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Space

VĚRA PLHOŇOVÁ[1]

Development of Municipal Authority's Communication with the Public Including Emphasis on Concepts of CSR Following

Znojmo is a town struggling with many problems. The most controversial issues are high unemployment, high debt and excessive congestion of the major roads. The aim of this article is to draw attention to media communication, which is an important part of the town inhabitants' perception. In the context of corporate social responsibility the paper highlights the possible challenges and proposed solutions, which can result in better partnership between public administration, business owners and inhabitants, this being an important factor for local development.

INTRODUCTION

Public Administration as a wide area within the executive has seen a number of changes and innovation in the last few years. As part of a comprehensive reform of the public administration, which aims to modernize and achieve higher efficiency of all sectors, is the increasingly topical area of ethics and social responsibility of public offices. The public sector should not be only an executor of the acts of public authorities, but also the connecting open space for inhabitants to communicate with the state.

Act No. 312/2002 Coll., regarding local government officials and amending certain laws can be understood as a tool for the observance of ethical principles in public administration. Rules and principles are supported by or are consistent with the general ethical principles, established also by the Act No. 500/2004 Coll., called Administrative Code, which came into effect on 1st January 2006. "Public administration is a service for the public" is says in §4 of the Administrative Code. Anyone, who fulfils tasks resulting from the application of the administrative authority, has a duty to the persons to be polite and be helpful to all of them (500/2004 Sb.).

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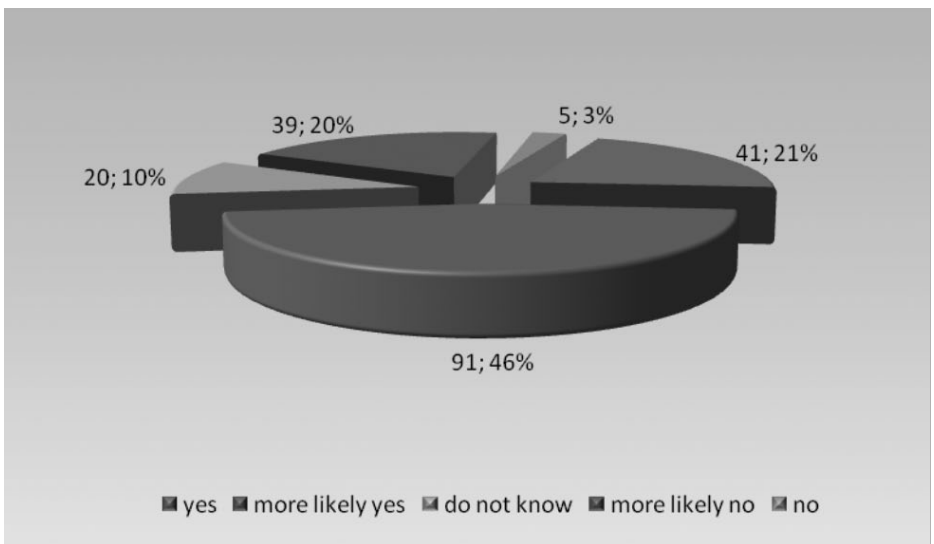
METHODOLOGY AND OBJECTIVE OF WORK

The article is based on data obtained through a questionnaire, which was conducted among residents of the town in the period February to April 2013. Its aim is to find parallels between perception issues of ethics and social responsibility with the actions of management, employees and the image of the municipality. The questionnaire was constructed according to the needs of the project.

RESULTS

In sum 196 citizens of the town were involved in survey. One of the questions dealt with was satisfaction of citizens with the willingness of office employees to deal with their problems. The answer yes occurred in 21% of the responses. Almost half of respondents (46%) responded rather yes, more likely no with 20%. 3% of them were completely dissatisfied. 10% of respondents said they did not know.

Figure 1: Satisfaction with the willingness of employees

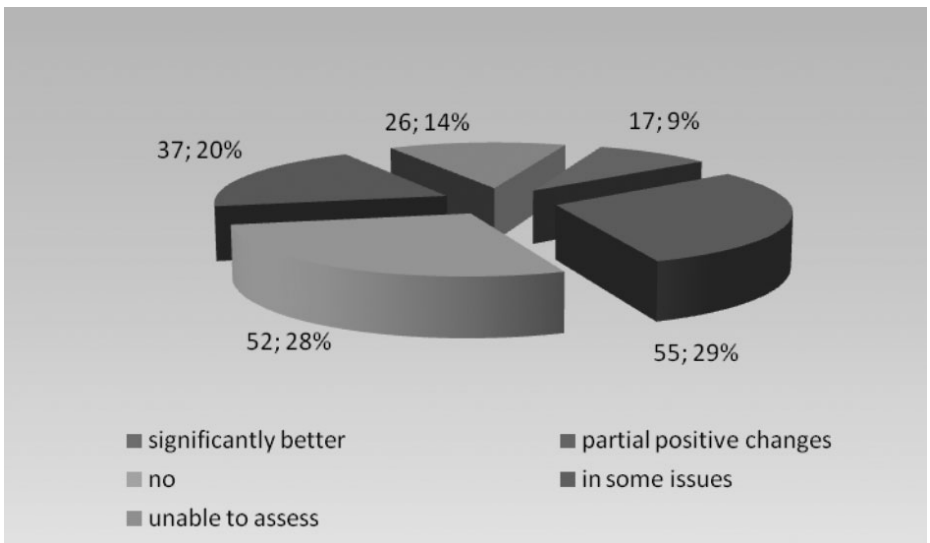


Source: Author's own.

The survey also tried to reveal so called "soft practices" in the providing of public services. Inhabitants evaluated the helpfulness of officials in dealing with specific situations. 91 respondents (46%) found that the office staff was

more helpful in solving problems. While almost 27% of the respondents were completely satisfied, 3% of respondents spoke of their dissatisfaction with the helpfulness of officials. The possibility rather not was chosen by 16% of the survey participants.

Figure 2: Views on the environment of the city from the last municipal elections



Source: Author's own.

Citizens also assessed changes that had occurred in the town since the last municipal elections. The graph in Figure 2 shows that 9% of the respondents are of the opinion that the environment has changed significantly for the better, 28% of the population feel partial positive changes. According to 26% of respondents the situation has not yet changed, 19% of respondents think that the change occurred only in some areas. 13% are not able to assess the situation. The remaining 5% of respondents did not answer at all.

The aim of the next question was to determine which of the areas in the opinion of the citizens should most concern Znojmo municipal authority. Total of 48 respondents think that the office management should be most concerned with the quality of life in the town and 29 respondents say that the issue should be the environment. Another 10 speak of sport for youth and culture, 18 of building school facilities and 34 respondents speak of dealing with entrepreneurs.

DISCUSSION

The research project aimed to assess perceptions of issues of ethics and social responsibility, with an emphasis on the image of the municipality creation. Essential in this viewpoint is the fact that public administration is a public service, which is quoted in §4 of the Administrative Code. In public administration there is a close link between morality and traditional values, which are necessary for the effective and ethical functioning of public administration.

The web site (www.znojmocity.cz) can be viewed as the main source of information (excluding personal contact with officials). These pages are the main tool of regular notification for our citizens about events in the city. Shared content has its disadvantages because it proves hard to find correct information among such a large amount of information. On the website is also the project "Opened town hall", which aims to clarify the town administration checking. Only information concerning the right codes of ethics is still lacking so far. The plan is to publish a code of ethics officer and councillor (Code of Ethics of the public official available in the portal of government www.vlada.cz). It would then be appropriate to re- investigate which reveal any unethical conduct of officials of the Municipal Office of Znojmo. As revealed by the results of the survey Znojmo residents are quite satisfied with the work of officials and the publication of the two codes will further support this positive trend.

In connection with the Internet, it is necessary to mention one of the phenomena of our time. Facebook is a widespread means of communication between users of the social networks across the population. It serves not only to share personal content (status, comments, photos, etc.), but also the representation of firms, interest groups and other formal and informal groups. It is also used by public administration institutions for representation. City Hall posts the current information in the field of entertainment, sports and political events in the town hall and information for citizens on Facebook. City leaders inform the public through the site about the current issues of the newspaper "Radniční listy", publishing a calendar of events, photos and links to articles about the city issued by other local periodicals (e.g. Znojmo, Znojmo diary, etc.)

Nowadays problems with the objectivity of periodicals seem to be widespread. These periodicals are intended for citizens and are published under the auspices of the municipality. Discrediting of this kind of information is a problem that significantly affects the area of ethical communication in public administration. It is directly related to the basic principles of ethics and social responsibility in public administration. The results of this survey confirmed this situation in the framework of this research project.

A plurality of views in the town hall press should ensure the new press law is abided by, which came into force on 1 November 2013. This precisely defines the space in which the opposition has to be able to deliver information in the local periodical. The aim, according to the authors of this landmark amendment,

is to bring a balance to this type of information source. But the situation remains unclear, because §4 of Act No. 305/2013 Coll. again vaguely formulated question of "an implementation of adequate space." We find ourselves again at the beginning: the ethical issues at the preview on the very principle of operation of the city hall press, which is in the current turbulent domestic political culture is still a matter for further discussion.

As revealed from the results of a survey conducted in the spring of 2012, the most pressing issues of Znojmo are lack of jobs, low wages and high indebtedness of the city. This fact is substantiated by this investigation. Specifically in the area of the increasing competitiveness of individuals and firms a positive trend can be seen. In response to the results of the last questionnaire the city government published information about the Columbus project, which should help in improving competitiveness.

Information about the project can be obtained from both the website (www.znojmokolumbus.cz) and also on Facebook. This project is based on cooperation between the private and public sector, the Private College of Economic Studies and other partners (currently e.g. the British Council and Goethe Institute along with the possibility of obtaining a certificate of English or German).

Within the discussion suggestions are made that the city government could use for continued work in improving its image toward town inhabitants.

CONCLUSION

The aim of this study was an evaluation of the officials' work in the Municipal Office Znojmo in terms of social responsibility and ethical aspects when dealing with the inhabitants of the city. Inhabitants of Znojmo were involved in the study, which took place in the spring of 2013, and their task was to answer the questions focused precisely on the area of ethics, behaviour of officials, possible corruption and social responsibility. Generally, Znojmo inhabitants evaluate these issues positively. Rather exceptionally unfair actions or other methods occur during the solving of the same problems.

The survey also found that among the city inhabitants the opinion prevails that the city government should focus on improvement of the quality of life in the city, improvement of the governance attitudes to the business sector and focus on cultural aspects of life in the city.

The research project aimed to also assess perceptions of issues of ethics and social responsibility, with an emphasis on the creation of the image of the municipality. Essential in this respect is the fact, which is quoted in §4 of the Administrative Code, and that public administration is a service to the public. The fact is that public administration is forging close links between morality and traditional values, which are necessary for the effective and ethical functioning of public administration. From the point of view of shaping the image of

the municipal authority plays an important role as well as responsibility of the officials, and a complete objectivity in public administration, which is also one of the seven guiding principles of ethical conduct of public officials.

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PROJECT

The article was created in collaboration Scientific research centre of SVŠE Znojmo and the town of Znojmo in the project VGS 2013K01 Analysis of the relationships and attachments between companies, customers, public authorities and citizens.

HUNGARIAN SUMMARY

Znojmo számos nehézséggel küzdő délkelet-csehországi kisváros. A legégetőbb problémákat a magas munkanélküliségi ráta, az eladósodottság és a főutakon jellemző közlekedési dugók jelentik. A tanulmány célja a közösségi kommunikációra felhívni a figyelmet, amely fontos szerepet tölt be a város lakossága véleményének formálásában. A tárgyalás a közösségi felelősségvállalás kontextusában tér ki a lehetséges kihívásokra és megoldásokra, amelyek eredményeképp jobb partneri kapcsolat alakulhat ki a városi adminisztráció, a vállalkozók és a lakosság között. Mindez a helyi fejlesztések egy fontos tényezőjét is jelentené.

Narrow street on Chapter Hill

TAMÁS DUSEK[1]

Comparison of Air, Road, Time and Cost Distances in Hungary

The aim of this study is to discuss the differences between geographical, road, time and cost distances with the help of the Hungarian railway network and road network data. The first section deals with the general characteristics of distances and spaces and the validity of metrical axioms in time and cost space. Time and cost space are more complex than geographical space, because there is only one measurement of air kilometer and the kilometer distance between points of network can be determined more or less precisely. However, time distances and cost distances fall into an interval and at best only shortest or typical distances, shortest or typical lengths of time and the cheapest or typical costs can exist. The second and third sections compare locally and globally the geographical space and various road, time and cost spaces.

INTRODUCTION

Differences between various spaces can be measured with various global and local indices. Global indices show the size of differences between two spaces as a whole, whereas local indices describe the distortion of a point or a smaller area compared to a reference space. The reference space of comparison is often but not always the geographical space. Local indices are able to detect points and areas where some barriers of connection may exist and where improving the network may have the biggest effect on the change of accessibility. Graph theory can also be effectively used in measuring the properties of the networks.

The aim of this paper is to present some Hungarian examples for the construction and visual representation of non-Euclidean geographical spaces. The methodological framework of analysis can be briefly summarized in the following. There is a set of distance relations between various locations, obtained for example from the transportation system of a geographical space. The data should be

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organized in a matrix with all sets of origins and destinations. Multidimensional scaling uses the distance matrix as input and then generates another matrix, containing the coordinates of points of the investigated space. Diagnostic tools of multidimensional scaling help to determine whether a meaningful spatial structure exists (Ahmed – Miller, 2007).

Bidimensional regression can compare the result of multidimensional scaling (MDS) with the geographical space. Bidimensional regression is a method to compare two or more two-dimensional surfaces. It is an extension of linear regression where each variable is a pair of values representing a location in a two-dimensional space. Bidimensional regression numerically compares the similarity between two-dimensional surfaces through an index called bidimensional correlation. The three different spaces and distance matrices (reference or source map, image map and predicted map) can be compared pairwise. Therefore, three different distance/(dis)similarity measures can be created, not just one, as in the case of unidimensional regression.

The visual representation of various spatial relations and map transformations were carefully examined in the groundbreaking works of Waldo Tobler (Tobler, 1961; Tobler, 1963). Multidimensional scaling is a well-known statistical tool used in many fields of research. Regarding the use of multidimensional scaling in spatial analysis, one has to mention among the first to use this method Marchand (1973) paper, Gatrell's monograph (Distance and Space, 1983) and articles by Spiekermann and Wegener. Bidimensional regression was originally developed in 1977 by Waldo Tobler but was not widely known until the technique was published in 1994. Compared to the multidimensional scaling, bidimensional regression is not as well known. It is applied to analyze and measure the relative distortion of historic maps (for example Lloyd and Lilley, 2009; Symington et al., 2002), to compare cognitive maps (Friedman – Kohler, 2003) and to compare spaces generated by multidimensional scaling (Ahmed – Miller, 2007). About the methodological framework of the analysis Ahmed – Miller, Axhausen – Hurni and Friedman – Kohler also give an excellent overview.

DISTANCES AND SPACES IN GENERAL

The concept of distance and space is the principal category in geography and should be treated in a more adequate manner in other fields of study, such as in most of the areas of regional economics. It is well known to spatial researchers that aspatial techniques cannot capture the relationships inherent in geographic phenomena. Spatial investigations often require either special research methods or spatial adaptation of aspatial techniques.

It is both impossible and unnecessary to give a general concept of space. At the beginning of the majority of works concerning spatial problems a philosophical or scientific definition of space or at least a review about the various space

concepts is given. Among the general philosophical space concepts the absolute, relational and Kantian interpretations can be distinguished. According to the absolute space concept, space is an object beside other objects. The relational space concept treats the space as a relation between the objects, which has no existence apart from the existence of those objects. Kant described the space as a priori notion that allows us to comprehend sense experience. The term space is also used in pure mathematics, where a *space* is a set, with some particular properties and usually with some additional structure. Space definitions of mathematics have nothing in common with the ordinary everyday use of the word, but of course, from a mathematical point of view, it is entirely adequate.

These various concepts of space have reason for the existence in different contexts and not one of the concepts can be treated as an absolute or exclusive definition. Euclidean geometry, architecture and everyday experience support the absolute space view. Results of physics speak in favour of relational space. From a psychological point of view, Kantian space view is acceptable. It only causes trouble when someone lays claim to exclusiveness of one particular definition of space. It is a strange situation when, for example, the absolute space view of Euclidean geometry is challenged and criticized from the point of view of the relativity theory of physics. The opposite claim would sound more absurd, namely to criticize the relativity theory because of the absolute space view of Euclidean geometry. The relativity theory is not useful for the investigation of architectural space either. Products of architecture are spaces themselves and architectural space is treated as an absolute three dimensional immaterial (in the everyday use of the word) expansion.

The shortest ways between the points of a network generate the space of transport network, the shortest (or average) time which is needed to reach from one point to another creates the time spaces, the lowest (or average) cost which is needed to reach from one point to another forms the cost spaces. The order of enumeration of different spaces corresponds to the order of their calculability. Firstly, the space of transport network has to be calculated then knowledge of the physical characteristics of the network, time spaces (for example time space of public transport, individual transport, carriage) can be determined, and last the various cost spaces can be identified. The shortest route between two points can be different in the physical sense in various spaces, for example, using the motorway, time can be shorter but the distance in kilometers can be longer and the monetary cost can be higher than other possible routes. In railway traffic, high speed trains operate typically only between pairs of large cities. The different types of trains (stopping trains, fast trains, Intercity or high speed trains) can be joined when someone wants to travel from a small location to a farther bigger centre or back (see examples for this in Kotosz, 2007). Beside the speed differences, the monetary costs can also be different and the schedule effect has to be taken into account too.

Geographical space is continuous; each point of a topographic map can be interpreted as an element of space. However, the time and cost spaces contain

nodes and lines. The network structure means that exact distances are interpretable only between the nodes and not for a surface.

The geographical space has metrical characteristics, that is, prevail these axioms:

1. The distance between two points is zero if and only if the two points are identical (the separation axiom).
2. The distance between two points is positive if the two points are different.
3. The distance from point A to point B is identical to the distance from point B to point A (symmetry axiom).
4. The distance from point A to point B cannot be larger than the sum of the distance from point A to point C and the distance from point B to point C (axiom of triangle inequality).

The first two axioms are also valid in time spaces. The first axiom is not valid in cost spaces; the third and fourth axioms are valid neither in time spaces nor in cost spaces. The reasons for this and several examples are discussed elsewhere, see for example Dusek – Szalkai (2006).

SOME MORE WORDS ABOUT THE USE OF MULTIDIMENSIONAL SCALING

It is an interesting fact that originally the multidimensional scaling was a result of the mathematization of psychology in the nineteen thirties and forties. In the journal Psychometrika, the most ground-breaking papers on the subject were published (Young, 1987). Besides in psychology the method is widely used in marketing, sociology, political science, anthropology, and linguistics. Stefflre's following interpretation of the essence of the method can be treated as typical: "Multidimensional scaling refers here to the analysis of judged similarity data (individual or aggregate) by techniques that attempt to represent these data by a spatial configuration" (Stefflre, 1972, 211.). Thus, non-spatial applications of the method were the first, but as an illustrative example, geographical distance matrices are often used as an input matrix and spatial configuration of the geographic objects (mainly settlements) is the output of the method. For example, János Podani (1997) uses ten European metropolises, Gatrell (1983) British cities, Greenacre and Underhill (1982) Southern African airports in their examples.

Imre Lengyel also mentions the possible spatial use of the method. In his analysis there are spatial objects (Hungarian cities), but the distance matrix were calculated not by geographical characteristics but socio-economical differences (Lengyel, 1996; Lengyel, 1999). For non-spatial applications, the creation of the input distance matrix is an interesting and methodologically important question. For example, in psychology attitudes, opinions and emotions measured by Likert-scales some distance is created, but there is not an obvious methodology to transforming these pairwise distances to a whole distance matrix.

The nonmetric case is also more frequent in non-spatial applications, when only the ranks of the distances are known between the various objects.

There are numerous measures for the goodness-of-fit (or sometimes named badness-of-fit) of the reproduction of the input distance matrix. The most obvious choice for a goodness-of-fit statistic is one based on the differences between the actual distances and their predicted values. Kruskal proposed the following formula, called Stress-1 in the literature:

$$Stress-1=\sqrt{\frac{\sum\left[f(p_{ij})-d_{ij}(x)\right]^2}{\sum d_{ij}^2(x)}}$$

Where f(pij) means the distances calculated by the multidimensional scaling, dij(x) means the original distances in a standardized form. The average of the square of the standardized distances is 1. This is the most common stress measure. Other measures of stress are different only mainly in the way of standardization. Kruskal (1964) proposed the following interpretation of this measure: above 0.2 the solution is poor, between 0.025 and 0.05 it is excellent, and when it is under 0.025, it is perfect (Table 1). Another proposal came from Guttmann, who drew the line of acceptable-unacceptable solution at 0.15 (Borg – Groenen, 1997, 37.).

