

ISSN 2067-4082
e-ISSN 2068-9969
L-ISSN 2067-4082

www.jurareview.ro

Journal of Urban and Regional Analysis

Volume IX - Issue 1 - June, 2017

CONTENTS

Constantinos CHOROMIDES - ANALYSIS OF THE INVESTMENT ACTIVITY IN SOUTH AND CENTRAL EASTERN EUROPE. A COMPARATIVE ANALYSIS OF THE CORPORATE GROWTH MODEL

Boglárka MÉREINÉ BERKI, *György* MÁLOVICS, *Janka* TÓTH, *Remus* CREȚAN - THE ROLE OF SOCIAL CAPITAL AND INTERPERSONAL RELATIONS IN THE ALLEVIATION OF EXTREME POVERTY AND SPATIAL SEGREGATION OF ROMANI PEOPLE IN SZEGED

Guido NOTO - COMBINING SYSTEM DYNAMICS AND PERFORMANCE MANAGEMENT TO SUPPORT SUSTAINABLE URBAN TRANSPORTATION PLANNING

Natalia VUKOVIC, *Sergey* ZALESOV, *Darko* VUKOVIC - BIOENERGY BASED ON WOOD CHIPS AS THE DEVELOPMENT DRIVER OF NON-URBAN FORESTED AREAS - THE CASE STUDY OF URAL REGION, RUSSIA

Claudia POPESCU - IS ENVIRONMENTAL PROTECTION A CENTRAL ISSUE TO THE BUSINESS STRATEGY OF HIGH PROFILE COMPANIES ? CONTENT ANALYSIS OF WEBSITE CORPORATE COMMUNICATION

BOOK REVIEWS

University of Bucharest

EDITORS

Regional Analysis
Ioan IANOȘ, *University of Bucharest*

Urban Analysis
Ronan PADDISON, *University of Glasgow*

Managing Editors:

Cristian TĂLÂNGĂ, *University of Bucharest*, **Mirela PARASCHIV**, *"Ovidius" University, Constanța*

EDITORIAL BOARD

Gerhard BRAUN
Free University of Berlin, Germany
Wilfried HELLER
University of Potsdam, Germany
Margarita ILIEVA
Kazimierz Wielki University, Poland
Roy JONES
Curtin University, Bentley, Australia
Peter JORDAN
University of Vienna, Austria
Audrey KOBAYASHI
Queen's University, Kingston, Canada
George POMEROY
University of Shippensburg, USA

Denise PUMAIN
Paris University 1, France
Dumitru SANDU
University of Bucharest, Romania
Izhak SCHNELL
Tel Aviv University, Israel
Anthony SORENSEN
University of New England, Armidale, Australia
Alexandru UNGUREANU
"Al.I.Cuza" University, Iași, Romania
Jan WENDT
University of Gdansk, Poland

INTERNATIONAL EDITORIAL ADVISORY BOARD

Hans-Joachim BÜRKNER
University of Potsdam, Germany
Jozsef BENEDEK
"Babeș-Bolyai" University, Cluj-Napoca, Romania
Joan Serafi BERNAT
Jaume I University, Castelló, Spain
Cristian BRAGHINĂ
University of Bucharest, Romania
Milan BUFON
University of Primorska, Slovenia
Pompei COCEAN
"Babeș-Bolyai" University, Cluj-Napoca, Romania
Joaquin FARINOS DASI
University of Valencia, Spain
Hermanus S. GEYER
Stellenbosch University, South Africa
Ruben Camilo Lois GONZALEZ
University of Santiago de Compostela, Spain
Daniel GÖLER
University of Bamberg, Germany
Octavian GROZA
"Al.I.Cuza" University, Iași, Romania
Lisa HARRINGTON
Kansas State University, USA
Jean-Baptiste HUMEAU
University of Angers, France
Alexandru ILIEȘ
University of Oradea, Romania
Ionel MUNTELE
"Al.I.Cuza" University, Iași, Romania
Gabriel PASCARIU
"Ion Mincu" University of Architecture and Urbanism, Bucharest, Romania

