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CONTENTS

MANDATORY CONVERTIBLES

Luděk Benada

ANNOTATION

The following article presents Mandatory Convertibles as an instrument of hybrid financing. The paper describes its genesis, characteristics and advantages over traditional financing instruments. There are graphically depicted different pay-off profiles and decomposition, which is important for the valuation of the product.

KEY WORDS

bond, coupon, equity, pay-off profile, share, underlying asset

INTRODUCTION

Mandatory convertibles are hybrid financial instruments. This financial instrument is linked to equity, but has also some elements of foreign capital. The tool looks like almost follows: The Mandatory convertible will be issued by an issuer and at the beginning has characteristics of bonds. Then the investor receives the interest on coupon. After the expiry of a predetermined period[1] it will be converted to shares. The position of the creditor will be changed and he gets a share capital of the company.[2]

AIM AND METHODOLOGY

The aim of this paper is to present and describe an unconventional method of obtaining capital resources through a hybrid equity instrument. The purpose is to show its potential uses and advantages over stocks and bonds.

RESULTS

Mandatory Convertibles were launched in 1988. By the time, their popularity is growing and becoming very popular between investors, especially in the USA. In 1996 amounted to issued Mandatory Convertibles about 5 MLD USD. In 2001 their value on the market reached 20 MLD USD. Mandatory Convertibles are designed with various pay-off profiles. The final form of pay-off profile is also responsible for a specific name of Mandatory Convertibles. The designation depends on who is the issuer.[3] Previously emissions have been performed for many companies. The capital increase involved both large enterprises as well as smaller companies.[4]

Characteristic of the product

The typical feature of this instrument is that the course of Mandatory Convertibles develops in a strong dependence on the underlying asset.[5] Therefore, the development of the price of Mandatory Convertibles strongly correlates with the share price. Unlike stocks, however, has a limited growth potential. The paid coupon interest offsets the mentioned lack.

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[1] Conversion period.

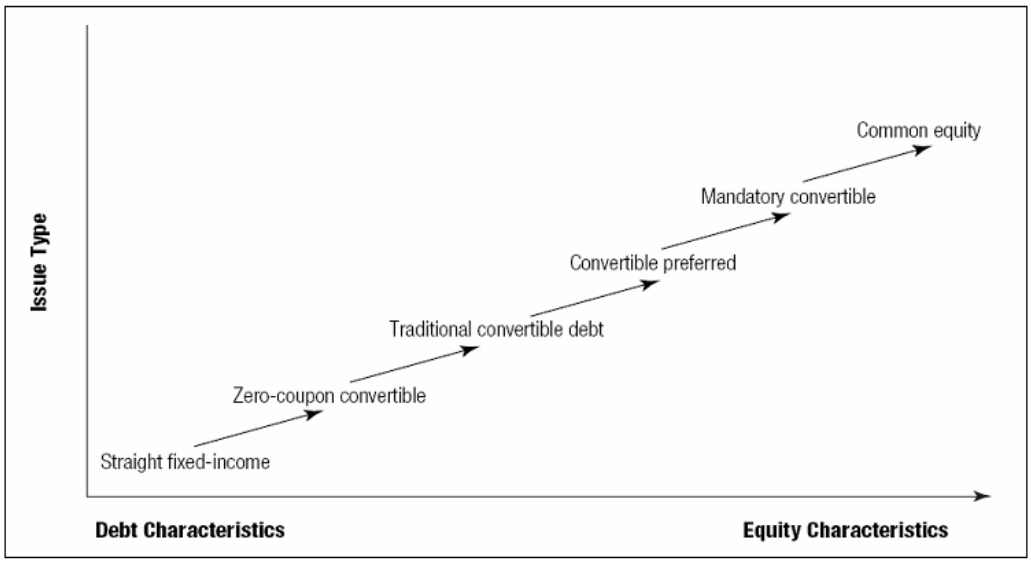
[2] It is not imperative that the exchange was realized for the shares of the issuing company. It is possible to receive shares from a third party.

[3] For instance, Morgan Stanley's uses naming PERCS and PEPS, Merrill Lynch's Prides, Salomon Brothers and Goldman Sachs DECS ACES.

[4] Texas Instruments, General Motors, Citicorp. Sears, Kaiser Alumnium, Reynolds Metals, American Express, First Chicago, Boise Cascade, AT & T and others.

[5] Depends on the share price.

The overview of financial instruments used to finance



Source: Mayers Weinstein 2003, s. 26

The figure shows that Mandatory Convertibles are due to its properties close to shares.

Among the most widely used types include PECS[6] and DECS[7]. As already mentioned a typical feature of these financial instruments is their automatic conversion into shares at a predetermined time. Mostly between 3 to 4 years after their release.

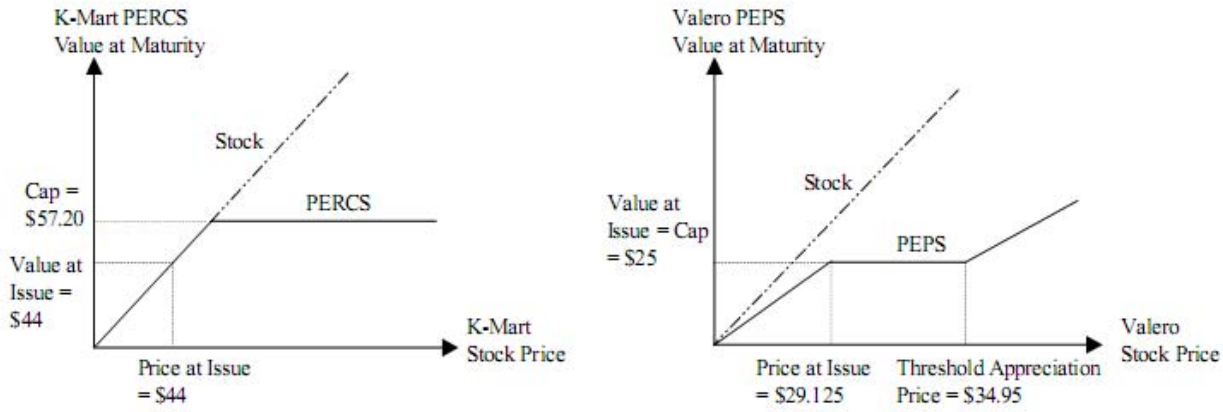
To illustrate better the feature of pay-off profiles two examples will be further mentioned. The first exampel shows PERCS of K-Markt at the time of maturity as a function of its underlying assets.[8] The second picture is the PEPS at the time of graduation.[9] Both instruments were underwritten by Morgan Standley. It is interesting to compare the two profiles mandatory convertibles. While K-Mark PERCS had a hard cap on the value of U.S. $ 20.28, holders of Valero PEPS partly participated (83.3%) on the underlying asset, even if the share price exceeds specified amount.

In other words, while investors of PERCS received 100% on its underlying asset value if the stock rate ranged from 44.00 to 57.20 USD. Investors of PEPS was below the value with its investment until the shares if the value does not exceed 34.98 USD. Then the owners of PEPS

[6] Preferred Equity Redemption Cumulative Stock.
[7] Debt Exchangeble for Common Stock.
[8] In September 1991, floated by K-Mart for 44.00 USD PERCS totaling 1.012 MLD USD. PERCS paid dividends of 7.75% while the shares was at that time, only 4%. All PERCS were converted in shares 15th September 2004. It was one PERCS per share. There were established a cap on the value of 57.20 USD. If the stock price exceeded the value of 57.20 USD, the investor would receive for each unit of PERCS only a proportion of the value of the share.
[9] In June 2000, the company Alero Energy issued PEPS in a total worth 150 MLD USD. Unit of PEPS was 25 USD. This corresponded to the price of 0.85837 shares. The actual price of the share was at this time 29.125 USD. There was a dividend from PEPS of 7.75%. By contrast, the dividend for ordinary shares reached only 2.75%. PEPS has been converted into ordinary share 18th August 2003. The conversion of PEPS depended on the share price at the time of maturity. If the share price stood at 29.125 and below (i. E. 085837 shares would be worth $ 25 or less), then each PEPS unit would be convertible to ordinary shares of 085837. If the share price was in the corridor 29.125 and 34.98, ten the holders of PEPS get a variable number of ordinary shares, which ultimately would be value of 25 USD. In other words by the cap of $ 25. In the case that the share price exceeds 34.95 USD, each PEPS holder would receive 0.71531 ordinary shares.

did not participate if the growth of shares was only 20% (29.125 USD - 34.98 USD). After crossing the border investors could make again partly profit from the share price growth.

Pay-off profile in the time of maturity PERCS and PEPS[10]



(a) K-Mart PERCS (b) Valero Energy PEPS

Source: CHEMANUR, T., DEBARSHI, N.; Why issue Mandatory Convertibles? Theory and Empirical evidence, Boston 2003.

The construction

Mandatory convertibles are in the category of structured products. Its design, therefore, based on use of:

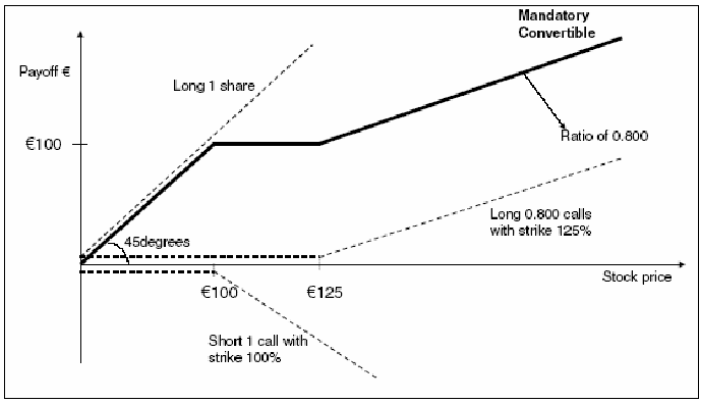
- Equity component
- Product with a fixed-interest (bonds)
- Derivative[11]

The decomposition

The advantage of this instrument is its flexibility. For example, it is possible incorporate an option to PERCS and so create DECS. After that the status of investor will be changed. Previously, the investor was limited in a profit and now can continue participate in the growth of the underlying asset.

[10] Dividents are not included.
[11] Stock and index futures, options on stocks, swaps ect.

Mandatory Convetibles - Decomposition



Souce: *Taylor 2003, s. 4*

The use of PERCS comes into account if the financial situation of potential issuer does not have a healthy development and if the capital markets are stagnating. The assumption is based on the fact that PERCS has a cap, i.e. has limited participation in the profits. By contrary, DECS has a greater potential in a slightly growing markets. Both issuer and investor could participate on the growth of underlying assets. In addition, the investor receives the interest paid on the coupon.

The valuation

The decomposition of the product is important if we want to make a valuation of Mandatory Convertibles. Each particular component will be valued individually according to the established algorithm calculate, depending on the methodology of the issuer. The formula for the valuation may looks like:

Value of MC´s = share price - the present value of dividends paid[12] - long call + short call

The use of Mandatory Convertibles

Companies may be encouraged to use this tool in its finance management if there is a concern about the adverse trends in stock prices. Undervalued stocks may not be able to provide enough necessary capital. If the company is already heavily indebted, further use of foreign sources could disproportionate increase costs of distress. The costs of distress occur in traditional convertible bonds. In the case that the share development is adverse the issuer has to pay the investor the nominal value. Thus, they can easily get into financial trouble. Since, in the Mandatory convertibles are guaranteed conversion into shares, the risk that issuer gets into financial distress is eliminated. Then investor bears the risk of drop in course.

One of the things that make Mandatory convertibles very attractive for issuers is the fact that credit rating agencies treat such capital increase as an extension of equity.

CONCLUSION

It can be assumed that the attractiveness of these products will increase if there will be longer stagnation on the capital markets and in a country will be predicted economic downturn respectively. Mandatory convertibles have a cap or its potential for appreciation is somehow limited in comparison with the underlying asset. The popularity of hybrid funding is paying

[12] Dividends are received by issuer, that is why they must be deducted from the price.

attention in the emerging markets. It is questionable whether it can be expected that the European markets applied instrument as Mandatory Convertibles. One of the obstacles to the expansion, which won overseas, is the historical approach to raising capital in the Europe. For usage of this product speaks the fact that the issue costs are lower than the share issue would require.

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STOCHASTIC MODELLING OF INTEREST RATE IN APPLICATION IN THE FIELD OF LIFE INSURANCE – STOCHASTIC MODELS

Petr Červinek

ANNOTATION

Interest rate plays the essential role in life insurance. When used for life insurance calculation the interest rate is known as the technical interest rate. It is the minimum interest rate guaranteed for the entire term of the insurance policy. Improper setting of technical interest rate can result in far-reaching consequences.
Interest rate movement is random. This can be described by stochastic differential equation. There doesn't exist any universal model for random movement of interest rate at the moment, although many experts/specialists believe that this is just a question of time. And that's why it is necessary to be familiarised with current models and to choose the most appropriate one. Models relate to the term structure of interest rates and they try to simulate it.

KEY WORDS

Interest rate, life insurance, Vasicek's model, Cox-Ingersoll-Ross model, Ho-Lee model, Hull-White model

INTRODUCTION

Nowadays most of the insurance companies face the high technical interest rate from previous years and low interest rates at financial markets at present. There were arranged insurance policies with about 5% technical interest rate about 10 years ago. At present it is possible to gain an interest rate of about 3% in the financial markets. If we assume that the insurance stock of an insurance company consists of policies that were arranged sometimes even 10 years ago and that present nominal value of the technical reserve of these policies is 1 billion CZK and the insurance company is able to obtain interest rate from the financial placement of these technical reserves of 3%, then we can calculate that the insurance company will have to pay 20 million CZK of its own due to 5% technical interest rate.

AIM AND METODOLOGY

We can view financial modelling as one of possible methodologies, which can lead to higher objectification and to improving the quality of the processes of financial decision making and recognition.
Insurance companies used interest rates modelling mostly in ALM departments for modelling interest rates for the financial placement. Interest rate modelling (or maybe just the ALM department results) can be used in life insurance calculations.
The aim of this paper is to introduce fundamentals of chosen stochastic models of interest rate.

RESULTS

Financial assets prices are characterized by random development in time and this random development is referred to as stochastic process. Wiener process, geometric Brownian motion, Itô process and Itô's lemma are the key terms of stochastic processes. Wiener process is the basic component of other processes.

Wiener process, sometimes called special Wiener process, is based on two presumptions:

1. it holds Markov process, i.e. predicted prices are affected only by actual prices (not by historical prices)
2. price changes are independent in time

Wiener process is defined as follows

$$\tilde{z}_t - z_0 \equiv dz = \tilde{z} \cdot \sqrt{dt}$$

where $\tilde{z}$ is random variable with normal distribution $N(0;1)$. Expected value $E(dz) = 0$, variance $\text{var}(dz) = t$ and standard deviation $\sigma(dz) = \sqrt{t}$.

One of the general types of stochastic processes that includes both Wiener process and Brownian motion as specific cases is Itô process that is defined for variable x as follows:

$$dx = a(x;t) \cdot dt + b(x;t) \cdot dz$$

where $a(x;t)$ represents increase and $b(x;t)$ represents standard deviation of variable change.

It is not possible to use models that are applicable on shares (geometric Brownian motion) for modelling random development of interest rate because of the observed trend of the interest rate that represents drift of the interest rates to the equilibrium of the long term interest rate. Such stochastic processes are called mean reverting. There are parameters for long term equilibrium and for rate of reverting of interest rate to the long term equilibrium in these models. All of the following processes belong to general category of the Itô process hence they contain special Wiener process.

Among the models of interest used in practice we can include:

- special versions of one index model
  - Vasicek's model
  - Cox-Ingersoll-Ross model
- binomial tree models
  - Rendelman-Bartter model
  - Jarrow-Rudd model
- multi index models
  - Brennan-Schwartz model
  - Fong-Vasicek model
  - Longstaff-Schwartz model

There exist even so called non-arbitrage models, such as:

- Ho-Lee model
- Hull-White model
- Heath-Jarrow-Morton model
- Black-Derman-Toy model
- Black-Karasinski model

We briefly present some of the above mentioned models in the following text.

Vasicek's model is given by equation $dr = a \cdot (b - r) \cdot dt + \sigma \cdot d\tilde{z}$. The model belongs to mean reverting models. It respects empirically recognized characteristic of interest rates – reverting to the long term equilibrium, which is represented in the model by the value b. The rate of reverting to the long term equilibrium is represented by the parameter a. Handicap of this model is fact that the model can return negative values of interest rate, which is mostly not realistic.

Cox-Ingersoll-Ross model is given by equation $dr = a \cdot (b - r) \cdot dt + \sigma \cdot \sqrt{r} \cdot d\tilde{z}$. The process is similar to the Vasicek's model. The term $\sqrt{r}$ stands for increase of variance caused by increase of interest rate. This is preventing negative values of the interest rate to occur.

Rendelman-Bartter model is given by equation $dr = m \cdot r \cdot dt + \sigma \cdot r \cdot d\tilde{z}$, where m represents mean value of interest rate yield, r represents interest rate, σ represents interest rate yield standard deviation. The model is similar to the standard model of geometric Brownian motion that is used for simulations of share dynamics. The outcome of the model is lognormal distributed short term interest rate. It is true that mentioned outcome is rarely recognized when testing real short term interest rate data.

Ho-Lee model is given by equation $dr = \theta(t) \cdot dt + \sigma \cdot d\tilde{z}$ (continuous version). Function $\theta(t)$ is chosen in such a way that the consequent curve of future yields corresponds to the regular term structure of interest rates. Interest rate can be negative for some t which can be interpreted as a minus of the model.

Hull-White model $dr = [\theta(t) - a \cdot r] \cdot dt + \sigma \cdot d\tilde{z}$ is a modification of the Ho-Lee model including long term interest rate. The model is calibrated so the forward and spot yield curves are conform to each other; $\theta(t)$ represents forward rates.

CONCLUSION

There doesn't exist any universal model for random movement of interest rate at the moment, although many experts/specialists believe that this is just a question of time.
Among the models of interest used in practice we can include Vasicek's model, Cox-Ingersoll-Ross model that is a modification of the Vasicek's model, Rendelman-Bartter model, Ho-Lee model and its modification called Hull-White model.
Every model has its advantages and disadvantages (handicaps).

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DIVERSIFICATION OF RISK THROUGH FINANCIAL INNOVATION - SECURITIZATION

Eva Cipovova, Blanka Kamenikova

ANNOTATION

The paper deals with one of the most important trends in world financial markets - securitization. This trend line has started to use already in 80th years of the twentieth century, but its popularity was given to the 21st century. Securitization is an important investment instrument of the companies, which reduce the importance of financing through traditional loans and it replaced by financing through securitization of commercial products in the capital markets. The advantage of using this tool for companies is to increase liquidity and risk diversification, on the other hand, this type of transactions requires strict legislative control. Aim of this paper is to explain the basic structure of the securitization process, regulatory measures, which have lead to a reduction in the risk and consequences that entails bringing in financial markets.

KEY WORDS

bank restructuring, the process of securitization, diversification of risk pooling, rating, tranche, financial innovation, SPV

INTRODUCTION

Current world and its economic reality is a dynamically evolving system, whose development is mainly in the last decade's substantial proportion of world economic globalization. One of the most analyzed and most areas of banking practice are the management of credit risk. Recently, interest has increased tendency, as we are in unsettled times of financial crisis, which affected mainly the banking sector. This was poor management of credit risk at a time when the market spread rumor of a new method of financing - securitization.

AIM AND METODOLOGY

Aim of this paper is to explain the basic structure of the securitization process, which began use in the U.S. in 80th 20th century and gradually expanded in altered patterns of global financial markets. The contribution of the analytic and reasoning.

RESULTS

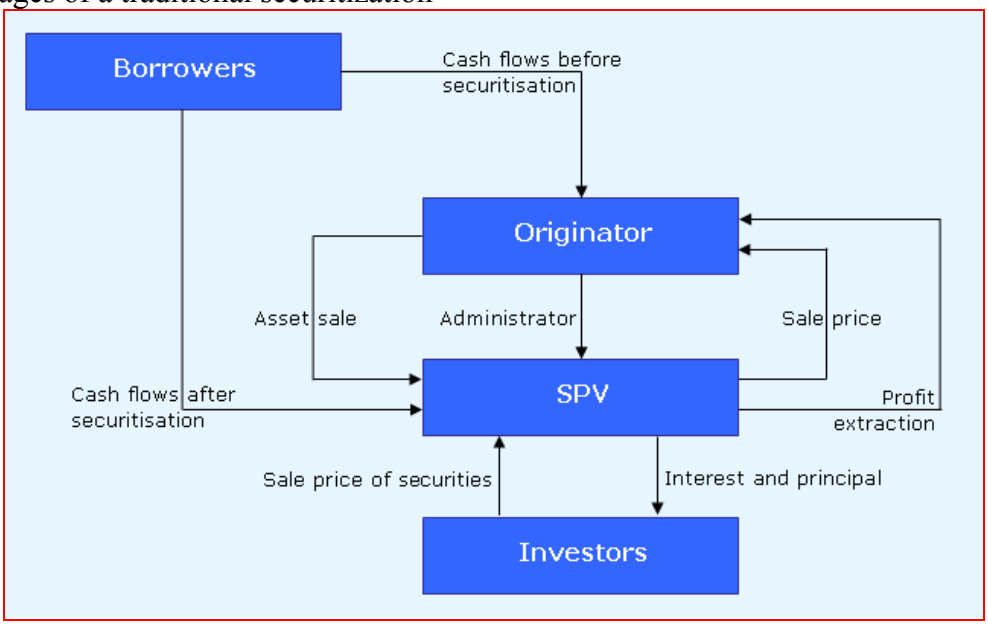
Characteristics of securitization

One of the current global activities of corporations are moving away from using bank credit as a source of obtaining funds, and their efforts to finance its activities through operations in international financial markets. One such activity is the securitization business. The nature of securitization is the process where claims on financial and administrative isolated and their expected cash flows are usually organized into highly rated securities. From the perspective of banks is a process, which provides loans and credits then with the same characteristics (maturity, amount, and method of remuneration) are grouped in the package (credit pooling). Bank transfer packages to the ring-based non-banking institution - SPV (SPV), which is not banking regulation.

Stages of a traditional securitization of bank loans:

1. Bank provides loans, loans with the same characteristics (cash flow, high interest rates, maturity) to compile packages
2. Bank sells a package of loans to non-banking institutions (administrator, trust, SPV), which is not covered by banking regulations. Bank loans but usually managed until the moment of repayment (interest collection, monitoring, penalties, interest income of principal) and acts as administrator
3. Administrator, SPV issued for future cash flow from loan package transmitted to the CP (pass-through securities) to take the location of the financial market intermediaries, third-way,
4. Administrator to increase the transmission creditworthiness CP acquisition or other type of credit guarantees
5. Administrator shall evaluate the transmission quality threshold securities rating agency
6. Investment brokers sell securities forwarded to gain some end-investors
7. Cash flows after deducting the commission are forwarded through the administrator and manager to end investors.

