Press, 2003.

Drucker, P. F., & Noel, J. L. (1986). Innovation and Entrepreneurship: practices and principles. The Journal of Continuing Higher Education, 34(1), 22-23.

Hoffmann, A. B. (2008). Traditions and innovations in modern Russia: the sociological analysis of interaction and dynamics.

Latuha, O. A., & Pushkarev, Y. V. (2012). Economic development of modern society and the problem of innovation staff training. Novosibirsk State Pedagogical University Bulletin, 5, 50-56.

Latuha O.A., Pushkarev Yu.V. (2013) Role of higher educational institutions in creation of innovations. Novosibirsk State Pedagogical University Bulletin.

Leonov A. M. (2004) Science of complexity in the postmodern era. Monograph. Yakutsk, Yakutsk University Publ.,

Masuda, Y. (1980). The information society as post-industrial society. World Future Society.

Masuda, Y. (1980). The information society as post-industrial society. World Future Society.

Mayer B. O. (2012) Technology Platform “Education”: ontological analysis. Novosibirsk State Pedagogical University Bulletin,

Mayer B.O. (2012) About the pattern «double bind» in modern society and education Novosibirsk State Pedagogical University Bulletin

Mayer B.O., Tkachev A.V. (2011) The value levels of consumer choices and the gender differences. Novosibirsk State Pedagogical University Bulletin

Neimatov, Y. M. (2002). Education in the XXI Century: Trends and Forecasts.

Pryanikov, B. P. (2006). Methodology theories of labor and capital: a retrospective of the new time and the prospect of the knowledge economy.

Pushkarev, Y. V., & Pushkareva, E. A. (2012). Development of education in the new system of values of global society. Novosibirsk State Pedagogical University Bulletin, 4, 20-25.

Sadovnichij V. A. (ed.) (2002) Education which we can lose. Moscow: the Moscow State University Publ.

Segal, B. A. (2014). POLYSEMY OF REORGANIZATIONS OF THE HIGHER SCHOOL. Novosibirsk State Pedagogical University Bulletin, 18(2).

Semenov, E. V., Semenov, N. N., & Jurevich, A. V. (2004). Science in Russia: current status and strategy for recovery. Series “Research reports”.

Šmajs J. (2013) The declaration of dependence. Novosibirsk State Pedagogical University Bulletin

Webster F. (2002) Theories of the Information Society. Second Edition. L., Routledge.

Incorporating the Financial Variables Using Two Step DEA Efficiency Evaluation: Case Study of Slovak Gynaecology Departments

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Abstract: *One of the available approach to improve performance of healthcare facilities is Data envelopment analysis - DEA. This method with its variations and supplementary methods, such as regression models, is widely used in many countries of the world. Financial indicators are often included in DEA models. We excluded them from DEA analysis and we included them into second step of two step DEA. This has helped us to determine the impact of these financial indicators on efficiency of gynaecological departments in 8 regions of Slovak republic. We have selected following financial variables: Material costs, Operational Costs and Total revenues. Two step DEA analysis, using truncated regression, shows that these indicators are not suitable to determine efficiency of selected departments.*

Key words: DEA, departments, efficiency, truncated regression, two step DE

JEL codess: H43, C52, G17

1. Introduction

The healthcare system consists of a comprehensive set of entities, activities and processes and covers a wide range of participants, where each of them brings different set of needs, priorities and evaluation criteria. On the issue of efficiency evaluation is paid attention mainly in profit sector. The closer look from the side of public hospitals shows the less use of financial indicators in the process of efficiency evaluation. Public hospitals don´t strive for profit achievement, but it does exist other aspects within those they have an interest for efficiency evaluation. Yusefzadeh and Ghaderi (2013) maintain, that the efficiency and budgeting of public hospitals is dependent on their ability to measure and economic efficiency. Villalobos et al. (2016) performed the study in 193 public hospitals in Chile and they found that the main motivator for measurement economic efficiency in these organizations was the pressure and requirements from the side of stakeholders. Effort to obtain additional financial resources with aim to improve

provision of services was also important motivator. Similar study performed also Li and Dong, S., (2015).