Alexandru-Ionuț PETRIȘOR
"Ion Mincu" University of Architecture and Urbanism, Bucharest, Romania
Victor PLATON
Institute of National Economy, Bucharest, Romania
Lydia Mihelic PULSIPHER
University of Tennessee, USA
Mark ROSENBERG
Queen's University, Kingston, Canada
Petr RUMPEL
University of Ostrava, Czech Republic
Alexandru SANDU
"Ion Mincu" University of Architecture and Urbanism, Bucharest, Romania
Cătălin SÂRBU
"Ion Mincu" University of Architecture and Urbanism, Bucharest, Romania
Andrei SCHVAB
"Ovidius" University, Constanța, Romania
Igor SÎRODOEV
Moldavian Academy of Sciences, Rep. of Moldova
Michael SOFER
Bar-Ilan University, Israel
Vasile SURD
"Babeș-Bolyai" University, Cluj-Napoca, Romania
Rafael VIRUELA
University of Valencia, Spain
George WHITE
South Dakota State University, USA
Ulf WIBERG
Umeå University, Sweden
Daniela ZAMFIR
University of Bucharest, Romania

The manuscripts and exchange reviews, as well as, any correspondence will be sent on the Editorial Office:

University of Bucharest - Interdisciplinary Centre for Advanced Researches on Territorial Dynamics
030018, 4-12, Regina Elisabeta Blv., Bucharest, Romania
Tel/fax: 0040 213 138 410, e-mail: office@cicadit.ro, http://www.jurareview.ro

Journal of Urban and Regional Analysis

Volume IX - Issue 1 - June, 2017

Journal indexed in:

SCOPUS
EBSCO
CENTRAL & EASTERN EUROPEAN ACADEMIC SOURCE DATABASE
COVERAGE LIST
PROQUEST SCITECH JOURNALS
ULRICHSWEB
DIRECTORY OF OPEN ACCESS JOURNALS (DOAJ)
INDEX COPERNICUS INTERNATIONAL
KNOWLEDGE BASE SOCIAL SCIENCES EASTERN EUROPE (GESIS)

University of Bucharest

TECHNICAL BOARD

University of Bucharest - Interdisciplinary Centre for Advanced Research on Territorial Dynamics

Electronic editing and cover:

Cristian TĂLĂNGĂ

Documentary:

Valentina Ilinca STOICA
Maria Natașa TĂTUI

Book reviews editors:

Daniela ZAMFIR
Andreea Loreta CERCLEUX

Correction:

Mirela PARASCHIV
Irina SAGHIN

Electronic mapping:

Florentina Cristina MERCIU

Correspondence:

George SECĂREANU

The review is issued under the aegis and the support of the
**University of Bucharest - Interdisciplinary Centre for Advanced Research on
Territorial Dynamics**

www.jurareview.ro

CONTENTS

- *Constantinos* CHOROMIDES - Analysis of the Investment Activity in South and Central Eastern Europe. A Comparative Analysis of the Corporate Growth Model 5
- *Boglárka* MÉREINÉ BERKI, *György* MÁLOVICS, *Janka* TÓTH, *Remus* CREȚAN - The Role of Social Capital and Interpersonal Relations in the Alleviation of Extreme Poverty and Spatial Segregation of Romani people in Szeged 33
- *Guido* NOTO - Combining System Dynamics and Performance Management to Support Sustainable Urban Transportation Planning 51
- *Natalia* VUKOVIC, *Sergey* ZALESOV, *Darko* VUKOVIC - Bioenergy Based on Wood Chips as the Development Driver of Non-Urban Forested Areas - The Case Study of Ural Region, Russia 73
- *Claudia* POPESCU - Is Environmental Protection a Central Issue to the Business Strategy of High Profile Companies ? Content Analysis of Website Corporate Communication 87
- Book Reviews 101

* * * * *

ANALYSIS OF THE INVESTMENT ACTIVITY IN SOUTH AND CENTRAL EASTERN EUROPE. A COMPARATIVE ANALYSIS OF THE CORPORATE GROWTH MODEL