Fig. 1 Stages of a traditional securitization



Source: *[6]*

Tranching

Tranching is a priority of the securities in securitization. Cash flows from receivables are divided into several classes - at least two and possibly more than five. Each class is called a tranche. Each tranche is subordinated to each other and are usually called as follows:

- Tranche cash flow (money market tranche)
- preferential tranche (senior tranche) - the least risk, high rating, a lower yield
- Tranche Medium (mezzanine tranche) - if a loss occurs, the risk carried away first and then equity tranche mezzanine tranche
- Tranche subordinated (subordinated tranche)
- Stock tranche (equity tranche, first loss tranche) - if it occurs in the underlying portfolio, the first bears the loss if the loss if not so, this tranche has the highest yield

Usually the first three tranche are 80 to 85% of the securitized assets, subordinated tranche 10 to 15% and stock tranche 1 to 10%. The first four tranche typically pay fixed or variable interest payments as preferential tranche percentage of government bonds. Bargain tranche typically pays the difference between the payments received from the securitized assets, and provided payments (including interest payments) in the first four tranches. The first loss of the securitized assets and the tranche absorbs stock to cover further losses next tranche. Profitability stock tranche is therefore usually zero.
Each tranche also have different expected average maturity and buy them differently oriented investors. Given a favorable credit rating, the first four tranche is easy to sell. However, profitability is higher than other investments with the same credit rating. Therefore, they buy more fund managers who are limits credit rating.
Bargain hard tranche is sold (usually these are not salable tranche). It is normal that the cause remains, thus providing investors with sufficient credit to the other reinforcement. Sell it to succeed very rarely. Any such sale shall be deemed a great success and is a trader for a large effort associated with convincing customers rewarded high bonus, usually amounting to several million dollars.
The following table shows the percentage of the number of tranches in European securitizations.

Fig.1 The number of tranches in securitization in Europe

Number of tranches	1	2	3	4	5	6	7+
Percentages	24,6 %	22,6 %	18,6 %	12,3 %	9 %	4,9 %	8,1 %

Source: [5]

More than 90% of all securitization in America have less than 7 tranches, which have the largest share of the securitization tranche 1 to 3. It is also important to note that you have proven tranches AAA rating - according to credit rating agencies.

New forms of securitization

One of the uses of securitization in foreign bonds is so-called death. They are the essence of the life insurance. Intermediaries such a large number of stores purchased life insurance policies, and translate those into a package of securities that have the form of bonds.
Owners will receive from the sale of insurance lump sum or periodic rent. Then the insurance companies pay insurance brokers who, in the event of death the holder obtained from insurance claims. Family members may forget insurance.
Purchased life insurance policies are then transformed into securities by using a special technique called securitization. Profitability issued bonds depends primarily on the rating, which gives it a credit rating company, within the best AAA rating, after evaluation of the lowest returns CCC. (Before the outbreak of financial crisis, the AAA rating granted by the securities, which were later identified as toxic waste.) Bond brokers then sold off to investors. Claims arising from investors holding securities - bonds, coupons and principal paid by companies that emit securitized bonds from life insurance transactions. For U.S. death bond issuers expected average yield of 8 percent. Proceeds can be achieved and an amount of about 25 percent as the original owner dies before!
Interest in this type of security has been driven in the U.S. mortgage crisis and subsequent problems in stock markets around the world. On the one hand, business owners are life insurance, who is still interested in their lives to obtain money from their insurance policies. They are primarily elderly people or people who influence the mortgage crisis get into financial trouble. On the other hand, investors are seeking new profitable investment opportunities. The annual volume of transactions in bonds of death in the United States

moved in tens of billions of dollars. In 2006, shops were made of 15 billion U.S. dollars, a year later, and the amount already reached 30 billion U.S. dollars. According to analysts, the volumes of business for several years, could affect border 160 billion U.S. dollars.

Securitization in America and Europe

The difference between the markets of Europe and America in the principles of issuing mortgage securities and how they trade. The U.S. market is dominated by fixed interest rate. Almost two thirds mortgage loans (65%) held by federal agencies has a fixed interest rate for 30 years and another 15% for 15 years. Only a tiny 10% of mortgage loans using a variable rate that varies according to the index are created on the basis of trends in interest rates in the sector.

In Europe, 70% of new mortgage loans have a variable interest rate (initial fixed rate period up to 5 years). Such assets are much harder to securitize because there is no objective factor likely return to the owner of a security.

U.S. mortgage banks do not deal with rope capital for lending and require only limited capital for their operations. Mortgage loans have a different classification in the accounts and are not reported in the balance sheet. Risks are sold, the sale, investors in MBS.

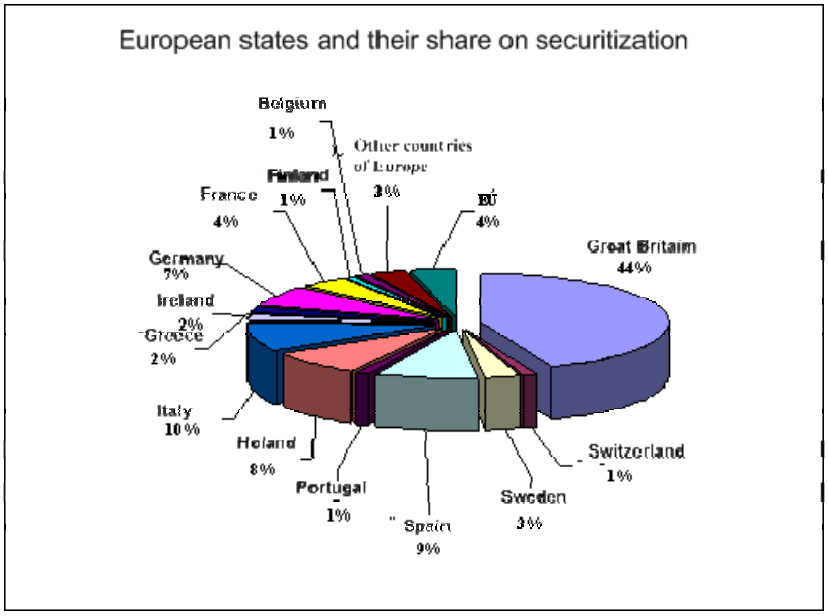
European mortgage banks should be able to provide capital cover Mortgage loan throughout its duration. Mortgage loans remain in the books of banks and capital intensive as I have already mentioned. Risks (including the risk of early repayment) therefore remain in the bank balances.

Czech Republic, unlike other European countries, however, never adopted any measures to promote securitization. Many people today take such relief. From my point of view, this is quite shameless and economically ignorant opinion.

Securitization transfers the risk associated with a given property from those who securitization takes place, those who have securitized securities purchased. Countries often securitized (USA and UK) so managed to export risks in hundreds of billion. CZK (and I think these figures are incomplete) to third countries (for example in the U.S. subprime mortgage securitization transformed into securities purchased by Dutch investors). Obviously a lot of these risks, they remained at home and a little also purchased abroad, but overall these countries have become net exporters of their domestic risks. This means that when someone risks of exporting, importing some of their needs, for example, countries like Hungary, Iceland, Poland, etc.. Even though the Czech Republic was only a couple of securitization and with the assistance of foreign countries, nothing prevented the Czech investor to buy such securities whose value was much greater than the realized value of a particular securitization.

The following figure shows the proportion of securitizations in various European countries.

Fig. 2 European states and their share on securitization



Source: European Securitization Forum, 2008

Provision of securitization on the Czech capital market

The Czech capital market, there is a fundamental problem that prevents the smooth course of securitization. This is mainly related to security.

Generally there must be a risk that will be affected to a negative value of securities if the seller gets into financial trouble. If this problem occurred, the securities sold to investors and investor interest in the underlying assets may be affected by the laws of bankruptcy.

There are several specific problems:

- Taxes are a first range of issues. SRA not develop any activity other than the distribution of income already taxed at source. It is therefore to ensure that holders of securities from the securitization did not tax income again
- Another problem is bankrupt, unless the transfer of assets to the SPV clearly judged to sell. It is uncertain how the bankruptcy declaration in the case company to implement a securitization, the trustees maintain estate and the court

The relevant provisions should be clearly set out the transaction based on the securitization of assets and provide that assets transferred to the SPV in a securitization do not fall into the estate of the originator. Securitization has also been an economic sense only if the SPV Ratings are higher than the originator. Investors must be confident that the declaration of bankruptcy if the originator is not affected by debt repayments of loans provided by, or bonds they have purchased. It is actually to avoid possible to recover assets in the securitized assets of the originator and the subsequent cessation of payments to investors.

It is important to draw attention to reporting and accounting SRA as consolidated for tax purposes. In the case of information obligations of the issuer, in turn, would be meant for the fact that the payments to the SPV have a monthly rhythm, and if delayed, they should investors know. Addressing this situation can be found in countries in which securitization works / worked, or even a draft agreement on the assignment of claims approved by the United Nations Commission on International Trade Law (UNICINTRAL). If the rules adopted, expect a significant development of securitization in the Czech Republic.

In addition to high costs and uncertain legal and economic environment is lacking for the application of securitization in the CR needed legislation. Obstacle could be § 574 paragraph. 2 of the Civil Code, which can not waive rights in the future, may still arise.
Another obstacle to securitization could also § 14 of the bankruptcy, which extinguishes secessionists to separate satisfaction in the event that within two months after the sale of securities by investors, is the owner of the original claims filed for bankruptcy.
It follows that the CR is not for wider application of this method ideal conditions. However, some Czech banks are trying to use the principle of de-pollution of the securitization of their portfolios and thus try to avoid making higher provisions and reserves, which has a negative impact on economic performance of the bank.
Czech securitization is substantially different from the idea, which is understood in the world. While the world of securitization is to enhance transparency and development of capital markets, securitization in the CR is not only the capital market does not develop, but even more to keep its high lack of transparency that will blur the issues of securitization companies. Therefore, it should be more talk in the Czech cases the pseudo or quasi-securitization.

CONCLUSION

Securitization has become part of the financial engineering is an important trend in the financial markets. Reports on the international financial system and development of their own domestic economies into the future, they worry not only investors but also the public itself. The method of resolving the situation, keep disputes, discussions and comments among experts, politicians and interest groups. Absolutely not be excluded that in the situation where you are now, there is something totally new and different..

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LABOUR MARKET ATTRIBUTES, FOCUSING ON 'PEOPLE LIVING WITH DISABILITIES'

Zsolt Csapó, Nóra Nagymáté

ANNOTATION

Nowadays employment is a hot topic in Hungary. Many kinds of supplies are provided by the state (on the basis of the 8/1983. EüM-PM Hungarian Law), for example for the group 'people living with disabilities'. It is very difficult to provide job for these people after their rehabilitation. Statistical figures show, that the highest ratio of 'people living with disabilities' can be found in the North Great Plain Region of Hungary (30 per cent of the total number of 'people living with disabilities').
The employment of these people means extra costs for enterprises. At the same time the complete accessibility of workplaces is still not realized in many cases in Hungary yet. Currently only a few enterprises are specialized to employ people living with disabilities in the North Great Plain Region. Unfortunately most of the enterprises don't want to employ them. New workplaces for these people should be created by the utilisation of European Union and national available sources in order to integrate them into the job's world in long run.

KEYWORDS

Labour market, people living with disabilities

INTRODUCTON

Nowadays the growing rate of economically inactive population is a very big problem in Hungary. There were radical changes in the economy and in the labour market in the 1990's too. The rate of employment and activity was the lowest in 1996 – 1997, after that in consequence of the economically boom it had been growing for 2000. Between 2000 and 2007 it showed stagnation, except some short temporary growing periods [1].
There are two big groups in the sector pensioner. 'People living with disabilities' group can be found in this sector on the basis of the 8/1983. Eüm/PM Hungarian Law. The aim of the Law is, that after their rehabilitation, to give the possibility of adequate job based on their qualification and state of health.
Generally speaking in would be better for the Hungarian economy to employ these people, because the number of inactive population could be lower and the state wouldn't have to provide them supplies. According to the Hungarian Law, if there is not possible to give job for these people, they become supply from the state [2].
The employer has an obligation in all sectors of the national economy to pay rehabilitation contribution the state, if the statistical number of employed persons is more than 20, and if the number of disabled persons less than 5 per cent of the total number of employed persons. Rehabilitation fee could be replaced through employing 'people living with disabilities' [3].

AIM AND METODOLOGY

The aim of this paper is to give a general overview about the labour market attributes in Hungary, focusing on 'people living with disabilities' in the North – Great Plain Region of the country. Characteristics of the group as well as weaknesses of their employment are introduced. In this early stage of the research secondary research results are presented.

RESULTS

In the last few years the number of the Hungarian population has slightly decreased. Results of this unfavourable trend are presented in Table 1.

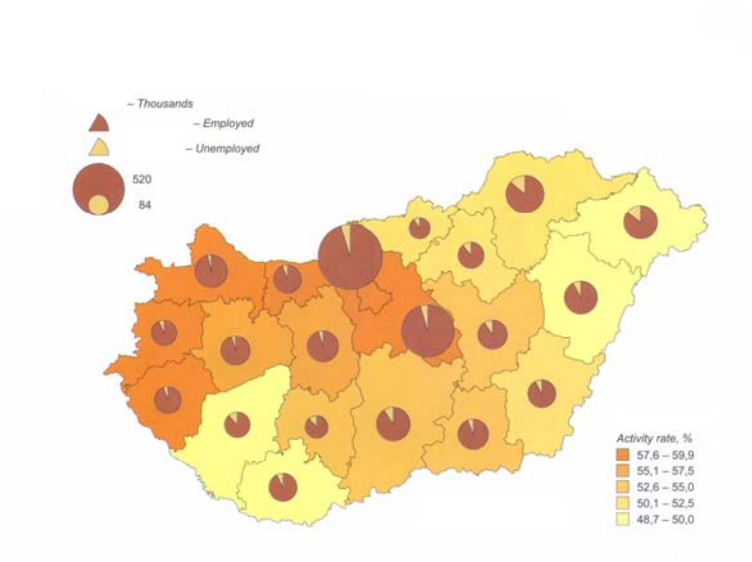
Table 1: Active population aged 15-74 in Hungary

Item	thousand persons			distribution in per cent
	2000	2007	2008	
Total population				
active population	4119,9	4238,1	4208,6	54,6
from it				
employed	3856,2	3926,2	3879,4	50,3
unemployed	263,7	311,9	329,2	4,3
inactive	3659,6	3481,3	3501,6	45,4
from it				
pensioner	2130,3	1952,0	1952,6	25,3
maternity supply	281,4	267,5	280,1	3,6
student	721,5	832,5	819,7	10,6
total	**7779,5**	**7719,4**	**7710,2**	**100,0**

Source: Statistical Pocket-book of Hungary, 2008 [4].

It can be seen, that the active population hasn't been changed significantly in the studied period (2000 – 2008). About half of the Hungarian population can be considered as economically active. Number of economically inactive population is growing. Unfortunately this trend is true for unemployed people as well.
Figure 1 shows the activity rate of population aged 15 - 74, in the 7 statistical regions of Hungary.

Figure 1: Activity rate of population aged 15-74, number of employed and unemployed, 2007



Source: Regional Statistical Yearbook of Hungary, 2007 [5].

As it can be seen from Figure 1, the highest activity rate of population can be found in the capital city and surroundings area. Reason for that is that most of the logistics centres as well

as headquarters of multi - companies are located in this region. Relatively high activity rate can be found also in the western part of Hungary, especially in counties located at the Austrian boarder. The lowest activity rate can be found in the South – West and North – East counties of the country. Unfortunately in these counties we can find the highest unemployment rate too. In most cases it is even double higher than the national average.
Table 2 shows the most important macroeconomic data regarding expenses for pension in Hungary between 2000 and 2008.

Table 2: Pension, pensioner supplies

item	2000	2007	2008
expenses for supplies, billion HUF	1228,5	2769,3	3062,6
expenses for supplies, in per cent of GDP	9,3	10,9	11,6
average number of people receiving supply, thousand people	3103	3025	3027
average number of people receiving supply, in per cent of the total supply	30,4	30,1	30,2
monthly supply / person, HUF	32986	76293	84306
monthly supply / person in per cent of the average net income	59,1	66,9	69,1

Source: Statistical Pocket-book of Hungary, 2008

The expenses for supplies both in HUF and in per cent of GDP have been grown between 2000 and 2008. The expenses for supplies in per cent of GDP and the monthly supply/ person in per cent of the average net income are growing too. The number of people who received supply between 2000 and 2008 shows stagnation.

'People living with disabilities' in the North – Great Plain Region

It can be stated, than the highest number of 'people living with disabilities' can be found in this region [6]. The problem is more complicated, because the unemployment rate is one of the highest in Hungary in this region [7]. This labour market position means that lots of supplies have to be paid out for unemployment and for disabled people. Based on the above mentioned facts it would be very important for the state and very useful for the labour market to employ them. Unfortunately the employment rate of this group is very law in Hungary, only about 10 per cent [8]. This low employment rate can be increased trough the creation of new workplaces. There are 2 main problems in connection with it. One of them is that companies don't want to employ these people because it is more complicated. The other issue is that the creation and the maintance of a such kind of workplace cost more that a 'normal one'. The second problem could be eliminated trough the utilisation of European Union funds. The elimination of the first problem is more complicated, because the thinking of the society and their active player should be changed [9].

CONCLUSION

Analysing the labour market of Hungary it can be stated that the number of unemployed and inactive persons has been increasing continuously between 2000 and 2008. Unfortunately this negative trend didn't stop yet. There are some special groups in the Hungarian population, like 'people living with disabilities' whose position even complicated. Currently different

kind of supplies are available for this group, but their position could be effectively improved trough their integration into the labour market. In order to integrate them, to main issues should be carried out: better utilisation of available EU funds to create new jobs and change the thinking of the society.

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BRITISH POUND U.S. DOLLAR FUNDAMENTAL ANALYSIS

Libuša Čurlejová, Boris Šturc

ANNOTATION

Since the beginning of the credit crisis, perhaps no currency has been beaten down more than the British Pound. Experts point to the Pond's historic volatility, and are afraid that this will continue to flee the United Kingdom in times of uncertainty. The financial debacle in the US is also not playing up to the US Dollar.

KEY WORDS

British Pound, US Dollar, London, GDP, 3M, market moving indicator, credit crisis

INTRODUCTION

The pound sterling is one of the world's most widely traded currencies, along with the dollar, the yen, and the euro. It is the highest valued of the major currency units. There is no need to speak about the dollar hegemony and the magnitude of the United States' economy to understand the importance of the GBP/USD currency pair.

AIM AND METODOLOGY

The aim of this contribution is to analyze the market moving indicators for currency pair GBP/USD.

RESULTS

What we can reproach from the development of economic indicators and expectations is that the global recovery is gaining traction, with unprecedented and highly synchronized monetary and fiscal stimulus internationally continuing to provide much needed fuel for growth. According to the indicators and global economic researches, the developed countries, such as UK will face in longer-terms restrains on growth due to unwinding of massive overbuilding and excessive leverage associated with their respective property booms, also the growth-inhibiting factors in USA constrain the growth performance in the future.

United Kingdom vs. United States

The United Kingdom, and London in particular, is by far the largest global market for foreign exchange trading, ahead of the US and Japan. In April 2009, the UK was the main geographic centre for foreign exchange trading with nearly 36% of the global total. The US was the second largest centre with 14% of the global total. UK is currently the world's sixth largest by nominal GDP and the seventh largest by purchasing power parity[1]. The American economy has always been the most secure and powerful economy, and still is the largest national economy of the word.

London's leading position as a centre for foreign exchange trading reflects its position as the main financial centre in Europe and the leading global international financial centre. Around a

[1] The UK was the first country in the world to industrialize in the 18th and 19th centuries, and for much of the 19th century possessed a predominant role in global economy. However, by the late 19th century, the Second Industrial Revolution in the United States and Germany meant they had begun to challenge Britain's role as the leader of the global economy extensive war efforts of both World Wars in the 20th century and the dismantlement of the British Empire also weakened the UK economy in global terms, and by that time Britain had been superseded by the United States as the chief player in the global economy.

half of European investment banking activity is conducted through London. Four-fifths of European hedge funds' assets are managed in London, which is also Europe's main centre for prime brokerage services.
Foreign owned institutions, have accounted for around 70% of foreign exchange trading in London in recent years. EU institutions alone generate more than a quarter of the overall total. The 250 foreign banks located in London exceed that of any other city. Although their share has decreased somewhat during the past decade, foreign banks still held the majority (54%) of UK banking sector assets at the end of 2008.

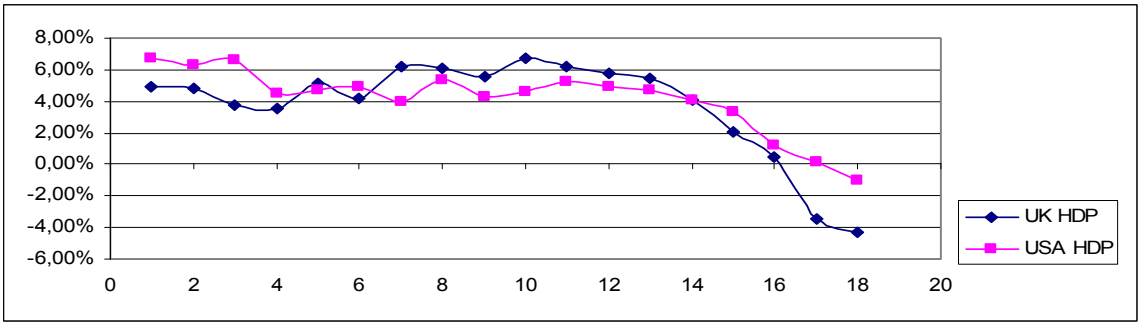
Powerful figures that moves market

Fundamental analysis in forex is a type of market analysis which involves studying of the economic situation of countries to trade currencies more effectively. It gives information on how the big political and economical events influence currency market. Traders/dealers and analytics use the Economic Calendar to watch the data of the markets. The Economic Calendar provides us with relevant information about major economic releases such as dates, times and market predictions. Economic Calendar is created by economists where they predict different economics figures and values according to previous months. In most financial markets, the release of economic data and statistics tends to trigger short-times movements. The forex market is particularly reactive to economic news from all over the world. Analysts say there is an average of seven indicators and other economic data, which have an impact on the majors, released each day. So, there are many indicators, data and events published every day, which do influence the exchange rate, but there are just few which are market moving.
The key figures are the interest rates, employment situation, GDP, trade balance, budget and treasury budget. Traditionally, if a country raises its interest rates, its currency will strengthen because investors will shift their assets to that country to gain higher returns. GDP is reported quarterly and is followed very closely as it is a primary indicator of the strength of economic activity. A high GDP figure is usually followed by expectations of higher interest rates, which is mostly positive for the currency. Decreases in the payroll employment are considered as signs of a weak economic activity that could eventually lead to lower interest rates, which has negative impact on the currency. A country that has a significant Trade Balance deficit will generally have a weak currency as there will be continuous commercial selling of its currency.