Table 1: The interpretation of Stress-1 according to Kruskal (1964)

Stress-1	Goodness-of-fit
0.2<Stress-1	poor
0.1<Stress-1≤0.2	fair
0.05<Stress-1≤0.1	good
0.025<Stress-1≤0.05	excellent
0≤Stress-1≤0.025	perfect

Source: Kruskal (1964).

However, these proposals are deceptive. The least problem is that these values cannot be interpreted as strict borderlines, and context is always important. The biggest problem is that the goodness-of-fit can be interpreted only in a mathematical sense as a good-wrong scale, where bigger values mean a worse solution. Stress-1 above 0.2 is wrong only from a mathematical point of view, but otherwise good, because this perfectly mirrors the complexity of actual distance relations. Borg and Groenen, surveying previous methodological studies and simulations, summarized the various factors, which have an influence on the stress measures. These can be seen in Table 2.

Table 2: Factors influencing the stress measures

Factor	Effect on stress
Number of dimensions (m)	The higher m, the lower stress
Number of points (n, observations)	The higher n, the higher stress in general
The error in the data	More error means higher stress
The number of missing data	More missing data leads to lower stress, in general
The MDS model	Interval MDS generally leads to higher stress than ordinal MDS

Source: Borg – Groenen (1997).

For the sake of illustrating Stress-1 measure, its value for various MDS solutions of distance matrices among the six biggest Hungarian cities can be seen in Table 3. Of course, the smallest stress can be observed in the air distance matrix: only the sphericity of the earth hampers the most perfect solution in this case. The speed differences of various network elements lead to higher stress of time distances, compared to network kilometer distances. This stress measures the deformation of the whole structure with one impressive number. However, the geographical decomposition of stress to particular points or pairs of points offers an extremely powerful method for geographical, spatial analysis.

Table 3: Value of stress-1 (six biggest Hungarian cities)

Distance	Stress-1
Shortest public road time distance by car	0,1335
Shortest public road kilometer distance	0,0844
Air distance	0,0086
Shortest time by rail (2009)	0,1361
Smallest cost by rail (2009)	0,1212
Smallest kilometer distance by rail (2009)	0,0859

Source: own calculation.

THE STUDY AREA AND DATA

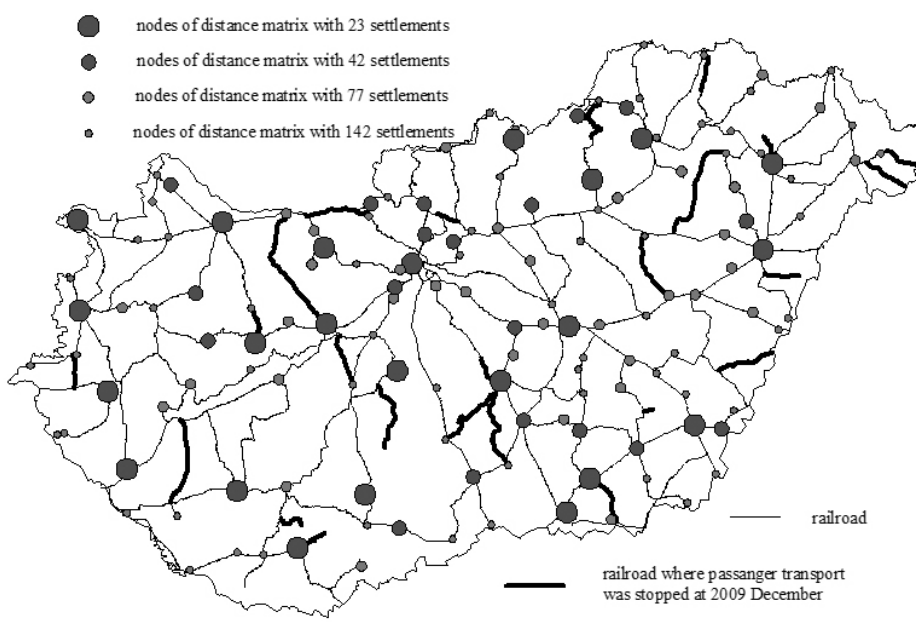
In the empirical part of the paper, the spaces of the Hungarian railway network and public road network will be analyzed and compared to each other. The shortest road distance in kilometers, time distance in minutes for both networks and for the railroad, and the cost distance in Hungarian forint were completed. The source of railroad data is the timetable of the Hungarian Railway. The reference matrix includes the air distance. The largest distance matrix was calculated for 142 nodes: the biggest cities, railway junction settlements (sometimes these are

smaller cities or villages) and the endpoints of the network. The other three matrices consist of 23 points (Budapest and the cities with county rights, without Érd), 42 points (the cities with county rights and other medium size cities) and 77 points (the cities of above 15 thousand inhabitants).

The emphasis is on the railroad network. For the sake of comparability the public road network consists of the same points as the railroad network. The map of Hungarian railway network can be seen in Figure 1. According to the new time schedule of December 2009, passenger transport was stopped on 29 railway lines (altogether 868 kilometers). The calculation was conducted for both networks, therefore those points were chosen for the analysis, which are also available on the reduced network.

Previous works on the subject (for railway Kovács, 1973; for railway and public road Szalkai 2001; Szalkai 2004; for public road Fleischer, 1992) concern a larger railway network and use the detour index and isodistance maps with the centre of Budapest for the description of relative accessibility of the nodes of the network.

Figure 1: The Hungarian railway network
(with nodes of various distance matrices)



Source: own figure.

RESULTS OF MULTIDIMENSIONAL SCALING

The 28 distance matrices were analyzed by the PROXSCAL technique of multidimensional scaling. The Stress-1 of 28 distance matrices can be seen in Table 4. Smaller values mean more even network and accessibility, without big differences between the various points of the network. The smallest value belongs to the public road network distance, which is a denser network than the railway network. The highest value is 0.213, thus the general configuration of distance matrices can be reproduced well or on an acceptable level in two-dimensional Euclidean spaces. In the case of time distances the stress is always higher, because of the different speeds of various parts of the network. The biggest network has higher stress in the case of railway time distance. The reason for this is that the smaller locations are not accessible with high-speed trains therefore the difference between average speeds is higher. The size of the network also has an impact on the results, but in a different manner for the time distance of railway and the time distance of public road. This can be explained by the dead time of changing trains when someone wants to travel to a smaller location.

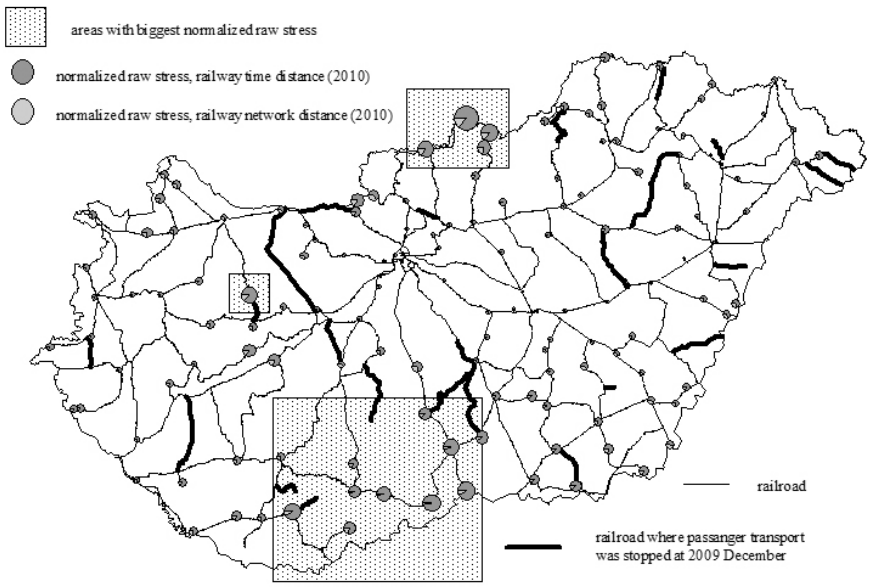
Table 4: Stress-1 measures of distance matrices

	23 nodes	42 nodes	77 nodes	142 nodes
Network distance, railway, 2009	0,095	0,092	0,094	0,096
Network distance, railway, 2010	0,099	0,099	0,099	0,100
Time distance, railway, 2009	0,142	0,156	0,148	0,176
Time distance, railway, 2010	0,149	0,164	0,154	0,205
Cost distance, railway, 2009	0,138	0,133	0,144	0,160
Network distance, public road	0,087	0,110	0,107	0,113
Time distance, public road	0,179	0,213	0,118	0,124

Source: own calculation.

It is interesting to analyze the decomposition of stress also. The contribution to stress by points can be seen in Figure 2, for the network distance matrix (2010) and time distance matrix (2010). Those areas can be identified very well, where the structure of network is highly uneven. In the case of public road time distance, Hódmezővásárhely and Salgótarján have the biggest contribution to stress. Hódmezővásárhely can be explained by the absence of its position close to a main axis. In the case of Salgótarján the periferical location and the bad connection to Eger and Miskolc can be the explanation for the higher relative stress.

Figure 2: Decomposition of normalized raw stress
(network distance matrix and time distance matrix, 2010)



Source: own compilation.

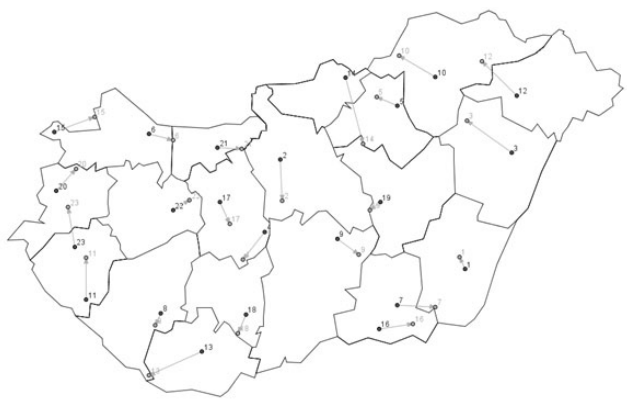
RESULTS OF BIDIMENSIONAL REGRESSION

In this part only some general results will be presented in the form of various figures. For the sake of simplicity only the smallest network (with 22 nodes) will be depicted. Larger networks are more complex and harder to interpret. Graphical display is much richer in information than the quantitative display of the coordinates and their differences, because it shows the size and the direction of the change concerning all settlements. For example, it can be seen on every Figures that Budapest shifted in the direction of the centre of gravity, because its accessibility is better than its otherwise favourable, near-central geographical location.

The calculations and graphical representation were conducted by program Darcy 2.0. (Downloadable from the homepage http://www.spatial-modelling.info/Darcy-2-module-de-comparaison) A description of the program can be read in Cauvin's paper (Cauvin, 2005). Figure 3 serves as a reference map, with the county borders of Hungary, with the cities with county right and with the

adjusted coordinates of multidimensional scaling of railway network distance matrix. Figure 4 shows the railway network distance space. The origin of the vectors is the location of cities in geographical space; the end point is the location of cities in railway network space. The relative position of the cities in the railway network space was calculated with multidimensional scaling, the absolute position with the same coordinate system as the locations in geographical space was calculated with bidimensional regression. The deformation of county borders was calculated by interpolation, for the sake of further generalization and more visual information. Figures 5-8 show four different spaces, with the same methodology constructed.

Figure 3: County borders of Hungary and cities with county right (geographical location: blue dot, MDS location: orange dot)

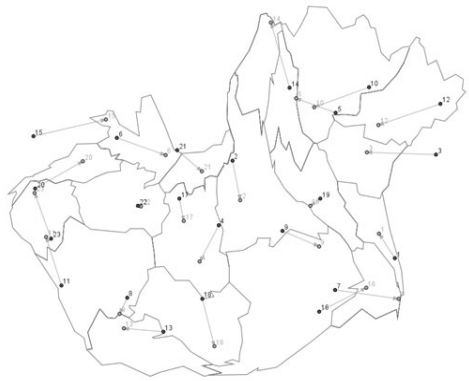


Source: own compilation.

Figure 4: Railway network distance space, 2010

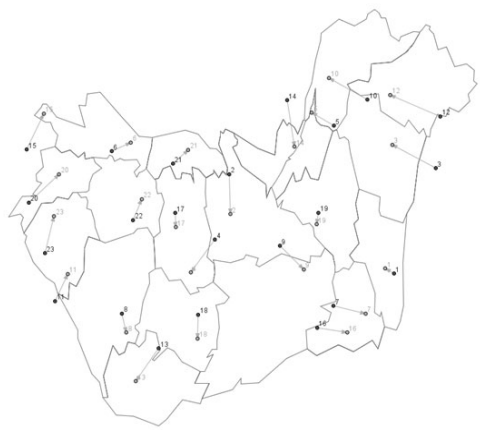
Source: own compilation.

Figure 5: Railway time distance space, 2010



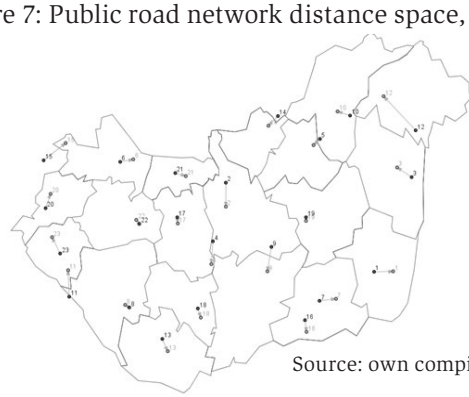
Source: own compilation.

Figure 6: Railway cost distance space, 2010



Source: own compilation.

Figure 7: Public road network distance space, 2009



Source: own compilation.

Figure 8: Public road time distance space, 2009

Source: own compilation.

There are two common characteristics of all maps. Firstly, the widening of the East-West distances in the Southern part of the country. The Danube has the biggest barrier effect in Hungary, South from Budapest there is just one railroad bridge and four public road bridges over the Danube, solving the East-West traffic. Secondly, space around Budapest is narrowed, because of the radial character of network, with Budapest in the centre. These two characteristics can be seen on Figure 6, where the displacement vectors of the transformed geographical space are depicted.

SUMMARY

Non-Euclidean spaces cannot be represented in two dimensions without stress and residuals. However, the depicted transformed maps show a more accurate picture of the various distance matrices than the geographical maps, based on air distances. Important limitation of the maps is that they suggest (similar to topographic maps) a continuous space, but in reality the depicted spaces consist of nodes and lines.

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HUNGARIAN SUMMARY

A tanulmány a földrajzi, úthálózati, idő és költség távolságok alapján létrejövő különböző magyarországi terek közötti különbségeket vizsgálja. A bevezetést követően általános áttekintést ad a különböző terek sajátosságairól, majd a multidimenziós skálázás területi alkalmazhatóságával kapcsolatos néhány kérdést vázol. A multidimenziós skálázással készült tereket (közúti és vasúti hálózati és időteret, valamint a vasúti költségteret) a kétdimenziós regresszió segítségével teszi ábrázolhatóvá. Valamennyi nem földrajzi tér sajátossága az ország északi felének a kelet-nyugati irányok mentén történő viszonylagos zsugorodása, valamint a déli országrésznek a kelet-nyugati irányú szélesedése. Ez összhangban van az ország közlekedési hálózatának ismert jellemzőivel.

Chapter Hill

Economics

JEREMIÁS BALOGH[1]

The Evaluation of Competitiveness of the Hungarian Wine Sector

In the last few decades the global wine market has undergone several changes. These changes have considerably influenced the competitiveness of major European wine exporter countries and the Hungarian wine industry as well.

Based on empirical studies the most popular way to assess the international wine competitiveness is the different formula of Balassa indices. According to Balassa (1965), the comparative advantage is manifested by high while the comparative disadvantage by low export market shares. In the work of Balassa (1965), Vollrath (1991), Hoen and Oosterhaven (2006), Yu et al. (2009) suggested several types of modified competitiveness indices.

This study analyses the international competitiveness of Hungarian wine trade by the help of revealed comparative advantage and competitiveness indices (RCA, ARCA, NRCA, RTA, RC) between 2000 and 2013. It investigates the changes of indices in terms of world and regional point of view. The stability of indicators is tested by Markov transition probability matrix.

INTRODUCTION

In the last few decades the global wine market has undergone several changes. New World wine producer countries have appeared beside the traditional European wine producers and they have gained a considerable place in the world wine market. The New World wine producers have increased their vineyards by new plantations and this accounts for the notable boost of their wine export. Furthermore, the traditional wine producing countries with high levels of consumption show a fast decrease in domestic demand while emerging countries with traditionally lower consumption levels show an increase (Bianco et al., 2013.). The wine consumption has been falling especially in southern European countries, where changing consumption

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habits (e.g. substitution of others beverages, outdoor drinking) have affected the overall demand (OIV 2012.). This market re-arrangement influences the competitiveness of major European wine exporters thus the competitiveness of the Hungarian wine trade.

This paper was motivated to investigating how the competitiveness of Hungarian wine sector has been altered due to these world wine market trends. I evaluate the international competitiveness of Hungarian wine trade comparing to the regional and European wine producers. To assess the competitiveness of Hungarian wine sector I analyze the wine trade by several comparative advantage and competitiveness indices.

EMPIRICAL STUDIES ON COMPETITIVENESS OF WINE TRADE

Concerning the wine sector a few studies already exist which investigate competitiveness and comparative advantage of the wine trade.

Anderson (2013) dealt with the Georgian wine industry analysing the determinants of comparative advantage with revealed comparative advantage index (RCA). Anderson and Wittwer (2013) modelled the global wine market to 2018 by considering the impact of real exchange rate changes on competitiveness. Van Rooyen et al. (2010) assessed the competitive performance of the wine industry in South Africa by using relative trade advantage (RTA) index formula. Vlahović et al. (2013) researched the world wine export, the current world trends and explored export structure on the international wine market.

Bozsik (2005) conducted research on the evaluation of Hungarian wine competitiveness on foreign markets by relative export advantage (RXA), relative import advantage (RMA), relative trade advantage (RTA) and revealed competitiveness (RC) indices.

MEASURING COMPETITIVENESS

The most widely used indicator of competitiveness is the revealed comparative advantage index, developed by Balassa Béla (1965); the index is defined as follows:

$$B_{ij}\ (RCA) = (Xij / Xit) / (Xnj / Xnt) \qquad (1)$$

where X represents exports, i is a country, j is a commodity, t is a set of commodities, and n is a set of countries, which are used as the benchmark export markets for comparisons.

It measures a country's exports of a commodity relative to its total exports and to the corresponding export performance of a set of countries. If B > 1, then a country's agri-food comparative export advantage on the global market is revealed.

Vollrath (1991) offered an alternative specification of revealed comparative advantage, known as the relative trade advantage index (RTA), which accounts for exports and imports as well.

$$RTA = RXA\text{-}RMA \quad (2)$$

$$\text{where } RXA = B\ (RCA)$$

$$RMA = (Mij / Mit) / (Mnj / Mnt) \quad (3)$$

$$RTA = [(Xij / Xit) / (Xnj / Xnt)] - [(Mij / Mit) / (Mnj / Mnt)] \quad (4)$$

where X represents export and M the imports, i is a country, j is a commodity, t is a set of commodities and n is a set of countries.

If RTA>0, then a relative comparative trade advantage is revealed, i.e. a sector in which the country is relatively more competitive in terms of its trade.

Vollrath suggested a second type of RCA index, which is simply the logarithm of the relative, export advantage (lnRXA) and relative import advantage (lnRMA) indices and his third measure is called revealed competitiveness (RC), are calculated as:

$$RC = ln\ RXA - ln\ RMA \quad (5)$$

The advantage of this index is that it becomes symmetric through the origin. Positive values of Vollrath's indices reveal a comparative or competitive advantage whereas negative values indicate comparative disadvantage.

Hoen and Oosterhaven (2006) introduce an additive index of revealed comparative advantage:

$$ARCA = (Xij / Xit) - (Xnj / Xnt) \quad (6)$$

The ARCA index ranges between -1 and +1 with 0 demarcation point.
Yu et al. (2009, 2010) adopted an alternative measure to assess the dynamics of comparative advantage called NRCA index to improve certain aspects of original RCA index. Yu et al. (2009) define the NRCA as follows:

$$NRCAij=Eij/E - EjEi/EE \quad (7)$$

where E denotes total world trade, E_{ij} describes country i's actual export of commodity j in the world market, Ei is country i's export of all commodities and Ej denotes export of commodity j by all countries. If NRCA>0, a country's

agri-food comparative advantage on the world market is revealed. The NRCA ranges from –1/4 to +1/4 with 0 being the comparative-advantage-neutral point.

