Masters International
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# MIRDEC 2018

MIRDEC-10th
International Academic Conference
Global and Contemporary Trends in Social Science
**(Global Meeting of Social Science Community)**

# CONFERENCE PROCEEDINGS
## BARCELONA 2018

Full Paper Series


Editors
Kemal Cebeci
Joaquim Ramos Silva
Tamer Budak
Antonio Focacci



Hotel HCC St. Moritz
Barcelona, Spain
06-08 November 2018

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Dr. Kemal Cebeci is a senior lecturer at Marmara University in Turkey and at the same time the director of Masters International Research & Development Center. He obtained his PhD degree with his thesis on the topic of corporate income tax and tax competition. Ha had publications and presentations in various journals and international conferences with his researches on; tax policy, tourism, corruption, debt crisis, corporate income tax, etc.

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MIRDEC thanks to all our participants for their academic and social contributions.

**Mirdec-10th Barcelona 2018 Conference Proceedings, Full Paper Series**
Masters International Danismanlik Arastirma Yayincilik
Masters International Consultancy Research and Publishing
**ISBN: 978-605-81247-2-1**
MIRDEC Publishing

**Editor:**
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**Publisher:** Masters International Danismanlik Arastirma Yayincilik
Masters International Consultancy Research and Publishing
**ISBN: 978-605-81247-2-1**
MIRDEC Publishing

Address: Cinarlicesme sk. No: 21/13 PK: 34303 Kucukcekmece Istanbul Turkey
Tel: +90 532 525 23 95

**Publisher certificate no: 35822**
**Publication date: 31 December 2018**

**www.mirdec.com**
**info@mirdec.com**

**Published at:** Ege Reklam Basım Sanatları San. Tic. Ltd. Şti. Address: Esatpaşa Mah. Ziyapaşa Cad. No.4 Ataşehir / Istanbul, Turkey. Tel: +90 216 470 44 70 Faks: 0216 472 84 05. Sertifika No: 12468. **(Certificate no: 12468).**

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**Publisher:** Masters International Danismanlik Arastirma Yayincilik
Masters International Consultancy Research and Publishing
MIRDEC Publishing

**ISBN: 978-605-81247-2-1**

Address: Cinarlicesme sk. No: 21/13 PK: 34303 Kucukcekmece
Istanbul Turkey
Tel: +90 532 525 23 95

**Publisher certificate no: 35822**
**Publication date: 31 December 2018**

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# MIRDEC FULL PAPER SERIES

# BARCELONA 2018

**ISBN: 978-605-81247-2-1**

**ANTONIO FOCACCI**[1]

# CROSS-CORRELATION ANALYSIS OF FINANCIALIZATION WITHIN INTERNATIONAL MAIN AGRICULTURAL COMMODITIES MARKETS

## Abstract

The financialization process involving commodity markets fueled controversial issues among policy-makers, practitioners and scholars about spillover effects on the price levels, and inherent consequences on the whole economy. Within such a context, agricultural commodities markets are not an exception. This paper is the third "episode" of a wider proposed analysis, wherein a cross-correlation function (ccf) is applied to investigate the potential lead-lag relationship between traditional financial assets (Stocks) and commodities (entered about over the past twenty years as a popular asset class within international portfolio investors). Data pertaining some industrialized Countries (Germany, United Kingdom and United States) as well as some important developing Countries (Brazil, China and India) are processed to understand if financial management strategies involving agricultural index investments could really have affected commodities price dynamics.

**Keywords:** Financialization, agricultural commodities markets, cross-correlation function

**JEL Codes:** C01, G15, Q31

## 1. Introduction

This paper continues (and concludes) the analysis of commodities markets carried out in two previous works for oil and main industrial metals (Focacci, 2017 and 2018). In this last contribution the focus is on agricultural commodities. As already pointed out, commodity markets experienced remarkable involvement on behalf of newcomer institutional investors like for example Hedge Funds (HF), Commodity Index Funds (CIFs), Commodity Index Traders (CITs; long-only investors like pension funds and insurance companies) and Exchange Traded Funds (ETFs) (Büyükşahin and Robe, 2014). Some figures must be summarized to well depict this period usually labeled by the term "financialization". An overall capital inflow boosted from US $ 15 billions to US $ 250 billions in 2009 (Irwin and Sanders, 2011). Baffes and Haniotis (2016) report an overall amount of funds invested in commodities well over US $ 300 billions in December 2015. Empirical research on financialization of commodity markets does not agree on spillover effects. One strand of literature emphasizes traditional stabilizing action of the speculation mechanisms; in this sense -for example among others- empirical works by Irwin et al. (2009), Stoll and Whaley (2010) and Miffre and Brooks (2013). On the opposite side, all those authors pointing out both the amplified induced volatility as deriving from inherent herding behavior by speculators (among others Gabaix et al., 2006; Engle and Rangle, 2008; Gilbert, 2010; Henderson et al., 2015), and (generally) fewer restrictions new operators have to respect compared with traditional specialists (Rahi and Zigrand, 2009; Teo, 2009). Following these premises, the main goal of this study is to investigate prices dynamics by exploring potential lead-lag effects transmitted from the traditional financial markets (in our case proxied by Stock Exchanges indexes) to main agricultural commodities quotations as a consequence of specific financial portfolio strategies managing futures on such commodities as a conventional financial asset class.

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## 2. Methodology and data

Having this aim, the merely financial mechanism hypothesized to igniting the process must be previously introduced. In detail, as well depicted by Adams and Glück (2015), "*to compensate for a decline in stock prices, investors may reduce their commodities position and invest the proceeds in stocks. A fall in stock prices therefore transmits to the commodity market by reducing commodity prices. Similarly, an increase in stock prices induces investors to sell part of their stock holdings to back their commodity position"*. As a consequence, the more sophisticated portfolio management strategies implemented by the multitude of operators within (highly) integrated markets may induce a financial originated dynamic relationship starting from the (lower or higher) level of stocks' prices transmitted to agricultural quotations (respectively pushing down or up prices) through commodities futures indexes. To investigate this hypothesized effect, the lagged *ccf* of monthly quotations of stock indexes and agricultural prices is processed considering its effectiveness in the detection of the ordinal sequence of events, even if this statistical tool is not appropriate to ascertain a causal relationship between variables (Warner, 1998). Briefly, the whole procedure is composed by two steps: a pre-whitening phase (consisting in an appropriate modeling of the time series) followed by the calculation of the *ccf* to the pair of the residuals. Detected meaningful statistical values among *ccf* (those exceeding the conventional two-standard error 95% upper and lower confidence statistical limits), these are considered to analyze the lead-lag relationship between the two variables. The pre-whitening phase to fitting original data is carried out by adopting the general ARIMA model:

$$\Phi\,(B)\,(1\text{-}B)^{d}\,Y_t = \sigma + \Theta\,(B)\,\varepsilon_\tau$$

where:
- $\Phi\,(B)$ is the Autoregressive (AR) operator;
- $B$ is the backshift operator defined as $B^dY_t = Y_{t-d}$;
- $d$ is the order of differentiation;
- $\sigma$ is the constant term relating to the mean of the stochastic process;
- $\Theta\,(B)$ is the Moving Average (MA) operator.

At this point, obtained the residuals of the two series *x* and *y*, data are then processed by computing the *ccf* at lag *k*, according to Box et al. (2016) as:

$$ccf\,(k) = \frac{c_{xy}}{\delta_x\,\delta_y} \qquad \text{for } k = 0, \pm 1, \pm 2, \ldots..$$

where $c_{xy}$ is the cross-covariance coefficient at lag *k* obtained as:

$$\frac{1}{T}\sum_{t=1}^{T-k}(x_t - \bar{x})\,(y_{t+k} - \bar{y}) \text{ for } k = 0, + 1, + 2, \ldots..$$

$$\frac{1}{T}\sum_{t=1}^{T+k}(y_t - \bar{y})\,(x_{t-k} - \bar{x}) \text{ for } k = 0, - 1, - 2, .....$$

with $\delta_x\,\delta_y$ representing standard deviations of the series *x* and *y* respectively.

The *ccf* is not characterized by a symmetric behavior about 0, and its inherent properties can be effectively exploited to detect whether the response variable *y* is "reacting" to the explanatory variable *x* after a (statistical significant) lag time (*ccf* values for $k > 0$). In the present work, stock exchange log-indexes are assumed as the explanatory variable (*x*) while log-indexes of agricultural prices as the

response variable (*y*). Following this framework, only the $k > 0$ side of the *ccf* positive values has to be coherently considered in our investigation.

For what concerns analyzed dataset, we consider three among more industrialized and financially advanced Countries (Germany, United Kingdom and United States), and three among main developing Countries (Brazil, China and India). More in detail, the overall list of monthly stock indexes quotations (from January 2000 to October 2017, previously transformed into logarithm form) for the six Countries, coming from Datastream (2017), includes: Brazil Ibovespa stock index (IBOVES), China Shangai A stock index (CHISHA), Germany DAX 30 stock index (DAX30), India S&P Bombay stock index BSE 100 (INDBOMB), United Kingdom FTSE 100 (FTSE 100) and USA New York stock exchange index (NYSE). As far as main agricultural price series are concerned, also in this case data are retrieved from Datastream (2017). However, they are not processed in their original values, but after a pre-transformation into index form to homogenize elaboration with stock indexes following the subsequent formula (assuming $I_0 = 100$ as the starting value of the series to center the calculations):

$$\text{Index}_t = I_{t-1} \times \left(1 + \frac{p_t - p_{t-1}}{p_{t-1}}\right) .$$

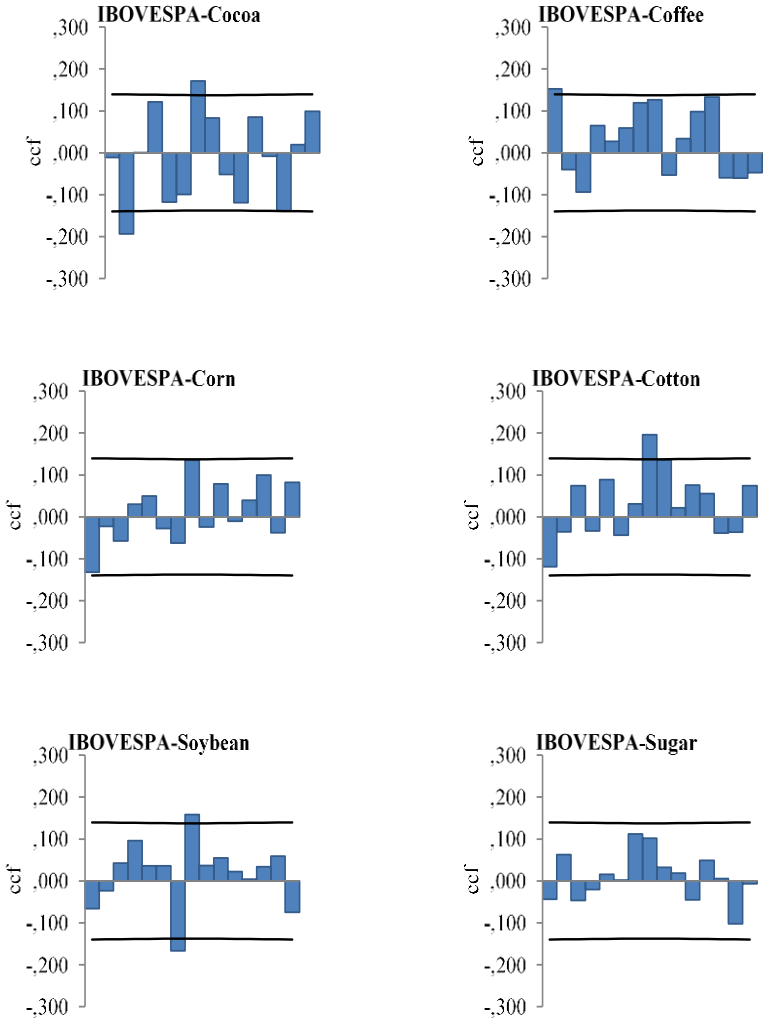
As for Stock indexes, a log-transformation of the indexed-agricultural quotations is subsequently applied. Agricultural commodities collected in this study are: Cocoa ICCO (Cocoa), Coffee-ICO Arabicas Mild Avg. (Coffee), Corn N.2 Yellow (Corn), Cotton 1,1/16 Str Low-Midl, Menph (Cotton), Soybean Meal 44% Soymeal FOB (Soybean), Raw Sugar ISA (Sugar), and Wheat US HRS 14% Del Minneapolis/Dulut (Wheat). Time span is the same as for Stocks. Finally, all time-series are taken on January 2000, assuming it as the (conventional) widespread financialization starting point, even if an undisputable (and specific) date is not fixed in literature (Cheng et al., 2015; Cheng and Xiong, 2014; Irwin and Sanders, 2011; Domansky and Heath, 2007).

## 3. Elaborations and findings

In the very first step of pre-whitening procedure ARIMA best fitting models are estimated, and all calculated parameters are the following: BRA IBOVES (0,1,0), CHI SHA A (0,1,13), DAX 30 (0,1,0), IND BOMB (0,1,0), FTSE 100 (0,1,0), NYSE (1,1,0), Cocoa (0,1,0), Coffee (0,1,0), Corn (2,1,2), Cotton (0,1,0), Soybean (0,1,0), Sugar (0,1,1) and Wheat (0,1,0).

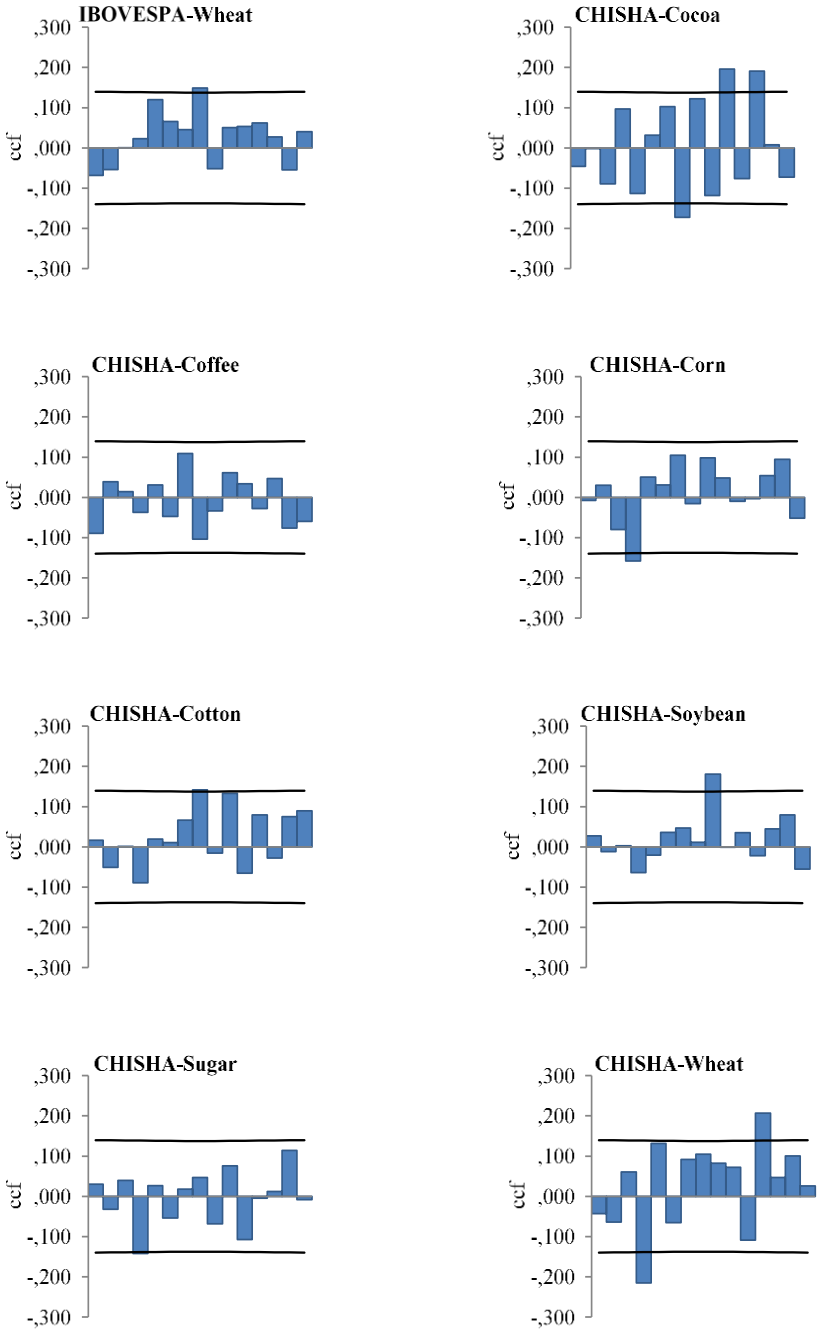
Residuals correlograms after pre-whitening phase (before *ccf* elaborations) reporting AutoCorrela-tionFunctions (ACF) are not included here for brevity reasons. Author is available, if required, to furnish graphs ($k = 24$) showing their pattern. However, to briefly summarize such outcomes, it is possible to evidence no ACF values exceeding statistical upper-lower bounds in for: CHISHA, DAX 30, INDBOMB, FTSE 100, Cocoa, Coffee, Corn, Sugar and Wheat. One very small exceeding spike is indeed evidenced both in IBOVESPA and Soybean series. One out of two spikes detected in NYSE and Cotton series having a more significant statistical value. Overall, we can reasonably assume to have obtained independent and random distributions. Normality is not tested here because, this is not an inferential exercise. The second step involving *ccf* elaborations is processed by a time lag *k* selected equal to ±7 months. Following Fig. 1 shows all the *ccf* for the various combinations. On the x-axis lag *k* is represented both for negative and positive values specifying, respectively, an anticipatory and a reacting behaviour. The $k = 0$ value is located in the median position just between negative (on the left) anticipatory and positive (on the right) lagged values. Conventional two-standard error 95% upper and lower confidence statistical limits are reported with solid lines.

**Fig. 1 Cross-correlation function with 7 lags for the various Stock-Metal Indexes (continued on the next page)**




Source: Personal elaboration on Datastream (2017).

**Fig. 1 Cross-correlation function with 7 lags for the various Stock-Metal Indexes (continued on the next page)**

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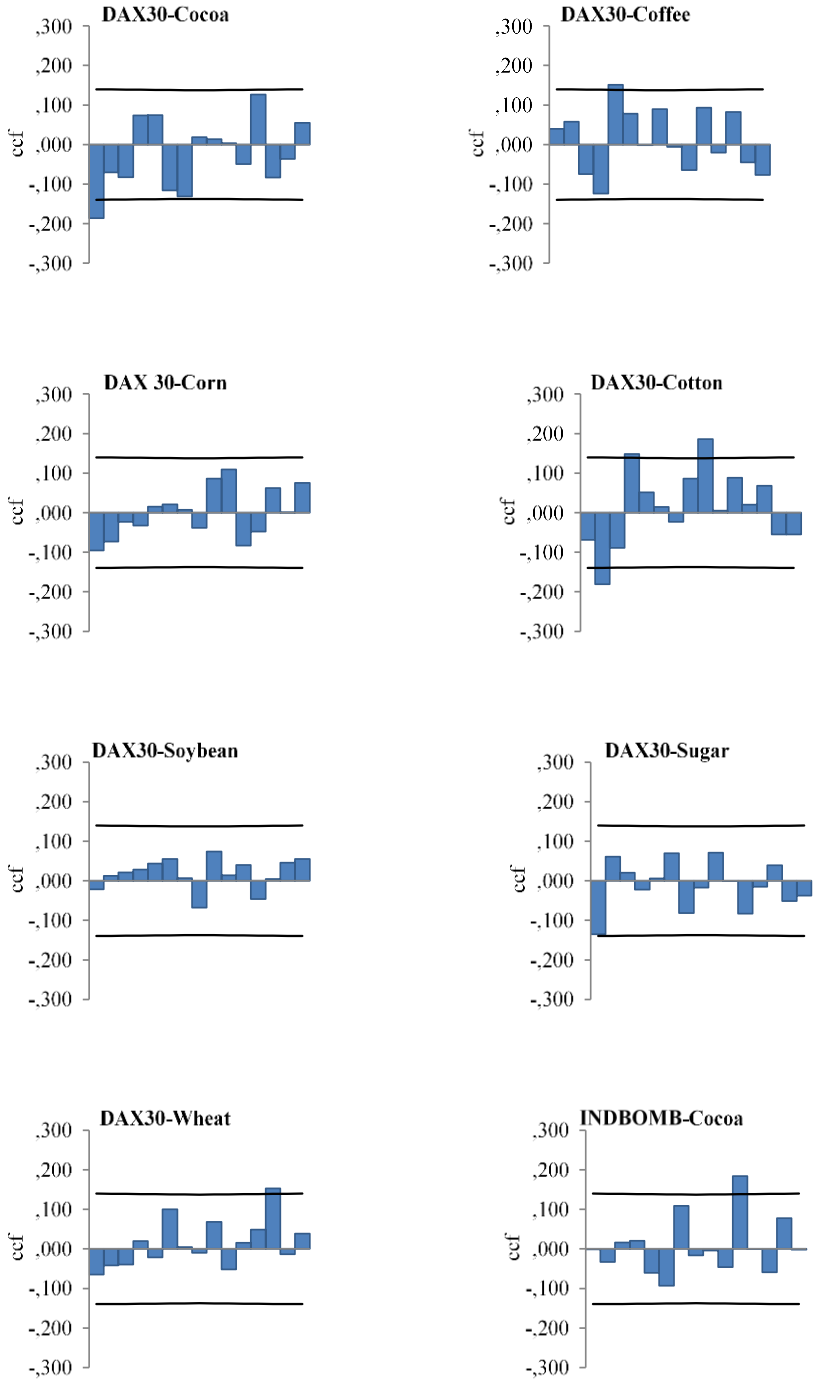


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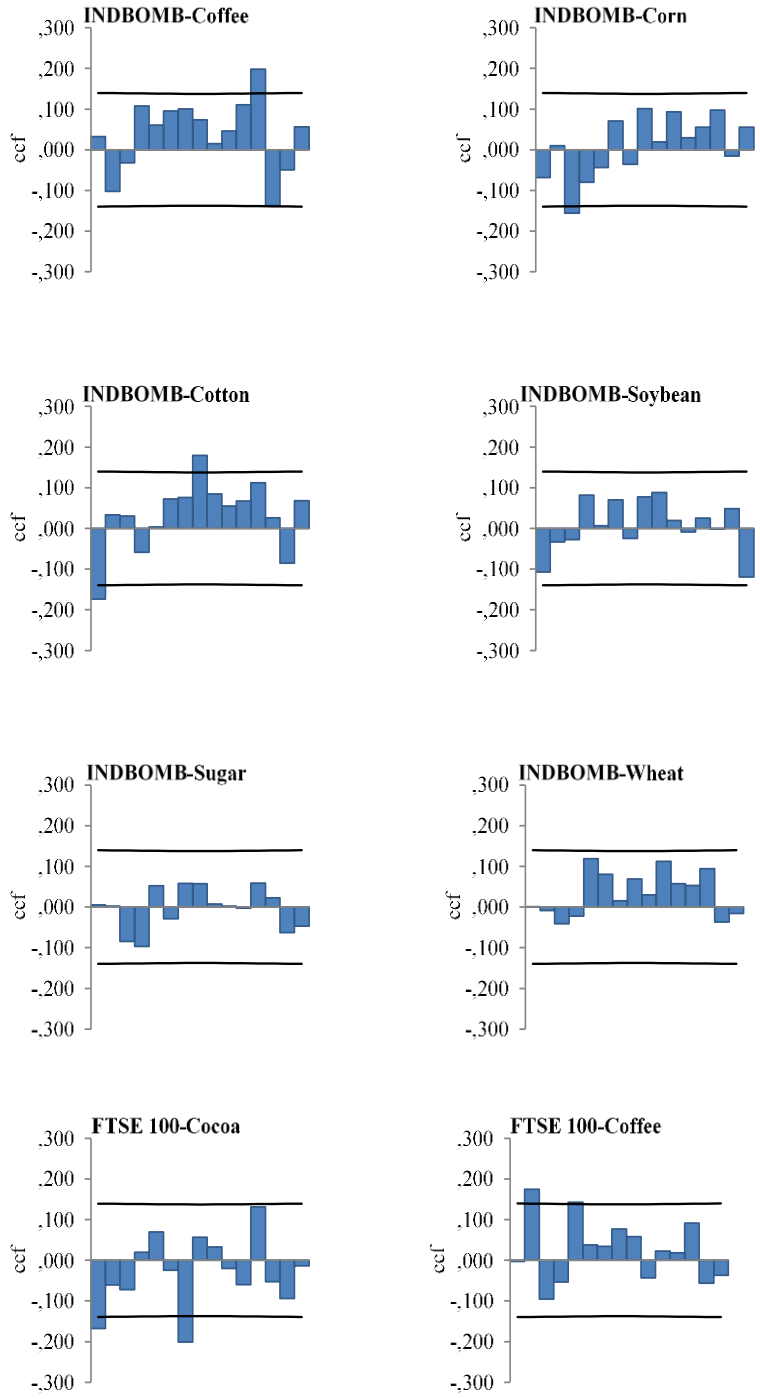


Source: Personal elaboration on Datastream (2017).

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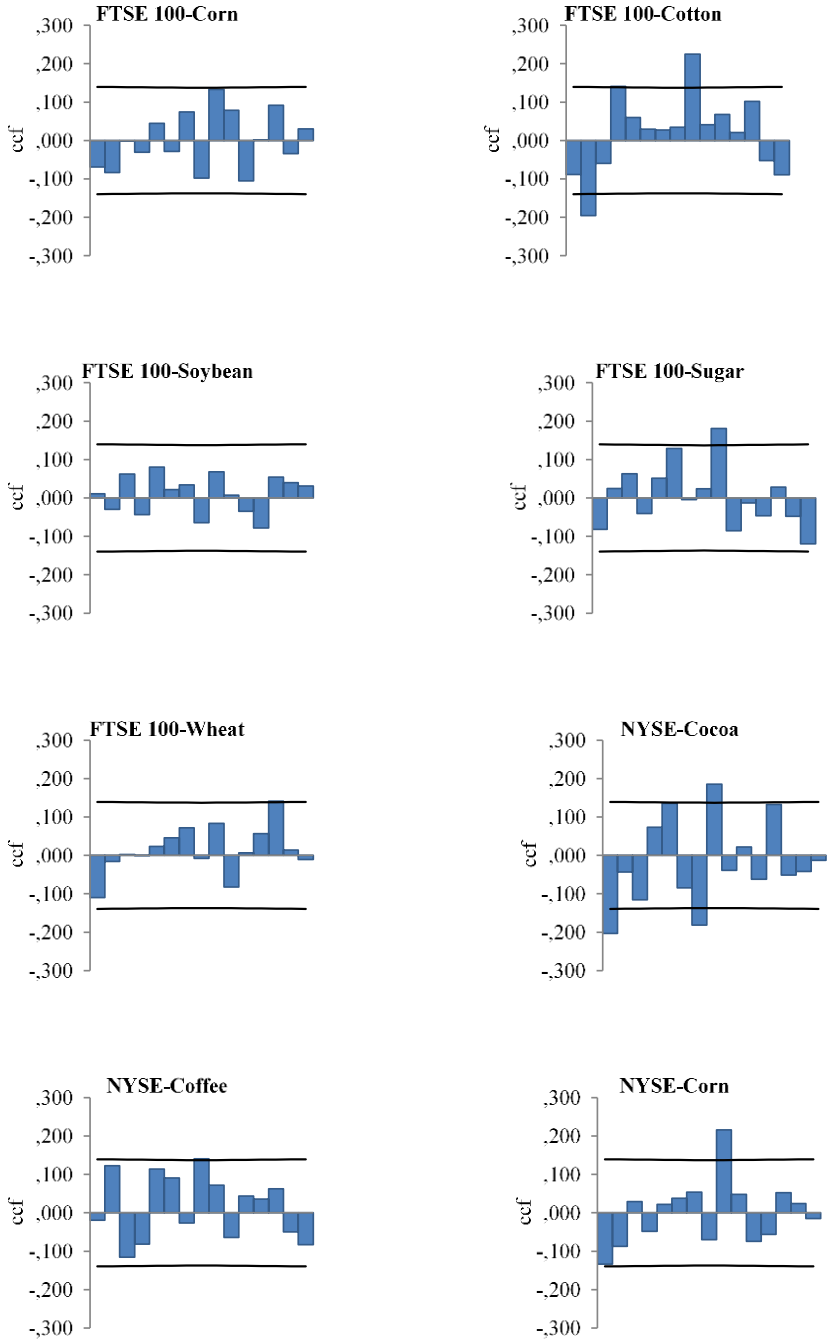


Source: Personal elaboration on Datastream (2017).

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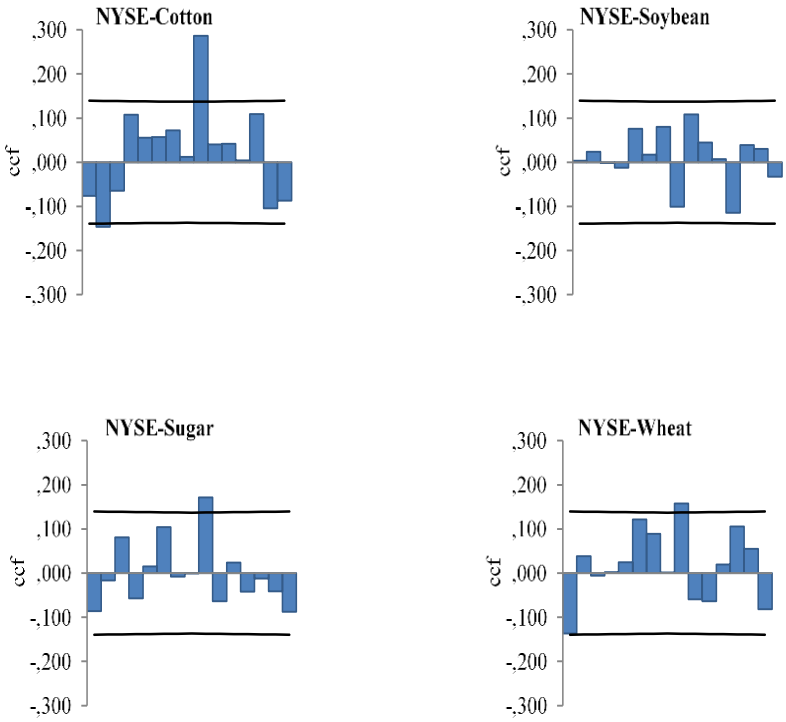


Source: Personal elaboration on Datastream (2017).

## 4. Discussion and conclusions

From the above results, and following the interpretation of *ccf* graphs, we resume outcomes in the following Table 1.

**Table 1. Lag value of significant statistical spikes in the ccf analysis**

| | Cocoa | Coffee | Corn | Cotton |
|---|---|---|---|---|
| IBOVESPA | \|-6\|, -1 | \|-7\| | No Sig. | \|0\| |
| CHISHA | 0, \|3\|, 5 | No Sig. | \|-4\| | No Sig. |
| DAX 30 | \|-7\| | \|-3\| | No Sig. | -6, -4, \|1\| |
| INDBOMB | \|3\| | \|4\| | \|-5\| | -7, \|0\| |
| FTSE 100 | -7, \|-1\| | \|-6\|, -3 | No Sig. | -6, -4, \|1\| |
| NYSE | \|-7\|, -1, 0 | \|0\| | \|1\| | -6, \|1\| |
| | Soybean | Sugar | Wheat | |
| IBOVESPA | \|-1\|, 0 | No Sig. | \|0\| | |
| CHISHA | \|1\| | No Sig. | \|-4\|, 4 | |
| DAX 30 | No Sig. | No Sig. | \|5\| | |
| INDBOMB | No Sig. | No Sig. | No Sig. | |
| FTSE 100 | No Sig. | \|1\| | \|5\| | |
| NYSE | No Sig. | \|1\| | \|1\| | |

Source: Personal elaboration on Datastream (2017). In modulus | | most significant spike

Taking the Ibovespa (Brazil) coupled with Cocoa as an example within the Table 1, it is possible to show -looking at the very first graph presented in Fig. 1- that 2 statistical significant peaks (exceeding the 95% upper and lower confidence levels) in *ccf* values are present (lags: -6, and -1). The most significant among them is at lag -6 (the highest histogram bar in the diagram, and within Table 1 marked within | | ). The same way to reading and interpreting data can be applied to all further cases.

From Table 1 we get the impression that it is not possible to evidence a clear lead-lag effect (from Stocks-to-Agriculturals) in quotations originated from a marked financial induced influence. If this were the case the $k > 0$ values should be, generally, the statistically meaningful values (marked within graps by the highest bars in diagrams). Our findings just for the US case (in the Corn, Cotton, Sugar and Wheat series) seem support such a sequence of events. The rest of cases are very contradictory. Some critics and further implementation steps could be proposed to refine and develop this research as in the case of the previous proposed works (Focacci, 2017 and 2018). They will not be repeated here further.

Nevertheless, considering that financialization effects should be well persistent within markets (resulting from to the hypothesized systematic action of an increased presence of newcomer institutional investors), it would be hard to support that remarkable consequences could be observable merely under well-defined (and spurious?) conditions. Without any pretension to be exhaustive or definitive, our present results do not allow to detect statistical evidences of a meaningful impact of financialization investors' strategies on agriculturals prices. Such results are substantially coherent with Baffes and Haniotis (2016). Their findings outline the (main) weight of supply-shortage in the period 2000-2008 to depict agricultural prices path. While for the subsequent time span (2011-2016) the relevance is on the same supply-shortage both for corn and wheat, while the oil price dynamics appears as the main

determinant in explaining quotations for soybean. Definitely, they point out traditional economic market factors without evidencing any specific merely financial induced influence. Hence, if agricultural commodities were treated like usual financial assets (and/or their derivatives) and were included in common (and systematical) financial management styles, more relevant and coherent movements of quotations should be detectable within such a related-to-Stocks framework. Otherwise, if such an assumption does not hold, financialization era appear more as a merely different (and probably more sophisticated) market environment where induced financial actions, however, cannot be decisive to affect price dynamics.

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**CLAUDIU MEREUTA**[1]

# STUDY ON INCREASING THE QUALITY OF EDUCATION THROUGH PROFESSIONAL CONVERSION PROGRAM

## Abstract

The paper presents the teachers professional conversion program and the impact of this activity on the quality of education. Conversion programs have the ultimate goal of acquiring new skills for primary, secondary and high schools teachers'. The conversion programs are offered by Technological Transfer and Continuous Learning Department which provides university education for new specializations in order enlarge the teachers' initial training. Graduates of the professional conversion program who have passed the graduation exam are awarded the professional conversion diploma, which gives the holder the right to teach according with the new specialization. The professional conversion aims to cover the vacant teaching positions with qualified staff. Thus, a quality education is ensured and the immediate effect translates into reducing school abandonment. The paper presents the professional conversion program in physical education and sport, compared to the bachelor program. Comparing the disciplines studied in terms of the quality indicators established by the national agency for quality assurance in higher education, the paper reveals the similarity between the competences of the two categories of graduates. The evolution of the number of graduates over the last three years for this conversion program is also analyzed, related to the impact on the labor market.

**Keywords:** Conversion program, quality assurance, competencies

**JEL Codes:** I21

## 1. Introduction

The teaching career goes through a period of multiple transformations due to globalization and Europeanization, the necessity of harmonizing the education system with the requirements of the European labor market, as well as the changes of the educational, political, social, economic and axiological paradigms. All this involves the continuous growth of the quality of the educational system, aiming further at the professionalization of the teaching career, by implementing professional standards in the educator's future training process (Goldstein, 2002).

Dunarea de Jos University of Galati is the most important institution of higher education in the South-East of Romania. The Department of Continuing Training and Technology Transfer organizes adult training programs for the development of professional knowledge and skills in a flexible manner tailored to economic and social requirements. Considering the gradual and continuous straightening trend towards a knowledge society, the department has operational objectives in the field of continuous training and lifelong learning to: develop within the programs of continuous training of skills required by the labor market; engaging people, regardless of their age, in a process of continuous training, rapid adaptation to the requirements of economic and social life, in the context of the technical-scientific revolution worldwide. The conversion programs are offered by Technological Transfer and Continuous Learning Department which provides university education for new specializations in order enlarge the teachers' initial training.

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## 2. Legal requirements for organizing professional conversion programs

Professional conversion programs can only be organized according to legal requirements, subject to the following rules: only in higher education institutions accredited by the Romania Agency for Quality Assurance in Higher Education, only if the university has bachelor accredited programs. Also, professional conversion programs can only be organized in the same language as the bachelor programs. The duration of a professional conversion program is at least 3 semesters, corresponding to the accumulation of a minimum of 90 transferable study credits, if the conversion program acquires competences to teach a subject in the fundamental field related to the field of specialization enrolled. Professional conversion programs that acquire skills in teaching a discipline in a fundamental field other than the fundamental field of specialization inscribed on the Bachelor's diploma have a minimum duration of 4 semesters corresponding to the acquisition of 120 transferable study credits.

The educational offer of the Continuous Training and Technology Transfer Department includes the following professional conversion programs: philosophy, sociology, history, technological education, and physical education. The duration and the number of transferable credits are the same for all conversion programs offered (table1).

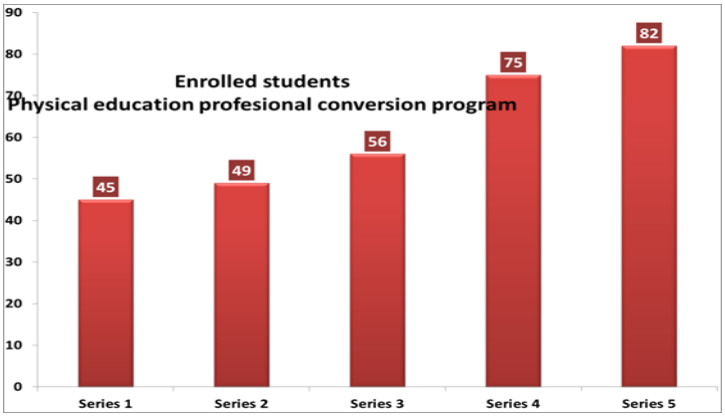
**Table 1. Professional conversion programs provided by the university**

| No. | Program title | Hours | ECTS |
|---|---|---|---|
| 1 | Philosophy | 560 | 120 |
| 2 | Sociology | 560 | 120 |
| 3 | History | 560 | 120 |
| 4 | Technological education | 560 | 120 |
| 5 | Physical Education | 560 | 120 |

Source: Author.

Five series of students were enrolled in the physical education conversion program, the number of students fluctuating every year. Figure 1 shows the evolution of the number of students.

**Figure 1. Enrolled students in Physical Education professional conversion program**




Source: Author.

First series started in 2014, and the fifth one in 2018. The number of students increased by 82.22% in 2018 compared to 2014.

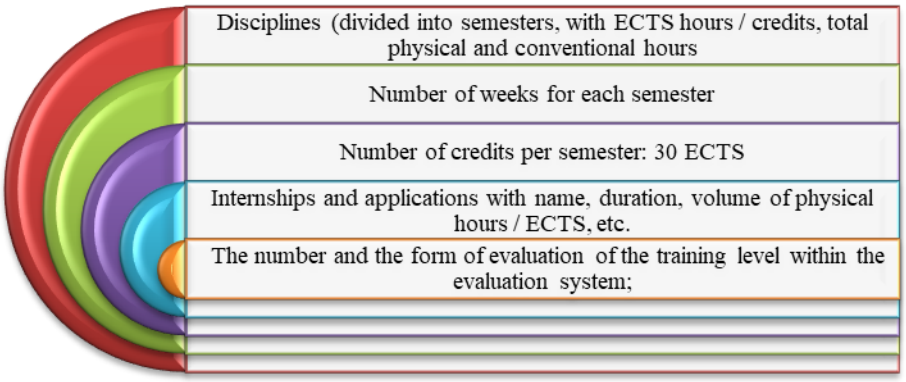
### 3. Comparison between the conversion program and the bachelor's curriculum

Quality management aims to certify, based on quality standards, the capacity of higher education to meet the expectations of the beneficiaries, to contribute to the development of a quality culture, to systematically produce and disseminate, coherent, reliable, and accessible quality of education, and to apply the policies of continuously improvement of the quality, with respect to market requirements.

Educational efficiency refers to the student-centered design and organization of teaching, learning and research processes in terms of content, methods and techniques, resources, selection of students, of teaching and research staff so as to achieve those learning outcomes that are assumed and which must be clearly formulated.

The higher education institutions of Physical Education and Sports have a teaching and scientific research mission, by ensuring the transfer of specialized information, stimulating and supporting the creation and sport performance in the field of physical education, sport and human motricity. Physical Education and Sports faculties, through the developed curriculum, have the teaching assignment to train physical education, sport performance specialists as well as in fields related to specific implications.

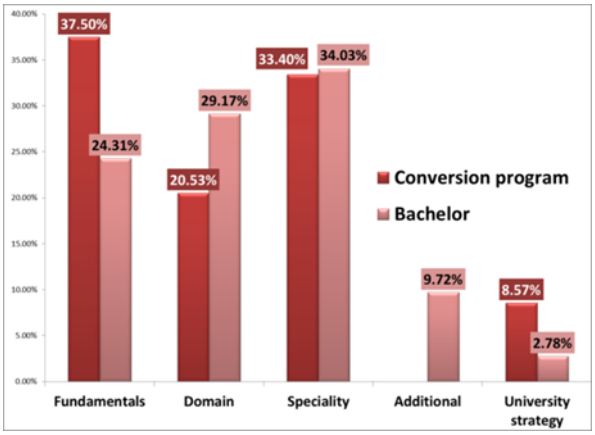
**Figure 2. Compulsory details of physical education bachelor curriculum**




Source: Author.

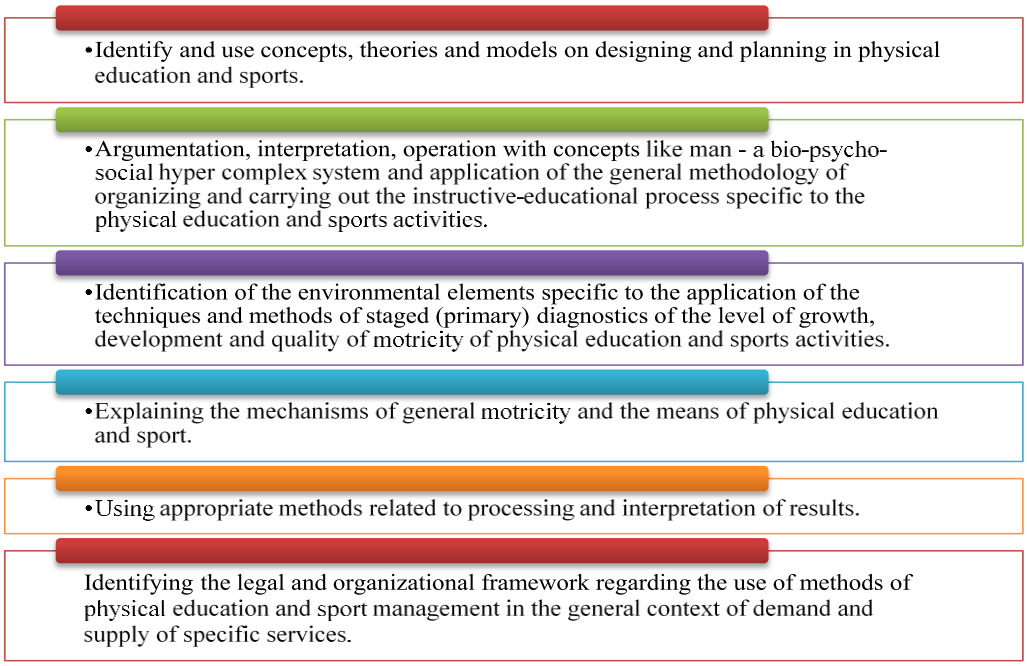
The objectives imposed by the specific mission materialize in the content of scientific education and research. The curriculum is a compulsory document for the bachelor level. It includes all the necessary elements, in accordance with the approved standards (fig. 2).

**Figure 3. Comparison between the conversion program and the bachelor's curriculum**




Source: Author.

**Figure 4. The competencies provided by the professional conversion program in Physical education**




Source: Author.

The same content items are found in the structure of curricula of professional conversion courses. Differences occur in the number of semesters, in the number of hours / semester, but also in the type of subjects in the curriculum. Thus, the conversion program lasts of 4 semesters, and the disciplines grouped by categories have the ratio as in figure 3.

The figure also shows the comparison to the ratio established by the quality standards. It is noticed that only specialized disciplines have the same ratio as in the bachelor programs. Fundamental disciplines have a higher ratio for conversion programs (37.5%) compared to only 24.31% on bachelor programs. The conversion program curricula have no complementary or additional disciplines, and the ratio of university strategy disciplines have a higher ratio for the professional conversion program. The competencies provided by the professional conversion program are shown in fig. 4.

## 4. Conclusions

The social representation of a profession, a high status, recognition its importance by other professional categories depends both on the level of qualification of those who practice it, on their competence and professionalism, and on their motivation. The didactic profession is successful in this general rule.

Higher qualifications, based on the quality standards and competencies, as well as increased professional motivation for teachers are fundamental to ensuring proper education.

Teachers can complete their professional tasks, given that in many schools with small pupils it's hard, if not impossible to have 18 hours of effective teaching.

Another advantage is didactic, because this training gives the teacher a multidisciplinary training, ensuring a greater degree of integration of knowledge, which is an asset and a requirement for contemporary education.

The conversion programs are offered by Technological Transfer and Continuous Learning Department, which provides university education for new specializations in order to enlarge the teachers' initial training. Graduates of the professional conversion program who have passed the graduation exam are awarded the professional conversion diploma, which gives the holder the right to teach according with the new specialization. The professional conversion aims to cover the vacant teaching positions with qualified staff. Thus, a quality education is ensured and the immediate effect translates into reducing school abandonment.

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*** OM nr. 6194/13.XI.2012

*** HG 915/2017

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# THE SUSTAINABILITY OF THE NONPROFIT ORGANIZATIONS IN SOUTHERN SONORA, MEXICO

## Abstract

The Non Profit Organizations are organized by a group of people with the same interests, which are fundamental for the promotion of some initiatives, especially with a social impact. The main objective of this group of people is that the activities they carry out are aimed at improving the quality of life of unprotected people such as disintegrated families, women and children suffering from abuse, the youth population with addictions and delinquency among others. It is because of the above that the concern arises to know how many organizations in this sector exist in Sonora, Mexico, what they do, how they survive and above all how is the professionalization of their managers. Firstly, a valid, reliable questionnaire must be available, with a relationship between its variables so this study aims to provide an instrument with a validity, internal consistency, reliability as well as a correlation analysis to determine whether the fundraising and professionalization of the members influence on the sustainability of this type of organizations of the third sector, considering a method of empirical form, cross-sectional and using the statistical software SPSS version 21. The research result shows to verify that the questionnaire presents internal consistency between the designing questions, reliability and has a significant effect between the variables through the exploratory factor analysis test, Cronbach's alpha, KMO and Barlett's test, confirming the reliability as well as the dependency of the sustainability variable was measured against the independent variables of fundraising and professionalization of their managers.

**Keywords:** Sustainability, nonprofit organizations, fundraising, professionalization, questionnaire, validity, internal consistency, reliability, correlation analysis

**JEL Codes:** L31, D64, C52, P33, M53

## 1. Introduction

Sustainable development as defined by The Economic Commission for Latin America and the Caribbean (CEPAL) by referring to a political and social process that emphasizes all aspects of life in a harmonious and balanced way, is that people must have a long and healthy life, with education and a great knowledge, in addition to the access they must have to the resources to have a decent life.

Currently there is a situation that is of particular concern to organizations that provide voluntary services in civil society organizations (NPO), which has been the large number of people who are increasing at risk of social exclusion which require services of a good number of this type of social organizations, reason why it is considered that this sector called third sector, is the one that must give answer to those needs with equal or smaller number of resources, Vidal, V. G., Valls, V. C., & Grabulosa, L. (2009). Financial sustainability is one of the key aspects for non-profit organization to remain in society and to cover those social areas that the government has not been able to protect.

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The objective of this research is to determine the influence of Fundraising and Professionalization in the Sustainability in non-profit organizations in southern Sonora, Mexico, considering that from the literature review no documents have been found that validate the influence of this terminology as a fundamental part in the operation and survival of this type of organizations. This document will consider using a quantitative study, descriptive, a non-experimental type design, with a cross sectional method, using the statistical software SPSS version 21. The variables object of study will be operationalized according to the general hypothesis proposed for the validation of the measurement instrument.

The validity of the instrument also requires the tests of the exploratory factor analysis, the cronbach's alpha, KMO, and Barlett's test as well as through a correlation analysis to measure the dependence of the variable with respect to the other two independent variables for analyze the regression model.

## 2. Literarure review and development hyphotesis

The concepts and empirical studies analyzed on the dependent variable Sustainability (ST) and the independent variables Fundraising (PF ) and Professionalization (PR) are presented below.

### Sustainability (ST)

Research results indicate that individual motivation to learn, team dynamics, and organization culture practices all have a significant level of influence on organization learning sustainability in non-profit organizations. Prugsamatz, R. (2010).

Nonprofit organizations (NPO) contribute to society through their social value creation, a sustainable organization has impacted on the strategy focus of the nonprofit organization. For an increased competitive environment, NPO have been forced to adopt an organizational sustainability focus in both strategic and operational levels of management, Weerawardena, J., McDonald, R. E., & Mort, G. S. (2010).

The financial sustainability of the NPO is related to the opportunity to maintain or grow the services of this type of organizations in addition to being able to fulfill the mission for which they start their social operations, that is why they consider so many internal factors as external to the administration of resources. Castaneda, J. (2015)

### Fundraising (PF)

The institutions of the third sector demonstrate a dependence on the sources of financing coming from public organizations, they lack a diversification of fundraising which turns them into institutions with a strong vulnerability that in crisis situations, with a decrease in income, their saty in this sector can be seen conditioned for its sustainability and continue with its social work, Vidal, VG, Valls, VC, & Grabulosa, L. (2009).

Nonprofit organizations in the United States depend on a diverse set of funding streams to sustain their operations the NPO within these areas are incorporating their board members and community leaders to continue services during a time of resource scarcity. Besel, K., Williams, C. L., & Klak, J. (2011).

The fundraising is a fundamental activity for the subsistence of NPO, Velasco, A. (2012); It requires to be carried out by professionals who use planning, methodologies, strategies and specific techniques that achieve positive results, Garcia Batiz, M. (2015 ).

According to Centro Integración Juvenil, AC (2013), a definition of fundraising could be "Efforts by a group of people committed to a cause, who work in an organized and efficient way, to achieve a defined economic goal, in a period of certain time".

For the nonprofit organizations it is a great challenge to raise funds through the search for fundraising that are strong, stable and durable enough to allow them to work in the context of their mission, to meet their goals and objectives, Díaz Díaz, M., Chávez Macías, A. G., Peña Cárdenas, M. C., López Saldana, C. D. P., Téllez, L., & Alejandra, A. (2017).

**Professionalization (PR)**

It is important to consider and analyze the perception of the professionalization that NPO have, which are the factors that limit this type of organizations to bring good administrative practices that can be reflected with an impact on social objectives. Garcia, T. N. (2016).

To achieve the consolidation of the NPO, it is obtaining sufficient and pertinent financial resources, which can be used for training, production, diffusion and other items that are required to continue offering the required social services. It is necessary that participants, managers, administrators or social managers become aware of the importance of professionalization in all aspects of their professional performance, García Bátiz, M. (2015).

NPOs face numerous challenges including, but not limited to, funding, maintenance of qualified staff and the related impact of high staff turnover. Funding was identified by many NPOs interviewed as a key challenge, as donor grants remained the main source of NPO funding, Bayalieva-Jailobaeva, K. (2014).

The professionalization of the NPO sector alters organizations and individuals alike. Organizational development is geared toward maximizing resources and toward increases in the number of salaried employees and in fundraising activities. A stronger division of labor and the turn toward more hierarchical structures support these goals, Lang S. (2012).