According to Bloomberg, the most important on the forex market to watch, is the 3M (3 areas) – macroeconomics indicators, microeconomics indicators and monetary policy. From macroeconomics factors, the very important are news (headlines), election, wars, general world situation, political situation, scandals, etc. From microeconomics indicators, the most important is GDP, inflation data and employment rate. From my point of view, the most important for the exchange rate development/ trend is monetary policy. Moreover, nowadays, after the credit crisis, it is important to watch the devastated banking sector and its efforts to rise.
According to Tradingeconomics.com, there are market indicators (interest rate, government bond), economic indicators (GDP, inflation rate), trade indicators (current account, balance of trade, exports, imports), leading indicators (business confidence, consumer confidence, industrial production) and other, which should be watched out by trading/analysis on financial markets.

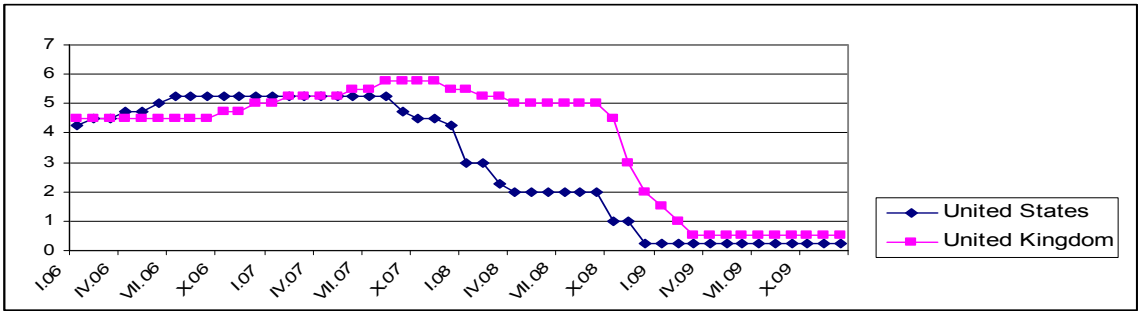
The performance of current economic indicators in US and UK

Fig.1 GDP United States, United Kingdom (2005 – 2009)



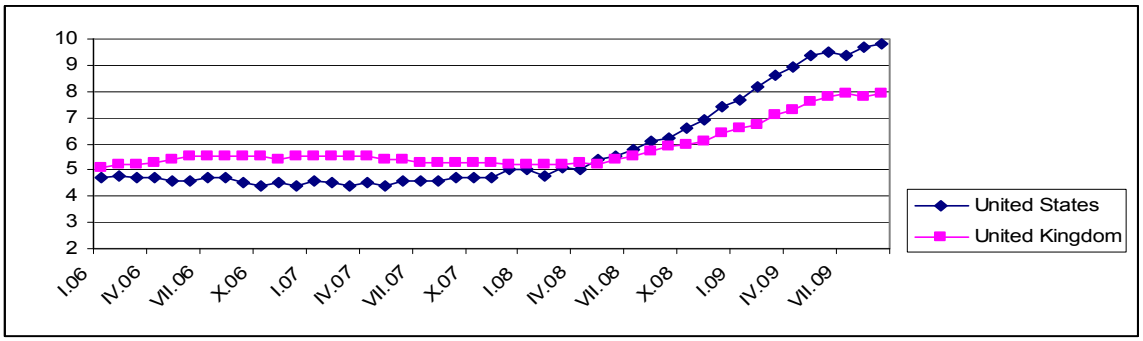
Source: www.statistics.gov.uk, *www.bea.gov*
**numbers 0–20 represents quarters of the years 2005-2009, beginning with 1Q2005*

Fig. 2 Interest rates United States, United Kingdom (2006 – 2009)



Source: Bank of England

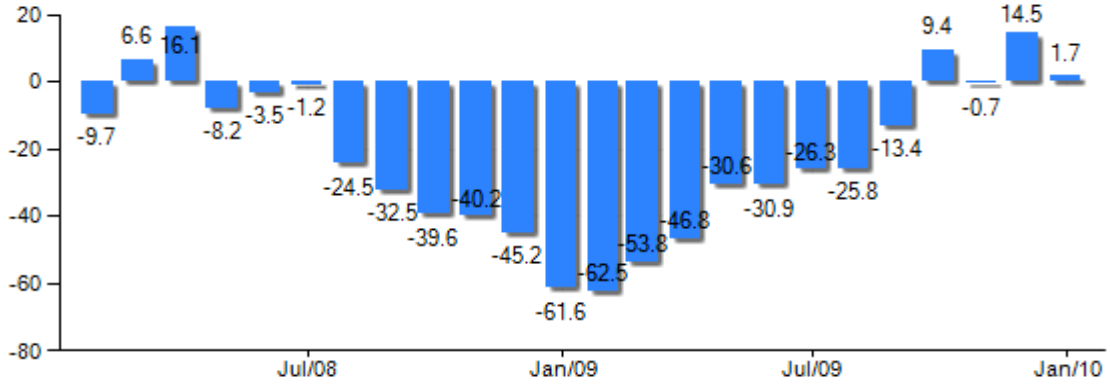
Fig. 3 Unemployment rate United States, United Kingdom (2006 – 2009)



Source: www.tradingeconomics.com

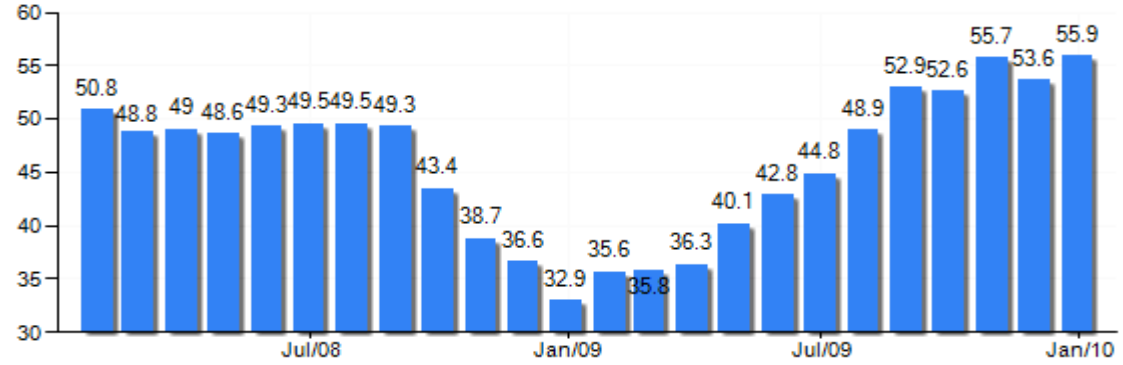
Business confidence surveys provide useful signs about the current condition of the economy, as companies often have information about consumer demand sooner than government statisticians do.

Fig. 4 United Kingdom Business Confidence, 2008 – 2010



Source: European Commission

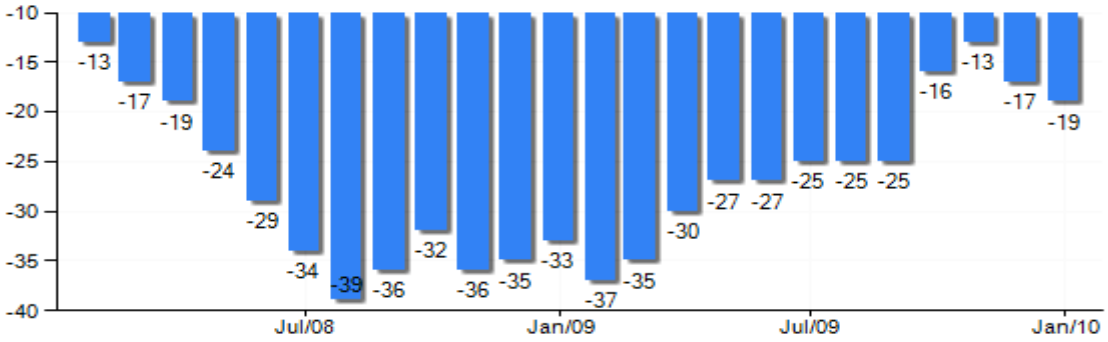
Fig. 5 United States Business Confidence, 2008 - 2010



Source: Institute for Supply Management

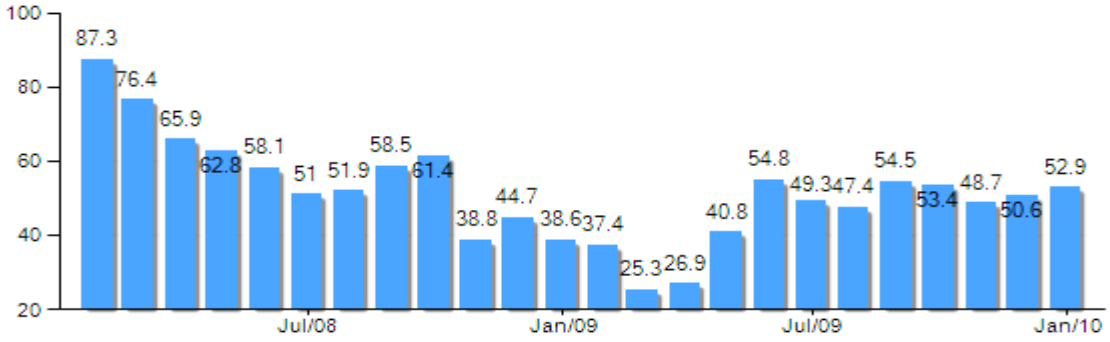
Consumer confidence is a measure of the level of optimism consumers have about the performance of the economy. Consumer confidence is high when the unemployment rate is low and GDP growth is high.
Measures of average consumer confidence can be useful indicators of how much consumers are likely to spend.

Fig. 6 United Kingdom Consumer Confidence, 2008 - 2010



Source: O.N.S.

Fig. 7 United States Consumer Confidence, 2008 – 2010



Source: conference Board

CONCLUSION

I hope there is a bit of light at the end of the tunnel. The signs of the end of the recession, rising prices and the turnaround of the economy are all fragile, but are better than the figures from past.

However, the fate of the British Pound and US Dollar is hard to predict as both economies still face many risks.

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PROCESS MANAGEMENT OF REVITALISATION PROJECTS

Agnieszka Goździewska

ANNOTATION

Process of revitalisation is integrated and comprehensive vision and actions which lead to the resolution of urban problems and which seek to bring about a lasting improvement in the environmental, economic, physical and social conditions of an area that has been subject to change. Revitalisation should lead to the creation of new urban space and restores the unique character of old quarters and sites. Process of revitalisation has many different dimensions. In the social dimension the quality of life of the residents is intended to improve, while the economic goal of revitalisation is to initiate new impulses for the economic development and stimulate market mechanism.

KEY WORDS

Brownfields, revialisation, project management, sustainable development,

INTRODUCTION

Nowadays many economic and social changes, which are observed in present world, lead to pollutions and degradation many areas. The most polluted regions are brownfields, places where are situated wrecked buildings, old factories, gasworks, which do not operate any more. They are part of landscapes for many cities and villages.

All over Europe revitalisation of brownfield sites plays an important role in avoiding urban sprawl and improving the quality of urban environment, thereby helping to create the conditions necessary for sustainable development. Brownfield land endangers public health and creates environmental risks. Rehabilitation will be of growing importance in the Central Europe member states, which requires large investments. Brownfield revitalisation is often long term, complex, and involves a wide range of professional disciplines, political actors and different stakeholder groups.

Brownfields are characteristic for each countries, which left behind an epoch of intensive industrialization. In most of European countries revitalisation of brownfields has already been implemented. The main aim is to restore degraded areas to local society. Revival of these areas is connected with transformation into modern economic space, living space or cultural – leisure space. One of the trumps of bronwfields is attractive localization, thanks to which price of these areas is very high.

AIM AND METHODOLOGY

The process of revitalisation should be implemented and stimulated by public authorities whose motivation to bring back to life a given part of the city and attempts to implement a certain development strategy have an impact on the selected problem area. Also private entities and institutions are equally important agents that may or may not accept the strategy proposed by the city authorities. Private actors are motivated mainly by economic justifications, like necessity to obtain profits from economic activity. The most important is result of undertaken actions. Thanks to public and private actors the revitalised area undergoes many positive changes. The building stock is modernised and renovated, the quarter experiences anesthetisation and commercialisation, its social milieu changes including

the displacement of the former less wealthy residents and the arrival of new users and residents. The intensity of activity increases, and the functions and area's image change[1].

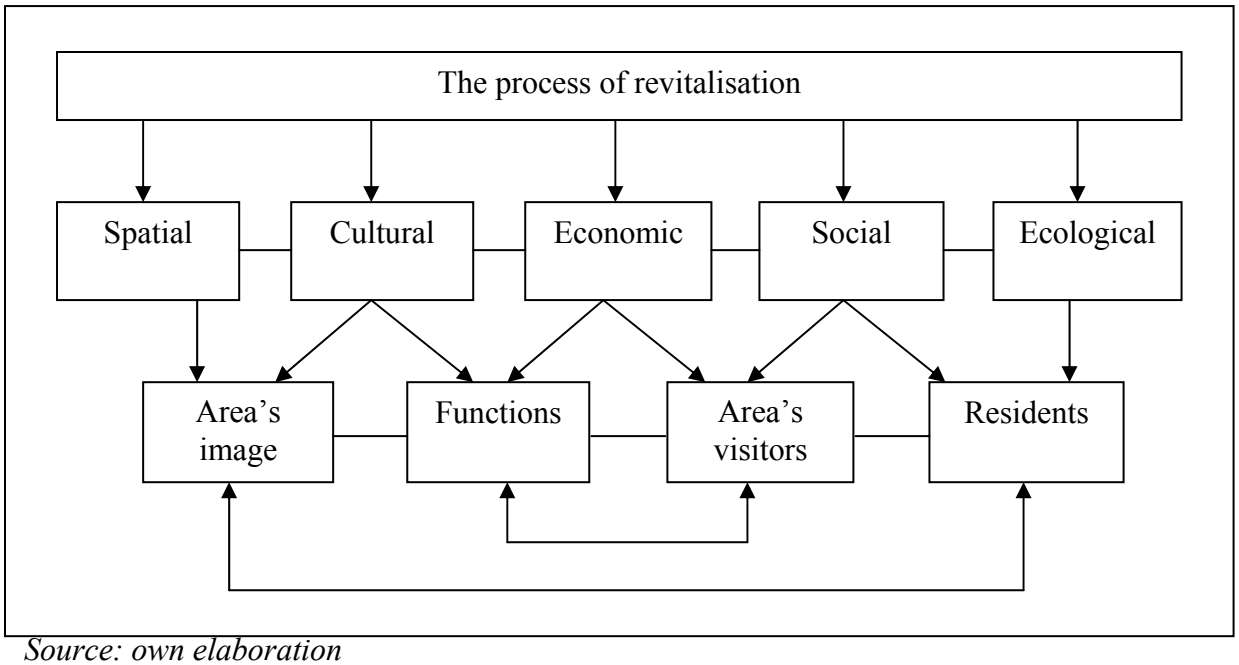
The revitalisation strategy may above all aim at the support for the local community, utilization of its skills and abilities, and the development of its professional qualification. It may also focus on the increase in competitiveness of the city on the global market, creation of its attractive image and encouragement of potential investors.[2]

Revitalisation has many different dimensions. For that reason there is a need for professional process management to develop and deliver opportunity plans and to steer revitalisation processes. Besides a thorough consideration of process management aspects, the issue of community involvement as well as new market instruments to facilitate the redevelopment of brownfield sites should be main objective of future research.

Process management is the ensemble of activities of planning and monitoring the performance of a process. Moreover Process Management is the application of knowledge, skills, tools, techniques and systems to define, visualize, measure, control, report and improve processes with the goal to meet customer requirements profitably.[3]

Management of revitalisation projects is very complicated process. There must be taken into consideration many different aspects. Figure 1 shows wide range of revitalisation's dimensions.

Fig.1 Dimensions of the revitalisation process



Source: own elaboration

The different dimensions of revitalisation are directly linked and have an impact on each other. For example, new functions and the change of area's image are usually accompanied by the arrival of new users of an area, while adaptation for the needs of new functions necessitates changes in the urban tissue.[4]

[1] S. Kaczmarek, Rewitalizacja terenów poprzemysłowych. Nowy wymiar w rozwoju miast, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2001, s.52.
[2] Z. Zuziak, *Strategie rewitalizacji przestrzeni śródmiejskiej,* Politechnika Krakowska, Kraków 1998, s.44.
[3] R. Jones, *Project Management Survival*, MT Biznes, Warszawa 2009, s.18.
[4] M. Murzyn, *Środkowoeuropejskie doświadczenie rewitalizacji*, Międzynarodowe Centrum Kultury, Kraków 2006, s. 41.

To create a good process management it is required to prepare project management plan. Mentioned plan is a formal, approved document that defines how the project is executed, monitored and controlled. Because of many dimensions of revitalisation, this plan will help to specify the most important issues, which must be taken into consideration during preparation of process management. Project management plan can consist of following points:

- The Scope Management Plan
- The Schedule Management Plan
- The Cost Management Plan
- The Communication Management Plan
- The Process Improvement Plan
- The Staffing Management Plan
- The Quality Management Plan
- The Risk Management Plan

The scope management plan establishes how scope management will be carried out in the project. It serves as guidance for scope process and formats and defines the roles and responsibilities for stakeholders in those processes.

The schedule management plan is used to define how management practices will be conducted. The schedule management plan should highlight the major milestones and who is responsible for reporting on those milestones.

The Cost Management Plan is a document which will outline the criteria and activities which must be carried out as part of project management. It must provide the planning and structure necessary to control the costs of the project, keeping them within the limits of your budget.

The communication management plan is the written document that outlines, highlights, and details the communications needs and expectations for the entire project.

The Process Improvement Plan determines area for process improvement.

The Staffing Management Plan is ultimately a document that explains the various human resources requirements that will be met for staff management.

The Quality Management Plan is a document, which show how an organization plans, implement, and assess the effectiveness of its quality assurance and quality control operations.

The Risk Management Plan is a document to foresee risks, to estimate the effectiveness, and to create response plans to mitigate them. It also consists of the risk assessment matrix.[5]

There are many different kinds of areas that must be restored to their original appearance. That could be mine's area, gaswork's area, site after old factories etc. The most important thing is to research several of each mentioned areas in all polish voivodeships and specify one universal model to management revitalisation projects.

Before the universal model will be created, the research of degraded areas must have been done. Each voivodeship of Poland will be particularly analyzed and the group of three representative of finished revitalisation project from each of them will be taken. Afterward the questionnaire will be prepared and will be sent to all representatives of voivodeship. Main issues, which must be contained in questionnaire are: type of brownfield, size of area, land development, economic, social and ecologic benefits, kind of activities on restored area etc. Answers in questionnaire will give by experts and it will conduce to find out how the process of revitalisation will unfold in different places of Poland, what methods will be used and what results will be reached. Thanks to all achieved information will be possible to create multipurpose model of management revitalisation projects.

[5] http://e-articles.info (2008)

RESULTS

As the result of revitalisation process transformation is apparent in all aspects of the quarter's life: its urban tissue, economic functions, social milieu and image. Thanks to the activity of public and private entities the neglected area will undergo intensification of the urban space utilization, modernisation, commercialisation, aestethization and gentrification.

There are several factors, which influenced on the possibility of the revitalisation in Poland. The process of change was accelerated by the overall social and economic transformation in Poland underway since 1989. Private property reclaiming by its lawful owners and state property privatisation had a crucial impact on the progress of compensation for many years of insufficient maintenance and renovation of the old building stock. Since the 1990s revitalisation has also been reinforced by the much more active real estate market and the almost complete privatisation of many economic sectors. Positive influence on the revitalisation of the area has the overall dynamic development of the service, tourist and catering sectors, a significant increase in the number of visitors to the city.[6]

The main result will be a multipurpose model of process management, which can be used in each type of revitalisation project.

CONCLUSION

By application of various indicators the process of revitalisation may be monitored and described by objective, quantitative data. For example, the revitalisation of the tangible urban tissue is shown by the following indicators: the number and type of renovation activities, financial means spent on restoration of monuments, the process of filling in empty plots with new edifices, and the changes of real estate prices. Functional transformation of the area is manifested by the number, type and location of business and institutions representative of various branches and types of activity. Social changes are visible in the increase of residential attractiveness of the sites.

The revitalisation process of degraded areas corresponds to sustainable development of sites, because revitalisation should connect and harmonise actions in social, economic, and ecologic aspects. Often is observed that there is lack of skills of integrated, complex planning cities development. Taking revitalisation activities is first step to change this untoward effect and it is possibility to exert innovative management methods of sites development.

Process management of revitalisation projects should motivate the functional change of the once neglected area. It means that economic base of mentioned area should develop, especially with the arrival and development of functions connected with culture, leisure and tourism, as well as new services.

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ANALYSIS OF THE INFLUENCE OF ENVIRONMENTAL PROTECTION INVESTMENTS ON TRENDS IN AIR QUALITY FOR THE SPECIFIC REGIONS OF THE CZECH REPUBLIC

Helena Mikulíková

ANNOTATION

The contribution is focused on the evaluation of the trends of environmental protection investments and the trends of air pollution levels for the specific regions over a given period of time. The methods of empiricism, comparison, excerption and trend analysis are used.

KEY WORDS

Acquired investment, emissions, air quality, regression analysis, determination index.

INTRODUCTION

In recent years professional communities still admonish strongly to the protection of the environment, because its ignorance could have disastrous consequences in many areas. Environment includes many components and each has its own specifics. Therefore this contribution is focused on one of these components - air. To protect air quality a specific investments are spent, which should effectively improve its quality, especially by emissions reduction. To evaluate the air quality it is necessary to have relevant statistical data. Because the contribution is focused on the assessment of the situation in regions where the necessary data were measured and monitored only from year 2001, the evaluated period is 2001-7.

AIM AND METODOLOGY

Aim of this paper is to analyse the status and developments in the field of air quality for each region and for the entire Czech Republic (CR) during 2001-7. For this purpose two characteristic indicators were selected - investment in air protection and amount of emissions.

Concerning the investments in air protection, they have a number of components, such as state budget, state funds, etc. Considering that statistical data of investments in air protection for individual regions exist only under item „acquired investments in environmental protection according to subject intention and investor residence region", only these values are evaluated and given in thousands of Czech crowns in current prices (kCZK c.p.) (because of the length of the name the appropriate data in text below will be denoted as "acquired investments").

Regarding the amount of emissions, the total values of emissions, i.e. sum of all major pollutants (TZL, SO_2, NO_x, CO, VOC and NH_3), are evaluated. The values are given in tons per year.

For the analysis methods of empiricism, comparison and excerption were used and from the statistical methods the linear regression model was used.