They presented the set of measuring and benchmarking efficiency of public hospitals in Tianjin. One of the reasons was the possibility to influence the attitude of society, what is linked with the fact that measurement efficiency can serve as effective marketing tool. Ineveld et al. (2015) described the usefulness of measurement efficiency mainly in period of restructuralization. With the aim of improvement and retention of services quality can be measurement effective tool. The question is what should be measured? Indicators of economic efficiency are inputs, outputs and influence variables. These indicators are derived from private sector, but they are usable also in conditions of public hospitals.

2. Methodology

If we want to quantify the influence of selected financial measures we first need to choose proper methods for this purpose.

2.1. Methods

To check if there is influence of financial variables on efficiency of selected departments we have to first compute the efficiency scores using CCR output oriented DEA model according to following Cooper´s et al. (2007) input oriented model just as a reciprocal value 1/ θ.

$$\max_{u,v} \theta = \frac{u_1 y_{1o} + u_2 y_{2o} + \cdots + u_s y_{so}}{v_1 x_{1o} + v_2 x_{2o} + \cdots + v_m x_{mo}} \quad (1)$$

$$\text{while } \frac{u_1 y_{1j} + \cdots + u_s y_{sj}}{v_1 x_{1j} + \cdots + v_m x_{mj}} \leq 1 \quad j = 1,2, \dots, n$$

$$v_1, v_2, \dots, v_m \geq 0$$

$$u_1, u_2, \dots, u_s \geq 0.$$

For better understanding of this method see Cooper et al. (2007).

Then we need to use regression to check the influence of explanatory variables on computed efficiency. For this purpose is often used (see Flokou et al. (2016); Gholami et al. (2015); Li and Dong (2015); Araújo et al. (2013); Kounetas a Papathanassopoulos (2013); Mitropoulos et al. (2012); Varabyova and Shreyogg (2013); Chaabouni a Abednnadher (2012); Blank a Hulst (2010); Blank and Valdmanis (2010)) truncated regression. To get consistent estimates of regression model we need to use method/algorithm proposes by Simar and Wilson (2007) which by using the double bootstrap mechanism provides bias corrected DEA efficiencies suitable for using in regression models. As we mentioned, we will use truncated regression model which has form:

$$\delta_i = z_i \beta + \varepsilon_i, i = 1, \dots, n \quad (2)$$

where δ_i is DEA efficiency score of selected DMU, z_i is set of explanatory variables, β are regressors and ε_i is standard error. If we use algorithm proposed by Simar a Wilson (2007) truncated regression model will have following form:

$$\widehat{\delta_i}^{BC} \approx z_i\beta + \varepsilon_i, i = 1, \dots, n, \text{ where } \varepsilon_i \geq 1 - z_i\beta \quad (3)$$
$$\text{and } \varepsilon_i \sim N(0, \sigma_\varepsilon^2)$$

where $\widehat{\delta_i}^{BC}$ is bias corrected efficiency using the second algorithm proposed by Simar and Wilson (2007).

Data will be truncated left to point 1, because output efficiencies are in interval 1 to infinity. The main idea of this regression is that both, explanatory and dependent variables under this boundary are latent.

3. Data and variables

For the purpose of our study we chose as the object of research gynaecology departments of secondary health care providers. According to the data provided by the National centre for health care information (NCHI) we chose to evaluate the efficiency between 8 regions in Slovakia according to NUTS 3 classification. Data were provided for 6 years (2009 till 2014). We selected Window approach, which means that department in selected year will be handled as unique DMU. As input variables for DEA CCR model we chose according to the most used variables presented in Hadji et al. (2014) and according to the availability of variables provided by NCHI following variables: *Number of Beds* – average value in selected year, *Average Length of Stay, Number of Doctors, Number of Nurses* – both average numbers in selected year. As output variables we chose *Number of Inpatients* and *Bed Occupancy Rate* in %. As explanatory variables we selected following financial variables: *Material Costs, Operational Costs* and *Total Revenues.* Then we constructed panel with 48 DMUs.

4. Results

If we want to analyse efficiency in gynaecological departments we need to prepare data for purpose of this analysis. Table no. 1 shows the basic descriptive statistical indicators of input and output variables of DEA CCR output model. Data were provided by National centre for health care information. We do not have permission to show whole dataset so we chose this data presentation.