## 3. Research methodology

Based of the literature review and in order to comply with the general objective of the research and the verification of the general hypothesis of the proposed theoretical model, the type and design of research is presented below.

### 3.1. Development hypothesis

Considering the analysis of the theory on sustainability, fundraising and professionalization and accordance with the aim of study of this research, which are nonprofit organizations in Southern Sonora, Mexico, in addition to validating the instrument also analyze the Model through correlation and multiple regression analysis.

The general hypothesis and the graphical model is presented (figure 1) through software SPSS version 21, which is proposed by the researchers with the aim of explaining the influence of the dependent variable of Sustainability through the independent variables of Fundraising and professionalization.

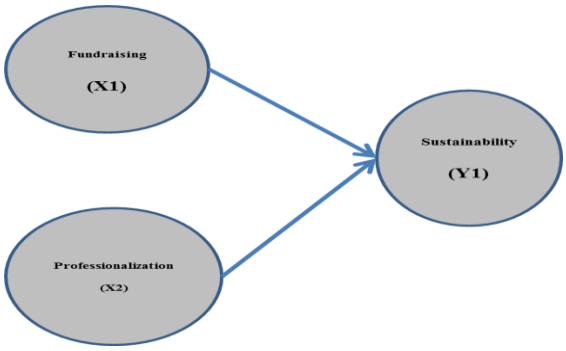
General hypothesis: The Fundraising (PR) and Professionalization (PF) determine the influence in the Sustainability (ST) of the non profit organizations in Southern Sonora, Mexico.

Hypothesis specific H1: The Fundraising (PR) determines the influence in the Sustainability (ST) of nonprofit organizations in southern Sonora Mexico.

Hypothesis specific H2: The Professionalization (PF) determine the influence in the Sustainability (ST) of nonprofit organizations in southern Sonora Mexico.

(Y): Dependent Variable: Sustainability (ST)
(X1): Independent Variable: Fundraising (PF)
(X2): Independent Variable: Professionalization (PR)

**Figure 1. Proposed graphic model**




Source: Prepared by the author.

### 3.2. Method

The research is considered causal correlation since it aims to determine the influence of the independent variables: Fundraising and Professionalization on the dependent variable: Sustainability. It is also a cross section made in 2017-2018. The research is quantitative since it is intended to contrast the objective and research hypothesis compared with the research of other authors Vidal, VG, Valls, VC, & Grabulosa, L. (2009); Prugsamatz, R. (2010); García Bátiz, M. (2015); , Díaz Díaz, M., Chávez Macías, A. G., Peña Cárdenas, M. C., López Saldana, C. D. P., Téllez, L., & Alejandra, A. (2017). Derived from the nature of the research is considered as a non-experimental study according to Hernández, Fernández and Baptista (2014) because are presented as they happen in the real world.

To determine the influence of fundraising (FR) and professionalization (PF) in the sustainability (ST) of nonprofit organizations in southern Sonora, Mexico, a questionnaire composed of 20 items was developed. distributed as follows: 10 items for the dependent variable of Sustainability (ST), 5 items for the independent variable of Fundraising (PR) and 5 items for the independent variable of Professionalization (PF), these items were considered by researchers according to the conceptual framework and adapted using a Likert scale with 5 levels where: 1 is (Never); 2 is (Almost never); 3 is (Sometimes); 4 is (Almost always) and 5 is (Always).

For the procedure the following steps was considered:

1. The variables under study were selected based of the review literature
2. Database was consulted to determine if fundraising influences the sustainability of NPO
3. Database was consulted to determine if professionalization influences the sustainability of NPO

4. A questionnaire was designed to identify the influence of fundraising and professionalization on the sustainability of NPO
5. The measurement instrument was validated through the exploratory factor analysis test, Cronbach's alpha, KMO, and Bartlett's sphericity test to confirm the internal validity of the instrument and to perform both the correlation and multiple linear regression analysis.
6. The data was analyzed through SPSS software version 21 and the Statistical results were analyzed to obtain findings and conclusions.

The data analysis was carried out in the statistical package for the social sciences (Statistical Package for the Social Sciences, SPSS v.21). The data were analyzed under a multiple regression analysis, Hernández, Fernández and Baptista (2014) because this method allows researchers to explain the effect of the relationship between each independent variable (PF and PR) and the only dependent variable (ST) as well as the correlation between the independent variables, this is collinearity.

## 4. Findings and discussions

Below are the results of this research regarding the validation, correlation and regression analysis for a measurement instrument related to The Fundraising (PR) and Professionalization (PF) determine the influence in the Sustainability (ST) of the non-profit organizations in Southern Sonora, Mexico.

The Exploratory Factorial Analysis (EFA) was carried out to verify that the items used in the measurement instrument match with each of the variables to be analyzed and where it is shown that each item is grouped in each variable Rositas (2014).

The EFA allowed to reduce the items by components and a total explained variance of 63.634% represented by 20 items, eliminating 8 of all the variables as follows (five of Sustainability, one of Fundraising, and two of the variable Professionalization) these items did not reach the level of correlation higher than 0.40. (Table 1). The results of the EFA are presented:

**Table 1. Matrix of main components rotated with varimax method**

| Items | Components | | |
|---|---|---|---|
| ST1 | 0.795 | | |
| ST2 | 0.756 | | |
| ST3 | 0.833 | | |
| ST4 | 0.859 | | |
| ST5 | 0.788 | | |
| PR1 | | 0.696 | |
| PR2 | | 0.916 | |
| PR3 | | 0.881 | |
| PR4 | | 0.846 | |
| PF1 | | | 0.871 |
| PF2 | | | 0.735 |
| PF3 | | | 0.876 |

Source: SPSS. Prepared by the author.

The 12 final items of the EFA, the reliability of the measurement instrument was validated by the Cronbach's Alpha test, the results of this test must have a scale greater than 0.60 for exploratory studies; the results of table 2 with the input and output items confirm that they are valid and reliable since the

Cronbach Alpha values of each variable have a value greater than 0.60 results consistent with those presented by (Lévy and Varela Mallou, 2003). The results of the Cronbach's Alpha are presented by variable:

**Table 2. Results of Cronbach's Alpha**

| Variable | Input items | Output ítems | Cronbach's Alpha |
|---|---|---|---|
| Sustainability | 10 | 5 | 0.864 |
| Fundraising | 5 | 4 | 0.856 |
| Professionalization | 5 | 3 | 0.771 |
| | 20 | 12 | |

Source: SPSS, Prepared by the author.

The questionnaire is validated internally, since the items refer to the same variable that is to be measured, the above is achieved through the Kaiser-Meyer-Olkin (KMO) and the Bartlett test (Table 3). The results were as follows:

**Table 3. KMO and Bartlett's test**

| | | |
|---|---|---|
| Sampling adaptation measure of Kaiser-Meyer-Olkin. | | .871 |
| Bartlett´s sphericity test | Aprroximate Chi-square | 418.240 |
| | gl | 66 |
| | Sig. | .000 |

Source: SPSS. Prepared by the author.

The result of the (KMO) of table 3 presents a value of 0.871 and the Bartlett test was significant at .000. The table 4 presents the Pearson correlation function to determine if there is a linear relationship between the variables and that this relationship is not due to chance, that is, that the relationship is statistically significant. It is observed that there is a linear association between the variables that are presented in this survey for the presence of significance (sig) of 0.000.

**Table 4. Correlation**

| Correlation | | | | | |
|---|---|---|---|---|---|
| Control Variables | | | PFX1 | PRX2 | STY1 |
| none | PFX1 | Correlation | 1 | 0.56 | 0.607 |
| | | Sig. | . | 0 | 0 |
| | | gl | 0 | 59 | 59 |
| | PRX2 | Correlation | 0.56 | 1 | 0.72 |
| | | Sig. | 0 | . | 0 |
| | | gl | 59 | 0 | 59 |
| | STY1 | Correlation | 0.607 | 0.72 | 1 |
| | | Sig. | 0 | 0 | . |
| | | gl | 59 | 59 | 0 |
| a Las casillas contienen correlaciones de orden cero (de Pearson). | | | | | |

Source: SPSS. Prepared by the author.

It is observed that the dependent variable of Sustainability has a positive and highly significant relationship with the independent variables of fundraising and professionalization, which means that for the NPO their permanence in this social sector can be conditioned for their sustainability and continue with their social work, Vidal, V. G., Valls, V. C., & Grabulosa, L. (2009).

The multiple regression model is performed through the goodness method to show all the variables with and without correlation, the results are the following (Table 5):

**Table 5. Summary of multiple regression model**

| Model Summary[c] | | | | |
|---|---|---|---|---|
| Model | R | R square | R corrected square | Durbin-Watson test |
| 1 | .761[a] | .579 | .564 | 2,263 |
| a. Predictor variable: (Constant) PRX2, PFX1 | | | | |
| c. Dependent variable STY1 | | | | |

Source: SPSS. Prepared by the author.

The result of table 5 shows a variance explained with an R2 of 0.579, the model is explained in a 57.90% and with a good fit of the model. The statistical Durbin Watson presents a value of 2,263 below the established range (between 1.5 and 2.5) which means that the waste is independent.

The F statistic presented in table 6 verifies that there is a significant linear relationship between the dependent variable and the independent variables jointly. In the column "Sig." It has a value of .000, that is, less than 0.05, it indicates that there is a significant linear relationship. The following is the statistical result F and the significance of the model:

**Table 6. ANOVA (analysis of variance)**

| ANOVA[a] | | | | |
|---|---|---|---|---|
| Model | | Sum of squares | F | Sig. |
| 1 | Regression | 59.946 | 39.864 | .000[b] |
| | Residual | 43.609 | | |
| | Total | 103.554 | | |
| a. Dependent Variable: STY1 | | | | |
| b. Predictor variable: (Constant), PRX2, PFX1 | | | | |

Source: SPSS. Prepared by the author.

This result presents the coefficients in order to construct the resulting regression equation. The result of the "Variation Inflation Factor" (VIF) is also less than 5, which determines that there is no presence of collinearity in the independent variables with respect to the dependent variable (Table 7).

**Table 7. Coefficients**

**Coefficients**

| Model | | Coefficients not standardized | | Collinearity statistics | |
|---|---|---|---|---|---|
| | | Beta | T | Tolerance | VIF |
| 1 | (Constante) | 1.094 | 3.937 | | .000 |
| | PFX1 | .264 | 2.879 | .686 | 1.457 |
| | PRX2 | .523 | 5.389 | .686 | 1.457 |

Source: SPSS. Prepared by the author.

**Y = 1.094 + 0.264(PFX1) + 0.523 (PRX2)**

With the coefficients of the betas presented in table 7, the following results are presented:
The H1 is accepted : The Fundraising (PR) determines the influence in the Sustainability (ST) of nonprofit organizations in southern Sonora Mexico.

The H2 is accepted: The Professionalization (PF) determines the influence in the Sustainability (ST) of nonprofit organizations in southern Sonora Mexico.

Finally table 8 is presented where it shows that there is no presence of collinearity between the variables:

**Table 8. Collinearity diagnosis**

**Collinearity diagnosis**

| Model | | E-values | Condition index | Proportions of variance | | |
|---|---|---|---|---|---|---|
| | | | | (Constant) | PFX1 | PRX2 |
| 1 | 1 | 2.803 | 1.000 | .02 | .02 | .02 |
| | 2 | .113 | 4.970 | .83 | .02 | .50 |
| | 3 | .084 | 5.779 | .15 | .96 | .48 |

a. Dependent Variable: STY1

Source: SPSS. Prepared by the author.

The condition index shown in table 8 does not present collinearity problems since the index does not exceed the value 15.

## Conclusions

This research confirms the objective described which was precisely that the Fundraising (PR) and Professionalization (PF) determine the influence in the Sustainability (ST) of the nonprofit organizations in Southern Sonora, Mexico.

Likewise, with this survey it was possible to have an instrument with validation, correlation and regression analysis, where the results of the Model gave sufficient information when performing the Exploratory Factor Analysis (EFA) to verify that the items used in the measurement instrument coincided with each of the variables to analyze and where it is shown that each item is grouped in each variable Rositas (2014); EFA allowed to reduce the items by components and a total explained variance of 63.634% represented by 12 items, the reliability of the measurement instrument was validated by the Cronbach's Alpha test, being for ST (0.864), for PF (0.856) and for PR (0.771) with these results of this test had a scale greater than 0.60 for exploratory studies, being the ones suitable for the present survey (Lévy and Varela Mallou, 2003).

In addition, the measuring instrument for (KMO) is internally validated, has a value of 0.871 and the Barlett sphericity test is significant at .000. The multiple regression model was performed, which shows a variance explained with an R2 of 0.579, that is, the model is explained in a 57.90% and with a good fit of the model. On the other hand, the Durbin Watson statistic presents a value of 2.263 below the established range (between 1.5 and 2.5), which means that the residuals are independent; the F statistic verifies that there is a significant linear relationship between the dependent variable and the independent variables jointly, "Sig." presents a value of .000, that is, less than 0.05, indicates that if there is a significant linear relationship, the result is also presented of the "Variation Inflation Factor" (VIF) are less than 5 which determines that there is no presence of collinearity in the independent variables with respect to the dependent variable.

There is an area of opportunity where NPO staff can have a good professionalization program with an acceptable level so that the institutions to which they provide their services in a remunerated or voluntary way achieve the strategic objectives proposed in their social mission, which they are to reach more and more people in social exclusion.
Finally, it is important that the third sector organizations begin their work in the relations of collaboration among themselves, because they are still very fragile, and sometimes do not exist, and in a context of crisis, this collaboration must duplicate efforts to strengthen this sector and the impact of the actions of each social organization will be greater.

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**MARTIN BRUNCLIK[1] AND LUKAS VOGAL[2]**

# COMPUTER MODELLING AND SIMULATION OF THE MATERIAL SUPPLY CHAIN IN FOREIGN MILITARY OPERATION

## Abstract

Success of any current military operation is strongly related to the level of its logistic support and supply of all crucial resources such as water, food, spare parts, fuel etc. Some of these resources can be obtained from the local market, some from neighbouring countries or just from the homeland. The aim of this paper is to show the possibility of computer modelling and simulation for the military logistics support of the material from the neighbouring country to the place of unit deployment. The article deals with the application of the computing modelling and simulation theory, estimation and verification and validation of the designed model. There is the final experiment with in order to bring possible scenarios for the decision makers about the structure of the logistics chain and frequency of material delivery.

**Keywords:** Computing modelling and simulation, verification and validation of mode, military logistic chain

**JEL Codes:** C63

## 1. Introduction

Mathematical and Computer models are extensively use in wide spectrum of human activity in science, industry and business as supply chain management, transportation, engineering, health systems, military, biological systems etc. It is based on the conceptual modeling approach in order to simplify existing real system or design new system, prepare its computing form for further simulation to analyze its proceeding upon different condition in time. It gives an opportunity analyze behavior of each elements in designed model, their influence on the other elements in model in time before the real system is created for high amount of resources (human, material and finance).

The concern of this paper is design simply model of supply chain for military use for logistics support for military forces operating abroad with the need of supply of material from near neighboring country. Modeling give us the opportunity to design and examine this system without sending troops abroad and invest time, money, material and human resources to find the optimal solution for this supply chain. In addition and very important reason is avoid of the risks of damages, especially when the military operation occurs usually in the territory with ongoing conflicts or territory with some level of security risks.

## 2. Food supply model

One of the most important task for the logistics within the military operations is supply troops and other personnel by wide spectrum of resources such as water, food, accommodation, ammunition, fuel, spare parts and clothes etc. which provide them necessary condition in order to be able to successfully finish the operational tasks. Some of them is possible to purchase from the area of deployment, some is possible to obtain from nearest countries, but some of them has to be transported from homeland country.

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Concerning supply of food, we can consider existing market in nearest country, up to level of development in the region, hygiene conditions and food safety, existing infrastructure and a distance. Purchasing the material on the market out of the country of military base placement avoid creation of secondary problem such the rising up the price of this material and its influence to the suffering population.

In this paper, the process of designing the food supply model consists from several stages [Law 2015]:

- Formulation of the problem and plan the study,
- Collecting data and model definition,
- Creating the conceptual model,
- Constructing the computer model,
- Verification of the model,
- Design of experiments,
- Examination of experiments,
- Analyze output data,
- Documentation, explanation of results.

### 2.1. Model objective

Definition of the objective of the model is the elementary step which provides the frame of the future model, elements and their behavior, links between them and also the level of simplification and finally it is says, which valuables are we going to test within the experiments and which valuables are the intended output. Objective of our model is prepare food supply chain for military base situated in country B and provide the logistic supply of food from the country K with our own transport means for security reasons when the volume of goods delivery vary up to the level of the stock at the Base.

### 2.2. Model assumptions

According the conceptual modeling it is necessary define assumptions, which help to create simplified model close to the real logistic chain, without unnecessary details, such as whole infrastructure in involved countries, some kind of specific technical detail of military equipment or technical characteristics of construction material etc. This approach enables avoid the usage of confidential or secret data and it makes this model transparent, and appropriate to objective set above. We want to create understandable and flexible model, not the huge complex model full of details difficult to check, validate or update when some kind of component changes. The main assumptions are:

- Elements of the model are described as general items, e.g. BaseB, Kitchen, FoodStorage – without precious details of producers or merchants;
- Expiration time of purchased food is long enough, no waste of food is expected;
- Level of food on the Food Storage triggers the request for new delivery;
- Quality and safety of purchased food corresponds to the national rules and expectations;
- There is limited storage capacity and limited number of freight truck available;
- Military base operates 24 h., but the working time out of the base is restricted;
- Run out of food stock is unacceptable, replenishing the stock above the remaining volume of one day consumption is preferred;
- The First In First Out principle is applied for the Storage logic,
- Time of preparing order and its sending to the Logistics is set to zero, because usage of email is expected.

### 2.3. Elements of the model

Food supply chain model is assembled from several elements in order to assembly whole supply chain from purchasing of expected goods, transportation to the base and finally its consumption.

**Storage**

There are two storages within the model, one is named Logistics and it is placed in the country K, where the order for food delivery is obtained and proceed and the second one represents food storage placed within the military base. The proceeding time of Logistics storage is set to the value of two days which consist of the whole purchasing process (passing the order to the store, pick up prepared goods, prepare for transport to the military base in the country B. The level of the remaining stock at the food storage is monitored during time and when the level decrease on particular level the order for new food delivery is created and send to the Logistics and the process of purchasing and delivery starts.

**Proceeding station**

The Kitchen is an element of the model where we simulate the consumption of the food from the Food Storage in order to prepare plates for personal on the Base. Also, Kitchen is open three times per day in scheduled time for consumption of the plates. Cleaning and maintain of the Kitchen is provided during the off-shift time, but this process itself is not modeled in detail due to model simplification.

**Travel paths**

There are several paths connecting Storages or Kitchen respectively and several connection links between other elements. Path between Logistics and Food Storage is length defined route of the specific distance. It means, that the transportation time varies up to the vehicle speed during the transportation. Connection links within military base are defined like direct connection without travelling time and its main purpose is set the traveling logic for involved entities.

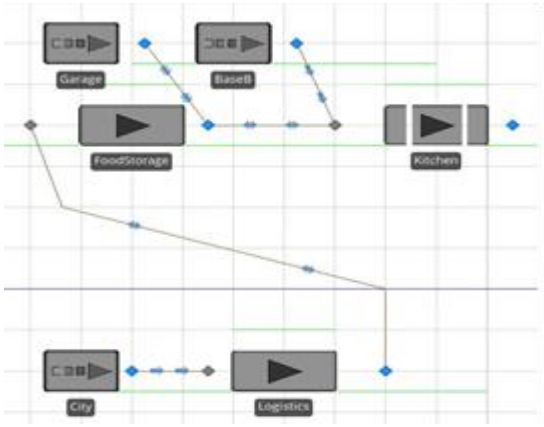
**Lorry**

Lorry is a freight truck for transportation goods limited with its speed to 80 km/h and transport capacity of 4000 items. Due to the security issues, there is working schedule set for the driver to avoid the Lorry transport goods during the night.

**Food consumption**

Process of the food consumption and plate serving is modeled by Kitchen. Delivery of the goods from the Storage is organized by the working schedule three times per day in constant value of 300 what represents expected number of clients. When the goods is delivered from the storage the plates are prepared and ready for consumption by personal. Client arrival is simulated during the period of opening time of the Kitchen. When Client arrives to the Kitchen the plate is about being consumed and after that Client leaves Kitchen.

**Figure 1. Food supply model**




Source: Authors.

There is the final design of the animated model of food supply on the Figure 1, whose parameters are set up to all assumption and specific condition discussed above.

### 3. Validation of the model and running the simmulation

The Simo8 software was used for computing of our model with the elements discussed above. When the design is finished and all desired parameters set we can run the pilot simulation run in order to receive outputs to check the validity of the model. It means that we should compare the results of the simulation with calculation executed different way. When both of results are equal we can consider the model valid. In case of different results, is necessary to check all the settings of the model to find eventual mistakes or wrong settings to repair it and run the test again until the model validity is confirmed.

Following stage is preparation of experiments on the model regarding the model objectives. We need to identify the output variables which we are interested about and input variables or condition which influence the behavior of the model and provides different output. In the case of this model we will change the moment of the order for new delivery of goods up to variable check point of the value of the stock on the Base and volume of the requested goods respectively.

When the condition of Experiments are prepared we let the program run this models in order to order the output data for further analysis and discussion. We run several experiment of food delivery on the designed base for 300 people, and transforming logic of goods like 1 box of food from the store is converted to 1 unit of food in Food Storage on the Base and on food is converted into 1 plate. There is also preset some amount of food in the Food Store at the base when simulation starts. Simulation runs for 7 days when the results are written to the Excel file immediately. As mentioned above, the triggering event for new delivery is level of the food sock on the Food Store at the Base. When the material is moved from the store to the Kitchen and the level decrease on set level (3300, 2700 and 1800 units respectively), order request is sent via email to Logistics to ensure the delivery of new goods. The output from experiments shows how this change of one variable change the behavior of elements of the model and availability of food in Food Storage.

**Table 1. Experiments setting**

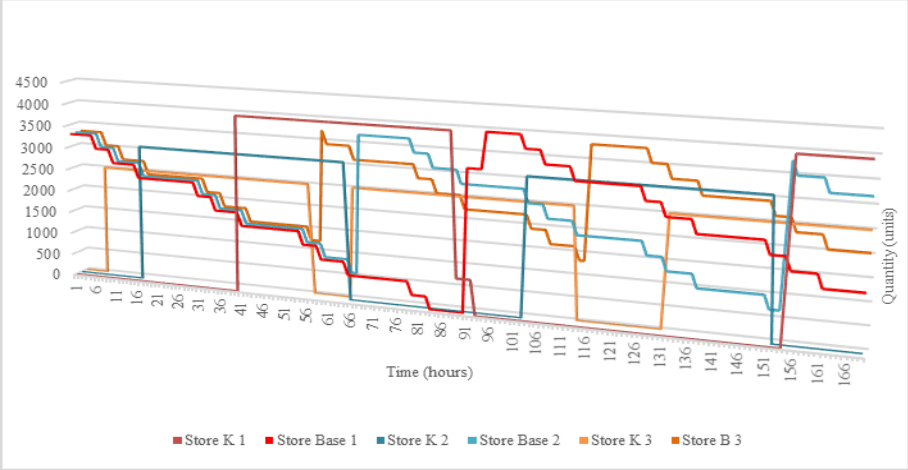
| Experiment number | Triggering level of storage (units) |
|---|---|
| 1 | 1800 |
| 2 | 2700 |
| 3 | 3300 |

Source: Authors.

## Results discussion

The simulation run within defined valuables gives the results show below on Graphs 1 – 3. The first Graph shows changes on the stored amount of food on the Base during the time due to the moving the food to the Kitchen in order to prepare the plates and also the volume of goods getting prepared in Store K for transport. We can see, that food consumption itself is not influenced by the change of the stock in storage process because it is simulated in repeating sequences up to model settings.

**Graph 1. Experiments results**




Source: Authors.

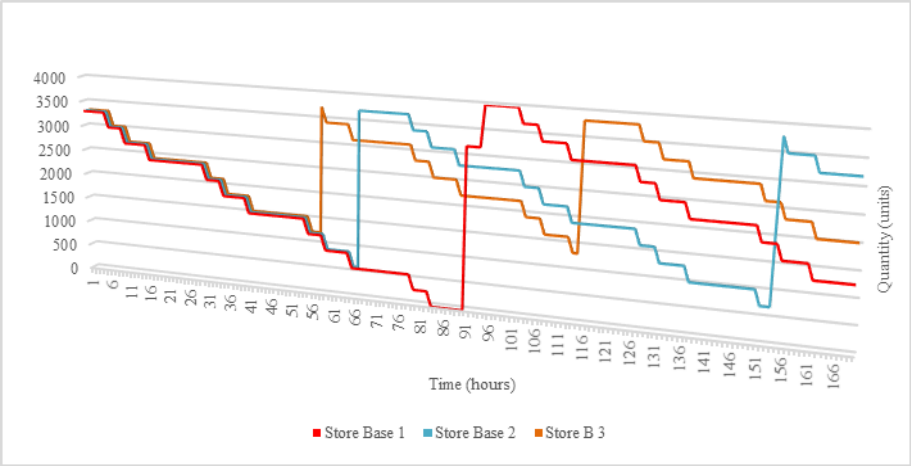
Different case is level of stock in Store K. We can see, that there is first delivery of goods in 6th hour (what corresponds to the experiment 3). Goods is held on the place for 48 hours due to the purchasing proceeding and after is loaded to Lorry and sent to the Base. This process occurs in all these experiments in different time up to the request moment and also it influences volume of the ordered goods (4000, 3100 or 2500 units) in each experiment.

The most important information from these results is moment when between 82. - 89. hour the level of stored food at the Base reach 0 level and remains there (see the Graph 2). This is important information for further decision about choosing the best scenario.

The other two scenarios does not reach to 0 level of food stock at the Base, so both looks acceptable. One of them never decrease below 600 units, the other below 1200. So we can continue with the results reading with the situation with food delivery as shown on the Graph 3.

We can recognize here the moment, when the prepared volume of goods was so high, that the capacity of the Lorry was not sufficient and it has to deliver this order by two travel. This does not have to be big complication within secured and peaceful environment, but we consider military operation within some kind of security risks, so this is second evidence against the Scenario 1.

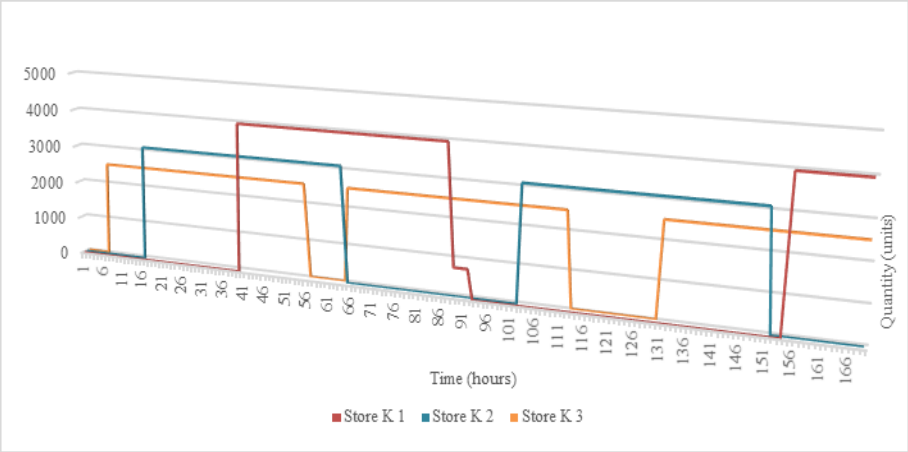
**Graph 2. Level of food stock on the base**




Source: Authors.

Let see the other two scenario from the delivery side. Both of them shows acceptable results about the delivery within one Lorry by one shipment per order. Decisive moment here is the number of the shipment according the same reason as mentioned above about the security situation in the area.

**Graph 3. Level on prepared order from store to military base in time**




Source: Authors.

## Conclusions

Considered results from this model we can say that conceptual modeling and simulation is suitable for preparing military logistic chain. It is necessary underline, that we put the main concern just to the volume of the stock and new material delivery without other elements. This corresponds with the theoretical postulate, that it is better to create any model from the simply one towards very complex and difficult one.

This model gives big opportunity for further development. At the first moment it can be enhanced of the risk valuables to simulate some failures, for example vehicle breakdowns, storage failure, route blockade etc. That bring the modeled situation near the real life and can highly influence model outputs in order to whole supply chain upgrade towards higher sustainability and reliability.

The model can gain another dimension when economical values get implemented such as transport costs, material costs, salaries etc. This economical setting can be very useful when the decision making is about the number of personal or transport means as the objective of the simulation.

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**ELENA MEREUTA[1] AND MONICA NOVETSCHI[2]**

# STUDY ON THE ENTREPRENEURIAL SKILLS OF ECONOMICAL ENGINEERING GRADUATES

## Abstract

The paper presents the an analysis of the particularities of economic engineering bachelor programs in terms of entrepreneurial skills and quality standards established at national level by specialized agencies. The analysis is based on the curricula and on the on the graduates' opinions. A questionnaire which emphasize if the graduates have proper information about entrepreneurship and business was developed. The questionnaire highlights the ability of graduates to identify the knowledge and skills they have or can obtain, identify the personal motivational factors that could determine the business start-up, the types of skills, abilities and experience, as well as the connection to different fields of activity. On the basis of the answers, the main directions to which the training of these students should be directed are highlighted, in order to ensure those entrepreneurial skills that enable them to start and develop a business.

**Keywords:** Entrepreneurship, economical engineering, business

**JEL Codes:** I21

## 1. Introduction

The goal of the Engineering and Management domain is to train, through interdisciplinary studies in engineering, economics and business law, specialists able to design, organize and control industrial production systems and generate all relationships which link these systems to the social and economic environment.

The Engineering and management bachelor program allows training on the techniques of design and organization of different types of industrial systems and on production management to acquire the following specific skills:

a) Economic evaluation, planning and management of processes, logistics and production;
b) Organizational Resource Management, Quality Assurance in Production and Organizational Development Management;
c) Technical and economical design and improvement of products and industrial processes;
d) Professional skills;
e) Economic assessment, planning and management of processes and logistics and production systems according to regulation.

The three components of the of engineering and management bachelor studies field are presented in figure 1. Their ratio in the structure of the curriculum is established in order to provide the skills required by the labor market for an engineer-economist or for a project manager.

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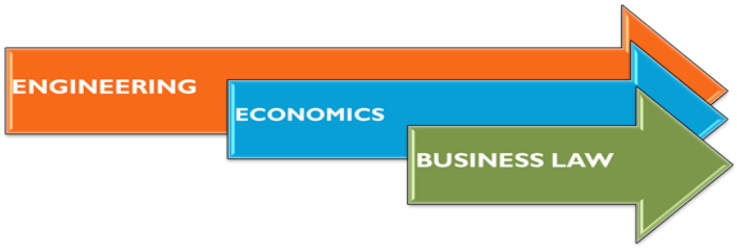
**Figure 1. Three components of the engineering and management bachelor program**




Source: Authors.

In the following, we aim to find out if the engineering and management graduates have the skills and the desire to become entrepreneurs. These are the factors that influence the success of an enterprise, being a measure of the involvement and dedication (Kuratko, 2005).

Here are some of the most common reasons for setting up a business:

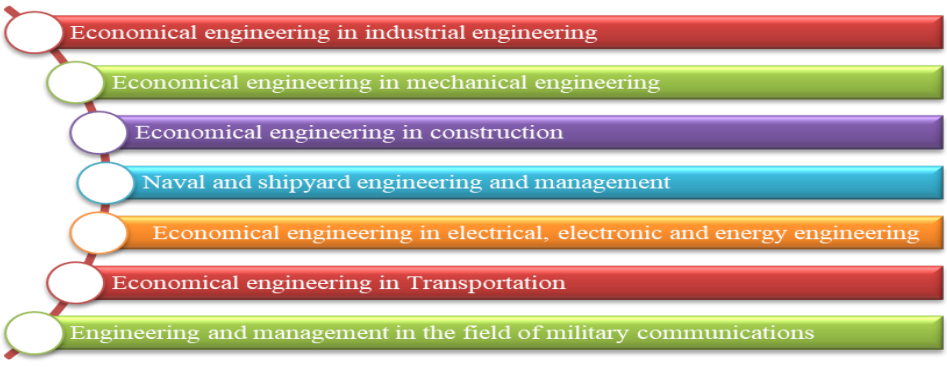
- Lack of alternatives (unemployment, need for higher income)
- The desire to gain financial independence and profit
- The desire to become your own boss
- Lack of satisfaction with the current job
- The desire to take advantage of the opportunities offered by the market
- Example of other people's success
- Attempting to combat the routine, the need for a major change
- The desire to make your own ideas come to life.

The engineering and management field of study was built on the necessity to provide two type of knowledge: knowledge about business and a depth of knowledge about a technical discipline (Hampden-Turner, 2009, Bennett, 2006).

## 2. Legal requirements in the field of Engineering and Management studies

According to government decisions which defines the study domains and programs at national level, in Romania the Engineering and management field includes the bachelor programs shown in figure 2.

**Figure 2. The main bachelor programs in the Engineering and Management field**




Source: Authors.

Dunarea de Jos University provides the following engineering and management bachelor programs: economical engineering in industrial engineering, economical engineering in mechanical engineering and engineering and management in agriculture and tourism. According to the Romanian Agency for Quality Assurance in Higher Education the requirements for these programs are:

- Bachelor programs are differentiated by their curricular content. They are defined by mission and correspondingly by the competencies foreseen to be acquired by graduates, according to the curricula.
- A bachelor's degree program is individualized within the field through the curriculum. It must contain at least 20% different disciplines from other bachelor programs in the field.

Curricula should be developed in accordance with the following requirements:

- to provide the acquisition of specific professional and transversal competences;
- to respect the structure of the disciplines as well as their ratio;
- to respect the disciplines structure according to the criterion of the compulsory/optionally, as well as the associated limit ratio;
- to ensure the compatibility at national level of the bachelor programs according to the approved list of disciplines;
- to provide a logical flow of disciplines, their structure and size (course, seminar, lab, project, practice) and provide relevant and objective forms of examination
- to ensure, as far as possible, compatibility with similar EU bachelor programs.

Some specific quality standards for an engineering and management graduate are shown in fig. 3

**Figure 3. and Figure 4.**

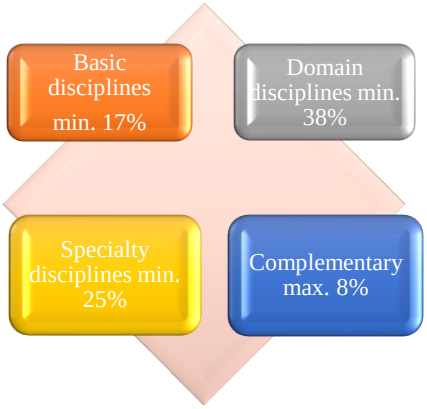



Figure 3. Quality standards in engineering and management


Figure 4. Specific quality standards in engineering and management

Source: Authors.

All the disciplines in the curricula must be selected from a list that comprises both engineering and economics. Each higher education institution selects the most appropriate disciplines in order to ensure the graduates' competencies and skills previously established. For engineering and management bachelor studies, the ratio of engineering, managerial and economic, as well as business law disciplines within the domain disciplines are shown in fig. 4. The most relevant managerial and economical disciplines in the curriculum are: fundamentals of the economy, fundamentals of accounting, financial accounting, business law, management, marketing, economic and financial analysis, operational

research, quality management, project management, human resources management, risk management in business, calculation of price and costs, economic analysis.

## 3. Research method

In order to assess the graduates' skills and competencies a questionnaire emphasizing if the graduates have proper information about entrepreneurship and business was developed. The questionnaire highlights the ability of graduates to identify the knowledge and skills they have or can obtain, identify the personal motivational factors that could determine the business start-up, the types of skills, abilities and experience, as well as the connection to different fields of activity. A group of 73 graduates participate in the survey. The questionnaire was divided into four major sections:

Section 1 - Types of knowledge, abilities and experience identified by the students following personal self-reflection. The items in this section were designed to reveal the following: life skills (self-confidence, ability to self-motivate, assuming responsibility, etc.), skills in a specific field of activity, ability to communicate, negotiate, persuade, and experience in different fields of activity.

Section 2 - Motivational factors. The following motivational factors for entrepreneurship were analyzed: desire for financial independence, need for additional income, need to ensure a better future for the family, need to secure an income (following a dismissal), desire to put into practice a certain business idea, and desire of professional fulfillment.

Section 3 - Identifying existing needs in the area where they live. The following questions were asked:
Are there all types of basic products and services in the community (food, transport, medical, etc.)?
Do they meet the whole request?
Who in the community does not benefit from the services / products that they would like?
What types of business are the most numerous in the community?
Does the community / area have any specific / special features (tourist attractions, religious traditions, special traditions, special plants, etc.)?
What product / service can be offered to community members, which they do not already have?
What product / service based on the specific resources of the community could you offer to tourists or other people in the region?

Section 4 – Knowledge on general requirements for start-up a business. This section comprises questions related to the outcomes of the graduates' training in the field of engineering and management, aiming to reveal the level of information they have gathered over four years of study.

## 4. Results and conclusions

The survey has pointed out some interesting features about our graduates. First of all, it was found that 68% of them are able to identify business ideas based on the skills and competences required to meet certain existing needs, 77.5% were able to indicate at least two characteristics of each form of legal business organization, 86.1% know the necessary steps to organize a business (details regarding the documents and required steps to register a business), and 83.4% are able to choose the form of legal organization that fits better with the identified business idea (fig. 5).

**Figure 5. and Figure 6.**

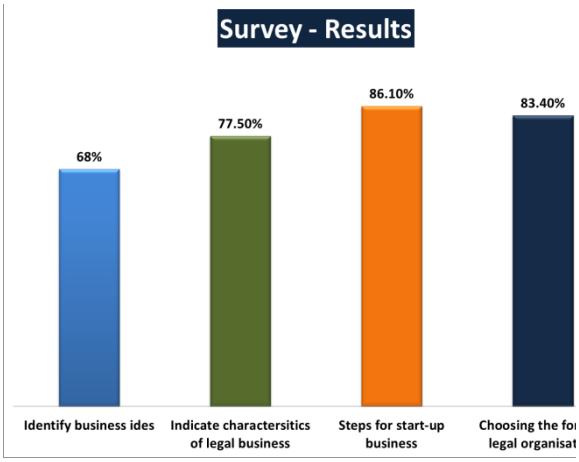



Figure 5. Survey results

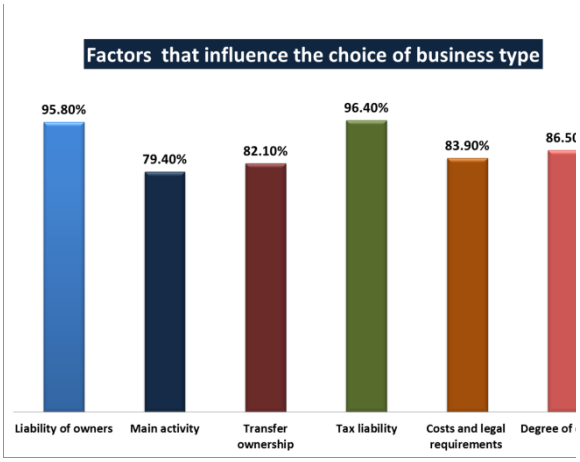



Figure 6. Survey results on the factors that influence the choice of business type

Source: Authors.

Regarding the factors that influence the choice of business organization type, 95.8% of the participants in the survey considered that liability of owners is limited only to the capital invested in the business, 79.4% chose the organization type according to the main activity they want to deliver, 82.1% agreed to the freedom of the owner to transfer his ownership in the company to someone else as he desires, and they choose the organization type accordingly, 96.4% respondents considered that the most important criterion on the selection of organization type is the tax liability. They will choose a form of organization which ensures the lowest tax. The costs and the legal requirements are also important for them. 83.9% will select that form of organization which enables them to start-up business with minimum legal formalities and costs. Degree of control desired is another factor influencing the choice of the organization type, and 86.5% consider that it is better to choose the organization that offers total control of the business to its owners.

Regarding the planning of the marketing strategy in order to determine the best way to promote the product or service, the respondents proved that they are aware of its importance and 47.8% considered print and graphic media as a tool for promoting their products, while 50.3% consider that electronic media will ensure a better promotion of their products on the market. Only 1.9% agreed to additional promotional ideas, like promotional gifts (fig. 7).

The level of understanding the meaning of basic concepts of finance and accounting, describing and explaining in accessible language, some basic concepts of finance and accounting, were also goals of this survey (Wadhwa, 2010). The respondents proved that they are informed, and they have knowledge in this field. They were able to describe the content and the steps for drawing up the following financial and accounting documents: revenues, receipts, expenses, payments as well as knowledge on accounting rules, balance sheet and profit and loss account (or result), receipts and payments registry, inventory register, invoice, receipt, tax receipt, payment order, statement of account.

**Figure 7. and Figure 8.**

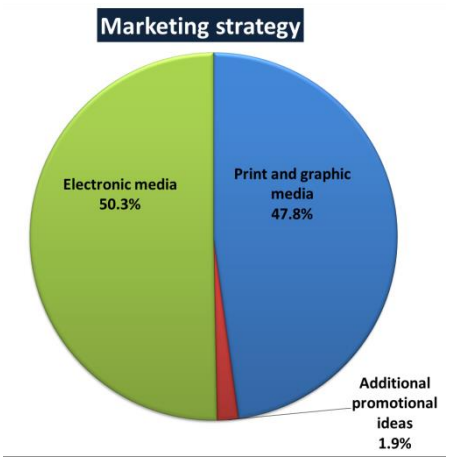



Figure 7. Marketing strategy for promoting the products

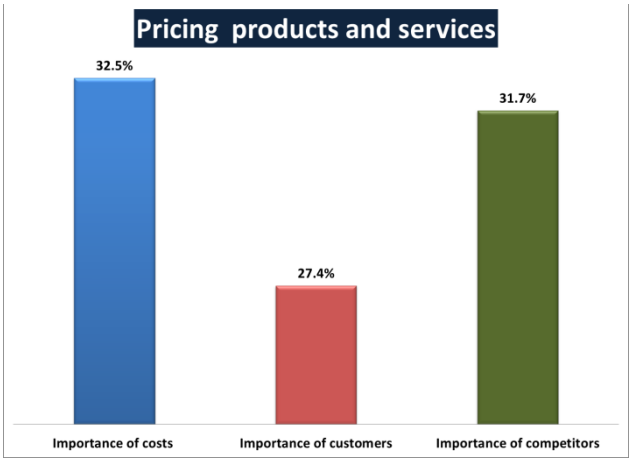



Figure 8. Pricing products and services

Source: Authors.

The survey offered also some negative aspects regarding the financing of an enterprise, the ways to access the financing sources, pricing products and services based on costs and value, understand the necessity and usefulness of drawing up a business plan for their own business and drawing up a business plan.

When they were asked about the different sources of financing their own business most of them (75.8%) thought only at their own capital or a borrowed one from creditor (24.2%). They are not aware that there are other financial sources, like venture capital, angel investors, government funding, etc.

Regarding pricing products and services based on costs and value, only 32.5% of the respondents considered that the costs the most important aspect when they want to price their products or services. They were able to describe how the price is generated, starting from the production costs, aiming at enough revenue to cover the costs. Most respondents are not aware of the importance of learning as much as they can about their customers, in order to set an accurate price for the products, taking account of their market behavior (27.4%). The competition is another key factor in establishing the price. But most of them ignored this issue (68.3%), considering that their product is better than the competitors (fig.8)

Another important element discovered during the questioning of graduates is related to the importance of the business plan. Respondents have shown that they are not aware of the important elements that a properly written business plan can bring in the further development of the business (fig.9). So, they have minimized the importance of elements such as: testing the feasibility of a business idea (only 11.9%), securing funds (8.3%), manageability and effectiveness (7.9%), decision-making (5.2%), reality checking (3.2%), creation of an action plan (12.5%). They have also proven that there are important elements regarding the content of a business plan that they do not know how to include in the business plan.

**Figure 9. and Figure 10.**

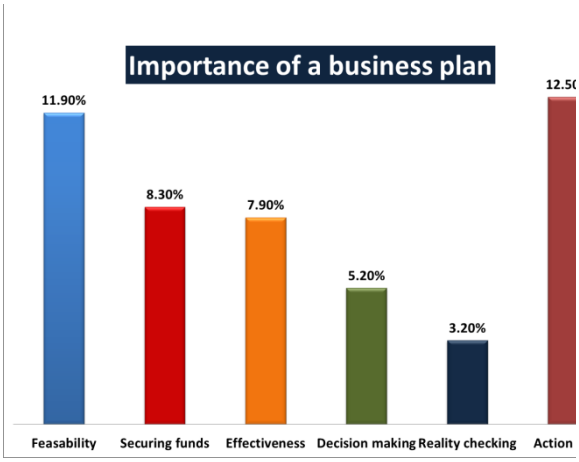



Figure 9. The importance of a business plan

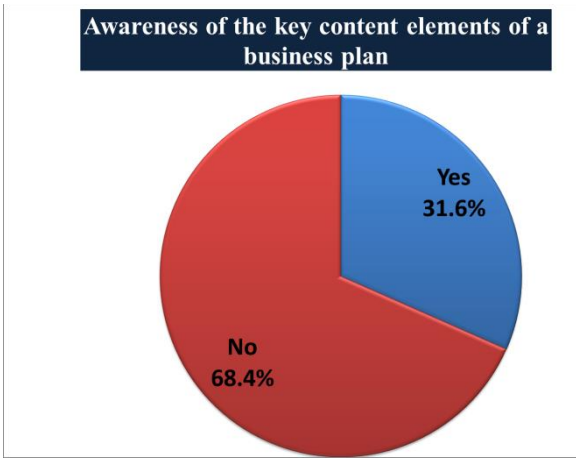



Figure 10. Awareness of the key content elements of a business plan

Source: Authors.

The business plan should include details on the following subjects: background and purpose, (including the product or service concept, and the business objectives), market analysis (including specific market segment, competition, and sales forecasts), product or service development (including production requirements and process and quality assurance measures), marketing (surveys and strategy), financial data (including financial projections), organization structure and management (including key personnel - qualifications and responsibilities of management), ownership (including business structure, current capitalization and forecast capitalization), risk factors and conclusions. Only 31.6% of the respondents indicated the most important content elements of a business plan. The others have considered that only the product or service development is important, together with the financial data of the production (fig. 10).

## Conclusions

The general conclusion of this study is that there is a need for a better adjustment of the content of economic disciplines to the needs of graduates, in order to help them start-up a business and to find sources of funding it. A curricular reform might be the solution, but if there is a regulated framework with regard to curricula, only an adjusted syllabus could be the solution.

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# METHODOLOGY AND INDICATORS FOR ECOLOGICAL-SPATIAL SUSTAINABILITY: A CASE STUDY OF CROSS-BORDER TOURISM CO-OPERATION

## Abstract

The saturation of the best quality land, especially in the littoral regions; the expansive tourist traffic and its aggressive forms; the penetration of an increasing number of tourists in protected areas, especially in the strict natural reserves; destructive forms of tourist construction, which completely occupy and devour the natural space and destroy the landscape cause systematic environmental damage. Such condition requires changes in behaviour towards the natural and cultural environment and the new paradigm of sustainable tourism development. This paper decomposes into their key elements definitions of both sustainable development and sustainable tourism development. The paper critically reviews the ecological-spatial sustainability, in particular the consistency and coherence of its indicators. For the purpose of the survey on the concrete and measurable impact assessment of sustainability, the ecological-spatial sustainability is broken down into components and indicators which form the basis of the questionnaire. The survey of tourist actors in the observed area was carried out in response to the NUTS 3 region. Results of statistical tests show that if we consider three indicators that can be influenced by stakeholders (waste production-environmental pollution, use of renewable energy sources, and conservation of the ecosystem), we can see significant statistical differences in the influence. Furthermore, the tests show that there is a difference in approach of stakeholders on how to improve these indicators dependant on their activities, number of employees, salary level and the affiliation with formal associations (clusters), which can affect the increase of ecological-spatial sustainability through selected indicators.

**Keywords:** Sustainable tourism development, ecological-spatial sustainability, environmental pollution, use of renewable energy sources, conservation of the ecosystem

**JEL Codes:** Z32

## 1. Introduction

From mass tourism (Krippendorf, 1994) to the present forms of tourism, with all direct and indirect anomalies through – traffic congestion, crime, water pollution, air, noise, destruction of flora and fauna and cultural treasures (Vanhove, 2000), adequate forms of tourism development are being sought with special emphasis on sustainable development of the local community.

The new approach and ideas about the nature of local development based on tourism-related interventions in the regions strengthen environmental movements and civil initiatives which put the issues of sustainable development high on their agenda and subsequently revaluate regional culture and dialect (Keating, 1998). Despite knowledge about a wide spectrum of tourism effects on local community development, there is not a lot of research covering all the key aspects of tourism impact on the sustainable development of the local community. Most of the research deals with individual, fragmented aspects of influence (cultural, social or spatial) (Andriotis, 2004; Besculides, Lee and McCormick, 2002).Tourism based on local resources and networking of business entities can be one of the factors of the overall development of the local/regional community. Good examples are seen in the

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Scandinavian countries (Gibson and Lynch, 2007, in Ewen, ed., 2007), where local people have been encouraged through development policy measures in the last few years to respond to development challenges through tourism development, thus providing new insights into local economic development.

Considering the mentioned, this research will treat space, local community and local development within the NUTS 3 regions according to the statistical classification of the European Union.

## 2. Space and sustainable development

The space is one of the most natural categories in which we operate. The classical economic thought observed space through the phenomenon of land and land rents. In the last decades of the last century, the space was discussed as an economic category and an important factor for economic development. Spatial discussions seriously pointed to the space as an economic resource that is final, tangible, limited and divisible. Overall human activities and development are inextricably linked to the concrete local space or local community space, as well as to a set of activities that tourism includes. The essence of tourism is based on the fact that people are visiting places, i.e. physical space, or local community space. Hence, tourism and the local community are observed through interrelationships, i.e. change of the one affects the change of the other. Local and regional development became very important for national and regional authorities in the late 1960s and early 1970s. The dramatic changes in world economic activity and the very model of an economy that have become internationalized and globalized through increased mobility of capital, labor, goods and services with often invasive knowledge and increasing competitiveness put the focus on development issues. That is why the local development policy changes the existing theoretical viewpoints from the developmental quantum to the developmental quality. Such a concept of sustainable development is based on both economic development and the preservation of natural resources and the quality of life.

There are numerous definitions of sustainable development. J. Pezzey listed 72 definitions of sustainable development (Pezzey, 1992) and several are given below for the purpose of this research.

The history of sustainable development dates back to the 19$^{th}$-century forestry, where Hans Carl von Carlowitz defined the concept of sustainable forest management and underlined how many forests can be sown and grow again (H. Müller, 2004).

The most recognizable definition of sustainable development dates from the 1992 Brundtland Commission report that says that sustainable development has to "respond to the demands of today's generation without damaging the ability of future generations to respond to their demands". (World Development Report, 1992).

J. Krippendorf sees it as an increase in the quality of life, i.e. economic well-being and subjective feeling, achieved by decreasing non-renewable resources and reducing the burden on the environment and people. (Krippendorf, 1986).

H. E. Daly speaks of sustainable development as an increase in overall ecological and economic efficiency, which is shown by the relationship between the capital gains generated by people versus spent capital (Daly, 1990).

E. L. Carter interprets it as a dominant idea or discourse that directs international environmental policy (Carter, 1994), as well as the process of improving the quality of human life that takes place within the framework of so-called supporting capacity of sustainable ecosystems.

H. Holzinger says that sustainable development means the choice of life and management that all earth's inhabitants can have without destroying the global ecosystem, which will provide future generations with the possibility of disposing an inexhaustible basis for life (Holzinger, 1999). Therefore, we can talk about the strategy of technical progress, by increasing the efficiency of machinery or through substitution (substitution of oil by biomass or solar energy).

As Morgan (2004) and Nussbaum and Senn (1999) write the conceptual shift in the principles of local and regional development is visible, as more focused not just on new jobs, but also on the quality of life.