RESULTS

This chapter shows the comparison between CR regions in terms of the values of acquired investments in air protection and the measured amount of emissions in the period 2001-7. Because of a large range of data for each region this paper includes only the most important

data. The evaluation in real values using statistical methods and graphic representations is introduced.

Evaluation using real values

On the basis of the time series for the period 2001-7 for the examined indicators - the acquired investments in air protection and emissions - for the individual regions, the table (Fig.1) was made. From the table it is possible to assess and compare the situation in real values in individual CR regions.

Fig.1 Differences of maximum and minimum values of investments (kCZK c.p.) and emissions (t/year) in the period 2001-7

	Investments (kCZK c.p.)			Emissions (t/year)		
Region	minimum	maximum	difference	minimum	maximum	difference
CR total	**3920174**	**7056835**	**3136661**	**1277677,0**	**1410018,0**	**132340,8**
Capital Praha	241865	685297	443432	48760,5	71739,6	22979,1
Středočeský	382708	1128474	745766	173532,1	184689,5	11157,4
Jihočeský	165013	344896	179883	76528,3	86554,6	10026,3
Plzeňský	155522	328771	173249	70287,4	78436,1	8148,7
Karlovarský	40102	643259	603157	45027,1	52961,2	7934,1
Ústecký	480200	1246716	766516	193743,2	214194,3	20451,1
Liberecký	87663	203307	115644	30525,6	42302,1	11776,5
Král-Hrad.	86584	530904	444320	54692,8	65837,7	11144,9
Pardubický	139317	302463	163146	70225,1	85601,6	15376,5
Vysočina	79388	522408	443020	65459,8	70314,5	4854,7
Jihomoravský	106103	259167	153064	87250,6	95986,0	8735,4
Olomoucký	85091	377855	292764	55415,0	67889,5	12474,5
Zlínský	179922	658992	479070	44327,8	52217,9	7890,1
Moravskoslez.	318663	1744467	1425804	244379,8	276619,5	32239,7

Source: ČSÚ

From the values given in the table Fig.1 it is possible to compare the situation in the individual regions over the period 2001-7 regarding acquired investments in air protection and emissions.

Evaluation for the investments:
- The lowest volume in Karlovy Vary region
- The maximum volume in Moravskoslezký region
- The smallest increase (difference) in Jihomoravský region
- The greatest increase in Moravskoslezský region.

Evaluation for the emissions:
- The lowest volume in Liberec region
- The maximum volume in Moravskoslezský region
- The smallest increase in Vysočina region
- The greatest increase in Moravskoslezský region.

Evaluation using statistical methods

In this chapter the investigated indicators for the period 2001-7 are evaluated using statistical method - regression analysis. A linear regression model is used, where two variables are combined by linear function $y = b_1 x + b_0$, where b_1 is the slope and reflects the degree of growth or decline of observed variable. Further an index of determination r^2 (from 0 to 1) is stated, which indicates how exactly match the expected values of linear regression the real

data. The linear regression is most reliable in case when the value of determination index is close or equal to value 1.
The x-values represent an independent variable, i.e. the years 2001-7 and the y-values represent a dependent variable, i.e. either acquired investments or the value of the measured emissions in this period. For each region the relevant equations and index determination was calculated using regression analysis.
The following Fig. 2 gives the values r^2 and b_1, from which is possible to analyze the development of monitored indicators in individual regions and the entire CR.

Fig.2 Parameters of linear regression of dependences of investments and emissions on years for individual regions in the period 2001-7

	Investments / years		Emission / years		Emission / Investments	
Region	r^2	b_1	r^2	b_1	r^2	b_1
CR total	**0,81**	**479390**	**0,20**	**0,018**	**0,08**	**6123,7**
Capital Praha	0,06	17724	0,04	-0,010	0,95	-3651,6
Středočeský	0,39	-78156	0,15	0,007	0,19	-1002,0
Jihočeský	0,05	-8574,6	0,00	0,001	0,84	-1729,0
Plzeňský	0,03	5675,7	0,03	-0,008	0,83	-1201,8
Karlovarský	0,68	-84184	0,26	0,008	0,00	-51,4
Ústecký	0,29	-70368	0,36	0,016	0,55	-2550,8
Liberecký	0,00	1103	0,00	0,011	0,94	-1907,9
Král-Hrad.	0,00	-122	0,00	0,000	0,96	-1901,7
Pardubický	0,01	3534,5	0,07	-0,032	0,92	-3015,2
Vysočina	0,01	-11061	0,32	-0,005	0,23	374,8
Jihomoravský	0,37	15472	0,11	-0,018	0,52	-986,7
Olomoucký	0,35	-26648	0,40	0,029	0,98	-2047,8
Zlínský	0,19	-34539	0,44	0,011	0,86	-1174,6
Moravskoslez.	0,51	167094	0,41	0,014	0,10	1671,8

Source:ČSÚ

From the values given in the table Fig.2 it is possible to compare the development of indicators over the observed period in different regions:

For the dependence "acquired investments vs. years":

1) The slope b_1 from Fig.2 shows:

- The greatest increase in capital Praha, Moravskoslezský and Jihomoravský regions
- The greatest decrease in Karlovarský, Středočeský, Ústecký and Zlínský regions

2) The value of determination index r^2 representing the reliability of linear trend between years and investments is:

- The highest in Karlovarský and Moravskoslezský regions
- The lowest in Liberecký and Královehradecký regions.

Comparing the values b_1 and r^2 could be declared that the time dependence of investments was found in Moravskoslezský region. Trend is increasing.

For the dependence "emissions vs. years":

1) The slope b_1 from Fig.2 shows:

- The greatest increase in Moravskoslezský and Zlínský regions
- The greatest decrease in capital Praha, Ústecký, Středočeský and Liberecký regions

2) The value of determination index r^2 representing the reliability of linear trend between years and investments is:

- The highest in Moravskoslezský and Zlínský regions
- The lowest in Liberecký and Jihočeský regions

Comparing the values b_1 and r^2 could be declared that the time dependence of emissions was found in Moravskoslezský and Zlínský regions, but the volume of emissions has the adverse growing trend in both cases.

For the dependence "emissions vs. acquired investments":

1) The slope b_1 from Fig.2 shows:

- The greatest increase in Moravskoslezský, Ústecký and Karlovarský regions
- The greatest decrease in capital Praha, Vysočina and Jihomoravský regions.

2) The value of determination index r^2 representing the reliability of linear trend between years and investments is:

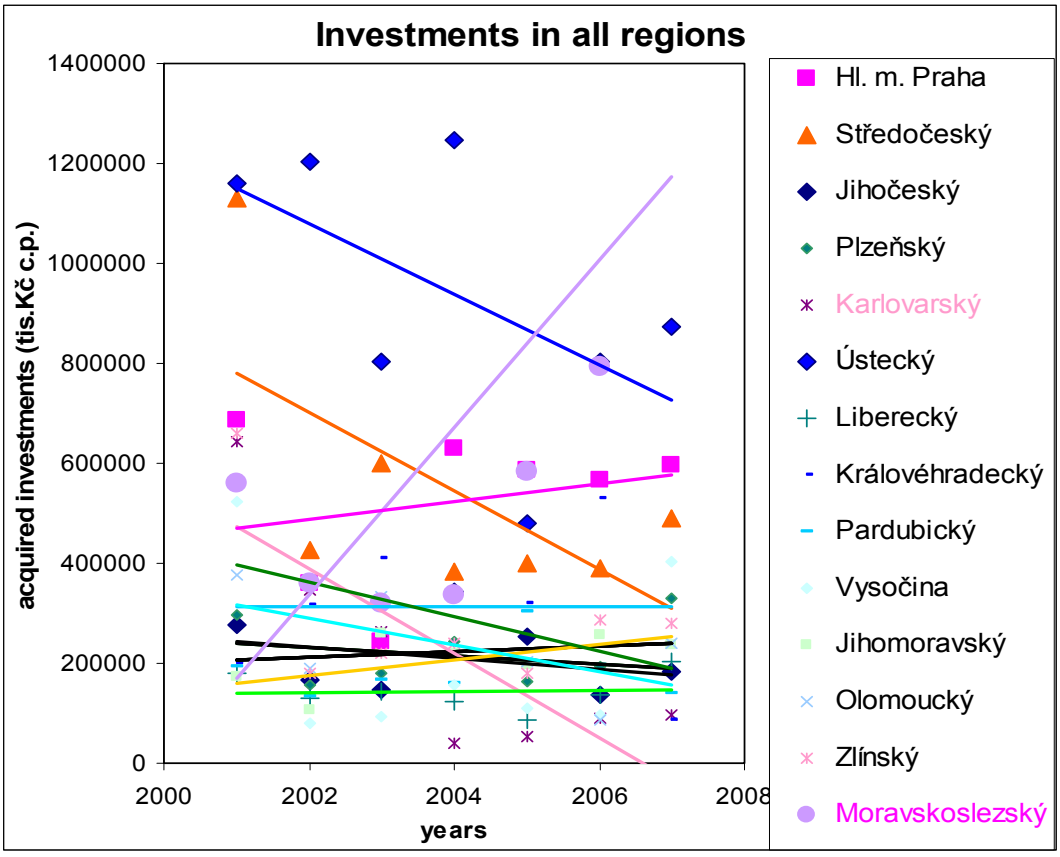
- The highest in capital Praha and Pardubický region
- The lowest in Karlovarský and Moravskoslezský regions.

Comparing the values b_1 and r^2 could be declared that the dependence of emissions on investments was found in capital Praha, where the trend is decreasing as expected.

Evaluation using graphic representation

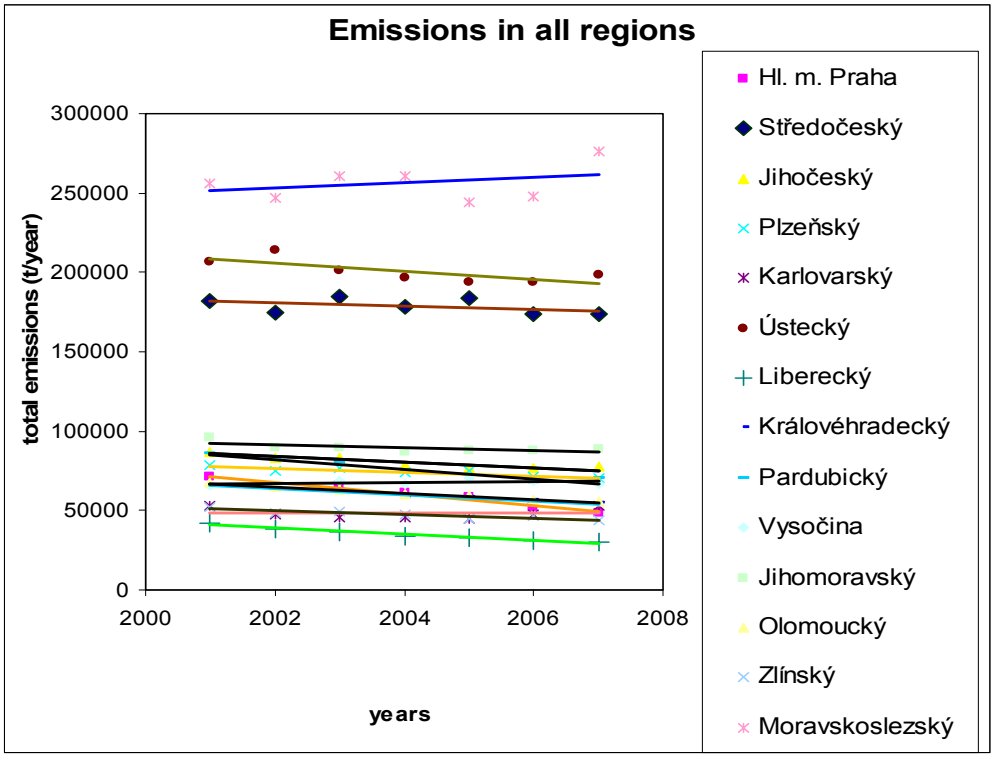
This chapter shows the evolution of the monitored indicators by graphic representation. Graphs for all regions (Figs.3-5) and for the CR in total (Figs.6-8) are shown separately, due to the large differences in the values of individual indicators.

Fig.3 Graphic representation of acquired investments (kCZK c.p.) in the period 2001-7 for all CR regions.



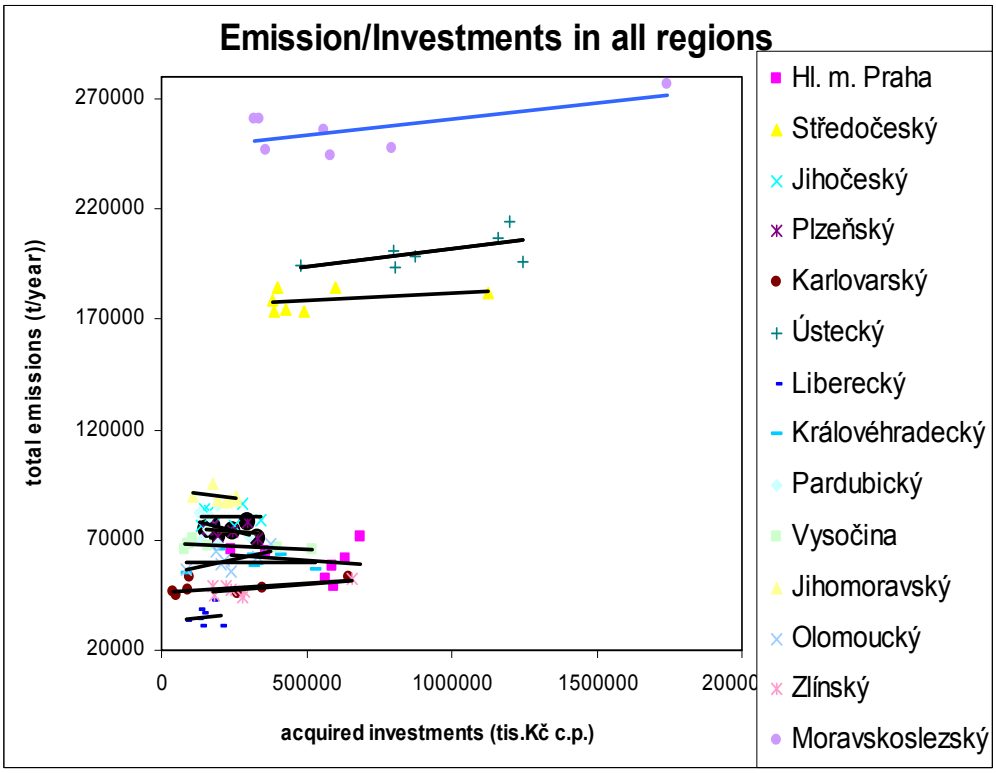
Source:ČSÚ

Fig.4 Graphic representation of emissions (t / year) in the period 2001-7 for all CR regions



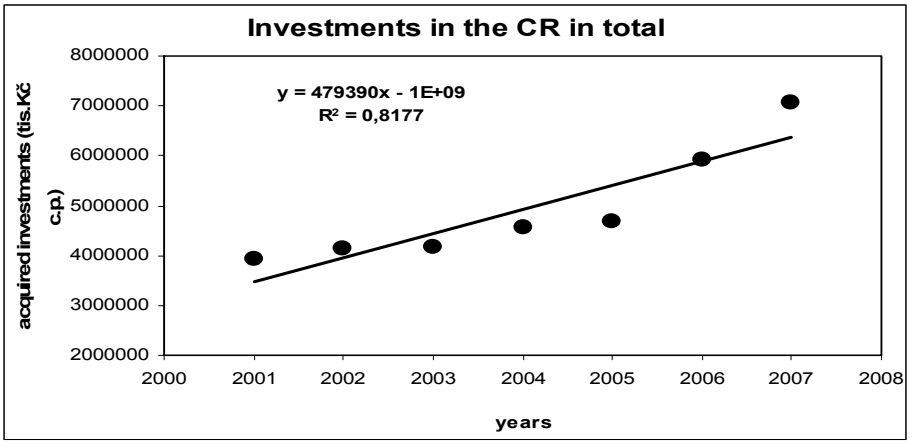
Source:ČSÚ

Fig.5 Graphic representation of emissions E (t / year) and investments I (kCZK c.p.) in the period 2001-7 for all CR regions



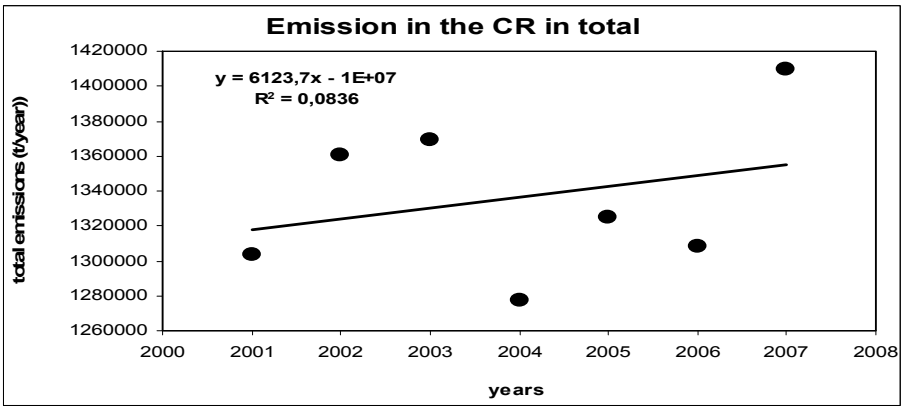
Source:ČSÚ

Fig.6 Graphic representation of acquired investments (kCZK c.p.) in the period 2001-7 for the CR in total



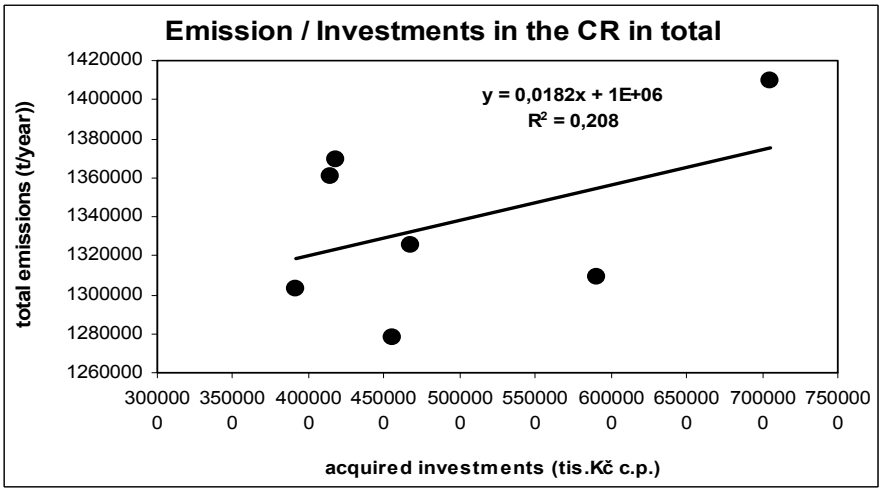
Source:ČSÚ

Fig.7 Graphic representation of emissions (t/year) in the period 2001-7 for the CR in total



Source:ČSÚ

Fig.8 Graphic representation of emissions E (t / year) and investments I (tis.Kč. c.p.) in the period 2001-7 for the CR in total



Source:ČSÚ

From the graphic representations is perceptible that for regions as well as for the CR in total is useful the explanatory text as reported in previous chapters.

In the CR total:
- *Acquired investments* in air protection have increasing trend in the period under consideration and the determination index r^2 in this case shows the reliability of a linear trend of time dependence of investments.
- *Emissions* have undesirable increasing trend in the period under consideration and the determination index r^2 in this case doesn't show the reliability of a linear trend of time dependence of emissions.
- *Emissions vs. acquired investments* have undesirable increasing trend and the determination index r^2 in this case doesn't show the reliability of a linear trend of dependence of emissions on investments.

CONCLUSION

Using time series, statistical methods and graphic representations the development of volumes of acquired investments in air protection and measured values of emissions in the period 2001-7 for each region and the CR in total was evaluated. It was found that the greatest increase of investments showed Moravskoslezský region, but the volume of emissions in this period also increased. Best situation was in capital Praha, where the greatest increase of acquired investments in air protection was recorded and the greatest decrease of emissions was also recorded.
Regarding the investigated dependence between the amount of acquired investments and the volume of emissions, we can say that there was no dependence for most countries. The dependence was found only for capital Praha. The determination index r^2 showed the reliability only for a linear trend of time dependence of investments. Dependence between years and the volume of emissions as well as between the amount of acquired investments and the volume of emissions for the entire CR can not be proven.
Although it was expected that the increase of investments in air protection will result in decrease of emissions, this dependence has been demonstrated only in a small number of regions. This fact may be affected by many factors such as time shift for the reduction of air pollution at investments spent in given year, relatively short time series for evaluation, emissions transport (between regions and countries), geographical conditions of regions. Another factor that affects the results of the evaluation is fact that total investments in air protection, which includes all components, are not statistically reported for individual counties for each year and changes in methodology of reported investments are there also reflected.

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ANALYSIS MONETARY POVERTY

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ANNOTATION

In this article we try to analyze the significant factors which influence to poverty. Our analysis in based on collected data from project EU SILC in Slovakia. We used binary logistic regression to analyze data.

KEY WORDS

Monetary Poverty, EU SILC 2008, Binary Logistic regression

INTRODUCTION

The problem of poverty is serious social problem today, which is not only in the third world countries but also in industrialized countries, not excluding the countries of Europe. One of the leading roads to the eradication of poverty is to research the nature, causes, and its occurrence factors that act on it.

In the present contribution we have tried to assess the impact of factors that affect incidence of poverty, respectively which are associated with the incidence of poverty. Our focus is taking the presence monetary poverty. Our analysis is based on the data resulting from EU SILC survey in 2007 in Slovakia.

EU-SILC 2007 IN SLOVAKIA

EU-SILC (European Union – Statistic on Income and Living Condition) 2007 is third statistical poverty's project. The project aims to create a harmonized data source on differentiation income level and structure of poverty and social exclusion. EU SILC survey replaced the ECHP (European Household Panel implemented in the original 14 EU countries) and became a reference source of income, poverty and social exclusion. EU Project SILC observed in the first place income poverty, but also notes the dimension of material deprivation and social exclusion in relation to education, health, working conditions, social participation and so on. The actual data collection took place in April 2007 in 5840 households and 12763 people in throughout Slovakia. The rate of return was almost 85%. Data collection, participated in over 400 interviews, visiting households in 308 villages in Slovakia. Selection of households was made simply random. Employed household members of these households are also the basic unit's survey.