Table 1: Descriptive statistics of inputs and outputs of model DEA

Statistic	Number of Beds	ALOS	Number of Doctors	Number of Nurses	Number of Inpatients	Bed Occupancy
N	48	48	48	48	48	48
Mean	326.81	4.69	54.05	174.05	15,613.38	62.81
St. dev.	64.45	0.45	14.74	38.87	3,209.50	5.42
Min	242	4.00	33.43	107.09	10,895	49.10
Max	451	5.50	81.90	262.50	22,056	71.50

Source: Own processing according to data provided by NCHI

During selected period, there were in average 327 beds. In case of gynaecological department belongs to one doctor an average of 6 beds. The average number of nurses were almost three times higher than that of the number of doctors. Average length of stay was about four and a half days, with a minimum value recorded during each year in these regions has been four days and a maximum of 5.5 days. Bed occupancy, in average, was at nearly 63%. Bed occupancy minimum value was recorded in the Banska Bystrica region, there remained unused every other bed. On the contrary, the highest values were recorded in the Bratislava region. Table no. 2 shows the descriptive statistics of explanatory variables.

Table 2: Descriptive statistics - explanatory variables

Statistic	Material Costs	Operational costs	Total Revenues
N	48	48	48
Mean	905,332.50	447,592.70	7,799,875.00
St. Dev.	435,543.20	201,680.50	3,314,163.00
Min	408,992.00	193,114.00	3,752,557.00
Max	1,973,676.00	958,932.20	15,896,758.00

Source: Own processing according to data provided by NCHI

Material and operational costs were highest in the Bratislava region, by contrast, they were lowest in the Banska Bystrica region. Sales of individual departments were on average about € 7.8 million. The highest sales were recorded in Bratislava region, the lowest in Banska Bystrica region. In the table no. 3, there are results of efficiency evaluation.

Table 3: Results of efficiency evaluation

DMU	CCR_OUT	CCR_OUT_DB	CI_LB	CI_HB
BA14	1.0645	1.0855	1.0499	1.1062
BA13	1.1035	1.1254	1.0907	1.1456
BA12	1.0735	1.0909	1.0600	1.1063
BA11	1.1180	1.1402	1.1051	1.1571
BA10	1.0891	1.1172	1.0904	1.1373
BA09	1.0728	1.1049	1.0695	1.1363
TT14	1.1666	1.2003	1.1624	1.2337
TT13	1.1043	1.1289	1.0993	1.1513
TT12	1.0714	1.1018	1.0568	1.1308
TT11	1.0593	1.1041	1.0382	1.1439
TT10	1.0039	1.0437	0.9785	1.0808
TT09	1.0000	1.0870	0.9565	1.1726
TN14	1.0785	1.1119	1.0746	1.1401
TN13	1.0717	1.1080	1.0597	1.1431
TN12	1.2392	1.2847	1.2346	1.3229
TN11	1.2338	1.2814	1.2350	1.3262
TN10	1.1548	1.2002	1.1572	1.2387
TN09	1.0547	1.1010	1.0555	1.1449
NR14	1.0303	1.0587	1.0042	1.0869
NR13	1.0396	1.0697	1.0133	1.0989
NR12	1.0334	1.0646	1.0069	1.0953

DMU	CCR_OUT	CCR_OUT_DB	CI_LB	CI_HB
NR11	1.0501	1.0876	1.0421	1.1236
NR10	1.0062	1.0327	0.9805	1.0587
NR09	1.1065	1.1575	1.0683	1.2067
ZA14	1.1070	1.1463	1.1105	1.1844
ZA13	1.0269	1.0658	1.0224	1.1037
ZA12	1.0000	1.0623	1.0098	1.1213
ZA11	1.0000	1.0921	0.9325	1.1794
ZA10	1.0542	1.0938	1.0392	1.1323
ZA09	1.0000	1.0510	1.0008	1.1002
BB14	1.0674	1.0975	1.0711	1.1231
BB13	1.1743	1.2148	1.1607	1.2456
BB12	1.3290	1.3716	1.3203	1.4060
BB11	1.2657	1.3120	1.2637	1.3524
BB10	1.2468	1.2920	1.2233	1.3336
BB09	1.0000	1.0932	1.0404	1.1763
PO14	1.2584	1.2930	1.2568	1.3259
PO13	1.3071	1.3441	1.3064	1.3723
PO12	1.3706	1.4156	1.3497	1.4540
PO11	1.3814	1.4436	1.3698	1.5008
PO10	1.2852	1.3450	1.2792	1.3949
PO09	1.2264	1.2983	1.2270	1.3636
KE14	1.0000	1.0115	0.9895	1.0227
KE13	1.0181	1.0290	1.0043	1.0393
KE12	1.0000	1.0203	0.9681	1.0405
KE11	1.0368	1.0506	1.0297	1.0642
KE10	1.0302	1.0411	1.0083	1.0517
KE09	1.0711	1.0910	1.0483	1.1106