Using these indices is often problematic because the real trade patterns can be distorted by government policies and may therefore misrepresent underlying comparative advantage (Fertő and Hubbard 2002).

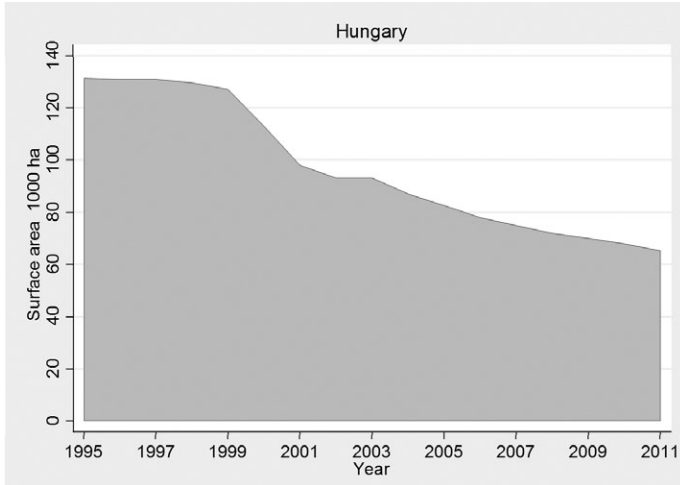
DATA AND SAMPLING

The sample of the study consists of 33 wine exporter countries including Hungary (appendix 1). Wine trade data are based on World Bank World Integrated Trade Solution (WITS) database in HS-6 level, product code 2204. The data of grape area harvested, wine production and consumption derived from the Organisation Internationale de la Vigne et du Vin (OIV) database. The trade indices are calculated from the wine export and import data of WITS database.

THE HUNGARIAN WINE SECTOR

Grape and wine production in the Carpathian basin dates back thousands of years. The Romans brought vines to Pannonia, and by the 5th century AD, there are records of extensive vineyards in Hungary. Tokaji aszú (the world-famous dessert wine) is mentioned in a document of 1571, and it was famously christened by Louis XIV of France "Vinum Regum, Rex Vinorum". The 18th and 19th centuries, Hungary was among the greatest producers of European wine. The evidence of Hungarian winemaking history is that the region of Tokaj-Hegyalja was the world's first classified vineyard in 1772. Hungary has 22 wine regions and more then 10 000 companies are involved in the wine industry. Hungary is able to export 400-800 thousands hl wine annually. However, the Hungarian grape area harvested has been decreasing for two decades (Figure 1). The grape growing territories, which had reached 135 thousand ha in 1995, was reduced to 69 thousand ha for 2013. The decrease was mainly due to the Common Agricultural Policy measures of European Union (e.g. grubbing-up program, prohibition of new plantings).

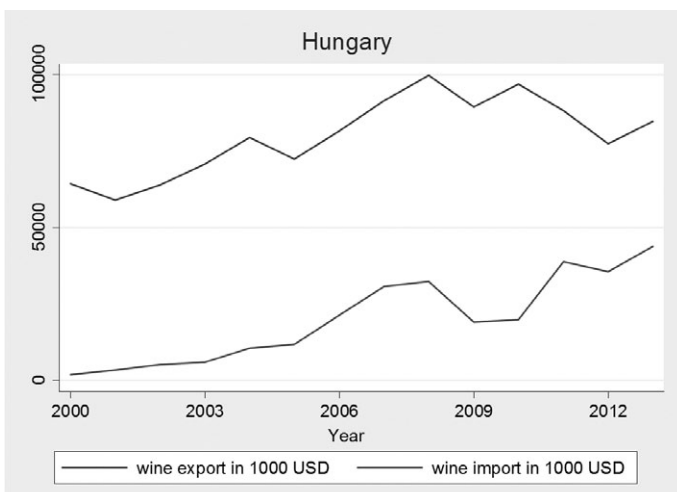
Figure 1: Hungarian grape area harvested (1995–2011)



Source: author's own based on OIV database.

On the other hand the value of wine export shows an increasing tendency, accounting for 64 million USD in 2000 and 85 million USD in 2013 (Figure 2). However, the quantity of exported wine declined 803 thousand hl to 544 hl from 2000 to 2013. These changes could be caused by the grubbing-up program and higher wine prices.

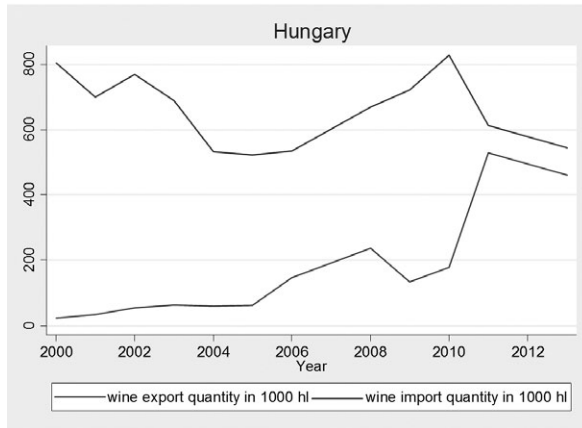
Figure 2: Hungarian wine trade in USD (2000–2013)



Source: author's own based on World Bank WITS database.

Furthermore, Hungarian wine imports have grown in accordance with this declining wine export in quantity. Although the wine import was only 1.9 million USD in 2000 in turn it reached 43.9 million USD in 2013 (Figure 2).

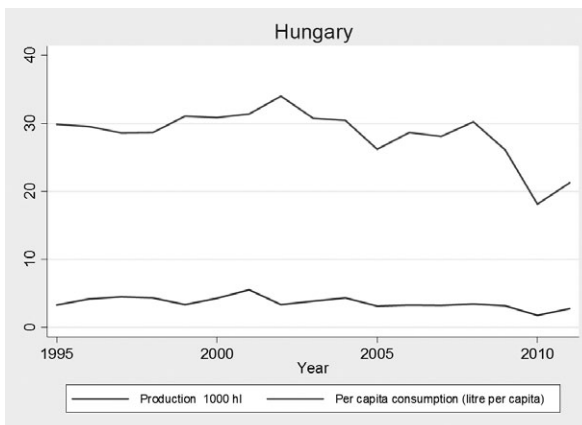
Figure 3: Hungarian wine trade in 1000 hl (2000–2013)



Source: author's own based on OIV database.

The imported wine also increased in quantity 23.8 thousand hl to 461.1 thousand hl between 2000 and 2013 (Figure 3). Hungarian wine imports consist mainly of cheap low-grade Italian wines that can endanger the market condition of Hungarian wine producers. Hungarian wine production fluctuates between 3-3.5 million hectolitres on average annually. The average annual per capita wine consumption ranges between 30-32 litres, although it also shows a downward trend falling to 26 litres in 2011 (Figure 4).

Figure 4: Wine production and per capita consumption in Hungary (1995–2011)

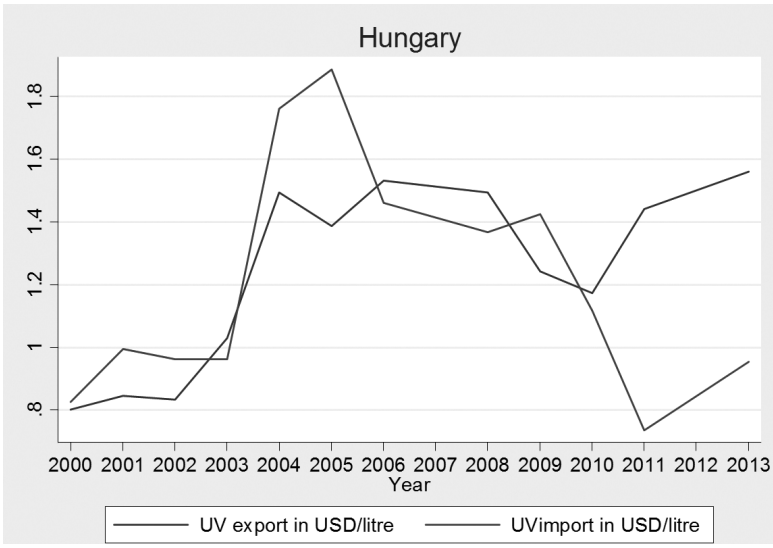


Source: author's own based on OIV database.

The unit value of Hungarian wine exports (calculated as follows: traded value of wine in USD divided by traded quantity of wine in litre) doubled between 2000 and 2013 (it increased 0.8 USD/litre to 1,6 USD/litre for 2013) while the unit value of wine import fell below 1 USD/litre in 2010 (Figure 5). It confirms that Hungarian wine prices are growing on international markets.

In summary the Hungarian wine trade pictures a shrinking domestic and international market position contemporaneously growing export prices while incoming wine import to Hungary is increasing.

Figure 5: Unit value of Hungarian wine trade (2000–2013)

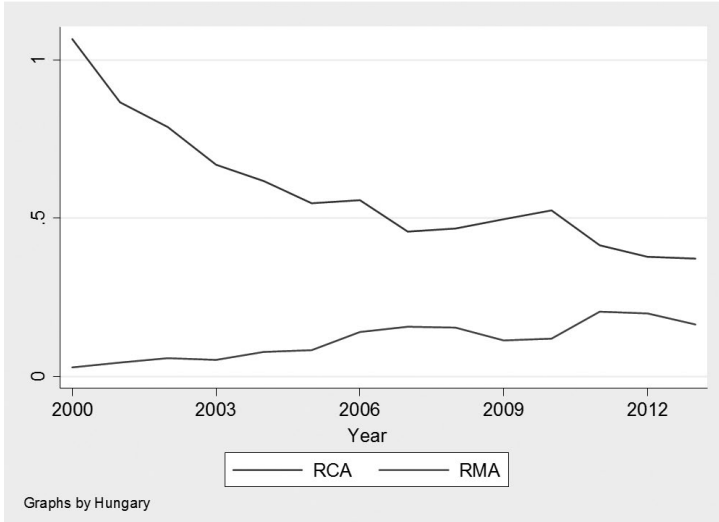


Source: author's own based on World Bank WITS database.

EVALUATION OF COMPETITIVENESS OF HUNGARIAN WINE SECTOR

The value of RCA index of Hungary decreased between 2000 and 2013. It was 1.06 in 2000 and reduced to 0.37 in 2013. The RCA indices below 1 indicate a competitive disadvantage since 2001. It means that the Hungarian market share of wine export has been declining compared to world wine exports (Figure 6). Simultaneously, RMA indices have increased in accordance with imported wine (as a result of the strong presence of cheaper Italian and New World wines on the Hungarian market).

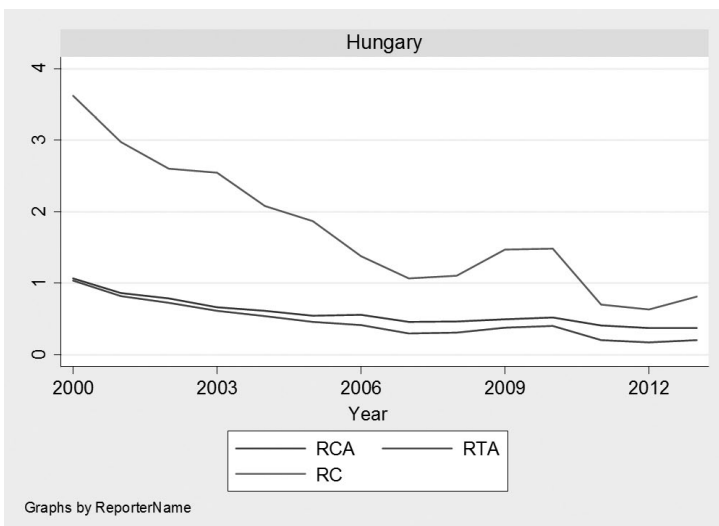
Figure 6: RCA and RMA indices of Hungarian wine trade (2000–2013)



Source: author's own based on World Bank WITS database.

The values of RTA and RC indicators fell during the analysed period; however, their values remained positive. These indices show that Hungary still has a competitive advantage in terms of the wine trade, but this advantage is continuously declining (Figure 7).

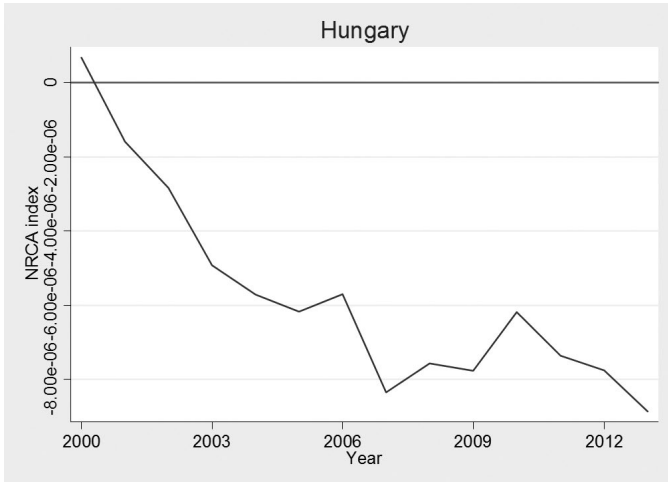
Figure 7: RCA, RTA, RC indices of Hungarian wine trade (2000–2013)



Source: author's own based on World Bank WITS database.

Concerning the NRCA indices (it ranges between -1/4 and +1/4 and its positive values denote competitive advantage) their values were still above zero at the beginning of the analysed period and showed a comparative advantage in 2000. It turned negative afterwards (Figure 8).

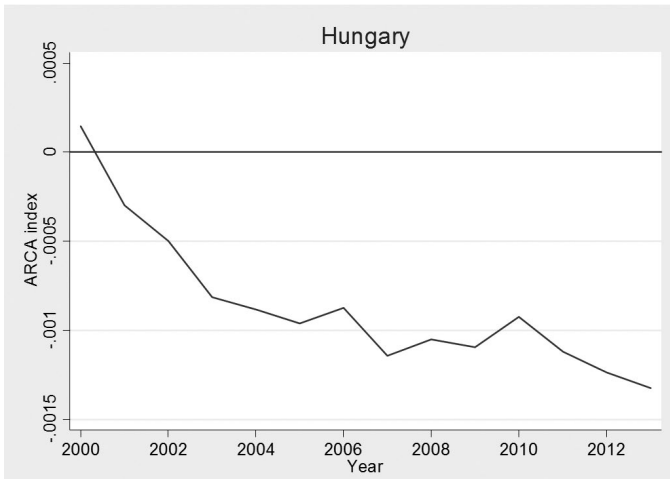
Figure 8: NRCA indices of Hungarian wine trade (2000–2013)



Source: author's own based on World Bank WITS database.

The changes of ARCA indices show a similar evolution to the NRCA indices, it also turned negative after 2001 (Figure 9).

Figure 9: ARCA indices of Hungarian wine trade (2000–2013)

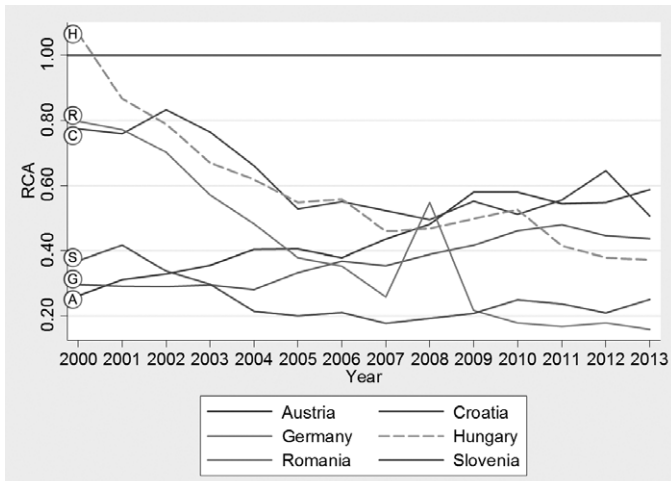


Source: author's own based on World Bank WITS database.

REGIONAL AND WORLD COMPARISON OF HUNGARIAN WINE TRADE

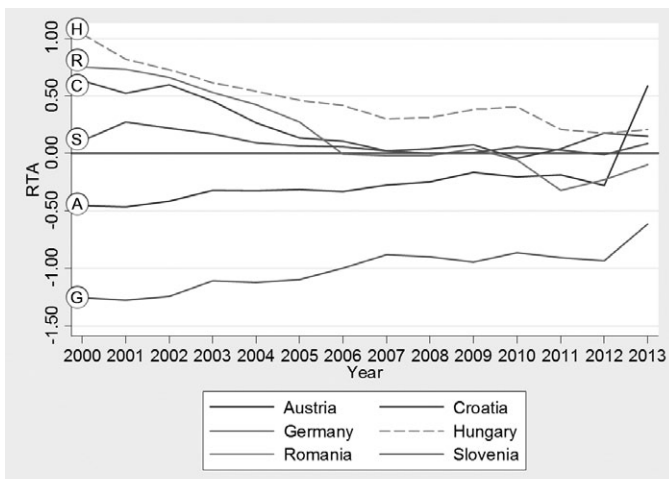
Based on the regional comparison of Balassa type indices Austria, Croatia and Germany preceded Hungary between 2011 and 2013. Regional comparisons of RTAs illustrate that the Croatian and Austrian wine industry could be considered strong competitors of Hungary. Moreover the RCA and RTA indicators ranked Romania and Slovenia behind Hungary (Figure 10 and 11).

Figure 10: Regional comparison of RCA indices (2000–2013)



Source: author's own based on World Bank WITS database.

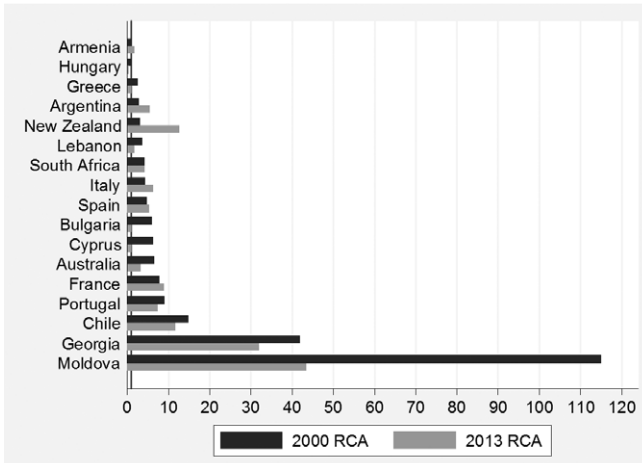
Figure 11: Regional comparison of RTA indices (2000–2013)



Source: author's own based on World Bank WITS database.

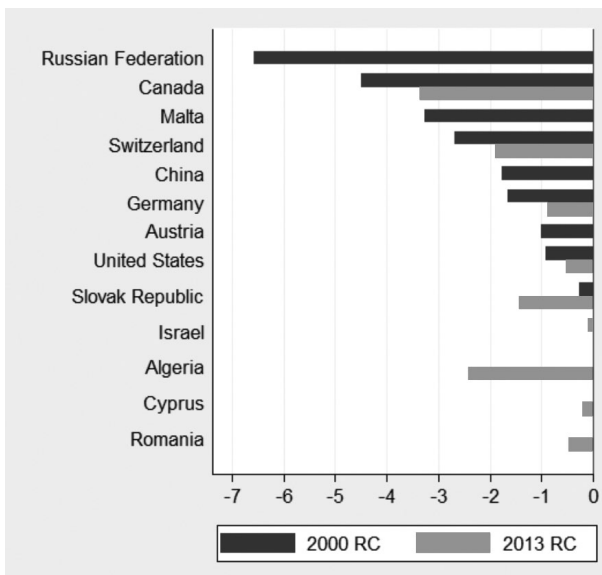
Regarding the worldwide comparison the RCA and RC indices ranked Hungary among the competitive wine producers in 2000 (Figure 12). Hereafter, Hungary experienced a significant decline in 2013 (its RCA index fell below 1). As regards the RC indices, Hungary remained still competitive in 2000 and in 2013 and did not appear among uncompetitive wine producers (Figure 13).

Figure 12: Regional comparison of countries with competitive RCA indices (RCA>1)



Source: author's own based on World Bank WITS database.

Figure 13: Regional comparison of countries with uncompetitive RC indices (RC<0)



Source: author's own based on World Bank WITS database.

Table 1 presents the Markov transition probabilities for RCA indices indicating probability of remaining or becoming competitive to non-competitive between 2000 and 2013.

Table 1: Markov matrix for RCA indices of 33 wine exporters

RCA indices	Comparative disadvantage (0)	Comparative advantage (1)	Total
Comparative disadvantage (0)	95,9%	4,1%	100%
Comparative advantage (1)	4,6%	95,4%	100%
Note:1 denotes comparative advantage, 0 disadvantage (1 if RCA>1; 0 if RCA<1)			

Source: author's own based on World Bank WITS database.