According to J. M. Harribey, the sustainability strategy is the management of three points that present triangle: economic, ecological and social (Harribey, 1996). An economic pole presents rational/reasonable, social just/effective and ecological equilibrium/imbalance. The specificity of these three poles is that there is a minimum likelihood that all three poles will be united at the same time.

The World Tourism Organization describes the sustainable development of tourism as a model that improves the quality of life of a local community, provides a high level of visitor experience and supports the quality of the environment in a way that meets the needs of the local community and visitors (WTO, 1993.).

H. Müller considers sustainable development as the increase in the quality of life, i.e. economic well-being and subjective good acomploshed through reduced investment of non-renewable natural resources and less and less burden on the environment and people, with the aim of not restricting the options of future generations. Müller also talks about sustainability through the five-octave pyramid, where the first pyramid's point is material wealth-income, creation of value, reduction of the disparity of the economic power of the local population; the second is a subjective good sense of self-awareness, freedom, self-realization, local population and strengthening of local cultural identity; the third is the satisfaction of guests; the fourth is protection of nature and resources – biological diversity, resource protection, diversity and the fifth is cultural diversity-cultural creation, protection of cultural goods, fostering domestic culture (Müller, 2004).

Naturally, the intensity and scope of the impact of tourism on local development and local community depends on the organization and interaction of local development stakeholders in achieving common goals such as raising the standard of living, competitiveness and sustainable use of overall resources. (Da Cunha and Da Cunha, 2005).

Therefore, when it comes to sustainability and local development based on tourism, one should talk about spatial and ecological sustainability; economic and social sustainability; social and cultural sustainability; and political and institutional sustainability. Only one component does not lead to overall sustainability. This is also referred to by literature (Bramwell and Lane, 1993; Hall and Lew, 1998; Timothy, 1998; Southgate and Sharpley, 2002; Da Cunha and Da Cunha, 2005; Lay, 2007; Carić and Marković, 2009) which mentions the ecological, economic, social, cultural and institutional components of sustainability.

For the purpose of this research, we define sustainable development as a guided process, with the aim of resource management, in order to ensure their further existence and thus maintain natural and cultural capital with the full participation of the local community. Further, we synthesize the definition that states that sustainable local tourism development is the ability of the survival of a tourist destination with the form of tourism that has economic, social, environmental, cultural and institutional components

within it, organized in the form of a tourist cluster. These are also the starting points of research, i.e. the relationship of tourist actors towards spatial-ecological sustainability.

### 2.1. Indicators of spatial-ecological sustainability

The conceptual, i.e. theoretical approach of Daly (1990), Gibson and Müller (2004), through Da Cunha and Da Cunha's work approach (2005.) was taken for the purpose of this research. Theoretical approaches and work concepts derived from indicators which were the basis of the questionnaire.

**Table 1. Indicators of spatial-ecological sustainability**

| **Conceptual, theoretical approach (Daly, Gibson, Müller)** | **Work Conception / Approach (Da Cunha and Da Cunha)** | **Indicators** |
|---|---|---|
| • Nature and resources protection-biological diversity<br>• Resource protection Diversity<br>• Local community participation | Ecological and space sustainability | • Material, waste and their impact;<br>• Soil - risk of erosion, landslides;<br>• Water - Expenses for water purification<br>• Air<br>• Climate - greenhouse gas emissions<br>• Use space<br>• Energy-share of renewable energy sources<br>• Biological diversity<br>• Forest - protection of forests |

Source: Authors' own elaboration.

The spatial-ecological component of sustainability is the rational use and protection of the physical base, i.e. resources of development such as space, natural data, and cultural heritage. It is expressed through the ability of society to be long-term self-sufficient in the basic characteristics: biosphere, hydrosphere, atmospheres, pedosphere. There are four essential elements of spatial-ecological sustainability: water, air, soil mineral structure and uniform environmental change. Therefore, the local community should ensure clean and healthy water by securing the supply process of sufficient quantities of drinking water for all its residents. Clean air should be secured by air monitoring processes and institutional regulation (air quality standards, standards, and standards). Soil should remain rich in minerals and suitable for the production of sufficient quantities of healthy food today and in the future, which means it must not be polluted by agricultural production or the disposal of industrial and other waste. All the environmental-polluting technologies should be replaced and abandoned. That calls for more responsible treatment of forests; reduction of the excessive use of artificial fertilizers, pesticides, herbicides; and stronger use of renewable energy sources (water, sun, wind, biomass) especially through the decentralization of the energy system.

The goal of spatial-ecological sustainability is the natural basis for future development of all local community residents. Through spatial-ecological sustainability greenhouse gas emissions levels in all local community activities should be reduced.

The spatial-ecological sustainability component also depends on the management and conservation of the local biosphere that consist of local community flora and fauna, landscape environments, diversity of ecosystems, preservation and protection of natural bases, selective use of the environment for the development and repair of the already damaged environment.

Given all that, the paper uses three of the indicators:

a) Waste and its impact (WASTE)
b) Energy share of renewable energy sources (RENEWABLE SOURCES)
c) Biological diversity (ECOSYSTEMS)

Other indicators cannot be directly influenced by the participants of tourist destination sustainable development. Namely, soil, water, air and forests are under the authority of specialized state-owned enterprises and their protection and use are managed and regulated by legal acts, whereas climate is a consequence of global action.

The tourist cluster, for the purpose of this work, is defined as a form of formal association of actors in a given area, who participate in the development of a tourist destination.

## 3. Research goals

In accordance with the previously defined subject of the research and the research problem, the basic objective of the research is to establish the relation of tourist actors towards the component of spatial-ecological sustainability. A component is then critically reviewed, in particular consistency and coherence in the context of work definitions. In order to determine this, the definitions of sustainable development need to be decomposed, i.e. the phenomena of high complexity contained in the definitions are structured so that concrete and measurable insights can be found about the influence of tourism actors on sustainability. In order to prepare the necessary questions for the survey, the tool for a concrete and measurable impact assessment of the sustainability of the key component should be broken down into the constituents. The structure, definition, component and constituents are determined as the basis for formulating the questionnaires.

From spatial-ecological sustainability, a working hypothesis also arises:
**H1:** Tourism actors, if they are associated with formal forms, i.e. tourist cluster, contribute significantly to the spatial - ecological sustainability of the observed space.

## 4. Methodology

The basis for *theoretical research* consists of scientific and expert literature (articles, books, monographs, statistical sources, websites, etc). As far as research in the field of social sciences is concerned, the work of this paper has critically analyzed relevant scientific findings and contributions that address the issues of sustainable development in general (principles, areas and indicators) and tourism; based on the research factors that make spatial-ecological sustainability are created.

The *empirical part of the research* was conducted with the help of two surveys using a personal interview method on a sample of subjects active in the field of tourism and catering in the observed

cross-border area. The sample in the first survey covered all actors (134), who are registered for carrying out tourism activities and are already doing business (data was obtained from the State Administration Office). Each responder corresponds to the *Likert* scale from 1 to 5 with a special explanation for each grade (e.g. 1 – very weak, 2 – weak, 3 – moderate, 4 – strong and 5 – very strong).

In the second survey, their financial indicators (profit and loss accounts) and the capacity of their production and services were explored. The surveys were processed in SPSS 16 and in Excel 2007. The sample covered: one of the spa districts in the Krapina-Zagorje County (KZC) in the Republic of Croatia and one in the Savinjska region in the Republic of Slovenia, 20 agro tourism households, 20 vineyards, 18 restaurants and 16 traditional food producers, and 10 providers of accommodation services. Altogether 86 entities (43 business entities in tourism in the Krapina-Zagorje County and 43 companies in the Savinjska region) were analyzed. Since all registered subjects in the field of tourism are surveyed in the area, statistical data on sample representativeness are relevant.

So, in these two surveys, the total number of respondents were 148 (16 spas / hotels / boarding houses, 29 restaurants, 2 special hospitals, 27 agro tourism-vineyards, 8 supporting institutions, 9 travel agencies, 23 organizers of tourist events, 27 food and beverage producers and 7 traditional crafts).

Out of the total number of respondents, the survey was completed by 65, but 14 of them responded partially, so such data could not be considered. Furthermore, at the other 51, one company is directly involved in the environmental protection, so part of that consideration was not used their data.

Survey questions are divided into 4 groups, with each of the groups considering three indicators defined in Chapter 2.1: WASTE, RENEWABLE SOURCES AND ECOSYSTEM (grades 1 to 5):

**Group A:** indicator rating
**Group B:** rating of personal improvement potential
**Group C:** rating of the possibility of affecting others in improvement
**Group D:** rating of the possibility of affecting others in improvement as a Cluster member**.**

**Table 2. Survey questions**

| | very weak, weak, moderate, strong, very strong |
|---|---|
| A1) Rate how much your business activity affects waste production and environmental pollution. | **1 2 3 4 5** |
| A2) Rate how much you use renewable energy sources (solar collectors, pellets, heat pumps …) | **1 2 3 4 5** |
| A3) Rate how much you work with the Public Institution for Protected Natural Area of KZC, that cares about preserving the natural ecosystem. | **1 2 3 4 5** |
| B1) Rate how much you as a cluster member could affect your own environmental pollution reduction. | **1 2 3 4 5** |
| B2) Rate how much you as a cluster member could affect your own increase in the use of renewable energy sources. | **1 2 3 4 5** |
| B3) Rate how much you as cluster member can affect the better preservation of the natural ecosystem (through the Public Institution for Protected Natural Area of KZC). | **1 2 3 4 5** |
| C1) Rate how much you can affect other actors in the KZC to reduce environmental pollution | **1 2 3 4 5** |
| C2) Rate how much you can influence other actors in KZC to use more renewable energy sources. | **1 2 3 4 5** |
| C3) Rate how much you can influence other actors in the KZC in conservation of a natural ecosystem, to use more service of the Public Institution for Protected Natural Area of KZC | **1 2 3 4 5** |
| D1) Rate how much you as a member of the cluster can affect the other actors in the KZC to reduce environmental pollution. | **1 2 3 4 5** |
| D2) Rate how much you as a cluster member could affect other actors in KZC to use more renewable energy sources. | **1 2 3 4 5** |
| D3) Rate how much you as a member of the cluster could affect the stakeholders in the community to better protect and care for the natural ecosystem. | **1 2 3 4 5** |

Source: Authors.

The data analysis is divided into two parts:

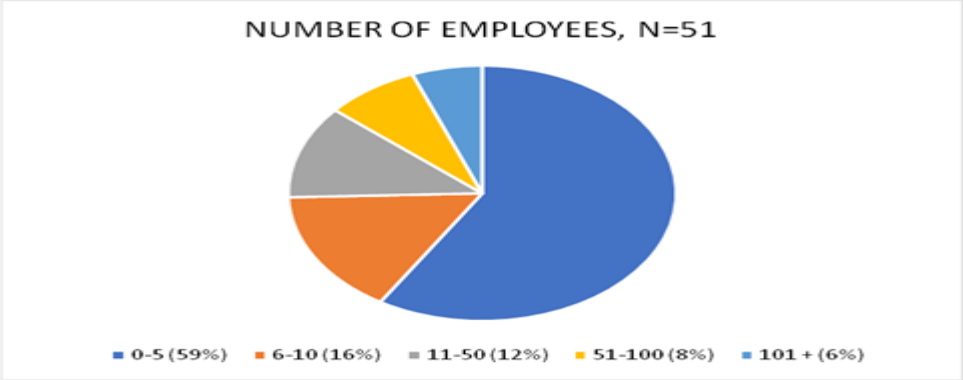
- Descriptive statistics (structure of respondents by area of activity, number of employees, average salaries and types of ownership);
- Testing of significance (T-test for small independent samples – up to 50 examinees, because the number is at the border and in the part the data on the parts of the population are considered, so the number is significantly smaller than 50 and the F test).

## 5. Research results

In the survey, besides answering questionnaires, the respondents were asked for data on ownership, number of employees, average salary level, and the activity, with all data being divided into categories. The reason why this data is requested is to analyze in which categories there are significant differences in the assessment of mutual cooperation with actors in the Krapina-Zagorje County.

Thus, ownership was divided into two categories; private property and the public sector (all that was not privately owned), while still being checked whether the owners were from Republic of Croatia or from abroad. As only one respondent has foreign ownership, no statistically significant deviation could be obtained compared to the level of respondents in domestic or foreign ownership.

**Chart 1. Distribution of respondents by number of employees**



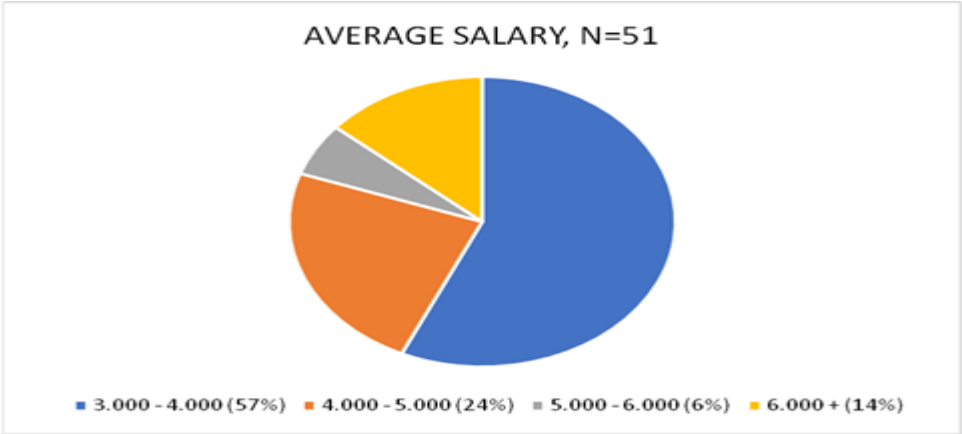

Source: Authors.

Distribution by number of employees is given in Chart 1. and the respondents are divided into 5 categories, as the vast majority of small businesses (family farms, crafts and small businesses), while only 2 respondents have over 100 employees (one has 135, while others have 765 employees). Networks are most important to small businesses which need to join this type of collaboration because they do not have enough staff to structure their organization and cannot hire a larger number of employees because they do not earn enough income.

Salaries are divided into 4 categories, which can be seen in Chart 2. with the highest wage category greater than the average wages in the Republic of Croatia. With this data, reality cannot be reliably considered, as family farms and crafts are usually reported at a minimum wage as well as small businesses with one owner because it is simpler and cheaper to take personal income through cost to companies. For large companies this is not possible because they are structured with clear business

rules, and the ownership structure presupposes that the owner is at the same time the employee (in most cases general manager).

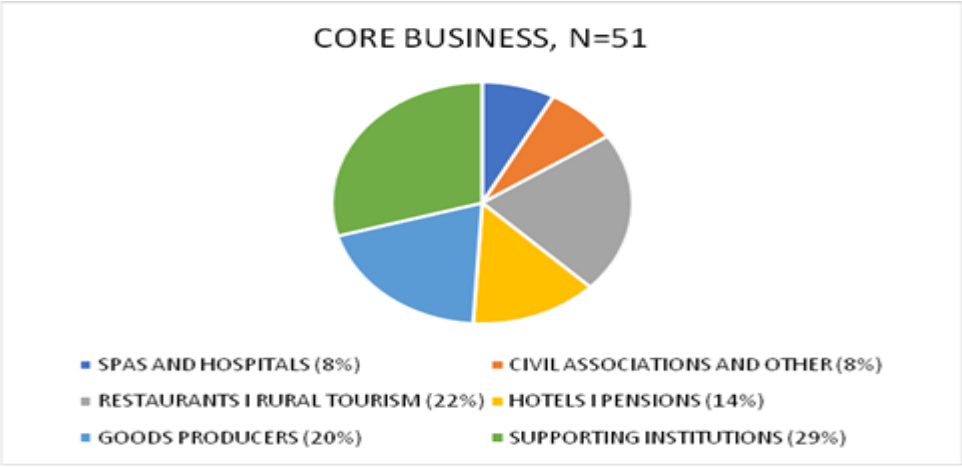
**Chart 2. Distribution of respondents according to average salary level**




Source: Authors.

Chart 3. shows the distribution of respondents in the area of activity (core business) or activity of enterprises, divided into 6 categories, with the largest number of supporting institutions (29%) and all supporting institutions represent public sector (not private property). The field of action could be grouped in even more detail, however, such sample would make it difficult to look for statistical significance. Therefore, only 6 categories remained.

**Chart 3. Distribution of respondents by core business**




Source: Authors.

By analyzing the data and the T-tests conducted within Group A, it was noted that there were no statistically significant deviations in the evaluation of these three indicators (even for one) according to the following criteria:
a) privately owned enterprises and public sector companies
b) companies with higher wages than average and those with wages less than the average of the Republic of Croatia.

The statistically significant deviations that exist within Group A exist for the WASTE indicator, according to the number of employees:

| T-test –WASTE | | UP TO 10 | 11 AND MORE |
|---|---|---|---|
| | | | |
| MEAN | | 1,68421053 | 2,153846154 |
| VAR | | 0,54623044 | 0,974358974 |
| | | | |
| Df | 49 | 37 | 12 |
| | | | |
| S | | 0,8068942 | |
| T | | -1,8114353 | |
| | | | |
| t5 | | 2,02 | |
| t1 | | 2,69 | |
| T10 | | 1,68 | |

and it can be argued with probability of error less than 10%, that there is a statistically significant difference between the average rating of the company with the number of employees up to 10 and those with more than 10 employees, where smaller companies produce less WASTE and less pollute the environment (average rating manufacturing waste 1,68 versus 2,15).

Furthermore, the F-test (ANOVA) found that **within Group A** on the entire sample of companies (51), comparing all three indicators, there was a statistically significant difference and that with a probability of error of less than 1% it can be argued that companies evaluate differently each of the three indicators, best preserving the preservation of the ECOSYSTEM (2,64), and the least RENEWABLE SOURCES (1,63).

| ANOVA (F-test) –WASTE : RENEWABLE SOURCES : ECOSYSTEM | | f | | |
|---|---|---|---|---|
| k | 3 | | | |
| n | 51 | | | |
| N | 153 | | 17,3005229 | 16,1880388 |
| MEAN | 2,004535147 | | 1,0687226 | |
| SSB | 34,60104586 | | | |
| SSE1 | 28,53061224 | | | |
| SSE2 | 32 | | f5 | 3,05 |
| SSE3 | 99,77777778 | | f1 | 4,75 |
| df1 | 2 | | | |
| df2 | 150 | | | |

**Comparison of Group A and Group B** (current status indicators for actors and their potential for improvement) on the whole sample of companies (51), and data analysis and conducted T-test, it was established that with two indicators, namely WASTE and RENEWABLE SOURCES, there is a statistically significant difference, and that with a probability of error of less than 1% it can be argued that companies differently evaluate the present state (1,80 WASTE and 1,63 RENEWABLE SOURCES) and the possibility of improvement (2,92 WASTE and 3,10 RENEWABLE SOURCES), while there is nostatistically significant difference in the ECOSYSTEM indicator.

In order to see the average cumulative effect, all these indicators within Group A and Group B on the whole sample (the average rating of all three indicators), on the whole sample of companies (51), and by data analysis and the T-test, it was established that there was statistically significant the difference, and how less than 1% of the probability of error can claim that companies differently evaluate the current state (2,02) and the possibility of improvement (2,94).

| T-test - WASTE + RENEW. + ECOSY. | | EXISTING | IMPROVEMENT |
|---|---|---|---|
| MEAN | | 2,01633987 | 2,941176471 |
| VAR | | 0,45361656 | 0,71869281 |
| | | | |
| df | 100 | 50 | 50 |
| | | | |
| s | | 0,7656074 | |
| t | | -6,099988 | |
| | | | |
| t5 | | 2,02 | |
| t1 | | 2,69 | |
| T10 | | 1,68 | |

while, if viewed individually, the statistical significance of the difference is present in WASTE and RENEWABLE SOURCES, while there is no in ECOSYSTEM.

**Comparison of Group B and Group C** (improvement of actors' ability and effect on others to improve) across the entire enterprise sample (51), and data analysis and T-test performed, it was established that in all three indicators there was a statistically significant difference and as with a probability of error of less than 1% (in 2 indicators) and 5% (in one indicator) can claim that actors vary in evaluation of potential for improvement. They see a greater ability for improvement by themselves than can be achieved by influencing others, and the biggest difference is with RENEWABLE SOURCES (3,10 for themselves and 1,98 for others).

**Comparison of Group A and Group D** (present state of action indicator and impact on improvement among others as a member of the cluster) on the whole sample of enterprises (51), and data analysis and conducted T-test, it was established that in both indicators, WATER and RENEWABLE SOURCES, there is a statistically significant difference, and as with a probability of error of less than 1%, it can be argued that companies evaluate differently the present situation and the ability to influence others in improving the indicators (1,80 WASTE and 1,63 RETURNABLE SOURCES) and the ability to influence others as a member of the cluster (2,37 WASTE and 2,31 RENEWABLE SOURCES), while there is no statistically significant difference in the ECOSYSTEM indicator.

Thus, as a result of this part of the analysis comes **H1**, which proves that tourist actors, if they are associated with formal forms, i.e. the tourist cluster, contribute significantly to the spatial-ecological sustainability of the observed space.

## Conclusions

Evidence of hypothesis is based on the study of theoretical basis and consequently on empirical research. Therefore, the research process consisted of two phases, each having a few steps. The first phase analyzes concepts and theories that are essential and serve as a starting point for conceptualizing and creating a spatial – ecological sustainability component. Local development and development policy mark the diversity of approaches both in theoretical and practical implementation. In theories and concepts, these are the classical theories of economic development, the neoclassical growth theory and models of endogenous growth, the model of new economic geography, and the new theoretical concepts of local development (territorial capital, clusters, etc.). Just the new theoretical concepts of local development that put the local community in the first place, based on local resources and business conditions, creating a local knowledge base and connecting actors, make up the theoretical framework and determine the direction of the research. An important step in the development of local communities that their development is based on tourism is certainly the issue of connecting economic entities. For many small business entities in tourism, it is crucial to connect with other actors, as evidenced by research.

In the second phase, a model was developed that was applied to the local community, i.e. the study of the spatial-ecological component of local community sustainability. The results obtained were used for testing and proving the hypothesis.

By comparing the results of Group A and Group D we can conclude that the respondents recognized the benefits of the tourist cluster for the development of the spatial – ecological local community. Respondents believe that it would be easier for cluster members to influence other actors in the observed area to better care for waste and to use more renewable energy sources. Respondents also recognize that they themselves, as cluster members, reduce environmental pollution and then use more renewable energy sources. Respondents evaluate different ways of improving the indicators of waste and pollution and renewable energy sources, seeing that they see greater potential for improvement than can be influenced by others. Respondents recognized the importance of energy efficiency and local community connectivity in creating new products and services in tourism that must result from energy efficiency as well as the importance of social connectivity for creating a common tourist product. As a recommendation for further research but also for improving the applied methodology of research into the contribution of the tourist cluster to the local community sustainability component, it has been shown that the lack of individual core functions of the tourist cluster in the local community, which is reflected in the lack of belief among actors that clustering can influence improvement in others, which can be seen by comparing Group B and Group C. This can affect the efficiency of model application.

From the obtained results and the comparison of Groups A and D, we can conclude that the hypothesis has arisen, which is that if tourism actors are associated with formal forms, i.e. in the tourist cluster, then they contribute significantly to spatial-ecological sustainability.

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**LEVINSON JERONIMO MARTINS**[1]

# INSTITUTIONAL MECHANISM AND REQUIREMENT OF HUMAN RESOURCE FOR SOLID WASTE MANAGEMENT IN GOA

## Abstract

The objective of this paper is to understand the initiatives and practices of Waste Management sector in the State of Goa, India along with emphasis on human well-being of the employed sector in the Waste Management. The State of Goa is home to approximately 17 lakh people with over 50 lakh floating population. With the ascent in population, both resident and floating, rapid industrialization, modernization and betterment of the living standard has resulted in a tremendous increment in waste generation. This paper depends on primary and secondary research and data, existing reports and data identified with waste management sector from the Government offices/key industry experts and regulator. It offers profound information about the proactiveness of the State onWaste Management initiatives in Goa and discovers the extension for development in the managementof waste for the welfare of the society. The paper helps in understanding the key processes in the setting up of the first Integrated Solid Waste Management Facility in India. This work is unique as it lays down the requirements in terms of legal framework, the prevailing rules and regulations in setting up of an Integrated Waste Management facility besides selection of right type of technology for Solid Waste Management and to setup such a facility on an existing waste dump. The project study also includes the setting up of the in-situ facility by remediation of existing dump. The approach was top to down, being led by the top political excutive, that is the Chief minister of the state of Goa. The human aspect in the management of waste, besides the institutional mechanism is the key focus in this study.

**Keywords:** India, Goa, Solid waste magement facility (SWMF)

**JEL Codes:** Q53

## Introduction

The State of Goa is home to 18 lakh people with 40 lakh floating population. With the ascent in population, both resident and floating, rapid industrialization, modernization and betterment of the living standard has resulted in a tremendous increment in waste generation and rapid decline in the natural resources. This has further led to increased waste generation and aggravated environmental problems in the State. This in manner calls for viable Waste Management practices to be taken at all levels across the state.

The State of Goa understood the importance of Waste Management and enacted the Goa Non-biodegradable Garbage Control Act 1996, wherein it was the responsibility of the local bodies; and authorities specified for disposal of garbage, control of littering etc. Due to lack of awareness and infrastructure, the local bodies failed to discharge their function on controlling the garbage issues. In the year 2000, Municipal Solid Waste Management Rules came into force in which, it was the responsibility of the local bodies to dispose-off the garbage within their local jurisdiction. District Magistrate and State Pollution Control Board were entrusted with the duty to monitor the same. Further, in the matter of Almitra H. Patel Vs. Union of India, the Hon'ble Supreme Court, issued directions to the States and monitored the issue of enforcement and management of Garbage disposal. Subsequently, in 2007, the Hon'ble High Court took Suo Moto Cognizance and in Suo Moto Writ Petition no. 2 of

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2007 initially monitored the Garbage disposal of all Coastal Panchayats and all Municipal Councils in the State. Various orders were passed from time to time by the Hon'ble High Court to ensure implementation of the rules by the local bodies. The Hon'ble High Court even went to the extent of imposing fines, ordering injunctions against granting of licenses and stopping constructions for failure to adhere and comply with the High Court directions and MSW rules.

The State of Goa has been proactively working on the issue of Solid Waste Management. It is estimated that around 600 Tons per day of waste is generated in the State. In order to maintain the State clean and litter-free and to ensure proper Solid Waste Management across the State, various initiatives were taken by the State and are outlined in the following sections.

**(A) Institutional set-up**

1. A High-Level Task Force (HLTF) was constituted under the Chairmanship of the Hon'ble Chief Minister, which was empowered to take decisions pertaining to Solid Waste Management in the State with respect to setting up of Solid Waste Management Facilities within the State.
2. A Monitoring-cum-Working Committee (McWC) for Solid Waste Management was constituted under the Chairmanship of the Hon'ble Minister for Environment to implement provisions of Acts and Rules with regards to Waste Management; such as the MSW Rules 2000, the Goa Non-biodegradable Garbage (Control) Act 1996 and Rules 1997& the Plastic Waste (Management & Handling) Rules 2011.
3. The Solid Waste Management Cell was constituted under the Department of Science & Technology to assist the McWC and to give all support for setting up of the two Solid Waste Management Facilities in the State.

In respect of Suo Moto Writ Petition no. 2 of 2007, the Panchayats and the Municipal Councils had failed in their duties to implement the MSW rules in entirety and also had failed to comply with the orders of the Hon'ble High Court completely, the State of Goa made a commitment before the Hon'ble High Court that two plants, one in North Goa and one in South Goa would be set up by the State Government for management of garbage.

The High Level Task Force (HLTF) designated the Department of Science and Technology as the nodal department for conducting all the procedures for setting up of the Waste Management plants in North Goa and South Goa whereas Goa State Infrastructure Development Corporation was appointed as the executing agency for the projects.

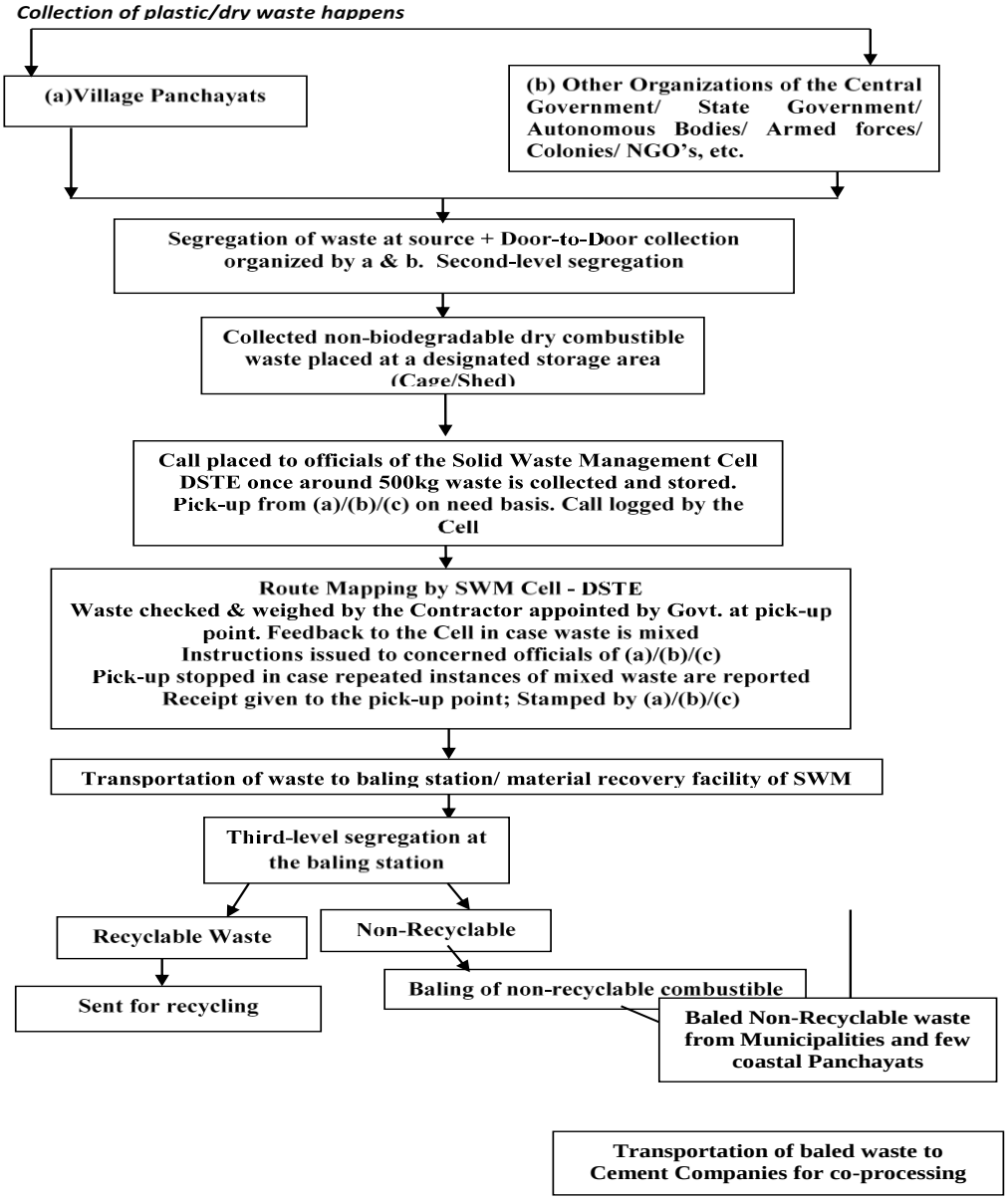
In the meantime, the Monitoring-cum-Working Committee for Solid Waste Management in the State of Goa had taken up the initiative of awareness, training and collection of dry non-biodegradable waste from Village Panchayats, Municipal Councils, State & Central Government Institutions, Industrial Estates and other organizations in the State. The initiative included a collection of non-biodegradable waste from panchayats/municipal councils/other organizations and sending it to the baling station on a daily basis and transportation of the baled waste to Cement Companies for co-processing i.e. as refuse-derived fuel. A diagrammatic representation of the mechanism for management and disposal of non-biodegradable dry/plastic waste is depicted at Fig 1.

Meetings in all 12 Talukas of Goa, explaining the importance of door-to-door collection of especially dry waste, funding arrangements, and the initiative of the McWC to the Sarpanch's and Secretaries of Village Panchayats in the respective taluka was conducted. Advertisement campaigns were launched in the newspapers and on the radio, encouraging more and more people and Panchayats/local bodies to participate in this initiative were carried out. Thereafter, this collection mechanism is being followed

up on a day-to-day basis by the Solid Waste Management Cell. Follow-up is done through phone calls, meetings and site inspections.

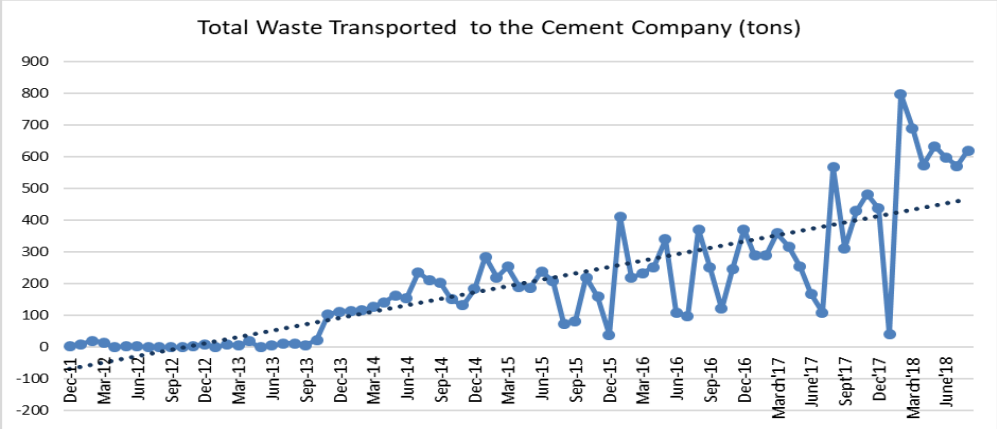
Some statistics about the transportation of non-biodegradable waste for co-processing is graphically presented at Fig 2

**Figure 1. Diagrammatic representation of the Dry waste collection mechanism**




Source: Author.

**Figure 2. Statistical representation of total waste sent to cement factories for co-processing**




Source: Author.

Subsequently, the Land Acquisition proceedings commenced for the purpose of setting up of garbage management plant at Saligao, North Goa and possession of the land was taken by the Deputy Collector and handed over to Department of Science and Technology (DST). The DST handed over the land to Goa Industrial Development Corporation (GIDC) to declare the land as an IndustrialEstate and further directions to lease the land to Goa State Infrastructure Development Corporation (GSIDC) for the purpose of setting up of waste management plant.

DST applied for NOC from Goa State Pollution Control Board for setting up of Solid Waste Management plant and requested for Terms of Reference (TOR) from Goa State Expert Appraisal Committee (GSEAC) in terms of EIA Notification 2006. An expert committee for identification of the technology was formed by the Department of Science and Technology and after due scrutiny and study have selected the technology.

To ensure that the public was taken into confidence, a study cum observation tour to three countries where this technology is used in working plants was undertaken for people from areas of Saligao and Cacora after which a report was submitted.

To ensure that the entire process flow, equipment identification and selection, changes in the design if any was done scientifically by an expert committee under that chairmanship of Padmashri Dr. Sharad Kale of Bhabha Atomic Research Centre along with experts from NEERI, IIT- Bombay, BITS- Pilani with members of Goa State Infrastructure Development Corporation (GSIDC) and Department of Science and Technology (DST) was formed. Various meetings were held at various stages from design, implementation and commissioning and post commissioning to ensure that this technology was working as per the intended performance standards.

GSIDC invited proposals for selection of bidders for Design, Engineering, Financing, Construction, Supply, Installation, Commissioning, Performance Run and Operation and Maintenance for a period of 10 years of 100 TPD/ 36500 TPA capacity Municipal Solid Waste processing facility based on recycle and sorting line, segregation, bio methanation and in-vessel composting at Saligao, North Goa.The tender attracted six parties,but found only four pre-qualified tenderers who were shortlisted tenderers at pre-qualified bid process quoted for this plant. The tender process was finalised by the scrutiny committee, expert committee vetted the DPR, concept note and the flow process. The tender process

was then finalized and after due process, M/s. SMC Infrastructures Pvt. Ltd. was awarded the work of construction of the first Integrated Solid Waste Management facility in India. A special purpose vehicle, M/s. Hindustan Waste Treatment Pvt. Ltd. was appointed by M/s. SMC Infrastructures Pvt. Ltd. for carrying out the work and Concession Agreement was executed on 14/08/2014 between DST, GSIDC and concessionaire.

Subsequently, GSEAC visited the site and after due diligence issued TOR. National Environmental Engineering Research Institute (NEERI) was appointed to carry out the work of preparingEIA Report. NEERI submitted a preliminary report and after intense scrutiny and verification process, Preliminary Environmental Clearance dated 04/11/2014 was granted. The concessionaire started the work of construction. NEERI submitted the final EIA report and on perusal of the same, GSEIAA granted Environmental Clearance on 03/03/2015.

An Appeal No. 15/ 2015 was filed by Saligao Civic and Consumer Cell which was heard by the National Green Tribunal, Principal Bench, New Delhi mainly challenging the Environmental Clearance granted to the project. The National Green Tribunal passed an order stating to remediate the existing waste within a period of 30 months. DST obtained in-principle approval from the State Government for the remediation work of the existing 55,000 tons waste dump and M/s. Hindustan Waste Treatment Pvt. Ltd. screened and remediated the existing waste.

On 30$^{th}$May 2016, Goa's 30th Statehood Day, the Solid Waste Management Facility (with an aggregate limit of 100 tons for each day) was inaugurated at Saligao. The plant has been designed as a best in class mechanical biological treatment (MBT) process with recycling and sorting line, segregation, bio-methanation and in-vessel composting process. A monitoring committee under that chairmanship of Director, DST has been formed which monitors the performance of the plant on monthly basis and suggests and recommends interventions/ measures from time to time.

A detailed process mechanism of the Solid Waste Management Facility is divided into six sections as described below:

**I. Material segregation and recovery facility (MSRF)**

Solid waste collected in open trucks/compactors and delivered at the facility is weighed and visually inspected at weighbridge station, and later unloaded at thetipping floor, housed in an enclosed shed. The shed is covered and has adequate height with proper arrangement for lighting and ventilation. The tipping floor area is with an odour control system comprising centrifugal fans, air ducting and bio-filter to ensure that odorous gases are effectively sucked and adsorbed in the bio-filter. The waste from the tipping floor is loaded into the infeed hopper cum chain belt conveyor and bag opening shredder with wheel loader.The contents from the opened bags are dropped onto the downstream conveyor leading to the roller screen. The roller screen provides the first level of screening to screen out several types of material that are difficult to screen effectively. It has a screen deck of 80 mm opening. The underflow fraction having size <80 mm is conveyed to the organic extrusion press while the overflow fraction having size >80 mm is conveyed to the manual sorting station. The manual sorting station is in form of an elevated structure with handpicking stations located at both sides of the sorting conveyor to remove valuable items like glass, metals, wood, paper, plastic, rubber and textile etc. by handpicking. The recyclables are handpicked and thrown through the chutes into the compartments located beneath the chutes by the sorting personnel.The underflow from roller screen is conveyed to the organic extrusion press. The hydraulically operated organic extrusion press separates the waste into two fractions – an organic wet fraction and an inorganic dry fraction. It squeezes out the waste through an extrusion matric at a very high pressure.

## II. Dry and wet fraction processing line

The dry fraction from the organic extrusion press is conveyed onto a wave screen. The fraction which is < 15 mm is collected and disposed to the sanitary landfill. The 10 – 300 mm fraction is passed to a wind-sifter, where it is separated into heavy and light fractions. The lightweight fraction forms the part of RDF whereas heavy fraction is collected and sent to the sanitary landfill. The wet fraction from the organic extrusion press is taken to the bio-methanation system wherein organic substance is digested inside fermenters and biogas as well as digestate is produced.

## III. Bio-methanation and sludge dewatering system

The wet fraction from the organic extrusion press is taken to the bio-methanation fermenters having mixing system, grit removal system, heating system and biogas extraction system. A thermophilic temperature range (i.e. 55° Celsius) is maintained inside fermenters. During methanization process, biogas is produced which is extracted and stored into biogas holders. The digestate is fed to the sludge dewatering units for solids-liquid separation. The dewatered sludge (solid) is then transported to the in-vessel composting drums whereas the centrate is sent to the effluent treatment plant for further treatment before disposal.

## IV. Composting line

The dewatered sludge from sludge dewatering system is transferred to the in-vessel composting drums. The bulking materials e.g. saw dust, wood chips etc. are added to improve moisture content, Carbon :Nitrogen ratio and bulk density of the feedstock and therefore to improve composting efficiency. The drums are rotating continuously and the decomposition takes place in an accelerated manner with 6 days' residence time. The compost is further stored for a period of minimum 14 days in a shed before been screened and bagged.

## V. Biogas genset based powerplant

This biogas stored in the holders is cleaned for removal of $H_2S$ and moisture to suit the operation of biogas gensets/micro turbines for generation of electricity. Electricity generated is utilized to run theprocessing facility including various auxiliaries of biogas gensets. A part of thermal energy (waste heat) generated is used for heating the contents of the fermenters and excess heat is exhausted.

## VI. Sanitary landfill

The dry fraction (< 15 mm) screened out from wave screen, heavy fraction separated out from wind-sifter, the residue from manual sorting station which cannot be converted into RDF and inert residue which is generated during the processing of the waste is collected, transported in wheel loaders/tipper trucks to the designated landfill cells and landfilled.

Photographs of the Integrated Solid Waste Management Facility are as follows:

**Figure 3. View of the Solid Waste Management Facility**

Source: Author.

**Figure 4, Figure 5, Figure 6, Figure 7**

**Figure 4. Tipping Floor Shed**

**Figure 5. Inside Material Segregation and Recovery Facility**

**Figure 6. Manual Sorting Station**

**Figure 7. Bio-methanation Tank**

Source: Author.

**Success story of the first Integrated Solid Waste Management Facility in India**

The plant was commissioned on 30th May 2016 and has been running successfully till date. This project has undergone thorough scrutiny of the Chairperson Bench, National Green Tribunal and has been recommended as one of the technologies to be used for scientific management of solid waste in the country.

**Figure 8 and Figure 9**

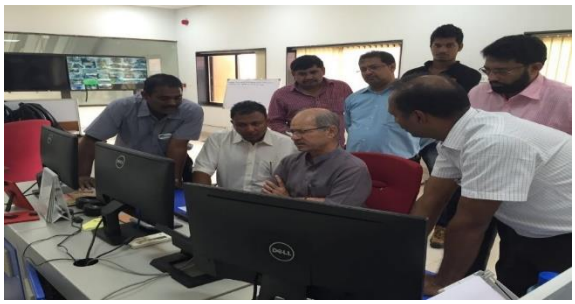


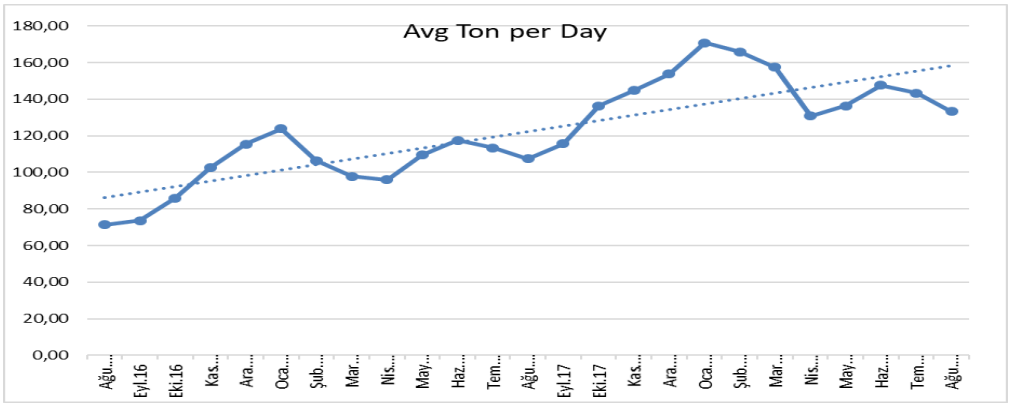
**Figure 8. Visit of Ex. Environment Minister Late Shri. Anil Dave**

**Figure 9. Visit of Hon. Shri. Justice U. D. Salve, NGT**

Source: Author.

The plant has been a hub for industrial visits from associations across the country and school student visits on a daily basis. The plant has treated 93,052 Tons of waste from 1st August 2016 till 31st August 2018. The graphical representation of the quantum of waste treated per day has been depicted in Fig 8.

**Figure 10. Average waste treated per day (in Tons)**




Source: Author.

The Plant employs 160 staff, of which 100 staff were the waste scavengers on the old Saligao dump. They were sensitized about Waste Management and employed. They are provided with transport, food, refreshments, clothing, schooling (for their children) along with regular health check-ups.

Subsequently, Goa Waste Management Corporation (GWMC) was formed on 02/10/2018 to manage all the waste related matters in the State under the aegis of Department of Science and Technology. The mandate of the Goa Waste Management Corporation is as under:

(i) generally to secure and assist in orderly establishment and development of facilities for the management of various categories of wastes such as solid wastes, e-waste, bio-medical waste, hazardous waste and any other waste in order to develop and create clean and sustainable waste-free environment in the State of Goa by ensuring disposal of all wastes in the manner provided under the law.

(ii) in particular and without prejudice to the generality of clause (i) to,
   (a) frame Policies and to establish, develop facilities for effective management of all wastes at places selected by the Government;
   (b) manage facilities which have already been established or are in the process of establishment;
   (c) develop areas in consultation with the Government for the purpose of making them available for waste management;
   (d) promote and implement schemes for managing waste at household, institutional, corporate and Panchayat/municipality level;
   (e) develop a database of available technologies and best practices to tackle various waste and other waste problems at various levels;
   (f) develop facilities relating to information dissemination and mass awareness to educate the general public and other establishments;
   (g) encourage development of research facilities, provide aid to organizations, individuals, institutions, Panchayats and municipalities to develop and implement new models of waste management, etc;
   (h) hold, organize and attend conferences, workshops, panel discussions, exhibitions, etc.;
   (i) undertake schemes or works, either jointly or on agency basis, with other corporate bodies or institutions, or with the Government, in furtherance of the purposes for which the Corporation is established and on all matters connected therewith;
   (j) undertake purchase of equipment as deemed essential for waste management;
   (k) liaise with the Central Government for various schemes and utilize available Central funds for waste management schemes/projects;
   (l) undertake research and development on pilot projects for innovative techniques, processes, for complete management of wastes.
   (m) work out techniques, schemes and projects for reducing the carbon footprint and to undertake steps for deriving benefits under carbon credit trading;
   (n) exercise any other function for carrying out the purposes of this Act.

To undertake the above mandate and fulfill total sciencific waste management in the state, the GWMC has taken onboard qualified personnel as per the table below:

**Table 1. Details of employees of Goa Waste Management Corporation (GWMC)**

| Details of employees of Goa Waste Management Corporation (GWMC) | | | |
|---|---|---|---|
| **Sr No.** | **Qualification** | **Designation** | **Responsibilities** |
| 1 | Mtech Environmental Engineering | Assistant Manager | Administration, Hazardous Waste Facility, C & D Waste Facility, MOU drafting etc |
| 2 | Mtech Environmental Engineering | Assistant Manager | SWMF - Saligao, SWMF - Cacora, E-Waste Management |
| 3 | Mtech Environmental Engineering | Assistant Manager | All tenders |
| 4 | Mtech Environmental Engineering | Assistant Manager | Ponda Taluka and Village Waste Management Plan |
| 5 | Mtech Environmental Engineering | Assistant Manager | Dharbandora Taluka and 100 kg bio-digester |
| 6 | Mtech Environmental Engineering | Assistant Manager | Verna, Sarvona & Baling Facility, Segregation of Waste coming to Plant, Dry Waste and RDF related matters |
| 7 | Msc Environmental Studies & Resources Management | Assistant Manager | School Programs/ Trainings, Sanitary Despensor and Incinerator in Educational Institutes, MSW Policy |
| 8 | Msc Marine Biology | Assistant Manager | Salcete Taluka |
| 9 | Msc Environmental Science | Assistant Manager | Cancona Taluka |
| 10 | Mtech Environmental Engineering | Assistant Manager | Salcete Taluka |
| 11 | B.E. Mechanical Engineering | Trainee | Mormugao Taluka |
| 12 | B.E. Mechanical Engineering | Trainee | Tiswadi Taluka |
| 13 | B.E. Mechanical Engineering | Trainee | Quepem Taluka |
| 14 | B.E. Mechanical Engineering | Trainee | Bardez Taluka |
| 15 | B.E. Mechanical Engineering | Trainee | Bicholim Taluka |
| 16 | B.E. Mechanical Engineering | Trainee | Sattari & Bicholim Taluka |
| 17 | B.E. Mechanical Engineering | Trainee | Pernem Taluka |
| 18 | B.E. Mechanical Engineering | Trainee | RDF, Cement plants, data graph, panchayat data and school data. |
| 19 | B.Com | LDC | |
| 20 | SSC | Peon | |

Source: Author.

The GWMC has since then adopted 403 schools in the State and conducted workshops, training on waste management along with visits to the Solid Waste Management Facility at Saligao and dry waste collection. The GWMC is also handholding, training and creating mass awareness for the 190 village panchayats, 13 municipal councils and 1 city corporation. The State of Goa is pioneer state with respect to Waste Management in the country and is in process of establishing 3 more similar plants in the State with cumulative capacity of 1000 TPD. The SWMF at Saligao has been proposed for enhancement in capacity to 250 TPD with ever increasing waste generation. Post construction of the plant, a noticeable change in the surrounding natural environment is observed with different species of plants along with fruit/ vegetable bearing plants growing and increase in the butterfly species and migratory bird count. A google earth view of the plant site at Fig 11 & 12depicts the change in the true sense.

**Figure 11. Google Earth Image before the SWMF at Saligao**


Source: Author.

**Figure 12. Google Earth Image after the SWMF at Saligao**


Source: Author.

The project site which was an abandoned quarry site and later used as a waste dumping site for over 25 years was totally contaminated and degraded. With the construction of the Integrated Solid Waste Management Facility, the land was recovered and restored to its pristine natural condition. The facility is one of its kind Brown-field project in the country.

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**KRISTÓF CZINDERI[1], ANDREA HOMOKI[2] AND ANDREA RÁCZ[3]**

# PARENTAL QUALITY AND CHILD RESILIENCE: EXPERIENCE OF A HUNGARIAN MODEL PROGRAM

## Abstract

The study concludes the findings of a research on the efficiency of innovative, complex services aiming at preserving the family's unity, which were piloted by professionals of family and child welfare centres located in various settlements in Hungary (Szentes, Szekszárd, Budapest, Pécs, Sopron). By measuring parental skills and child resilience in deprived families included in the pilot programs aimed to develop parental skills, we assessed the results and impacts of the programs; in order to better understand their experiences, we conducted interviews with the target groups and the professionals. In the present study, following a short presentation of the pilot programs, we overview the main results of the research. Resilience - Experience of a Hungarian Model Program

**Keywords:** Child welfare service innovation, child resilience, parental skills

**JEL Codes:** J13

## 1. Child welfare practices for preventing and counterbalancing disadvantages

The study presents the results of the efficiency assessment of innovative complex services targeting to keep families together, which were the first such services to be developed and implemented by professionals of family and child welfare services in various locations of the country (Szentes, Szekszárd, Budapest, Pécs, Sopron).[4] We assessed the effectiveness and efficiency of the programs by measuring parental skills and child resilience in disadvantaged families included in the experimental model programs, applying quantitative methods and conducting interviews both with professionals and clients.