Source: Authors

Notes: BA – Bratislava region, TT – Trnava region, TN – Trencin region, NR – Nitra region, ZA- Zilina region, BB – Banska Bystrica region, PO- Presov region, KE, Kosice region; CCR_OUT – output oriented efficiency according to CCR DEA model, CCR_OUT_DB – efficiencies after second loop of S&W (2007) algorithm, CI_LB – confidence interval of bootstrapped efficiencies lower boundary, CI_UB – conf. interval upper boundary, $\alpha = 0.01$. 1st loop - 100 iterations, 2nd loop - 2000 iterations.

It should be mentioned, that only efficient DMUs are these with efficiency 1, other are inefficient, the higher number of efficiency score, the worse efficiency. This because of output orientation. Only 7 DMUs were efficient. Zilina region appears to be the most efficient region since it was efficient 3 times. Kosice region was efficient 2 times. In the second column, there are double bootstrapped efficiencies. As one can see, no DMU is efficient, this is because the values of original efficiencies were adjusted by stochastic error, so the efficiency worsened. Columns number 3 and 4 shows confidence intervals for these bootstrapped efficiencies at 0.01 significance level. This can help to check if there were for example significant increase or decrease of efficiency – there is no interject of intervals between selected years. This can be observed for example in case of Trencin region (TN09 – TN10) between years 2009 and 2010, the efficiency significantly worsened. Table no. 4 shows the results of truncated regression.

Table 4 on the next page.

Table 4: Regression model

		Dependent variable:
		CCR_OUT_DB
Intercept		1.3811 ***
		(0.0837)
Material Costs		1.7046e-07
		2.8807e-07
Operational Costs		-1.4255e-06 ***
		4.3696e-07
Total Revenues		2.0559e-08
		3.6691e-08
Sigma		0.1204 ***
		0.0210
Log Likelihood		58.412
R-Squared		0.286
Note:		*p<0,1,**p<0,05,***p<0,01

Source: Own Calculation

As can be observed, the only statistical significant variable are operational costs. In fact there is problem with mathematical sign of this regressor. It means that by increasing the value of operational costs, the efficiency score will decrease, and in fact, the efficiency will be better. The R-squared value is quite low. Model describes only 30% of variability of dependent variable.

5. Discussion, limitations and conclusions

Material costs, operational costs and total revenues are frequently used financial measures used in DEA efficiency evaluation (Hadji et al., 2014; O´Neill, 2008). We exclude these financial variables from DEA analysis because we wanted to find out if they are suitable for use of purposes of selected departments in terms of Slovak Republic health care. These variables could be used by evaluation of economic efficiency, which is different from technical efficiency computed by DEA. Our results showed that according to human resources and health care indicators there are only 7 of DMU efficient. Results of regression models showed, that use of financial indicators is not suitable to explain efficiency of gynaecological departments in terms of Slovak Republic. This can be caused by non-for profit orientation of Slovak departments in secondary health care hospitals. However, in other departments, these indicators could perform better. There is a wide gap of research in this filed in Slovak Republic. More departments, hospitals and other health care facilities can be evaluated, only limitation is in availability of data and in cooperation of Ministry of Health with research subjects.