The diagonal elements of the Markov matrix indicate probability of remaining non-competitive (95,9 %) or competitive (95,4 %) referring to wine export. There is a small chance for competitive wine exporters to became non-competitive (4,1 %) and inversely (4,6%). The Markov matrix shows the strong position of competitive and non-competitive wine exporter countries as well.

CONCLUSION

Wine plays an important role in Hungary; therefore an evaluation of competitiveness of the Hungarian wine sector is always timely.

Based on the empirical competitiveness studies the most popular way to analyse the international competitiveness of wine sector is the use of various Balassa indices. Therefore I analysed the competitiveness of Hungarian wine trade by the revealed comparative advantage and its additional indices. I investigated the changes of the indices in terms of world and regional point of view. I tested the stability of RCAs by Markov matrix.

The result shows that the Hungarian wine industry was competitive during the last millennium although it has become less competitive in recent years. Hungary accounted for increasing wine import, decreasing wine export and per capita consumption between 2000 and 2013 which depict a weakening domestic market and diminishing international export competitiveness of the sector.

In a worldwide comparison, Hungary was still ranked among the middle competitive wine producers at the beginning of the analysed period and experienced a significant decline at the end of the period. The Markov transition

probability matrix of RCA indices suggests a small chance for competitive wine exporters to became non-competitive and inversely.

It should be noted that this study has several limitations. The results are measured at a macro level and did not take into consideration the quality of wine. The calculated indices assume that wine products across countries are homogenous. The effects of trade policy distortions on competitiveness indices were not taken into account.

Further research is needed to investigate the drivers of competitiveness with the help of econometrical methods.

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Appendix 1: List of 33 wine exporters

Algeria	Cyprus	New Zealand
Argentina	France	Portugal
Armenia	Georgia	Romania
Australia	Germany	Russian Federation
Austria	Greece	Slovak Republic
Azerbaijan	Hungary	Slovenia
Bulgaria	Israel	South Africa
Canada	Italy	Spain
Chile	Lebanon	Switzerland
China	Malta	Turkey
Croatia	Moldova	United States

HUNGARIAN SUMMARY

Az elmúlt évtizedekben a világ borpiaca jelentős változásokon ment keresztül. A végbement változások mind az európai mind a magyar borágazat versenyképességét jelentős mértékben befolyásolták, átrendezték. Ennek fényében fontos annak számba vétele, hogy hogyan alakult Magyarország borkereskedelmi versenyképessége az utóbbi évtizedben. Az empirikus kutatásokban a kereskedelmi versenyképesség értékelésének legnépszerűbb módszere a Balassa Béla által kifejlesztett komparatív előny indexek elemzése (Balassa 1965, Vollrath 1991, Hoen and Oosterhaven 2006, Yu et al. 2009).

Tanulmányomban a magyar borágazat versenyképességét elemeztem Balassa mutatók és annak továbbfejlesztett változatainak (RCA, ARCA, NRCA, RTA, RC) számítása alapján regionális és világpiaci összehasonlításban, 2000 és 2013 közötti időszakban. A mutatószámok értékelése alapján megállapítható, hogy míg a magyar borágazat 2000-es években még az alsó középmezőnyhöz tartozott export versenyképesség tekintetében, regionális viszonylatban, 2013-ra jelentős versenyhátrányba került a csökkenő szőlőültetvények, borexport, hazai borfogyasztás illetve a növekvő borimport hatására.

RAINER SCHABEREITER[1]

Take Tech – Connecting Economy and Education at an Early Stage

TAKE TECH is an EU-funded *Leonardo da Vinci - Transfer of Innovation* project and lasted from the 1st of October 2011 until the 30th of November 2013. It aimed to enhance and transfer the successful TAKE TECH method from the region of Styria in Austria to several European partner countries. This project can be seen as a well-structured example for the imperative of EU-projects to strengthen the European economy by developing innovative pedagogic and for this reason it is exemplary for the close conjunction of economy and education as a part of the European education strategy.

ADUMBRATED EMBEDMENT OF LEONARDO DA VINCI IN THE HISTORY OF EUROPEAN EDUCATION PROGRAMMES

Since its early beginning in the 1950s[2] the common European education strategy has been largely focused on strengthening the European economy by defining common and initially unaccommodating goals concerning the employment market. In the 1970s these soft approaches were concretised and in 1973 the first Directorate-General for research, sciences and education was implemented by the German, Ralf Dahlendorf (Becker/Primova 2009, 3. et sqq).

In the same year the so-called "Janne-Report"[3](European Commission 1973, 60. et sqq.) was published and this paper can be seen as a basic step towards common European education programmes. Especially in the field of education, European member states defended themselves very consequently against

[1] Brainplus (Austria).
[2] ECSC (European Coal and Steel Community) – Contract 1951 and EEC (European Economic Community) –Contract 1957. Both organisations are precursors of the European-Union.
[3] This report has been ordered by the European Commission and contains the results of an independent work-group which has been led by Henri Janne.

foreign influences and common European ideas. Education was treated like "national property" which had to be protected. Finally the European community recognised the chance of "soft influence" on national systems by using common programmes, priorities and activities and their financial appeals. This in 1976 the first European Education Programme was implemented (Gutknecht-Gmeiner 2012, 397.).

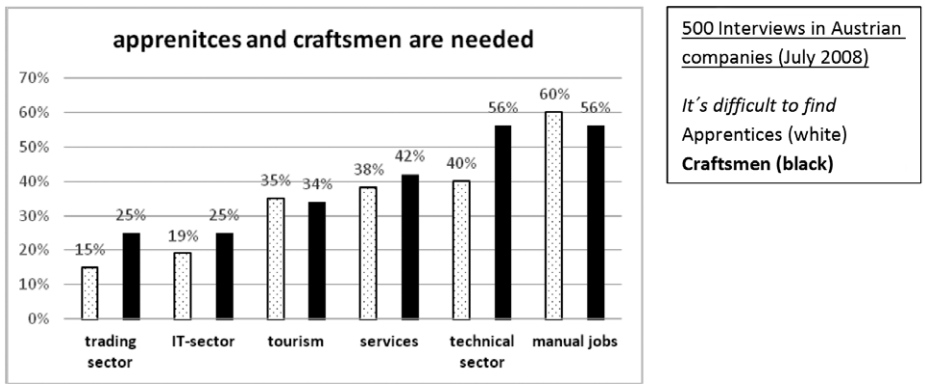
Since 1976 several European education programmes have been executed and *Leonardo da Vinci*, the programme for vocational education and training since 1995, can be seen as one of the most popular "brands" in this field. It acts directly in that sensitive divide between education and economy. Especially in the last decade and with advancing economic problems fostering the labour market and training vocational skills have become more and more essential. Product and innovation life cycles have become shorter and shorter and this fact requires a high qualitative knowledge- and innovation transfer system (Santoro/ Gopalakrishnan2000, 299.). Knowledge transfer can be seen as the sensitive link between education and economy (Locket et al. 2000, 661.) and for this reason *Leonardo da Vinci* contains the so-called "*TOI-Projects*"[4]. These transfer-projects increase the innovation potential (van Wijk et al. 2008, 836.) of all participating parties and are relevant parts of a common European way to stay innovative and competitive in the future. They enable the transfer of innovative pedagogic concepts etc. to a wider European public.

SOCIO-ECONOMIC BACKGROUND AND NEEDS

The project idea of TAKE TECH is based on serious problems in the European economy. Many companies complain of the difficulty of finding young, motivated and well-trained employees (chart 1). Especially in technical professions the European economy has a lack of thousands of young skilled workers and apprentices every year and this problem is not a typical Austrian phenomenon (chart 2). Loosing apprentices means loosing future craftsmen, innovativeness and competitiveness. Hence it is essential to attract young people´s interest in apprenticeship, especially in technical or scientific fields to keep the European Economy as innovative and creative as possible in the near future.

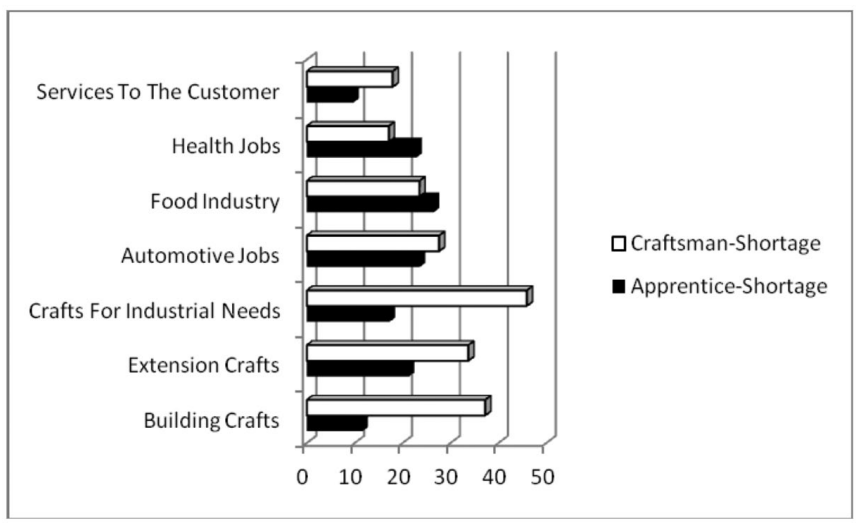
[4] TOI – Transfer of Innovation.

Figure 2: Job market situation in Austria



Source: Author's own.

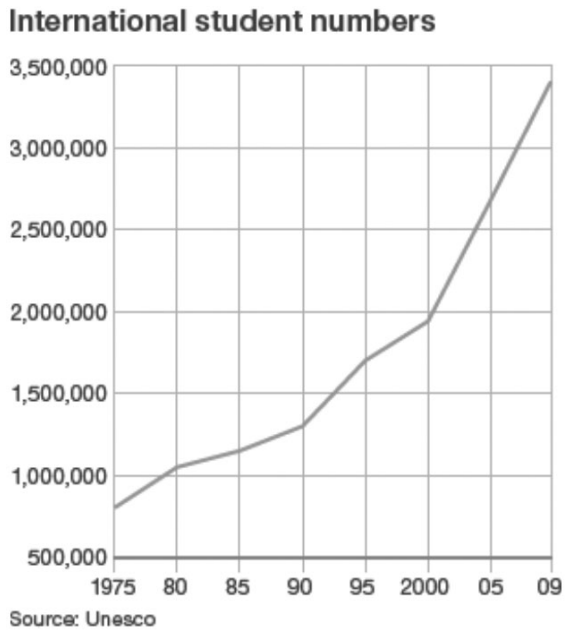
Figure 3: Shortage of craftsmen in Germany 2007



Source: http://dhi.zdh.de.

It is both an international trend and fact that young people, especially from industrial countries, do prefer higher education and more and more youngsters are studying at different universities (chart 3) now. Although many countries had to face massive economic problems in the last decade this trend is still forging ahead. Apprenticeship and manual jobs or craftsmanship do not seem hold much interest for young men and women. On the one hand a higher education level has sustainable positive effects on social structures etc., but on the other hand well-educated, trained and motivated apprentices and craftsmen are essential parts of society.

Figure 4: International student numbers



Source: www.bbc.co.uk.

The largely loose or even missing contacts between schools and enterprises, or in other words, between education and the economy are the main reasons why a well-coordinated matchmaking between schools on the one hand, who dispose of the potential craftsmen of the future, and the economy on the other hand, that could offer them profitable, interesting and promising jobs, is so important. Only a smooth cooperation between education and economy can secure a region as an industrial location.

Consequently in 2009 the SFG-Styrian Business Promotion Agency (www.sfg.at) launched a regional initiative on behalf of the Economic Department of the Government of Styria, which is still running quite successful. The aim was to give companies the opportunity to inform students of the broad scope of activities and excellent career prospects they offer in technical and scientific professions. Young people aged between 8 and 18 from all types of schools in Styria are provided with a wider, more sensitive and more objective view that will help them to make informed decisions on their professional future. Furthermore, the initiative intends to counteract current trends leading away from traditional apprenticeships as mentioned before. Specifically targeted, well-coordinated and sustainable matchmaking activities, combined with specific training contents for both parties, teachers and enterprises, are the ideal solution to bring the fields of economy and education together.

STRUCTURE AND CONTENTS OF TAKE TECH

In its entirety TAKE TECH consists of a number of individual measures, e.g. seminars, workshops for teachers and companies, company visits etc. The matchmaking activities as part of TAKE TECH company visits that take place during the regular „TAKE TECH Action Weeks" are the final point of the initiatives. Each year in June/July, companies have the opportunity to register with TAKE TECH and inform the organisers of their individual focus and special demands. During the summer months, preparation work and a pre-selection of schools matching the demands of the respective companies are carried out.

Schools interested in TAKE TECH can register at the beginning of the school year. They also have the opportunity to present their content-related and technical focus to the organisers at this early stage. The general rule here is that the earlier and the more detailed all information and individual demands are communicated, the more success can be achieved.

After that, the matching stage begins. At this phase, the wishes and demands of schools and companies receive special attention. In the time before the "Action Week" in November, both sides can prepare for their joint work in the future, supported by personal coaching, numerous preparation workshops and seminars, as well as networking events. During and after this week, interested pupils can post comments on the Take Tech Facebook site where they can also take part in a competition. Furthermore companies have the opportunity to present themselves on that Facebook site and get in touch with pupils, teachers, parents and other companies.

After the "Action Week" further common activities are organised in order to consolidate the contacts established and prepare schools and companies for the extension of their networks. This way, TAKE TECH accompanies its partners throughout the entire year, forming a closed circle.

The goals of TAKE TECH can be summarised as follows (step by step):

- provide information and training opportunities for teachers of all grades to help them with the preparation and follow-up of company visits,
- provide information and training opportunities for representatives of companies to facilitate target-group specific preparation, execution and follow-up of company visits for students,
- promote communication and cooperation between schools and companies,
- eliminate prejudices against apprenticeships and other forms of professional training in technical and scientific fields,
- raise awareness in companies of the power and relevance, but also of the needs of students as a „resource",
- increase the quantity and quality of students who wish to enter a career in a technical or scientific field,
- increase the density of qualified staff in companies,
- secure innovative power and thus competitiveness within the European economy in the medium and long term.

Summarising, it can be stated that TAKE TECH is a collection of various concerted measures that form an ideal tool to strengthen the European economy by giving companies access to the important resource „student". Therefore, TAKE TECH represents the perfect symbiosis between schools and companies, which is of immense importance for Europe as a business location.

THE EU-PROJECT TAKE TECH

Due to the overwhelming success of TAKE TECH on a regional level it was decided to expand the initiative to other European regions. With the goal to establish and spread TAKE TECH on a European level, the EU-project TAKE TECH was developed by the company *brainplus-Projektmanagement Schabereiter* (www.brainplus.at) in cooperation with a number of partner institutions. It is part of the EU Leonardo da Vinci programme and aims to strengthen Europe as a business location by, as was already mentioned, bringing companies and schools together and arousing young people's interest in technical and scientific professions. Thus in spring 2011*brainplus* wrote the proposal which was positively evaluated by the Austrian national agency.

Figure 5: Logo "Lifelong Learning Programme"

Source:http://ec.europa.eu.

A multi-professional project team with members from countries with very different economic structures was established. The task of this team was to ensure the long-term success of the project and achieve the highest possible level of quality:

The *Styrian Business Promotion Agency SFG* from Austria and „inventor" of TAKE TECH operated as a lead partner. Mr. Schabereiter from *brainplus* acted as a sub-contracted project-manager and was responsible for project management and project coordination.

The *Styrian Economic Society (STVG)* from Austria maintained a close partnership with SFG and carried out numerous TAKE TECH measures in cooperation with SFG. The Styrian Economic Society has at its disposal personnel with a high level of pedagogical expertise and was therefore mainly responsible for educational matters.

The *Union of chambers of commerce of Veneto* (EIC) from Italy disposes of a vast network within the Italian economy. With its ability to open the doors to Italian enterprises and facilitate successful cooperation with them, EIC was an essential partner for TAKE TECH.

The same applies to the Bulgarian *Chamber of Commerce and Industry Dobrich (CCI Dobrich)*, although it has to be mentioned that this is apart from its close ties to Bulgaria's national economy.

The *Central Transdanubian Regional Innovation Agency (KDRIU)* is a regional facility from Hungary, which is mainly dedicated to the promotion of economic development. Within in the project KDRIU organised the course "Train the Trainer".

The Greek youth organisation K.A.N.E played an essential role in the success of the project and has been primarily responsible for „TAKE TECH in schools".

Junior Achievement EESTI (JA) is an Estonian organisation, which offers a variety of training for teachers. With its focus on teachers, JA covered the third side of the „Take Tech triangle" between students, companies and teachers and thus ensures a holistic project approach.

Roughly speaking, the EU Project TAKE TECH focused on two main aspects:

a) Further development of the existing TAKE TECH modules in specific areas

b) Transfer of the TAKE TECH methodology to the partner countries

a) Further development of TAKE TECH

As part of the EU project two separate modules, „TAKE TECH in schools" and „TAKE TECH in companies", have been developed and written down in two separate handbooks in addition to a general project information handbook. Each handbook was written and designed differently to reach the very different target groups of schools and companies. Furthermore a TAKE TECH film has been produced for informational use. All products have been based on already existing working documents, extended by numerous tools and methods which are the basic part of transferring TAKE TECH.

b) Transfer of the TAKE TECH methodology

The core and main purpose of the entire project was the transfer of the extended methodology to the following partner countries: Bulgaria, Estonia, Greece, Italy and Hungary. Therefore, a centralised training programme for TAKE TECH trainers had to be developed. All documents have been translated into all partner languages, so the courses can be held on a national level in the partner countries.

DISSEMINATION OF TAKE TECH

With the website www.take-tech.eu a platform has been established that informs of TAKE TECH´s contents and goals and provides support for those involved in the project. It has been translated into all languages of the partner countries, maintains its own download area and provides a list with useful contacts to national partners. A TAKE TECH film is available in the download area of the website and informs of the project and its goals. It can either be used in an educa-

tional context as an inspirational opening video for teaching units or shown as part of TAKE TECH events and trainings as well as seminars and workshops.

Furthermore an Austrian Facebook site http://facebook.com/sfg.taketech was installed where schools can present themselves and users can post comments and inform each other of TAKE TECH companies. The site can also be used to prepare students for company visits. Added to which, companies have the chance to present themselves to students as attractive future employers with excellent career and training opportunities.

SUMMARY

After finishing the EU-project it can be stated, that it has been really successful. About 170 companies and more than 4,000 pupils from several European countries took part in the different TAKE TECH activities and TAKE TECH will be continued in Austria and adapted in some other countries. The project has shown that it is necessary to connect economy and education to strengthen the competitiveness of the "company Europe". Actually both sectors can be seen as very different "worlds", but it is an absolute must to bring them together. Only a strong unity of both parties will be successful in the future.

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HUNGARIAN SUMMARY

A TAKE TECH az Európai Unió Leonardo da Vinci – Innovációtranszfer projekt által támogatott program, amely 2011. október 1. és 2013. november 30. között zajlott. Célja a Stájerországban sikeres TAKE TECH módszer elterjesztése volt számos európai országban. A program egy jó példája az európai gazdaság Európai Unió által szorgalmazott innováció és oktatás révén történő fejlesztésének. A tanulmány a projekt főbb elemeit mutatja be.

Man and Society

ARIEL BÜKINÉ FOKI[1] – MÁRTA KONCZOSNÉ SZOMBATHELYI[2]

Investigation of Corporate Excellence Applying Corporate Reputation Model and the EFQM Model

The aim of this paper is to investigate the concomitant use of two models capable of measuring organizational excellence. These models are the RepTrak (tool for reputation measurement and management of the Reputation Institute) and the EFQM model (the European Foundation for Quality Management model).

In the frame of theoretical background, the paper gives a short draft about the concept of excellence, from both sides of the quality management, included the EFQM model, and the reputation/organizational communication management, and included the RepTrack model. Our hypothesis is that these models show similarities regarding the criteria of organizational excellence. The research was based on the examination of the emergence of three sectors of companies (automotive, water utilities and health care sectors), awarded the „National Quality prize" between 1996 and 2011 in a national quality journal. Based on these appearances the features specific to these sectors and the optional similarities of the two excellence models were explored.

INTRODUCTION

The success and excellence of enterprises can be traced back to several external and internal factors. Among these success factors the most frequently analysed areas are competitiveness, innovation, knowledge-flow and sustainable development.

In order to achieve and permanently preserve and maintain these success factors, the EFQM model suggests applying various methods and systems and synchronizing them. According to the philosophy of this model, the companies applying this model have to share and disseminate (namely communicate) their results with other companies.