Writings on the decisive role of the family in socialization in early childhood and in shaping the life path in young adulthood (Boreczki 2003, Somlai 1997, Rácz 2012, Homoki 2014) reveal the connections between the structure, composition, functioning of the family, and the development of the personality of the child, consequently, the successful integration into society. In the case of the cared people assisted within family and child welfare centres and services, due to the multiple disadvantages and endangered conditions they face, it can be regarded as a fact that these multiple disadvantages push most of them towards social exclusion by the time they reach adulthood. Intervention into the life of dysfunctional families, and the removal of a child from his/her biological family is undoubtedly a difficult process for every affected child and parent, causing ordeal and suffering, and generating processes hard to reverse. (Newman 2010)

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[4] The professional supporting and the carrying out of the efficiency assessment of the model programs were granted by the Rubeus Association in 2018, with the support of the Ministry of Interior and the National Crime Prevention Council (BM-17-E-0017).

In those cases, when the family does not function well, when groups ensuring the sense of belonging are lacking, eventually family relationships are destructive, then the members of the family do not have anyone to turn to with their personal problems and difficulties. Intervention is possible depending on the way how the problem is objectified, in other words how it is manifested in everyday life. The possible objectification levels of the problem are the following: physiological, mental, relational, social, cultural level. Due to their age, whenever the interpretation of pathological symptoms displayed by children and intervention are necessary, social work carried out by involving actors who are important in their lives, both on family and other social levels, is inevitable in order to efficiently solve certain problems. *"In our interpretation, systemic social work is a helping activity embedded into a process, which, since it is centred on needs and problems, is characterized by flexibility and recursion. Whenever a change of a certain extent and direction occurs on one of the levels, that change will have an impact on the system of the resources acting on other levels too. Erroneous functioning may cause problems on social, community and individual levels alike, therefore support can be provided efficiently only by taking into account the entire system."* (Homoki 2014: 12) *"Human ecology puts the emphasis on the relationship between humans and their environment, and regards humans and the environment as parts of the same system. In order to satisfy their needs and solve their problems, humans need to move, establish relationships within this system, all this giving birth to community adaptation between the physical and the human environment. It is obvious that these relationships evolve differently under different natural and artificial conditions, and humans satisfy their needs and solve their problems in various ways."* (Dávid – Estefánné et al. 2008: 6)

The success or difficulties of services aimed at preserving the family's unity are largely determined by the dynamics between the cooperating organisations: with certain partner institutions cooperation is easy and smooth, with others it can be irregular, in certain cases we might be confronted with hostility and rivalry. Case conferences focusing on specific cases can be very useful regarding these difficulties, and disagreements can weigh less in the light of the common goals. (Bányai 2018)

## 2. Model programs for supporting parenting

In what follows we present the main features of the programs developed and implemented by the professionals of family and child welfare institutions in five locations of the research (Budapest, Sopron, Pécs, Szekszárd, Szentes), by shortly presenting the aims and content of the programs.

### *a) Developing parental skills model program (Budapest)*

The aim was to develop the conscious self-knowledge, self-control of parents, to consolidate children's resilience and make them aware of it, to design methods through which positive shifts can occur in the lives of parents and their children. A further aim was to introduce tools for supporting parents, which, by complementing intensive family care (individual case management), can function as an efficient family centred service.

During group sessions organized for parents, besides receiving advices from professionals, participants can become familiar with the life strategies of other families as well. The main method applied in groups is drama, which reveals the causes of dysfunctions within a family from a new perspective and provides new tools for overcoming difficulties.

### *b) BeST model program (Sopron)*

The aim of the model program is to experience the efficiency of the resources encompassed by parental activity and the supportive participation in the life of the child, by applying the Family Group Conference, as a restorative technique; in addition, the aim of the 8 session group for the development of parental skills is to increase parental communication, motivation and self-awareness. Feedback is given during individual counselling held simultaneously with group sessions.

The Family Group Conference is a meeting of family members – the enlarged family, friends, neighbours etc. –, summoned in case of a problem, in order to solve that problem and work out a plan. What is special about the Family Group Conference is the possibility which empowers families to solve their own problems. Although decisions are taken along the advices of professionals, and the approval of concerned service providers is needed, the family and its close environment has the central role in working out the best way to solve the problem, in taking decisions, while the responsibility of executing the decision also relies on the family.

*c) "We help you to help!!!!" model program (Pécs)*

The model program includes the training of professionals participating in the program, occasions like *Education consultancy*, *Family consultation*, *Parent consultation* providing the possibility for feed-back, in addition to six other programme components focusing on the problems of families and children.

Among the objectives of the "*Family program*" component carried out with intensive family care the following are mentioned: empowerment, the strengthening and unravelling of the acting capacity of the individual; the releasing of the inner capacities relying in the individual; the enhancement of the coping abilities of clients; the development of parental skills and abilities (practical advices in housekeeping and managing a household, advices regarding the upbringing of children in terms of satisfying physical, spiritual, intellectual and emotional needs, child nutrition counselling, support in putting into practices these advices); conclusion of the legal protection status and of the foster care, preventing the taking away of children from their family.

Fostering *parental skills, the development of parental personality*. During the implementation of the "*Children in the divorce crisis*" programme component the objective was to make the parents aware of the fact that the quality of the divorce process has an impact on their relationship with their child, on their education style and methods, therefore it has a long-term effect on the mental wellbeing of their child.

The objective of the "*Children's secrets and enigmas*" programme component was to offer parents comprehensive knowledge on the features, specificities and way of function pertinent to the age of their children. The focus of the group is on normative development, touching upon the most frequent issues occurring in a specific age. The aim is to explore the phases of each specific age during group activities (pre-schooler, school age, adolescence).

The aim of the *"Colour over"* project component was to develop the self-awareness of participating teenagers and young people.

*"Escape room"* – the aim of the project component carried out in an external location was to develop in a playful manner cooperation in a crisis situation, efficient communication and problem solving skills.

*d) Parental skills development through the intensive cooperation between family supporter and case manager in a multi-team setting model program (Szekszárd)*

The aim of the model program was to actively establish the contact with the families during the conclusion of the contract, to induce motivation during the setting down of conditions, to map in detail the informal and formal social network of the families using social diagnosis, to train, to develop consciousness embedded in reality, to build up intensive cooperation between professionals, to develop the capability to think within a new system, which allows for the professionals and the participating families openness, a new mindset, flexibility and activity in order to experience change in a positive manner.

*The components carried out within the program:*

- Training for parents and professionals: the definition of the target model before the launching of the program
- The intensive introduction of the social diagnosis
- Operating a "multi-team" setting – joint brainstorming of several professionals in three phases of the program
- For professionals: intensive family care
    - the co-working of the family supporter and case manager, which allows for the elaboration of the cooperation,
    - weekly, pre-planned case conference teams in a new structure.
- Social work in group, organized on three levels:
    - for children below 10: playing/development group, above 10: skills development;
    - for parents:
        - a group for creating conscious parental identity related to upbringing the children,
        - housekeeping skills also in the form of social work in group.

*e) The Intensive Skills Development and Family Support (KINCS) model program, Szentes*

The aim of the program is to develop and model an innovative tool used primarily to develop parental skills through techniques applied separately in family and child welfare service, a tool which includes in a complex way the social, political, social work and therapeutic interventions, respectively the individual, group and training methods.

A further aim of the program is to make this method, if it proves to be successful, adaptable by other organisations providing family and child welfare services, thus these organizations could perform their caring activity and manage problems more efficiently, could offer a more effective support in the needed changes, on the other hand, by developing parental skills, communication determining the parent-child relationship could become less conflicting and more efficient.

*The model program displays its complex impact by the succession of three program components:*

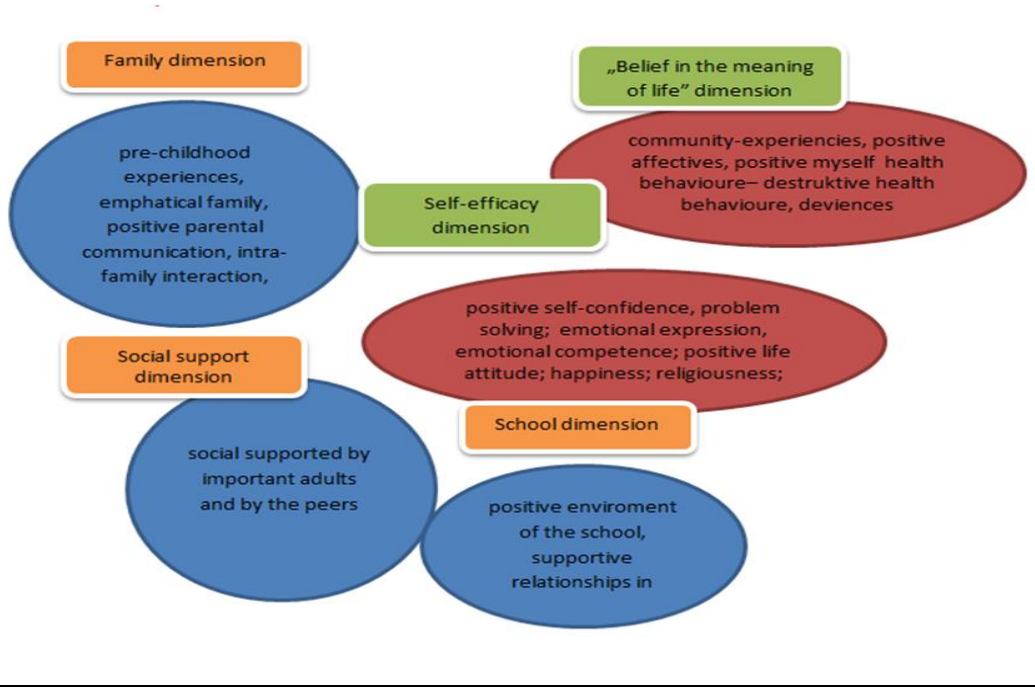
1. During weekly training sessions organized around topics determined by the life conditions of the participating families, and chosen from 10 areas, the parents receive theoretical knowledge, which is processed together by group members led by two professionals.
2. The professional who is providing support for the family (the case manager or family helper) helps the parent in practice, in situations adjusted to the theme of the training, starting from a pre-defined topic, at least two times, for 3 hours each time, in the home or immediate environment of the family (grocery, school, kindergarten etc.), and holds joint consultation together with the signalling system professional.
3. The parent tries out the methods already tried out with the professional by individually solving a task determined in advance, then calls on the supporting professional in the institution, gives an account of the experience, finally they analyse it together.

## 3. Research results

### *3.1. The findings of the assessments of parental skills and child resilience*

The common starting point of the various definitions of the term resilience is "flexibility", which, as a social science paradigm, can be interpreted as a specificity, which makes the individual capable to thrive despite of persisting difficulties, and severe traumatising effects. Any intervention, which has a positive effect on the factors determining resilience, is conducive to the resilient struggle against persistent difficulties in the lives of the child or youth. Therefore, in case of efficient interventions targeting family functioning, parent-child relationship, and family interactions, the enhancement of child resilience would most certainly be detectable as well, even after a short period of time. The objective indicator of the efficiency of the professional work can be the change identified in parental attitudes and child resilience, which, beyond the strengthening of the participants to this process, can facilitate feed-back towards collaborators from associated fields, since due to the applied measurement tools, those areas are revealed, where positive change has started. We created a model on the basis of the results (Homoki 2014) of the first Hungarian child and youth resilience research in child protection (2012/2014) (N=371); the alignment of resilience factors is shown by Figure 1.

**Figure 1. The system of internal and external factors in the resilience model created from the perspective of the Hungarian child protection system**




Source: Authors.

Our research regarding the efficiency of the presented model programs applied measurement tools based on the variables of the Hungarian child and youth resilience model (Homoki-Czinderi 2015: 72); we developed an efficient and easy to apply resilience scale in order to measure a complex phenomenon (Homoki 2018).

The assessment of the resilience of children included in the model programs was carried out with two different occasions, prior to the programs and after the closure of the programs.

Among the children respondents (N=209), 93% live with their biological family, while at the time of the research, from the children belonging to the families included in the model programs, 7% of the respondents were living in foster care.

Within the examined age group, children aged 12-13 are overrepresented among respondents (41%), 21% of them are children aged 10-11, and 16% of children aged 14-15 filled in the form; the rate of adolescents aged 16 is 13%, and 8% of the respondents are nearing majority, being aged 17-18.
The rate of infants is 10%, the rate of toddlers below 2-3 years is 14%, the rate of children of kindergarten age is 24%, while children attending primary school are overrepresented with 42% of the sample.

The rate of families raising three or more children in the sub-scale is 43%. The rate of parents having one or two children is somewhat higher than the rate of families with older children (57%).

***Resilience measurements show that among children aged below 10 years, the rate of children displaying higher resilience level increased with 10% as an effect of the targeted model programs; this increase can be shown, though is less significant (3%) in the case of children aged over 10 years.***

***When examining the results of the measurements regarding parental skills, the results show a positive shift. Concerning the extent of the development, the programs had a greater impact on the way how parents relate to each other and to their children.***

**Table 1. The average values of the parental attitude scale and sub-scales before and after the programs, in case of children aged 10-18**

| In case of parents of children aged 10-18: | | Average | Average diff. (after-before) | Degrees of freedom | Standard deviation | Standard error |
|---|---|---|---|---|---|---|
| Parental attitude scale with 15 items | after the model program | 50.78 | +0.98 | 75 | 6.423 | 0.737 |
| | before the model program | 49.80 | | | | |
| Parental attitude sub-scale – interaction, communication within the family | after the model program | 22.58 | +0.19 | 83 | 3.585 | 0.391 |
| | before the model program | 22.39 | | | | |
| Parental attitude sub-scale – attitude towards the child | after the model program | 11.74 | +0.29 | 81 | 3.101 | 0.342 |
| | before the model program | 11.45 | | | | |
| Parental attitude sub-scale – relationship between the partners | after the model program | 16.88 | +0.36 | 87 | 3.070 | 0.327 |
| | before the model program | 16.52 | | | | |

Source: Authors.

**Table 2. The average values of the parental attitude scale and sub-scales before and after the programs, in case of children aged below 10**

| In case of parents of children aged below 10: | | Average | Average diff. (after-before | Degrees of freedom | Standard deviation | Standard error |
|---|---|---|---|---|---|---|
| Parental attitude scale with 15 items* | after the model program | 56.30 | +1.28 | 83 | 4.152 | 0.453 |
| | before the model program | 55.02 | | | | |
| Parental attitude sub-scale –interaction, communication within the family | after the model program | 24.04 | -0.03 | 83 | 3.585 | 0.391 |
| | before the model program | 24.07 | | | | |
| Parental attitude sub-scale – attitude towards the child | after the model program | 13.14 | +0.22 | 81 | 3.101 | 0.342 |
| | before the model program | 12.92 | | | | |
| Parental attitude sub-scale – relationship between the partners* | after the model program | 18.96 | +0.72 | 87 | 3.070 | 0.327 |
| | before the model program | 18.24 | | | | |

Source: Authors.

### *3.2. The experiences of professionals and clients related to the model programs*[5]

For *the professionals leading and implementing the model programs* at all five locations it was important to enlarge the range of services provided by their institution. They were searching for methods and tools of offering help, through which they could step out from the role of a child protection official, they could foster direct work with the clients, in the same time they could prevent the starting of authority procedures, respectively could reverse the already launched procedures. In the preparatory phase, the factor identified as the weakest was the chance to involve clients and maintain their motivation, which was formulated in each model program location. The concerns regarding this were not unfounded, as it indeed proved hard to induce active participation at clients; however, due to the diverse motivational techniques and the flexibility of program components, finally they succeeded to involve into the programs a sufficient number of clients in each location.

The core objective of the parental skills development, besides inducing a responsible parental attitude, was to make parents able to set limits for themselves and to respect these, and to allow them to develop mainly regarding age appropriate communication with their child and regarding conflict management.

*"We have a very functional team in our institution, even so it is hard to make them come. We need to provide them motivation and remind them about meetings on a daily basis. This requires a lot of energy from each colleague and from us too, to achieve a minor result, but it's not impossible. Personal relationships and the internet are very useful in this."*

[5] In the qualitative part of the research we worked with Balázs Freisinger.

Through the program components the client–helper relationship got strengthened and received a new foundation; as a result of the partnership cooperation, the resistance of the clients significantly eased, which greatly enhanced the efficiency of the common work. Additionally, professionals had the chance to let their helper and supporter role prevail, pushing to the background the control functions.

*"I think it is a very good program. I can tell that there were a lot of situations, where I found out many things about the clients I didn't know till then. About childhood, or past events. About the family, on whom they can count, what they can expect to, what are people's difficulties, what are the deficiencies. All these came out. My difficulty is that besides family support it is hard to implement it. Even if I'm doing the same thing, but doing it with 25 families, no chance."*

*"We wanted something new, something we didn't try out or do, so we wanted a tool with which we could address the families. And it turned out in our town and in other locations alike, that we need to take into account the entire family. We tried out all kinds of prevention programs, but exclusively destined to children: in school, during leisure time activities, together with the patron etc. It wasn't efficient, because if we don't manage to get the parent move, then we can't guide so efficiently the child alone."*

The program leaders considered as an important result that the parents, rapidly overcoming their initial reserve, had many positive experiences, benefiting not only from the professional work, but also from the power of the community.

*"The program influenced the relationships between the colleagues as well. Whenever we work together with a family, or lead a group together, this impacts our relationships with the colleagues as well, we get to know each other better, we get closer to each other. Thus the work of providing support also becomes more efficient. Obviously, whenever a person registers to the program, he or she is already interested in it somehow, and the discussions, the weekly regular meetings around this issue contribute to the building of the community."*

On the basis of the accounts of the professionals, one of the most important achievements of the model programs was univocally the persistent experience in practice of the common work in a team. The other significant discovery was the volume of opportunities surpassing any previous expectations and the efficiency relying in intensive family care. From a systemic approach, we have to highlight that the professionals participating to these programs acquired new knowledge and innovative tools during the thorough and targeted trainings, and while putting into practice and adapting this new knowledge to specific individuals and context, they could gain vast experiences. This professional development, and the motivation enhanced by success are definitely useful in avoiding professional burn-out, besides the fact that they represent a professional capital of inestimable value if any of the program elements would be applied in the future. From an institutional perspective, the most important outcome, besides the significant improvement of the life quality of the clients, is that the range of the provided services was enriched with new, successfully tested tools and methods, adapted to local resources and special needs.

*"I see that since the professional has a more comprehensive view on the life of the family, and can be more empathetic with that specific situation or context, through which it might be difficult to interrupt even a process of putting under protection, so by acknowledging the difficulties, we are able to build up a method, through which more substantial support and more efficient result can be achieved in their lives."*

Among *the clients invited to the model program*, the rate of families subjected to procedures of including members of the family into the protection system was significant. In the case of these parents,

it was an important motivation that successful cooperation could lead to the ceasing of the procedure, which, by the way, did successfully happen in many cases. The parents were aware of this possibility, and this fact fostered their willingness to cooperate and their being actively involved in the programs.

When asked about continuity, sustainability, visions, and the aims of the activities, the parents highlighted the improvement of their relationship with their children, and related that they would definitely manage certain conflicts easier, and that they acquired knowledge and experiences which could be used in the future as well in the upbringing of their children. The young people also pointed out that the ability to interact with their peers, and their willingness to cooperate underwent a substantial development during the program, and besides self-confidence, their positive view of life got also improved.

*"I'm happy for this program, because I'm interested in many things. (...) Giving advice, then activities, then I also mean that we have to fill in what we are buying, separately for each day, to see if it's worth. So to see if an item could be replaced by something else for example. I meet similar families, with whom we are on the same level in hierarchy, they're just as indigent as I am, it's just they raise the kid somehow differently. The composition of the family is different, so we can learn from each other things that appear nice to us."*

Most of the respondents specified among the positive aspects the friendly atmosphere and professional content at group activities, the professionalism of the experts and their confidant, partner-like attitude towards them. Many respondents accounted that they could feel their own person too important, and they could manifest themselves not only through their being a parent and through their parental performance and success.

*"He/she helped me a lot in cleaning too, we're folding the clothes. We hanged the clothes on the coat-stand. We've been sweeping, dusting, everything. It's a must do because of the children too. Do the washing, the cleaning, the cooking. I've learnt a lot, we've been talking a lot. Mainly about cleaning, parenting, children."*

The power of the community, the strengthening of the relationships network are important outcomes mentioned repeatedly not only by parents, but by young people as well. Generally the participants considered as a great success that they rapidly became accepted members with full-rights of a community, and that they can maintain the relationships created during the program in the future as well. Besides interactions implying help and support, many deeper relationships, friendships were born as well.

*"We had good discussions. I got closer to the carer. We got along well, but with the others too. And I got to know new people too in the program. It was good. I had good experiences."*

From the perspective of the clients, the biggest difficulty, and in the same time, the most important strength ensuing from overcoming it during the program was that they became able to surpass their aversion to change and new forms of support. They became able and willing to identify and share their own problems, to ask for and accept help. Cooperation with the family carers and case managers became truly intensive also only after an initial resistance, but after the clients rapidly acknowledged the multiple possibilities relying in this method, they used the available help and support successfully.

**Table 3. The strengths of the model programs: professional developments and the efficiency of empowerment**

| Strengths | Professional developments | Empowerment |
|---|---|---|
| ▸ Competent team<br>▸ Well-developed program components<br>▸ Adequate addressing of the target group.<br>▸ Good atmosphere, openness of clients, despite issues related to the number of participants<br>▸ Make the best of group work, while maintaining the focus on individual problems | ▸ Advancing self-reflexion<br>▸ Enhancing professional consciousness<br>▸ Advancing the elucidation of professional roles, competences and boundaries<br>▸ Fostering the abilities of intra- and extra-organisational cooperation<br>▸ Possibility to re-define success / *social work*<br>▸ Preventing burn-out | ▸ Enhancing self-confidence of clients<br>▸ Strengthening parental and child roles<br>▸ Advancing unambiguous, targeted communication<br>▸ Enhancing the efficiency of the empowerment process<br>▸ Improving life quality |

Source: Authors.

## Conclusions

The quantitative and qualitative results of the research univocally show positive change in case of each model program (Budapest, Pécs, Sopron, Szekszárd, Szentes). We can state that the introduction of the new services and methods was definitely useful, according to the clients as well, both regarding immediate results and the supportive power effective in the future as well. An important strength of the programs is that they contribute to the consolidation of the network of the clients including the supportive community, and relationships with families in similar situation and life conditions.

The range of tools used by professionals working with families and children is definitely broadened, thus family care can become more efficient in the Hungarian practice.

When comparing the average values of child resilience and parental attitudes at the program locations before and after the programs, the highest positive difference was revealed at the locations where complex programs and several program components were simultaneously implemented. Factors enhancing resilience were among the program objectives, and the theoretical basis of the implemented programs can contribute to the increase of the efficiency.

On the basis of our qualitative results, we can state that according to the opinion of the professionals, the developed programs are adequate for the efficient management of family problems, for preserving or restoring the functionality of the family, through the broad strengthening and complex development of parental skills. A further important result of the program is that the intensity of work relationships, and the efficiency of information exchange between colleagues were increased, and all in all a real network was developed through the cooperation of the professional community.

*One of the most important novelties of the programs is that in the case of the involved families, for the sake of a more intensive cooperation, the carer leaves behind the minimum requirements of protocol, and gets actively involved in the life of the families, first as a participant observer, later as a helper, which reveals the arising of a new type of social work with families in field work.*

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**KAROLINA BALOGH[1], PÉTER GREGORITS[2] AND ANDREA RÁCZ[3]**

# THE SITUATION OF THE CHILD WELFARE SYSTEM IN HUNGARY

## Abstract

The aim of the child protection system as stipulated by the law is to contribute to the prevailing of the rights and interests of children, and to the fulfilment of parental responsibilities, to prevent and put an end to risks threatening children, through services and interventions, by applying a gradual approach. The present study is an overview of the situation of child welfare services and of the child protection system, from the perspective of the theoretical framework grounded on the concept of child protection as a service. The study is based on the analysis of data collected in 2017 within the KSH OSAP (the National Data Collection Programme of the Hungarian Central Statistical Office).

**Keywords:** Hungarian child welfare system, OSAP statistical data of 2017

**JEL Codes:** J13

## 1. Introduction

The Act on the protection of children and guardianship (in what follows referred to as the Child Protection Act) was adopted by the Parliament of Hungary on April 22nd 1997. The act promotes children's interests and rights, therefore priority is given to supporting the upbringing of children within the family. The most important tool for this is the operation of the system of basic child welfare services, which refers to day-care services, various forms of provisional care and the system of family and child welfare services.

Thus, through the provided services and care, the child protection system aims at allowing children to be raised within their family; should this not be possible, it ensures substitute protection until the cared children reach adult age.

Children taken away from their families are cared either in children's home, or in foster care. There are 5 types of children's home: *Traditional institutions* provide care for quite a big number of children in smaller living quarters for 12-48 children. *Apartment-homes* provide care for a maximum of 12 children in an apartment or family house. *Special children's homes* provide for those special needs children, who have psychological problems or suffer from behavioral or learning difficulties. In such a home there are maximum 40 places. There are also a few separate *homes for mentally retarded children* for those children who are disabled, or have special needs because of their age (under 3 years) with maximum 40 places. The *after-care homes* provide care for those young adults who are entitled to leave care (age 18) but cannot lead an independent life and decide to stay in the child protection system. In 2014, the system of foster care became unified, previously there were traditional and professional foster parents as well. Now being foster parent is a job and preferred form of placing children under the age of 12.

In order to facilitate successful social integration, the child protection system operates the support system destined to adults, who were formerly cared children. After care provision is available for those

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who are under 21 and they are working or looking for a job, but their income is not enough to live independently. Those who have special needs can stay in the system until the age of 22, while those who participate in secondary education can stay until they are 24 years old. If a person is attending higher education – 5% of the all young adults –, they can have the after care provision until they are 25 years old. Upon individual request, this type of provision can be applied for until the age of 30, since several cared people could not finish their studies during the period of care.

Additionally, after care service is available until the age of 30, it is a counselling service including employment, personal relationships and solving housing based on the methodology of social workers' case management.

The primary focus of our study is the importance of supporting parenthood and motivation to participate in partner cooperation in general, of the mobilization of resources relying in the social work with families with children. In the next part, on the basis of the analysis of statistical data we give an overview of the current Hungarian situation with regard to the specificities of the child protection target group, the territorial targeting, and systemic satisfaction of needs.

## 2. The specificities of complex and efficient child protection interventions

In child protection we are usually confronted with complex situations, intricate issues, which implicitly means that efficient child protection programs, though implemented locally, are intricate in various terms. Ágnes Darvas (2018: 58-60) deducts this equivocal complexity from the need to evaluate childhood situations and the set of problems detectable around children in a multidimensional environment. The features of this environment are: 1) The diversity of the areas of action, which can imply educational, health, social support, or even employment and income policy measures. 2) The complexity of the actively involved sectors, where state, religious and civic organisations alike might assume responsibilities. 3) The multitude of acting individuals, which involves the issue of participation, as a right from the part of the participant's (cared individual) side as well, respectively the issue of the quality of cooperation between the professionals, clients and members of the community. 4) The multitude of the institutions and professions having a share in the program, namely the way how the package of support/services is built up around the children, who are the persons who cooperate in order to achieve the child protection goals, and what is the vision of these professionals regarding the future of the child and their family. In all cases, the professional support embedded in the framework of complex services, and counselling need to adapt to the development needs of the child, to parental skills, and to the relational or social reality deducted from the family and environmental factors that may be mobilized, or which, on the contrary, might conceal certain risks, thus can be harmful. The services built on supportive, complex approach and methodology (set of tools), have to be provided by relying on the family's strengths and by respecting cultural diversity (DePanfilis 2006; Kendall et al. 2010).

*In order to achieve efficient child protection interventions, it is important to take into account the following main aspects:*

- Ecological approach: multilevel approach (individual, family, broader social system).
- Community based support: the promotion, rebuilding of the social relationships and bounds of the families.
- Creating a partnership with the family: within this framework, the family's communication skills can develop, which facilitates the maintenance of community relationships as well.
- Stressing upon the strengths of the family: cooperation built on family competences.

- Development of cultural competences: it may vary from culture to culture what are considered risks and protection factors; the professionals should be able to accept and respect cultural differences. (DePanfilis 2006: 56-57).

When determining the service package, besides assessing the needs, the professionals evaluate the parenting skills as well in a complex manner. This has 3 main features: 1) The skills and deficiencies of the parent and the relationship of the parent and child. 2) Everyday behaviour and parenting regarding the satisfaction of the child's needs. 3) Minimal parental norms for the sake of satisfying the child's basic safety and emotional needs. The evaluation of parental skills is important also because it reveals the parent's own patterns applied in parenting, it identifies the possible causes of a problematic attitude, and it designates for the parent and for the professionals alike the direction of change, it identifies the positive and negative factors and impacts exercised by the family and the environment, it depicts the functionality and needs of the child and those risks, which ensue from the inadequacies, or possible negative attitude of the parent (Budd 2005).

In case of families struggling with complex problems, it is of outmost importance that the family members are able to identify the professionals, and understand which of them was assigned to which problems specific to a certain field. Many of them might have negative experiences when helpers did not fully respect their rights, private sphere and interests, or when the release of eventual grievances was not possible.

The integrated care of families with complex needs implies that one professional coordinates the work of several professionals working with the family, having different competences. This allows for the assuming of responsibility on institutional level when evaluating outputs (the consideration of which is in itself a dimension of the child protection principle and of the issue of efficiency). Obviously, integrated support can be efficient, if the partner organisations, the cooperating services and the involved professionals follow identical goals and principles (the "common goal, diverse set of tools" concept), and if an infrastructure available to all is set up, through which the available services and provisions are visible, and through which professional actions done for the sake of the child's wellbeing and safety can be followed. (DePanfilis 2006)

## 3. The situation of child protection system in the light of statistical data

### 3.1. The target audience of child protection in Hungary

Hungarian child protection system is determined by Act XXXI of 1997 on the Protection of Children and the Administration of Guardianship and it is aimed at facilitating that children shall be raised in families, at preventing and terminating their vulnerability and at ensuring the substitute protection of the child without parental care or care provided by other relatives. Which child protection measures are needed, is based on the scale of children needs.

The regular child protection benefit is an allowance in cash or in kind for children in need, and it is aimed at better their circumstances. The entitlement depends on the financial situation of the family and is considered by the notary. On the 31st of December in 2017 there were 314 366 minors receiving regular child protection benefit, which is a decrease of 12 percent compared to the previous year. The number of children receiving regular child protection benefit per thousand inhabitants of corresponding age was 183, 29.

The terms of status of disadvantage or compound disadvantage is defined by the Act about child protection by enumerating different socio-cultural disadvantages, such as the parent or the adoptive

guardian has a low level of education or a low level of employment or the child has inadequate living environment or housing circumstances. A status of disadvantage applies to a child, who is entitled to regular child protection benefits, and one of the above circumstances is true. A status of compound disadvantage applies to a child, who is entitled to regular child protection benefits, and at least two of the above circumstances are true, or to a child in foster care, or to a young adult receiving after-care and in a legal status of a student. At the same time as judging eligibility for regular child protection benefits the guardianship authority, upon request - in a separate ruling, for a period of time equal to eligibility for regular child protection benefits - determines if a child has a status of disadvantage or compound disadvantage. On the 31st of December in 2017, 100 308 children had the status of disadvantage and 106 599 children had the status of compound disadvantage[4]. In most cases these statuses were due to the parents' or the adoptive guardians' low level of education: which was for the two-thirds of disadvantaged children and for the 88 per cent of compound disadvantaged children obtained as one of the reasons. For the 6 percent of compound disadvantaged children all the three reasons were present.

Defining vulnerability is a very hard challenge. The situations which evoke the intervention of child protection might be seen as vulnerability. (Szöllősi, 2000.) According to the 5 § of Act XXXI vulnerability shall mean any status caused by the conduct, neglect or circumstance of the child or any other person that obstructs or hinders the physical, mental, emotional or moral development of the child. The judgement of individual situation depends a lot on subjective evaluation and the interaction of social circumstances on the micro and macro level. Data on vulnerability provide limited objective information about the operation of the child protection system. From the middle of the years of 2000's until 2012 their number changed between 190 000 to 200 000. From 2013 135 000 - 140 000 children were registered as vulnerable[5].

Taking a child into protection[6] is the softest authority measure. On account of the magisterial nature it can be a more exact indicator of the operation of the child protection system. In 2017 more than 28 000 children were taken into protection, the number of children per thousand inhabitants of corresponding age was 16, 5. Compared to 2016 their number increased by 3 000 persons. More than one third of the children were taken into protection because their parents had behavioural problems, but for the missing of more than 50 lessons in school was also a significant reason.

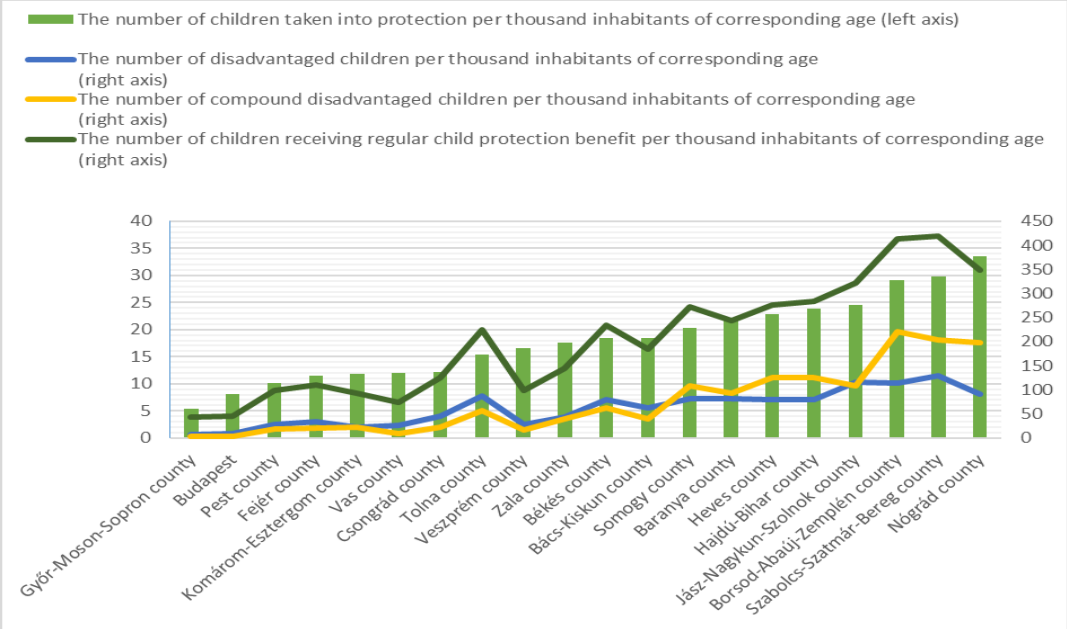
The state of economic development is diverse in different parts of Hungary: the North-East region and the Southern Transdanubian region are in significant disadvantage compared to the North-Western region and the Central Hungary region. Data on child protection also shows this difference: in the county Borsod-Abaúj-Zemplén (in the North-Eastern region) and in the county Tolna (in Southern Transdanubia) there were three times as much registered disadvantaged or compound disadvantaged children than in the county Győr-Moson-Sopron (in the North-Western region). In the North-Eastern region there were almost ten times as much children who received regular child protection benefit and almost five times as much children taken into protection than in the county Győr-Moson-Sopron.

[4] Data without number of children in foster care and without the number young adults receiving after- care

[5] From the year 2016 child welfare service and family assistance were integrated and the connected institutions became two-levels. The tasks have been supplied by family and child welfare services and centres. The latter operate in district centres. The integration is a time-consuming process and it causes much challenge for the professionals, and because of that the supply of data was cumbersome, so reliable data have not been available about vulnerability.

[6] If a parent or other legal representative is unable, or unwilling, to terminate the vulnerability of the child by making voluntary use of basic provisions, but it may be thoroughly supposed that with help, the development of the child could nevertheless be ensured in the family environment, the guardianship authority takes the child into protection. In addition the guardianship authority takes a child into protection if the child committed crime or infringement. Guardianship authority may order behavioural rules for the child or the parents too or may obligate to receive social or psychical services.

**Figure 1. The number of children taken into protection, disadvantaged children, compound disadvantaged children and children receiving regular child protection benefit**




Source: NSDCP Data collection No. 1210.

### 3.2. The child welfare service and centre

The child welfare service works as a very important part of prevention in child protection because it is responsible for the operation of early warning system, so it gains all the information about the children's vulnerability. The child welfare service can make connection with children by warnings. In 2017 114 000 warnings arrived at child welfare services and it was about almost 84 000 children. 70 000 warnings arrived at child welfare centres and it was about 41 000 children. The most warnings came from schools, health visitors and guardianship authorities[7].

[7] The integration process has faced to a number of challenges, and it has caused problems also in supplying of data. The integration's aim was to end parallel services, so thanks to the changes, the data on family and child welfare services are not comparable to previous years. Furthermore, we cannot filter the parallelisms of data.

**Table 1. Number of warnings received by family and child welfare services and centres, 2017**

| Sender of warning | Number of warnings received by family and child welfare service | Number of warnings received by family and child welfare centre |
|---|---|---|
| health care provider | 15 424 | 5 773 |
| of which: health visitor | 11 871 | 4 219 |
| social care services | 10 668 | 12 904 |
| of which: family and child welfare service | 4 108 | 9 632 |
| of which: family and child welfare centre | 5 491 | 2 099 |
| daytime care institution | 2 478 | 1 150 |
| temporary care institution | 1 811 | 1 197 |
| receiving centres for refugees and temporary accommodation for refugees | 168 | 389 |
| public education institutions | 54 110 | 18 955 |
| the police | 6 955 | 4 132 |
| the public prosecutor's office, the court | 410 | 525 |
| the service of probation officers | 742 | 864 |
| associations, foundations and ecclesiastical legal entities | 483 | 108 |
| organisations performing victim support and the duties of mitigation of damages | 88 | 17 |
| any citizen or civic organisation representing children's interests | 4 820 | 1 541 |
| the local government and the notary | 3 337 | 1 152 |
| the guardianship authorities | 12 206 | 20 979 |
| the labour authority | 10 | 9 |
| the disaster management authority | 3 | 3 |
| utility suppliers | 31 | 7 |
| child rights representative, patient representative | 18 | 18 |
| professional guardianship | 19 | 17 |
| reformatory institution | 13 | 34 |
| other | 239 | 154 |
| Total | 114 033 | 69 928 |

Source: NSDCP Data collection No. 1696.

At family and child welfare services 103 477 minors received care by cooperation agreement during 2017. 60 per cent of them received services by the reason of neglect, the parent's behavioural problems, child rearing problems or family conflict. 16 percent of them received assistance because of behavioural disorder, integration difficulties in daytime-care, nursery or school and 10 percent of them because of financial problems (which can be cost-of-living or housing problems). In 2017, 44 913 minors connected with family and child welfare services as a new recipient, 60 percent of them were vulnerable children.

In 2017 almost 66 000 minors received case management services and 40 000 minors got so-called special services[8] at family and child welfare centres.

If we examine the institutional coverage, we see that there were 698 institutions around Hungary. In a view of settlement population we can see, that every third service operated in a settlement with 2000-4999 inhabitants and only 42 services operated in a settlement with lower than 1000 inhabitants.

### 3.3. Provision in children's homes and at foster parents

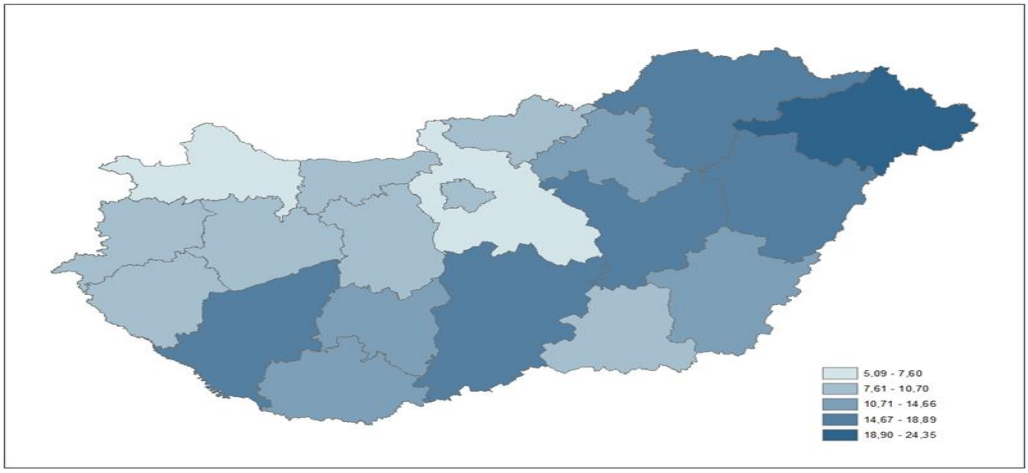
In the year 2017 20 948 children were under professional child care provision, which means an increase of 400 children to the previous year. 12 percent of the children taken into professional child protection were under the age of 3 years. About the half of the children were between 11 and 17 years old, making them the largest group of children under provision. Besides them, 2 417 young adults (between the age of 18 and 25) were placed in after-care provision.

84 percent of the young adults taken in 2017 into after-care provision required it because of ongoing studies. 67 percent of the children under professional child care provision were placed at foster parents, while the other children were placed in children's homes or in long-term social institution providing nursing, care or/and rehabilitation. The data also show that the probability of being placed at foster parents decreases with the age of the child under provision.

Analysing the regional dimensions of professional child care provision, it can be shown that the number of children under professional child care provision per thousand inhabitants of corresponding age is in the county Szabolcs-Szatmár-Bereg in the north-eastern region of Hungary the highest: 24 children under provision per thousand minor inhabitants. That is quintuplicate of the data of the county Győr-Moson-Sopron, which is an economically well-developed county at the Austrian border.

[8] However so-called special services (e.g. conflict management, mediation, hospital social work etc.) are available at family and child welfare centres, these do not connect only to case management service. Of course the two groups may show overlap.

**Figure 2. Number of minors under professional child care provision per thousand inhabitants of corresponding age, 2017.**




Source: NSDCP Data collection No. 1209.

Provision in children's homes, including all possible types of provision (general children's homes and group homes, children's homes and group homes for children with special and particular needs, after-care homes, exterior places, children's homes for unaccompanied minors), is provided by 512 premises in Hungary, every fourth institution can be found in Budapest or the county Pest around the capital. The data of the counties in the north-eastern region are outstanding as well, another quarter of the premises are located there. This kind of regional distribution can be explained by the number of children under professional child care provision in this region. A similar distribution can be observed on the number of foster parents, but the latter region shows even higher rate, 37 percent of the foster parents can be found there. In 2017 5 611 foster parents were registered, 1055 of them were particular foster parents and there were 15 special foster parents in Hungary. By 23 percent of the foster parents were 2 children, while by 29 percent of them were 4 or more children, and by 9 percent of them were temporarily no children placed.

### 3.4. Employees of professional child care institutions

Besides the availability of the institutions, the number and qualification of professional employees are also determining the efficient maintenance of the systems of the child welfare and professional child protection.

Around 5000 full-time and 455 part-time jobs were in the child welfare service registered with professional scope of activities. In the first year after the integration the number of employees working for the child welfare services increased by around 100 persons. The minimum of the employees with professional scope of activities is defined in the Act, related to the number of inhabitants.

Analysing the data broken down by geographical units, one can observe, that the ratio of professional employees per recipient is outstanding in Budapest and in the county Győr-Moson-Sopron, while the economically disadvantageous counties, with high numbers of social problems and clients of the services, show a much lower ratio.

One can observe on the ratio of employees suit the professional requirements prescribed by the Act, that around 80-90 percent of the professionals at both the services and the centres have a higher educational social degree. It is also remarkable that there is a lack of professional employees in case of several scopes of activities in the children's homes. The low status of the foster parent can be shown with the ratio of around 65 percent working without high-school graduation.

## Conclusions

The study aiming to map the functional environment of the current Hungarian child welfare and child protection system argues that child protection work always implies complex situations and intricate problems, therefore we need to take into account that efficient child protection programs and interventions have to be complex from several aspects as well. When analyzing the Hungarian child protection system, we can conclude that both regarding the accessibility and extent of services, and the basic and special services, there are significant regional and internal structural inequalities with regard to the possibilities to respond to needs.

High numbers of cared people are rather typical for regions where deep and complex social problems prevail. Besides complying more or less with qualification requirements, there are vacant jobs in many fields, which fact is an obvious impediment to the balanced performance of tasks; this is further hindered by the high staff turnover in this field.

In efficient child protection work it is a basic requirement that the professional in social work understands the problems of the parents, and is empathetic with their situation; they should also be aware of the consequences of parental difficulties and reduced parental abilities, consequently with the burdens carried by children and the impacts on them regarding their healthy development. The professional is responsible first of all for the child, yet intervention is more efficient if a child-centred, family-focused practice is applied, when the professionals are able to win over the parents as well and to cooperate with them in order to satisfy the family's needs (Bromfield et al. 2012; Rácz 2016; 2017).

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**Data sources**

NSDCP Data collection No. 1208, No. 1209, No. 1210, No. 1696, No. 2023 (HCSO).

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# CONSIDERATIONS ABOUT TEACHING ECONOMIC DISCIPLINES IN ROMANIA

## Abstract

Romanian education system suffers from many critical issues, such as the demographic decline, the inequalities regarding the access to different education levels, the limited financing resources which are allocated for the educational system and especially for the investments etc. One of the key component of the education in order to build specific competencies among young people is the economic education. Unfortunately, economic and entrepreneurial education has a very limited incidence, both as number of students beneficiating of economic modules within the curriculum, as number and qualification of teachers, and as content and quality of invested resources. We are approaching in this paper several issues regarding how economic and entrepreneurial education is performed in Romanian pre-university education, by using a survey among teachers of economic disciplines.

**Keywords:** Economic education, entrepreneurial education, pre-university education, Romania

**JEL Codes:** I25, A21, N34

## 1. Introduction

The importance of teaching economics and its pragmatic character have been highly debated, underlining its integrative value, its transversal character in educational knowledge and efforts, and its importance in studying human behavior "as a relationship between ends and scarce means which have alternative uses" (Robbins, 1935, p. 16), in its focus on positive approaches and logic, and less on normative and approximated assessments (Khadka, 2016). Economic education provides young people with the real life skills they need to succeed, educates their students (from a young age) so they can think and choose responsibly, whether they do it when they consume, save, invest, work, or travel as active participants in a national economy connected to an ever-changing global economy. In other words, "economic and financial education is the best investment we can make to strengthen the nation's economy" (Santomero, 2003). We could say that many of the current economic problems we face could be resolved if all students could or should be determined to study at least a (practical) economics course and become economically "literate" (Wion, 2008).

The objectives of teaching economics in secondary schools must be circumscribed to precise goals such as: understanding basic economic concepts and developing a practical day-to-day economic reasoning; developing abilities for future careers, creating awareness among teenagers regarding the role they have in assuring individual, community and even national prosperity, developing the ability to analyze economic problems that might affect them personally or generally. Last but not least, economic education must make students aware of international economic realities and developments, about the role and value of cooperation among countries, but also about competition and environmental challenges generated by the rush for resources, about poverty and underdevelopment, about understanding and sharing different concepts and cultures, in the context of economic theory.

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Before we give high praises and solemn declarations to the importance of studying economics, we must admit that for many students (probably for some professors) economics is neither easy, nor interesting nor spectacular. Economics is a subject that involves observation and collection of data, knowing several principles, generating hypothesis, analyzing diagrams and equations, and in this kind of a context, the role of the teachers is even more important. A good economics teacher can offer her students not only explanations but also a correct and encouraging guidance in a scientific and detailed manner. Economic education is a very important subject, and jokingly, we could say that it is so important that many schools, managers or decision-makers tend to bypass or ignore it, precisely because of its significance, which hinders its approach in a pragmatic and efficient way. Even though economic subjects exist in the curricula of all Romanian high school programs, we cannot say that they are essential in graduating secondary education, neither as a "graduation standard", nor as a compulsory or frequently chosen subject to the baccalaureate exam.

However, it is important to find out more, on one hand, about the effectiveness of teaching economics, about those essential factors that influence the behavior and performance of teachers at a secondary school level and on the other hand, to evaluate the level of interest, attitudes and expectations of students regarding this subject.

## 2. Literature review

Over the last decades there are numerous published articles and studies regarding the factors that influence the efficiency of teaching and learning economics in secondary education. Thus, the teaching and learning of economics in secondary school education is affected by the performance of unqualified teachers (of economics), poor teaching methods, inadequate teaching material and attitudes, and the low interest of both teachers and students (Joshi & Marri, 2006), (Badulescu & Vancea, 2013), (Wion, 2008), (Khadka, 2016). The attitude of students towards economics depends to a large extent on their teachers, in terms of knowledge, communication ability, teaching methods and management skills (Wentland, 2004), (Adu, Galloway, & Olaoye, 2014), creativity and involvement (Hervani & Helms, 2004) (Idoko & Emmanuel, 2015), (Badulescu, Bungau, & Badulescu, 2015), (Badulescu, Perticas, Hatos, & Csintalan, 2018) Implicitly, one`s interest in economics diminishes in the case of interactions with poorly trained and unmotivated teachers (the influenced by lower educational qualifications and experience, inefficient remuneration and benefits, lack of social recognition, etc.). Thus, there are four main factors (personal, contextual, availability of resources and external pressures) that influence the efficiency and fluency of the teachers' performance in the classroom, and the implementation of formative assessment in order to stimulate students' interest and accumulation of knowledge (Izci, 2016).

Vasiliki et al (2016) analyzes the experiences and attitudes of teachers and students to new and interdisciplinary methods of teaching economics (links with arts, movies, suggestions, role plays) in pre-university education. They found that the use of audiovisual material facilitated active participation in students and made the course more exciting, increased freedom of expression, helping students to express their own ideas on economic issues, to explore a more inclusive vision of the role of economics in real life. They resumed the research of Becker & Watts (1996) regarding the necessity to give up traditional (conventional) methods like „chalk and talk", which are unattractive for the new generations of students, and suggesting numerous ways to make economics "cool in school" (Schug & Wood, 2011), (Ferrarini, 2012), (Hall, Peck, & Podemska-Mikluch, 2016).

Teaching economics in secondary school might be a challenge for the best teachers, both in terms of knowledge and in adapting their methods to keep students' interest. Of course, there are many materials and resources to help economics teachers - public and private organizations and initiatives, local and

regional programs to improve the teaching of economics, contacts with professionals, quality manuals and a plethora of additional web-based resource materials describing innovative teaching techniques that can turn teachers' tensions when faced with the wary or even disinterested attitude of students in a rewarding experience (Leet & Lopus, 2012). According to Khadka (2016), the approaching economics with innovative methods, computer applications, modern textbooks and systematic libraries creates a huge difference compared to traditional and non-systematic methods, enabling well-motivated and trained teachers to generate a sustained interest from students and a superior teaching performance. Although there are differences in age, gender and experiences, the knowledge and involvement of the teacher is essential in ensuring the interest of the class for economics. The author also recommends the authorities to engage in the modernization of the didactic act by paying greater attention to the two forms of teacher education - initial education of teachers (ITE) and continuous professional development (CDP), which we are tackling in the following paragraphs.

One of the current problems faced by economic education is the strategy used by teachers to teach economics. There is no secret that most of the teachers are stuck in traditional methods that have been used for 30 or even 50 years (Wion, 2008), methods that they consider valid because they are confirmed by experience, professional bureaucracy and evaluation methods practiced in most other subjects.

Starting from the key role that education plays in the development of young generation's mindsets, we implicitly identify the central role teachers play in this process, through the task of massively changing the approach on education, by focusing on active learning and providing students new experiences outside the classroom.

Although all these goals seem simple, and they have been almost obsessively repeated in recent decades, the transition is not easy at all. For many educational systems, it almost equates to an abandonment of the traditional approach of teaching and education. To do this, teachers need to be equipped with the right skills, knowledge and attitudes to provide students with the new curricula and learning environments in order to acquire economic and entrepreneurial skills. However, in order to be equipped with these things, we must raise the issue of educating teachers, of improving and modifying those elements and processes, both in the initial education of teachers (ITE) and in the continuous professional development (CDP), of the support that they need.