BINARY LOGISTIC REGRESSION

Logistic regression model is special model to help us in the analysis dichotomous data. Logistic model is appropriate when the response takes one of only two possible values. Usually dichotomous data represent success and failure, or more generally the presence or absence. In our model we use 1 to indicate the occurrence of the phenomenon (household is at risk of poverty) and the reference value 0(household is not at risk of poverty) its absence. We set the symbol $\pi(x) = P(Y=1/x)$ conditional probability that Y takes values 1 if explained variables $X_1, X_2,\ldots, X_{k-1}, X_k$ take values $x_1, x_2,\ldots, x_{k-1}, x_k$. We also assume that Y_i has binomial distribution:

$$Y_i \sim B_i(n_i, \pi_i)$$

With individual data denominator $n_i = 1$ for all i.
Probability $\pi(x)$ can be expressed by linear combination inputs variables $\beta_0 + \beta x + ... + \beta_k x_k$ follows:

$$\pi(x) = \frac{\exp(\beta_0 + \beta_1 x_1 + ... + \beta_k x_k)}{1 + \exp(\beta_0 + \beta_1 x_1 + ... + \beta_k x_k)}$$

We move probability $\pi(x)$ to odds $\frac{\pi}{1-\pi}$ to get the prediction the occurrence of phenomenon. Odds ratio is defined as the ratio of the probability to its complement, or the ratio of favorable to unfavorable cases. If the probability of an event is a half, the odds are one-to-one or even. If the probability is 1/3, the odds are one-to-two. If the probability is very small, the odds are said to be long. Through the logit transformation:

$$Logit\ (\pi(x)) = \log \frac{\pi(x)}{1-\pi(x)} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k$$

MODEL OF POVERTY

Variable *Poverty* steps in the model like dependent variable (explaining variable). *Poverty* is binary variable which takes only two values (0,1) and the unit indicates that the household is at risk of poverty. Risk of poverty is defined as 60% of median equivalent disposable income which was 268,64 Euro in 2007 in Slovakia. Explanatory variables which use in the logistic regression model as quantitative data *Number of dependent children; Age; Number of adults*. Beside these quantitative variables we have *Tenure status; Education; Economic Status* which step to the model like qualitative variables. We chose *Stepwise selection* method in this model. Logistic regression model prefers categorical data (qualitative) than numeric data (quantitative data) so we had to change the original form of data to new more practically form. The process of changing is illustrated by the following tables:

Fig.1 Original value and new value of variable *Number of dependent children*

	Original	New
Number of dependent children	0-1	1
	2-3	2
	3 and more	3

Fig.1 Original value and new value of variable *Age*

	Original	New
Age	16-24	1
	25-49	2
	50-64	3
	65 and more	4

Fig.2 Original value and new value variable *Education*

Categorical variable	Original	New
Primary education	1	1
Lower secondary education	2	2
Upper secondary education	3	
Post-secondary education, not tertiary education	4	
First stage of tertiary education	5	3
Second stage of tertiary education	6	

Fig.3 original value and new value variable *Tenure status*

Categorical variable	original	New
Owner	1	1
Tenant or lodger paying normal rent or rent at market price	2	2
accommodation rented at a reduced price	3	
Accommodation is provided free of charge	4	

Fig.4 Original value and new value variable *Number of adults*

	Original	New
Number of adults	1	1
	2	2
	3	3
	4 and more	4

Fig.5 Categorical Variable *Economic status*

Employment	1
Self-employed	2
Pension	3
Other	4

Each nominal explanatory variable in the model was replaced with artificial (contrasting variables, dummy variables). Artificial variables were created encoding {1,0}. The reference value is the biggest value which is marked in every presented table. On the level $\alpha = 0{,}05$ significance we reject the null hypothesis H_0: $\beta_j = 0$ and take the alternative hypothesis H_1: $\beta_j \neq 0$. We can see on the table 7 below.

Fig.6 Analysis of Effects

Effect	DF	Wald Chi-Square	Pr > ChiSq
Number of dependent	2	1.549,397	<0,0001
Education	2	556,322	<0,0001
Age	3	122,914	<0,0064
Number of adults	3	217,929	<0,0001
Tenure status	1	53,357	<0,0209
Economic status	3	2.984,679	<0,0001

Logistic regression is an approach to prediction like Ordinary Least Squares (OLS) regression. However, with logistic regression, the researcher is predicting a dichotomous outcome. This situation poses problems for the assumptions of OLS that the error variances (residuals) are normally distributed.
With logistic regression, there is no standardized solution printed. And to make things more complicated, the unstandardized solution does not have the same straight-forward interpretation as it does with OLS regression. In the follow table we don't focus only the value of parameter (coefficient) but we need to know about its test of statistical significance.

Fig.8 Analysis of Maximum Likelihood Estimates

Parameter		DF	Estimate	Standard Error	Wald-Chi-Square	Pr > ChiSq
Intercept		1	10,926	0,5128	4,54	<0,0331
Number of dependent	1	1	-27,657	0,2505	1.219,112	<0,0001
Number of dependent	2	1	-1,53	0,2439	393,374	<0,0001
Education	1	1	19,021	0,3344	323,458	<0,0001
Education	2	1	11,802	0,1695	484,794	<0,0001
Age	1	1	-0,5095	0,6064	0,7061	<0,4007
Age	2	1	0,5438	0,1983	75,198	<0,0061
Age	3	1	0,0561	0,1374	0,1666	<0,6832
Number of adults	1	1	20,043	0,1929	1.079,169	<0,0001
Number of adults	2	1	0,5179	0,1854	78,038	<0,0052
Number of adults	3	1	0,4633	0,212	47,772	<0,0288
Tenure status	1	1	-0,3149	0,1363	53,357	<0,0209
Economic status	1	1	-3,117	0,3525	782,111	<0,0001
Economic status	2	1	0,5691	0,4039	19,855	<0,1588
Economic status	3	1	-2,009	0,3672	299,305	<0,0001

With $\alpha = 0,1$ we see that almost our parameters are statistical significant. Because of these complicated algebraic translations, our regression coefficients are not as easy to interpret. And in the place of estimated parameters we use Odds ratio (OR) to help us interpret easier and more useful.

Fig. 9 Odds Ratio Estimates

Effect	Point Estimate	95% Wald Confidence Limits	
Number of dependent 1 vs 3	0,063	0,039	0,103
Number of dependent 2 vs 3	0,217	0,134	0,349
Education 1 vs 3	6,7	3,478	12,904
Education 2 vs 3	3,255	2,335	4,538
Age 1 vs 4	0,601	0,183	1,972
Age 2 vs 4	1,722	1,168	2,541
Age 3 vs 4	1,058	0,808	1,384
Number of adults 1 vs 4	7,421	5,084	10,832
Number of adults 2 vs 4	1,679	1,167	2,414
Number of adults 3 vs 4	1,589	1,049	2,408
Tenure status 1 vs 2	0,73	0,559	0,953
Economic status 1 vs 4	0,044	0,022	0,088
Economic status 2 vs 4	1,767	0,801	3,899
Economic status 3 vs 4	0,134	0,065	0,275

On the result from table 9 we see that only some variables don't have significance influence on *Poverty*. An important factor in the decisive incidence of poverty is *education* of the person spearheading the households. Official statistics show that most registered unemployed comes from group only skilled persons, persons with completed primary education and free education. When has a person standing at the head of household only primary education, the chance that poor households will become more than 6,7 times higher than households where the person households for the entire tertiary education. Significant impact on the incidence of poverty is the demographic composition of households, which are affected number of adults and number of dependent children. In the household which has only one adult get the 7,4 times higher risk of poverty than the household with 4 members. And household with two children get 4,6 times lower risk of poverty than the household with 3 and more children. Following the Odds ratio of variable *tenure status* we know that the household which doesn't have own accommodation get 1,37 times higher risk of poverty than the households with their own. By the Odds ratio of *Economic status* we see the different risk of poverty in the different households. The household has a person standing at the head who is unemployed take 7,5 times higher risk of poverty than the household has pensioner as the person standing at the head.

CONCLUSION

In the present article we tried to find down the influencing factors which can make the important impacts in the analysis of monetary poverty of household in the by the using the logictic regression.

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INNOVATION THROUGH SIMPLICITY. PRACTICAL WAYS TO PUT INNOVATION INTO BUSINESS PRACTICE

Michał Piłat

ANNOTATION

The paper presents a few simple to introduce, however highly effective management innovations applied mainly in the American companies. As the space is very limited the author shortly characterizes their essence and advantages, which can be achieved through their implementation. Additionally he demonstrates how to release innovative thinking around workers. Moreover the paper is an attempt to find the answer whether all the depicted innovations could also prove useful on the Polish ground.

KEY WORDS

management, human resources, innovation, enterprise, motivation,

AIM AND METODOLOGY

The aim of the article is to show off innovation as a major source of competitive advantage in the post-industrial era of management. It is also to be proven that being innovative is not phenomenon restricted merely to big market players but can and should be practiced by small and medium ones too. This article is based upon analysis of various approaches presented in the literature.

RESULTS

There are examples of highly effective but still simple to introduce and relatively cheap innovations which every company – regardless its size might implement. Despite its simplicity the results could be truly overwhelming. However in order to achieve them the company must go through certain examination of itself. The best employees should be properly rewarded and stimulated to further impressive actions, while the least performing ones ought to be let go.

1. Introduction

A lot has changed since the Gilbreth's idea of "one best way" occurred. The concept which mainly stressed the importance of looking for the best example of the way to do "things" has totally shifted thinking. Instead of searching for the answer how to solve the problem managers switched to seeking examples of how someone else has already done it [1]. Coping and following somehow managed to replace creativity. Not for a long time as it turned out. In contemporary knowledge economies businessmen and managers are strongly objected to "status quo" in organizations and do not believe anything could stay best for a long time. In this way, even the best management techniques are subject to constant improvement. New paradigms emerge. Some of them survive and others don't. That's what innovation is all about.

2. Management by values as a core of innovative thinking

According to Jack Welsh – one of the most innovative managers no employee can generate innovative ideas as long as he or she does not associate with the company. In that case fundamental knowledge of mission has to be provided. In this way all taken actions must

be strictly linked to this company "sense of belonging". Based upon mission, values, norms and main goals are shaped.

This system is generally called management by values (MBV) and results in decisions being made according to the certain values the company goes about. Moreover those values could take a form of general signposts of innovation, such as [2]:

- act boundlessly, constantly searching for the best ideas,
- assume intolerant stance when it comes down to bureaucracy,
- see a change in a way of development,
- demonstrate the biggest concern in case of quality,
- treat out clients the way you want to be treated.

According to that thinking each employee should be obliged to take the tests for: honesty, intelligence and emotional intelligence to see how he or she copes with stress of everyday life. Out of such examination one ought to seek for energetic people, who are capable of stimulating others to innovative thinking and who are not afraid to take bold, sometimes risky decisions and who can psychologically speaking deal with it.

3. The 20-70-10 rule

For every company it is possible to make a selection of those who are the best and remaining rest of the crew. As the 20-70-10 rule says this comparison should give an answer of three fallowing questions [2]:

- who are the best 20% of our employees, as far as innovative thinking and individual efficiency are concerned? If the firm wants to be an innovative one it must reward "cream de la cream" of its work force. It can be done through many options such as gifts, bonuses, premium medical care, participation in management, trips, additional trainings and so on. That is the only way to create true leaders. Otherwise everybody looses, the company, good employees, even the stockholders.
- who are the 70% of people in our company who are generally speaking mediocre? The fundamental objective in case of those employees is to, at least, maintain their mediocrity. In this way management of such workers should be mainly on trainings, constructive criticism and precise goals specification. Naturally there is also a need to search for particular remedy to change some of them into the best ones. Sometimes it can be achieved through very simple ways such as job-rotation [3] or horizontal promotion. In some other cases better-tailored motivational system can make a difference.
- who are the remaining 10%, of generally least performing workers. According to Jack Welsh most of them or even everyone of them should be let go. However it is easy to say but in fact difficult to put into practice. In Jack Welsh's companies that is a norm so those least performing ones in most cases leave before they are asked to.

Surprisingly most employees see this system as a fair one. It promotes the most innovative and hardworking ones while laziness does not pay off. If the company promotes all its personnel sooner or later it will suffer from this practices. On the other hand if it does not properly rewards the best there will be no intention to become one.

4. Motivation-driven innovative thinking

Many leading businessmen believe, that the endless source of innovation is effective human resources management. Therefore it is the obligation of a manager to find out how to talk people into thinking more innovatively. Paraphrasing Victor Vroom's claim, we can say

that such thinking is dependent not only on what has been already provided but future rewards and achievements as well. Thus if a company really wants an employee to be the innovative one it needs potent and properly-tailored motivational system to be designed [4]. It means that actual reward has to be attractive to a person who benefits from having it.

According to some psychologists, merely recognition and awards are what people desire just as much as sex and money. Constant rewarding employees for they creative ideas brings about famous Skinner's positive reinforcement. Thus, when the company publicly rewards its employees for their actions, they are more eager to repeat them. However, in order to link motivation system to innovation Bob Nelson formed the general rules on how to simply but highly effectively commend employees [5]:

1. the benefit program designed by a company should reflect subscribed by that company norms and values. Hence it ought to be highly linked to mission as well;
2. all the benefits given to the awarded employees should comply with their personal interests. It basically means that unless a person desires specific gift it will not be a substantial motivator to him. Many companies deal with that obstacle making lists of articles to select from, e.g. luxury series of golf clubs which those employees normally could not afford. All the goods on such a "list of trophies" overweigh financial rewards as they are more durable, thus motivation stays longer;
3. all the rewards should be awarded in public, while solemn employee meetings or other occasions to gather all the crew. In this way they might motivate not only the selected individuals but others as well;
4. selecting a rewards one must take into account their influence on company economic results as well as its innovation level;
5. it should not be merely a job of a superior to choose who is to receive a reward but his co-workers as well;
6. there is no cause and link effect unless the reward is given right after the desired employee behaviour;
7. the rules of how to reward employees ought to be commonly known and set jointly with employees;
8. apart from giving actual rewards a manager should praise and congratulate those employees who deserved it. To some of them it might be worth even more than a bonus;
9. one out of four praises should be followed by a real, tangible award, or additional day off. What is more, every fourth award ought to be more valuable, thus at the and of this "chain" most attractive ones, such as promotions, raises are to be provided;
10. since positive reinforcement brings about ultra-positive actions, it is top management's job praise those group of managers who do not forget to praise well-performing employees.

When a manager is fully aware of this "Decalogue" of well-designed motivation system he might actually stimulate employees to think and act more innovation-driven. A convincing proof demonstrate many world-leading companies, which declare full understanding of Nelson's principles. Hence, those companies release innovative thinking employees and score impressive results, for instance [5]:

- when IBM introduced its reward system, 223 thousands of its workers submitted 153 thousands of new innovative ideas within the first year. The logic was simple. An innovative employee gets 25% of second year's profits if the solution is launched. Patents, inventions and administrative rationalizations are rewarded additionally;
- hiring over 10 thousand people Honda of America Manufacturing Inc. has noted ca. 10 thousand of innovative solutions last year. Their accumulated value accounted for

5 million dollars. As a reward for major rationalizations employees were given a brand-new Hondas Civic or Hondas Accord while the tiny ones were converted to "credits" which can be redeemed for money or extra days off;

- an operator working for Parker Hannifin Corporation in Cleveland proposed as many as 800 cost rationalization projects himself. As a reward he was given loads of electronic goods. Too many for himself, so he hand out most items to family and friends;
- quite popular among American companies are the so called "incentive travels", which are kind of luxury motivation programmes. The best innovators are rewarded astonishing exotic trips, such as around the world or to Antarctica. Sometimes it costs a few dozen of thousand dollars but still seems to be a good investment for a company. Making most innovative employees' dreams come true a company stimulates also the others building loyalty around the whole staff.

5. What about management?

Naturally in order to talk employees into working more actively and generating new innovative ideas democratic management style must be implemented. Based on this style there are lots of different management methods. One of them, which targets at making people acting innovatively is open-book management proposed by Jack Stack – the head of SRC Corporation. The method is based on open communication, feedback, incentives and trust. This system proposes few important tips to stimulate innovation among people. They are as follows: [6]:

1. Paint the big picture: Managers must give all employees a course in the business, help them believe in the products and/or services being delivered, and understand how the company operates.
2. Open the books: The so-called cornerstone of The Great Game of Business is to show all employees the financials of the company so that everyone is on the same page about saving money, watching expenses and improving profits and sales.
3. Make the payoff: Companies must institute two motivational tools to help improve performance and sales goals: employee bonuses and equity-sharing. Bonuses will recognize and help retain valuable workers, and equity sharing will allow employees to have a greater interest and personal stake in the business.
4. Do the huddle: Hold frequent, regularly scheduled all-staff meetings so everyone understands the system and is kept up-to-date on company financials and bonuses. Regular meetings improve communication and help define direction and vision.

In some organizations this part of the system, which collects employees' ideas takes the form of the so called DODGI (the department of damn good ideas). As far as such department is concerned, every employee may even declare a solution of how to improve top management's work.

6. Innovation release

According to the guru of management Peter Drucker, every person working for a company should be involved in the decision-making process. It might be related to fairly basic stuff, like weekly schedule or new inventory, but also to related to main goals [7]. On the other hand the process of innovation release could be based on very simple but effective methods.

One of them was introduced in one of the production companies from Pennsylvania. A certain lab assistant proposed to talk people into thinking more innovatively by making them famous, as far company history is concerned. For every implemented innovation a creative

employee gets a sticker with the exact information about person who created it and the launch date. Such sticker is placed visibly making the inventor proud. As a result more than three thousands of new suggestions, out of which ca. two thousands were exploited. It brought savings accounted for 6,5 million dollars. Half of this sum was spent on rewards for employees [7].

Every once in a while the US Department of Energy organizes "innovation day", where all the employees may contribute with their ideas. During one of such action they receive 2134 rationalization projects. 68% out of them had actually been implemented.

Naturally every company may involve its workers into brainstorming or other creative techniques. Despite the quality of most of ideas some may actually turn out to be genius. As an example the Toyota Corporation in-house suggestion scheme generates over one million ideas a year. It means around 3000 a day. Over 95% of the workforce contribute suggestions; that works out to over 30 suggestions per worker yearly. The most remarkable statistic from Toyota is that over 90% of the suggestions are implemented. [8].

CONCLUSION

Contemporary business is becoming more and more dependent on innovations. Without and doubt innovative employees are one of the most important sources of competitive advantage nowadays. Thus their importance as company strategic asset has to be stressed. On the other hand there is no innovation unless employees truly want to think creatively. Hence it has to be company obligation to provide appropriate environment and "rules of the game" in order to stimulate people to open up their minds and share their views. As far as those aspects are concerned effective motivation system, rich in different incentives, tailored to individual preferences, as well as proper management style must be delivered. As it has been proven in the paper most of the tools and techniques, despite being used mainly in big American companies are fairly easy to imitate, regardless the size or the location of a firm. As a result they could be hassle-free exploited by the Polish companies helping them out in taking the most out of their work force. Although it generates certain costs and requires additional effort, the results could turn out to be much above expectations.

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IS PERCEIVED SIGNIFICANCE DETERMINING DECISION STRATEGY SELECTION?

Axel Sonntag

KEY WORDS

Decision Making, Metaheuristics, Strategy Selection Model, Perceived Significance, Classroom Experiment

INTRODUCTION

"Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses." [5] Focusing on the term human behavior, makes clear what human beings as economic actors actually can do: Decide between alternatives. This emphasizes the role of decision making as a core topic within a huge variety of economic theories and gives an idea why especially this area of research has been and still is paid much attention to.

Humans repeatedly have been claimed unable to be rational optimizers because our brains lack the required processing power and storage capacity to do so. Consequently, to meet our every day decision making needs, less effort-demanding strategies are applied. Instead of calculating the optimal solution, simpler and therefore more humane decision rules which make the best out of our cognitive apparatus could be used to infer a problem. Such strategies are also known as heuristics[1]. However, as can be seen from many empirical studies (e.g. [2][3][4]), there is no perfect heuristic which in general results in *the most preferable outcome*. As there are many *fast and frugal* methods [3], whose accuracy and decision outcome dramatically depend on the actual *decision environment* [6][7], the question arises, which strategy should be selected under which circumstances. Procedures used to select a specific heuristic out of a pool of available decision strategies [1] are called metaheuristics.

Cost-benefit models, like the effort-accuracy model by Payne, Bettman and Johnson [6], compare the beneficial accuracy of a decision strategy in finding the best[2] alternative with the effort necessary when applying that strategy. Unfortunately, this theoretically elegant approach refers to an optimization process which is in direct conflict with the preclusion of such procedures due to limited human processing capability. Consequently, a different, non-optimizing, approach is chosen to select decision strategies in this paper.

A new metaheuristic model for decision strategy selection for consumer goods is introduced. It uses the measures as perceived relative costs and relativ holding times of consumer products to trigger the underlying decision effort (metalevel) in selecting an appropriate alternative (choice level).

AIM AND METHODOLOGY

My approach refers to Simon [5] and Beach and Mitchell [1] who emphasize the important role of the environment in decision situations. Especially Beach and Mitchell concretely specified an understanding of the environmental conditions: Characteristics that are specific to a situation like unfamiliarity, ambiguity, complexity, and instability denote the *decision problem (DP)*, whereas the *decision environment (DE)* describes other factors like irreversibility, signifi-cance, accountability, and time and/or money constraints on a more

[1] *''A rule of thumb, simplification, or educated guess that reduces or limits the search for solutions in domains that are difficult and poorly understood.'' (www.english-dictionary.us)*

[2] *Best*, in this case, refers to an optimization process which is in conflict with the preclusion of such procedures due to limited human processing capacity.

Eq 1: Beach and Mitchell's model description

$$DP = W_{Uf} Uf + W_{Am} AM + W_C C + W_{Is} IS$$

$$DE = W_{Ir} Ir + W_S S + W_{Ac} Ac$$

$$TD = W_{dp} DP + W_{de} DE$$

general level. DP and DE together make up the *task demand*, which defines how much decision effort would be necessary in order to reach a satisfying outcome. Interestingly, even though Beach and Mitchell's perspective was published in 1978, hardly any authors further developed a model of task demand. However, I assume this contains a great deal of explanatory power with respect to strategy selection. That is why my model uses the contingency model structure of Beach and Mitchell's work.
How much effort is put into decision making, in the field of consumer products, and therefore which strategy will be applied in order to conduct the goods choice, depends on to major aspects: The *financial* and the *temporal* future freedom of action, respectively.

Eq 2: Dependencies of Decision Effort

$$\underset{+}{DE} = f(\underset{-}{Fffa}, \underset{-}{Tffa})$$

Every buying decision reduces the future freedom of action of the acting decision maker. Whereas this is obvious with respect to available capital (buying goods reduces the available liquid assets that could be used for different purposes), i.e. the monetary dimension, the temporal dimension shall be explained further. Every buying also binds in a temporal manner. Generally economists tend to monetarize almost everything what, of course, could also be and has been done with time. With respect to decision effort choice (which corresponds with the decision strategy selection), it is reasonable to separate financial and temporal aspects. That is because high investment costs do not necessarily require high holding times (i.e. equivalent to a low repurchase frequency) and vice versa. Fig. 1 provides some examples of that fact.