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The culture of communication can be interpreted as the quality of internal and external communication. In achieving its goals, a company's communication plays a significant role. The simultaneous application of these two models (EFQM and RepTrack) gives excellent companies a chance for good communication and return, and well-communicating companies a chance to achieve excellence.

THEORETICAL BACKGROUND

Many approaches of „excellence" can be found in the literature of diverse sciences. Thomas Peter and Robert Waterman interpreted „excellence" as top performance in their book – „In Search of excellence".[3] The authors examined the organizational efficiency, structure and the relationship between people and organization. They summarized their results in eight principles, among them the most significant being the open, informal organization, wherein information flows freely. The second principle is identified as consumer-satisfaction, which means product quality and reliability. According to Peters and Waterman, the basics of organizational development are entrepreneurship and innovation.

The concept of excellence in *quality management* is approached from the side of products and services and it is considered as delivering value-adding products and services to the customers. According to this interpretation, the quality of all functions of the company leads to good product quality. The methodology has become known as TQM (Total Quality Management). According to Dahlgaard, Kristensen and Kanji "the TQM is a culture of an organization that is committed to reach customer satisfaction, continuously evolving, and involving all employees of the company.[4]

The European Foundation for Quality Management (EFQM) is a non-profit organization aiming to inspire organisations to achieve sustainable excellence by engaging leaders to learn, share and innovate using the EFQM Excellence Model.

„On 15th September 1988, 14 European Business Leaders met with Jacques Delors and signed a „Letter of Intent" to form a European Foundation dedicated to increasing the competitiveness of European businesses (Robert Bosch GmbH, British Telecommunications, Bull SA, Ciba-Geigy AG, Dassault Aviation, AB Electrolux, Fiat Auto SpA, KLM, Nestlé, C. Olivetti & C. SpA, Philips, Renault, Sulzer AG and the Volkswagen AG). The European Foundation for Quality Management, EFQM, was founded in October 1989 when the CEO/Presidents of

[3] Peters, T. – Waterman, R. (1982): *In Search of Excellence*. HarperCollins, New York.
[4] Dahlgaard, Jens J. – Kristensen, Kai – Kanji, Gopal K. (2002): Fundamentals of Total Quality Management. Taylor & Francis, London.

67 European companies subscribed to our Policy Document and declared their commitment to achieving EFQM mission and vision."[5]

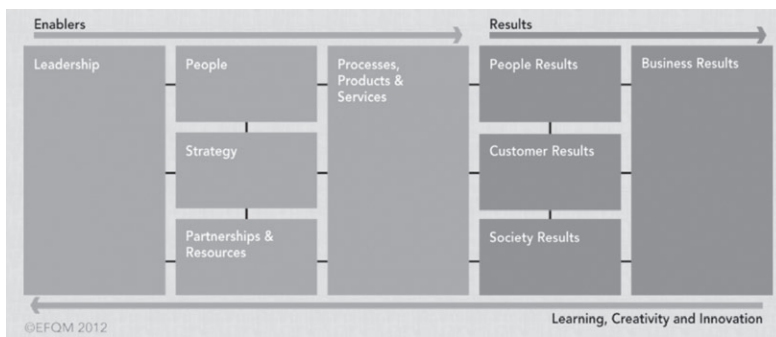
(This model is similar to the Malcolm Baldrige-model used in the United States and the Deming-model used in Japan).

According to the EFQM, *„excellent Organisations achieve and sustain outstanding levels of performance that meet or exceed the expectations of all their stakeholders."*[6]

The Foundation set up a team of experts, from industry and academia, to develop the EFQM Excellence Model (Figure 1), a holistic framework than can be applied to any organisation, regardless of size or sector. This was first used to support the assessment of organisations in the European Quality Award in 1992. The Model has been adapted and evolved over time to reflect changes in the global market place. One thing that has not changed is its objective to increase the competitiveness of European organisations and support the sustainable development of the European economies. The model is the basis for many national and regional quality prizes.

The Model can be applied to any organisation, regardless of size, sector or maturity. The EFQM Excellence Model is based on nine criteria. Five of these are "Enablers" and four are "Results". The „Enabler" criteria cover what an organisation does and how it does it. The „Results" criteria cover what an organisation achieves.

Figure 1: The EFQM Model's 9 criteria



Source: http://www.efqm.org/efqm-model/model-criteria.

To achieve sustained success, an organisation needs strong leadership and clear strategic direction. They need to develop and improve their people, partnerships and processes to deliver value-adding products and services to their customers. In the EFQM Excellence Model, these are called the Enablers. If the right

[5] http://www.efqm.org/about-us/our-history.
[6] http://www.efqm.org/efqm-model/fundamental-concepts.

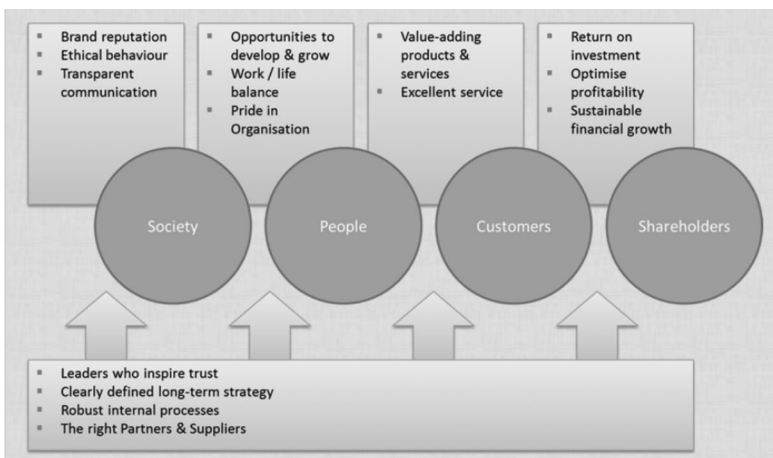
Enablers are effectively implemented, an organisation will achieve the Results they, and their stakeholders, expect.

- The EFQM conceptualized four core values, as follows:
- Being passionate about excellence (promote excellence and inspire excellence in others)
- Building trust (through reliable, open and transparent behaviour)
- Working in partnership (develop partnerships that generate mutual benefits for the community)
- Engaging people (embrace diversity and respect people's beliefs and opinions)[7]

These core values, such as building trust, cooperating, achieving mutual benefits and engaging people, are core components of excellent communication, as well. Consequently, in order to achieve these core values an excellent communication management is needed. If organizations want to be attractive to potential customers, partners, employees and investors, they need to have a strong brand reputation. They need to be able to demonstrate that they adopt the highest standards of ethical behaviour in all their actions. They need to have transparent and proactive communication and reporting to build this trust.

To ensure sustainable financial growth, the organizations need to keep their customers satisfied. To do this, they have to develop and deliver products and services that add value to them. They also need to deliver excellent service to maximise retention, loyalty and their reputation (Figure 2).

Figure 2: The need for a model



Source: http://www.efqm.org/efqm-model/the-need-for-a-model.

[7] http://www.efqm.org/about-us/our-mission-vision-values.

The communication of excellent organizations contributes to their effectiveness and successful operating. Building trust and reputation belong to the area of strategic communication management, which is equal to Public relations (PR) activity. Strategic communication management is the most rapidly growing area of management sciences, multidisciplinary science and practice, with roots in several areas of social sciences. In Anglo-Saxon literature the concepts of Public relations strategic communication management are used as synonyms.[8]

During the short history of professional PR plenty of theories emerged in this new field. Although there are several thousand different definitions of PR, there is not one universally agreed definition of it, as is typical in the case of a relatively new science. However, all these definitions highlight the fact that *PR is about managing communication in order to build (establish and maintain) good (mutually beneficial) relationships and mutual understanding between an organisation and its most important audiences (on publics on whom its success or failure depends).* Tench, R. and Yeomans, L.[9] divided these theories into four groups, namely *normative (systems) theories* (Excellence" PR, Critiques of „excellence", Evolving „excellence", Open systems), *extending the systemic view* (PR as relationship management, Practitioners roles, Cultural context), and *alternative approaches* (Critical theory, Rhetorical perspectives, Feminist view of PR) and *diversity in PR* (Postmodernism, The public sphere and PR, Complexity, ecology and PR, Sociological approaches to PR, PR as a cultural phenomenon).

Most of the approaches – especially the excellence theory - represent the rational models of strategic communication management[10] and interpret the communication as a key management function. The sociological approach,[11]the critical approach[12] and the rhetorical approaches[13] represent the functional-effectiveness-oriented perspective.

[8] Tench, R. – Verhoeven, P. – Zerfass, A. (2009): *Institutionalizing Strategic Communication in Europe – An Ideal Home or a Mad House? Evidence from a Survey in 37 Countries.* International Journal of Strategic Communication. 3(2). 147–164., 148.

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There are several books which highlight the effects of globalisation, the cultural context and strategic thinking on PR practice and theory such as Gregory,[14] Sriramesh, Dejan and Vercic eds.,[15] Heath ed.,[16] Freitag and Stokes eds.,[17] Bardhau and Weaver eds.,[18] Weintraub and Pinkleton,[19] Cutlip, Center and Broom[20] among others.

Hungary belongs to the so-called transitional countries of Central and Eastern Europe. "The region is characterized by common processes and trends such as democratization and the development of a free-market economy. There is a general overview about their cultural profiles, significant historical, political, economic and social factors that influenced the development of public relations, as well as the current state of the profession".[21]

Reputation is one of the most significant intangible assets of a company. As Charles Fombrun said, "long ignored, intangible assets are now gaining increased notice. In the last few years those of us who study corporate strategies have begun to recognise that intangible assets may well provide companies with a more enduring source of competitive advantages than patents and technologies".[22] In his book he demonstrates how great the economic returns to reputation really are.

In the last decade many scientific publications have emerged in Hungary, as well.[23]

As the importance of reputation increases the number of measuring instruments has also grown. There are many of them, and the most known and accepted system is the RepTrack model developed by the Reputation Institute in the US (Figure 3).

[14] Gregory, A. (2010): *Planning and Managing Public Relations Campaigns: a strategic approach*. (3rd ed.) Kogan Page, London.
[15] Sriramesh, K. – Vercic, D. (eds.) (2009): *The global public relations handbook: theory, research, and practice.* Routledge, New York.
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Figure 3: RepTrak-model

Source: author's own based on OIV database.

This decision tool is the global gold standard for reputation measurement and management. This tool earned its place as the gold standard by showing executives that they can reliably measure and communicate global reputation metrics for companies, countries and cities – and see trends in that data over time. This methodology is fully flexible; it is used globally and can be adapted to the specific needs of any organization, country, and city.

It has seven rational (performance, product/service, innovation, workplace, governance, citizenship, leadership) and four emotional components (esteem, admiration, trust, and feeling). Based on the opinion of the most important stakeholders, we can give an overall picture about the appropriate organization's reputation.

Comparing these two models and their criteria for excellence (Table 1), we can conclude that there are many similarities and identities between them.

Table 1: Comparing EFQM and RepTrack models as tools for measuring excellence

EFQM	RepTrack	Nature of the factors
ROI, sustainable financial growth	performance	rational factors
processes, product and services	product/service	
Learning, creativity and innovation	innovation	
people (opportunities to develop, work-life balance, pride in organization	workplace	
right partners and suppliers	governance	
partnership	citizenship	
leadership	leadership	
reputation	esteem	emotional factors
ethical behaviour, transparent communication	admiration	
inspire trust	trust	
all above	feeling	

Source: authors' own.

In the next part of our paper we give some examples of connection and coherence between excellence in communication and excellence in performance.

3. METHODOLOGY AND SAMPLE

In the first part of our secondary research the sample was selected. The examination was conducted among the organizations that won the National Quality Award between 1996 and 2011 (Table 2).

As recognition for the activity of outstanding performing business organizations, the National Quality Award was established by the Prime Minister of Hungary in 1996. This award is based on the EFQM Excellence Model. The prize can be won through competitions and it can be awarded in four categories: small, medium and large production/service company. The award is presented in the Hungarian Parliament on the World Quality Day.[24]

Table 2: Allocation of the National Quality Award organizations (1996–2011 in Hungary) based on sectors

Sector	Number of winning organizations
Automotive industry	12
Waterworks	10
Schools	8
Transport companies	7
Building industry	7
Municipal offices	5
Electricity Supply Companies	4
Hospitals	3

Source: authors' own research (2015).

[24]http://www.felvi.hu/felsooktatasimuhely/avir/fogalomtar/defmart/!DefMart/index.php/Nemzeti_Minőség; World Quality Day was introduced by the United Nations in 1990 to increase worldwide awareness of the important contribution that quality makes towards a nation's and an organisation's growth and prosperity. The purpose of World Quality Day is to promote awareness of quality around the world and to encourage individuals' and organisations' growth and prosperity. In a global economy where success depends on quality, innovation and sustainability, World Quality Day is your chance to reinforce these as the foundations of your organisation and focus on the importance of quality. The term quality is everywhere, in all aspects of life. For organisations, however, deploying quality approaches is a prerequisite for creating a sustainable business.

- Quality approaches can benefit your organisation in many ways. It can:
- Improve customer satisfaction
- Reduce costs and improve profitability
- Support improvement and innovation
- Help to identify and manage risk
- Ensure corporate care and responsibility

http://www.thecqi.org/Community/World-Quality-Day/Why-quality/

- Automotive industry (6)
- Opel Magyarország Járműgyártó Kft. (Opel Hungary Vehicle Manufacturer Ltd.)[25]
- SAPU Ipari és Kereskedelmi Bt. (SAPU Industrial and Commercial Ltd.)[26]
- WET Automotive Systems Magyarország Kft. (WET Automotive Systems Hungary Ltd.)[27]
- Alcoa Európai Keréktermék Kft. (Alcola European Wheelproduct Ltd.)[28]
- HÖDLMAYR Hungária Logistics Kft. (HÖDLMAYR Hungary Logistic Ltd.)[29]
- Jabil Circuit Magyarország Kft. (Jabil Circuit Hungary Ltd.)[30]
- Waterworks (3)
- Pécsi Vízmű Kft. (Pécs Waterworks Ltd.)[31]
- Nyírségvíz Nyíregyháza és térsége Víz- és Csatornamű Zrt. (Nyírségvíz Nyíregyháza and Region Water and Sewer Works Company)[32]
- Észak-Magyarországi Regionális Vízművek Zrt. (North Hungarian Regional Waterworks Co.)[33]
- Hospitals (2)
- Zala Megyei Kórház (Hospital of Zala County)[34]
- Szabolcs-Szatmár-Bereg Megyei Önkormányzat Jósa András Oktató Kórház (jósa András Training Hospital of Szabolcs-Szatmár-Bereg County's municipality)[35]

[25] Sáfár M. – Háry A. (2006): *A CSR megértése és megvalósításának modellje a General-Motors Powertrain -Magyarország Kft-nél*. Magyar Minőség 2006. 8. 36–40.; Sáfár M. (2007): *Tapasztalatokból tanulás, a tanulás gyakorlata.* Magyar Minőség 2007. 1. 22–25.
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[35] Csikai S. (2009): *A holisztikus szemlélet szerepe a Jósa András Oktató Kórház Minőségirányítási Rendszerében*. Magyar Minőség. 2. 33–35.; Borsi B. (2011): A közszféra innovációinak támogatása minőségirányítással a Jósa András Oktató Kórház példája az oktatási szektor számára. Magyar Minőség. 1. 6–21.

Following the selection of our pattern, the research was continued with the examination of professional journals of quality (Magyar Minőség – Hungarian Quality).

The following questions were formulated:

- How often do the selected organizations appear in the examined journal?
- How do they spread the culture of excellence? What kind of reputation elements can we identify in the case of particular articles, using the RepTrack-model?
- Who (which person in which position) does the communication in the case of the selected organizations?

The collected data were analysed, and the typical sectorial/industrial characteristics were explored.

4. RESULTS

Public relations activities in quality journal of the National Quality Award companies operating in the field of vehicle production and engineering

The frequency of the appearance in the Hungarian Quality journal in the case of these six companies is equal. We can conclude that the editors of the journal pay attention to the same amount of communication of the National Quality Award organizations. Most of the press coverage – 70-75% – is related to the celebration of the National Quality Award, to the engagement of the National Quality Club and to taking part and giving presentations at conferences. Generally, it can be said that the appearances were frequent mostly in the year of gaining the award and in the following few years.

We can say that the National Quality Award Organisations apply only a few elements of the RepTrack-model in their appearances: the rational elements of the model can be identified by each company. However, we couldn't find emotional elements in any case. The companies did not consciously use the model for their appearance in the journal.

Public relations activities of the National Quality Award waterworks companies in the quality journal

Water companies provide a public service for citizens, so special attention is paid to their communication activities. If citizens are satisfied with the companies' work then honour and trust directs toward them.

The evaluation criteria are as follows: continuity of service, operational safety, service quality, meeting public health requirements, service precision, long-term sustainability, environmental aspects, and stability of husbanding,

communication skills, image, quality and quality of relationships of the organization. Water works - although they are business organizations – are rather similar to the non-profit orientation of public services than the classic market actors interested in income and profit.

The Hungarian Water Utility Association (MaVíz) is an independent organization. Its main objective is to bring together the waterworks organizations and to support their service activities and development. The MaVíz created a public relations group for nurturing the waterworks' reputation.

The appearance of the waterworks in the journal is more frequent than that of the automotive companies. Annually 4-5 reports are published relating to their quality management activities. In the articles they consciously apply the rational elements of the RepTrack-model, but we couldn't find any evidence of the use of emotional elements.

The authors of these articles were always the quality managers of the particular companies.

Public relations activities of the National Quality Award hospitals in the quality journal

The concept of health-PR is summarized by Jancsó PR (2007) as follows:

"On the one hand, the aim of the health-PR is the conscious public health promotion, which takes place by mutual communication of the state, the health care organizations and the society. This activity is directed both to formulate and change of the mind-set of people regarding to the health system as supply system, furthermore to rearing them for healthier lifestyle. On the other hand, it refers to the communication based on mutual benefits between a nation's business organizations and the society, which aims to strengthen trust and reputation of the particular organization, through the commitment to health."[36]

With regard to frequency of appearances, the two hospitals are equal in the professional journal. The appearances are continuous, so we received information from each hospital in each year between 2003 and 2011. This can be explained by, on the one hand, the fact that the Hospitals' employees participate regularly at the conference as speakers (e. g. Deming Conference). On the other hand, we can speak about two organizations, developing and applying new methods of knowledge sharing. In the articles regarded these hospitals the emotional elements of RepTrack-model have appeared, besides the rational elements.

[36] Jancsó K. (2007): *PR az egészségügyben. A Magyarországon jelenlévő nagyvállalatok CSR tevékenysége az egészségügy területén*. http://elib.kkf.hu/edip/D_13750.pdf (downloaded: 15. 01. 2014).

5. CONCLUSION AND DISCUSSION

In this paper we reviewed the PR activity of organizations, which won the National Quality Award (vehicle construction and mechanical engineering, waterworks and hospitals), highlighting the elements of the RepTrack-model corporate reputation model. The findings are summarized as follows:

The elements of the RepTrak-model and the EFQM models have similarities regarding excellence.

To the research questions we can give the following replies:

How often have the selected organizations appeared in the journals?

Articles relating to the particular automotive companies were published in same amount. From this we can conclude that the editors of Hungarian Quality journal paid equal attention to the appearance of various companies. The waterworks and hospitals communicated twice as often as the former sector. These organizations play an active role in the work of the professional quality associations.

How do the selected organizations disseminate the culture of excellence? Which elements of the Corporate Reputation can be identified based on the RepTrak-model while investigating the selected organizations?

As a result of the investigation of the articles on the selected organizations we can conclude that in the case of the car industry and water utilities the shared information was mainly related to product, innovation and work conditions. In the case of the waterworks a new topic appears after 2010: Corporate Social Responsibility (CSR).

In the case of the hospitals the following areas are significant in terms of communication: governance, leadership, workplace and CSR.

We were able to identify the rational elements of RepTrack-model in the case of vehicle production/engineering and waterworks, while emotional elements were identified only in the case of the two hospitals.

In what position is the person who is responsible for the communication of the selected organizations?

In the case of the automotive companies the author of the articles is the senior quality leader. In all cases of waterworks the quality managers are responsible for this communication. In the case of hospitals, heads of various departments are the authors (e. g. nursing department, quality assurance department).

In the sectors (automotive industry / mechanical engineering, waterworks, hospitals) where the organizations undertook to learn and disseminate/communicate the culture of excellence, the number of outstanding organizations has increased.

The research could be continued with investigation and a comparative analysis of various forms of appearance (e. g. website, conferences and other events).