The pressure on the new methods of teacher's education is considerable and, despite all the seriousness of the measures taken at European level and the EU Member States, the process seems to be lasting/lagging, with gradual progress. Several European Commission's researches show that basic skills and economic and entrepreneurial values are rarely a priority in initial teacher education programs (European Commission, 2011, pp. 2-3).

Also, there are significant differences between Member States in terms of approaching creativity, innovation, encouraging experimentation, accepting failure – specific elements of the real economic and entrepreneurial environment. By default, teachers need support throughout their careers, starting with their initial education and continuing with career development and day-to-day work. To effectively implement economic and entrepreneurial education at school level, teachers have a key role to play. In economic and entrepreneurial education, attitudes and behaviors are probably more important than knowledge. Only well-trained and well-motivated teachers can discover, develop and empower the younger generations these abilities, giving them the opportunity to turn their ideas into action.

There are two (relatively new) approaches through which we can try to improve the way economic information is communicated to students: problem-based learning and collaborative learning (Wentland, 2004). Problem-based learning departs from conventional training strategies by reorienting

the traditional interaction between teacher and student towards active, direct student learning, rather than classical didactic approach: teaching - explanation - listening.
Teaching techniques and strategies adapted to economics are diverse and we can list the below (Wion, 2008):

a. Experimental learning, linking the classroom to the (local) economic problems of the community;

b. Interactive simulation (so-called role play) involving students directly in the economic process, so understanding of economic principles is based on, or reinforced by, their experience, observations and analysis. By placing students in a market situation and asking them to interpret their behavior and observations and analyze the results, they can move from abstract to reality;

c. Experiments, demonstrations or dramatizations, where teachers can turn the classroom into a "lab" in order to provide a more active learning environment in which students can be significantly involved in debating the subject together with other students and with the teacher;

d. Technology-based teaching (methodologies) - through the development of the Internet, teachers have received new opportunities that can improve the way they teach and students learn. Encouraging technology in classroom, even with traditional teaching methods, can improve understanding and, at the same time, make the content more relevant, more exciting, and more enjoyable to teachers and students.

## 3. Research methodology and sample description

The objective of our research is to investigate the efficiency of teaching economics and entrepreneurship in secondary education, understanding and applying modern educational methods. We are particularly interested in the involvement of educators in stimulating youths' interest in economic mechanisms and developing economic and entrepreneurial abilities, thus outlining a (partial) picture of the understanding of the requirements, resources and realities of economic education, of its importance in the economic and social development of Romania.

The research is based on the results of surveying 59 high-school teachers in several counties in North-Western Romania. The sample was selected by using the random stratified proportional sampling procedure.

The questionnaire consisted of 17 questions: the general questions are related to the profile of the respondents, the first part is related to teaching economics in general, the second part is related to teaching financial literacy / personal finance in particular, while the last part of the questions are related to the efficiency of teaching entrepreneurship in public secondary education institutions. For the confirmation of the survey's reliability, we grouped the questions referring to their perception about the protection of the environment and by using the Cronbach's Alpha method we found that the alpha coefficient is equal to 0.609, and the Cronbach's Alpha based on standardized items is 0.843, which indicates a reliable scale. The elimination of any item leads to a lower Alpha.

The sample consists of 59 high-school teachers, of which 46 are employed in urban-based and 13 are rural-based institutions. Regarding the graduated/completed studies, 61% of respondents have higher education in the field of economics, 37% have higher education in other domains than economics, and 2% have secondary education (in economics).

We also considered that seniority could be an important factor that would influence the efficiency of teaching economics and entrepreneurship in secondary education. By grouping the respondents by seniority (mainly in teaching), we have 17% with 10 years or less, 37% between 10 and 20 years and 45% with more than 20 age seniority in the field of education.

## 4. Results and discussions

### Q1. Do you feel ready to teach economics / entrepreneurship / business development in secondary education?

- by the length of service/seniority - there are no statistically significant differences between the answers based on the subjects' seniority:

- by the level of graduated (completed) studies, the results show that there are statistically significant differences between the subjects' answers ($F = 14.013$, $p = .081$). Teachers with tertiary education in a non-economic field, and teachers with secondary education in economics, have said they are not sufficiently prepared to do so. Instead, 90% of Teachers with tertiary education in economics have said they are ready to teach economics/ business management/ entrepreneurship.

The next question is about the best method(s) for teaching economics that they use or wish to use, in case they were asked to renew their teaching methods. Thus in the figure below we present the distribution of the answers on a five point Likert scale.

**Table 1. Responses to Q2. What do you think are the best methods of teaching the economy that you use / would you like to use if you were asked to renew the methods?**

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|
| a. teaching – listening (talk –and – chalk) | 22% | 42% | 19% | 17% | 0% |
| b. PowerPoint presentations, short movies, press releases etc., followed by discussions | 0% | 2% | 3% | 68% | 27% |
| c. Topics for team work | 3% | 10% | 14% | 48% | 25% |
| d. Topics for individual work | 4% | 10% | 13% | 46% | 27% |

Source: Authors.

In case the preset (suggested) methods were not satisfactory for the respondents, they had the option to add other methods and evaluate them in the scale. Among the added suggestions in the *Others* category we can mention: *Problem solving* (2 mentions - agreement), *Thematic visits* (3 agreements and 1 strong agreement), *Practical applications and case studies* (2 agreement, 2 strong agreement), *interviews* (2 agreement).

At the end of this question, the teachers were asked to write the least effective methods and to comment about them (What do you think is the least effective? Why?). They mentioned the following:

*a. teaching-listening:*

- because "it lowers the students' interest and becomes monotonous, encourages mechanic learning, which does not lead to the acquisition of new abilities";
- because "students get bored if they are not attracted and involved in the activity (or are afraid of wrong answers), it is not in accordance with the typologies of contemporary students".

*b. Press releases*

– because "the students do not have the patience to read a text with unknown concepts, sometimes they get bored";

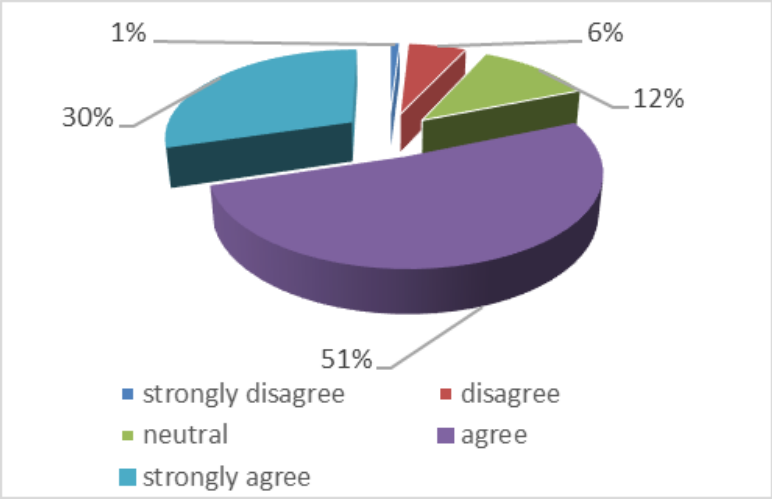
*c. Teamwork*

- "is OK if you can mobilize all of them, otherwise in the class will work one or two students".

*d. Case studies*

- "because if they are chosen inappropriately, they neither clear the students nor do they maintain the interest level of a middle level class".

**Figure 1. Responses to Q3. Would it be useful for students if, as a teacher, you incorporate into teaching and discussion current events / situations / economic problems?**




Source: Authors.

The next step was to ask the teachers who selected *agree* or *strongly agree*, to present the ways to achieve this. Although a percentage of 81% responses agree with that, only a few of them mentioned some activities:

- "by keeping an interval of about 5-10 minutes when current events (relevant to the topic) are briefly reviewed",
- "by stress-free questions and suggesting debates on recent events",
- "inviting students to suggest short questions or imaginary dialogues with political or economic decision-makers".

We find that only a part of these suggestions (useful, moreover) gather more than 2-3 adhesions. We can presume they belong to a relatively small group of 7-8 enthusiasts of teaching economics, probably the same identified in previous questions of our survey. Perhaps, the rest (in good faith), in the desire to renew their teaching methods and make economics a more attractive subject, want this, but simply they just do not know how, when, and if they really have to do it.

## Conclusions

In various social and national contexts, the primary objective of the training efforts of high school economics teachers is to help them understand clearly the subject matter and requirements and to provide models for understanding economic concepts and realities. Last but not least, to help them solve various questions raised by the students. The efficient teaching of economics is therefore based on direct and careful observation of the economic and social environment, physical conditions and relationships between people, institutions and nations. The efficient teaching of economics will result, either directly or indirectly, in the transformation of value judgments and actions of young students in the sense of respect for the environment, human action, fair chance to development and decent working and living conditions. In other words, a good economics teacher can offer this kind of guidance in a scientific and systematic, enthusiastic but also realistic manner.

Our research, on a representative sample of teachers of economics in high school education in Romania, revealed a number of interesting results. First of all, we have found an un-dissimulated interest of teachers to get involved in research, to understand correctly the meaning of our questions and to analyze the issues raised in the questionnaire. Along with a significant dose of conformism in understanding the role of economic education and prudence in supporting certain opinions, we also found a positive trend in supporting the renewal of the supply of subjects, moving away from more traditional topics, probably too abstract for students, and to focus on newer and more practical topics. Secondly, we have found that a large part of the economics teachers are not economists, more precisely they are not graduates of economics faculties. Although intuited, this reality may explain some of the results of our research, and more precisely, the prudent options and comments to the questions asked, the relatively low interest in improving the teaching methods, the preparation for the introduction of new, revolutionary subjects. The challenge of introducing new subjects such as entrepreneurship, business creativity and IT can easily turn into a difficult and unpredictable burden for those trained in non-economic fields. Our research also drives us to subscribe to the analysis and studies in developed countries that try to change the content of the teaching materials and to make it more statistical and mathematical, richer in examples from the modern world. We believe that in the system of secondary economic education the curricular content must be re-evaluated along with the human resources training and abilities and we should reform substantially this state of affairs if we really want economic education to matter for the economic and social development of Romania. We believe that educators must meet the needs of the students to experience and test their knowledge outside the classroom - by taking part in training sessions, business plan competitions, interacting with entrepreneurs and business experts, and develop networks. We have found in our research a certain reluctance about the modernization of teaching methods, and especially those based on digital techniques, on-line access to learning resources, and in general to the entrepreneurial (education) - creativity – IT relationship. In the end we can state that the modernization of (Romanian) economic education will undoubtedly goes/starts from the teachers - when they will abandon the convenience of obsolete methods and the formal declarations of adhesion to modernization, when they will start reform with the renewal of their own knowledge and teaching methods.

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**NAZMI XHOMARA[1] AND NAZYKTERE HASANI[2]**

# AMOUNT OF STUDENTS' STUDY TIME AS AN IMPORTANT PREDICTOR OF ACADEMIC ACHIEVEMENTS OF STUDENTS

## Abstract

The purpose of the paper is to investigate the relationships between amount of students' study time and academic achievements of students, as well as the influence of amount of students' study time on academic achievements of students. The mixed approach is the method used in the study. A random cluster sample of students and a purposive sample of lecturers, a structured questionnaire, and a semi-structured interview were selected to be used in the study. The paper demonstrated that amount of students' study time correlates positively with academic achievements of students. At the same time amount of students' study time influences strongly academic achievements of students. Keywords: amount of students' study time, lecturing, learning, academic achievements of students.

**Keywords:** Amount of students' study time, lecturing, learning, academic achievements of students

**JEL Codes:** I21, I23, I24

## 1. Introduction

Amount of students' study time is supposed to be one of the important variables that influence academic achievements of students.

Ualiyeva & Murzalinova (2016) defines amount of students' study time as competence-oriented approach that seeks to form practically applied comprehensive skills, expertise and knowledge, and their quality transformation, motivated by readiness of students, into their experience and abilities. A Entwistle & McCune (2004) describe amount of students' study time as organized studying and effort management, refers to the ability to manage time and effort. Lindblom-Ylänne (2004) defines amount of students' study time as self-regulation and time management for independent studying. In this study amount of students' study time is defined as a variable that includes studying, writing, reading, and lab work.

Choi (2005) defines academic achievements of students as a successful completion of course activities by students, and Kuh et al.'s (2006) describes as acquisition of desired knowledge, skills and competencies, persistence, attainment of educational outcomes, and post-college performance (p. 5). Yen & Liu describes students' academic achievements as final course grade- clearly an academic outcome variable (2009), meanwhile York, Gibson, & Rankin (2015) define as attainment of learning objectives. In this study academic achievements of students is defined as a variable that includes acquiring knowledge and skills, background and specialization, a range of information, abilities to think analytically and logically, to put ideas together, to see relationships, similarities, and differences.

The aim of the paper is to investigate the relationships between amount of students' study time and academic achievements of students, as well as the influence of amount of students' study time on academic achievements of students. The *research questions* include: (1) Is there a relationship between

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amount of students' study time and academic achievements of students? (2) How much of the variance in academic achievements of students' scores can be explained by the amount of students' study time?

## 2. Literature review

*Amount of students' study time and academic achievements of students*

Amount of students' study time by students is meant to be one of the most important variables that influence their academic success. O'Gara, Karp, and Hughes L K (2009) found that student success courses are an essential resource, because the various benefits: learning, classes, and study skills reinforce one another and magnify their influence, meanwhile Carr and London (2017) indicate that students who participated in modified supplemental instruction and tutoring earned higher course grades. Wu and Kraemer (2017) found that academic preparation and some classroom behavior variables correlated with performance measures, meanwhile Li, Chen and, Duanmu (2010) suggest that the perceived importance of learning success is a significant predictor of academic achievements of students. Demands-abilities fit (Etzel and Nagy, 2015), satisfaction and self-differentiation (Human-Vogel and Rabe, 2014), and goal-setting and self-concept (Nixon and Frost, 1990) were the strongest predictors of academic performance. Anderson, Quinn, and Horney (1996) report that intelligence and reading test scores were associated with adoption levels of technology, and Walkinshaw, Milford, and Freeman (2015) indicated that there is a potential association between participants' use of information and communication technology and improved academic skills. Therefore, as the abovementioned authors indicated, there is a strong relationship between academic preparation and academic success of students. Therefore, as the abovementioned authors found, there is a strong relationship between preparedness and academic success of students.

The study, study strategies, and skills are meant to be the other variables related to academic achievements of students. Conscientiousness and self-control (Hwang, Lim, and Ha (2017), study, and study habit and skill measures (Applegate and Daly, 2006; Credé and Kuncel, 2008) improves academic performance and missing classes had a negative effect; but Watkins (1982) found little evidence of the role of achievement motivation in the study methods adopted by students. Students' cognitive and affective appraisals of their study and their individual goals (Volet and Styles, 1992), and visual-motor skills (Peters et al., 2003) were associated with better academic performance. Soria, Stebleton, and Huesman Jr. (2013) found significant differences in factors related to working-class students' social integration and academic integration, trait self-control and handgrip performance (Stork et al., 2016) explained significant variance in academic behavior. Academic variables (Otero, Rivas, and Rivera, 2007), gender and the tertiary admissions rank (Anderton S R, 2017), socioeconomic status and grade point average (Young, Worrell, and Gabelko (2011) significantly explained achievement; but Moore (2004) suggest that aptitude ratings scores are poor predictors of the academic success. Supports from parents, teachers, and peers (Wang and Neihart, 2015; Oti, 2013) influenced students' academic achievement and academics' career growth; but Walker (2006) suggests that urban students' peer groups do not support academic achievement, and Heiman and Precel, (2003) found that there is no significant difference between groups on grade point average, number of courses taken, and family status. Therefore, as the abovementioned authors indicated, there is a strong relationship between study strategies and skills as well as support from teachers, parents, and peers, and academic success of students. As a conclusion, based on different research work, has resulted that amount of students' study time is a significant variable that influences academic achievements of students. Therefore, it is hypothesized that:

*Hypothesis # 1: Amount of students' study time correlates positively with academic achievements of students.*

Preparedness is supposed to influence not only academic achievements of students but also the academic labor process and job demands. Ali, Ahmed, and Rose (2017) found that the only significant predictor variable of students' engagement was the year of study; meanwhile, Trice and Yoo (2007) revealed that significant predictors of students' postgraduation plans included perceived preparedness. Findlay et al., (2006) revealed the prime significance of language, financial factors, and embeddedness of personal mobility are barriers to student's mobility; meanwhile, Lester, Leonard, and Mathias (2013) found that transfer students viewed social engagement rather than college life. Allen et al., (2017) indicated that attitudes, subjective norms and perceived behavioral control each had a significant direct effect on attendance; meanwhile Freeman et al. (2017) found that students who were predicted to do well in the course, worked together initially; students who actually did well in the course, were working together at the end; and students who were predicted to struggle in the course began collaborating late in the term. Ogbonna and Harris (2004) argued that the increase in emotional laboring is largely a result of the heightened intensification of the academic labor process; and Owen, Kavanagh, and Dollard (2017) found the work-to-study model relates to the extended job demands-resources model.

Class participation, and engaging students, lecture/computer study guide, and skills learning are meant to be the other variables that are related to academic achievements of students. Class participation, and engaging students as a teaching and learning tool (Campbell and Monk, 2014), and peer-assisted study sessions attendance (Spedding, Hawkes, and Burgess, 2017) correlate positively with academic performance. Higgins and Boone (1990) indicated that the lecture/computer study guide treatment was as effective as the lecture, and posttest scores were higher for the computer study guide group, but Strang (2016) indicated there was very little correlation between student online practices and their academic outcomes. Students who enrolled in skills learning support program (Wibrowski, Matthews, and Kitsantas, 2016), students who completed the math my way program (Seidman, 2011) reported higher levels of motivation, study skills, and progress. Therefore, as the abovementioned authors indicated, there is a strong relationship between the preparedness, class participation, engaging students, lecture/computer study guide, and skills learning and academic achievements of students. Therefore, it is hypothesized that:

*Hypothesis # 2: Amount of students' study time influences increasing of academic achievements of students.*

## 3. Methodology

*Method*

The quantitative approach is the method used in the study, compounded by quantitative instruments and techniques.

*Instruments*

The structured questionnaire was used to collect the primary quantitative data of independent and dependent variables from students. This instrument consisted of a 38-item questionnaire using a Likert scale. The instrument identified two main subscales: study time, and academic achievements. Cronbach alpha coefficient values for all items above .80 suggested high reliability of scale's internal consistency.

*Participants*

The sample was taken from students from the master's program with the school of social sciences (N = 144), or 8.00% of the population (n= 1798). It is used a random cluster for student respondents. A

breakdown of the random cluster sample of students included 101 females (70.1%) and 43 males (29.9%).

*Procedure*

The relationship between amount of students' study time, lecturer support, and academic achievements of students was investigated using Pearson correlation coefficient. Linear regression was used to assess the skills of one control measure to predict academic achievements of students' levels by amount of students' study time. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no violations noted.

## 4. Results & discussions

### *Descriptive statistics*

**Table 1. The frequences of amount of students' study time**

**Amount of students' study time**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 2 6-10 hours a week | 38 | 26.4 | 26.4 | 26.4 |
| | 3 11-15 hours a week | 24 | 16.7 | 16.7 | 43.1 |
| | 4 16- 20 hours a week | 46 | 31.9 | 31.9 | 75.0 |
| | 5 21-25 hours a week | 30 | 20.8 | 20.8 | 95.8 |
| | 6 26-30 hours a week | 6 | 4.2 | 4.2 | 100.0 |
| | Total | 144 | 100.0 | 100.0 | |

Source: Authors.

As shown in table 1, 43.1% of students study 6- 15 hours a week; 52% of students study 16- 25 hours a week; 4.2% of students study 26- 30 hours a week. Referring descriptive statistics, 144 respondents ranging in levels from 2 to 6, with a mean of 3.60 and standard deviation of 1.202. This result means that approximately half of the students study individually up to 15 hours a week, and another half study up to 25 hours a week. This result indicates that students do not study enough individually, regarding study program requirements and standards of the university. Therefore, students should increase the individually study time, include studying, writing, reading, and lab work to achieve better academic results.

**Table 2. The frequencies of academic achievements of students**

**Academic achievements of students**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 2 Disagree | 16 | 11.1 | 11.1 | 11.1 |
| | 3 Neutral | 44 | 30.6 | 30.6 | 41.7 |
| | 4 Agree | 60 | 41.7 | 41.7 | 83.3 |
| | 5 Strongly agree | 24 | 16.7 | 16.7 | 100.0 |
| | Total | 144 | 100.0 | 100.0 | |

Source: Authors.

As shown in table 2, 11.1 % of students do not achieve academic success, 30.6% of them are dissatisfied about their academic success, and 58.4% of them are satisfied with their academic success according to their goals. Referring descriptive statistics, 144 respondents ranging in levels 2 to 5, with a mean of 3.64 and standard deviation .890. This indicates that approximately half of the students achieve academic success, and half of them do not achieve academic success, according to their perceptions.

This result indicates that academic success of students is not in the required standard. Therefore, lecturers should increase their support for students about acquiring knowledge and skills.

***Inferential statistics***

***Test of hypothesis***

**Table 3. The outputs of Pearson correlation between amount of students' study time and academic achievements of students**

**Correlations**

| | | Academic achievements of students | Amount of students' study time |
|---|---|---|---|
| Pearson Correlation | Academic achievements of students | 1.000 | .501 |
| | Amount of students' study time | .501 | 1.000 |
| | Lecturer support | -.350 | -.015 |
| N | | 144 | |

Source: Authors.

As shown in Table 3, there is a medium positive correlation between amount of students' study time and academic achievements of student's variables, $r = .501$, $n = 144$, $p < .005$, with high levels of amount of students' study time associated with high levels of academic achievements of students.

The result was consistent with previously reported works, who argued that there is a significant positive relationship between amount of students' study time and academic achievements of students (O'Gara, Karp, and Hughes L K, 2009; Wu and Kraemer, 2017; Li, Chen and, Duanmu, 2010; Nixon and Frost, 1990; Stork et al., 2016). In conclusion *hypothesis # 1: amount of students' study time correlates positively with academic achievements of students*, is been supported. Therefore, amount of students' study time and academic achievements of students are in a linear positive relationship. If students study more, they will achieve higher levels of academic achievements.

**Table 4. The outputs of regression between amount of students' study time and academic achievements of students**

**Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .554[a] | .306 | .253 | .532 | .306 | 3.204 | 2 | 11 | .040 | 2.404 |

a. Predictors: (Constant), Amount of students' study time
b. Dependent Variable: Academic achievements of students

Source: Authors.

As shown in Table 4, total variance of academic achievements of student's levels explained by amount of students' study time (the model) is 30.6%, $F$ (2, 3.204), $p < .005$, the other variance may be explained by other variables. In the model, the control measure is statistically significant recording higher standardized beta values for amount of students' study time: *beta* = .346; p < .005). This indicates that amount of students' study time influence strongly academic achievements of students.

The result was consistent with previously reported works, who argued that amount of students' study time influences academic achievements of students (Allen et al., 2017; Freeman et al., 2017; Ogbonna and Harris, 2004; Campbell and Monk, 2014; Spedding, Hawkes, and Burgess, 2017; Wibrowski, Matthews, and Kitsantas, 2016; Seidman, 2011). In conclusion *hypothesis # 2: amount of students' study time influences increasing of academic achievements of students,* is been supported. Therefore, amount of students' study time has a considerable impact on academic achievements of students. So, if students study more, they will achieve higher levels of academic achievements.

## Conclusions and implications

Several limitations should be acknowledged as part of conclusions. First, the measurement of amount of students' study time, and academic achievements of student's variables is being made based on self-reported instruments. The purpose of this paper was to investigate the effects of amount of students' study time on academic achievements of students. The prior assumption was that amount of students' study time influence academic achievements of students.

The results showed that the approximately half of student study up to 15 hours a week, and the other half up to 25 hours a week. It is found that there is a medium positive correlation between amount of students' study time and academic achievements of student's variables, with high levels of amount of students' study time associated with high levels of academic achievements of students. It is found that total variance of academic achievements of student's levels explained by amount of students' study time is relatively a high percentage. These results indicate that amount of students' study time influence strongly academic achievements of students. Therefore, faculties and departments, as well as lecturers should support more the students to increase their study work as a main predicting variable on academic achievements of students.

The results of the paper, supported by other researchers about the influence of amount of students' study time on academic achievements of students have important implications for future research. Such research should investigate the influence of other variables on academic achievements of students. Results of this paper also have important implications for practice. The important programs and other interventions should be designed to develop and to support students because it is confirmed by this study that amount of students' study time influence strongly academic achievements of students.

Overall the findings of this study enhanced theoretical and practical understanding as amount of students' study time is one of the most important variables that support academic achievements of students.

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**MITHAT DURAK[1], EMRE SENOL DURAK[2] AND MEHMET SAKIROGLU[3]**

# THE FACTORS ASSOCIATED WITH LIFE SATISFACTION AND DEPRESSION AMONG OLDER ADULTS SUFFERING FORCED MIGRATION

## Abstract

The enduring effects of trauma especially among older adults are not adequately examined. Aim of the present study is to scrutinize factors associated with life satisfaction and depression among older adults suffering forced migration. The role of trauma related variables (i.e. loss during deportation), and post-migration related variables (i.e. citizenship, economical problems) on life satisfaction and depression are examined. The sample composed of 384 participants, 165 women (43%) and 219 men (57%). Participants completed questionnaire about trauma related variables (i.e. loss during deportation), post-migration status (i.e. citizenship, economical problems), Satisfaction with Life Scale and Geriatric Depression Scale-Short Form. Women participants, participants who do not have serious medical problems and having sufficient monthly income had higher scores of life satisfaction. Participants having loss of any relatives during forced migration had lower life-satisfaction than their counterparts. Regarding trauma related variables about post forced migration, women participants, participants not having citizenship, participants not having sufficient monthly income and participants having serious medical health problems had higher depression scores than their counterparts. Also, participants having experienced 1944 deportation and having loss of any relatives had higher depression than their counterparts. The obtained results are discussed together with relevant literature.

**Keywords:** Forced migration, life satisfaction, depression, older adults, trauma, post traumatic life

**JEL Codes:** I31, I30, I12, I18

Adjustment is the process of reorganizing and structuring the life of the individual in accordance with a new social and cultural context (Ryan, Dooley, & Benson, 2008). One of these psycho-social changes is migration or deportation/ forced migration. Migration is a process that prepares the ground for psychological problems, especially depression and anxiety disorders. Migration is handled in two different contexts, voluntary and compulsory (forced migration/deportation), and the nature and associated factors of both contexts differ. It is important to investigate the psychopathology and related factors in the subjects who are migrated (e.g. businessmen, international students) and those who are subject to forced migration/ deportation. The latter one is compulsory suggested by governmental authorities and individuals preference do not consider.

Considering the studies on the psychological effects of migration, it is noteworthy that these studies are carried out mainly in adult samples, and that there are few studies with deportation experience. Depression and anxiety disorders have been mentioned in those studies carried out with immigrants; for instance among African and Former Yugoslav people living in Australia (Kirmayer et al., 2011), Russian people living in Israel (Walsh, Shulman, & Maurer, 2008), British people living in Hong Kong (Ward & Kennedy, 2001), people living in Europe (Ornelas & Perreira, 2011), Bosnian women living in Switzerland (Sundquist, Johansson, DeMarinis, Johansson, & Sundquist, 2005). On the other hand,

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* Acknowledgement: This study was fully supported by the Scientific and Technological Research Council (Project no: TUBITAK-SOBAG 115R077).

the studies conducted with older adults who are more vulnerable to medical problems and who are at risk of being affected more than other forced migrated age groups are quite limited. The most important reason for this limitation is the difficulty of reaching these people. However, considering the increase in the older adults population in the world, it is thought that the studies conducted with the older immigrants will make it valuable to understand the bio-psycho-social problems in this group.

Psychosocial changes in old age leave the older adults vulnerable to psychological problems. When looking at aging immigrants, older adults had higher scores of depression than adults aged between in 18-64 among Korean immigrants (Woo, Lee, & Hong, 2014). Likewise, 23% of Chinese older adults living in Canada (N=444) had severe depression scores (Lai, 2004). When comparing Korean immigrants migrated to Canada and USA, time since migration, health problems and language problems were related to higher depression scores in USA, however, only having health problems were related to higher depression in Canada (Kim, Kang, & Kim, 2014). Therefore, post- migration / deportation related variables seem to lead such differences on depression in the older adults.

Also, it is stated that, depression among immigrants are not treated well. The most important reasons for this are difficulty to evaluate the older adults, the inclusion of culture-specific factors in depression, and the difficulty of seeking professional help in this group (Antoniades, Mazza, & Brijnath, 2014). In this direction, studies that allow us to understand culture-specific factors are extremely important (Deisenhammer et al., 2012). Studies conducted between 2000 and 2013 years on immigrant older adults was carried out with Latin emigrants to the US, and this result emphasized the necessity of studies for immigrant older adults in other cultures (Deisenhammer et al., 2012). Therefore, it is important to evaluate the features related to depression in older adults who have immigration/deportation experience in different cultures.

The psychological effects of the traumatic characteristics of the migration / deportation experience are mentioned in the literature. The immediate or indirect exposures affect the social, physical and psychological lives of individuals. Understanding the traumatic effects of such events on this group and protecting them from the negative effects of these events is frequently emphasized in the literature (Pennebaker, 2000). Pennebaker (1985) found positive effects of expressing or discussing life on trauma victims. Similarly, keeping secret, ignoring and repressing increases stress hormones that increment negatively affect well-being (Petrie, Booth, & Pennebaker, 1998). In addition, it is emphasized that traumatic symptoms are more intense in cases where new land is far from immigrants own values, especially older adults are more affected and isolated (Foster, 2001). Traumatic reactions in the process of migration and deportation are grouped as; traumatic experiences before /pre immigration / deportation, traumatic experiences of the immigration / deportation process and after/post immigration and deportation process (experiences of the asylum and settlement process, insufficient support in living in the new country, unemployment and being related to being a minority). Similar with aforementioned category about traumatic reactions, although the pre-migration /pre-deportation and post-migration/ post-deportation processes were defined by different stages in different sources, the most common definitions divided the process into pre-migration, coping and post-migration processes (Hertz, 1988; Hertz, 1993). In a study examining the pre-migration and post-migration processes, more depression, anxiety and traumatic symptoms were observed after migration when participants reported higher difficulties before migration (Silove, Sinnerbrink, Field, Manicavasagar, & Steel, 1997). In this study, the post-immigration problems included problems such as the inability to visit families in the homeland, the concerns about the safety of their families, and the compulsion to leave their relatives. In another study, language and communication problems, difficulties in moving and living alone were significantly associated with psychological symptomatology (anxiety, depression, psychological well-being) in Korean migrant older adults (Woo et al., 2014). Similarly, in a study conducted with newly immigrated individuals in Hong Kong, it is reported that unplanned migration creates a risk for developing

psychological disorders (Wen & Lin, 2012). From this study, it can be predicted that the experience of deportation increases the risk of psychological patterns. Also, daily life problems are important for psychological disorders. Chinese people who have economic problems after migration and have low life satisfaction have more depressive symptoms (Lai, 2004). Therefore, it can be asserted that it is important to examine the effects of experiences before and after the migration / deportation.

In this study, trauma related variables (i.e. loss during deportation, experiencing 1944 deportation), and post forced migration/deportation variables (i.e. citizenship, economical problems, health issues) and their relationships between life satisfaction and depression are aimed to examine in a Ahıska Turk older adults sample. Ahıska Turks have experienced deportation two times with 45 years apart. They have to live in a country other than their motherland. These people on the other hand, are less likely to examine regarding psychological variables. Mostly, sociological studies have been conducted with those people. Therefore, understanding the relationship between psychosocial aspects of depression and life satisfaction with trauma related variables becomes very important in older adults. In response to research indicating that older adults are most adversely affected from migration or deportation process (Woo et al., 2014), there are few studies investigating the psychological aspects of forced immigration or deportation experiences of older adults. Variables in the process into pre-forced migration/deportation and post-forced migration/ deportation processes are aimed to examine through depression and life satisfaction.

## Method

### Participants

A total of 384 participants, 165 female (43%) and 219 male (57%) were participated in the present study. Their ages were ranged between 64 to 95 years-old. (M = 69.42, SD = 8.86). Most of them have received Turkish citizenship (n = 262, 68.2%) while others did not (n = 122, 31.8%). Most of them were born in the country of immigration (n = 242, 63%). The others (N = 142, 37%) were born in the motherland, then exposed to 1944 deportation and forced to continue to live in the land of deportation. All participants were exposed to migration (forced migration or deportation) at least twice; number of migration was ranged between 2 to 10 times (X = 3.96, SD = 1.14).

Most of them were married (n = 285, 74.2%), other were widowed (n = 92, 24%), divorced - separated (n = 4, 1.1%) or single (n = 3, 0.08%). Most of them had children (n = 378, 98.4%), other did not have (n = 6, 1.6%). Monthly income were ranged between 500 to 14.000 Turkish Liras (X = 2336, TL SD = 1.225, TL).

### Measures

Questionnaire about experiences, Life Satisfaction Scale and Geriatric Depression Scale (Short Form) were administered.

*Questionnaires about Pre-Post Forced Immigration/Deportation*

In addition to demographic variables, several questions are asked participants about pre and post forced immigration/deportation. Obtaining Turkish citizenship, perceived monthly income, presence of serious medical problems are some variables about post immigration process identifying daily life issues. Also, participants are asked whether they experienced 1944 deportation and whether they lost their loved ones during deportation.

*Geriatric Depression Scale (Short Form)*

The GDS is developed as composing of 30 questions (Yesavage et al., 1983). Later, developers use short form of the scale by means of selecting items as having high correlation with depressive symptoms and successfully differentiate depressed from non-depressed population (Sheikh & Yesavage, 1986). Test-retest consistency, respectively, r = .77 and r = .87. The internal consistency coefficient varies between .92 and .72. In the study, the scale adapted by Sağduyu (1997) will be used. In the present study, short form of Geriatric Depression Scale (GDS-15) was used (Sheikh & Yesavage, 1986). It was adapted in to Turkish by Durmaz and her colleagues (Durmaz, Soysal, Ellidokuz, & Isık, 2018). They found correlation of GDS-15 with GDS-30 was r=.97 ($p<0.001$). Based on DSM-5 criteria in determining depression, the sensitivity, specificity, positive predictive value, and negative predictive value of GDS-15 were 92%, 91%, 76%, and 97%, respectively, and the cutoff value was taken as ≥5. Internal consistency of the scale was .92.

*Satisfaction with Life Scale (SWLS)*

The scale consists of 5 items of 7-point Likert type to evaluate the cognitive characteristics of psychological adjustment (Diener et al., 1985). The standardization study of the Turkish culture was made with the data obtained from university students, prison staff and older adult individuals and it was observed that the internal consistency coefficient was .81, .82 and .89, respectively (Durak, Senol-Durak, & Gencoz, 2010).

**Procedure**

Ethical approval of the study was taken from Abant İzzet Baysal University, Human Research Ethics Committee. For the study, in order to reach the Ahiska Turks who have deportation experience, the Union of World Ahiska Turks (DATÜB) headquarters was contacted and a letter of support was received. Participants was contacted by local associations established the World Union of Ahiska Turks (DATÜB) Headquarters. The participants was informed that participation in the research is voluntary, the confidentiality will be maintained and the information in the research will be used only for scientific purposes. It took 20-30 minutes to complete questionnaires. The principles of confidentiality and volunteering were adhered to in all transactions in the process of quantitative data collection.

**Results**

To investigate pre-forced migration/deportation and post forced migration/deportation variables with late life depression and life satisfaction several independent sample t tests performed.

**Variables associated with Depression**

An independent samples *t* test was performed comparing the mean late-life depression scores of older women and older men. Consistent with the literature, results from an independent samples t test indicated that older women ($M = 4.51$, $SD = 3.55$, $N = 159$) scored much higher on late-life depression than older men ($M = 3.24$, $SD = 3.25$, $N = 216$), $t(373) = 3.58$, $p < .001$, two-tailed. The difference of 1.26 scale points was medium (*Cohen's d* = .33), and the 95% confidence interval around difference between the group means was relatively precise (.57 to 1.96).

An independent samples *t* test was performed comparing the mean late-life depression scores of older adults who received Turkish citizenship and those who did not take Turkish citizenship. Results of the independent sample t-tests indicated that there were not significant differences in late-life depression between two older adult groups, $t(373) = -.98$, $p = .328$, two-tailed.

An independent samples *t* test was performed comparing the mean of perceived their monthly income gain is as sufficient or insufficient. As expected, results from an independent samples t test indicated that older adults who perceived their monthly income gain is insufficient ($M = 4.51$, $SD = 3.70$, $N = 195$) scored much higher on late-life depression than older adults who perceived their monthly income gain is sufficient ($M = 2.99$, $SD = 2.91$, $N = 180$), $t(373) = -4.38$, $p < .001$, two-tailed. The difference of -1.52 scale points was large (*Cohen's d* = .78), and the 95% confidence interval around difference between the group means was relatively precise (-2.20 to -.84).

An independent samples *t* test was performed comparing the presence or absence of serious medical problems. As expected, results from an independent samples t test indicated that older adults who have serious medical health problems ($M = 4.57$, $SD = 3.51$, $N = 205$) scored much higher on late-life depression than older adults who have not serious medical health problems ($M = 2.82$, $SD = 3.07$, $N = 170$), $t(373) = 5.08$, $p < .001$, two-tailed. The difference of 1.75 scale points was medium (*Cohen's d* = .67), and the 95% confidence interval around difference between the group means was relatively precise (1.07 to 2.43).

An independent samples *t* test was performed comparing the mean late-life depression scores of older adults who exposed to 1944 deportation event and those who did not exposed to 1944 deportation. As expected, results from an independent samples t test indicated that older adults exposed to 1944 deportation ($M = 4.76$, $SD = 3.64$, $N = 140$) scored much higher on late-life depression than older adults not exposed to 1944 deportation ($M = 3.20$, $SD = 3.16$, $N = 235$), $t(373) = 4.36$, $p < .001$, two-tailed. The difference of 1.56 scale points was medium (*Cohen's d* = .33), and the 95% confidence interval around difference between the group means was relatively precise (.86 to 2.26).

An independent samples *t* test was performed comparing the mean late-life depression scores of older adults who lost at least one of his/her relatives on road during forced immigration or deportation process and those who did not lose any his/her relatives due to forced immigration or deportation. As expected, results from an independent samples t test indicated that older adults losing his/her relatives during forced immigration or deportation ($M = 5.43$, $SD = 3.86$, $N = 114$) scored much higher on late-life depression than older adults not losing his/her relatives during forced immigration or deportation ($M = 3.04$, $SD = 2.95$, $N = 258$), $t(370) = 6.53$, $p < .001$, two-tailed. The difference of 2.39 scale points was large (*Cohen's d* = .78), and the 95% confidence interval around difference between the group means was relatively precise (1.67 to 3.11).

**Variables associated with life satisfaction**

An independent samples *t* test was performed comparing the mean life satisfaction scores of older women and older men. Contrary to expectations, results from an independent samples t test indicated that older women ($M = 24.32$, $SD = 5.57$, $N = 165$) scored much higher on life satisfaction than older men ($M = 22.84$, $SD = 6.51$, $N = 219$), $t(382) = 2.34$, $p < .05$, two-tailed. The difference of 1.48 scale points was medium (*Cohen's d* = .36), and the 95% confidence interval around difference between the group means was relatively precise (.24 to 2.72).

An independent samples *t* test was performed comparing the mean life satisfaction scores of older adults who received Turkish citizenship and those who did not take Turkish citizenship. As predicted, results from an independent samples t test indicated that older adults who received Turkish citizenship (*M* = 24.40, *SD* = 5.67, *N* = 262) scored much higher on life satisfaction than those who did not take Turkish citizenship (*M* = 21.48, *SD* = 6.71, *N* = 122), *t*(382) = 4.44, *p* < .001, two-tailed. The difference of 2.93 scale points was medium (*Cohen's d* = .54), and the 95% confidence interval around difference between the group means was relatively precise (1.63 to 4.22).

An independent samples *t* test was performed comparing the mean of perceived their monthly income gain is as sufficient or insufficient. As expected, results from an independent samples t test indicated that older adults who perceived their monthly income gain is sufficient (*M* = 44.99, *SD* = 5.44, *N* = 186) scored much higher on life satisfaction than older adults who perceived their monthly income gain is insufficient (*M* = 22.04, *SD* = 6.47, *N* = 198), *t*(382) = 4.83, *p* < .001, two-tailed. The difference of 2.95 scale points was medium (*Cohen's d* = .36), and the 95% confidence interval around difference between the group means was relatively precise (1.75 to 4.16).

An independent samples *t* test was performed comparing the presence or absence of serious medical problems. As expected, results from an independent samples t test indicated that older adults who have serious medical health problems (*M* = 22.83, *SD* = 6.25, *N* = 213) scored much lower scores on life satisfaction than older adults who do not have serious medical health problems (*M* = 24.27, *SD* = 5.98, *N* = 171), *t*(382) = -2.30, *p* < .05, two-tailed. The difference of -1.45 scale points was medium (*Cohen's d* = .36), and the 95% confidence interval around difference between the group means was relatively precise (-2.69 to -.21).

An independent samples *t* test was performed comparing the mean life satisfaction scores of older adults who exposed to 1944 deportation event and those who did not exposed to 1944 deportation. Results of the independent sample t-tests indicated that there were not significant differences in life satisfaction between two older adult groups, *t*(373) = -1.03, *p* = .304, two-tailed.

An independent samples *t* test was performed comparing the mean life satisfaction scores of older adults who lost at least one of his/her relatives on road during forced immigration or deportation process and those who did not lose any his/her relatives due to forced immigration or deportation. As expected, results from an independent samples t test indicated that older adults losing his/her relatives during forced immigration or deportation (*M* = 21.42, *SD* = 6.68, *N* = 118) scored much lower on life satisfaction than older adults not losing his/her relatives during forced immigration or deportation (*M* = 24.43, *SD* = 5.66, *N* = 263), *t*(379) = -4.53, *p* < .001, two-tailed. The difference of -3.01 scale points was medium (*Cohen's d* = .54), and the 95% confidence interval around difference between the group means was relatively precise (-4.31 to -1.70).

**Discussions**

Given the limited research in this area, the study determine the effect of factors such as traumatic experiences, and pre/post immigration/deportation process. In this study, trauma related variables (i.e. loss during deportation, experiencing 1944 deportation), and post forced migration/deportation (i.e. citizenship, economical problems, health issues) and their relationships between life satisfaction and depression were examined among Ahıska Turk older adults sample.

Regarding variables associated with late-life depression, women had higher scores than men. Similar results were found in different studies (Lue, Chen, & Wu, 2010). For instance, in a community sample, older women had higher scores on depression than older men (Durak, 2018). This difference might be

explained by social life promoting women more dependent (Estes, 2004). Besides, interestingly, obtaining citizenship form Turkey did not make difference on depression. Although, the citizenship status is expected to make a difference on late-life depression, the difference did not obtained. Moreover, when comparing the mean of perceived their monthly income as sufficient or insufficient, those perceived income as insufficient had higher scores of depression than their counterparts. Similar findings were found in other studies (Lue et al., 2010). Income is as a way to reach any resource encountering a problem (Durak, 2018). Additionally, as similar findings obtained in different studies (Durak, 2018; Kim, Stewart, Shin, Yoon, & Lee, 2004; Lue et al., 2010), individuals having serious medical problems had higher scores of depression than their counterparts. This might be because those health problems might get limits their daily life. Moreover, individuals who experienced 1944 deportation had higher scores of depression than individuals who did not experienced 1944 deportation. This finding reveal the long-term effect of deportation. Their deportation experience still make a difference on their psychological health. Also, individuals who lost at least one of his/her relatives on road during forced immigration or deportation process had elevated scores of depression than individuals who did not lose. Again, this variable also help us to see the long-term effect of deportation/forced immigration.

Regarding variables associated with life satisfaction, women had higher scores than men. There are controversial findings for gender role on life satisfaction. Some studies found similar life satisfaction scores for women and men while others found lower life satisfaction scores for women (Diener & Diener, 2009). Higher life satisfaction among Ahıska Turks older adult women might be explained by other variables such as living in an extended-family, receiving social support from relatives. Therefore, further studies are needed to explain this difference. Besides, individuals who obtained citizenship from Turkey had higher life satisfaction than individuals who did not obtain citizenship. Citizenship make easier several legal matters while living (i.e. for working, receiving health support etc.) hence this variable is related with higher well-being scores. Moreover, when comparing the mean of perceived their monthly income as sufficient or insufficient, those perceived income as insufficient had lower life satisfaction than their counterparts. Likewise citizenship, income helps older adults to solve daily-life issues. Additionally, as similar findings obtained in different studies (Guo, Aranda, & Silverstein, 2009; Rogers, 1999), individuals having serious medical problems had lower scores of life satisfaction than their counterparts. Interestingly, there were no difference between individuals who experienced 1944 deportation or not in terms of life satisfaction. However, individuals who lost at least one of his/her relatives on road during forced immigration or deportation process had lower scores of life satisfaction than individuals who did not lose. Although life satisfaction term is evaluating well-being "here and know", having loses during forced migration or deportation make difference.

Regarding variables associated with post forced migration/deportation, working with older adults men, not having citizenship, not having sufficient monthly income and having serious medical health problems are seems to be important among Ahıska Turk older adults. Regarding pre forced immigration/deportation variables, working with someone having loses during journey and individuals having 1944 deportation might seem crucial. Those trauma related two variable also shows us the long-term effect of forced migration and deportation.

To explore variables associated with depression and life satisfaction, further studies are enlighten more such a complicated psycho-social process. Finally, the results are expected to be a guidance for the development of psychological intervention programs for the individuals who have experienced an immigration. It is valuable to understand the bio-psycho-social problems of older immigrants.

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**Acknowledgement: This study was supported fully by the Scientific and Technological Research Council (Project no: TUBITAK-SOBAG 115R077).**

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# FORCED MIGRATION EXPERIENCE AMONG OLDER ADULTS AND ITS TRAUMATIC FEATURES

## Abstract

Forced migration is a disturbing experience that has challenged the lives of individuals. Nevertheless, the longstanding properties of the forced migration have been less examined in the literature. The aim of the research is to explore the nature of traumatic experiences among individuals exposed to forced migration. By considering the phenomenological approach, the common traumatic features among the older adults who have forced migration experiences are investigated. A total of 61 forced migrated victims were included in the present study. Semi-structured interviews analyzed through MAXQDA 12+ program and the data coding process was conducted. The findings reveal that the experience of forced migration does not only involve the elimination of the land, but also the traumatic loss of the loved ones. The findings will be discussed with the literature with some clinical implications.

**Keywords:** Forced migration, trauma, older adults, loss of loved one

**JEL Codes:** I12, I18, I31, I30

Moving to or being forced to move different and unusual territories, in other words, migrating or being deported is a sociological issue in itself, and it might be considered as an event that has important psychological results for holding serious psychological risks ranging from adjustment problems to post-traumatic stress disorder. Several psychological disorders are identified among migrated or deported population. Depression and anxiety disorders among deported individuals are reported (Wong & Miles, 2014). It is mentioned that migration increases the probability of depression among older adults (Genkova et all., 2014). Similarly, it is reported that anxiety disorders are common in Korean migrants (Woo et all., 2014).

Also, forced migration leads to dramatic results, both by increasing the stress sources and by weakening the ability of the individual to cope. In a study, it was revealed that forced migration both increased depression directly and increase in depression indirectly weakened psychosocial resources (Hwang et all., 2010). It is also stated that psychological effects are differentiated between migrants, refugees and asylum seekers. There was a higher rate of anxiety and posttraumatic stress disorder in Afghans and Iranian refugees living in the Netherlands (Gerritsen et all., 2006).

As can be seen, the aforementioned studies are the studies carried out immediately after the migration process or the forced migration process. Also, those studies have been conducted with adults. The long-term effects of the experience of deportation have been less studied in the literature. In addition to the possible problems in old age, it is clear that an experienced migration / being deported experience will make older individuals more vulnerable to suffer from psychological and social problems. Doubtlessly,

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* Acknowledgement: This study was fully supported by the Scientific and Technological Research Council (Project no: TUBITAK-SOBAG 115R077).

accompanied with a critical life period like old age, the impact of migration which has potentially negative consequences on people of all ages, is expected to be heavier and more severe. In other words, being in a 2 distinct disadvantaged condition, as being "older adults" and "migrated" naturally affects the individual differently and most probably in a more negative manner than others. However, studies conducted with deported or migrated older adults are quite limited. Therefore, working with older adults having deportation and migration experience seems to be so important. Also, when considering higher ratio of migration over the World, understanding psychological effects upon individuals are quite important.

The aim of this study is to understand the nature of the traumatic experiences related to deportation experience among Ahıska Turks older adults. Ahıska Turks are unique sample experiencing deportation twice within 45 years. In this sense, the old generation of Ahıska Turks is the first generation whose has experienced deportation and had to continue living in a country different from their motherland. In line with the phenomenological approach that is the basis of qualitative research "human experiences are included in the brackets, analyzed and compared to define the truth" (Patton, 2002, p.106; cited in Merriam, 2013). It is also recommended to use the phenomenological approach to work emotionally, and intensively matters in an effective manner (Merriam, 2013). It is a common practice in the phenomenological approach that researchers review their own assumptions about the phenomenon and look back at the phenomenon and operate the process of the realization of the experience, unite the experiences around the themes and follow the reality with different perspectives (Merriam, 2013). The purpose of this study is to examine the psychological effects of deportation experience within the framework of post-traumatic stress disorder based on the principles of embedded theory that make it possible to perform discovery and analysis of the structure (Charmaz, 2006). For this purpose; "What are some traumatic effects among deported older adults?", "Are there some common aspects among post-traumatic stress disorder among deported older adults?" are aimed to investigated in the present study.

## Method

### Participants and procedure

By considering the data saturation (Thurmond, 2001) and data triangulation (Nie, 2017) principles for qualitative analysis, a total of 61 deported victims were included. A semi-structured interviews were conducted with Ahıska Turks older adults who participated in the study voluntarily and allowed video records. Participants were reached with the help of The World Union of Ahıska Turks. Potential participants were asked to participate in the present study and interviews were conducted according to their appropriate time and places (i.e. home, local places etc.). Researchers were tried to eliminate outside distractions during their visits.

To handle semi-structured interviews, researchers (the first three author in the manuscript) prepare open-ended interview questions based on traumatic experiences in order to find and discover grounded codes specific to deportation experience.

### Coding data

Semi-structured interviews were put into the MAXQDA 12+ program and the data coding process was conducted. In the data analysis, the logic that exists on the basis of data classification, data conceptualization and the identification of categories in the data is reviewed. In the data coding process, an open, focused, axis-centered and theory-centered coding system was used by dividing each phenomenon with similarities and differences, synthesizing structures and categories to determine axes

and their relations with the theory.

Throughout the open coding process, each class of data was recorded during the focused, axis-oriented coding process, which was suggested in the analysis of qualitative data (Strauss & Corbin, 1990) (such as asking "why, who, how, under what conditions, what are the consequences?" questions). In theory based coding, this process, in which the theories are verified according to the live responses of the participants and the relations of the sub-categories related to the theory are determined, is an analytical process that develops simultaneously with other coding processes (Creswell, 2010; Goulding, 2012). Therefore, theory-centered coding was also carried out by considering the existing theories related to post-traumatic stress disorder.

Two researchers investigate video records independently. They identified "meaning units" based on Collaizzi (1978) standards.

The parts of meaning, as noted, may be the smallest structures in the interviews, words, sentences or whole sentences (Jones, 1984). In addition, different data sources may be included in the same encodings. Codes that are similar to each other come together to form codes. While examining the interview videos, each researcher wrote his thoughts and later sub-codes which could be related to main themes and main themes from the interview sections arose in the analysis. While there is no dispute on the meaning pieces, codes and sub codes were determined with negotiation. The process was followed until codes and sub-codes were agreed.

**Results**

Qualitative analyzes within the context of the Embedded Theory reveal the participants' vivid experiences for the scope of the trauma experience. Throughout this process, where qualitative data analysis is run, data classes (label, data snippet), data classifications (sub-theme) and data category (theme) of the data are obtained. A total of 79 data classes (data snippets), 33 data concepts (sub-themes) and 8 data categories (themes) were obtained for traumatic experiences. In the video interview participants, three groups of information were seen a) experiences and losses in the journey of deportation b) losses in childhood and adolescence; c) vicarious traumatization by listening other traumatized deported individuals.