Fig. 1: Good examples varying by capital costs and holding time respectively

	High holding time	Low holding time
High capital costs	*TV set*	*Mobile phone*
Low capital costs	*Electrical toothbrush*	*Shaver*

Source: own illustration

Both dimensions (available capital and available time) are thought to reduce the future freedom of action.
strongly the *future freedom of action (FFA)* is decreased and how important the last purchase of the actual good has been perceived relative to all other buying decisions in a relevant period of time, which can be interpreted as subjective experience.

Model and Hypothesis

Eq 3: Proposed Strategy Selection Model

$$DE_{ij} = w^f \frac{c_{ij}}{LA_j} + w^t \frac{t_{ij}}{T_j}$$

Based on the model in Eq 1 a new model was developed that accounts for time constraints, financial constraints, and experience within a specific decision environment. Corresponding

to Beach and Mitchell, all decision strategies can be ranked by their *degree of analytic complexity* (which corresponds to the necessary effort applying a specific strategy). In order to verify the model's power of explaining decision strategy selections, the following hypotheses will be investigated.

H1: The higher the ratio between the expected costs of a specific consumer good c_{ij} and the level of liquid assests LA_j, the higher the preferred degree of analysis will be.

H2: The longer the holding time of a specific decision t_{ij}, with respect to the maximum available time T_j, the higher the preferred degree of analysis will be.

Methodology

First empirical results of a classroom experiment under economics and business undergraduate students will be presented that give an impression of how appropriate the model fits to actual decision making. Moreover, it should provide guidance for the detailed planning of the subsequent laboratory experiment.

As the proposed paper is work in progress, and the classroom pretests are going to take place in January, no empirical result can be shown by now, but will be presented at the conference. That is why it is also not possible to give conclusions right now. Due to the fact that I am convinced that understanding human decision behavior better is one of the future topics in economics and beyond, I am looking forward to the empirical results related to the proposed theoretical model.

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RELATION BETWEEN INNOVATION POTENTIAL AND ECONOMIC EFFICIENCY OF REGIONS IN THE CZECH REPUBLIC

Eva Štichhauerová

ANNOTATION

This paper treats of relation between the level of regional economic efficiency and the level of regional innovation potential in the Czech Republic. It is one of more steps, that back the drift up, which has to be to verify the hypothesis: "Weak regional innovation potential is the cause of regional economic backwardness". That is closely linked with ability of absorbing business support programs by regions and the possibility of its measuring. Not only that was investigated within the frame of Ministry for Regional Development ČR research project No. WD-30-07-1 entitled as „Innovative approach to the solving of disparities at regional level". More methodologies are presently used by some subjects in the Czech Republic for valuation of regional economic efficiency level. Two methodologies were identified for valuation of regional innovation potential's level in the Czech Republic and their outputs availability differs. The goal of this article was to compare two groups of data gained from specific resources, and to investigate the statistical dependence between regional economic efficiency and regional innovation potential level in the Czech Republic with help of suitable statistical method.

KEY WORDS

Gross domestic product, regional economic efficiency, regional innovation potential, statistical dependence, analysis of variance.

INTRODUCTION

This paper was elaborated with support of the Ministry for Regional Development ČR project No. WD-30-07-1 entitled "Innovative approach to the solving of disparities at regional level" (InoReDis). It pays attention to questions of relation between regional economic efficiency and regional innovation potential in the Czech Republic. It is one of possible ways to verify the hypothesis: "Weak regional innovation potential is the cause of regional economic backwardness". That is joined with business support programs absorption ability of regions and the possibility of its measuring. The paper is divided into two main parts. In the first part, the regional economic efficiency and innovation potential in the Czech Republic are analysed. There are five methodologies described, which are applied to valuation of regional economic efficiency level in the Czech Republic. Two methodologies are listed for regional innovation potential valuation. The second part of this paper targets investigation of dependence between two methodologies outputs.

METHODOLOGY

Economic efficiency valuation

More methodologies are presently used by some subjects in the Czech Republic for valuation of regional economic efficiency level. Under the supervision of the Ministry for Regional Development of the Czech Republic, the Regional Development Strategy of the Czech Republic was elaborated and adopted by the Government in July 2000. In was updated in years 2003 and 2006. In this document, regions with focused state support are identified and classed into three groups: structurally affected regions, economically weak regions, and regions with high above average unemployment rate [1]. Which indicators are used for this

identification, it was analysed at length in the monograph [2]. Regional methodologies are described in Regional Development Programs. Also their analysis was included in [2], and the authors uncovered, that regional methodologies are incomparable.

The Czech Statistical Office elaborated the publication Regional differences in demographic, social and economic development of the Czech Republic in years 2000 – 2005. For each district of administration in all Czech regions were calculated synthetic indices relevant to four basic spheres: D – demographic background, S - social environment, E - economic environment, I – infrastructure, location, availability, human living environment. [3]

At University of West Bohemia, there was developed a methodology enabling to compare regional indicators concerned three basic spheres (macroeconomic efficiency, growth potential, quality of life), which can be illustrated as a 18-angle. [4]

The research team from Technical University in Liberec projected the methodology built around the argument that no globally economic weak region exists. Its procedure and results were presented in monograph [5]. For identification of low-dynamic respectively sustainable economic development of municipalities, eight significant factors must be checked individually: unemployment, attraction to living, settlement, age structure, civic amenities, economic pattern, sustainable development, economic activity.

To the purpose of this contribution, economic efficiency of all fourteen Czech regions at level NUTS3 was measured by regional gross domestic product (thereinafter regional GDP). GDP is the key indicator of the economic development. It represents the sum of values added by all branches of activities which are considered productive in the system of national accounts (including market and non-market services). Calculations are made at current prices and results are then converted into constant prices so that development excluding influences due to price changes can be kept track of.[1] The values of GDP (and regional GDP) are listed in National (pertinently Regional) Accounts of the Czech Republic and published periodically by the Czech Statistical Office.

Regional innovation potential valuation

The term can be defined different in dependence on analysed data. It can be discussed in relation to human resources, number of small and medium enterprises, education and research capacity structure in a region, or in dependence on innovation infrastructure conditions. Regional innovation potential is generally possible to express as the ability of a region, on given conditions, to take advantage of its own internal resources effectively, to react flexibly on external development incentives, to produce and develop activities with higher value-added, and thus to take a new, hierarchically higher qualities. [7]

Under the aegis of Technology centre AV ČR, a publication [7] was get out in 2008, which includes methodology and results on innovation potential analysis of fourteen Czech regions at level NUTS3. Its authors were inspired with the methodology proposed for the European Trend Chart on Innovation and geared it to conditions in the Czech Republic. Indicators were sorted into two main groups: inputs and outputs. The factor analysis and calculation on weighted average lead to results in a form of one synthetic index for each region in Czech Republic. There are fourteen Czech regions classed into a scale with five categories according to innovation potential level: highly below-average, below-average, average, above-average,

[1] CZSO. *Gross domestic product*, 2008.

and highly above-average. However, no numeric values on innovation potential were presented in the document, only the rank of regions. For the reason stated below, numeric values of regional innovation potential were then gained from European Innovation Scoreboard 2006.

The methodology proposed for the European Trend Chart is applied in European Innovation Scoreboard and was updated for the last time in 2005, in 2002 and 2003 two Regional Innovation Scoreboards (RIS) were published. Building upon the methodology used in the 2003 RIS, two indexes are calculated of which a weighted mean is taken for the Revealed Regional Summary Innovation Index (RRSII): the RNSII or Regional National Summary Innovation Index which takes the average of the re-scaled relative to the country mean indicator values and the REUSII or the Regional European Summary Innovation Index which takes the average of the re-scaled relative to the EU25 mean indicator values. In the re-scaling process a power-root transformation has been applied to correct possible problems of outliers and skewed data distributions. For Human Resources, public R&D, business R&D, medium-high/high-tech manufacturing employment and high-tech services employment, a square-root transformation has been used. For life-long learning and EPO patents a double-square-root transformation has been used. Both composite indicators are only calculated when data are available for at least 6 indicators.[2] The values of RRSII were calculated for regions at level NUTS2.

RESULTS

Data obtaining and classing

Data about regional innovation potential in a year 2008 were first extracted from the publication [7]. First of all, the strength of the associations between regional GDP 2008 and innovation potential 2008 was measured through the Spearman Rank Correlation Coefficient. Its value was 0.6, what signalized a bit more than mesoscale positive linear rank dependence. After that, the analysis of variance test was performed (it will be explained below), however, without the numeric values of innovation potential, the dependence of regional GDP 2008 on IP 2008 in the Czech Republic was not verify. Therefore the data from EIS 2006 and about regional GDP of year 2006 were used. The value of RRSII of each Czech region at level NUTS3 was taken equal to RRSII of higher-level region NUTS2.

All data were manually sorted into the two-way frequency distribution table, here so-called correlation table (fig. 1). That is a two-way tabulation of the relations between correlates X and Y.
The autonomous variable X (factor) is regional innovation potential, concretely regional innovation performance measured by the Revealed Regional Summary Innovation Index.
The dependent variable Y is economic efficiency measured by regional Gross Domestic Product.

[2] EIS 2006, p. 28-29.

Fig. 1 Correlation table

		Y: Regional Domestic Product in CR 2006 in mil. CZK					
		96342.4	151809.2	207275.4	262742.2	318209.6	Amount
X: Revealed Regional Summary Innovation Index	0.151	1	0	1	0	0	2
	0.213	0	0	0	0	1	1
	0.275	0	0	0	0	0	0
	0.337	1	5	1	0	0	7
	0.399	0	1	0	0	2	3
	Amount	2	6	2	0	3	13

Source: Author's elaboration.

Row headings are the values on autonomous variable, column headings are the values on dependent variables. In this case, row and column headings are the class marks of five even wide class intervals, in which, under the Sturgess rule, the range of variation (difference between the highest and the lowest value) is split. Two times thirteen regional values were sorted into appropriate class intervals. (Prague was shut off because of the extreme values.) A cell in the table shows how many times the value on that row was associated with the value in that column. For example, first row in the correlation table contents frequency distribution of Regional Domestic Product on condition, that the Revealed Regional Summary Innovation Index equals 0.151, resp. lays in the class interval <0.12; 0.182).

Statistical hypothesis testing

Generally, hypothesis testing is the use of statistics to determine the probability that a given hypothesis is true or not. The process of hypothesis testing consists of four steps:

1. Formulate the null hypothesis H_0 (commonly, that the observations are the result of pure chance) and the alternative hypothesis H_1 (commonly, that the observations show a real effect combined with a component of chance variation).
2. Identify a test statistic that can be used to assess the truth of the null hypothesis.
3. Compute the P-value, which is the probability that a test statistic at least as significant as the one observed would be obtained assuming that the null hypothesis were true. The smaller the *P-value*, the stronger the evidence against the null hypothesis.
4. Compare the *P-value* to an acceptable significance value α (sometimes called an alpha value). If $P \leq \alpha$, that the observed effect is statistically significant, the null hypothesis is ruled out, and the alternative hypothesis is valid.[3]

In the first step, the null hypothesis H_0 and the alternative hypothesis H_1 were formulated:
H_0: Regional Gross Domestic Product in the Czech Republic is not dependent on Revealed Regional Summary Innovation Index.
H_1: H_0 is not true.
The null hypothesis was verified at significance level $\alpha = 0.05$, with the 5 % probability, the Type 1 Error is permitted, that the true hypothesis will be rejected. The population is 13, because there are 14 regions in the Czech Republic at the NUTS2 level and Prague was shut off.

For making decision about rejection the null hypothesis, the statistical test Analysis of Variance was used (thereinafter ANOVA). It was practically performed with help of statistical analysis software Statgraphics Centurion XV (thereinafter SGP). To apply the test, assume

[3] WEISSTEIN, E. W. *Hypothesis Testing*, 1999-2009.

random sampling of a variable Y with equal variances, independent errors, and a normal distribution.[4]

The ANOVA is used to test the hypothesis of equal population means by choosing between the following two hypotheses:
Null hypothesis: $\mu A = \mu B = \mu C = \mu D$.
Alternative hypothesis: the means are not all equal where μj represents the mean of the population from which sample j was taken. Rejection of the null hypothesis indicates that the samples come from populations whose means are not all identical.

The analysis of variance decomposes the variability of the observed data into two components: a between-group component, quantifying differences between widgets made of different materials, and a within-group component, quantifying differences between widgets made of the same material. If the estimated variability between groups is significantly larger than the estimated variability within groups, it is evidence that the group means are not all the same.[5]

In the second step of statistical hypothesis testing, a test statistic was identified that could be used to assess the truth of the null hypothesis. In this case, it was the *F-Ratio*, the test statistic with Fisher's probability distribution and two degrees of freedom - see (1).

$$F = \frac{\frac{Q_M}{k-1}}{\frac{Q_R}{n-k}}; F[(k-1);(n-k)]. \quad (1)$$

Numerator and denominator are designated mean squares and are used thereinafter (fig. 2).
After entering data from Correlation table into SGP and choosing ANOVA, the program generated the ANOVA table (fig. 2).

Fig. 2 ANOVA Table

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-value*
Between groups	4.54386E10	3	1.51462E10	4.43	0.0357
Within groups	3.07655E10	9	3.41839E9		
Total (Corr.)	7.62041E10	12			

Source: Autor's elaboration, SGP.

The ANOVA table decomposes the variance of Y values into two components: a between-group component and a within-group component. The F-test in the ANOVA table will test whether there are any significant differences amongst the means. The *F-Ratio*, which in this case equals 4.4308, is a ratio of the between-group estimate to the within-group estimate. Since the *P-value* of the F-test is less than 0.05, there is a statistically significant difference between the mean Y from one level of X to another at the 95 % confidence level. It leads to a rejection of the hypothesis of equal means. The alternative hypothesis was verified that regional Gross Domestic Product in the Czech Republic is dependent on Revealed Regional Summary Innovation Index.

[4] WEISSTEIN, E. W. *ANOVA*, 1999-2009.
[5] SGP.

To determination the degree of dependence of variable Y on factor X, Correlation Coefficient is instrumental. In this case, the Correlation Coefficient equals 0.144786, indicating a relatively weak relationship between the variables.

CONCLUSION

The hypothesis was verified that regional Gross Domestic Product in the Czech Republic is dependent on Revealed Regional Summary Innovation Index (when comparing data of 2006). In other words, economic efficiency measured by regional Gross Domestic Product is dependent on regional innovation potential measured by the Revealed Regional Summary Innovation Index. This dependence is relatively weak. The possible reason is methodology used for valuation of regional innovation performance. Revealed Regional Summary Innovation Index taken from EIS 2006 does not consider specific conditions in the Czech Republic. Author of this contribution presumes that using methodology preferred by Technology Centre AV CR would give more demonstrable results. However, numeric values of innovation potential are needed, which were not published. Other way of verification the hypothesis: "Weak regional innovation potential is the cause of regional economic backwardness" shall be to compare innovation potential level and economic efficiency with reference to methodology researched within the project InoReDis.

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COMPARATIVE PERFORMANCE ANALYSIS OF THE CENTRAL EUROPEAN REGIONAL AIRPORTS BY MEANS OF SPIDER ANALYSIS

Ivana Stryčeková

ANNOTATION

The paper encompasses an analysis of economic performance of seven regional airports in Central Europe in 2008. The selected airports are divided into three categories according to their geographical position (Slovakia, Czech Republic and Austria). There is no existence of the studies dealing with economic performance of regional airports. The attention being paid to measure economic performance of major international airports and regional ones have always stayed behind. The method which is used to estimate best performing airport in the sample is Spider analysis. Apart of the shortcomings of this method in practice, in theoretical application Spider analysis is used by economists as the best approach to evaluate economic and financial situation of the enterprises. The aim of the paper is to evaluate economic performance of Central European regional airports from point of view of the different assessment areas including labour productivity, capital productivity, revenue generation, profitability and cost efficiency in accordance with application of ratio indicators implied in Spider analysis.

KEY WORDS

Regional airport, economic performance, Spider analysis, spider graph, spider gram,

INTRODUCTION

"Until the 1980s, the systematic monitoring and comparing airport economic performance was not a widely practised activity within the airport industry. With airport commercialization and privatization has come a market interest in performance comparisons and benchmarking."[1]

This paper stipulates airport economic performance of regional airports in Central European countries. There exist several techniques to show economic efficiency of airports. In this paper, the Spider analysis is presented as best approach to assess economic performance. The performance is measured within the Central European region. Nevertheless, the airports being always different from each other and they represent rather heterogeneous entity, the analysis been giving a sense due to uncovering efficiency (inefficiency) level of airport performance. The information needed for basic performance indicators is normally available from sources in the public domain, such as published reports and accounts. Consequently, the twelve performance indicators which are commonly used (Graham, 2003) were selected. These indicators present the most popular indicators and they can easily identify strengths and weaknesses of airports. They have usually been grouped into certain categories such as cost efficiency, labour and capital productivity, revenue generation and profitability. By using a number of these indicators, the financial-economic results can be calculated.

AIM AND METODOLOGY

The aim of the paper is to define airport economic performance. For this purpose there were selected particular indicators. These mostly traditional indicators put into financial terms

[1] GRAHAM,A.: Managing airports, an international performance, Second edition, Elsevier 2003, p. 62, ISBN 0750659173

enables comparisons with different business sectors. The only financial indicators used in this paper consist of revenues/total assets ratio representing capital productivity, profit/revenues ratio calculating revenue generation and revenues/costs ratio used to assess profitability. It is common practice that ratios which represent revenue generation and profitability can take negative form. Other indicators considered as economic concern number of employees and passenger volume. Some of the most popular measures used WLU[2] as best indicator to convey efficiency of airports.

One of the methods, the economic performance analysis should be expressed as, is so called Spider analysis. The Spider analysis summarizes data by using specific "spider graphs". These spider graphs have a form of spider nets with different numbers of rays which are divided into several sectors. Each ray has its own value, mostly given in percentage expression. As the performance indicators are joined together the spider grams are created. "In final phase, the spider analysis allows to merge partial indicators into the one aggregate graphic delineation by affecting different aspects."[3] he graphic image always estimates comparison of two or more similar enterprises within industry, where the best perform enterprise is considered as a base. According to this base-enterprise one can easily determines performance of the others. "Particular selection of indicators may differ from author to author as it depends on the purpose of analysis and even the shape may distinguish from standard form."[4]

The spider analysis is very similar to multidimensional methods of within-companies comparison.

REGIONAL AIRPORTS

The effort to create homogeneous group of regional airports was dropped at the beginning as a result of heterogeneity of the airports. "Every single airport is unique system with distinguished characteristics, as ownership structure, maturity of airport, investment intensity, different market position, even different capital need."[5] The term heterogeneous subject concerns differences in ownership and governance structures, location, level of competitiveness, presence of traditional or low-cost carriers, economic growth rate of the region where is the airport situated.

"To summarize, performance measures or indicators are all about relating one or more of the outputs to one or more inputs."[6] Physically, the output of an airport can be assessed in three ways: in terms of aircraft movements, passengers and freight handled. Since most airports handle both passengers and freight, this suggests the use of an output measure which combines the two, such as the WLU. The WLU, although probably the most widely accepted aggregate measure, is a rather arbitrary method of linking the two outputs.

[2] Note: Work load unit is generally 1 passenger proceed or 100 kg of freight handled.
[3] KUBÍČKOVÁ,D., SOUKUP,J.: Spider analysis as a metod of companies comparison, 2006
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[6] GRAHAM,A.: Managing airports, an international performance, Second edition, Elsevier 2003, p. 64, ISBN 0750659173

As the sample for economic performance analysis in this paper were selected following regional airports:
Fig.1 Airports indicators in 2008

AIRPORTS	IATA Code	PAX	CARGO (t)	A/c MOVEMENTS	WLUs
Bratislava	BTS	2218545	6961	34873	2288155
Košice	KSC	590919	457	12932	595489
Ostrava	OSR	353737	1652	17167	370257
Brno	BRQ	438320	3581	209303	474130
Salzburg	SZG	1809601	234	21330	1811941
Innsbruck	INN	969474	4571	44560	1015184
Graz	GRZ	1008330	10165	19603	1109980

Source: airports annual reports 2008

Regional airports in Slovakia
From national point of view, there is just one airport in Slovak republic which fulfils the criteria of regional airport. Such an airport is privately owned and controlled Košice International airport with approximately 600 thousands passengers handled annually. Nevertheless, when we are considering regional airports within Central Europe, according to passenger volume (around 2,2 mil.), even Bratislava International Airport must be taken as regional.

Regional airports in Czech Republic
In Czech Republic, two biggest airports after Prague fit into the sample as regional airports. These airports have rather similar performance characteristics such as ownership and governance structure even passenger volume as well as the main purpose of the airports do not differ a lot. These airports work mainly as feeders for Prague International Airport and they are utilized mostly by leisure and business travellers. Discussed airports are Brno – Tuřany Airport and Ostrava-Mošnov International Airport.

Regional airports in Austria
As there is many regional airports in Austria, they could not be taken into the sample all of them. According to their size and passenger volume there were selected three biggest airports satisfying criteria of regional ones. Due to homogeneity within country even Austrian regional airports dispose with similar performance characteristics. They are mostly publicly owned with approximately 1 mil. Passengers handled annually. All selected airports are located in attractive area with well developed economic and tourist opportunities. They serve leisure and business travellers, mainly.

As airports are heterogeneous systems with unique performance characteristics, their economic efficiency cannot be judged only due to financial and economic indicators like revenues, costs, employees or passenger volume. The attention must be paid either to other factors which widely influence their performance characteristics. Such these factors can be ownership and governance structure, maturity of airport, attractiveness of location, growth rate of the region, etc.

APPLICATION OF SPIDER ANALYSIS METHOD AND CONSTRUCTION OF SPIDER GRAMS

"Performance measures analyse the relationship between inputs and outputs at an airport."[7] As with other businesses, labour and capital are the major inputs of the airport system. The simplest physical measure of the labour input is the total number of employees. The labour input can also be measured in financial terms, namely employee wages and salaries. The financial measurement of output is relatively straightforward and can be measured by considering the total revenues generated.