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7. References

Araújo, C., Barros, C. P., & Wanke, P. (2014). Efficiency determinants and capacity issues in Brazilian for-profit hospitals. Health Care Management Science, 17(2), 126–138. https://doi.org/10.1007/s10729-013-9249-8

Blank, J. L. T., & Valdmanis, V. G. (2010). Environmental Factors and Productivity on Dutch Hospitals: A Semi-parametric Approach. Health Care Management Science, 13(1), 27–34. https://doi.org/http://link.springer.com/journal/volumesAndIssues/10729

Blank, J., & van Hulst, B. (2011). Governance and Performance: The Performance of Dutch Hospitals Explained by Governance Characteristics. JOURNAL OF MEDICAL SYSTEMS, 35(5), 991–999.

Chaabouni, S., & Abednnadher, C. (2012). Efficiency of public hospitals in Tunisia: a DEA with bootstrap application. International Journal of Behavioural and Healthcare Research, 3(3–4), 198–211. https://doi.org/10.1504/IJBHR.2012.051380

Cooper, W. W., Seiford, L. M., & Tone, K. (2007). Data envelopment analysis : a comprehensive text with models, applications, references and DEA-solver software. New York : Springer, c2007.

Flokou, A. (1), Aletras, V. (1, 2), & Niakas, D. (1). (2016). Decomposition of potential efficiency gains from hospital mergers in Greece. Health Care Management Science, 1–18. https://doi.org/10.1007/s10729-016-9365-3

Gholami, R., Añón Higón, D., & Emrouznejad, A. (2015). Hospital performance: Efficiency or quality? Can we have both with IT? Expert Systems With Applications, 42, 5390–5400. https://doi.org/10.1016/j.eswa.2014.12.019

Hadji, B. (1, 2), Melikeche, S. (1), Degoulet, P. (1, 4,5), Meyer, R. (3), & Escalon, S. (5). (2014). Assessing the Relationships Between Hospital Resources and Activities: A Systematic Review. Journal of Medical Systems, 38(10). https://doi.org/10.1007/s10916-014-0127-9

Kounetas, K. (1), & Papathanassopoulos, F. (2). (2012). How efficient are Greek hospitals? A case study using a double bootstrap DEA approach. European Journal of Health Economics, 1–16. https://doi.org/10.1007/s10198-012-0446-z

Li, H., & Dong, S. (2015). Measuring and Benchmarking Technical Efficiency of Public Hospitals in Tianjin, China: A Bootstrap-Data Envelopment Analysis Approach. Inquiry: A Journal Of Medical Care Organization, Provision And Financing, 52. https://doi.org/10.1177/0046958015605487

Mitropoulos, P. (1), Mitropoulos, I. (1), & Sissouras, A. (2). (2012). Managing for efficiency in health care: the case of Greek public hospitals. European Journal of Health Economics, 1–10. https://doi.org/10.1007/s10198-012-0437-0

O'Neill, L., Rauner, M., Heidenberger, K., & Kraus, M. (2008). A cross-national comparison and taxonomy of DEA-based hospital efficiency studies. Socio-Economic Planning Sciences, 42, 158–189. https://doi.org/10.1016/j.seps.2007.03.001

Simar, L., & Wilson, P. W. (2007). Estimation and inference in two-stage, semi-parametric models of production processes. Journal of Econometrics, 136, 31–64. https://doi.org/10.1016/j.jeconom.2005.07.009

van Ineveld, M. (1), van Oostrum, J. (1), Steenhoek, A. (1), van de Klundert, J. (1), & Vermeulen, R. (2). (2016). Productivity and quality of Dutch hospitals during system reform. Health Care Management Science, 19(3), 279–290. https://doi.org/10.1007/s10729-015-9321-7

Varabyova, Y., & Schreyögg, J. (2013). International comparisons of the technical efficiency of the hospital sector: Panel data analysis of OECD countries using parametric and non-parametric approaches. Health Policy, 112(1–2), 70–79. https://doi.org/10.1016/j.healthpol.2013.03.003

Villalobos-Cid, M., Chacón, M., Zitko, P., & Instroza-Ponta, M. (2016). A New Strategy to Evaluate Technical Efficiency in Hospitals Using Homogeneous Groups of Casemix. Journal of medical systems, 40(4), 1-12.

Yusefzadeh, H. (1), Ghaderi, H. (1), Bagherzade, R. (2), & Barouni, M. (3). (2013). The efficiency and budgeting of public hospitals: Case study of Iran. Iranian Red Crescent Medical Journal, 15(5), 393–399. https://doi.org/10.5812/ircmj.4742

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