Regarding their experiences and losses in the journey of deportation themes were found about; living in Ahıska immediately before the deportation; losing the relatives of the soldiers who did not return from the army in the Soviet Union; losing of their relatives during the journey with a monthly carriage at the cattle wagon; and losing of their relatives in the deportation.

Regarding losses in childhood and adolescence, participants reported the die of close relatives (i.e., mothers, fathers, brothers, sisters, grandfathers) immediately after deportation. Those loses were vividly expresses losses. Some of them reported "my grandfather died of his grief for leaving the homeland", "When my grandfather arrived (30 days wagon travel to the region of exile), he died in front of our eyes". The most frequent losses they reported were the loss of father, mother and brother/sister losses. Therefore, the experience of deportation does not only involve the elimination of the land, but also some changes affecting the life of the individual, including the traumatic loss of the loved ones beyond the loss of land.

Regarding vicarious traumatization by listening other traumatized deported individuals; participants were more likely to tell others journey as well. They expressed deportation stories explained by relatives, friends and neighbors. Those shared stories can be accepted as a sign of vicarious

traumatization.

**Findings on Posttraumatic Stress Disorder in qualitative interviews**

Based on the literature about the Posttraumatic Stress Disorder (PTSD) long after the trauma, the researchers reported the encodings in the analysis of qualitative interviews by considering the symptoms of PTSD (Foa et al., 2016). Those symptoms are identified as increased arousal and reactivity, avoidance, re-experiencing, negative changes in cognition and mood and distress/interference.

Below are explanations on PTSD symptom clusters and interview content, which suggests a re-examination of the PTSD phenomenon and suggesting the process of return to experience.

*Increased arousal and reactivity*

Anger, tension, insomnia, attention problems and risk taking problems are mentioned in increased arousal and reactivity symptom cluster (Foa et all., 2016). Symptoms of extreme alertness include symptoms such as difficulty in sleeping and concentrating, feeling uneasy, angry and annoyed, and startled with small sounds. Also, increased arousal symptom is identified as less expressed than other trauma symptoms.

Some examples of increased arousal in interviews were:

*- We have seen enough at the cattle wagon (tension) Allah does not give us again.*

*- Damned! (tension) Our soldiers did not open the door of the wagon to pick up grain (During deportation).*

*- Homeland's finished us. – Crying*

*- Let me imprison them, or let them kill me (born in 1938), I will say: the Soviet Government was very grim (Reactivity)*

*- They're taking us off the wagon it's still out of my mind. If the door was still covered by wind, I would be another (arousal).*

*Avoidance*

In the literature, this dimension is summarized as an attempt to move away from thoughts and feelings about trauma, the activity that reminds the trauma, the places and situations, or the effort to stay away from the situations (Foa et al., 2016). There were some examples about avoidance dimension:

- *I did not yearn Ahıska but I was born in.*
- *I wanted to go to Ahıska a lot. But I can't.... –crying*
- *I don't want to see those wagons again. Allah does not permit me*
- *I don't want to bring anything from the past to this day.*

As mentioned above, avoidance is attempt to move away from thoughts and feelings about trauma, places about trauma. Among deported Ahıska older adults, they reported avoidance not only related to Ahıska region. They avoided the news of terrorism, avoidance of immigrant-refugee news and visuals, avoidance of expedition to Ahıska, avoidance the transportation used during deportation (such as train-truck-car transportation) and avoiding the flight to Ferghana.

*Reexperiencing*

In the literature, this dimension is described as repetitive memories of trauma, dreams and nightmares, experiences like traumatic experiences of re-experiencing, emotional reactions such as feeling emotionally sad, sweating, rapid breathing, and rapid heart rate when re-experiencing (Foa et al. , 2016). Here there were some reexperiencing experiences:

A 83 year-old Ahıska Turk who experienced deportation when he was 11 years-old.

- *The deportation never leaves my eyes. My dad and mom emigrated to Turkey before. They left me with my grandparents. My grandfather cried and came to us. He said they were deported us. God did not let us see again, we had enough. It was so cold that we were breaking bread with an ax. My grandfather, with my grandmother, kept me alive since I was sit in the middle of them. My uncle's two sons had both died and released them from the wagon.*

A 90 year-old Ahıska Turk who experienced deportation when he was 18 years-old.

- *I took the pail in the Ural mountains and couldn't open my hand from the cold. I was crying like a child. The wagons were going into the unknown, so that Allah would not show you those days.*

Experiences about Russia and Uzbekistan

- *There was a government called Gorbachev, he shut down the mosques in the Soviet government, and there was no government when we got up in the morning. They burned people alive in Uzbekistan, I saw with my eye..*

Experiences about Uzbekistan and Azerbaijan.

- *Nobody would have left if they were volunteers. We have all our belongings left. We were so afraid of where they were taking us. Now I think, what happened to the Uzbeks who loved us so much overnight. When we went to Azerbaijan, we were working at cotton lands.*

A 83 year-old Ahıska Turk who experienced deportation when he was 11 years-old.

- *In Ahiska, the Soviet government said that it would take all our crops. The government wanted to dismantle the mosque of our village, but they couldn't get it up since their hands were paralyzed. We made the praying secretly. My mother read the Qur'an in the night, so she closed the curtains because of her fear. They deliberately infiltrated water while working in the field, in order to break our fast in Ramadan. They took everyone to war, only the elders and the children were released. There were so many families, not even one person stay alive in that family until the end of the deportation journey, they all died. They were throwing the dead off the wagon. We remove the tiles and made the shroud cloth.*

A 78 year-old Ahıska Turks experienced Fergana deportation

- *We didn't know the events would be so deep. Our relative brought a new bride home. In front of the bride, the Uzbeks lowered their father-in-law on the wall and burned them alive. The people who bought our relative's house later stated that they heard the voice of the deceased person. We left everything we had so much effort. Our eyes are behind us. We moved to Russia. In Russia, we buried our dead in the Christian cemetery. We could not find an imam or a prayer. When I went back to*

*Uzbekistan to get our belongings, my Uzbek neighbor stole my house and tried to give me a heart-pole in case he wore my dress.*

Around the theme of re-experiencing traumatic incidents, being experienced-re-experiencing events, physical reactions in the body (sweating, heart shock), and sharing nightmares were frequent and noticeable.

*Negative Changes in Cognition and Mood*

In the literature, this dimension includes mistrust about other people / the world, inability to remember a significant part of the event, self-blame, helplessness, fear, horror, guilt, and shame about the event and the aftermath, loss of interest in activities, moving away from other people and inability to feel positive emotions (Foa et al., 2016).

An Ahıska Turk who did not see his brother and father

- *If I have a chance, I wish to learn where my father and bother go. I can not learn anything about them.*
- *What can I do, everyone broke up?*

During the interviews the efforts to adapt to the new countries after deportation were also quite challenging experiences. In Uzbekistan and Russia, Ahıska Turkish older adults stated their difficulties and insecurities about the people living in those countries.

- *They said that we decide who works. Since I am a teacher, they said we took Uzbek teeacher instead of me. I never forget those sentences.*
- *In Uzbekistan, nobody gives us anything.*
- *They persecuted us a lot.*

In the interviews, examples of helplessness and despair were also activated. For example;

- *Our grandparents have seen our fathers have seen our children have seen even*
- *The Ahiskians suffered such great pain that even our unborn child fell.*

**Distress/interference**

When we look at the traumatic experience, , few of the participants stated that their daily life is still disrupted by tension and discomfort. On the other hand, in the interview sections where the traumatic experiences were not mentioned, the reactions such as distress-life, constriction and, withdrawal were also observed.

**Discussions and conclusions**

The aim of this study is to explore the psychological effects of deportation experience within the framework of post-traumatic stress disorder based on the principles of embedded theory. This theory is helped us to discover and analyze trauma structure. By means of using open coding and theory coding process, post-traumatic symptoms specific to deportation clarified. By returning the “real life” deportation experiences, increased arousal and reactivity, avoidance, re-experiencing, negative changes in cognition and mood and distress/interference were identified.

Besides being the first comprehensive assessment of psychologically traumatic patterns in Ahıska Turkish older adults, the project is also important for providing an understanding of real nature of trauma incase deportation and migration had happened long-years ago. There are quite limited number of studies about long-term effects of trauma. This study will be a scientific basis for the ones responsible for making policies regarding the adaptation processes of individuals and reducing the risks after deportation or forced migration. As seen among interviews, trauma symptoms are experienced like something happened not long-years ago, but recent. Psychological interventions are necessary for deported individuals to handle those symptoms. Eagleman (2011) in his book, to share the traumatic event with others and the experience itself may be healthier than repressing and ignoring. When interviewed with Ahiska Turks forced to deportation, it can be thought that the incident will indirectly reduce the potential negative effects on them.

The results reveal the role of deportation among older adults having deportation experience long-years ago. In conclusion, in addition to present pscyho-social problems, focusing on deportation trauma are also needed.

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**Acknowledgement: This study was fully supported by the Scientific and Technological Research Council (Project no: TUBITAK-SOBAG 115R077).**

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# STUDY ON THE DYNAMICS OF MOTHER INFANT RELATIONSHIP FROM PREGNANCY TO EARLY CHILDHOOD

## Abstract

The present study aims to investigate the relationship between mother and child in the prenatal and early years of life, pursuing essential elements in creating a healthy relationship, such as prenatal attachment, postnatal attachment, parent-child relationship, prenatal anxiety. The present study is a longitudinal study comprising three stages. In the first stage, 51 women were evaluated between 16 and 20 weeks of pregnancy. In the second step, 48 women were evaluated in 30 weeks of pregnancy. The assessment tools used in these stages were the Pregnancy-Related Anxiety Scale and the Maternal Antenatal Attachment Scale. In the last stage, 30 mothers, whose children are between 2 years and 2 and a half years old, were evaluated. The assessment tools used at this stage were the Maternal Postnatal Attachment Scale and the Postpartum Bonding Questionnaire. Following linear regression analysis, prenatal anxiety was a predictor of prenatal attachment ($p = .010$). At the same time, the results indicate significant correlations between the prenatal attachment and the interaction with the child ($r = .563$, $p = .015$) and the correlations between the absence of hostility and the weak relationship between mother and child ($r = -.729$, $p=.001$) and absence of hostility and child rejection or pathological anger ($r = -.776$, $p = .000$). Therefore, knowing that prenatal anxiety influences how mother creates an emotional connection with the child from prenatal period can be useful in identifying mothers with high scores on the anxiety scale and including them in programs to reduce anxiety.

**Keywords:** Prenatal attachment, postnatal attachment, prenatal anxiety

**JEL Codes:** I12, I19, I39, J13

## 1. Introduction

Throughout time numerous important studies regarding family dynamics have led the scientists to investigate more fields of human functioning, such as parenthood, psychopathology and attachment. The researches has revealed that many aspect of human brain development, including the capacity of learning, takes place in prenatal period and in the first years of life. Early childhood is the most efficient period for healthy child development to the full potential.

### 1.1. Recent studies of prenatal and postnatal attachment

The concept of prenatal attachment was first defined by Cranley (apud. Petri et al., 2017) as the degree in which women perform behaviors that indicate affection and interaction with the fetus. Currently, one of the most popular and applicable models of prenatal attashment is John Condon's (apud. Petri et al., 2017).

It proposes a hierarchical model of the development of attachment to the mother, model in which love is the core experience, and at the level of attachment between the mother and the fetus they are based on five dimensions: to know, to be with him, avoid separation, protect and to please the needs. Attachment development takes place in four stages (Prior & Glaser, 2006): from birth to eight weeks, from eight weeks to six months, from six months to 36 months and from 36 months to the end.

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Attachment is a key area in the area of parenthood and research on the interaction between parent and child. Fearon & Roisman (2017) in their review of the progress and future directions of the attachment theory summarizes that this is essential in studies on attachment, relying primarily on the nature and significance of attachment in the postpartum stage and early childhood.

They have reviewed four major themes that are central to the scientific literature on attachment: the role of the environment in the development of attachment, intergenerational transmission of attachment patterns, stability of attachment patterns in youth and the role of attachment in the level of adaptation and inadequacy.

In another study, De Cock et al. (2016) states that prenatal and postnatal parental relationships, such as the emotional relationship between parents and the child have a major impact on the lifestyle of parents and children. Currently, research on continuity and correlation with parent-child relationship is lacking. Therefore, the purpose of these authors' study is to examine the level of stability of the relationship and explore different types of relationships.

Thus, levels of maternal relationship (N = 370) and paternal (N = 292) and possible correlations were assessed at 26 weeks of pregnancy, 6 months and 24 months after birth. The results showed moderate stability of the prenatal relationship to the early childhood.

For mothers and fathers four types of relationships have been identified. Parents with low relationship patterns are characterized by increased anxiety and parental stress, less support for the partner, low adaptive personality profile and children with difficult temperament. These findings show great importance in monitoring parents of infants where there is a low level quality of parent-child relationship while patterns of relationships remain stable from prenatal to early childhood and because parents are experiencing problems in different areas.

### 1.2. Recent studies on prenatal anxiety

Akiki et al. (2016) considers that the current state of research on prenatal anxiety is devoid of global understanding of determinants, so their study aims to broaden the sphere of knowledge with the primary objective of determining the potential factors of the prenatal anxiety state. The data used for this cross-sectional study were obtained from the Prenatal Health Project, and the sample includes 2357 women in London and Ontario, of which 1992 women in the second trimester of pregnancy meet the criteria to be included in the study.

After controlling the possible covariates, the primary hypothesis was that pregnancy-related feelings are a major factor in an anxiety state during the prenatal period. An abbreviated version of the Spielberger Inventory was used to measure anxiety (STAI). The authors used multiple linear regressions and univariate analyzes to identify predictive predictors of anxiety.

The results of the study indicate that stress, feelings of uncertainty and unhappiness about the pregnancy, low self esteem, low self-control and low social support from family and partner are important determinants of the state of anxiety during the second trimester of pregnancy. In addition, the results showed that anxiety is inversely proportional to gestational age.

Regarding the effects of prenatal anxiety, Newman et al. (2017) have conducted a study to highlight what they are and how they affect the child, mother and mother-child relationship.

Analyzing literature, the authors indicate that maternal prenatal anxiety involves a range of experiences, including transient mood disorders or mood changes in response to a specific stress factor or cumulative stressors, anxiety as a condition or trait, and clinical diagnosis of anxiety disorder. These varied experiences in the sphere of anxiety, generally measured through self-evaluation questionnaires have been associated with measurable effects on the fetus, and later with emotional, cognitive and behavioral development (Glover, 2011; Talge et al., 2007; Newman et al., 2017).

Among the effects of prenatal anxiety mentioned by Newman et al. (2017) are: effects on fetal heart rate, premature birth, effects on the temperament of the child, effects on emotional and behavioral development, effects on parenthood, effects on cognitive functioning, structural changes of the brain. With regard to fetal heart rate, it was found that fetuses of anxious mothers have low heart rate variability and reduced fetal movements. At the same time, prenatal maternal anxiety is associated with increased preterm birth rate (Dancause et al., 2011; Pavlov et al., 2014).

Dennis et al. (2017) produced an article stating that prenatal anxiety negatively influences children's responses. They also investigated the prevalence of anxiety in prenatal and postnatal periods. Prevalence of anxiety was 18.2% in the first trimester of pregnancy, 19.1% in the second trimester and 24.6% in the third trimester of pregnancy. The overall prevalence for anxiety symptoms was 15.2% and 4.1% for generalized anxiety disorder. In the postnatal stage, the overall prevalence for anxiety between 1-24 weeks was 15.0%, and for generalized anxiety 5.7%. The results of the meta-analysis indicate that the prevalence of anxiety in prenatal and postnatal periods is high and deserves attention from specialists and researchers.

In conclusion, the current specialized literature focuses on the analysis of the relationship between mother and child, considered as an important predictor of human development and is increasingly trying to find answers about how various variables found during pregnancy, such as elements of psychopathology, social support, significant events, prenatal attachment influences the relational dynamics of the postnatal stage.

## 2. Metodology

### 2.1. Objectives of the present study

The overall objective of the present study is to explore the relationship between mother and fetus, respectively from mother to child from pregnancy to early childhood.
One of the specific objectives is to investigate the relationship between prenatal anxiety and prenatal attachment.

Other specific objectives are investigating the relationship between prenatal attachment and postnatal attachment and investigating the relationship between postnatal attachment and postpartum relationship between mother and child.

### 2.2. Study hypotheses

1. Prenatal anxiety is a predictor of the quality of prenatal attachment.
2. There will be a positive correlation between prenatal attachment and pleasure in interacting with the child (postnatal attachment).
3. There will be a negative correlation between the absence of hostility (postnatal attachment) and the poor relationship between mother and child in the postpartum stage (factor 1).

4. There will be a negative correlation between the absence of hostility (postnatal attachment) and the rejection of the child in the postpartum stage (factor 2).

### 2.3. Variable

Research explores the degree of association between several variables measured on the same group of subjects, each representing something else. In an association relationship, both variables are dependent on each other.

The dependent variables of the research are pregnancy anxiety, prenatal attachment, which has two factors, namely the quality of affective attachment experience and the intensity of concern for the fetus, postnatal attachment, which includes three factors, namely the quality of attachment, the absence of hostility and pleasure in interaction, and the mother-child relationship in the postpartum period, assessed by a four subscale questionnaire: poor relationship, rejection, anxiety about the child and its growth and the risk of abuse.

### 2.4. Procedure

The participants were recruited between March 2015 and March 2016. One of the conditions of the study was to have their domicile in Bucharest, but four of them changed their domicile to Târgovişte, Sibiu, Galati and England, continuing their study. Pregnant women have been recruited from the Ginecology Departments within Hospitals Filantropia, CF2, Gynera Fertility Clinic, as well as distributing study leaflets. The minimum age for participation was 18 years.

Among the conditions of the study were the following: women who will be primary mothers who live in Bucharest and who schedule a pregnancy consultation between 16-22 weeks. There were no exclusion criteria for medical and psychological status. The measurements were carried out in five stages: the first stage between 16-22 weeks of pregnancy, the second stage between 30-33 weeks of pregnancy, the third stage in a postpartum month, the fourth stage at eight months postpartum, and the fifth stage when the child was 2 years - 2 years and a half old. The present study includes data from the first, second and fifth assessments.

Participation in the study was voluntary and the participants were rewarded for each stage with the sum of 50 lei. The author of the present paper met at each stage with each participant to complete the test battery.

Prior to the first stage, participants were informed of the purpose of the study, the voluntary nature of their participation, the storage of data, the confidentiality and the way they were stored. All participants gave informed consent before participating in the study.

### 2.5. Participants

The initial sample in the first prenatal stage consists of 51 women who are pregnant between 16 and 20 weeks (age: M = 28.55, SD = 4.34, minimum age = 19, maximum age = 39, 100% caucasian breed). Dintre acestea, 72.5% sunt căsătorite, 23.5% trăiesc cu un partener, una este divorțată și una este într-o relație, dar nu a fost niciodată căsătorită și nu trăiește în concubinaj. Regarding the level of education and the last form of education, 2% have completed primary school, 13.7% high school, 3.9% post-secondary school, 3.9% graduated without a license, 52.9% graduated from the faculty and 23.5%.

In the second stage, at 30 weeks of pregnancy, 48 women responded to the initial sample. At the time of completing the test battery, 80.4% of them are married, 9.8% live with a partner, a woman is single and a woman does not want to respond. In the fifth stage, 30 mothers completed the test battery, and 29 of them were married and one living with a partner.

The selection method was random global sampling. Subjects were randomized out of the population. In this case, subjects are given exactly the same chances of being included in the sample.

### 2.6. Measurement instruments

1. *Anxiety measurement scale for pregnancy*

The load anxiety was measured with Pregnancy-Related Anxiety Scale, scale with ten items that assesses the pregnant woman's feelings about her health during pregnancy, child health, as well as emotions related to pregnancy and childbirth. This evaluation tool has been used in numerous studies that have as a research area the specific anxiety of the pregnancy experience (Glynn et al., 2008).

Responses are scored on a four-point Likert scale and include items like: "I think labor and birth will take place normally," "I am fearful regarding the health of my child", "I'm afraid I will be injured during childbirth," "I'm worried about how the baby grows and grows inside me," "I am concerned or worried about not losing the baby."

The final score of the questionnaire is between 10 and 40. This is a tool that has the value of Cronbach alpha fidelity of 0.85 and was developed specifically by Rini et al. (1999) for use in early pregnancy research.

2. *The antenatal maternal attachment measurement scale*

Prenatal attachment was evaluated using John Condon's Maternal Antenatal Attachment Scale (Condon & Corkindale, 1998). This scale was designed to identify the extent to which women are involved in behaviors that represent affiliation and interaction with their unborn child.

The MAAS instrument was originally developed through unstructured interviews with 15 couples expecting a child. The attachment experiences and their specific behaviors have been identified and evaluated, leading to a scale of 36 items, evenly distributed over a five constructs dispositional: to know, to interact, to avoid separation, to protect and to gratify the needs. A pilot study of 54 couples was conducted to test this instrument, and 27 items remained after refining the instrument.

In a later study, the author tested 112 pregnant women and came to the current form of the 19-item instrument and a two-factor structure, while the value of the Cronbach alpha index is over .80. So, the current questionnaire, also used for the present work, contains 19 items and focuses on the feelings, attitudes and behavior of the pregnant woman about the fetus. For each item, the upcoming mother offers a response on a five-point Likert scale.

This tool allows the calculation of a total score of the emotional attachment of the mother to the fetus, as well as two scores on two subscales corresponding to the two factors, and namely the quality of the affective attachment experience and the intensity of concern for the fetus. MAAS is one of the most widely used tools in maternal and fetal evaluation research (Van den Bergh & Simons, 2009).

*3. Measurement scale for maternal postnatal attachment*

Evaluation of postnatal attachment was done using the Maternal Postnatal Attachment Scale developed by John Condon (2015). This scale comprises 19 items grouped into three areas: the quality of attachment, the absence of hostility and pleasure in interaction. The internal consistency of subscales is between .75 and .83.

4. *Questionnaire of evaluating mother-to-child postpartum relationship*

The PBQ questionnaire (Brockington et al., 2001, 2006) is the most widely used questionnaire from the revised studies on the postpartum mother-to-child relationship. Its purpose is to identify the difficulties in the mother-to-child relationship being built on four subscales: poor relationship (for example, "The child does not seem to be mine"), rejection (for example, "I feel emotionally distant to the child"), anxiety about the child and its growth (for example, "Child makes me feel anxious ") and the risk of abuse (for example," We have done harmful things to the child. ") (Perrelli et al., 2014).

These subscales belong to the four factors. In their paper, Brockington et al. (2006) presents the four factors as: general factor, rejection factor and pathological anger, child anxiety and early abuse.

This is a measuring instrument with high accuracy in identifying dysfunctions in the relationship with the child, having the Cronbach alpha internal coefficient of 0.95.

## 3. Results

### 3.1. Descriptive statistics

In this subchapter are presented descriptive data for each subscale of the valuation tools used. Thus, in the table below are presented media, standard deviation and minimum and maximum values for each instrument.

**Table 1. Descriptive statistics**

| | N | Minimum | Maximum | Media | Standard deviation |
|---|---|---|---|---|---|
| PRAS 1 | 51 | 10 | 35 | 16.51 | 5.52 |
| PRAS 2 | 48 | 10 | 38 | 15.60 | 5.55 |
| MAAS Total Score | 48 | 70 | 94 | 83.27 | 4.91 |
| MAAS Attachment quality | 48 | 40 | 50 | 47.42 | 2.30 |
| MAAS Time spent together | 48 | 24 | 39 | 31.54 | 3.26 |
| MPAS Total Score | 30 | 67.00 | 93.60 | 83.46 | 7.15 |
| MPAS Attachment quality | 30 | 35.30 | 45.00 | 40.50 | 3.14 |
| MPAS Absence of hostility | 30 | 16.80 | 25.00 | 20.86 | 2.68 |
| MPAS Pleasure in interaction | 30 | 13.00 | 25.00 | 22.10 | 2.98 |
| PBQ Total Score | 30 | 1 | 23 | 10.00 | 7.78 |
| PBQ Factor 1 | 30 | 0 | 16 | 6.87 | 5.13 |
| PBQ Factor 2 | 30 | 0 | 5 | 1.67 | 1.95 |
| PBQ Factor 3 | 30 | 0 | 5 | 1.23 | 1.50 |
| PBQ Factor 4 | 30 | 0 | 4 | .23 | .77 |

Source: Author.

### 3.2. Hypothesis verification and psychological interpretation of data

In this subchapter there are presented the tables corresponding to the statistical analyzes performed, the hypothesis checking and the psychological interpretation of the data.

**Table 2. Simple linear regression**

| | B | Standard error | Beta | t | p |
|---|---|---|---|---|---|
| PRAS 2 | -.154 | .057 | -.371 | -2.706 | .010 |

Source: Author.

**Table 3. The correlation between prenatal attachment and pleasure in interacting with the child**

| MAAS Total Score | MPAS Pleasure in interaction |
|---|---|
| r | .584 |
| p | .009 |

Source: Author.

**Table 4. Correlations between the absence of mother's hostility and the mother-child postpartum relationship**

| MPAS Absence of hostility | PBQ Factor 1 | PBQ Factor 2 |
|---|---|---|
| r | -.738 | -.790 |
| p | .000 | .000 |

Source: Author.

The first statistical hypothesis is that prenatal anxiety is a predictor of the quality of prenatal attachment. This statistical hypothesis is accepted, according to the table, the value of p is .010, which means that variation of values of the quality of prenatal attachment is the same for all prenatal anxiety values. The result obtained indicates the importance of investigating the state of anxiety during pregnancy and monitoring pregnant women with high scores on the prenatal anxiety scale because these scores can affect prenatal attachment, a key element of the relationship with the fetus.

Prenatal anxiety variable indicates how the fetus has a role in the emotional life of the pregnant woman. More specifically, this factor evaluates how much time the mother spends thinking about the normal development of labor and birth, the health of the child, the possibility of losing the child, other medical problems during pregnancy or issues related to the care of the newborn.

The second statistical hypothesis is that there is a positive correlation between prenatal attachment and pleasure in interacting with the child (postnatal attachment).

This statistical hypothesis is accepted, according to the table the values for r and p are r = .584 and p = .009. Thus, the higher the scores on the prenatal attachment scale, the better the interaction with the child will have high scores. This result is consistent with previous studies that explain the role of prenatal attachment to postnatal attachment and mother-child relationship. The result is important for understanding the role of prenatal attachment to the postpartum relationship, as well as for showing that there is a relationship with the child since the prenatal period, a relationship that is good for postnatal attachment.

The third statistical hypothesis is that there is a negative correlation between the absence of hostility (postnatal attachment) and the poor relationship between mother and child in the postpartum stage (factor 1). This statistical hypothesis is accepted, according to the table the values for r and p are r = -738 and p = .000. Thus, the higher the subscale scores on the absence of hostility, with that much the scores indicating a poor relationship between mother and child decrease. Therefore, the psychological construct called hostility is a key factor in the postpartum relationship, and its absence is important in creating a healthy relationship in the postnatal stage.

The fourth statistical hypothesis is that there is a negative correlation between the absence of hostility (postnatal attachment) and the rejection of the child in the postpartum stage (factor 2). This statistical hypothesis is accepted, according to the table the values for r and p are r = -790 and p = .000. Thus, the higher the subscale scores on the absence of hostility, with that much scores indicating child rejection decrease. Therefore, there is a need for a harmonious relationship, in which there is no hostility to accept the child and create an emotional connection with him.

An important element in the statistical analysis of data is that which is reported to the effect size. In the case of correlation, the value of the r test is interpretable by itself, expressing the intensity of the association between the variables. Beyond the statistical dimension of the effect size there is also a practical dimension, relative to human or social values. Sometimes even low values of the correlation coefficient, implicit of the determination coefficient, can present a considerable practical utility (Popa, 2008).

## 4. Discussions and limits

The main objective of the present study was to investigate the relationship between mother and child from the prenatal period to postpartum stage. In this regard, four hypotheses have been developed, and following the statistical analysis they were accepted.

The four hypotheses involve variables such as pregnancy anxiety, prenatal attachment, postnatal attachment, and postpartum relationship between mother and child. One of the results shows that prenatal anxiety in the second trimester of pregnancy is a predictor of prenatal attachment. This conclusion is in accordance with the results of the study by Newman et al. (2017) that highlighted the negative impact of prenatal anxiety on prenatal and postnatal relationship between mother and child.

It is important to note that prenatal anxiety remains a predictor of the quality of prenatal attachment regardless of other factors, such as maternal age, educational level, or marital status. If previous research indicates that between the psychological state of the mother, characterized by either anxious symptoms, or depressive symptoms and the quality of prenatal attachment there is a negative correlation, with regard to the second subset of pre-natal attachment relating to the intensity of preoccupation with the fetus, this correlates with external factors such as the presence of another child or life events that the authors interpret as indicators of the degree to which the mother is occupied. These results indicate that both external and internal factors (prenatal anxiety) can affect the way the pregnant woman engages in the relationship with the fetus.

As far as the limits of this study are concerned, several can be mentioned given the interpretation of the present results. First of all, one of these could be the correlational nature of the study. Although, following the analysis, information was obtained about the possible directions of the relationship between concepts, design of this type does not allow for clear conclusions to be drawn regarding the causality that occurs between the variables studied. The correlation coefficient provides information on how variables vary, some in relation with others. Thus, the correlation coefficient has no causal value

unless the variables have been measured in a causal context, and this happens only under experimental conditions.

Also, another limit refers to the fact that the sample used was convenient, relatively small; the study may be carried out on several participants in the future. Another limit of the study is that women involved are physically and mentally healthy, with a generally high level of education, and the majority have a job and are in an intimate relationship.

It is possible that the relationships found between variables to be different in the case of samples characterized by low socio-economic status, other marital status, or in the case of clinical samples.

Therefore, the results of the study have particular implications in the awareness of the impact of prenatal anxiety on prenatal attachment, the relationship between prenatal attachment and postnatal attachment, as well as aspects related to postnatal psychopathology and maternal-child relationship.

## Conclusions

This study brings insight regarding the issue of the relationship between mother and child from the prenatal period to the early childhood. Study variables refers to important prenatal aspects such as prenatal anxiety and prenatal and postnatal attachment, such as postnatal attachment and postpartum relationship between mother and child. The current study indicates that prenatal anxiety is a predictor of prenatal attachment, and the latter positively correlates with the quality of postnatal attachment. At the same time, between the absence of hostility specific to postnatal attachment, the poor postpartum relationship and the rejection of the child, there are negative correlations.

Therefore, knowing that prenatal anxiety influences how mother creates an emotional connection with the child from prenatal period can be useful in identifying mothers with high scores on the anxiety scale and including them in programs to reduce anxiety and create a healthy relationship with the child from the prenatal period. Therefore, one of the practical implications of the study may be to carry out prenatal interventions to monitor the prenatal anxiety status, adaptation to the new role in life, and understanding the need to create an emotional connection with the fetus for a good postpartum relationship between the mother and child.

Another important aspect, which can be a future direction for research, is investigating the causes of prenatal anxiety in the present sample and providing explanations for the fact that there is no statistically significant relationship between other variables, such as prenatal anxiety and child anxiety in the postnatal stage or between prenatal anxiety and early abuse.

In conclusion, the present study achieves the proposed objective, and it brings more insight of the impact of certain prenatal emotional aspects, such as prenatal anxiety, prenatal attachment, and postnatal attachment to the early relationship between mother and child.

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**SHAIMAA AHMED HANAFY[1] AND KHADIGA MOHAMED EL-AASAR[2]**

# INVESTIGATING THE POTENTIAL IMPACTS OF CLIMATE CHANGE ON FOOD SECURITY IN EGYPT

## Abstract

This paper aims to investigate the impacts of climate change on food security in Egypt for the period 1961-2013. Accordingly, the study examines the relationship between specific climate variables and food security represented by two indicators namely food gap and food production index. In this regard, the study employs Autoregressive Distributed Lag (ARDL) bounds testing approach.

The main findings of the analysis reveal that the mean annual temperature has insignificant impact on both food gap and food production index. Regarding the other climatic variables, the empirical analysis shows that mean annual precipitation negatively affects food security, whereas, it has been found that $CO_2$ concentration in atmosphere has a positive and significant impact on food security, as it reduces the food gap and increases the food production index. In addition, the results indicate that GDP per capita, population growth, inflation rate, agricultural land and cereal yield are significant determinants of food security for Egypt.

**Keywords:** Food security, climate change, Egypt, ARDL

**JEL Codes:** O55, Q18, Q54

## 1. Introduction

There is increasing evidence that climate change is unequivocal and represents the most serious threat facing our world in the 21st century. According to the Intergovernmental Panel on Climate Change (IPCC), the climate change is mainly caused by the human activity which influences the climate system through the man-made emissions of greenhouse gases (IPCC, 2007). As the accumulation of these GHG emissions in turn leads to a considerable increase in atmospheric concentrations of those gases compared to its pre-industrial levels (IPCC, 2014).

This raises many concerns linked to the potential impacts expected from climate change on the environment and socio-economic sectors. Agriculture is the most vulnerable economic activity to climate change, due to its high dependence on weather and climate conditions (Mendelsohn, 2009). Moreover, the expected impacts of climate change on agricultural activities translate into risks for food security in all of its dimensions (FAO, 2016).

Egypt is expected to be one of the most vulnerable countries to climate change, although its contribution to global GHG emissions is very low (about 0.56% in 2014) (CAIT, 2017). This is due to some reasons, such as the potential impact of climate change on the Nile River which is the main source of water supply in Egypt, also the expected effects of sea level rise on the coastal areas given Egypt's long coastline (Smith et al., 2013).

Furthermore, Egypt is located in the north-eastern corner of Africa, the annual mean warming in that region is likely to be larger than the global mean warming, and precipitation is likely to decrease by the

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end of the 21st century under the Special Report on Emissions Scenarios (SRES) A1B and A2 scenarios projected by IPCC (Christensen et al., 2007; Niang et al., 2014).

The major impacts of climate change are expected to affect the Egyptian agricultural sector. This poses an additional challenge to food security in Egypt besides its current challenges that include increasing population growth rates, limited water resources and increasing food gap for the main food crops (EEAA, 2016).

Moreover, the Global Hunger Index (GHI) for Egypt has declined from 20.5 in 1990 to 14.7 in 2017, which is classified as the transition from a serious to a moderate hunger (Von Grebmer et al., 2015; 2017). Consequently, the likely impacts of climate change on the agricultural sector will affect the progress towards ending poverty and hunger in Egypt.

Several studies have analyzed the potential impacts of climate change on crop productivity and crop water use; however, there is a lack of investigating these impacts on food security for Egypt. So, the present study attempts to fulfill this gap and contributes to the strand of empirical literature on the linkage between food security and climate change.

The paper is structured as follows: section 2 provides a review of the literature highlighting relevant previous studies on the subject. Section 3 details the econometric specification, methodology and data. Section 4 discusses the empirical results and section 5 concludes and proposes some policy implications.

## 2. Literature review

Agriculture sector is crucial for ensuring food security. On the one hand, it is the source of food availability (supply side). On the other hand, it employs a significant portion of labor force particularly in developing countries. In addition, it has linkages with other economic sectors such as food and textile industries (demand side) (Reddy, 2015).

Food security is achieved when all people at all times have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. This definition implies four dimensions of food security, namely food availability, food accessibility, food utilization and food system stability (FAO, 2001).

All the agricultural activities; crops, livestock, fisheries and aquaculture and forestry will be affected by climate change through changes in temperature, rainfall, soil quality, pest regimes, radiation, and seasonal growth patterns. This in turn will have great repercussions on food security (FAO, 2016).

At the same time, agricultural sector, land-use change and forestry are main sources of greenhouse gas emissions. They are responsible for an estimated 17.2% of total GHG emissions in 2014 (CAIT, 2017). Most of the empirical studies were considered with assessing the projected impacts of climate change on crop yields, more specifically the main crops such as wheat, rice and maize (FAO, 2016). There are numerous studies that have examined the effects of climate change on agricultural production and productivity using different analysis techniques. They can be divided into three categories.

The first category of studies employed biophysical crop growth simulation models for assessing the impacts of changes in climate conditions on agricultural productivity (Nelson et al., 2009; 2014; Angulo et al., 2013; Müller and Robertson, 2014). The second category of studies focused on estimating the

statistical relationship between crop yields and specific climatic variables such as temperature and precipitation (McCarl et al., 2008; Lobell et al., 2011; Lobell and Gourdji, 2012).

However, both the aforementioned approaches overestimate the costs of damages associated with climate change. Therefore, a recent approach has been developed by Mendelsohn et al. (1994) which called the Ricardian approach. This approach takes into account the adaptation responses by farmers to climate variability (Kurukulasuriya and Mendelsohn, 2008).

Although many studies have analyzed the impacts of climate change on agricultural activities, there is a lack of investigating these impacts directly on food security. This can be explained by the lack of climatic data over a long period of time and the complexity of food security concept.

FAO (2008) set a framework for the relationship between climate change and food security. This framework considered some climate change variables including $CO_2$ fertilization effect, increase in temperature, changes in precipitation, increase in the frequency and intensity of storms and flood, seasonal weather variability and changes in start/end of growing seasons (FAO, 2008). Based on this framework, few empirical studies investigated the potential impacts of climate change on food security. Demeke et al. (2011) analyzed the impact of rainfall shocks on Ethiopian households' food security. They generated a time-variant food security index from the Ethiopian Rural Household Survey. Their results indicated the significant impact of both the level and variability of rainfall on household persistent food insecurity.

Furthermore, Badolo and Kinda (2011) assessed the effect of climate shocks (represented by rainfall volatility) on food security for 77 developing countries over the period from 1960 to 2008. They found that rainfall volatility negatively affects food security, as it reduces food production and increases the percentage of total undernourished population in countries studied. Moreover, the findings indicated that African countries are more vulnerable to rainfall volatility.

In their following research (2014), they analyzed the impact of climatic variability on food security using panel data for 71 developing countries during the period 1960-2008. They identified two mechanisms through which climatic variability may influence food security which are rainfall volatility and yearly average of rainfall. The results showed that climatic variability reduces the food supply and the proportion of undernourished people in developing countries. In addition, the adverse effects were higher in African Sub-Saharan countries than for other developing countries. Also, the negative effects of climatic variability were exacerbated in countries under civil conflicts and in countries that are vulnerable to food price shocks.

Kumar and Sharma (2013) examined the impact of climate variation on food security using panel data for 13 major agriculturally intensive states of India for time period 1985-2009. They constructed a food security index that includes three components, namely availability, accessibility and stability of food, then they regressed it on climatic and non-climatic factors. The estimated results revealed that food security is adversely affected by climatic fluctuations.

Belloumi (2014) investigated the impact of specific climate variables on food security for 10 Eastern and Southern African countries from 1961 to 2011. He pointed out that mean annual temperature has a negative effect on food security; whereas the average annual precipitation affects food security positively.

In the context of Egypt, several studies have estimated the projected changes in crop yields due to the predicted increase in temperature as displayed in Table 1. It can be drawn from these studies that all crops except cotton are projected to have a decrease in productivity.

The present paper differs from the existing literature on investigating the impact of climate change on food security in two ways. Firstly, it uses time series analysis for Egypt, while earlier works employed panel data for a group of countries. Secondly, it identifies three mechanisms by which climate change may affect food security including mean annual temperature, mean annual precipitation, and $CO_2$ concentration in atmosphere.

**Table 1. Summary of the literature on the estimation of change in crop yields due to climate change**

| Reference | Period | Increase in temperature | Estimated Change in crop yields |
|---|---|---|---|
| CAPMAS (2017) | 2024/2025 | 1 | Wheat (-0.41, -4.5); rice (-0.25, -2.75); maize (-0.43, -4.75) |
| | | 2 | Wheat (-0.82, -9); rice (-0.5, -5.5); maize (-0.86, -9.5) |
| Hassanein (2010) | 2030 | 1.5 | Wheat (-11, -12) |
| | | 3.5 | Wheat (-27, -31) |
| El-Marsafawy (2007a) | - | 1.5 | Sorghum (-19) |
| El-Marsafawy et al. (2007b) | - | 1.5 | Wheat (-29) |
| Abd-rabbo et al. (2010) | 2050 | 1.5 | Potato (-11, -13) |
| El-Marsafawy et al. (2013) | - | 1.5 | Beans (-8, -38) |
| Smith et al. (2013) | 2060 | 1.5 | Wheat (-19.2); rice (-11); maize (-15.2); vegetables (-28); cotton (+19.8); lentil (-28); sugar cane (-15.2); onion (-1.53); soybean (-28); tomato (-28); citrus (-15.2) |
| Eid and El- Marsafawy (2002) | 2050s | 1.5 | Rice (-11); soybean (-28) |
| Eid et al. (1997) | 2050s | 1.5 | Maize (-19); barley (-20) |
| | 2050s | 2 | Cotton (+17) |
| | 2100s | | Cotton (+31) |
| Hassanein and Mendany (2007) | 2050s | 1.5 | Maize (-14) |
| | 2100s | | Maize (-20) |
| Abou-Hadid (2006) | 2050s | 2 | Wheat (-15) |
| | 2100s | 4 | Wheat (-36) |
| Abou-Hadid (2011) | 2050s | 1.5 | Tomato (-14); sugar cane (-24.5) |
| | | 2 | Wheat (-9); cotton (+17); sorghum (-19); barley (-18); rice (-11); soybean (-28); sunflower (-29) |
| | | 3.5 | Maize (-19); tomato (-51) |
| | | 4 | Wheat (-18); cotton (+31) |
| Fawaz and Soliman (2015) | 2030 | 1.5 | Tomato (-14) |
| | | 2 | Wheat (-9); cotton (+17) |
| | | 3.5 | Wheat (-18); barley (-18); maize (-18); sorghum (-19); rice (-11); soybean (-28); sunflower (-27); tomato (-50); sugar cane (-25); cotton (+29) |

Source: Summarized by the authors.

## 3. Methodology and data

The objective of the present study is to investigate the potential impacts of climate change on food security in Egypt using annual time series data during the period from 1961 to 2013.

Following the recent empirical literature such as (Badolo and Kinda, 2011; 2014; Kumar and Sharma, 2013; Belloumi, 2014) and based on The Climate Change and Food Security Framework (CCFS) set by FAO (2008), the following general equation was specified:

$$Y_t = \alpha + \beta X_t + \delta C_t + \varepsilon_t \quad (1)$$

Where $Y_t$ represents food security indicator. We focus on two food security indicators which are Food Gap and Food production index[3]. X is a vector of control variables [GDP per capita, Agricultural land, Cereal yield, Population growth and Inflation]. C is a vector of climate variables [Mean annual temperature, Mean annual precipitation, and $CO_2$ Concentration in atmosphere]. Table 2 presents the definition of variables and data sources. All the variables were transformed in to a logarithm form except for population growth and inflation variables.

The first model for the food gap indicator was represented in the following equation:

$$\boldsymbol{LFOODGAP_t = \alpha + \beta_1 LGDP_t + \beta_2 LAGR_t + \beta_3 LCER_t + \beta_4 POP_t + \beta_5 INF_t + \delta_1 LMEANTEMP_t + \delta_2 LMEANPREC_t + \delta_3 LCO2 + \varepsilon_t} \quad (2)$$

And the second model for the food production index indicator was specified in the following equation:

$$\boldsymbol{LFPDI_t = \alpha + \beta_1 LGDP_t + \beta_2 LAGR_t + \beta_3 LCER_t + \beta_4 POP_t + \beta_5 INF_t + \delta_1 LMEANTEMP_t + \delta_2 LMEANPREC_t + \delta_3 LCO2 + \varepsilon_t} \quad (3)$$

**Table 2. Definition of variables and data sources**

| Variables | Definition and measurement | Data sources |
|---|---|---|
| LFOODGAP | Food Gap (measured in 1000 tons) * | FAOSTAT Database (Food and Agriculture Organization, 2017) |
| LFPDI | Food Production Index | |
| LGDP | GDP per capita (constant 2010 US$) | World Development Indicators (World Bank, 2017) |
| LAGR | Agricultural land (sq.km) | |
| LCER | Cereal yield (kg per hectare) | |
| POP | Population growth (annual %) | |
| INF | Inflation, consumer prices (annual %) | |
| LMEANTEMP | Mean annual temperature (C°) | Climatic Research Unit Database (University of East Angelia, UK, 2017) |
| LMEANPREC | Mean annual precipitation (mm) | |
| $LCO_2$ | $CO_2$ Concentration in atmosphere (ppm) | NOAA Database (National Oceanic and Atmospheric Administration, 2017) |

Source: Authors. *Calculated by the authors from the food balance sheets given by FAOSTAT Database for each country.

The first step is to test for stationary property of all-time series variables to ensure that the econometric model being estimated is not subject to spurious regression (Granger and Newbold, 1974). In this respect, there are several unit root tests that can be conducted including Dickey and Fuller (1981),

[3] There are more comprehensive indicators for food security like global hunger index (GHI) and global food security index (GFSI); however, they are available for a short period of time.

Phillips and Perron (1988) and Kwiatkowski et al. (1992). In this study, we apply the Augmented Dickey-Fuller and Phillips-Perron tests.

The second step is to investigate if there is a co-integration relationship among the variables included in the model. There are two main proposed methods that are used to test for a co-integration relationship between variables. The first is the residual-based approach that was developed by Engle and Granger (1987). The second method is Johansen maximum likelihood, which is named after one of its developers (Johansen and Juselius, 1990).

However, the aforementioned co-integration techniques assume that the time series, which is under investigation, must have the same order of integration. Therefore, a recent co-integration test developed by Pesaran et al. (2001) overcame the condition of equal integration order between variables. This test is known as the ARDL bounds testing approach and has the advantage of allowing the time series variables to have a different order of integration except for time series data that are integrated in order two and above.

In addition, The ARDL approach eliminates the endogeneity problem that is associated with Engle-Granger method, because it uses the lags of the dependent and the explanatory variables and hence overcome the serial correlation of residuals (Nkoro and Uko, 2016).

Therefore, in the last step, ARDL model is employed to estimate both the short- and long-run relationship among variables.

## 4. Empirical results

According to the Augmented Dickey-Fuller and Phillips-Perron unit root tests, the null hypothesis stated that time series variable was non-stationary or had a unit root. The results displayed in Table 3 show that all variables were non-stationary at levels, but they were stationary after taking first difference. So, we can claim that all variables are integrated of order one I (1).

**Table 3. Results of the Unit Root Tests**

| Variables | Augmented Dickey–Fuller test statistic | | Phillips–Perron test statistic | |
|---|---|---|---|---|
| | At levels | 1st difference | At levels | 1st difference |
| LFOODGAP | -1.805854 | -13.17811*** | -1.805854 | -11.02760*** |
| LFPDI | -1.750196 | -7.815441*** | -1.658146 | -7.833784*** |
| LGDP | -2.606298 | -3.791383** | -1.832539 | -3.531342** |
| LAGR | -1.247938 | -5.722636*** | -1.465548 | -5.722636*** |
| LCER | -1.795520 | -8.929166*** | -2.028397 | -8.888454*** |
| POP | -0.762848 | -2.188621** | -0.767389 | -2.250798** |
| INF | -0.945188 | -10.21576*** | -1.206912 | -10.90340*** |
| LMEANTEMP | -2.190634 | -5.507793*** | -4.164688*** | -18.40666*** |
| LMEANPREC | -0.168372 | -10.95255*** | -0.308575 | -20.97959*** |
| $LCO_2$ | -1.821493 | -6.739048*** | -1.836495 | -6.726508*** |

Source: Authors.
*, **, and *** indicate 10%, 5%, and 1% level of significance, respectively.
The unit root tests were conducted for LFOODGAP, LFPDI, LGDP, LAGR, LCER and LCO2 with constant and trend, while for LMEANTEMP were conducted with constant, and finally for POP, INF, and LMEANPREC were conducted with no constant and no trend.

The First stage in applying ARDL methodology was to investigate the existence of long run equilibrium relationship among time series variables using bounds test. According to the bounds test, the null hypothesis stated that there is no co-integration against the alternative hypothesis, there is co-integration relationship. The results of Bounds test represented in Table 4 indicated that the null hypothesis was rejected as computed F-statistic was higher than the upper bound critical values. So, there existed a long-run relationship among the variables in the two models.

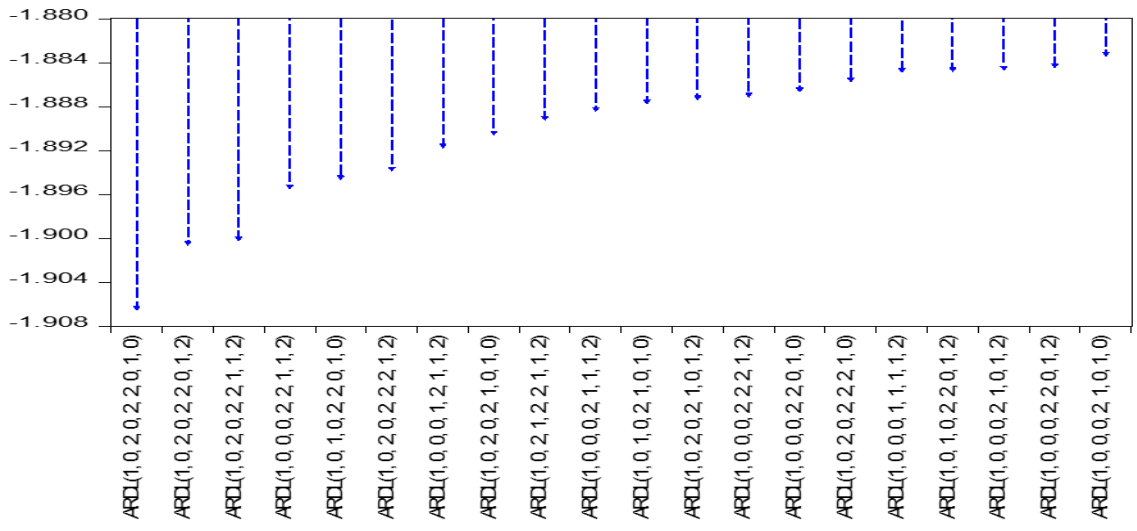
**Table 4. Results of Bounds Test**

| **Null Hypothesis:** No levels relationship | | | | |
|---|---|---|---|---|
| | **First model (LFOODGAP)** | | **Second model (LFPDI)** | |
| **Critical value bounds** | | | | |
| **Significance %** | **I (0) Bound** | **I (1) Bound** | **I (0) Bound** | **I (1) Bound** |
| 10 | 2.13 | 3.09 | 1.85 | 2.85 |
| 5 | 2.38 | 3.41 | 2.11 | 3.15 |
| 2.5 | 2.62 | 3.7 | 2.33 | 3.42 |
| 1 | 2.93 | 4.06 | 2.62 | 3.77 |
| **F-statistic** | 9.49 | | 7.92 | |

Source: Authors.

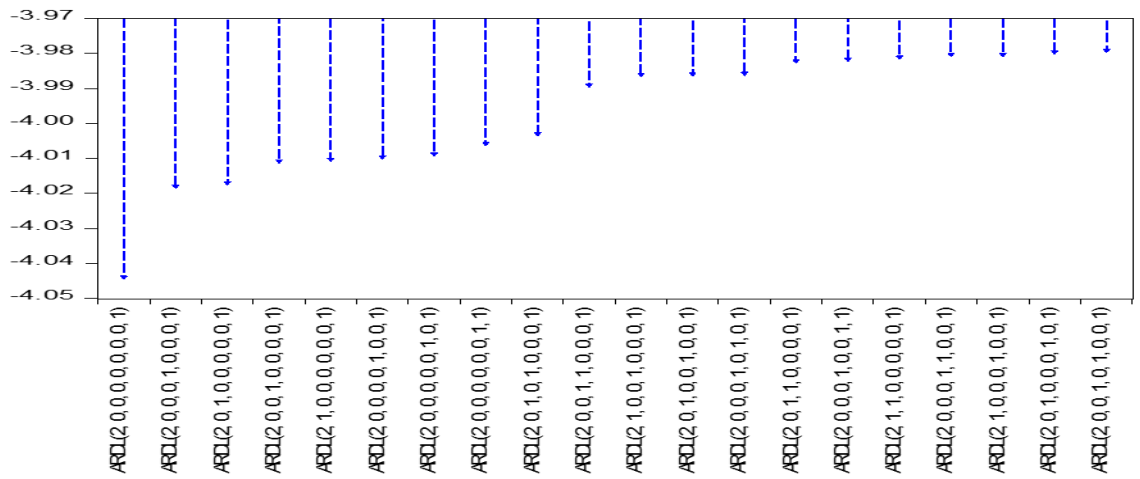
The next step is to choose the best ARDL model based on Akaike Information criterion. the best ARDL with the minimum AIC value was ARDL (1,0,2,0,2,2,0,1,0) for first model, and ARDL (2,0,0,0,0,0,0,0,1) for second model as shown in Figures 1 and 2.