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• http://www.thecqi.org/Community/World-Quality-Day/Why-quality/

HUNGARIAN SUMMARY

A tanulmány a Public Relations (PR) tevékenység és a vállalati hírnév összehasonlító elemzésének néhány eredményét mutatja be. A vizsgálat alapját az 1996 és 2011 között Nemzeti Minőség Díjat nyert vállalatok minőségügyi szakfolyóiratokban való megjelenése adta. A kiválasztott szervezetek közül 6 autóipari vállalat, 3 vízmű és 2 kórház volt, amely esetében a megjelenés gyakoriságát, tartalmi oldalról a vállalati hírnév elemek azonosíthatóságát és a kommunikációt végző munkatárs státuszát vizsgáltuk.

Az elméleti hátteret a kiválóság fogalmának PR és minőségügyi oldalról való megközelítése, továbbá az EFQM (kiválósági) Modell és a Rep Trak (vállalati hírnév) Modell bemutatása jelentette. A vizsgálat során arra a következtetésre jutottunk, hogy az EFQM és Rep Trak Modell sok hasonló, sőt azonos elemet tartalmaz. A hírnév modell racionális elemeit az autóipari vállalatoknál és a vízművek esetében, a modell emocionális elemeit a kórházak esetében lehetett azonosítani.

Bishop Apor Vilmos square

PÉTER HUSZKA – RÉKA LUKÁCS[1]

A Study of Health Behaviour Among Students

Health status in Hungary has been deteriorating since the mid-1960s, with the result that Hungary lags behind countries – mainly Western European – with developed health cultures. Taking this into consideration our scientific interest turned to the examination of health awareness, drinking and smoking habits, healthy lifestyles and state of health and environmental awareness of adolescents and youngsters. To realize these tasks, during the set-up of the sample our aim was to provide representativeness and randomness. Our research found that those pupils, who had a harmonious relationship with their parents, maintained a lower level (substance abuse) smoking and smoking frequency characteristic. No less important is the observation that youngsters try out smoking at an ever-younger age, but they are far too optimistic in assessing their own health.

INTRODUCTION

Due to changes in the social environment, the youth generation of our days in undergoing changes. The role of the family and the school is decreasing in the socialization of young people, while that of friends is increasing, and the influence of media – first and foremost the electronical media – and consumer industry is growing. Pressures of time and performance, early autonomy, challenges and growing competition increase the vulnerability of youth; as a result many turn to stimulants.

The domestic deterioration in health care has been evident since the mid 60's; as a consequence of this Hungary has started falling behind more and more compared to – mostly Western-European – countries with a more developed health care culture. Health care conditions of the population are even worse than what might be explained by the country's state of economic development. In an international comparison, Hungary is still near the top of the list. Parallel to these phenomena, teachers working in public education are

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more frequently exposed to the kind of students who display deviant behaviour, drink, and smoke or bully their classmates before and after school, or indeed during class as well.

The new political and economic atmosphere has made society freer and more open, but this state itself has brought about the rise of undesirable phenomena that often shock society, the young generations included. Society was not fully prepared for the sudden arrival of liberalism. As a consequence of economic production and profit-pursuit, the transformation of society, the growth of unemployment, the sudden sweep of sexual freedom and its media represenation , there is a remarkable increase in smoking, drug – and alcohol consumption and a growth in suicide numbers; furthermore as a result of these phenonoma, the decomposition of families manifests itself in numerous cases in students' attitudes towards studying and during their integration into school life.

In accordance with the above, the centre of my research – partly due to those 20 years I spent in public education – focuses on the mental health of students, and has aimed to examine those external and internal factors that influence or might influence a personality's transformation, either in a negative or positive direction. All these were motivating factors to examine health-consciousness, lifestyle and health attitudes of the 13-25 year-old age group.

According to Baum, Krantz and Gatchel (1997),[2] health attitude is the sum of those behavior types in connection with health, that as the element of healthy lifestyle manifest themselves in the behavior arising from health needs and health motivations.

It is important to mention and clarify that in modern marketing, the approach stating that companies must satisfy customers' short-term needs in the most efficient way is overshot. Short-term needs of customers often conflict with the long-term interests (health conditions, improvement of the quality of life, avoidance of environmental pollution) of customers and society. This is especially true among youngsters, who nowadays insist on making their own decisions regarding their lives and act offended if they are not served with tobacco products or alcohol; namely they are being restricted in their independent autonomy.

Health behaviour among young people is becoming worse according to national and international literature. Harmful health behaviour habits are being developed at an ever younger age. When teenagers display unhealthy behaviour habits (e.g. smoking and alcohol consumption) at an early age, new risk factors appear (e.g. illegal drug consumption); furthermore it has been noted that they also develop unfavourable eating habits, sexual relationship

[2] Baum A. – Krantz, D. S. – Gatchel, R. J. (1997): *An introduction to health psychology.* McGraw-Hill, New York.

and leisure activities.[3] More and more members of the young generation drink alcohol; moreover they try alcoholic beverages at a younger age. One of the principal reasons for this phenomenon is called „Alcopop": a mix of soft drink and alcohol.[4] The age when regular alcohol consumption begins is 13 years old, but 1% of 11-year-olds drink alcohol regularly according to some other surveys. Every fifth 14-year-old drinks alcohol every week. 50% of 16-17-year-olds consume drink with a high alcoholic content at least once a month.[5]

These days increasing health consciousness is a megatrend, the health market is expanding, the role of the health is being revaluated and people spend more and more on health products and preventative care. This phenomenon results in expanding markets, e.g. food markets, pharmaceutical markets, several health promotion services.[6]

The object of the study examines how the extent of health conscious living affects the lifestyle of the young generation. We can read widespread scientific literature on youth health behaviour, but we do not really know how they think. Do they know the harmful effects of smoking and drinking alcohol? Are they interested in these damaging effects at all? Does the megatrend have any bearing on this generation? How are they health conscious?

It is worth emphasizing the importance of this research since adolescence is an important phase of human life when those habits develop that will have an impact on our health throughout our whole lives.[7]

During this research I explore what motivates and influences youngsters in the consumption of harmful substances, while at the same time demonstrating how important a health-conscious lifestyle is for them.

The study presents as follows the material and method of the analysis, the theoretical background of the study using the most important literature and the secondary and the primary research. The primary research includes the students' perception of their own health and their attitudes towards health

[3] Füzesi Zs (2004): *Népegészségügyi Jelentés 2004. Szakértői változat.* Egészségmagatartás. Johan Béla Országos Epidemiológiai Központ, Budapest.
[4] Bacardi-Martini GmbH (2006): *Bacardi Marktbericht 2005.* Schriftliche Mitteilung von Gerhard Manner, Wien; Bacardi-Martini GmbH (2008): *Mitteilung über IWSR (International Wine and Spirit Record). Zahlen für RTD (Ready To Drink) in Österreich.* Schriftliche Mitteilung von Mag. Leopold Machacek, Wien.
[5] Ehrenstein, C. (2007): *Alkohokonsum von Jugendlichen steigt an.* www.welt.de/politik/article1288489/Alkoholkonsum_von_Jugendlichen_steigt_an.html. 22.10.2007.; Currie, C. – Hurrelmann, K. – Settertobulte W. – Smith, R. – Todd, J. (2000): *Health and Health Behaviour Among Young People.* World Health Organization (WHO) Regional Office for Europe, Copenhagen; Currie, C. – Gabhainn, S. N. – Godeau, E. – Roberts, Ch. – Smith, R. – Currie, D. – Picket, W. – Richter, M. – Morgan, A. – Barnekov, V. (2008): *Inequalities in Young People´s Health HBSC. International Report from the 2005/2006 Survey.* World Health Organization (WHO) Europe, Copenhagen.
[6] Törőcsik M. (2011): *Fogyasztói magatartás.* Akadémia Kiadó, Budapest.
[7] Aszmann A. (2003): *Iskoláskorú gyermekek egészségmagatartása*. Országos Gyermekegészségügyi Intézet Nemzeti Drogmegelőzési Intézet, Budapest.

consciousness and its unwholesome factors. The study concludes with the summary related to youth health risk behaviour.

MATERIAL AND METHOD

The task of the research is to create a reliable dataset with respect to the examination of health consciousness, alcohol consumption and smoking habits; furthermore healthy lifestyles, health conditions and environmental awareness of the 17-19 age group.

The examination was carried out in several steps – and it is planned to be continued in the forthcoming years. The present article describes the attitude of youth towards health. In order to realize these aims and tasks, it was very important to ensure representativeness and randomness while creating the sample from the population. With the help of a previously developed multistage sampling method,[8] multiple representativeness was achieved. I had composed the quota system according to gender and education in a manner that reflects to the given age group.

The basis of reliable results is – beyond representativeness – to ensure the opportunity for random selection. For this, I used the so-called 'n-th method', which means that every person has the same chance of becoming part of the sample.

In accordance with the above explained, questionnaire fill-out was carried out in the 12th grade of the randomly selected educational institutions in such a manner, that in every second school, only one class – in A, B, C sequence - was interviewed. From the rest (odd numbered) schools, I chose two classes randomly (assuming, that there had been more grades in the institution). The questionnaires were filled out by each student of the given class. 188 students were interviewed during the examination.

The large amount of data was processed with the help of SPSS for Windows 14.0 mathematical-statistical program. By using the program, I examined the correlation of the variables to each other and to background variables with the help of frequency distributions and cross-tables. Besides mean calculations, I also made significance-tests with the Chi-squared test.[9]

[8] Szakály Z. (1994): *Korszerű állati eredetű alapélelmiszerek piacképességének vizsgálata.* Kandidátusi értekezés. Kaposvár; Huszka P. (2006): *A tejtermékfogyasztás szerkezeti változása a vásárlói magatartás függvényében*. PhD értekezés, Kaposvár.
[9] Malhotra, Nareshk (2001): *Marketingkutatás*. Műszaki Könyvkiadó, Budapest.

RESULTS AND THEIR EVALUATION

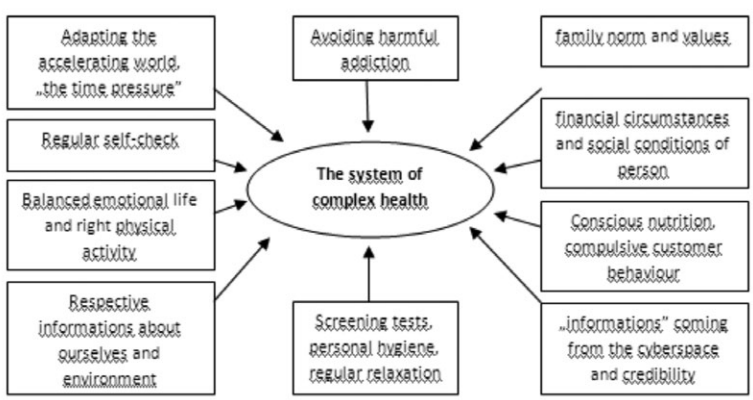
According to the aims set for the research and the methodology logic that has been drawn up, secondary results will be presented first, to be followed by the results of the primary research. Let us review first what factors frame health, the individual's health behavior and what the elements of it are. Good health is not in the interests of the individual only, but of society as well, as the individual – as a potential source of labour– is an important element of the production process, thus preserving its health is a fundamental task of the society.

Health behaviour/consciousness and its elements

Health has been explained by many people in many ways similarly to those factors that mostly impact the health of our body. According to Baum, Krantz and Gatchel (1997),[10] health behaviour and health-consciousness are all those attitudes, that may affect our health, while we are healthy.

According to Harris and Guten (1979),[11] health behaviour is all those actions that we do in order to protect or sustain our health, irrespectively of our actual health condition and whether that given behaviour is objectively efficient.
The most important elements of health behaviour are illustrated by Figure 1.

Figure 1 : The complex system of health-behaviour



Source: based on Harris & Guten's (1979) study, own research and edition, Huszka (2012).

[10] Baum A. – Krantz, D. S. – Gatchel, R. J. (1997): *An introduction to health psychology*. McGraw-Hill, New York.
[11] Harris, D. M. – Guten, S. (1979): *Health protecting behaviour: An exploratory study*. Journal of Health and Social Behaviour. 20. 17–29.

It is clearly visible in the illustration that health behaviour is a complex system that consists of physical activity, mental health, conscious nutrition, hygiene, and last but not least, the avoidance of harmful drugs, namely avoiding substance abuse. Regular self-check ups and screening tests are also connected strongly to them (Harris – Guten, 1979.). A similar coherence-system to the one described was introduced by Biró (2008),[12] who systematized the influencing factors of optimal health in his study.

The complex system includes also the financial and social circumstances of a person because these influence the qualtiy of nutrition or the accessibility of the health care services. The complex system contains „time pressure" too because this can be the cause of both psychological and physical illnesses and it may also stimulate the consumption of and dependency on harmful substances.[13]

In order to reach the aims of health-education, forming health conscious behaviour is indispensable. The lifestyles of teachers and their relation to students play a significant role in this.

One of several definitions of health consciousness is "the degree to which health concerns are integrated into a person's daily activities"[14]

Health conscious consumers are motivated to improve and maintain their health which is why they care about healthy behaviour and why they are aware of their health and wellness.[15]

Consumer behaviour is "the behaviour that consumers display in searching for, purchasing, using, evaluating, and disposing of products and services that they expect will satisfy their needs."[16]

Based on Shiffman and Kanuk's (2010) definition of consumer behaviour, health conscious consumer behaviour means the behaviour that people display in searching for, purchasing, using, evaluating, and disposing of healthy products and services that they expect will satisfy their needs for a good state of health. Avoidance of harmful habits is also part of health conscious behaviour. A study of consumer behaviour includes the purchase of unwholesome products and services too.

[12] Biró Gy. (2008): *A hazai zsiradékfogyasztás változásának közegészségügyi hatásai.* Élelmezési Ipar 62(5). 137–141.

[13] Huszka P. (2012): *Divat a korai dohányzás? – avagy dohányzási szokások vizsgálata a 12–16 évesek körében.* Egészségfejlesztés. 53(4). 9–15.

[14] Jayanti, R. K., – Burns, A. C. (1998): *The antecedents of preventive health care behavior: An empirical study.* Academy of Marketing Science. 26.(1). 9–15.

[15] Newsom J. T. – McFarland B. H. – Kaplan M. S. – Huguet, N. – Zani, B. (2005): *The health consciousness myth: implications of the near independence of major health behaviours in the North American population.* Social Science & Medicine. 60. 433–437.; Kraft, F. B. – Goodell, P. W. (1993): *Identifying the health conscious consumer.* Journal of Health Care Marketing. 13(3). 18–25.; Plank R. E. – Gould S. J. (1990): *Health consciousness, scientific orientation and wellness; an examination of the determinants of wellness attitudes and behaviours.* Health Marketing Quarterly. 7(3-4). 65–83.; Gould, S. J. (1988): *Consumer attitudes toward health and health care: a differential perspective.* The Journal of Consumer Affairs. 22(1). 96–118.

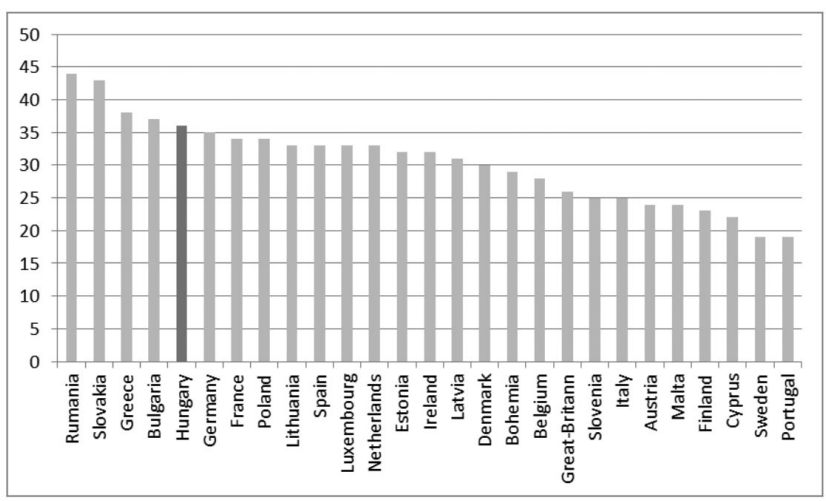
[16] Schiffman L. G. – Kanuk L. L. (2010): *Consumer Behavior: Global Edition.* Pearson Education, Upper Saddle River.

Risk-behaviuor of youth

Smoking, as a habit originating from the American continent, has spread worldwide over the last 500 years. According to Spanish belief, native Indian warriors gained their courage from tobacco. Its European spread was contributed to by Jean Nicot de Willemann, the Ambassador of Lisbon, who was the first person to grow the plant in Europe. The active substance that was discovered later in 1828 when it was named 'nicotine' after him. At the present approximately 1 billion people smoke and yearly 5 million of them die because of their passion.[17]

Until the first third of the 20th century smoking was not considered harmful to health. The first study connecting it with the development of lung cancer was published only in 1950. According to WHO estimations this addiction plays a role in a quarter of all cancer deaths and 15% of mortality as a whole. It is the second leading cause of mortality in the world. The biggest smokers are from European countries and Japan, where a smoker smokes more than 2500 cigarettes a year. In developing countries, smoking is especially popular among men (48%), while in developed countries the proportion of female smokers is generally half that figure (24%). Their number in the developed world – especially in the educated, qualified sectors of the population – is decreasing, while in the developing countries this number is increasing by more than 3% a year. Figure 2 shows the rate of smokers among adults in the European Union. Hungary is in 5th place among the 27 member states.

Figure 2: Rate of smokers among adults in the EU



Source: http://portal.ksh.hu/pls/ksh/docs/hun/szamlap/hosszuel_drg.html.

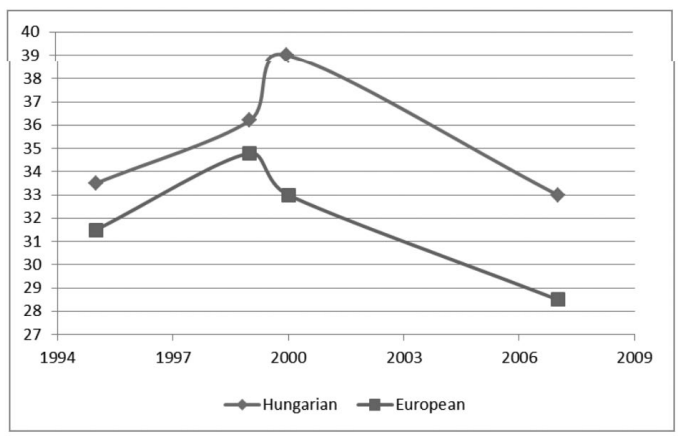
[17] Central Statistics Office, 2009.

The frequency of smoking differs a lot in age and in countries as well. 6% of 13-year-olds smoke, and this frequency triples by the age of 15. The differencies between countries is very apparent in this aspect. For example, 15- years -olds smoke the least in the USA, only 7% of them. However, in Greenland, where the proportion is the highest, more than a third of all boys and half of all girls smoke at least once a week. Every fifth Hungarian youth smokes, this number making us the 10th most frequently smoking country.[18]

Domestic ESPAD research data from 2007 show a diminution in smoking among youngsters (Figure 3). Based on the ESPAD research again, Figure 4 represents the local rate of different types of risk behaviors compared to average.

In Europe, 58% of pupils have already tried smoking. More than ¼ of students smoke on a a monthly basis, while almost every 5th youngster is an everyday smoker. In Europe, Austrian, Czech, Lithuanian and Bulgarian youth smoke the most. Hungarian teenagers are to be found in the middle of the European statistis, but this still means that the proportion of every-day smokers is higher in our country than the average.

Figure 3: Change in the rate of smokers between 1995–2007



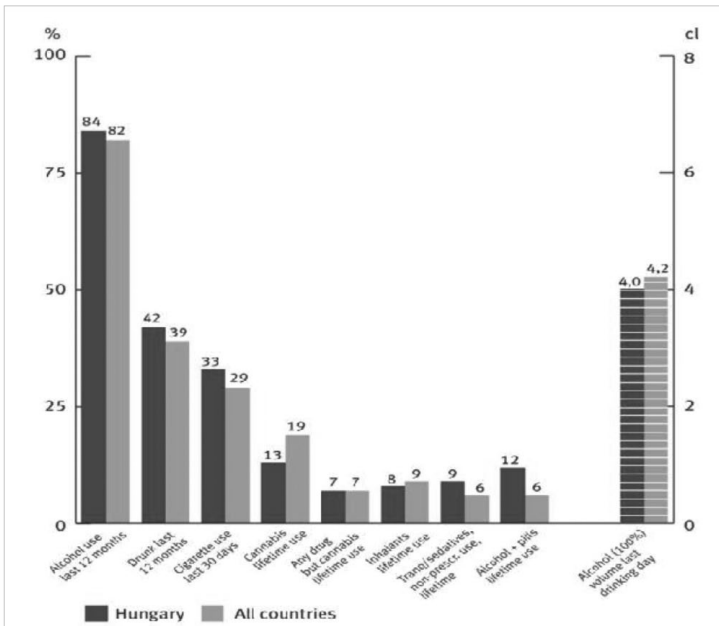
Source: http://www.espad.org/hungary.