Constantinos CHOROMIDES
Glasgow Caledonian University, UK

Abstract: With the opening up of the South and Central Eastern European markets in the early 1990s, foreign firms grabbed the opportunity to exploit their ownership advantages and expand abroad. Within this context, the primary aim of this study is to test the impact of ownership and location advantages in determining the internalisation decisions by foreign investors. The theoretical part will present a framework for explaining the strategic aspects of the internationalisation process, by integrating the resource based theoretical approach, which examines inter- alia ownership resource requirements, and the transaction costs approach, which involves examining variables relating to internalisation control and resources costs. The framework is then applied to the empirical examination of various aspects of the internationalisation process of foreign companies in the region. These break down into three main areas: the internationalisation decision itself; the entry mode strategies; and the implications for performance in terms of profitability.

Key Words: *eclectic paradigm, South and Central Eastern Europe, foreign direct investment, decision making.*

Introduction

Since the South-Eastern European (SEE) countries cut from communism, a new geographical space for business activities emerged. Economic conditions have undergone radical changes reformulating the business relationships of the SEE countries with foreign companies. In the attempt to set up market economies, much attention was devoted to measures such as macro-stabilisation, inflation, privatisation, price and trade liberalization (Dobrinsky 1997, Gligorov et al. 1999, Gligorov 1999 and 2000, Hunya 1997 and 2000, Petrakos and Totev 2000). It is evident that research in these fields is necessary in order to understand the structural changes. However, the lack of microeconomic research reflects a more general neglect of the region's economies. Microeconomic research is needed if we want to understand why companies choose FDI rather than other entry modes such as exporting or licensing (Wach and Wojciechowski 2016). The objective of this research is to provide a theoretical and empirical framework for analysing the business activity of foreign companies in SEE. For the purpose of this research, the SEE region consists of Bulgaria and Romania.

For scholars and practitioners wishing to examine the history of FDI and the internationalisation process in Central and Eastern Europe (CEE), they can put themselves in the tradition of a huge number of previous researchers who studied strategic decision-making by Western companies (Alter and Wehrli 1993, Andersen 1993, Benito et al. 1994, Lankes and Venables 1996, Lansbury et al. 1996, Uhlenbruck 1997, Altomonte 1998, Artisien 1998, Brouthers et al. 1998a and 1998b, Hoesch 1998, Holland and Pain 1998, Meyer 1998, Brenton et al. 1999, Estrin et al. 2000, Holland et al. 2000, Resmini 2000, Meyer 2001a, Meyer 2001b, Altomonte and Guagliano 2003, Bevan and Estrin 2004, Bevan et al. 2004, Carstensen and Toubal 2004, Janicki and Wunnava 2004, Grosse and Trevino 2005, Kekic 2005, Dikova and van Witteloostuijn 2007, Bartlett 2008, Kolotay 2010, Hunya 2011 and 2012). Yet, despite previous research efforts in SEE, our understanding of the activities of foreign companies operating in SEE via FDI is still very limited (Maroudas 1995, Rizopoulos 1995 and 2001, Lambrou 1996,

Petrochilos 1997 and 1999, Iammarino and Pitelis 2000, Labrianidis 2000a and 2000b, Bitzenis 2001 and 2003, Labrianidis and Karagianni 2001, Kamaras 2001, Christie 2003, Hunya 2003, Bastian 2004, Demos et al. 2004, Labrianidis and Kalantaridis 2004, Penev and Rojec 2004, Demekas et al. 2005, Kekic 2005, Kitionakis and Kontis 2008, Stoian and Filippaios 2008, Kalotay 2010). These studies suffer from a narrow focus as market strategies are often discussed only from the viewpoint of entry modes, and financial performance, without considering the factors that have motivated the specific entry market strategies. Thus, these studies are unable to catch the competitive dynamics of market strategies. Furthermore, they have also dealt with relatively small samples of companies undertaking FDI and mostly big companies, thus being unable to generalise the results of company behaviour into a larger population. It needs to be stressed that SEE has been rather ignored in the transition economy specific market entry and international business studies because those studies mostly concentrated on CEE countries like Poland and Hungary that became part of the EU in 2004 (Arslan et al. 2015).