**Figure 1. Akaike Information Criterion (First Model)**




Source: Authors.

**Figure 2. Akaike Information Criterion (Second Model)**




Source: Authors.

It is expected that high incomes reduce the constraints on access to food and hence positively affect food security. As reported in Table 5, the coefficient of GDP per capita was positive and significant. When GDP per capita increases, the food gap also increases. This may be due to the increase in domestic consumption of food as a result of higher incomes. Moreover, the increase in GDP per capita leads to an increase in food production index.

Both the agricultural land and cereal yield are determinant factors in increasing the food availability and hence positively affect food security. The increase in agricultural land and cereal yield was shown to reduce the food gap and increase the food production index significantly.

**Table 5. Long run estimates**

| **Dependent variable: LFOODGAP** | | | **Dependent variable: LFPDI** | | |
|---|---|---|---|---|---|
| **Independent variables** | **Coefficient** | **t-statistic** | **Independent variables** | **Coefficient** | **t-statistic** |
| LGDP | 1.397775 | 2.901156*** | LGDP | 0.267796 | 2.559747** |
| LAGR | -1.871830 | -3.142058*** | LAGR | 0.334296 | 2.632049** |
| LCER | -0.749783 | -1.704482* | LCER | 0.520638 | 5.637362*** |
| POP | -0.505876 | -2.060424** | POP | -0.109247 | -3.820851*** |
| INF | 0.015860 | 2.472951** | INF | -6.79E-05 | -0.068997 |
| LMEANTEMP | 0.905941 | 0.927909 | LMEANTEMP | 0.324989 | 1.202613 |
| LMEANPREC | 0.289896 | 2.258431** | LMEANPREC | -0.005514 | -0.304540 |
| $LCO_2$ | -19.000 | -2.902680*** | $LCO_2$ | 3.973551 | 5.375903*** |
| Trend | 0.112039 | 3.584656*** | C | -29.95917 | -10.50689*** |

Source: Authors.
*, **, and *** indicate 10%, 5%, and 1% level of significance, respectively.

The results for population variable indicated the negative relationship between population growth rate and food gap. This result is in contrast to Malthus hypothesis that states the inability of the earth to provide enough food for population (Malthus, 1798). However, it was shown that higher population growth rate reduces the food production index.

Regarding the inflation variable, the results showed that there was a negative and significant relationship between inflation rate and the food gap. On the other hand, it had insignificant impact on food production index. For climate variables, it has been found that the mean annual temperature had insignificant effect on both food gap and food production index.

Furthermore, the results indicated that there was a negative effect of mean annual precipitation on food security, as higher precipitation rates increases the food gap significantly. This result was different from the expected effect of precipitation on food production. This may be explained by the fact that rain fed land represents about 3.7% of total agricultural land (Arab Organization for Agricultural Development, 2016). On the other side, it was shown that $CO_2$ concentration in atmosphere positively and significantly impact food security, as its increase reduces the food gap and increases the food production index.

Tables 6 and 7 report short-run estimates and diagnostic tests results. It can be seen that the coefficient of ECT was negative and significant which provided evidence on the presence of long-run integrated relationship among the variables.

**Table 6. Short run estimates and Diagnostic tests for first model**

| **Dependent variable: D(LFOODGAP)** | | |
|---|---|---|
| **Independent variables** | **coefficient** | **t-statistic** |
| C | 105.8882 | 11.00317*** |
| D(LAGR) | -0.523484 | -1.415534 |
| D(LAGR(-1)) | 0.783039 | 1.910875** |
| D(POP) | -0.864224 | -2.016058** |
| D(POP(-1)) | 1.963835 | 4.001461*** |
| D(INF) | 0.001812 | 0.797451 |
| D(INF(-1)) | -0.0055062 | -2.126414** |
| D(LMEANPREC) | 0.089391 | 2.969539*** |
| ECM (-1) | -0.814443 | -10.99558*** |
| **Diagnostic tests** | | |
| Adjusted R-squared | 0.74 | |
| | **Test Statistic** | |
| Serial correlation LM | 3.242416*** | |
| ARCH | 1.200748*** | |
| Normality test JB | 0.504543*** | |
| Rasmsey RESET | 1.736435*** | |

Source: Authors.
*, **, and *** indicate 10%, 5%, and 1% level of significance, respectively.

**Table 7. Short run estimates and Diagnostic tests for second model**

| **Dependent variable: D(LFPDI)** | | |
|---|---|---|
| **Independent variables** | **coefficient** | **t-statistic** |
| D(LFPDI(-1)) | 0.373124 | 4.451065*** |
| D($LCO_2$) | -5.274444 | -3.511259*** |
| ECM(-1) | -1.003133 | -9.874268*** |
| **Diagnostic tests** | | |
| Adjusted R-squared | 0.60 | |
| | **Test Statistic** | |
| Serial correlation LM | 0.752232*** | |
| ARCH | 0.304634*** | |
| Normality test JB | 0.811083*** | |
| Rasmsey RESET | 0.228748*** | |

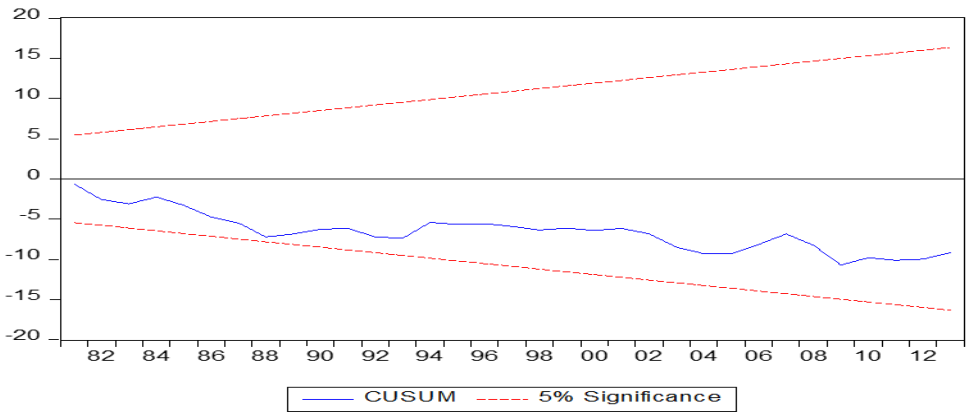
Source: Authors.
*, **, and *** indicate 10%, 5%, and 1% level of significance, respectively.

To ensure robustness of results, several diagnostic tests were conducted including Breusch-Godfrey LM test for serial correlation, Jarque-Bera test for normality of the residual, ARCH test for heteroscedasticity, and Ramsey RESET test for model specification.

As displayed in Tables 6 and 7, it can be concluded that the residuals were normally distributed, and there was no presence of heteroscedasticity and serial correlation. In addition, the models were specified correctly.

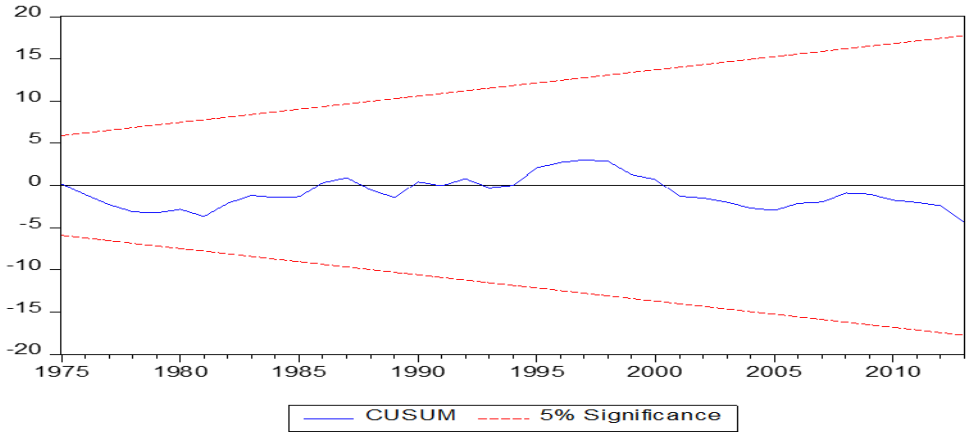
Moreover, this study employed the cumulative sum (CUSUM) stability test to assert stability of coefficients throughout the period under analysis. It can be drawn from Figures 3 and 4 that the estimated coefficients were stable for two models.

**Figure 3. Cumulative Sum of Recursive Residuals (First Model)**




Source: Authors.

**Figure 4. Cumulative Sum of Recursive Residuals (Second Model)**




Source: Authors.

## 5. Conclusion and policy implications

The main objective of this paper was to investigate the potential impacts of climate change on food security in Egypt during the period 1961-2013. In this regard, we specified two indicators to represent food security, namely food gap and food production index. The Autoregressive Distributed Lag (ARDL) method of estimation was conducted for the analysis. The main empirical findings, concerning the impact of climate variables, showed that mean annual temperature has insignificant impact on food gap and food production index. Moreover, the results displayed that higher mean annual precipitation yields an increase in food gap. This means that precipitation negatively affects food security in Egypt. Regarding the effect of $CO_2$ concentration, it has been found that it positively affects food security. Also, the empirical results indicated the significant role of the agricultural land and cereal yield in reducing the food gap and increasing the food production index.

These results suggest several policy implications. There are many key policies to mitigate polluting emissions such as the adoption of stricter environmental regulations and a set of taxation and subsidy policies. In addition, the energy sector is the main source of GHG emissions in Egypt, so policies should be oriented to increase the contribution of renewable energy to total energy consumption.

Applying new cropping practices represents an important factor to ameliorate the negative impacts of climate change on crop yields (including the use of new varieties with greater resistance to higher temperature, and the adjustment in location and plating dates of crops).

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**LUKAS VOGAL[1] AND MARTIN BRUNCLIK[2]**

# MODELLING AND SIMULATION OF HUMANITARIAN AID DISTRIBUTION DURING FLOODS

## Abstract

This paper deals with the use of modeling and simulation method for the humanitarian aid distribution planning. It builds on the previous author's article on modeling and simulation in the logistics environment of humanitarian operations. Based on experience with the flood situation on the territory of the Czech Republic, it deals with the distribution of humanitarian aid to evacuation centers. There is a distribution model for the supply of evacuation centers designed in simulation software, which specifies the geographical location of the material stores, the evacuation centers, the shortest supply routes, and the alternatives to these routes in case of disturbance. Subsequently, model simulation is run over time to determine the optimum amount of vehicles for different levels of demand for humanitarian aid during the ongoing crisis.

**Keywords:** Distribution, humanitarian aid, modeling, simulation

**JEL Codes:** C63

## 1. Introduction

During large-scale natural disasters, such as floods, there is often a situation where evacuation of people from affected area is needed to ensure their safety. During this situation, people are moved to an evacuation center where shelter, water, food, and other things are provided. The stock of these things must first be brought in and then keep at required limit. Therefore, the topic of logistics chain of humanitarian aid is essential for the purpose of dealing with humanitarian crisis.

Even though there are many possible disruptions of the supply chain on the way to the destination. The provider of the humanitarian aid should be prepared for any situation which occurs during time. One possible option is to use the modelling a simulation method. It helps the distributor in the decision making process.

## 2. Modelling and simulation

### 2.1. Modelling

Modeling is a method that allows user to create a simplified idea of specific object or real world phenomenon. Models are recognized in many different forms. For instance, models of trains, cars or aircrafts; cartographic models that produce different map backgrounds; models of the human body and countless of others.

All of these examples represent a more or less credible copy of their real foundations. None of them, however, can fully capture their real image. But this would not even be desirable. Cars or trains loses their original weight and other typical characteristics, essential for the actual version while impractical at the railroad model or a car-model collection.

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The essence of the modelling process is abstraction. Abstraction, in terms of scientific exploration, allows model creators to avoid endless work with information, data and details that would not result in anything essential. That makes it easier to concentrate on a substantial part of the problem being studied and then work with it.

Regarding complex systems, it is necessary to pay attention not only to the part of modeling, but also to subsequent analysis of the model. This should bring new discoveries - for example, in the form of confirmation or refutation of a particular hypothesis or finding a new approach to addressing specific issues. While simple models can be deduced by mere observation, complex systems, including some humanitarian logistics processes, can be more efficiently explored through computer simulation.

### 2.2. Computer simulation

Simulation is a method of probability dynamic systems which it study through experiments in a computer model. It can predict the behavior of the system when changing internal or external conditions and also optimize the processes according to specified criteria, such as profit, cost, or reliability. The simulation result is not an exact value but only an estimate of the parameter. Using simulation, you can also explore various alternatives to system changes, verify their implications, and choose the solution that is best suited to the situation.

Because of these characteristics, computer simulation is often used to analyze business processes such as supply, production, or distribution.

Regarding the creation of a simulation project itself, it can be divided into several consecutive basic phases, which are:

- problem identification and goal setting;
- creating a conceptual model;
- data collection;
- creating a simulation model;
- verification and validation of the model;
- performing experiments and analyzing results;
- model documentation;
- implementation.

Between main advantages of simulation belong, that:

- enables working with relatively complex systems that cannot be processed by simple analytical methods;
- is less time consuming and costly than experiments in the real world;
- some simulation programs allow animation of a system to illustrate its operation.

Simulation, however, cannot be understood as a method that would solve all the researcher's problems. It is only a tool that provides the support for a successful solution, and responsibility for its optimal use lies with the researcher. In modeling, it has to take into account some disadvantages of computer simulation, which include, in particular, that:

- requires the purchase of software in the form of a simulation program, or the assignment of a company project that deals with this activity;

- study of the program is time consuming;
- the simulation result is not a specific value for selecting an optimum but a parameter estimate;
- interpretation of results may not always be unambiguous.

## 3. The Aim and methodology

The aim of this paper is to deal with the distribution of humanitarian aid to evacuation centers using a modeling and simulation method. It consist of two individual tasks. First of all it is to research the process of humanitarian help distribution in affected area. Next task is to find out variants of probable run of crisis in order to optimize the crisis plan. The last one but not least is to verify if the modeling method is suitable for optimizing the process of humanitarian aid distribution during natural disasters
For the purpose of this paper several methods are used. First of all it is a modeling and simulation method. These are used to define a humanitarian aid distribution process and its simulation with a special simulation software SIMIO in a University Design Edition. Subsequently, results of the simulation run are analyzed and interpreted in the discussion part of this paper.

## 4. Model creation

Using a previously mentioned theoretical base of modeling and simulation the concrete model of humanitarian aid distribution is build.

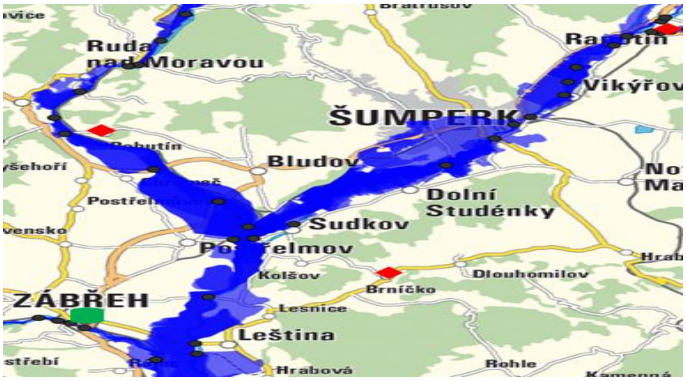
### 4.1. Problem identification and goal setting

Phase of a model creation begins with a problem realization and setting of a goal. In this case the examined object is a distribution chain during flood situation in a concrete area of the Czech Republic. More specifically it concerns Olomouc region, the northeast part of the country. The main purpose of this model is to find out the optimum amount of vehicles involved in the system for different levels of humanitarian aid demanded from humanitarian centers during the ongoing crisis.

The reason for choosing Olomouc region is, that it is a place of frequent occurrence of floods in the Czech Republic. In 1997, there was also one of the largest floods in Czech history.

In the ***Figure 1***, there is a map illustrating the course of the flood based on historical data. In the map there are three red points which stand for three places where evacuation centers are located and a green point as an area of location of distribution center.

**Figure 1. Map of flood in Olomouc region**



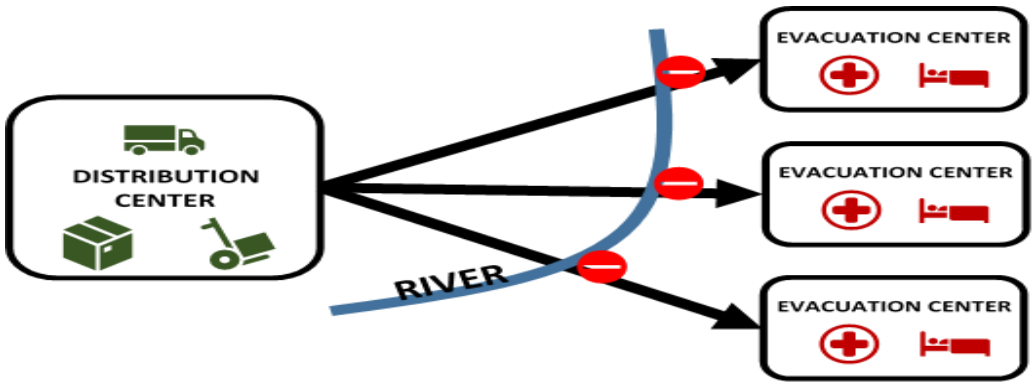

Source: HF Biz s.r.o.

### 4.2. Conceptual model

Conceptual model should describe the examined process, its elements and connections between them. The beginning of the process is based on a scenario of a flood situation which gets to the point when it is necessary to get people from flooded area and evacuate them to evacuation centers. But before the evacuation itself the centers were supplied with packages approximately to their half capacity due to the escalating danger, based on decision of the competent authorities.

This model is illustrated in the ***Figure 2***. There is one distribution center as well as three evacuation centers. From the distribution center the humanitarian help should be dispatched. Package with humanitarian aid is load on a car and subsequently send to the evacuation center. Each of the evacuation center provides a shelter, medical support, foodstuffs, potable-water and other necessities for evacuees. Main differences between individual evacuation centers are their geographical position and their capacity, which is 500, 1000 respectively 750 people.

**Figure 2. Conceptual model**




Source: Author's own.

Between these two base parts of the model there are road connections. The length of each road is set according to the actual geographical location. There is also a river crossing every road. It means, that every road contains one or more bridges. A little red sign indicates the potential danger of bridge disruption. In such case it would be necessary to find an alternative road in order to reach the destination.

### 4.3. Assumptions of the model

Except that the model is based on a specific situation of floods in Olomouc region, as was mentioned above, it also postulates several other conditions. These are necessary in order to create a simplified version of a real situation.

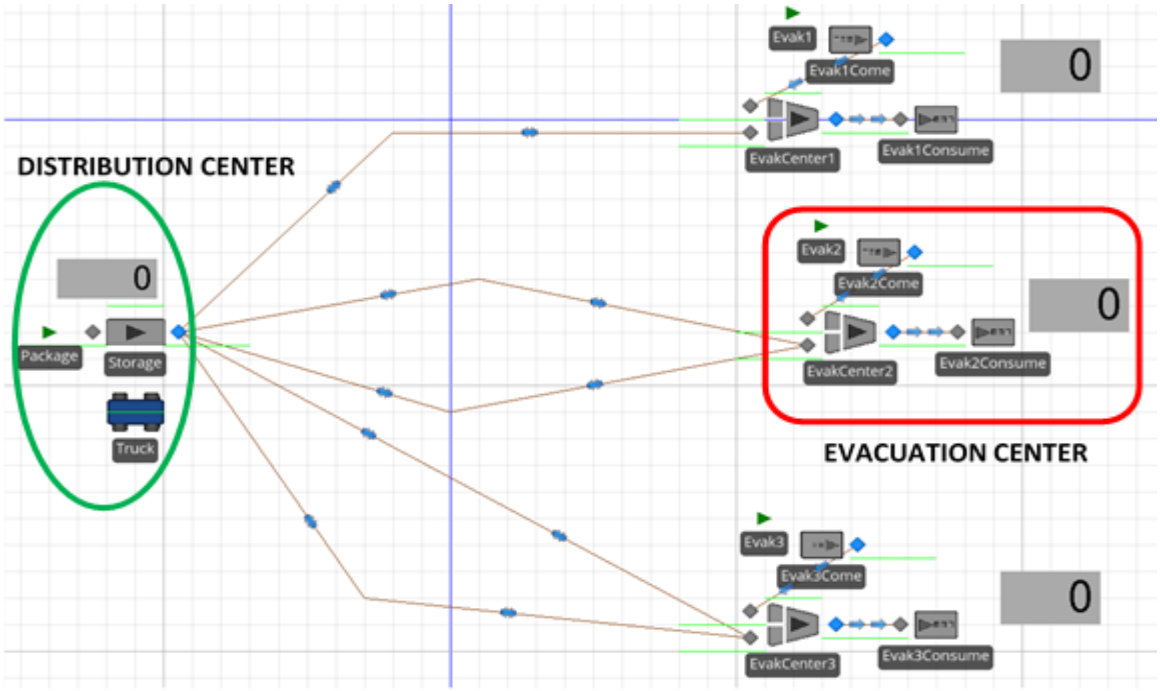
Therefore, in this model:

- There is always sufficient material reserve for the purpose of humanitarian aid delivery.
- The evacuation process itself is not examined.
- Time limitation of the simulation run is 72 hours.
- The related financial costs are not monitored.
- Content of the package is not the matter of the model
- Number of drivers is unlimited.

### 4.4. Model elements

The created humanitarian aid distributional computer model is illustrated in the ***Figure 3***. It consists of one storage area of the distribution center, three evacuation centers and paths between them.

**Figure 3. Computer model**




Source: Author's own.

**Distribution center**

Distribution center is in the model marked as the Storage. This is a place, where the package is prepared, load on a vehicle and send to an evacuation center. The vehicle element is marked as the Truck. Capacity of the truck is 50 packages per one ride, maximum speed is set to 50 km/h and it can move only in the network of specified paths. Time set to load or unload the whole truck is 25 minutes. The population of the vehicle in system will be discuss later. Packages are immediately prepared in requested amount to be load in the storage area as soon as orders from the individual evacuation centers are placed.

**Evacuation center**

There are three evacuation centers placed in the model. These centers consist of three model elements. First element, marked as Evak1(2 or 3) Come, illustrates the gate-like access to the center. Evacuees are coming through these gates to the system.

After than they continue to the EvakCenter1(2 or 3), where each of them pick up one package, which is meant for one day of consumption only. That means that during the simulation run every evacuee appears in the Evacuation center three times during the run. It is also a place where the incoming packages are stored. Path of the evacuee ends in Evak1(2 or 3) Consume station, where they stay for one day and then reappear in the system to pick up another package.

### Paths

There is one path to EvacCenter1 and two paths to EvacCenter2 and EvacCenter3. On the way between the Storage and the EvacCenter1 and EvacCenter2 there is always one shorter path and one longer alternative. Shorter paths are closed after 24 hours from the beginning of the simulation as the river rise up and it is necessary to close some bridges.

## 5. Simulation process

The computer model can now be run to simulate the distribution process. The model is verified in case that every element of the model works as it was intended. Yet, it does not mean, that the model works optimally. Therefore, it now needs to be validated in order to optimize the whole process of distribution. In the model, there are two variables which can influate its optimum. First one is the previously mentioned population of trucks in system. In another words this variable means, how many trucks are currently available in the system for the distribution. The second one is the level of order in each evacuation center. When the level of storage decrease below certain point it starts the order process. Certain amount of packages are automatically created and ready to be dispatched. This amount depends on a concrete order level and required storage of packages of each center. Center1 requires 500, center2 1000 and center3 700 of packages.

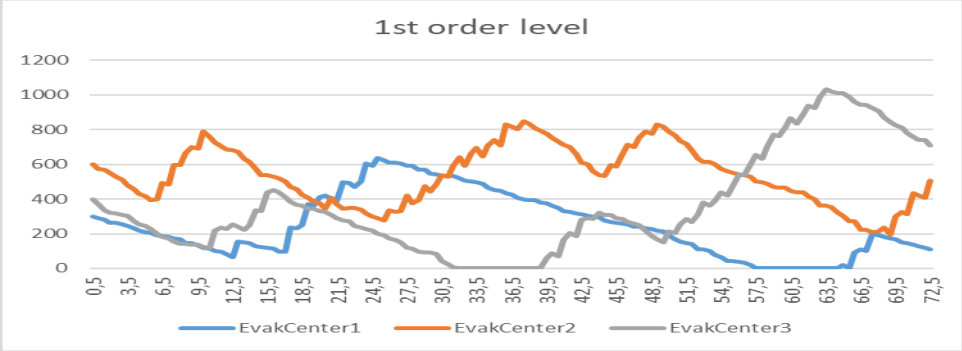
At first, to ensure sufficient amount of packages in each evacuation center, the model needs to deel with the required amount of vehicles. With only one vehicle in the system, evacuation centers are supplied but insufficiently. After three days - 742 evacuees remain unserved in center1, 642 in center2 and 1390 in center3, which is unacceptable. The same situation is repeated with two vehicles. This time 204 evacuees are unserved in center1 and 990 in center3.

Three vehicles assure that no evacuee will remain unserved, so the vehicle population variable is set as three for another part of optimizing process.

Next step is to determine the correct level of order. It means such level, when the level of storage in each evacuation center never falls to zero.

1st option of order level is set to 100 for center1, 400 for center2 and 200 for center3. Result of this option is illustrated in the ***Graph 1***.

**Graph 1. 1st order level**

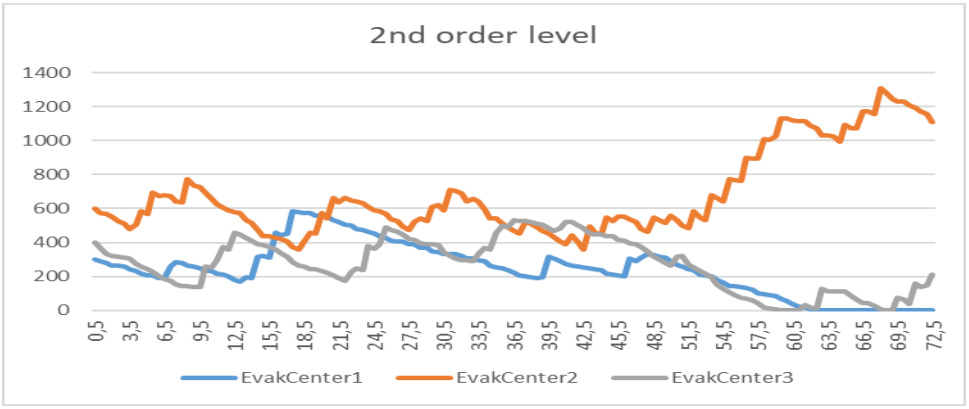



Source: Author's own.

The horizontal axis represents the time duration in hours and vertical axis represents the level of packages in evacuation center. Apparently, this option is not chosen correctly. Center1 remains at zero level of stocks for almost 8 hours and roughly for the same time in center3.

2nd option of order level is set to 200 for center1, 500 for center2 and 300 for center3. Result of this option is illustrated in the ***Graph 2***.

**Graph 2. 2nd order level**

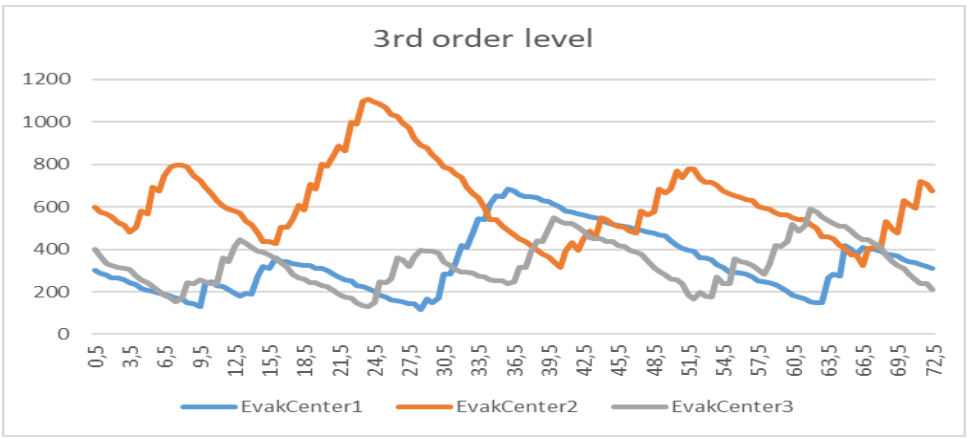



Source: Author's own.

This option is again not correct. Centers 1 and 2 gets to zero level of stock. Even though, this time is this period shorter it is still unacceptable.

3rd option of order level remains almost the same as the 2nd one but this time the order level for center1 is set to 150. Result of this option is illustrated in the ***Graph 3***.

**Graph 3. 3rd order level**




Source: Author's own.

It is clear, that this time is no evacuation center on the zero level of stocks. It means that this option can be accepted and used in the system.

## Conclusions

On the base of the emergency situation of flood, a conceptual model of humanitarian aid distribution was build. The simulation results serve as a basis for the distributor to decide on the number of cars involved in the transportation process. At the same time, when determining the optimum level of inventory in the evacuation center where it is necessary to order another delivery so that the inventory is not completely exhausted.

The results show that **3 cars** are the **minimum** number ensuring that no unserved evacuee is left at the end of the simulation in the evacuation center.

Another important point of the simulation determines the optimum order level for each evacuation center. This part shows that the **first Evacuation** center should request another delivery when its **capacity falls to 150**. The **second** one should request another delivery at **500** and the **third** one at **300**. There is an opportunity for a future research to extend the model. It applies for elements of distribution center as well as evacuation centers. For instance it is possible to include the content of package, percentage reliability of vehicles or more path alternatives; increase the time of simulation, number of served simulation centers etc.

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**ERIDA ELMAZI[1] AND ALBA SKENDAJ[2]**

# PRINCIPAL'S IMPACT ON SCHOOL CLIMATE: A CASE STUDY FROM ALBANIA AND KOSOVO

## Abstract

Education leadership is a very important topic and decisively affects the effectiveness of school and learning. The climate of an organization even it is affected by several factors, initially it is determined by the perception that the employees have on leaders' beliefs, attitudes and knowledge on organizational goals. The scope of this study was to investigate the impact of principal's on school climate and how it relates with leadership. The objective was to describe the actions of principals from teachers' perspective. In order to describe the principal's role in impacting on school climate a quantitative approach was used. As a source of primary data, a questionnaire was borrowed from the Ciampini-Boccardo Institute of Higher Education. The sample consisted in 125 teachers from 25 high schools in Albania and Kosovo.

The findings of this research provided increased knowledge concerning the role of principal leadership in context of Albania and Kosovo, in regards to the impact on a positive school climate. Regression analysis showed that for a confidence level of 95%, leadership impacts positively on school climate.

**Keywords:** Principal, teacher, school, climate, leadership

**JEL Codes:** I20, M12

## Introduction

Education leadership is possibly the most important single determinant of an effective learning environment (Kelley, Thornton, & Daugherty, 2005). Its importance come as it is a key determinant for school productivity and effectively. Several scholars have investigated several variables that might be affected by leadership, such as employee satisfaction, engagement, communication, empowerment, image, climate of school, etc. Climate is one of the fundamental concepts to be addressed, as it is considered the first interaction of the teacher with the school. Educators have recognized the importance of school climate a long time ago (Perry, 1908). The interest in the study of school climate is thought to be linked to educational outcomes, especially achievement (Pallas, 1988).

The main objective of this study was to examine the impact of principals on school climate. Even though the climate of an organization is affected by several factors, initially it is determined by the perception that the employees have on leaders' beliefs, attitudes and knowledge on organizational goals. That's why our intention was to determine teacher perceptions in regards to what the principals do in order to develop, to support and to optimize a positive school climate. The first part of the study starts with a literature review on school climate, together with a review of the role of principal's impact. Scholars' findings within the literature have shown relationships among leadership, school climate, and effective schools. The research question of this study was: Does the school principals in Albanian and Kosovo context, impact and affect the school climate?

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## Definition of term

Many definitions have been proposed regarding the concept of organizational climate. The term has evolved over the years and there are no universally agreed definitions. Its importance was highlighted in the 1960s and 1970s. Halpin & Croft (1962), pioneers in this field, studied the differences in the quality of work environments and defined organizational climate as characteristics that vary between the open and closed ends of the scale. From the literature review it may be summarized that the conceptualization of organizational climate includes three approaches, such as:

1. Attributed to organization: as a set of characteristics that describe it (Forehand & Gilmer, 1964) and on meta level it refers to the organization's psychological atmosphere (Kline & Boyd, 1991; Lewin, 1951; Prakasam, 1986);
2. Independent attribute by itself: as a set of attitude and expectancies, which describe the organization interims of both static characteristics such as degree of autonomy and behavior – outcome –outcome contingencies (Campbell et al, 1970);
3. Attributed to individuals perception: as perceptions that vary on the basis of individual and job differences as much as organizational differences (Cambell & Beaty, 1971; Guion, 1973; House & Rizzo, 1972; James & Jones, 1974).

In later years, Kottkamp (1984) suggested that climate consists of shared values and interpretations of social activities. In the school context Hoy (1990) described climate as the enduring quality of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behavior in schools. Few authors have used it interchangeably with the concept of atmosphere, learning environment, culture, etc. Kowalski & Reitzug (1993) defined it as an organizational culture that is comprehensive of the physical environment, people and social relationships, group dynamics and individual behaviors. From the above definitions we understand that organizational climate is applied when we want to describe the atmosphere and relationships that exist in an organization. Several scholars agree that organizational climate is under the influence of organizational culture. Others differentiated it from the concept of culture.

Stringfield (1994) defines climate as the total environment of the school, including the parents and community. The climate of a school is the foundation that supports the structures of teaching and learning: it is about the quality of a school that helps each individual feel personal worth, dignity and importance, while simultaneously helping create a sense of belonging to something beyond ourselves (Freiberg, 1999). Recent studies refer to school climate as the social, physical and academic environments of the school (Murtedjo and Suharningsih, 2018).

The difficulty of defining school climate is reflected in the diversity of climate typologies that have evolved, despite their often common roots (Anderson, 1982). Six different types of climate are emphasized by Halpin and Croft (1962) which are: open, autonomous, controlled, familiar, paternal and closed. Possible climate typologies are innumerable. Other classifications may include supportive, friendly or unfriendly, encouraging and stimulating, or discouraging and boring, etc. It is related with the internal nature, character of the organization and defines the ways in which the things are done.

## The role and importance of school climate

Halpin and Croft (1962), in their very early educational writings, highlighted the empirically findings of impact of school climate on student learning and development. The characteristics of a school affect student behavior and academic achievement (Kallestad, 2010). If there exists a positive climate it will cause a positive spirit, which will make students and teachers love the school (Freiberg and Stein, 1999).

A positive school climate can enhance staff performance, promote higher morale, and improve student achievement (Freiberg, 1998). Results from MacNeil et al., (2009) suggest that students score higher on standardized tests in schools with "healthy learning environments". A healthy and positive environment, as well as affective relationship between students and teachers, promotes meaningful student learning, commitment and engagement, improves feelings of safety, increases motivation and develops the mindsets. When students feel physically, socially, and emotionally safe, loved and supported, their academic progress will increase and they will become more disciplined and creative learner. A good school climate affects achieving high scores and good psychosocial health. It affects self-esteem, decreased anxiety, child depression, and substance abuse, deviations, absenteeism and abandonment of the school.

Bulach et al., (1995) in a study of 20 schools used regression analysis and found a strong positive correlation (r = .52) between student achievement and school climate. According to Thapa et al., (2013) school climate is associated with positive child and youth development, effective risk prevention and health promotion efforts, student learning and academic achievement, increased student graduation rates, and teacher retention. In this line Urban (1999) stated that unless students experience a positive and supportive climate, some may never achieve the most minimum standards or realize their full potential. Moreover Stenson (1985) noted: ''A warm, positive climate contributes greatly to the productivity of an institution''. Scholars studied school climate in different contexts such as urban, rural, risky, low economic level, etc. It was seen that in risky environments a positive, supportive, and culturally conscious school climate can significantly shape the degree of academic success (Haynes & Comer, 1993).

School climate has a profound impact on individual experience (Comer, 1980). The climate influences an individual's contribution far more than the individual himself (Holt, 1993). It may affect the motivation, job satisfaction, performance, etc. Cawsey (1973) found that individuals within an 'achievement' climate rated themselves as higher performers than those working in less motivating climates. Kaezla and Kirk (1967) found that performance was affected by organizational climate. Findings of several studies have shown that positive school climate is related with significantly lower levels of absenteeism (Purkey & Smith, 1983; Reid, 1982; Rumberger, 1987). Organizational climate is a critical variable not only for the importance of motivation, commitment and efficiency at work, but also for the influence of personal relationships and trust in relation to the company.

Past research has identified the school climate as a major factor that contributes to school effectiveness (Creemers & Reezigt, 1999; Dellar, 1998; Fisher & Fraser, 1990). Hoy and Sabo (1998) point out that a positive climate in the school affects its effectiveness. But other researchers also argue that climate may not mandatorily determine the effectiveness of the organization. There are other factors too that impact the organizational effectiveness. Studies show that even though school climate might not be a warranty for the effectiveness, it may create the spirit of cooperation, reinforce motivation and may result in positive results. Researches findings indicate that improvement may be achieved by develop positive school climate, improving teachers' practice, and strong leadership by principals (Leithwood, 1999).

According to Likert (1961) the organizational climate is stipulated by six factors such as:

- Communication: how do principals communicate? Do the teachers have the required information in order to do their job?
- Decision making practices: Who takes the decisions? Are the teachers included in the decision making process? Do the principals delegate the decisions? Do they empower the teachers?
- Interest for people: is the school interested in improving the work conditions?

- Influence in the department: who has the influence in the department? Do the teachers influence their department?
- Technology management: Is it used with effectiveness and efficiency? Is it flexible to the context of the school?
- Motivation: Are the teachers motivated?

If we focus to some of Likert's variables and to above arguments of other scholars it may be said that the relation between them and climate is reputable. For example the organization's climate influences how decisions are taken, and the ways to make decisions within the organization will also influence its climate. The same can be said for motivation.

**The impact of principal on school climate**

When discussing about the organizational climate, one of the fundamental elements that should consider is the leadership. School leadership faces several issues or problems related to students, teachers and community. They have to deal with the teaching quality, disengaged students and their psychological well-being, bullying and cultural and socio-economic differences. Findings suggest that if the leaders focus on establishing a positive school climate, it will help solving and dealing with these issues. Leaders shape the climate and determine it through their beliefs and attitudes. The dimension of principal behavior is related with the way how the principal interacts with teachers, students and parents. Principals interact with teachers and students as instructional mentors, while also making sure that the school is physically and emotionally safe (Sparks, 2011). This interaction has a great overall effect on the school atmosphere.

Scholars' findings within the literature have shown relationships among leadership, school climate, and effective schools, demonstrating improved academic achievement goals can be attained by effective school leaders attending to the needs of school organizations (Mitchell and Castle, 2005; Mulford et al., 2004). Having a process and procedure for creating a positive school climate is a vehicle for principals to motivate teachers and students (Louis, et al, 2010; Nor and Roslan, 2009). Waters et al., (2004), reported that effective school leadership substantially boosts student achievement. School climate, leadership, and quality instruction are frequently associated with effective schools and teachers' perceptions of their principals' effectiveness are positively related to school climate (Kelley et al., 2005).

Analysis of data from Ciruli (2002) research noted that teachers uniformly believed the principal was the most "important" person at the school. Principals are important in organizing and directing the work and activity of the school, settings the goals and expectations, etc. Due to the importance in building the organizational climate, principals must understand their role in the school environment and work to improve it. As a leader, the principal has the opportunity to make radical changes, in the interest of improving the quality of the teaching work. The principal plays an essential role in building the best possible educational environment, also in creating and maintaining the school climate. He should care for a good and positive climate, characterized by a balance between support and encouragement. Support implies creating an environment which is positive, motivating and safe in and out of the classroom and also working conditions of high quality in order to improve the wellbeing of teachers and other staff. Highly effective principals that create a positive climate have several traits, characteristics and behaviors. It may be summarized from the studies and researches that the principals should:

- Have a clear vision and share it;
- Build good relationship with people and have affinity;
- Be an outstanding leader and trustworthy;

- Be visible, honest, fair and consistent;
- Be organized and prepared;
- Have high communication skills;
- Be excellent listener and problem solver, in case students, teachers, other staffs and other stakeholders might have dissatisfaction or face problems and should manage the conflicts that might arise.
- Empower the followers and include them in decision making process; etc.

There is not a single magic formula to build the perfect school climate, but it depends on the leaders' values and vision. If teachers perceive that their principal has the effective characteristics of successful leader, they will model themselves based on this successful role model. A study, in three European countries, showed that schools with effective leadership were also found to be schools where teachers were motivated to participate in training, showing connections between school leadership, school climate and willingness to participate in professional development (Rajala et al., 2007). Principals have to create a supporting environment and establish a sustainable cooperation with teachers, other staffs, parents and community in order to maintain an interactive and engaging learning environment. This relationship is very important as the leadership is a group phenomenon and the roles that this group plays are active. In such way principal creates a distinct workplace climate.

Analysis of the data from Hill ( 2007) findings reveal that a stronger relationship was found between school leaders attributes and overall school climate, as well as the relationship between servant leadership behaviors and the school's organizational climate. The behavior and leadership style of the principal plays a great role to the school climate. This has been demonstrated from the prior studies that found significant relationship between leadership style and climate (Holley, 1995; Bailey, 1988; Madison, 2002). Halpin (1966) identified four characteristics of the behavioral dimension of the leader, which are: coldness, dedication to work, consideration and enthusiasm. If the principal style is supportive to the teachers' needs, it may provide a pleasant climate. Scholars investigated the relationship between transformational and transactional leadership style and school climate. Findings revealed positive relationship between transformational leadership and school climate. Madison (2002) argues that there is a positive school climate under the principal who perceived transformational leadership. These types of leaders make constant efforts to motivate and support teachers by consulting, hearing, calming, and inspiring them. On the other hand transactional leadership style did not correlated with school climate. Other researchers tested the relation between school climate and other leadership styles. Hill (2007) examined that servant leadership determined a possible correlation with school climate and student achievement.

## Methodology

In this study, we have tried to identify whether, in the Albanian context, principal leadership influences the school climate. The methodology followed in this paper has a quantitative approach. Questionnaires were used to identify the principal leadership as perceived by teachers, and the school climate, as perceived by teachers. For identifying the principal leadership, the Ciampini-Boccardo Institute of Higher Education questionnaire with 7 items was used. For capturing of school climate, the questionnaire of Ciampini-Boccardo Institute of Higher Education with 7 items was used. The questionnaire was distributed physically among the teachers of 25 primary schools in Albania. There were a total of 125 responses from 200 distributed questionnaires.

## Findings

### Descriptive statistics

The study involved 125 primary school teachers, where 86.4% were woman and 13.6% were man. Respondents were asked about the perception they have on the principal leadership, and their perception on school climate. Responses were measured with a Likert scale of 1-5. The variables "principal leadership" and "school climate" both had a good internal reliability, both upper than 0.7(concretely "principal leadership" variable reliability scale was 0.887, while "school climate" reliability scale was 0.876).

### Regressive analysis

For data analysis the statistical program SPSS, was used. We have measured the impact that principal leadership has on school climate through simple regression analysis.

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -4.987E-17 | .059 | | .000 | 1.000 |
| | Leadership/Principal | .750 | .060 | .750 | 12.582 | .000 |
| a. Dependent Variable: Climate | | | | | | |

Regression analysis shows that for a confidence level of 95%, leadership impacts positively on school climate. The value of Rsquare = 56% indicates that leadership explains about 56% of the school climate variance, which means that leadership is a key factor that effects school climate.

| Model Summary | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .750[a] | .563 | .559 | .66393644 |
| a. Predictors: (Constant), Leadership/Principal | | | | |

This result is further reinforced by correlative analysis. The following table shows correlations between variables. The link between the variables, besides that is statistically important, also appears to be significantly strong. The correlation coefficient close to 1 (positively) demonstrates the strong positive correlation between the leadership and the school climate.

| Correlations | | | |
|---|---|---|---|
| | | Leadership | Climate |
| Leadership | Pearson Correlation | 1 | .750** |
| | Sig. (2-tailed) | | .000 |
| | N | 125 | 125 |
| Climate | Pearson Correlation | .750** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 125 | 125 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

## Conclusions

This study explored if school leadership actions influenced organizational climate. Its purpose was to examine the relationship between principal leadership and school climate in the Albanian and Kosovo context. According to the results of our study, leadership positively effects school climate. Moreover, his role is very strong, as leadership explains about 56% of school climate variance. Regression analysis showed that for a confidence level of 95%, leadership impacts positively on school climate. Based on such findings, principals can affect the learning and working environment of schools.

Some common conclusions about school climate emerge also from the literature review. The role of principal in developing a positive school climate is fundamental. Nor and Roslan (2009) confirmed this importance, as they argued that a caring school culture helps build positive relationships, a sense of belonging, and positive self-concept amongst members of the school. They also highlighted that the role of the principals in shaping a caring school culture is pivotal in pursuing a sense of belonging amongst students in the school as well as confidence in their self worth.

A healthy school climate is an investment in the long run and leaders should establish and maintain it. Leaders should consider implementing effective strategies in order to create a positive and harmonious climate. A sustainable, positive school climate fosters youth development and learning necessary for a productive and satisfying life in a democratic society (Cohen et al, 2009). In the context of school climate and learning policy management, principals as leaders have a responsibility to guide the school for better teaching and learning (Murtedjo & Suharningsih, 2018).

To other researchers we suggest to extend the sampling and enrich the research questions such as how the qualities of the principal may be improved to ensure an effective leadership, followership and a positive organizational climate in school.

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**ESZTER LUKÁCS[1] AND KATALIN VÖLGYI[2]**

# EVOLVING INTERCONNECTEDNESS BETWEEN CHINA'S OBOR INITIATIVE AND HUNGARY'S EASTERN OPENING POLICY IN A BILATERAL POLITICAL FRAMEWORK[3]

## Abstract

The main aim of our paper is to investigate how successful Hungary has been in aligning its Eastern Opening policy with China's OBOR Initiative. The 2008 financial turmoil with the subsequent global economic downturn and the 2010-2011 European sovereign debt crisis spurred the Hungarian government to launch the Eastern Opening strategy as a cornerstone of its new foreign economic policy strategy in 2012 with the aim of decreasing the country's massive commercial and FDI dependence on the EU-15 and at the same time diversifying its economic relations towards East (mainly Asia), especially China. To realize the Eastern Opening goals, the Hungarian government has established several tools and institutions. In our paper we would like to evaluate the development of Hungarian-Chinese economic relations since the launch of the Eastern Opening policy in 2012 and how the aims of this policy can be widened beyond trade and investment according to the broader perspective represented by the OBOR Initiative e.g. in the field of infrastructure connectivity or financial cooperation. Our investigation to map initial results is based on a bilateral political framework approach.

**Keywords:** OBOR, Eastern opening policy, China, Hungary

**JEL Codes:** F13, F15, F21

## Introduction

China was economically, strategically and domestically motivated to launch the One Belt, One Road Initiative in 2013. The 'march westward' concept behind the Initiative puts China's relations with Asia, Africa and Europe into a new wider framework. China's growing interests and changing attitude towards the CEE region, including Hungary was first signalled by Xi Jinping's (China's Vice President at that time) official tour to Europe (Belgium, Germany, Bulgaria, Romania and Hungary) in 2009. And before this visit, a debate had already started among Chinese senior officials how to elevate China's cooperation with the CEE region. From the other side, the global financial crisis-ridden CEE countries were actively seeking for external financing, investments and export opportunities (outside Europe), and China as a rising global economic powerhouse became an attractive partner for them. In the case of Hungary, the formulation of the Eastern Opening policy, which had already been started before Hungarian Prime Minister Viktor Orbán's visit to the Shanghai World Expo in 2010, further strengthened the aforementioned mutual interest.

In our paper we investigate the interconnectedness of China's OBOR Initiative and Hungary's Eastern Opening policy in the framework of bilateral political meetings, institutions and arrangements. In the first and second part we briefly describe the main features of OBOR and the Eastern Opening policy. In the next part we study the major arrangements of bilateral high-ranking political meetings. In the

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[3] This paper was written in the framework of EFOP-3.6.1-16-2016-00017 project titled "Internationalisation, initiatives to establish a new source of researchers and graduates, and development of knowledge and technological transfer as instruments of intelligent specialisations at Széchenyi István University".

final part we summarise the outcomes of strengthening economic cooperation with China from the Hungarian point of view.

**China's One Belt, One Road (OBOR) Initiative**

Chinese President Xi Jinping launched the One Belt, One Road (OBOR) Initiative in 2013 which is a joint designation for the Silk Road Economic Belt and the 21st Century Maritime Silk Road, contemporary versions of the centuries-old Silk Road trade routes (Yu, 2017). "The Belt and Road run through the continents of Asia, Europe and Africa, connecting the vibrant East Asian economic circle at one end and the developed European economic circle at the other. The Silk Road Economic Belt focuses on bringing together China, Central Asia, Russia and Europe; linking China with the Persian Gulf and the Mediterranean Sea through Central Asia and West Asia; and connecting China with Southeast Asia, South Asia and the Indian Ocean. The 21st Century Maritime Silk Road is designed to go from China's coast to Europe through the South China Sea and the Indian Ocean in one route and from China's coast through the South China Sea to the South Pacific in the other" (NDRC, 2015). The launch of "OBOR was decided when the Chinese leadership faced the combined pressure of the economic slowing down, US pivot to Asia and the deterioration of the relations with neighbouring countries after weathering the storm of the 2008 global financial crisis" (Wang, 2016, p. 455). To avoid confrontation with the USA, "some analysts came to the idea that China should 'march westward' to expand China's strategic maneuvering space" (Wang, 2016, p. 458) which was one of the reasons for the adoption of OBOR. The other reasons were the slowdown in the economic growth of China and the necessary rebalance of its sources from export, manufacturing sector and investment towards domestic consumption, innovation and service sector. OBOR is in line with China's new go global strategy, initiatives of "Made in China 2025" and "International Cooperation in Industrial Capacity and Machinery Manufacturing" which support the global spread of Chinese companies and products and help the industrial restructuring (among others, transfer of excessive capacities - in manufacturing, infrastructure and related industries - abroad) and upgrading of the Chinese economy. According to the blueprint of 'Vision and Actions on Jointly Building Silk Road Economic Belt and 21st Century Maritime Silk Road' released by China's National Development and Reform Commission, Ministry of Foreign Affairs and Ministry of Commerce in March 2015, OBOR has five key areas of cooperation, namely, infrastructure connectivity, policy coordination, financial cooperation, trade and investment facilitation, and people-to-people bond. This study only focuses on the economic areas of cooperation. *Building infrastructure*[4] is designated as a priority area in the OBOR Initiative and represents a hub for the other areas. *Policy coordination* means that countries along the Belt and Road should coordinate their economic development strategies and policies, and jointly provide policy support for the implementation of practical cooperation and large-scale (infrastructural) projects (NDRC, 2015). Beside the policy coordination, *financial cooperation* among Belt and Road countries is also needed to enhance infrastructure connectivity and economic relations in general. Several financial institutions and funds such as the Asian Infrastructure Investment Bank, New Development Bank, Silk Road Fund, China-ASEAN Investment Cooperation Fund, and China- Central and Eastern Europe Investment Cooperation Fund were established under Chinese leadership and partly or wholly with its financial contribution. The financial cooperation among Belt and Road countries also includes the development of the Asian bond market, cross-border issuance of RMB-denominated bonds and banking consortium. *Trade and investment facilitation* is the last key area of cooperation which should be mentioned. The development of infrastructure connectivity (as a priority goal) can enhance trade and investment relations among OBOR countries. Measures related to trade and investment facilitation cover elimination of trade and investment barriers, facilitation of cross-border industrial value chains, creation of free trade zones among countries, and conclusion of bilateral investment treaties etc. China will

[4] E.g. transport, energy, telecommunication infrastructure

encourage domestic companies to invest in infrastructure or industrial sectors in countries lying along the Belt and Road. To push forward the building of the Belt and Road, China takes full advantage of the existing regional cooperation mechanisms (NDRC, 2015). In case of Hungary, this means reliance on the 16+1 (CEEC[5] plus China) cooperation.