According to research, a predominant number of 16-year-old students have already drunk alcohol. Frequent alcohol consumption in Europe slightly decreased in 2007. Among Hungarian youth, this improving tendency can not yet be observed. Here, students drink less, but when they do, then the amount of alcohol consumed approaches the European average. Hungarian teenagers consume less beer, but more raw spirits and drink twice as much wine as their peers.

[18] http://portal.ksh.hu/pls/ksh/docs/hun/elef/kal_gardos.html.

Regarding alcohol, the domestic average is slightly above the European, as 82% of European youngsters have drunk alcohol within the past 12 months, while this rate is 84% in Hungary. During the same period, 42% of Hungarian teenagers got drunk, while the European average is 39%. Alcohol consumption in large amounts (consuming at least five drinks in succession) is also widespread. Although extreme alcohol consumption is more prevalent among boys, differences between the two genders are decreasing throughout Europe and in Hungary as well. Meaning that girls' drinking habits are becoming more and more similar to boys'.[19]

Figure 4: Rate of risk-behaviours compared to average in Hungary



Source :http://www.espad.org/documents/Espad/Documents/The_ESPAD_History.pdf.

During the presentation of secondary results, it is important to mention that when considering risk-behaviour types, such as the penetration, frequency and the impacts of smoking to health, often those kinds of data turn up that partly conflict with each other. As a result of this, all research that aims to examine health-behavioural factors - in our fast changing environment – is indispensable. The present research, among others, is trying to find the answer to these questions by presenting and analysing domestic data.

[19] www.espad.org.

Preservation of health is a basic requirement for a person living in a consumer society. Furthermore, consumption of harmful substances is not a 'unique phenomenon' as in this case it means that frequent smoking goes hand in hand with the consumption of a larger amount of alcohol; more often, however, this statement is also true in reverse.

Examination of consumers' habits and attitudes (primary market research)

The results of the secondary research have made it clear that smoking and drinking alcohol means serious exposure for young people and that there are significant differences worldwide in the frequency and quantity of consumption. The results of the present research will be reviewed in this light below, especially in connection with the effect of smoking and alcohol consumption on health.

We take it that the megatrend, a growing health consciousness does not especially affect the young generation. We can make some hypotheses related to this subject. The first is that the positive microclimate of the family and the school influence the health behaviour of students in a positive way. The second supposition; someone who considers their health to be poor does not care about their health. The third hypothesis is that the warnings placed on cigarette packs do not influence the majority of young people.

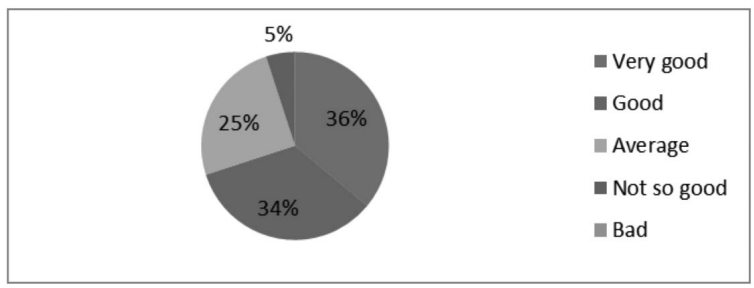
A previous focus group's test results (Huszka, 2010)[20] and the present research results have clearly shown that teenagers are mostly aware of the health risks associated with certain things. The first reaction of the interviewed to the effect of different consumer goods and drugs was that most of them think of the danger of these things, self-destruction, decreased performance and the general detrimental effect on their lives.

Carrying on the research, we tested how the age group perceive their health. Twenty years after the political transition and several national public health-care programs later, the result of the research shows that not everything is in order and peoples' own health perception has not changed practically, but has become exaggerated (Figure 5). Data show that 70% of the members of the age group find their health 'good' and 'very good', while 25% thinks it's 'average'. Only 5% do not find it so good. More detailed examinations point out that members of the last mentioned group 'stand closest to their own reality'. This group includes 'only those high-school students', who use health-destroying 'drugs' every day. According to them they smoke more than 7 cigarettes a day, regularly go out at weekends when they consume a significant amount of alcohol – mostly neat spirits. According to the school type, all of the respondents attend vocational

[20] Huszka P. (2010): *A 12-25 éves korosztály környezettudatosságának és táplálkozási szokásainak vizsgálata a nyugat-dunántúli régióban*. „TANULÁS – TUDÁS – GAZDASÁGI SIKEREK" avagy a tudásmenedzsment szerepe a gazdaság eredményességében. Tudományos Konferencia, Győr. 83–89.

schools and consider themselves to be in a better financial situation than the average. Although the relatively small sample size (9 belonging to this unfavourable group) does not facilitate the performance of in-depth statements, it must be highlighted that 7 girls belong here, each having better study results than the average.

Figure 5: Students' perception of their own health

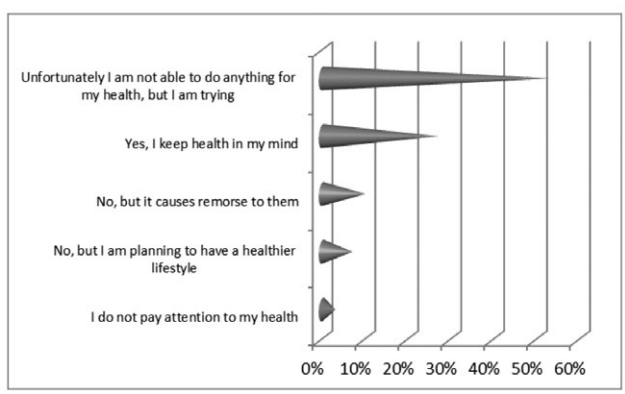


Source: own edition.

It is a sad fact that 68% of all students who regularly consume alcohol and smoke find their health better than the average. Students with an active social life belong to this second group, but ¾ of the group members smokes 'only' 2-3 cigarettes a day and beer, rather than spirits, dominate their alcohol consumption. Most likely they live in towns and their study results can also not be considered as bad. 39% of them live in a one-parent family, in which most of the parents (58%) smoke or drink alcohol on a regular basis.

As the follow-up to the research, students had to answer whether they think they live in a health-conscious way or do everything in order to live that way. The results can be summarized as follows.

Figure 6: Perception of health-consciousness



Source: own edition.

Most of them – meaning 53% - unfortunately, don't always pay attention to their health, despite knowing what would be good for them; they simply don't live like this all the time. Respondents who filled out the questionnaire and the choice of this answer can be described as 'average' in respect to their study results and the income of the family. All together 12 respondents replied that they have taken drugs and they all belong to this category.

The members of this group have extensive friendship groups; they spend their free time together many times a week, which possibly strengthens the consumption of harmful stimulants.

It can be described as favourable, however, that 27% of the students always keep their health in mind (this is not the opinion of the author of the article, only that a much higher rate would be more favourable). Among them, we still can find smokers and alcohol consumers, but their proportion does not reach 10%. These students have balanced family backgrounds; most of them do some kind of sport and study at schools with good reputations. This observation might be one of the most important in the present study. It can be stated that the positive microclimate of the family and school can orient the health behaviour of students in a favourable direction.

10% of the students pay no attention to their health but it is a matter of regret to them. If this group could be positively influenced by their school, family or society to be aware of health matters then the rate of students who pay due attention to health might increase to an acceptable level. This proportion could be particularly favourable if it could also affect those students who take no care of their health but are willing to live healthier in the near future. They form 7% of the students in the sample.

3% of the interviewed pay absolutely no attention to their health. The cross-tabled analysis showed that this group does not equal to the one, previously evaluating their health as bad. The group of 4 girls and 2 boys found their health 'all right' or 'not that good'. It is shocking that girls were in majority here as well, but in this case – as an antagonistic effect – 3 of them attend elite schools. The small size of the sample however did not enable the creation of cardinal statements, but the results of the data are undeniable.

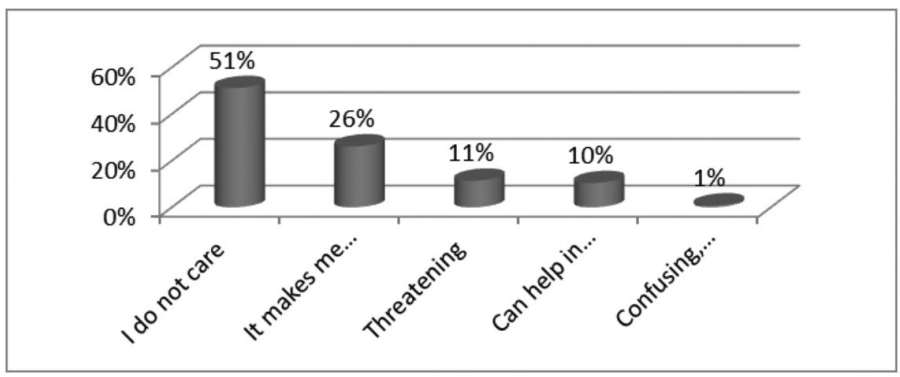
Many of us are not properly aware of the fact that we have a value – our health – and it depends entirely on us how long we actually keep this treasure. We are also not aware that it is not only for ourselves that we should live a long, and more qualitative life, but for our parents as well; particularly as the current political and social structures render it a necessity for us to take care of them. Ultimately we are responsible for the whole society, as for a nation's survival, only health - and environment-conscious individuals can do something in the long run. Raising youth awareness of health, environment and nature is particularly important due to the above viewpoints.

An awareness of the importance of health preservation is obviously based on the above, as if someone does not know or does not acknowledge the value

of health or their health, then they will not accept self-regulating rules. In an absence of these, it is not only the individual but society as well that suffers. Health awareness, as an approach representing value, can be strengthened by those acting within the public – and higher educational sectors, but it must become clear, that dissemination of knowledge/information is not sufficient, as without actively involving those concerned, the problem can not be solved.

As a proof of the above, most of the respondents do 'not care' about the warnings issued by society. Most of the 102 surveyed high-school students are not discouraged by the labels placed on tobacco products, informing and warning them about the risks of smoking (Figure 7). (This question was only 'compulsory' for those respondents, who have smoked before or currently do; in spite of this, some non-smokers filled it out too. The following results contain their answers as well.)

Figure 7: Opinions on warnings placed on cigarette packs



Source: own edition.

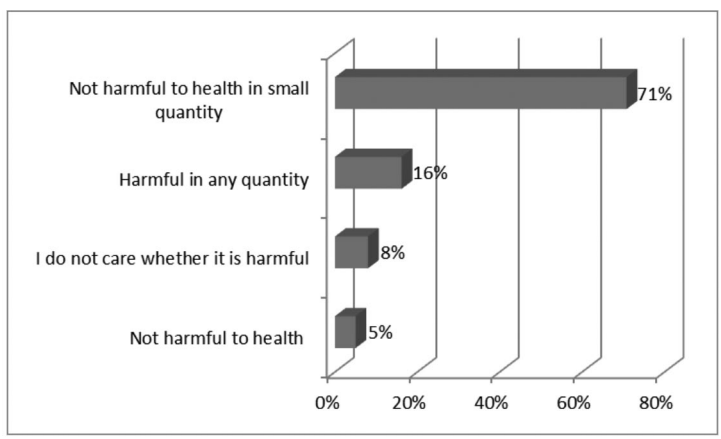
Most of the respondents (51%) replied as 'they don't care'. As a result of this, I assume that today's young generation is not taking risks seriously. The scare tactics of anti-smoking lobbies and marketing campaigns fall on deaf ears as it turns out from my survey that almost half the students don't take them seriously and probably live according to the moto: 'I am still young and I'm not threatened by any illnesses; it can not happen to me'. Discussions during high-school lessons with the form master have also made this 'ostrich' politics clear to me. Of course, there is the other side, which should not be forgotten; those who think about the risks (26%) and feel threatened (11%) and may think that these kinds of tactics can help them give up smoking (10%). These three groups together are still not equivalent to the number of the 'I don't care' group. Non-smokers filling out the questionnaire chose the 'it is worth thinking about' and 'horrific' answers. I believe that this, as a passive prevention method, can definitely be useful in the battle against smoking.

Students collectively replied 'yes' to the question inquiring whether they are aware of the harmful effects of smoking on health. This result also shows that even if they hear the warnings of the media, parents and teachers day by day, they are still not able to see clearly what danger their health is exposed to with the constant presence of smoking.

Besides smoking, alcohol consumption also means a serious problem in youngsters' health behaviour. In the follow-up, opinions of the respondents on the effects of alcohol on health will be reviewed briefly (due to limits in length).

As alcohol consumption is placed by social norms among the activities considered harmful, 16% of the interviewed said that it damages health in every respect. This could be surprising, as during the discussions I conducted in classes, I found that only a very small percentage had thought the same. Those who agreed were mostly girls with excellent study results and boys studying at vocational schools with worse results than the average. This is interesting anyway, and the detection of the causes would be possible with a focus group research. Most, meaning 70% of the respondents think that alcohol is not harmful to health in small quantities. The composition of the group is quite heterogeneous, as a few more girls belong here and in respect to study results, better studying students more often share this view. Those who are of the same opinion consume alcohol mostly at weekends, usually 1-2 bottles of beer, but the rate of the consumption of spirits is one of the lowest (Figure 8)

Figure 8: Students' opinion on the effects of alcohol on the human body



Source: own edition.

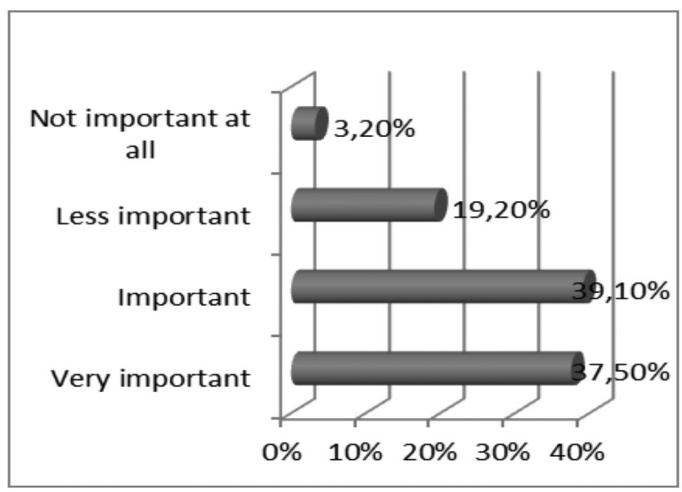
People find it difficult to draw a line between alcoholism and normal alcohol consumption. A lot of research proves that moderate alcohol consumption can be healthy. Unfortunately, this is not usually the situation among high-school students. As proof of this, a predominant number of the interviewed admitted that

they had already been drunk. 22% had been drunk only once in their lives, while as opposed to this, there is a larger number who had been under the 'narcotic' influence of alcohol more; 33% of the students 2-3 times, 9% 4-10 times and 11% of them had been drunk more than 10 times.

These results show that alcohol consumption appears relatively intensive among the youth, and immoderate consumption of alcoholic drinks is not 'far' from them either. Only 5% think alcohol is not harmful to health, but if we add the 8% to this value, who do not care about any harmful effects, we will become a result that is worth to think about. Doing sports usually increases the incidence of occasional alcohol consumption. Before talking about what 17-19 year old think about doing sports, we should highlight an interesting correlation. Among those who have agreed with the answer 'sport is very important to me' in the next question (Figure 9), the proportion of alcohol consumption was surprisingly higher (especially when compared to those choosing the answer 'less important'). In my opinion, this does not mean that alcohol consumption goes hand in hand with sport activities, but as sport brings people together, it often results in friendly beer drinking at the end.

Finally, let us have a look at the opinion of 17-19 year olds on doing sports (Figure 9). 2/3 of the respondents do some kind of sport on a regular basis, such as ball games or swimming, and nearly 70% consciously consume products that contribute to the preservation of their health. Many of them classified yogurt into this category, but 1/3 of the respondents pay attention to the intake of fruit and vegetables as well. More than half of the girls consume fruit juice with pulp regularly, while, among boys, this percentage barely reaches 10%.

Figure 9: The importance of sport activities within the every-day life of students



Source: own edition.

Among the respondents, nearly the same number of people chose 'very important' (40%) and 'important' (39%) answers in respect to the importance of sports. To some students, though, doing sports is not that important (18%) or not important at all (3%). Sports can play an important role in forming a health-conscious attitude and in improving the quality of life. We might think that people doing sports belong to a group having similar life styles and living healthily. But this would contradict the answers given to the question 'whether smoking could be complied with sport activities'. According to this, most of the respondents (61.3%) gave the following answer: 'Yes it could be, if one only smokes occasionally'. The following answer was the rarest: 'Yes, totally' (6.5%). Only 1/3 of the students think that if someone does, they shouldn't smoke.

We believe that behaviour is a complex phenomenon and is not always the result of a conscious decision. As a result of this, if someone looks after their health it does not necessarily mean they are consciously seeking for the same in other fields of life. As a consequence, particular varieties of health-behavioural forms can develop. Correlation of doing sports and smoking or drinking alcohol might occur, which could be explained by a thirst for adventure, rather than a conscious decision-making.

CONCLUSION

Due to changes in the social environment, the youngster and youth generation of our day is undergoing change. The role of the family and the school is decreasing in the socialization of young people, while that of friends is increasing, and the influence of media – first and foremost, the electronic media – and consumer industry is growing. The pressure of time and performance, early autonomy, challenges and growing competition increase the vulnerability of youth; as a result many turn to stimulants.

The task of the research is to create a reliable dataset in respect to the examination of health-consciousness, alcohol consumption and smoking habits; furthermore a healthy lifestyle, health and environmental awareness of the 17-19 age group.

The present article describes the attitude of youngsters towards health and the results can be summarized as follows.

After the twenty years that have passed since the political and system changes and after several national public health-care programs, the result of the research shows that not everything is yet as it should be. People's own health perception has remained practically unchanged yet people tend to overestimate their own level of fitness and well-being.

According to the results, students close to graduation are not aware of the value of their health, and it is not only for themselves that they should live a long, and more qualitative life, but for their parents as well; particularly as the current

political and social structures render it a necessity for the younger generations to take care of them. Ultimately we are responsible for the whole society, as for a nation's survival, only health – and environment-conscious individuals can do something in the long run.

Health, as an approach representing value, can be strengthened by those working within the public – and higher educational sectors, but it must become clear that dissemination of knowledge/information is not sufficient, as without actively involving those concerned, the problem can not be solved.

As proof of the above, most of the respondents do 'not care' about the warnings issued by society. Most of the 102 surveyed high-school students are not discouraged by the labels placed on tobacco products, informing and warning them about the risks of smoking.

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HUNGARIAN SUMMARY

A társadalmi és gazdasági változások hatására napjaink serdülő és ifjúkori generációja változáson megy keresztül. A fiatalok szocializációjában csökken a család és az iskola szerepe, növekszik a barátoké, és egyre fokozódik a média – elsősorban az elektronikus hírforrások – és a fogyasztói ipar befolyása. Az idő és teljesítménykényszer, a korai önállósodás növelik a fiatalok veszélyeztetettségét, mindezek hatására sokan szívesen nyúlnak doppingszerekhez.

A kutatás feladata egy megbízható adatsor felállítása a 17-19 éves korosztály egészségtudatosságának, alkoholfogyasztásának és dohányzásának, illetve egészséges életmódjának, egészségi állapotának vonatkozásában. Jelen cikkben a fiatalok egészséghez való viszonyulása kerül ismertetésre, az eredmények az alábbiakban foglalhatók össze.

A rendszerváltás óta eltelt 20 év és jó néhány hazai népegészségügyi program után a kutatás eredménye azt mutatja, hogy nincs minden rendben, és a saját egészség megítélése gyakorlatilag nem változott, illetve túlértékelté vált.

Az egészséget mint értéket képviselő szemléletet a köz- és felsőoktatásban tevékenykedők erősíthetik, de világossá kell válnia annak, hogy az ismeretterjesztés nem elégséges, az érintettek aktív bevonása nélkül a probléma nem megoldható.

Ezt bizonyítja az is, hogy a megkérdezettek többsége „nem vevő" a társadalomból feléje érkező figyelmeztetésekre. A vizsgálatba vont 102 középiskolás többségét ugyanis nem riasztják el a dohánytermékeken feltüntetésre kerülő tájékoztató és a dohányzás veszélyére figyelmeztető feliratok.