The need to raise awareness and sharpen knowledge around the internationalisation process has been emphasised within the literature since there is still a lot to explore in this field of research. It has been acknowledged that there is need for the integration of more holistic frameworks and approaches to the examination of internationalisation behaviour (Georgiou et al. 2015). This rising trend has generated a need to provide explanations concerning numerous specific issues connected with the foreign investors and their competitive potential motivations to invest abroad, as well as investment modes connected with those motivations (Gorynia et al. 2015a).

Hence, while previous studies on the internationalisation process were developed and tested in CEE countries, SEE countries, with their unique macro and microeconomic characteristics, offer opportunities to explore different patterns of investment in the transitional economies. Only Kekic (2005) finds that the determinants of FDI to the SEE do not differ from those in other transition regions. Moreover, these results are now dated, being based on data which refer to the 1990s and the early 2000s. This is why it is important to revisit these issues taking into account not only more recent data, but also to give a regional dimension in the analysis and to compare the investment in SEE with the investment in another European macro region, namely CEE countries. For the purpose of comparison, the CEE region consists of Hungary and Poland.

Indeed, because significant foreign investment into these two regions is occurring for the first time, much can be learned from the experience of the companies, as this is presented in this study. The opening of these markets provided opportunities for studying the conditions influencing the choice of market entry strategies, and thus of the strategic aspects of internationalisation in transitional economies. Only a few studies have attempted to perform an in depth analysis of entry mode strategy by addressing the choice between joint ventures, acquisitions and greenfield investments (Arslan et al. 2015). As such, improved understanding of the growth of the company in the economies in transition has theoretical contributions toward a more complete theory of company growth.

The methods of inquiry change for each stage of the analysis; i.e. the internationalisation decision itself, the entry mode strategies, and the implications for performance in terms of profitability are analysed and explained on the basis of strategic aspects (1) of Dunning's eclectic framework, (2) the transaction costs theory and (3) the resource-based approach. These approaches have a long and rich history in international business research. It is necessary to state that there is no single theory explaining the whole issue.

The paper is organised as follows. Part one gives an overview of the research methodology. Part two analyses the differences between investors and non-investors. Active companies are

investigated further to distinguish investors from companies with trade or FDI activity. The analysis of the FDI decision-making process is based on an econometric analysis of the ownership specific advantages of the foreign companies. In part three, the analysis of the entry mode decision-making process is presented and it is based on an econometric analysis of the ownership specific advantages of the foreign companies. Part four examines the differences in the operating profitability of each ownership structure. The fifth part of this research is the concluding chapter and it presents an interpretation of the research findings.

Methodology

A questionnaire has been designed to collect information on the competitive-ownership advantages that according to theory would determine the choice of internalisation and the decision concerning investment activity based on the organisational form, and it would collect exploratory information on the operational performance of FDI in SEE and CEE.

Considering our research theme, it is our intention to select different sized companies, with diverse activities in different industries. The base population covers manufacturing as well as service companies headquartered in the EU; both under European ownership and subsidiaries of non- European MNEs. The sample came not from a single industry and hence the generalisability of the results is not limited. Thus the characteristics underlying different companies in our sample vary considerably, and for this reason the biases may cancel one another out to an extent (Simon 1969). In this way, emerging theory may be tested in different settings, extending it and improving its external validity. Though we have considered the idiosyncrasy of the service companies as discussed by Buckley et al. (1992), we have decided to include them in our research, following the example of Uhlenbruck and De Castro (2000), and Iammarino and Pitelis (2000), who also included service companies in their research on FDI in Central Europe. Although we have tried to include a dummy variable of 0,1 to differentiate between the manufacturing and the service companies, yet the results were statistically insignificant and not robust. Also, gathering data during the same time period (2000 -2012) in all cases has ensured validity issues and the comparability across companies and countries. The use of parallel cases from the four countries also helps to guard against biases within any country, especially because cross-country comparisons are facilitated by efforts to match some companies across countries by sector, size or by ownership type. However, caution must be also exercised in drawing cause-effect inferences from the study because of the use of cross-sectional data.