In the next parts of the paper we investigate the interconnectedness of China's OBOR Initiative and Hungary's Eastern Opening policy, the launch (in 2012) of which can be considered as a response to China's changing attitude and growing interests towards the CEE region and mainly motivated to mitigate the negative effects of the global economic crisis. But first, we will briefly overview the main features of Hungary's Eastern Opening policy.

**Hungary's Eastern opening policy**

The 2008 financial turmoil with the subsequent global economic downturn and the 2010-2011 European sovereign debt crisis resulted in a massive backdrop in European GDP and trade growth figures as well as that of inward FDI. As an integral part of its new foreign economic policy strategy, the Hungarian government launched the Eastern Opening policy in 2012, which endeavours to facilitate exports as well as inward FDI flows (mainly) from emerging Asia (China as one of the countries being prioritised). The underlying motivation of the Eastern Opening policy is to mitigate Hungary's massive commercial (concentration both in terms of country orientation and sectors) and FDI dependence on the EU-15 (Lukács & Völgyi, 2017). And at the same time, "the foreign economic policy strategy took the beneficial geographical position of Hungary into account, by stating that the Eastern Opening is a natural way of utilising the country's good access point to the markets of Asian and Post-Soviet states, which provides Hungary with the possibility to become a logistical and transportation hub between the European Union and Asia. Lastly, another motive behind a more Eastern-oriented foreign policy was the assumption that a proper representation of the Hungarian state interests on the world stage is only possible once the country is more visible and able to build on the possible support of relevant worldwide and regional players" (Dániel, 2015, pp. 3-4).

The Hungarian government passed the bill which enforced the new foreign economic policy strategy (2012-2020) in April 2012 which was a part of a broader economic policy strategy. "The primary aim of the foreign economic policy strategy is to contribute to the country's growth, employment and balance of payments goals with the six main objectives listed below:

1. The diversification of the geographical structure of exports
2. The diversification of the product structure of exports
3. FDI attraction
4. The support of exports and supplying activity of small and medium enterprises (SMEs)
5. Economic cooperation in the Carpathian Basin
6. Institutional development of the economic diplomacy

The new strategy on foreign economic policy is often nicknamed the Eastern Opening policy that entails the main goals of growing exports to and increasing amounts of FDI from 'Eastern' (mainly Asian) countries, specifically China, Russia, India, South Korea, some ASEAN countries (Singapore, Malaysia, Indonesia, Vietnam and Thailand), Gulf countries, CIS, and Turkey" (Lukács & Völgyi, 2017, p. 30). The Hungarian government has created several tools and institutions to achieve its foreign economic policy goals, including the Eastern Opening. "The state export development is targeted to

[5] Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia

increase especially Hungarian SMEs' export capability by creating a so-called export academy that provides training in foreign trade to SMEs; a programme of 'exports return home' which makes surveys on SMEs' goods/services with export quality, and provides a network of advisers in foreign trade; an export directory[6] which contains a database of Hungarian exporters; and supporting cooperation among SMEs in the form of cluster or consortium" (Éltető & Völgyi, 2013, pp. 4-5). The Hungarian government established the Hungarian National Trading House (HNTH) in 2012 which has built up a network of (almost 50) trading houses in four continents to support the exports of Hungarian SMEs and their entry to foreign markets. The HNTH is present in 24 Asian countries[7], including its two offices in China.

Besides enhancing the exports of Hungarian SMEs, the other aim of the strategy is to develop their supplying activity (indirect exports) which is strongly related to another aim of promoting inward FDI. To fulfil both aims, the Hungarian government has started to conclude strategic cooperation declarations with transnational companies located in Hungary to reinvest their earnings in Hungary, develop R&D activities, increase their participation in vocational training programmes and strengthen supplier relations with Hungarian SMEs (Éltető & Völgyi, 2013). As of September 2018, 79 strategic cooperation declarations had been signed, among others, with Chinese companies such as Huawei Technologies, Wanhua (BorsodChem), Yanfeng, Bank of China, and Wescast (Bohong).[8]

The development of economic diplomacy with the building up of a wider network of attachés for foreign economic affairs and a more aligned cooperation among export financing state banks (e.g. MEHIB, Eximbank), ministries and HIPA[9] (formerly HITA[10]) has also been planned in the new foreign economic policy strategy. "Beside these institutions, we should emphasise the growing importance of chambers, committees and business forums in the framework of the Eastern Opening. Within the Hungarian Chamber of Commerce and Industry, new departments (e.g. Chinese, Kazakh and Turkish) have been established. Reactivating the work of Joint Economic Committees (intergovernmental organisations) and the growing number of the meetings of high-ranking (Hungarian and Asian) politicians as well as business forums underpin Hungary's strong commitment to the Eastern Opening" (Éltető & Völgyi, 2013, p. 5). Due to its global economic ascendance, China has an outstanding role in the Eastern Opening policy.

**High-ranking political visits between China and Hungary**

Xi's visit to the CEE countries, among them Hungary in 2009, indicated China's evolving 'go-out' investment strategy which also includes a diversification plan of its huge foreign reserves through emerging countries (Hsiao, 2009). Hungary had been seriously indebted and was suffering from the fall of FDI from, and trade with, its most important economic partner, the EU due to the global economic and financial crisis, when its government could welcome China's approach. And it had already started to formulate the country's Eastern Opening policy when Hungarian Prime Minister Viktor Orbán visited Shanghai at the end of 2010 and participated in the closing ceremony of the Shanghai World Expo. According to Orbán's words, his visit was intended to help to provide more money for fresh investments and jobs to come to Hungary. He met not only his Chinese counterpart, Wen Jiabao, but also some leaders of Chinese companies, such as Huawei, ZTE and Hainan Group (Matura, 2011). The Prime Ministers of Hungary and China discussed, among others, the buyout of Hungarian chemical company,

[6] export directory is available at: http://exportdirectory.mkik.hu/hu/
[7] see Asian partner countries at: http://www.tradehouse.hu/en
[8] see the list of declarations at: http://www.kormany.hu/hu/kulgazdasagi-es-kulugyminiszterium/strategiai-partnersegi-megallapodasok
[9] Hungarian Investment Promotion Agency
[10] Hungarian Investment and Trade Agency

BorsodChem by Chinese Wanhua Industrial Group. Wanhua gained full control of BorsodChem in a 1.2 billion euro deal in February 2011[11] while rescuing it from shutdown. This Chinese investment became the largest in the CEE region. Viktor Orbán and Wen Jiabao also discussed long-term financial cooperation, including the possibility of Chinese purchase of Hungarian government bonds. The other aim of the Hungarian Prime Minister's visit was to find an investor for MALÉV (Hungarian Airlines), which was on the edge of bankruptcy. Viktor Orbán met Chen Feng, the President of Hainan Group, with whom he had a discussion about the establishment of a Hungary-based airline, and the transformation of MALÉV (Matura, 2011).Viktor Orbán's visit to Shanghai was followed by two visits of the Minister of National Development, Tamás Fellegi, in December 2010 and in April 2011. He acted as a Government Commissioner for Hungarian-Chinese Economic Relations and "held a series of consultations with Chinese officials, bankers and businessmen, along with Hungarian entrepreneurs" (Kałan, 2012, p. 19).

In June 2011, Chinese Prime Minister Wen Jiabao visited Budapest where several bilateral agreements were signed. Some topics of these agreements had already been negotiated when Viktor Orbán and Tamás Fellegi were on their official visits in China. At the time of Wen Jiabao's visit in Budapest, the first China – Central and Eastern European Countries Economic and Trade Forum also took place which can be considered as the starting point of the 16+1 cooperation. In Table 1, we summarise the most important bilateral agreements signed by government officials or businessmen from China and Hungary:

**Table 1. Major bilateral agreements in June 2011**

| |
|---|
| **1. Memorandum of understanding on the development of air and river transport**<br>In 2011, the Hungarian government negotiated with Hainan Group about a possible investment in MALÉV (See 9. point). The building of a cargo airport near Vát and Porpác (with the financing of Shanghai Construction Group) was also planned. |
| **2. Memorandum of understanding on investment promotion** |
| **3. Memorandum of understanding on the development of railway transport**<br>Hungarian State Railways (MÁV) and China Railway Construction Co. agreed on the construction of a downtown-to-airport high-speed train connection in Budapest. |
| **4. Strategic agreement on the creation of Huawei's European Supply Centre in Hungary**<br>In the framework of a pilot project, Huawei located its European Supply Centre to Hungary in 2009 and which has remained in the country upon the final decision of the Chinese company in April 2011. |
| **5. Declaration of intent on the establishment and cooperation of/between cultural centres** |
| **6. Memorandum of cooperation between National Association of Entrepreneurs and Employers (Hungary) and Chinese Chamber of Commerce on the establishment of a bilateral business council** |
| **7. Memorandum on the establishment of China's CEE logistics and trading platform** |
| **8. Financial cooperation agreement between BorsodChem and Bank of China**<br>According to the agreement, Bank of China provided a 1.5 billion US dollar credit line to Wanhua Industrial Group to finance the long-term development of BorsodChem. |
| **9. Strategic cooperation agreement between Hainan Group and Hungarian Capital Association Ltd. on the field of logistics, real estate and transport development and financial services** |
| **10. Agreement on the establishment of Central European Hungarian-Chinese Commerce, Logistics and Development Cooperation Zone between Talentis Group and Shandong Imperial International Investment Co.** |
| **11. Cooperation Agreement between Szolnok Industrial Park (Central Hungary) and Anhui BBCA Biochemical Co. Ltd. on the building of a citric acid factory** |
| **12. Agreement between DML Europa (Hungary) and Wujiang Canyi New Lighting Co. Ltd. on the establishment of a European production base for Canyi** |
| In addition to these agreements mentioned above: |
| **13. China Development Bank offered a 1.38 billion US dollar credit line primarily for financing investment projects of Chinese businesses in Hungary.**<br>In November 2011, Tamás Fellegi visited China to negotiate on potential projects (e.g. Orient Solar solar cell and panel factory in Berettyóújfalu, BBCA citric acid factory in Szolnok, downtown-to-airport high-speed train connection in Budapest). |
| **14. China promised to purchase a certain amount of Hungarian government bonds.**<br>In October 2011, Tamás Fellegi announced that China had started to buy Hungarian government bonds. We suppose that the Chinese purchase could not be significant, because the Hungarian government had to turn again to the IMF for financing at the end of 2011. |

Source: National Development Ministry (Hungary) , Szunomár et al. 2014, pp. 44-45.

[11] "The acquisition has given Wanhua (mainly owned by Yantai Municipal Government of the PRC) access to the European chemicals market and has created the world's third-largest producer of isocyanates – raw materials used to make foams for the automotive, construction and furniture industries" (Bryant, 2011).

Viktor Orbán and Wen Jiabao had the next bilateral meeting in April 2012, on the side-lines of the first CEE-China Summit in Warsaw. Soon after this meeting, Chinese Vice-Premier Li Keqiang arrived in Budapest where Hungary and China signed seven agreements which mostly confirmed the former ones (June 2011). For example, Minister for National Economy György Matolcsy and the Vice-President of the China Development Bank signed an agreement on the planned utilisation of the 1.38 billion US dollar credit line. MÁV and China Railway Construction Co. concluded a cooperation agreement on the promotion of the high-speed railway line project that connects Liszt Ferenc International Airport with Budapest's Keleti Railway Station (See Table 1). In addition, a memorandum of understanding was signed to promote cooperation between SMEs and the Ministry of Rural Development, and the Ministry of Agriculture of the PRC entered into an agreement for the establishment of a Hungarian-Chinese scientific and technological centre. The Ministry of National Economy reached an agreement with two Chinese telecommunication companies, namely, Huawei and ZTE about the development of their Hungarian investments[12] (Prime Minister's Office (Hungary), 2012). In December 2012, an agreement was concluded between the Hungarian government and Wanhua on the Chinese company's long-term, strategic investment projects worth around 1.6 billion euros in Hungary (See Table 1).

In 2013, Hungarian Minister of Foreign Affairs and Trade Péter Szijjártó (appointed as a Government Commissioner for Hungarian-Chinese Economic Relations since March 2013) visited China twice. In April, he held talks on financing the construction of V0 ring rail line (around Budapest) with Vice Commerce Minister Jiang Yaoping and the heads of the China Development Bank and Chinese Railway Construction Co. This construction plan got into the list of potential projects financed from the 1.38 US billion dollar credit line. One week before Szijjártó's visit to China, the heads of state-owned railway company, MÁV and Chinese Railway Construction Co. signed a declaration of intent on the V0 rail line. In China, Péter Szijjártó also had a meeting with the management of Wanhua and signed a strategic cooperation declaration with Huawei. On his second trip to China, the Hungarian Minister of Foreign Affairs and Trade visited Shanghai where he met government officials and company managers. At the end of November, Hungarian Prime Minister Viktor Orbán had a bilateral meeting with his Chinese counterpart on the side-lines of the second China-CEE Summit in Bucharest. Officials from the Export-Import Bank of China and the Hungarian Export-Import Bank announced that they had signed an agreement to add a further 100 million euros to the already depleted credit line worth 100 million euros which had been launched by the Export-Import Bank of China in May to finance the expansion of exports to China from companies operating in Hungary. From Hungary's point of view, the positive outcomes of the Bucharest Summit also included the establishment of the China-CEE Investment Cooperation Fund and the planning of a railway link between Budapest and Belgrade.

In February 2014, Viktor Orbán made a three-day visit to China, accompanied by several government officials and a large business delegation. During the meeting 19 agreements were signed. Among others, the Hungarian government concluded a strategic cooperation declaration with Wanhua (BorsodChem). Viktor Orbán also met the President of Bank of China which decided to establish its CEE centre in Budapest and build a network of branch offices to finance Chinese companies' activities in the CEE region. The President of the Hungarian Investment and Trade Agency (HITA) and the CEO of Huawei signed a declaration of intent to expand the company's production capacity in Hungary. Other agreements were aimed – for example – to establish a working group to make preparation for the Budapest-Belgrade railway project, to establish a (China-CEE) tourism centre in Budapest, to relaunch direct flights between Hungary and China, and to expand Hungarian agricultural exports to China etc. In October 2014, Hungarian Minister of Foreign Affairs and Trade, Péter Szijjártó, met his Chinese counterpart in Beijing to have further discussions on the topics of the former official visit in February

[12] Huawei opened its European logistic centre in Biatorbágy in 2013. In 2012, ZTE started to operate a new European regional network operation centre in Budapest.

and Hungarian Prime Minister, Viktor Orbán and Chinese Premier Li Keqiang met for the second time in 2014 on the side-lines of the third CEE-China Summit in Belgrade where they signed a memorandum of understanding on the Budapest-Belgrade railway project.

In June 2015, after 15 years, the Chinese Foreign Minister visited Hungary and had talks with Peter Szijjártó, his Hungarian counterpart. (He also met the Hungarian Prime Minister and President). At the bilateral meeting, Hungary as a first European country signed a memorandum of understanding on OBOR with China. After the ceremony, the Chinese Foreign Minister said that China had opened more to the West and Hungary had pursued the Eastern Opening policy, so OBOR would interconnect China and Hungary more closely. In relation to the development of Hungary-China cooperation, Péter Szijjártó highlighted the successful relaunch of direct flights between Hungary and China and the rapid expansion of Hungarian agricultural exports to China. In September 2015, Péter Szijjártó travelled to Beijing where he announced that Hungary had received the Chinese party's financing offer relating to the Belgrade-Budapest railway project, and negotiations on an inter-state agreement had also begun. He also indicated that the Bank of China would open its third European RMB clearing centre in Budapest to promote the wider use of the Chinese currency in trade between China and Europe (Ministry of Foreign Affairs and Trade (Hungary), 2015). On the side-lines of the fourth CEE-China Summit, Hungarian Prime Minister Viktor Orbán met Li Keqiang to sign governmental cooperation documents on the modernization of the Budapest-Belgrade railway link.

In 2016, there were three important high-ranking political meetings between Hungary and China. In October, China-CEE Countries Political Parties Dialogue took place in Budapest. At the meeting, Hungarian Prime Minister Viktor Orbán said that the time had come for elevating cooperation between Central Europe and China to the level of strategic partnership. He also announced that Hungary had submitted its accession request to the Asian Infrastructure Investment Bank (Hungarian News Agency, 2016). In November, Orbán Viktor and his Chinese counterpart, Li Keqiang met again on the side-lines of the fifth CEE-China Summit in Riga where Hungary was granted the honour of hosting the next annual Summit in 2017. Hungary signed an agreement with China for the establishment of a joint venture company (owned by MÁV (15%), China Railway International Corporation and China Railway International Group) responsible for coordinating the upgrade of the Hungarian section of the Budapest-Belgrade railway line, a construction contract and a MoU on financing cooperation. At the end of November 2016, Hungarian Minister of Foreign Affairs and Trade, Péter Szijjártó, visited Beijing where the first China-Hungary 'Belt and Road' working group meeting was held, among others, to facilitate the Budapest-Belgrade and other infrastructure cooperation projects.

To further deepen Chinese investors' engagement with Hungary, the Hungarian government concluded a strategic cooperation declaration with Yanfeng Automotive Interiors in November 2017 and with Bank of China in January 2017. According to the pact, Bank of China will finance Hungarian projects in line with the goals of the OBOR Initiative and encourage further Chinese investments in Hungary. Bank of China, which is China's biggest commercial bank, also signed cooperation agreements with the National Bank of Hungary, the Budapest Stock Exchange, the State Debt Management Agency and Eximbank (Hungarian News Agency, 2017a).

In May 2017, Viktor Orbán, accompanied by Péter Szijjártó, attended the Belt and Road Forum on International Cooperation in Beijing. Viktor Orbán also met Chinese President Xi Jinping and Chinese Prime Minister Li Keqiang and they announced the establishment of a comprehensive strategic partnership between the two countries. As strategic partners, they committed themselves to closely align the OBOR Initiative with Hungary's Eastern Opening policy. The Hungarian delegation received Export-Import Bank of China's financing proposal for the Budapest-Belgrade railway line. An agreement was also reached on the fact that the China Development Bank will finance BorsodChem's

productivity-expanding, environmentally friendly development project, within the framework of a 79 million US dollar credit line (See Table 1) (Cabinet Office of the Prime Minister (Hungary) & Hungarian News Agency, 2017). Soon after the Belt and Road Forum on International Cooperation, in June, Hungary became a formal member of the Asian Infrastructure Investment Bank. In November 2017, CEE-China Summit returned to its place of origin, namely Budapest, where the public tender for the Budapest-Belgrade railway project was announced. And it is also worth highlighting that the Hungarian Eximbank received a 500 million dollar credit line from the Export-Import Bank of China to develop its financing activities. The China Development Bank provided a 79 million euro loan for Wanhua's (BorsodChem) environmental-friendly investments. And it also provided a 20 million euro credit line for further investments of BYD Electronics (Hungarian News Agency, 2017b).

**Major outcomes of strengthening economic relations with China**

Hungary has been one of the forerunners among CEE countries in strengthening economic relations with China, especially since 2009. Hungary has created a lot of 'firsts'. "Hungary is the first country in Europe to officially sign an MoU on jointly promoting the OBOR Initiative. Hungary is the first country to set up an OBOR working group with China. Hungary is the first country in Central and Eastern Europe to establish a RMB clearing bank and to issue bonds in yuan" (Ping & Zuokui, 2018, p. 4). And we cannot forget either that Hungary was the host of the first China – Central and Eastern European Countries Economic and Trade Forum which is the origin of the 16+1 mechanism.

In this part, we overview the major outcomes of strengthening economic relations with China from the point of view of Hungary's interests and goals outlined in the Eastern Opening policy and further formulated by the OBOR Initiative. In the field of *infrastructure development*, which is the priority area of OBOR, the renovation of the Budapest-Belgrade railway link can be considered as a flagship project. It is expected that the Hungarian government will sign the contract with the winner of the tender at the end of 2018. The project is planned to be completed by 2023 and 85% of the value of the modernization will be financed with a loan from the Export-Import Bank of China. The major aim of the project is to shorten the transportation time between China and Europe by developing infrastructure from the Greek port of Piraeus through the Balkans. It is also likely that the V0 ring rail project will be put again onto the negotiating table in the near future.

**Table 2. Major Chinese Investment Projects in Hungary between 2009-2017 (part 1)**

| Company | Sector | Project(s) | Outcomes |
|---|---|---|---|
| Huawei | ICT | Huawei located its European Supply Centre to Hungary in 2009. Under a strategic cooperation declaration with the Hungarian government, Huawei boosted its headcount (to 2500) and expanded its warehouse space. Finally, it opened an enlarged logistics centre in Biatorbágy in 2013. | success |
| ZTE | ICT | State-owned ZTE opened its subsidiary in Budapest in 2010. It started to operate a new European regional network operation centre and a call centre in 2012, and it opened a European mobile phone repair centre in 2013. | success |
| Wanhua | chemicals | Wanhua completely bought BorsodChem in 2011. Between 2012 and 2016, Wanhua invested 216 million euros in BorsodChem to expand production capacity and launch environmentally friendly technologies etc. | success |
| Hainan Group | airlines | Hainan Group was a potential investor for MALÉV. Hainan Group and Hungarian Capital Association Ltd. would have participated in the transformation of MALÉV but both companies stepped back from the business at the end of 2011. Unfortunately, the deal was not realized and MALÉV went bankrupt in 2012. | only planned, remained uncompleted |
| Sevenstar (Greensolar) | renewable energy | Energosolar, which produced equipment for solar industry, was acquired by Beijing Sevenstar Group in 2009. | success |
| Orient Solar | renewable energy | Hungarian-Chinese joint venture Orient Solar planned to open a solar cell and panel plant in Berettyóújfalu in 2011. | only planned, remained uncompleted |
| Canyi | electronics | DML Europa (Hungary) and Wujiang Canyi New Lighting Co. Ltd. planned to establish a European production base for Canyi in Hungary in 2011. | only planned, remained uncompleted |
| Lenovo-Flextronics | ICT | Since 2009, Flextronics (in Sárvár) has been producing Lenovo PCs, servers and storages. This facility supplies Europe, the Middle East and Africa. In 2016, Flextronics and Lenovo opened a new server plant in Sárvár. | success |
| BBCA Group | chemicals | BBCA Szolnok joint venture was established in 2011 and is owned by BBCA Group, MFB Invest and Szolnok Industrial Park. In 2017, it was announced that Hungarian Development Bank (MFB) had signed a loan agreement (guaranteed by Bank of China) with BBCA Szolnok to start building a citric acid factory in Szolnok. | still in progress |
| RZBC | chemicals | In 2014, RZBC announced its plan of building a citric acid factory in Kazincbarcika. There is no information available about the further progress of this investment plan | only planned, remained uncompleted |
| Bank of China | banking services | Bank of China established its first CEE subsidiary in Budapest in 2003. In 2014, it decided to establish its CEE centre in Budapest and build a network of branch offices to finance Chinese companies' activities in Central and Eastern Europe. | success |
| Comlink | ICT | Under a strategic cooperation declaration with the Hungarian government, Huawei brought Chinese cable-maker Comlink's investments to Hungary. Comlink started its local production in 2013. | success |
| BYD | automotive | BYD Electronics bought the Hungarian plant of Mirea (South Korea) in Komárom in 2008. In 2017, BYD opened its electric bus factory. The company invested appr. 20 million euros in its factory between 2015 and 2018. | success |
| Yanfeng Automotive Interior | automotive | Yanfeng Automotive announced an investment of 23.8 million euros to expand its production capacity in Pápa in 2016. | success |
| Tianshan Industrial Group | aviation industry | Chinese Tianshan Industrial Group signed an agreement with Magnus Aircraft to create a joint venture and invest 30 million euros in Kecskemét. | still in progress |

Source: Compilation by authors based on media releases, Matura (2017a, pp. 77-78), Szunomár et al. (2014, pp. 41-43)

**Table 2. Major Chinese Investment Projects in Hungary between 2009-2017 (part 2)**

| | | | |
|---|---|---|---|
| Wescast (Bohong) | automotive | Chinese Bohong Group acquired Canadian Wescast, including its subsidiary in Hungary in 2012. It has been continuously expanding its capacities, and new investments have been planned in the sum of 70 million euros by 2020. | success |
| Himile | automotive | The world's largest manufacturer of tyre moulds opened its European service and manufacturing centre in Székesfehérvár in 2016. | success |
| Midea (KUKA) | robotics | German KUKA was acquired by Chinese Midea Group in 2017. The Hungarian subsidiary of KUKA also belongs to Midea Group. | success |
| Shanghai Construction Group | infrastructure | Building of a cargo airport near to Porpác and Vát was planned, but not realized. | only planned, remained uncompleted |
| China Railway Construction Co. | infrastructure | Hungarian State Railways (MÁV) and China Railway Construction Co. only planned to construct a downtown-to-airport high-speed train connection in Budapest. | only planned, remained uncompleted |
| China Railway Construction Co. | infrastructure | The building of V0 ring rail line (around Budapest) was proposed in 2013, but it is still in the planning phase. | still in progress |
| China Railway Group (China Railway International Corporation, China Railway International Group) | infrastructure | After five-year talks, open tender for the renovation of Budapest-Belgrade railway link was announced in November 2017. | still in progress |

Source: Compilation by authors based on media releases, Matura (2017a, pp. 77-78), Szunomár et al. (2014, pp. 41-43).

In the field of *investments*, several Chinese companies (such as Huawei, ZTE, Wanhua, Yanfeng, Bank of China, BYD Electronics and Wescast) have increased their investments in Hungary recently or in other words fulfilled the goal of FDI attraction of the Eastern Opening policy. Most of them have already concluded a strategic cooperation declaration with the Hungarian government. The expansion of the investments of Chinese companies are often financed by Chinese state banks such as the Bank of China and the China Development Bank. The investments of BBCA Group or Tianshan Industrial Group are still in progress. And some of the investments planned by other new Chinese investors (such as Orient Solar, Canyi, RZBC or Hainan Group) have not been realized.

To enhance *exports* of Hungarian SMEs to Asia is another aim of the Eastern Opening policy. In the official press releases of the Hungarian government we can find some indications for successful increase of agricultural exports to China or successful depletion of export credit line provided by the Export-Import Bank of China to finance the expansion of Hungarian companies' exports to China. At Hungarian Export Day 2017, where China was the guest of honour, Minister of State for Parliamentary Affairs, Levente Magyar, reported that between 2010 and 2016, Hungary's total exports to China had doubled[13] and the number of Hungarian companies exporting to China had increased by 50 percent to about 1000. Four fifths of them were SMEs (Hungarian News Agency, 2017c). China's share in the total exports of Hungary also doubled between 2008 and 2016, but it is still modest, at just 2.2 percent.[14]

In the field of *financial cooperation*, the significant role of the various Chinese banks mentioned above in financing infrastructure development and Chinese companies' investments in Hungary and developing exports of Hungarian companies is obvious. And, in addition, we have to highlight the

[13] From 318 billion HUF to 630 billion HUF (Hungarian Central Statistical Office)
[14] Data from the Hungarian Central Statistical Office

China-Central and Eastern Europe Investment Cooperation Fund which has also invested in Hungary. It acquired BKF University of Applied Sciences in 2014 and Hungarian telecom firm Invitel in 2017. In sum, we can conclude that from Hungary's point of view, some initial results are apparent in the cooperation with China under the OBOR Initiative.

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MIRDEC-10th, International Academic Conference on
Global and Contemporary Trends in Social Science
(Global Meeting of Social Science Community)
06-08 November 2018, Hotel HCC St. Moritz, Barcelona, Spain.
**Masters International Research & Development Center**

**www.mirdec.com** **ISBN:978-605-81247-0-7**

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# THE IMPACT LEVEL OF BRAND COMMUNICATION IN SOCIAL MEDIA ON CUSTOMER-BASED BRAND EQUITY DIMENSIONS IN KUALA LUMPUR, MALAYSIA

## Abstract

This study is aimed at investigating the impact level of brand communication in social media on customer-based brand equity dimensions in Kuala Lumpur, Malaysia. A total of 196 respondents in Kuala Lumpur, Malaysia were collected through convenient non-probability random sampling method and self-administered questionnaires. The findings disclosed that there is a significant level of impact on three customer-based brand equity dimensions on brand communication in social media, which indicates that brand communication in social media is positively influenced by brand loyalty ($p < 0.01$ and $r = 0.540$), brand association ($p < 0.01$ and $r = 0.441$) and brand awareness ($p < 0.01$ and $r = 0.419$) variables where it negatively influenced by perceived quality ($p > 0.01$ and $r = 0.039$).

**Keywords:** Brand equity, brand communication, social media, brand loyalty, Brand Association, brand awareness, perceived quality

**JEL Codes:** M30, M31, M37

## 1. Introduction

According to the modern business philosophy, definition of brand is totally upon the hands of its consumers [1]. The main reason for that is, business communication is influenced by social media. As a result, in order to reach their customers, almost all the companies (97%) use social media platforms and Social Media Marketing (SMM) became a significant marketing component [2]. According to the latest statistics on social media, there are over 1.28 billion active Facebook users and 313 million registered active Twitter users in the world [3]. Due to customers high usage of social media platforms, marketers have no option than promoting their brand identities using diversified communicational strategies.

The rapid growth of social media platforms such as collaborative websites, business networking sites, creativity work sharing sites, social networking sites (SNS) etc. are diverse outlets where social networking sites (SNS) became the key media where individuals develop their personal online networks [4]. Marketers use this chance to pass information regarding their brands and also to change the tools of traditional marketing [5]. Despite the continuous growth of social media, there are few studies that mainly focused on its effects on brand communication.

## 2.1. Literature review

The main intention of this research is to discover the brand communication in social media that impacts on customer-based brand equity dimensions.

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### 2.1. Social media

Social media is considered as an internet and electronic tool (blogs, podcasts, wiki etc.) that used to discuss and share information with other individuals in an effective way. In other words, social media became one of the fundamental parts that used to communicate, content and share information [6]. It helps the marketers to form a cooperative environment for communication. Moreover, it is changing the usual way of customers interaction, cooperation, collaboration and participation towards a specific brand [5]. Among those social media platforms Facebook is more popular [4] and widely being used [7]. It's also called as the 'largest virtual country', as it exceeded the population in China [8].

### 2.2. Social Media brand communication

With the explosion of web, companies assume that social media communication will open new doors towards brand communication (Smith et al., 2012). In order to interact with their customers, brand managers use different types of strategies to communicate. They strive to link their brands with social networks as consumers get attracted towards the brands that are advertised in social media than in usual advertisements. It makes it easy for the consumers to engage in brands by direct responding, forwarding the message with individual inferences etc. [9]. It helps the companies to reach the customers in a greater extent than traditional marketing [10].

### 2.3. Impact of social media brand communication on brand equity

According to the study done, there is a relative impact on creating brand equity by social media than using traditional marketing strategies [5]. Other than brand communication, social media helps consumers to communicate with many other consumers around the world and share their views regarding different brands. For that, consumers tend to frequently use user friendly Social Media Networking Sites (SNS) [11].

### 2.4. Impact of CBBE dimensions on social media brand communication

CBBE is based on four main dimensions such as brand awareness, brand associations/image, perceived quality and brand loyalty [12]. According to the theory of 'brand equity establishment on customer-orientation basis', a powerful product gives positive attitude towards all products in the specific brand. This happens with customers product experience that leads to customer awareness. Constant relationship with brands and customer awareness tends to lead towards perceived quality and complete product perception leads to brand loyalty.

#### 2.4.1. Brand awareness

This is considered as the key brand aspect that signifies the brand's strength. It forms consumers' brand knowledge that precede to build brand equity [13]. Brand awareness depends on the achieved level of awareness regarding a specific brand. Brands get more dominant when customers have a higher level of brand awareness regarding the specific brand that leads to often purchases.

#### 2.4.2. Brand association/ image

After forming brand awareness, companies need to establish brand association that will further form a meaning to a brand. It can be established indirectly (consumer's own experience) or directly (marketing messages). It is the customers' relative strength of positive feelings regarding a brand. When customers experience the brand positively, the specific brand become stronger [14].

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### 2.4.3. Perceived quality

It can be described as the customers overall superiority or quality perception on product or service, relative to its alternatives and purpose. In other word, product quality is a vital aspect that assists the organization to have a competitive advantage. According to an empirical study, brand communication has a positive effect on perceived quality [15]. Social media brand communication become important for it helps the consumers to get needed information regarding the quality of a product or a service.

### 2.4.4. Brand loyalty

Brand loyalty can be considered as a key performance drive in the world [16]. It can be defined as the strong commitment of customers to continuously repurchase the same product and also continue the profitable relationship with the organization [17]. Retaining an existing customer is much more profitable than gaining new customer [18]. Unlike the elements of other brand equity, brand loyalty construct from actual product buying or usage and based on consumers interaction with the specific organization. So, it can be said, that there is a positive impact on social media brand communication on brand loyalty [6].

### 2.4.5. Brand equity

Brand is one of the valuable assets in companies, due to its evaluating and buying-decision making role [19]. Brand equity occurs when a customer become brand familiar and holds a unique and strong brand associations in their mind. An empirical study mentioned that, customer-generated communication happens in social media has a direct and positive impact towards brand attitude [14]. Associated with interaction process, it is very effective to create communication distinctions [20].

## 3. Research methodology

In order to complete this study, both primary and secondary data are being used. Primary data is collected using self-administered questionnaire distributed in Kuala Lumpur, Malaysia. Respondents were selected through convenience non-probability sampling method using Raosoft software with a confidence level of 95%. Formerly the sample size was 384 with an acceptable margin of error of 5%. Hence, due to time and cost limitation, optimal sample size is selected by changing the margin of error in to 7%. The ultimate sample size was 196 where it will make it convenient to collect data using questionnaires. In order to test the validity of the questionnaire, a pilot study of 10 respondents was carried out in Kuala Lumpur area.

For secondary research, data was collected using literature reviews. The needed Information was collected from several sources such as Emerald, Google scholar and a directory of open access journals (DOAJ). The Statistical Package for Social Science for Windows (SPSS for Windows Version 13.0). was used to analyze the collected data.

## 4. Research and findings

### 4.1. Profile of respondents

Based on the findings of 196 respondents, 66.3% are female, indicating that female consumers are higher than males that accounted for 33.7% of the sample. In terms of age groups, there are 10.2% of respondents of 20.4% of age below 18, 23.5% of age between 18-24, 16.3% of age between 25 to 34, 29.6% of age between 35 to 44 and aged above 44. Age above 44 consists the highest percentage and

follow the age range between18-24. It shows that majority of the respondents are aged. Based on education background, 25% of the respondents are students, 11.2% are part-time workers, 50% are full-time workers, 7.1% are self-employed and only 6.6% are unemployed. The highest percentage is full-time workers and followed by students, which is consistent with the majority age group of above 44 who are full-time employees. Referring to income level, income below RM1500 consists of 36.7%, 4.1% of respondents with an income between RM1501 to RM2500, 41.8% with an income between RM2501 to RM3500, 11.7% with an income between 3501 to RM4500, 5.6% with an income above 4500rm.

### 4.2. Pearson Product Moment Correlation Test

There is always a correlation coefficient of +1.0 in a variable that correlate with itself. Three of the variables tested show positive relationship. The strongest positive relationship of independent variable with dependent variable is between Brand Loyalty and brand communication in social media (0.540). There is a moderate positive relationship between brand association and brand communication in social media (0.441) followed by brand awareness and brand communication in social media (0.419), There is no relationship between perceived quality and brand communication in social media (0.039).

This indicates that for Malaysian consumers brand communication in social media strongly impact on brand loyalty. brand association is the second factor to consider whereas brand awareness comes third. These three factors are considered as elements with “high impact” on brand communication in social media.

According to the study brand communication in social media is not influenced by perceived quality indicating that consumers do not consider perceived quality much when they do social media brand communication.

**Table 1. Hypothesis results for correlation**

| Hypothesis | Correlation Results | Decisions |
|---|---|---|
| H1: There is a positive significant relationship between brand awareness and brand communication in social media in Kuala Lumpur, Malaysia | R= 0.419, p<0.01 | Accept |
| H2: There is a positive significant relationship between brand loyalty and brand communication in social media in Kuala Lumpur, Malaysia | R= 0.540, p<0.01 | Accept |
| H3: There is a positive significant relationship between brand association and brand communication in social media in Kuala Lumpur, Malaysia | R= 0.441, p<0.01 | Accept |
| H4: There is a positive significant relationship between perceived quality and brand communication in social media in Kuala Lumpur, Malaysia | R= 0.039, p>0.01 | Reject |

Source: Authors.

### 4.3. Correlation research findings

According to the research findings, three tested variables show a positive relationship and one with no relationship. It proves the consistencies with literature review. The variable that has strongest to no

relationship with purchase decision is in the following arrangement: brand loyalty. brand association, brand awareness, and perceived quality.

H01 indicates that there is a significant correlation between brand awareness and brand communication in social media. Results show $p < 0.01$ and $r = 0.419$, indicating that H01 is accepted. Some of the past studies also supports this hypothesis. According to the previous study results on CBBE model, it is demonstrated that there is a significant relationship between brand awareness and brand communication in social media [16].

H02 indicates that there is a significant correlation between brand loyalty with brand communication in social media. The result shows $p< 0.01$ and $r = 0.540$, indicating that H02 is accepted. Limited past studies re-affirm this hypothesis. The study conducted for the model that is adapted for Brazil, Chile and Argentina among a sample size of Australian long- haul travelers verified that there is a positive relationship between brand loyalty and brand communication in social media [16].

H03 indicates that there is a significant correlation between brand association and brand communication in social media. According to the result $p < 0.01$ and $r = 0.441$, indicating that H03 is accepted. There are different past studies that supports the hypothesis. According to the past research done by Pike and Lings, there is a positive relationship between brand associations and brand communication in social media [16].

H04 indicates that there is no significant correlation between perceived quality with brand communication in social media. The result shows $p> 0.01$ and $r= 0.039$, indicating that H04 is rejected. Some of the past studies supports this result [16].

## 5. Conclusion, implication and recommendations

According to the study results, it is concluded that among the four main dimensions of brand equity, only the brand association, brand awareness and brand loyalty has a positive impact on brand communication in social media. The gathered information could help brand managers in different companies to understand the potential of the impact level of brand communication in social media on customer-based brand equity dimensions Due to time frame and financial constraint, this study was limited to a less sample size. In future researches it is suggested to increase the sample size in order to get more accurate results. It is difficult to generalise the research findings on wider area as this study is not conducted for whole Malaysia. So, in order to get more reliable result, it is recommended to gather information on other states in Malaysia.

Throughout this study, only the questionnaires are being used for data collection. But, in order to have a deeper investigation on respondent's views, they can use other data collection methods (ex: interviews).

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MIRDEC-10th, International Academic Conference on
Global and Contemporary Trends in Social Science
(Global Meeting of Social Science Community)
06-08 November 2018, Hotel HCC St. Moritz, Barcelona, Spain.
**Masters International Research & Development Center**

**www.mirdec.com** **ISBN:978-605-81247-0-7**

**TEREZA REKOVÁ**[1]

# RADIO DOCUMENTARIES IN THE REFLECTION OF THE INTERNATIONAL FEATURE CONFERENCE

## Abstract

Some say that radio is the theatre for the blind. But is this true? Why do people tend to tell stories using sound alone? Can you capture your life on a tape? If so, is it a documentary for the blind then? And is it possible to create an epic, yet very intimate and emotional tale when your only tool is the spoken word and sounds from the everyday life? The author of this thesis regularly visits the International Feature Conference (IFC), one of the biggest worldwide meetings of documentary producers, to find out more about publicly seldomly known genre of radio documentary. IFC is a unique platform where you can listen to productions from all over the world and discuss the tools, topics and rules of broadcasting and share inspirational ideas about recording. The founder of IFC is Peter Leonhard Braun - the first man who used the stereo technique in his documentary production during the 60s. Based on interviews with Braun (and other relevant speakers) the study deals with the phenomenon of radio documentary and its detailed characteristics. The aim of the work is to explicate certain specifics and dissimilarities in the radio production worldwide, to describe how different countries use the basic tools of documentary making and to show the importance of this kind of production. The author demonstrates the development of radio documentary worldwide on the model of IFC.

**Keywords:** Radio documentary, feature, reportage, radio, International Feature Conference, IFC, stereophony, specifics of radio production

**JEL Codes:** Y40

## Presentation

Some say that radio is dead. Others say that radio is the theatre for the blind. But is this true? Why do people tend to tell stories using only sound? Can you capture your life on a tape? If so, is it a documentary for the blind then? And is it possible to create an epic, yet very intimate and emotional tale when your only tool is the spoken word and sounds from the everyday life?

Firstly – no, radio is not dead. And as for the theatre for the blind – also no. That has been invalid for a long time now. For many years radio has been recognized as a medium with the same amount of influence as television or internet – and sometimes even bigger. A Danish producer Torben Brandt describes his feelings about radio as follows: "*Radio is the most sensual and sexy media. Because of this riff and the voice and the closeness. The distance a reporter chooses with his mic is – you never talk to another person in that distance unless you are having sex or lying in the bed close to each other. So that is very special and it gives it a special way of communication, I think,"* (OH BRANDT 2017). But even though the radio has a large group of listeners the radio documentaries are still not as popular as other radio genres. In fact there is a group of radio documentary producers, who are highly respected among other radio producers, but they are virtually unknown among the regular listeners, who don´t tend to listen to the documentaries made in sound alone. They are often unaware anything like that exists at all. But it does indeed.

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What actually is a radio documentary[2], called *feature*[3] in some countries[4]*?* We can consider the first tapes ever recorded as the first documentaries because of their character. Producers tried to capture on tape things such as: the changing of guards in front of the Buckingham Palace or sounds from everyday life on the first recordings. Until the mid-1960s radio documentaries were not very developed - although most countries were creating some. Yet radio stations around the world didn´t know about each other and the rigidity of forms and antiquated technical equipment had a great impact on the quality of programs. The position of the narrator was the most important thing those days because the radio documentary was primarily a studio-recorded monologue (similar to essay or reportage) recited by narrators.

The Big Bang in the history of radio documentaries came in 1967 when Peter Leonhard Braun[5] created the program called *Chickens*. The *Chickens* introduces the story of the poultry living under terrible conditions in factory farms. The documentary is highly progressive because of the Braun´s use of stereo technique. Braun was the first man who recorded an hour long documentary in stereo which was a breakthrough in the understanding of radio. Since Braun´s bold step in the use of stereo (and also thanks to the development of modern technology) other broadcasters started to use stereophonic techniques during their work too and one of the most demanding radio genres got the chance to evolve. Thanks to this the radio documentary in these days become to be really progressive genre with almost endless possibilities in the working with the sound - as Professor Hugh Chignell[6] proclaims: *"Radio documentary, unconcerned by the visual priorities of television, can take seemingly bland, everyday phenomena and create something 'rich in meanings'. […] A programme about collecting (for example collecting beer mats, records or insects) can quickly take on wider significance to become a programme about passion, or obsession, or loneliness, or sociability, or indeed all of these and more"* (CHIGNELL 2009: 22).

Seven years later Braun travelled to Macedonia where he met Ake Blömstrom from Sweden and Andries Poppe from Belgium. Blomström, Braun and Poppe (all of them program editors) had a discussion about the importance of connecting the world of documentary producers – so everyone would have the possibility to learn from colleagues from other countries.

The idea of the international cooperation led to the foundation of the noncompetitive International Feature Conference (IFC) in 1975[7] – an open forum for radio makers and freelancers from all over the Europe where they can discuss their work. The conference was meant to be a place for meeting of radio

[2] "I think for international thinking it's better to use the world documentary. Feature is too general in one side and too general on the other side. It's too general because in the English all people say 'I feature something'. And feature can be a lot of things, not a documentary alone, but a lot of different things. You can say this is a feature, it's a short form of 5 minutes. And using this word in English is not very special. So when you work in international field, I think it's better to use the word documentary. I think it's a better expression. And listeners they have no idea what the feature is" (OH Bauernfeind 2017).

[3] "In the beginning, it might have been felt that the documentary being made of documents is a bit more realistic, but the feature is a historic expression. And as it is always when something new starts – a new movement, a new way – it connects immediately a type of human beings I would call the adventurers. In this context the radio came, a new medium in the 20s in the United Kingdom. Most of authors came from the newspaper. And in the newspaper in the 20s of last century when you said 'I feature something' you made it a bit more important, a bit bigger. So 'feature' means a kind of focus and a bit more background, coming from the UK and being taken into many languages but having lost the original meaning" (OH Braun 2017).

[4] "Feature, as the word used in Canada, Australia, and Europe, refers to a radio genre more boldly artistic than anything regularly heard in this country (US). Brookes writes of trying 'not to explain things but to give listeners bits of a puzzle that… come together later'" (BIEWEN 2010: 10).

[5] Peter Leonhard Braun (*1929, Germany) is a program editor who had a significant impact on the development of European radio documentary production. His methods of the use of sound were groundbreaking. Braun is also a founder of the *International Feature Conference* and *Prix Futura Berlin*, which changed to *Prix Europa* later.

[6] Hugh Chignell is a Professor in Radio at the Media School, Bournemouth University. His main interest is the history of radio and he has in recent years moved from a particular focus on radio news and current affairs to the study of radio drama.

[7] BRAUN, Peter Leonhard. *The Genesis* [online], 1999. [8. November 2017]. Available on: <https://ifc2.wordpress.com/the-genesis-of-ifc/>.

 **ISBN:978-605-81247-0-7**

producers who record and edit their material themselves – not for bosses who decide on the content of broadcasting but don´t grab the microphone and go capture the stories on tape themselves[8].

The main idea of the conference is to share the knowledge of recording techniques, technologies, editing, choosing of topics, sounds - to learn from each other and to cooperate in a friendly and safe environment. These five days long meeting is suitable for any radio producers of any level – no matter if their skills are basic or advanced. Everyone is equal because everyone has the same passion – the radio documentaries.

The IFC used to take place regularly in Berlin but then a decision was made to move the IFC across all of Europe (and sometimes even to transatlantic countries[9]). Every year a city with a rich radio history is chosen and people from other countries travel there for the five days long feast of radio content. Only sixteen participants from fourteen countries[10] came for the first IFC in the year 1975 but the number increased steadily during the years. Today there are around one hundred participants at the conference every year. The schedule is always the same – participants sit in the listening room and together they listen to half hour long programs (or edits of longer pieces) in different languages. Scripts in the English language are provided for better understanding of the non-English programs. Gabriela Hermer[11], the German radio producer, describes the conference as follows: "*I think if somebody who is not part of our conference, if he enters the hall where we sit, he really would think it is a bunch of total crazy people who just sit, listen e.g. even to Chinese pieces (we have that as well) and read the translation… For an outsider it looks really strange. For us it is a part of our reality and the link between us is that we are all a little bit crazy here and we are all freaks and we all love radio. And for an outsider it might look as we are all quite crazy but I think we all like to be crazy," (OH Hermer 2017).*

After listening sessions, discussions happen. These discussions are completely honest and open to any ideas and thoughts on the programs, which is essential and makes the IFC quite unique. Founders of the IFC believed that only in open discussions about programs can participants learn the most interesting things and extend the boundaries of their perception of documentary making.

Programs presented on the conference are not always the best work of the registered countries. The aim is to present the most interesting, innovative, provocative or experimental work produced during the year. Every country also has its own handwriting – for example: producers from Scandinavian countries tend to tell more personal stories than producers from the West or the East. The difference in the production is caused by different political or economic situations in each country. The way to tell a story also varies because of different historical background of each nation. The comparison of different ways of storytelling, use of tools, narration and other aspects of documentary making is enormously important for documentary producers. But even though there are many rules laid down for producers, the main rule still is that there are no rules. It is hard to explain how a proper documentary of feature should sound like – if it should be half an hour long or one hour long, if there should be sequences of recorded scenes in it or not – because every topic needs special treatment. Some topics require a minimalistic adaptation,

[8] Braun never wanted the bosses to come: "I persuaded our general manager to exclude the EBU (European Broadcasting Union). I knew that if I send out the invitations of the first international feature meeting, that the functionaries are coming. I didn't want the heads of departments. If they are the heads of departments and they have not made the revolution up till, they are wrong! This first conference was very difficult to organise. Because the feature people have been the 'beggars'. Most of them had no department, no budget, just the talent. So I had to try to collect the talents and not the functionaries" (OH Braun 2017).

[9] The IFC took place for example in **Montreal (**14.–18. June 1982), **Sydney** (23.–27. May 1988) or **Toronto (**30. August - 4. September 2003) [online 19. December 2018] Available on: <https://ifc2.wordpress.com/since1974/>.

[10] Belgium, Denmark, Finland, France, Ireland, Jugoslavia, Canada, Netherlands, Norway, Austria, Sweden, Switzerland, USA, Germany (BRAUN 1999).

[11] Gabriela Hermer works as an executive producer at rbb, Berlin. Before she started working at rbb, she was an independent documentary filmmaker and radio feature producer.

little to no music and a decent narration, while other topics need the opposite approach. But even though there are no rules, the storytelling is always important. You can create a tale about almost anything – the theme could be the Second World War or your interest in collecting butterflies. What makes you a good documentary maker is the ability to tell the story in a new and attractive way and to make the listener not switch off the radio. "*The feature puts the question how does it happen, or why. One of the most interesting questions in life is how could it come so far?"* (OH Brys 2017) thinks a Belgian producer Edwin Brys[12].

But even though the IFC is not competitive, there is a competition happening every year – the IFC is connected to the Ake Blömstrom Award, the opportunity for young feature makers who want to start their career. Everyone under the age of thirty five can join the competition where the main prize is the possibility of one year long cooperation with the professional radio coach who would help the winner to create a documentary program[13].

The IFC is not only a forum where you can listen and discuss – there are also workshops happening every year. Prominent radio producers from all over the world speak about their approach to documentary making, about problems related to the recording of personal stories or the latest tendencies in the production worldwide. But not only during these workshops can one talk with professional producers about issues connected to radio making. There is also plenty of time after all of the sessions for networking, sharing ideas and discovering the fascinating world of the radio.

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[12] Edwin Brys (*1945, Belgium) is a radio producer, editor and teacher of the radio documentary program at the Royal Institute for Theatre, Cinema and Sound (RITCS) in Brussels.
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MIRDEC thanks to all our participants for their academic and social contributions.

**Mirdec-10th Barcelona 2018 Conference Proceedings, Full Paper Series**
Masters International Danismanlik Arastirma Yayincilik
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**ISBN: 978-605-81247-2-1**
MIRDEC Publishing

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**Publisher:** Masters International Danismanlik Arastirma Yayincilik
Masters International Consultancy Research and Publishing
**ISBN: 978-605-81247-2-1**
MIRDEC Publishing

Address: Cinarlicesme sk. No: 21/13 PK: 34303 Kucukcekmece Istanbul Turkey
Tel: +90 532 525 23 95

**Publisher certificate no: 35822**
**Publication date: 31 December 2018**

**www.mirdec.com**
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**Published at:** Ege Reklam Basım Sanatları San. Tic. Ltd. Şti. Address: Esatpaşa Mah. Ziyapaşa Cad. No.4 Ataşehir / Istanbul, Turkey. Tel: +90 216 470 44 70 Faks: 0216 472 84 05. Sertifika No: 12468. **(Certificate no: 12468).**

Masters International
Research & Development Center
Barcelona 2018

ISBN: 978-605-81247-2-1