Measuring of airport performance in the sample is provided by using Spider analysis. The sample concerns seven regional airports of three Central European countries, as the annual reports of other two countries (HU, PL) were not available. The airports are divided into three categories according to their nationality. Always there is one airport in each country which is considered as the best performing airport and the efficiency is stated as a comparison of this airport with others in the sample. The analysis assesses twelve ratio indicators (twelve rays) by which are spider grams depicted. The spider grams are usually created by values for one time-period, although it is possible to merge even values for wider time range to obtain better notice ability. "Generally, if small sized spider grams are taken into account notice ability should be misleading."[8]

Performance indicators commonly used to assess economic performance are following:[9]

A- *Labour productivity*
- A1- WLUs/employees
- A2- revenues/employees

B- *Capital productivity*
- B1- revenues/total assets
- B2- WLUs/total assets
- B3- total assets/employees

C- *Revenue generation*
- C1- revenues/WLUs
- C2- profit (loss)/revenues

D- *Profitability*
- D1- revenues/costs
- D2- (operating profit-depreciation)/WLUs

E- *Cost efficiency*
- E1- labour costs/WLUs
- E2- depreciation/WLUs
- E3- costs/WLUs

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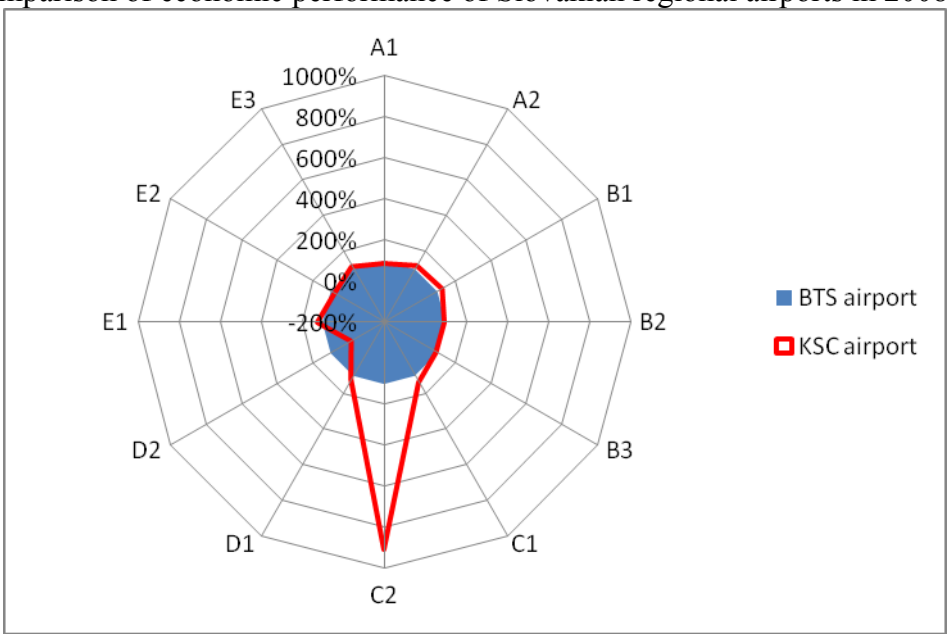
Fig. 2: Economic performance indicators of Slovak regional airports in 2008

SLOVAKIA	BTS		KSC	
A1	3301	100%	2877	87%
A2	55553,4	100%	66227	119%
B1	0,15	100%	0,19	127%
B2	0,009	100%	0,0084	93%
B3	373204,6	100%	342507	92%
C1	16,83	100%	23,02	137%
C2	0,021	100%	0,19	905%
D1	1,022	100%	1,23	120%
D2	-3,02	100%	0,512	-17%
E1	3,33	100%	4,1	123%
E2	3,66	100%	2,89	79%
E3	16,47	100%	18,7	114%

Source: airports annual reports 2008

Fig. 3: Comparison of economic performance of Slovakian regional airports in 2008



Source: The annual reports 2008 of Bratislava and Košice airports

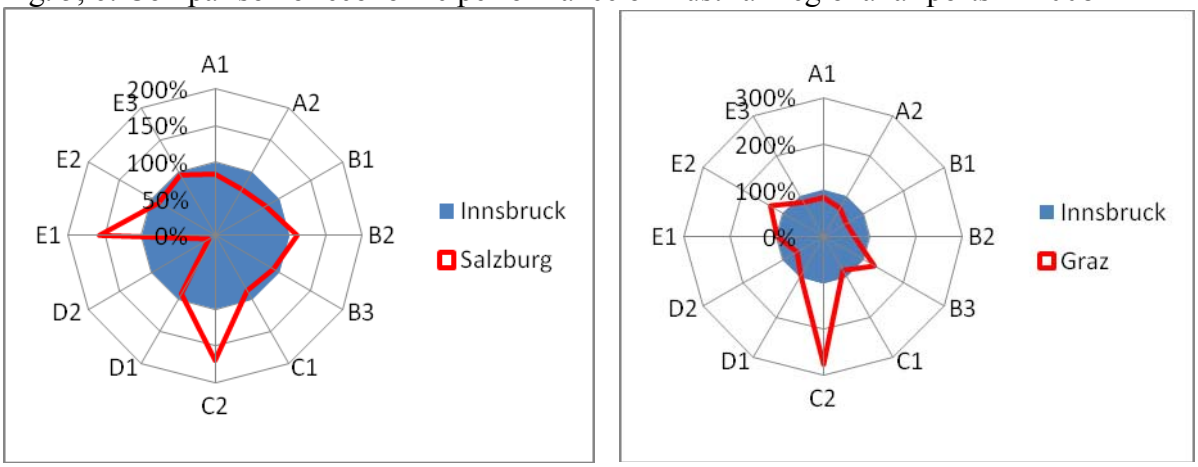
It may be seen from Fig. 3, similar situation of economic performance both airports in three quadrants; however Košice Airport overtakes Bratislava Airport, as branch level, in 3rd quadrant. It means, despite its size, Košice Airport performs better in the field of revenue generation. This can be result of different ownership form of the airport, as Košice Airport has been privatized since 2006.

Fig. 4: Economic performance indicators of Austrian regional airports in 2008

AUSTRIA	INN		SZG		GRZ	
A1	6635	100%	5524	83%	5578	84%
A2	190223	100%	137461	72%	134151	71%
B1	0,53	100%	0,42	79%	0,3	57%
B2	0,018	100%	0,02	111%	0,012	67%
B3	358837	100%	327753	91%	454836	127%
C1	28,67	100%	24,88	87%	24,05	84%
C2	0,04	100%	0,068	170%	0,11	275%
D1	1,168	100%	1,069	92%	1,15	98%
D2	-12,79	100%	-1,25	10%	-8,49	66%
E1	6,54	100%	10,25	157%	6,56	100%
E2	4,51	100%	3,98	88%	5,99	133%
E3	24,55	100%	23,264	95%	20,89	85%

Source: airports annual reports 2008

Fig. 5, 6: Comparison of economic performance of Austrian regional airports in 2008



Source: The annual reports 2008of Salzburg, Innsbruck and Graz airports

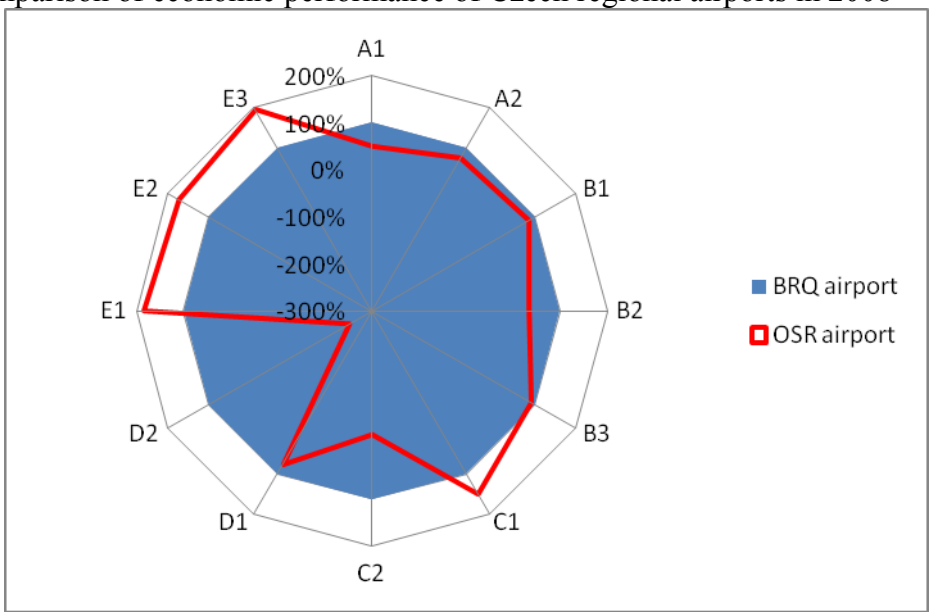
The spider gram of Salzburg airport, (Fig.5) shows improving situation in 3rd quadrant and partially in 5th one. As it may be seen in 1st quadrant, labour productivity sector, the values obtained only 70-80% of reference values. As an airport with reference values was surprisingly considered Innsbruck airport, 2nd largest Austrian regional airport. The worst of all sectors is 4th quadrant, representing profitability, where massive loss is apparent. Apart of this quadrant, overall economic performance is close to the branch level.
The spider gram of Graz airport is rather similar to Innsbruck's one. However wider change should be recognized in 3rd quadrant. Graz airport generates revenues much easier as Innsbruck airport does. Even profitability quadrant is not so noticeable different from reference values of Innsbruck airport. It can be influenced by fact; both Innsbruck and Graz airports have almost same passenger volume while passenger volume of Salzburg airport, as the largest regional airport of Austria, is even twice bigger.

Fig. 7: Economic performance indicators of Czech regional airports in 2008

CZECH REPUBLIC	BRQ		OSR	
A1	3951	100%	1980	50%
A2	66638,8	100%	50276,1	75%
B1	0,26	100%	0,22	85%
B2	0,015	100%	0,005	33%
B3	254862	100%	230835,6	91%
C1	16,87	100%	25,39	151%
C2	0,18	100%	-0,066	-37%
D1	1,21	100%	0,94	78%
D2	2,14	100%	-5,23	-244%
E1	3,97	100%	7,36	185%
E2	2,15	100%	3,74	174%
E3	13,9	100%	27,06	195%

Source: airports annual reports 2008

Fig. 8: Comparison of economic performance of Czech regional airports in 2008



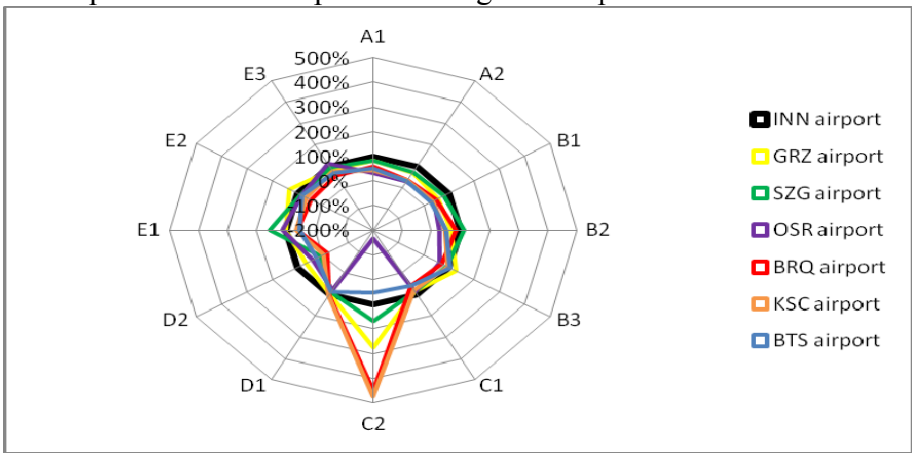
Source: The annual reports 2008 of Brno and Ostrava airports

It is apparent from the picture (Fig. 8), slight difference in labour and capital productivity quadrants of two biggest regional airports in Czech Republic can be recognized. The values vary only in 3rd and 5th quadrants what means that Ostrava airport has been better in 2008 in generating revenues as Brno airport does and the airport is even better performing in questions of cost efficiency. Profitability of Ostrava airport is under branch level, as it was seen in the case of Austrian airports. This noticeable difference between profitability of both airports is caused by loss of Ostrava airport in 2008.

Fig.9: Comparison of economic performance indicators of regional airports in 2008

	A		B			C		D		E		
	A1	A2	B1	B2	B3	C1	C2	D1	D2	E1	E2	E3
BTS	3301	55553	0,15	0,009	373205	16,83	0,021	1,02	-3,02	3,33	3,66	16,47
	50%	29%	28%	50%	104%	59%	53%	88%	24%	51%	81%	67%
KSC	2877	66227	0,19	0,008	342507	23,02	0,19	1,23	0,512	4,1	2,89	18,7
	43%	35%	36%	47%	95%	80%	475%	105%	-4%	63%	64%	76%
BRQ	3951	66639	0,26	0,015	254862	16,87	0,18	1,21	2,14	3,97	2,15	13,9
	60%	35%	49%	83%	71%	59%	450%	104%	-17%	61%	48%	57%
OSR	1980	50276	0,22	0,005	230835	25,4	-0,07	0,94	-5,23	7,36	3,74	27,06
	30%	26%	42%	28%	64%	89%	-165%	80%	41%	113%	83%	110%
SZG	5524	137461	0,42	0,02	327753	24,88	0,068	1,069	-1,25	10,25	3,98	23,26
	83%	72%	79%	111%	91%	87%	170%	92%	10%	157%	88%	95%
INN	6635	190223	0,53	0,018	358837	28,67	0,04	1,168	-12,79	6,54	4,51	24,55
	100%	100%	100 %	100%	100%	100%	100%	100%	100%	100%	100 %	100%
GRZ	5578	134151	0,3	0,012	454836	24,05	0,11	1,15	-8,49	6,56	5,99	20,89
	84%	71%	57%	67%	127%	84%	275%	98%	66%	100%	133 %	85%

Fig.10: Economic performance comparison of regional airports in 2008



The best performing airport from each country was selected to accomplish overall performance analysis within Central European region. As reference values were chosen performance indicators of Innsbruck airport. According to statistics this airport over-performs others in four quadrants. These quadrants are labour and capital productivity, profitability and cost efficiency. Bratislava Airport obtains in average 57% of reference values in every sector, although Innsbruck Airport is according to airport statistics twice as smaller as Bratislava does. Performance indicators of Brno Airport differ mostly in quadrant of revenue generation. It may be caused by different accounting period of Brno Airport from others in the sample.

CONCLUSION

The airports are keen to identify the strong performers in the industry and adopt what are seen as best practices. Such a performance analysis should be useful for managers to help them define goals and targets. "Producing meaningful airport performance indicators meets some

difficulties because of serious problems of comparability, particularly due to the varying range of activities undertaken by airport operators themselves."[10]
Comparative performance analysis can also give valuable insight into issues such as weather privatized airports are more efficiently run than public sector airports and what is the best organizational framework for an airport. The growing acceptance of airport performance monitoring is further illustrated by various international industry bodies showing an interest in such activities (ICAO, TRL, etc.). There is wide range of operational activities which need to be monitored by looking at measures relating to airside delays, baggage delivery, terminal processing times, and so on.
This paper focused on airport economic performance by means of Spider analysis. Through the spider grams required performance was illustrated, and previous deductions were determined. As it may be seen from spider grams, economic performance of airports in Central Europe is rather similar in general. Most of them over-perform the airports they are compared with in 3rd sector, revenue generation and both Austrian and Czech regional airports exceed branch level in cost efficiency quadrant. As best performing regional airport in the sample is considered Innsbruck Airport due to best value performance indicators. The worst performing regional airport is Ostrava Airport. The airport made loss in 2008, probably that is the main reason why airport has not performed well in last accounting period.
Selected method of measuring airport economic performance should be used only for purpose of theoretical knowledge of financial situation the airports. It is clear that for deeper familiarization with the problem of performance measurement managers need to search for more detailed and disaggregate information usually produced internally within an airport. The availability of more disaggregate data allows to undertake more specialized comparative analyses from different operation areas.

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BEST MANAGEMENT PRACTICES IN MULTINATIONAL ENTERPRISES

Martin Turčan

ANNOTATION

There are several multinational corporations which last for more than hundred years, employ several hundred thousand people and do business across the whole world. Such an organization must have special techniques how to manage its resources, motivate the people. This paper describes techniques and main ideas in few companies with the most significant inside driver, these companies are more likely to be called institutions than just firms to produce revenue and profit. Management and environment of these companies are able to persuade its employees about higher aim to motivate the employees to their best. I would like to show some main ideas coming mainly from multinationals with traditions that can be used not just in big companies but also in smaller family companies or institutions like universities.

KEY WORDS

Management, motivation, corporations, world economy, globalization, IBM

INTRODUCTION

The author works for one of the biggest IT corporations in the world and identifies several best practices in management techniques. As most of the current multinational corporation last for longer period of time there must be something more what motivates people to spend most of their lives working for one company. It is not only about money but most of the companies use more sophisticated techniques to keep their people in high performance mood.

AIM AND METODOLOGY

The aim of the paper is to stress the importance of culture, ideology, key values in the company and to identify generally applicable techniques to be used in the matter of success for the management and leading within the companies.

The paper is based mainly on knowledge of experts in the area mostly from USA. The results of theoretical research are directly connected with practical implementation to corporate culture within IBM or other companies and main advantages in the multicultural environment of current global world.

RESULTS

We live in a very fast changing environment where modern companies are facing the issues with motivation of their employees, keeping the attrition rates on low levels (except crisis period) and use its employees as effective resource, as competitive advantage against its competitors. In nowadays world share of services on the world's economy has increasing character meaning that human capital is getting more important. Multinational corporations are in special position as to motivate and manage people from different cultural environments is challenging, people have different values, behaviour, what can be used and motivates employees in Slovakia does not have to necessarily motivate people in India. Therefore companies need to find techniques that are applicable for overall success of the company by creating values, motto, corporate culture or an anthem. In the paper you will find some of them and I will demonstrate it on several examples.

Why people work

The key think to understand is why you wake up every morning and go to work. Most of the people say that they need money. Money is needed to pay your bills, rent, to buy a car, or anything else you like, but let's be honest is it only money which motivates people to work? When we look on the below picture representing hierarchy of what people really need we will re-think the above statement. Physiological Needs and Safety Needs are more or less representing what you can buy for the money. Protection and security is related to the fact that people want to be sure about their work. For our analysis are more important needs on the top of the hierarchy like the fact that people want to belong somewhere, community they want to be proud of, self-esteem – they want to achieve something in their life, get respect and most importantly they want to self-realize themselves.

Picture 1: Maslow's hierarchy of human needs:

[11]

The above short summary is a good start for the thought how to build institution with the employees who would be reliable, motivated to work and would more think about company success than their salary and themselves. To find out what is the best practice we need to look on the best companies which are here for longer period of time like IBM, Citigroup, HP, General electric, Wall-mart, Sony.

One strong leader, one strong idea

One of the miss-understandings on how to create successful company is that it needs one strong leader and great idea. This is completely wrong. If you want to build company, which will last more than few years, more than one generation, you need to build an institution with many strong leaders and tons of ideas.

Charismatic leader is a good advantage in current situation however without having his successor – at least one in pipeline could be dangerous. To build a company every person in the management even on the lower levels needs to understand, that the worst situation to happen is that there will be no leader for tomorrow. The managers are not in the company only to give directions and approve holiday, they are in the company to convince the people about corporate culture, motivate them to achieve the goals of their department, to help them with their career path to get the best for the company.

[11] ADAIR, J :L Leadership and motivation, p. 95

Some people think to start their own business they need great idea. There is always some great idea which creates a lot of successful companies, however to build a company which will last for more than one decade you need tons of great ideas, inventions. The only way how to achieve this is at one side to focus on what is going well, what you can sell and make a profit and on the other side you are trying new products, modifications and the ones which work on the market you keep. For instance when Masaru Ibuka in 1945 was setting his corporation SONY he had no idea what he will produce. Ibuka and his team started to look for concrete products only after company settlement. They were thinking about anything from sweet been soup to minigolf equipment. Their first product rice cooker was disaster and did not work.[12] Of course they did not just wait for great ideas, they were trying a several products until they found what really worked.

More than profit

When Merck[13] reached 100 years of their existence they produced a book called "Values and Visions: A Merck Century". They did not call it 100 years of making money or profit, they could but they did not. After 2nd world war Merck has send streptomycin to stop tuberculosis in Japan for free. Merck builds his ideals not only on the paper but was helping several times without getting any profit from the transaction. This kind of activity shows to its employees that company really cares and is more that dividends for shareholders. The basic idea – key value here is becoming pragmatic idealism. Another example is the main goal of setting up SONY and management guidelines which states:

- To work on research and productions in order to help with reconstruction of Japan and increase self confidence of Japanese nation,
- To remove any unfair practice for profit achievement, stress is on hard work and not profit achievement only.[14]

The main idea as a base for corporate culture is primary key to motivate the employees, to convince them, that company really cares about what it really does. This is us, this is what we do, this is our core idea. The ideology is important so employees realize this is not just regular job, where they will spend 8 hours and go home, they need to have a vision that they do something good, something special.

Profitability is necessity of existence and gives the ability to achieve the goals. Profit is like oxygen, water, food you need them to survey however they are not sense of life.

Ideology and corporate culture

Ideology of company consists of key values and sense of existence. Key values are the most important and long term principles of the organization – it should be small number of basic principles, they should not be country or culture specific or concrete manual. The sense of existence should be the reason why the organization exists, not profit, it should be always shiny star in the sky, not some specific business plan.

One of the biggest global IT corporations - IBM is clearly communicating its values not only to employees internally but also to the shareholders and customers. IBM is claiming to be a company based on core values which change only slightly over 100 years' history. "Innovation that matters – for our company and for the world"- IBM is investing over the years most of its profit to Research & Development activities and for last 16 years in the row was the company which has most registered patents in the US, "Dedication to every client's success" – is for employees – to do the best for their clients and all of them should be focused on outcomes no matter on what position they work, "Trust and personal responsibility in all relationships" – to build trust in relationships within the organization, rely on your colleagues.

[12] P 27, COLLINS, JC : Built to last, Tlačiarne BB, s.r.o., Banská Bystrica, 2007
[13] one of the largest pharmaceutical companies in the world
[14] P 53, COLLINS, JC : Built to last, Tlačiarne BB, s.r.o., Banská Bystrica, 2007

All of this values are not just some temporary goals for next 2 -3 years, they will be valid even in 20 years and give all the employees right directions what is expected from them, what company sees as its mission.
The sense of existence is the group of reasons why company exists. Why is it here? It is of course possible that two companies have the same sense of existence. HP's sense of existence is to create electronic devices which will help society. The sense is comprehensive, basic and stays. Let's imagine that we will be moved to 2050 the sense of existence needs to be still valid. If not company does not need to exist anymore.
The corporate ideology needs to be then applied for lower management levels – functions within the company, different departments need to understand what they need to do to achieve the goals of corporation.

Management from inside

Some of the companies are interested in easier way – buying prepared managers from outside, so they go to labor market and ask headhunters to find highly qualified person and hire or overpay this person. This can work only in occasional cases. These people are like dog soldiers, they work for the ones who pay. The main reason to create inside management pipeline is that you keep your core, what is company all about, with you. Mostly in big corporations they are looking for the talents from inside which ensures continuity of quality in management. For example in IBM there was only one CEO hired from outside in 100 years history – in 1993 Louis Gerstner. The reasons were problems of the company so shareholders decided that big change can be done only by person from outside.
To achieve strong management pipeline you need to have perfect system for preparation for future managers - leaders. After identifying the talents they are trained for certain period of time to learn soft skills, communication skills, leadership skills. All of this is done with help of their mentors. Mentoring is very successful technique which helps less experienced candidate to have more experienced senior manager to understand certain things e.g. how to communicate to people that there will be no salary increase this year. Mentee has regular reviews with his mentor and they discuss all the topics to qualify for future leader. One of the advantages for mentee is that he/she has usually person with an important function and can use this to build future career path.