Environmental Science

CECÍLIA SZIGETI[1] – ANITA BORZÁN[2]

Is Eco-efficiency the Way to Becoming More Green or is Everything Swept Away by the Jevons Paradox?

The most striking finding of our analysis is the presence of a limited variation across nations in the ecological footprint (EF) per unit of the GDP. EF intensity is lowest (eco-efficiency is highest) in affluent nations, but the level of efficiency in these nations does not appear to be of sufficient magnitude to compensate for their large productive capacities. These results suggest that modernization and economic development alone will be insufficient to bring ecological sustainability to societies.

INTRODUCTION

The concept and the explanation of „sustainability" is one of the most controversial economic phenomena (Kiss, 2011): the expression is used in connection with almost everything; however, its deeper sense is rarely employed. In our study, based on national GDP and ecological footprint data, we examine one of the fundamental questions of sustainability, namely the macro level of eco-efficiency, as well as the Jevons paradox, which brings into doubt the thesis of the above. This approach is a new and so far lesser-studied aspect of this popular topic, since the publications related to eco-efficiency typically examine the company dimension or the energy sector (Tóth, 2002–2006).

LITERATURE

The key question of the complex program of the ecological sustainability is how the dynamics of economic systems can be harmonized with the dynamics of ecological systems (York, 2008). Owing to the influence of consumer trends like

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environmental awareness and ethical consumer behaviour the value of sustainability and the issue of ecological perspective have raised (Fodor et al., 2011). The so-called IPAT equation is widely-known and provides an analytical framework with apparently obvious conclusions for the conceptual sphere of ecological efficiency. The forty year old written concept of its original form (Ehrlich – Holdren, 1971) has provoked significant impact in the international and the national specialized literature (Alcott, 2005; Takács-Sánta, 2008; Kocsis, 2010).

The equation is the following:

$$I = P \times A \times T$$

I = the impact of the human activity on the natural environment (impact),
P = the population (population),
A = the economic performance per capita (affluence),
T = the technology (technology), which indicates how much environmental effect can be accompanied with the production of economic goods (Bajmócy – Málovics, 2011). The most ambiguous part of the IPAT equation is the technology (T), which can be quantified at most indirectly only with the knowledge of the other three parts of the equation (Kocsis, 2010).

In connection with sustainability, in the literature and political and public debates, opinions about the role of general technological changes and innovation are shared widely. In certain approaches, fundamentally, the technological changes make it possible to move towards sustainability. For instance, the precision cultivation has become common in agricultural production nowadays, and with the help of place- specific treatments, they are able to considerably reduce the use of chemicals, which can establish on one hand, the natural sustainability, on the other hand, partly the economical sustainability, as well (Auernhammer, 2001; Szabó – Katonáné, 2008; Takács-György, 2012; Takács-György et al., 2013).

However, according to other opinions, technological change is a part of the problem and not the solution (Bajmócy – Málovics, 2011). William Stanley Jevons (1865) wrote down one of the best known paradoxes of ecological economics in his book of *The Coal Question*. Jevons observed that although industrial coal consumption has became more efficient – the production of more products became feasible from unit coal quantity – the absolute coal consumption increased: „It is wholly a confusion of ideas to suppose that the economical use of fuel is equivalent to a diminished consumption. The very contrary is the truth" According to York (2008), its reason is that as a result of more efficient use of the coal, the cost of the coal per capita decreases, which leads to the increased demand for coal, other energy resources are substituted by it, and money is invested in technologies applying coal.

As a fact, it can be laid down generally that the savings gained by the increase of eco-efficiency can almost never be realized completely. Especially in case of

those resources, which can be applied widely it can be expected that the use of a given resource is going to be increased, even more than the absolute resource use of the whole economy. In sense of the rebound effect, it can be assumed that the increase of eco-efficiency in itself is not enough to encourage sustainability; indeed, in a given case, it can produce the contrary effect (Málovics – Bajmócy 2009). Numerous observations reinforce the fact that specific efficiency gain (for instance the increase of eco-efficiency) extends the extent of the change of the biosphere on an absolute level (Málovics 2009). Sebestyénné Szép (2013) confirms that the rebound effect, as an existing phenomenon, can be realized in Hungary as well. So, as the energy efficient arrangements, in parallel with energy efficiency, can contribute to preserve disposable energy resources to a less degree, for this reason, the restriction of the energy use must be enforced.[3] According to Tóth (2003), eco-efficiency has its limits (Laws of Thermodynamics), therefore its increase can be realized only for a certain time. Over and above, the growing population, as well as consumption, can be claimed to be enough to implement sustainable development[4][5].

The popularity of this issue can be well realized by several summing studies (Alcott, 2005; Missemer, 2012; Sorrel, 2009) and book (Polimeni et al., 2008), that describe the appearing forms, validity and solving possibilities of both the Jevons paradox and the rebound effect, too. The studies tend to typically examine the issue from the perspective of energy-saving – energy- efficiency (Sebestyénné Szép, 2013); however, it can be justified with the help of the example of water consumption (Dumont et al., 2013). Daly (2013) mentions the Jevons paradox among the most important economic development-related contradictions. According to Jaeger (1995), the dissenting perspectives of economists and environmentalists regarding sustainability as well as economic development can be well shown by Jevons theory.

Based on the studies of Bunker (1996), the whole world economy can be characterized as a set of resources – in which efficiency significantly improves (the economic output per unit of natural resources); however, the complete resource-consumption of the global world is continuously increasing. Similarly, York and his colleagues (2004) have showed that on a national level, the considerable material abundance can go both with higher eco-efficiency of the whole economy (GDP release of unit „ecological footprint") and with higher ecological

[3] It is also worth to thinking about to what extent the not sufficiently utilized efficiency development can be explained by the legal and institutional environment. It is possible to read about the power of different lobbies influencing the rules of law in the research of Pintér (2014).
[4] The problem can be examined in the field of tourism as well; besides it can also be discovered that the fundamental principles related to sustainability are enhanced comparing to other fields in several cases (Szabó 2014a).
[5] The terms of eco-efficiency as well as sustainability are closely connected to the concept of social responsibility and participation (Reisinger, 2009, Reisinger, 2013); a citizen who is active on local level can do much more about increasing efficiency.

footprint per capita. It suggests that the empiric circumstances characteristic of the Jevons paradox can often be applied to higher levels. The strategic importance, the restrictions, and the applicability of the ecological footprint index have been reinforced by a number of studies (Csutora, 2011; Csutora – Zsóka, 2011). One of the most important objections against the GDP is that it considers every kind of economic activity identically, not taking into account its effect on consumption or its social benefits (Márki-Zay, 2005). The economic subsystem is not almighty and unlimited and if we forget about it, it can cause unforeseeable social and ecological dangers (Győri, 2010). For this reason, connecting diverse data (macro-economic, budget, etc.) to the GDP will result in a number of distortions (Csiszárik-Kocsir – Fodor, 2013).[6]This situation is worsened by the crisis (Csiszárik-Kocsir, 2013). The spatial densifications, which apply GDP as one of its indicators, can also show significant spatial differences (Szabó, 2014b). According to Varga (2013) the economic situation of a nation cannot be measured by its GDP, because competitiveness or welfare mean a lot more than material wealth.

At the same time, in spite of several critics and suggestions for development, to the present day, it is seen as the most accepted indicator.

MATERIAL AND METHOD

In the first part of our study, we present the results of literature research, which we have done with the help of the free ScienceDirect database of one of the biggest scientific journals published by the Dutch company, the Elsevier. This publisher mainly deals with issuing the well respected magazines in the field of natural science, besides publishing hundreds of magazines dealing with economy and management, including the determinative alternative economical magazines, such as *Ecological Economics (IF: 2,855)* and *Ecological Indicators (IF: 2,89)*. In the ScienceDirect 2500 journals, 20000 books and more than 12 million scientific articles can be found and downloaded. The articles can be found based on different dates or the most often downloaded publications can be seen according to a field of science and journals. A variety of options are available; we can search with simple or combined search using the name of the author, the title of the article or to keywords, which can be narrowed down by giving the language, the name of the magazine, the topic or the date of the publication. The frequent filtering options and the user-friendly interface of the searching site give grounds for our choice of ScienceDirect in our examination. Within the scope of the examination, we were looking for those articles that include

[6] Outcomes distortion interrelated with data collection, meaning, application is observed and pronounced phenomenon even the cleverest in other fields of economic research. (e.g. Farkas–Kovács 2010, Kovács 2011, 2013, Koppány–Kovács–Szabó 2013, 2014)

the Jevons paradox as well as eco-efficiency (eco- efficiency expressions). The number of the articles and essays have been classified based on their publication year and they have been described in a rectangular coordinate system in the following way: the numerical values of certain years show the number of the article containing the requested expression published by that publisher in a given year.

In the second stage of our study, according to the research of York et al (2004), we were trying to find an answer to the question, whether the connection described by the author can be observed 10 years after the first examination: on a national level, considerable material abundance is entitled both by the higher eco-efficiency of the whole economy and by a higher ecological footprint per capita. We applied the data table of 2012 of Global Footprint Network (in the following: GFN) for our study, which includes the data of the ecological footprint of countries all over the world between 1961 and 2008 by categories. The GDP data originate from the database of 2008 of the Maddison project (Maddison, 2008), which consists of GDP data calculated with the help of Geary-Khamis (in the following: G-K) for the years of 2011 and 2008 in a national break down. In the database, altogether with the summarizing lines, the data of 188 countries for the year of 2008 can be found. The database of the year of 2011 of the GFN, the data of 234 countries are available.

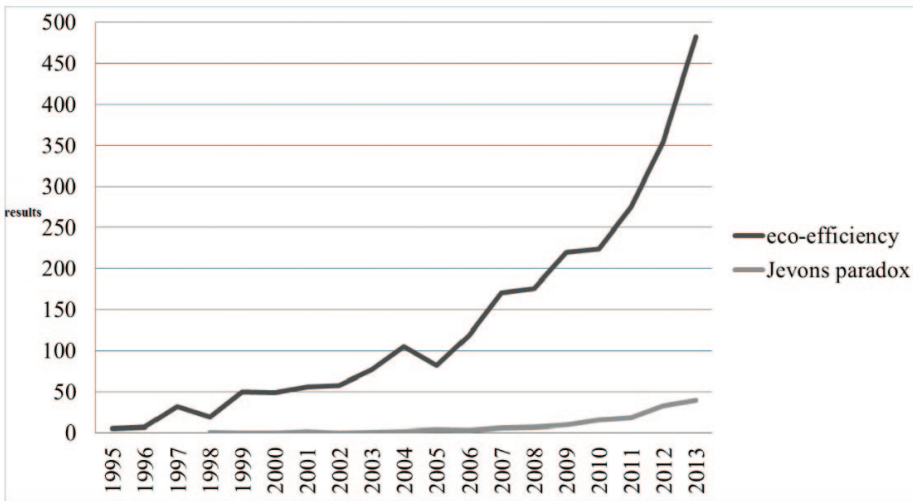
The eco-efficiency was calculated by the ratio of the GDP and the ecological footprint by countries and the calculated results were described in a rectangular coordinate system (scatter plot diagram). The ratio can be calculated on 111 countries since incomplete ecological footprint data are given for several countries presented in the chart. Based on the figures, the tightness of the possibly positive relation was examined with correlation calculation. As we are examining two metrical variables (the GDP and EF), we counted the correlation coefficient of Pearson with a two-tailed test.

We compared the countries possessing the highest ratio with literature data (York 2004) and then we scrutinized the data of the time series of eco-efficiency and the ecological footprint of the most favourable eco-efficient country.

RESULTS

According to literature data, the popularity of eco-efficiency seems to be clearly one of the key terms of sustainability. Nowadays, every year hundreds of articles are published, which include this expression. The concept (Jevons paradox) of the most important critic of the theory is a significantly less used term (Figure 1).

Figure 1: Results in ScienceDirect

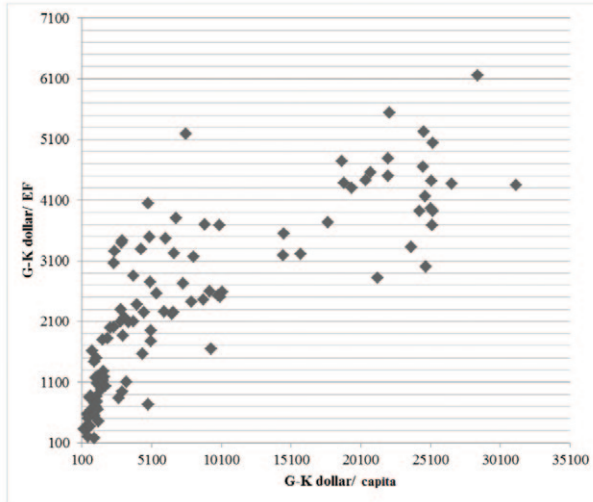


Source: own research (2014).

In Figure 2, a scatter plot diagram (eco-efficiency) can be seen, which shows the relation between the GDP and the GDP / ecological footprint ratio, which is called eco-efficiency. The correlation coefficient of the two metrical variables is 0.821, which refers to a strong positive relation. The correlation under 1 percent in this case is also significant.

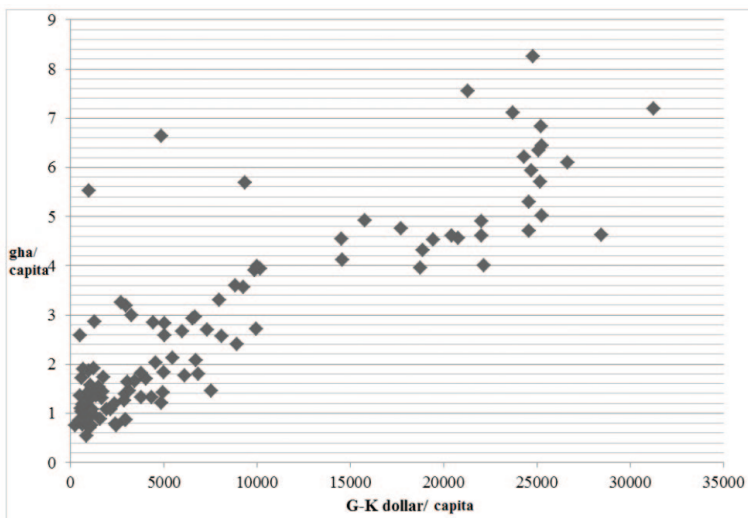
The probable connection between the extent of economic development and the environmental impact has been proved by a wide range of examinations; it is higher than the medium based on the correlation between the ecological footprint and the GDP (York et al., 2004). The relation can be assumed, by realizing that the ecological footprint of an environmental conscious consumer is higher than that of a less environmental conscious person; however, it is lower than the one with lower income (Csutora – Kerekes, 2004). The scatter plot diagram in Figure 3 confirms the results of previous studies, with a probability of a positive relation between the ecological footprint per capita and the GDP. Based on our study, the correlation coefficient of the ecological footprint per capita and the GDP is 0.868 referring to a strong positive relation. The correlation under 1 percent is also significant.

Figure 2: Scatter plot diagram (eco-efficiency)



Source: own research based on Maddison 2008 and GFN 2012.

Figure 3: Scatter plot diagram (EF and GDP)



Source: Based on Maddison 2008 and GFN 2012 own research.

Based on our study, the three countries having the highest GDP / EF ratio were Norway, Japan, and the United Kingdom in 2008 (Table 1). Based on their

data of 1998 , according to the studies of York, these three countries belong to the most favourable quantile. The ecological footprint of all of the three countries was over 4 gha/person in 2008, significantly exceeding the international average of 2.7 gha/person, which was the double of their disposable bio-capacity. The ecological footprint of the year of 2008 of the three countries presented in the former study was also over 4 gha / person.

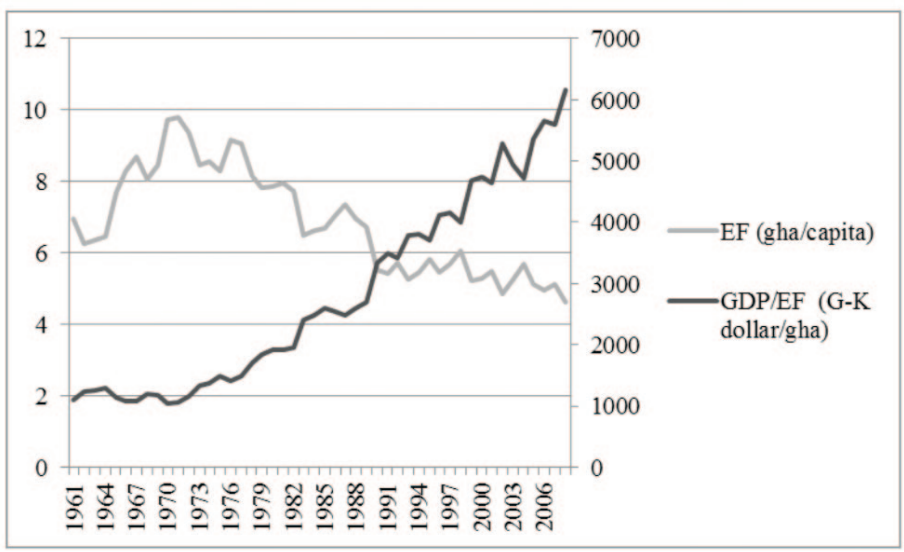
Table 1: Top of eco-efficiency

	1.	2.	3.
York (2004)	Switzerland	Mauritius	Italy
own research	Norway	Japan	UK

Source: Based on York 2004; Maddison 2008 and GFN 2012 own research.

The sample of Norway is informative from other perspective as well, since not only can its eco-efficiency be seen as outstanding, but it is also the only European country with a ecological footprint decrease exceeding 30% continuously since 1961. In the right axis of the Figure 4, the GDP per gha ('eco-efficiency') can be seen, in its left axis, the level of the ecological footprint can be realized (gha/person).

Figure 4: The ecological footprint and eco-efficiency of Norway (1961–2008)



Source: Based on Maddison 2008 and GFN 2012 own research.

CONCLUSIONS

The fashion of eco-efficiency can be clearly observed in scientific publications; however, regrettably, much less scientific attention is paid to its critics. It seems to be promising that the wealthier countries tend to be more eco-efficient (Figure 3). In other words, the GDP per unit ecological footprint is higher than in poorer countries. Nevertheless, we cannot expect a full solution from this result due to two reasons:

1. the higher GDP probably goes with a higher ecological footprint,
2. the ecological footprint of the outstandingly eco-efficient and environmentally decreasingly loaded Norway is more than double the sustainable ones after a significant decrease.

In sum the Jevons paradox appears on a national level as well, although there are some exceptional countries (e.g. Norway), where the developing eco-efficiency is accompanied with decreasing environmental impact.

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HUNGARIAN SUMMARY

Tanulmányunkban bemutatjuk, hogy az ökohatékonyság divatja egyértelműen megjelenik a tudományos publikációkban is, míg ennek kritikájára, a Jevons paradoxonra jóval kevesebb kutatói figyelem irányul. Biztatónak látjuk, hogy a gazdagabb országok jellemzően ökohatékonyabbak, vagyis nagyobb náluk az egységnyi ökológiai lábnyomra jutó GDP, mint a szegényebbeknél. Ugyanakkor ettől az eredménytől nem várhatunk teljes körű megoldást, mert a magasabb GDP nagy valószínűséggel nagyobb ökológiai lábnyommal is jár. Vizsgálataink alapján a Jevons paradoxon az országok szintjén is megjelenik, de vannak kivételes országok (pl. Norvégia) ahol a javuló ökohatékonyság csökkenő környezetterheléssel jár.

CONTENTS

- *Věra Plhoňová* evaluates the officials' work in the Municipal Office Znojmo in terms of social responsibility and ethical aspects when dealing with the inhabitants of the city

- *Tamás Dusek* gives a general outline about the distances and spaces, and he analyses the road, time and cost spaces of the Hungarian railway network and road network and compares it to the geographical space.

- *Jeremiás Balogh* investigates how the competitiveness of the Hungarian wine sector has been altered due to the world wine market trends, such as the changing wine consumption habits and the increasing wine production of the New World.

- *Rainer Schabereiter* presents TAKE TECH, an EU funded Leonardo da Vinci – Transfer of Innovation project.

- *Ariel Büküné Foki* and *Márta Konczosné Szombathelyi* investigate the concomitant use of two models which are capable of measuring organizational excellence, namely RepTrak (tool for reputation measurement and management of the Reputation Institute) and EFQM model (the European Foundation for Quality Management model).

- *Péter Huszka* deals with the health behaviour of students, such as sport, health consciousness, alcohol and tobacco consumption, with the help of a sample.

- *Cecília Szigeti* and *Andrea Borzán's* paper's most striking finding is the presence of a limited variation across nations in the ecological footprint per unit of the GDP.

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