Never good enough

It is difficult to fight with your competitors everyday so the goals set up for the company, for each department and individual need to be set up so high that only few individuals can achieve them. It is never good enough what you do, you need to do more. Our competitors do not sleep. Some of us remember the times when was nothing in the shops however the plan was fulfilled for 100%.... In my 5 years by IBM we have made the plan only few times, it was always few % below. This motivates employees to do more, challenge them so they want to prove themselves they can do it. At the end it brings continuous improvement. Some of them get frustrated and leave the company, however the ones who stay will work even harder. Of course this creates so called high performance culture which is not really easily to live with in everyday life. Satisfaction leads to laziness and kills the heat within the company. The point of internal competition is not to create internal rivalry, it should bring a little bit of vitality to the company. Internal competition helps to fight with the illness called satisfaction.

Self actualisation for each employee

Each employee in the company needs to feel important and needs to have his concrete responsibilities. Then they can take ownership of all small decisions to be done everyday and they feel important. The people who get promoted are those who make a difference. One

simple way to make a difference is to do any job you tackle the best way it can be done. That is what taking ownership means in reality. You may not be the best choice, best qualified for a particular job, but once it is given to you it is up to you to get it done the best way possible. Everybody wants to do the work to be proud of. Most of them want the jobs to help their career, not hold them back.
Some authors claim that employees do not like to take the ownership. People who do not take ownership typically feel victims of circumstances around them. They will always lament about how they were let down by the other person and can therefore not take any responsibility. The typical sales person will tell you how the operations folks cannot be trusted to fulfil their orders or deliver good quality and for that reason cannot achieve the numbers. Unfortunately to take the ownerships is critical nowadays. Organisations are increasingly overlaying their functional structures with process-based structures and work flows, given that value is really added only through these process-based relationships and chains. They also expect employees to rely a lot less on hierarchy and a lot more on shared responsibility. Leadership is today expected to be shared by the entire leadership team even though there is one designated person who is still accountable.

Specifics in multinational environment

Once a company has gone international in one form or other it has to decide on human resources management. The MNCs have parent company in home country of headquarters and various subsidiaries. Relationship between the parent and subsidiaries are more complex and dynamic, it is not anymore about parent company giving strict orders to subsidiaries, and that subsidiaries have a degree of autonomy in how they carry out their functions.
On the parent company's side, the degree to which freedom of action is granted to subsidiaries depends on the company's overall strategy based on its philosophy, values and beliefs as well as on business imperatives. Major strategies are initiated by headquarters. All the decisions, from the internationalisation of operations and the selection of host countries to the form of internationalisation are naturally parent company's prerogative. On the other hand power of trade unions, industrial relations legislation, health and safety regulations, and workers rights are some of the major areas over which there are huge differences between various countries. For instance in Germany the right of employee participation in decision making is enshrined in the works councils that all major companies are by law required to have and in the UK a minimum wage regulation is in place. UK and German subsidiaries of multinational companies will abide by the laws and regulations of their own country, regardless of the parent company's wishes.

CONCLUSION

Based on the results in this short research paper MNCs need to create strong ideas, values on the very top corporation level so they are able to motivate employees in each country on each level of management and on the other hand they need to respect some country specifics which need to be left for local area managements to be handled.

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MEASURING THE PERCEIVED QUALITY IMPACT OF THIRD-PARTY PRODUCT REVIEWS VIA PAIRED COMPARISONS

Wolfgang Ziniel

KEY WORDS

Third-Party Product Reviews, Perceived Quality, Bradley-Terry Model, Web Text Mining;

ANNOTATION

Perceived product quality is one of the key factors to successfully compete on today's crowded markets. Beyond that perceived quality substantially affects other core concepts of consumer behaviour research like satisfaction and willingness-to-buy. A lot of research has been devoted to the concept of perceived quality. Nevertheless, the linkage to the effect of third-party product reviews (TPPRs) on quality as it is perceived by the consumer has not been established yet.

This dissertation is based on *cue utilisation theory*. Steenkamp's model of perceived quality serves as the theoretical framework. Data collection will take place in the context of windsurfing sails. Web text mining methods will be employed to relevant forum postings. This makes it possible to understand quality attributes from the consumer's perspective and to compare the results to those attributes propagated by the manufacturers. An online experimental approach via paired comparisons that uses extended Bradley-Terry models reflects an innovative approach to measure perceived quality and allows for estimating various quality effects of TPPRs.

INTRODUCTION

TPPRs are neutral (as far as the producers' interests are concerned) and consumer-orientated product tests that are carried out by experts and published in consumer journals or in special-interest-magazines (SIMs) like *PC-World, Runner's World, Windsurf Magazin*. They can also be obtained via websites (e.g. http://www.consumersearch.com) that offer collections of TPPRs.

Market observations provide strong evidence that TPPRs significantly influence the success or failure of the products evaluated [1]. Due to bad results in the *Consumer Reports* and consequently declining sales figures Suzuki took its Samurai from the US-market in 1995 [2]. Awful results in a *PC-Magazine* test were followed by very poor sales numbers of a Northgate computer model. Quite contrary, after being awarded "editor's choice" a database program released by Clarion Software became a bestseller. Although it had been rejected by the influential computer distributor Softsel before, it was then finally included into its product range [3].

Windsurfing sails were chosen to study these interrelationships in the view of consumers' product choice decisions. They are quite expensive (usually above € 500 per piece) and there are only rare opportunities to try them prior to purchase. Additionally these goods are characterised by several experience and credence attributes concerning their quality (e.g. durability, acceleration or suitable-for-wave riding). Therefore a potential customer faces a lot of risks, dissonances and insecurities prior to purchase. That's why it is assumed that the purchase of such products is preceded by complex decision processes.

Research Questions

An exploratory web text mining approach constitutes the first part of the analysis. Important windsurf forums will be studied in respect of product-specific quality matters (*Question 1*). In order to answer *(Question 2)* a similar approach will be applied to producer's websites, product brochures and advertisements. *Question 3* is of confirmatory nature. An online-experimental paired comparison approach is chosen to answer this question.

(1) What are the most important quality attributes from the customer's perspective with respect to a specific product class prior to purchase?

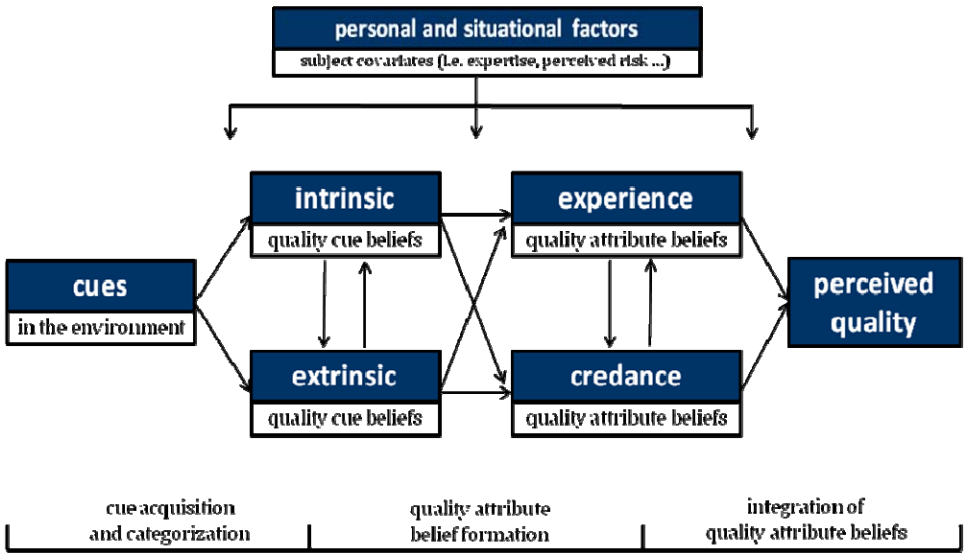
(2) With respect to quality attributes, is there a difference between the producer's and the consumer's view?

(3) How do potential buyers recognize and process TPPRs with regard to perceived quality within other product-specific information chunks like brand or price? Will TPPRs change the quality perceptions?

THEORETICAL UNDERPINNINGS AND CONCEPTUAL APPROACH

In its theoretical perspective this dissertation will follow the *cue utilisation theory* [4] and in particular Steenkamp's [5] approach to perceived quality and its perception process. Perceived product quality will be interpreted as *"... an idiosyncratic value judgment with respect to the fitness for consumption which is based upon the conscious and/or unconscious processing of quality cues in relation to relevant quality attributes within the context of significant personal and situational variables"* [6]. Steenkamp's model (see Figure 1) explains how consumers form quality perceptions of products in purchase decisions.

Figure 1: Conceptional Model of the Qualiy Perception Process.



Source: **Steenkamp, 1989, 323**

Quality attribute beliefs can be established in a descriptive, informational and inferential formation way. This three-part division traces back to Fishbein and Ajzen [7]. Descriptive beliefs are formed through the direct observation of product characteristics. They do not focus on unobservable or credence attributes e.g. social benefit of fair trade products. Information on the quality of products can be delivered by different sources like friends, advertisements or TPPRs and can form quality beliefs. A TPPR might contain direct information on a product

(e.g. *Wine Advocate* praising the fruity taste of wine A). Then the source contains direct information on an attribute, which can be accepted by the consumer or not.
The construction of meanings about relationships and concepts not explicitly present in a person's informational environment is called inference [8]. This process can arise with but also without conscious analytical thinking [9] and comes up regularly in buying processes.
Inferential beliefs in quality perception processes are based upon the recognized relationship between a cue and an attribute [5]. Apart from such stimulus information usage, consumers also hark back to a priori beliefs when they perceive a cue-attribute relationship. The perseverance of these beliefs moderates the quality effect, too. The country of origin cue "Made in Germany" for example, which is usually perceived as high quality with respect to cars, might tell a consumer that the car he/she is looking at – a Mercedes – is of high technical quality. Such phenomena could be explained via Kelley's [10] attribution theory. According to the discounting principle of the attribution theory a communicator will be seen as biased by the recipient when the latter experiences that the message can be attributed to personal or situational causes e.g. high ratings for a manufacturer because he advertises a lot (Senecal and Nantel, 2004, 160). This makes readers discredit the product evaluations.

The assumed capability of TPPR to effect quality perceptions can be derived from various theories like Source Credibility [11; 12; 13; 14], Risk Taking Theory [15; 16; 17; 18], Cognitive Consistency [8], Signal theory [19; 20; 21] and the Theory of the Economics of Information [22; 23; 24].

Hypothesis

Based on these theoretical considerations the hypotheses are developed as follows:

1) *TPPRs are relevant in an individual's quality perception process. Within a framework of cues and attributes, TPPRs represent an important parameter of the product quality perceived by the consumers prior to purchase.*
2) *The importance (worth parameters) of cues and attributes change significantly when TPPRs are present in the quality perception process.*
3) *Consumers experiencing high risk use more cues in the quality perception process and show a greater effect than those experiencing low risk.*
4) *Customers attaching higher source credibility to the test information will show a greater quality effect.*
5) *Favourable TPPRs increase the willingness-to-buy measure.*
6) *The higher the predictive value of a cue, the bigger its influence on the quality judgment.*
7) *The higher the confidence value of a cue, the bigger its influence on the quality judgment.*
8) *Intrinsic cues exert greater influence (on quality perception) than extrinsic cues.*
9) *The more experienced the consumer in a specific product group, the smaller the quality effect of the TPPR. The quality effect activated by the test information cue will be greater for less experienced customers.*
10) *The quality effect will be greater for higher-educated consumers than for lower-educated ones.*
11) *The quality effect triggered by TPPR will be greater for higher involved (product involvement) customers.*

AIM

The importance of these questions arises from several reasons. The quick availability of product-specific information results in a continuous shift from offline towards online shopping and in changes in the consumers' information behaviour. TPPRs of SIMs are also available in the WWW. The TPPRs' role in the pre-purchase information process has probably been raised as TPPRs offer consumer-orientated and product-specific information with low search costs. Thus it can be hypothesized that the role of the sales personnel as an information source is weakened whereby other sources like TPPRs are strengthened.
Firstly this thesis will help firms to understand the relevance of a test result for the buyer's behaviour on an individual level. TPPRs could support the consumer's decision making process (also in shops) and decrease feelings of risk and dissonance prior to purchase.
Secondly it will be demonstrated how to avoid problems of rating scales in complex and in multi-attribute choice decisions by applying a Bradley-Terry model [25] based on paired comparisons.
Thirdly a potential way to broaden the applicability of text mining methods within the field of marketing science will be shown. The thesis will demonstrate how such an approach could help gaining a deeper understanding of the consumer.
Finally this work could contribute to a closing of the *quality perception gap* (see next paragraph) with respect to quality attributes within one product category. Understanding the consumer's perception of product quality is an essential step towards consumer oriented products and thus to consumer satisfaction.

RESEARCH GAP

Apart from purely descriptive contributions explaining how often test information is used in the consumer's decision making process [26; 27; 28] there has been a gaping hole in marketing literature [29; 30]. Studies that examine the impact of test information on purchase and decision behaviour and in particular on the quality perception process are needed to contribute to closing the gap.
A lot of studies that focus on the effect of cues on perceived quality have been conducted. But similar to price, country of origin and brand, TPPRs may serve as cues, too. They are up to substitute or bundle other information that is important during the evaluation of a product's quality [31]. Up to now the importance of the cue "TPPR" in combination with other cues and its effect on perceived quality has not been in the focus of research.

METHODS AND RESEARCH DESIGN

The exploratory part employs web text mining in order to find out windsurf-sail-specific quality attributes. Afterwards these attributes are employed in a online paired comparison experiment that follows a conjoint approach.

Web Text Mining

Generally, text mining is an interdisciplinary technique, which includes elements from data mining, computational statistics, linguistics and computer science [32]. When text information from the WWW is used we speak of web text mining. This includes web usage mining, web structure mining, and web content mining, which includes the extraction of useful information from unstructured web texts [33].

By means of such an explorative process relevant quality attributes from the forums of the German windsurfing magazine *Surf* (http://forum.surf-magazin.de, about 200.000 entries) and the British windsurfing magazine *Boards* (http://boards.co.uk/forum/default.asp, about

300.000 entries) will be filtered out. These large text collections contain topics like travel, technique, but also equipment. Windsurfers of nearly every age are usually well cross-linked on the Internet and discuss characteristics, applicability and quality issues of their equipment. By filtering and clustering relevant consumers' postings a better understanding of product-specific quality attributes (here: for windsurfing sails) will be developed. Additionally the same method is deployed for producers' websites, product brochures and their advertisements.

These tasks will be carried out within the tm package [34], which provides a valuable apparatus for text mining applications within ***R*** (http://www.r-project.org). The package allows read-in of RSS feeds, HTML or PDFs among others automatically. The crawler software Web-Sphinx (http://www.cs.cmu.edu/~rcm/websphinx) will be used in order to find and locally store relevant forum entries. After a pre-processing step which includes stop word and white space removal and several stemming procedures the texts will be converted into structured formats, in the case of this thesis into a term-document matrix in order to arrange calculations.

Count-based evaluation will be used to rate the terms that occur most frequently. This approach can also be employed to find associations for given terms by calculating correlations between them [32]. Later hierarchical [35] and k-means clustering [36] will be used to discover patterns related to quality issues in the texts. Finally correspondence analysis and multidimensional scaling will be applied to visualize and describe the attributes and their distances.

Paired Comparisons

Product design finally aims at producing goods that the consumer prefers to those of the opponents. One central endeavour of marketing science is the explanation of consumers' choice decisions [37].

The importance of quality cues and quality attributes from the consumer's perspective represents the core of this thesis. As every product can be interpreted as an array of cues [38], a consumer has to process cues from this array in order to infer quality perceptions [6]. Usually a straightforward approach with rating scales asking for the importance of cues and attributes is applied. From a survey point of view, this approach can be implemented easily.

However, validity and reliability are threatened in more complex choice decisions as interviewees tend to rate every attribute as important. Apart from that, consumers face huge problems in rating the attributes separately [37]. These limitations can be overcome by directly modelling choice situations. The Bradley-Terry model [25] represents a sophisticated approach to analyse such problems. Moreover, problems stemming from questionable metric properties of rating scale responses will be avoided as this thesis employs a paired comparison approach. Interviewees will be confronted with bundles of quality cues and attributes that represent different fictive products (i.e. "objects"). That means a conjoint exercise will be applied in order to estimate the importance or utility of the single cues and attributes for perceived quality.

Paired comparison pattern model

As the judges are supposed to compare the items twice (in t_0 and in t_1) in my experiment, this thesis will fit a modified model i.e. a paired comparison pattern model which considers dependency in the comparisons.

We consider the probability for the preference of an object when two objects (*ij*) are compared [39]. The variable Y_{ij} denotes which object is preferred with the values $Y_{ij} = 1$ when O_i is chosen and $Y_{ij} = -1$ when O_j is chosen:

$$\Pi_{(ij)i} = P\{Y_{ij} = 1 \mid \pi_i, \pi_j\} = \frac{\pi_i}{\pi_i + \pi_j}, \quad \textbf{(1)}$$

$$\Pi_{(ij)i} = P\{Y_{ij} = -1 \mid \pi_i, \pi_j\} = \frac{\pi_i}{\pi_i + \pi_j}.$$

In doing so $\Pi_{(ij)i}$ represents the probability that O_i is chosen when compared to O_j and analogically $\Pi_{(ij)i}$ that O_j is chosen.

Research design

The paired comparison experiment will be carried out with the same judges and the same objects on two occasions (Figure 2). The first survey will not include TPPRs. The second comparison task which will follow one week later will administer two of three experimental groups with TPPR

Figure 2: Design of the comparison study.

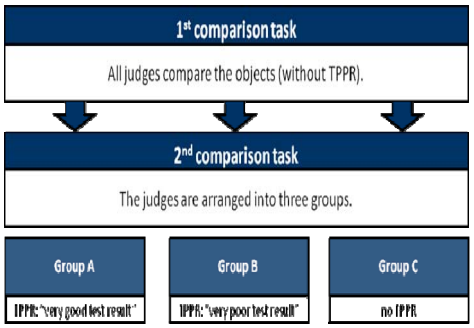


Figure 3: Overview of subject and the object covariates.

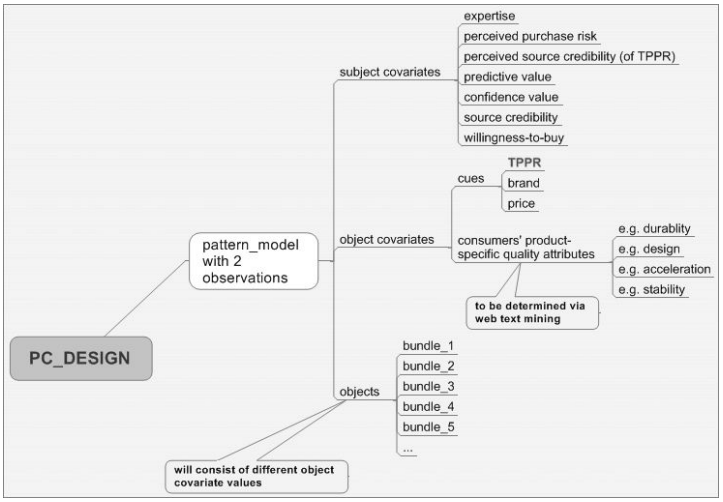


Figure 3 depicts the covariates of the model. Incorporating subject covariates allows an investigation of the influence of personal characteristics on the preferences. So certain personal characteristics might be investigated e.g. a person's windsurfing expertise as responsible for the degree of preference for a certain object covariate. All object and subject covariates are characterized by two attribute values (for details see Figure 3).

A reduced orthogonal design on the basis of the object covariates is developed with the SPSS procedure ORTHOPLAN. This gives eight cards for the first assessment (without TPPR) and eight cards for the second one under the TPPR condition. These cards represent fictive products the interviewees have to compare.

Consequently, in a full design the interviewees will have to fulfil 28 comparison tasks (number of ways that two cards can be chosen from a set of eight cards). As the choice decisions are not independent (a cue like price is likely to influence quality attributes), a

pattern model (a Bradley-Terry approach) has to be applied [40]. As a large sample size is expected it is supposed that the pattern model can also be applied with less than 28 comparisons. These problems will be elaborated by fitting a paired comparison model in ***R*** using the *prefmod* package [41]. Interviewees will be confronted with fictive products that are described (see Table 1 for example). Hence one comparison task at the first point might be as follows.

"Referring to the quality descriptions, please choose the sail you would prefer:"

Table 7: A possible choice task in the paired comparison experiment

Sail A	highly reputable brand		average reputable brand	Sail B
	higher price		lower price	
	average durability		excellent durability	
	not so stable in high wind		really stable in all conditions	
	you do not really like the design		you love the design of the sail	
	average acceleration		perfect acceleration	

As the selection of the object-specific variables depends on the results of the text-mining approach, a description of the design that is more precisely will not given here.

Data collection

After pre testing an online method for data collection will be employed. *Multiple site entry technique* [42] will be utilized in order to control the presence and the impact of self selection. So the interviewees will be invited personally at surf stations, invitations will be posted in particular online forums and banners will be launched in product-specific sites that are independent of manufacturers and free from the magazines that publish product tests. These are sport-specific entertainment sites where visitors support themselves with self-made media, watch those of professionals and offer and buy used products (e.g. http://www.continentseven.com, http://www.stehsegelrevue.com and http://www.massivemoves.com). These sites attract about 200.000 visitors a month.

Such an approach offers promising advantages compared to off-line methods. Firstly it facilitates the study of international samples within a short period of time [43]. The survey period is usually shortened as the interviewees take part within the first three days or refuse completely [44]. Moreover non-reactive data could be obtained via log files. This makes a drop out analysis with respect to response behaviour and session length possible [42]. Adaptive and dynamic designs and a variation of the items are possibly the biggest advantages compared to classical experimental methods [45]. The online study will be carried out on *Unipark EFS Survey 6.0* (http://www.unipark.info/1-1-home.htm), a powerful tool for web surveys and experiments.

However, online experiments generally face higher drop-out rates. By offering the chance to win a brand new sail (brand is kept secret during the experiment in order to avoid bias) these rates should be kept as small as possible. In order to ensure data quality several standards that have proven useful to avoid common bias will be used in this thesis [42]. For a comprehensive methodological overview see Gnambs and Strassnig [45].

RESULTS AND CONCLUSION

As I'm in an early stage of my dissertation I cannot come up with findings yet. In January I'll be able to present the text mining findings and the comprehensive design of my experiment.

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