Shepotylo (2012), cited in Wach and Wojciechowski (2016), notices that the recent FDI-theory focuses on four different motives for FDI, namely: (1) market seeking FDI, (2) efficiency seeking FDI, (3) complex vertical FDI and (4) export-platform FDI. In the empirical part of this paper, all four categories are considered.

Location factors are not stressed and are controlled (partially) since only homogeneous areas are studied, following the proposition of Nitsch et al. (1996), and Woodcock et al. (1994). Their common experience under the central planning regime suggests that they are all members of a broader, clearly identifiable class of social-, political-, economic systems. Their phenomenal transition toward democratisation and market- based economies, albeit with different speed and pace, and becoming full members of the EU, have led to similar changes in their institutional infrastructure (Fig. 1), thus, we are able to absorb any specific locational differences (Estrin and Uvalic 2013). Following the proposition of Dauti (2015), we keep out from our analysis some other transitional countries because circumstances throughout much of the period considered in this study make them special cases that would need country specific explanations.

Both Bulgaria and Romania joined the EU in 2007 and have made considerable progress in promoting the private sector development via privatisation, deregulation, and improving public administration. Since 1995, the institutional and regulatory frameworks in the two SEE economies have been reformed at various extents, but following similar patterns. In the overall score on the Index of Economic Freedom developed by the Heritage Foundation, both Bulgaria and Romania have experienced significant, albeit to different extent, improvements over time, classified as “moderately free” economies (Choromides 2015), placing Bulgaria’s economy the 23rd and Romania’s economy on the 20th position in the European region (Heritage Foundation 2017). Hungary and Poland, which are also considered as “moderately free” economies, joined the EU in 2004, and their transition pattern towards the free market economies has been similar to Bulgaria’s and Romania’s, placing Poland and Hungary on the 21st and 27th position in the European region respectively (Heritage Foundation 2017).

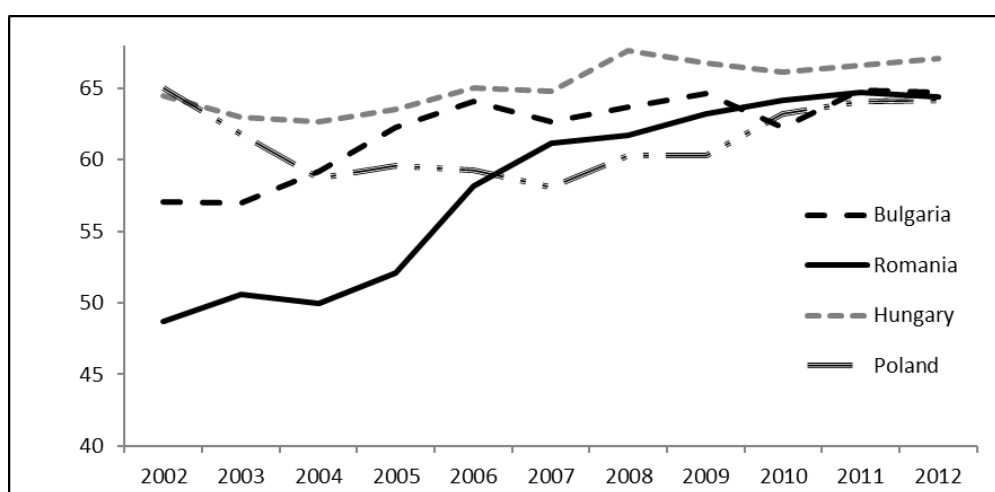


Fig. 1 – Index of Economic Freedom, Overall Score (2002-2012)
 Source: Heritage Foundation 2017 (various country reports processed by the author)

While location and industry factors were partially controlled in this study, a more fine-grained analysis which controls for these and various other variables would provide further insight. The relationship between company-specific factors, country factors, transactions, entry mode, and finally, performance, is much more complex than the methodology employed here is hoping to reveal. Our empirical evidence provides support for the theoretical model developed in this study. It must be acknowledged, however, that this study represents only an exploratory investigation of an otherwise complex causal relationship. As such, it establishes a base theoretical model and evidence upon which subsequent work can be based. In addition, industry-specific factors, such as barriers to entry and exit, may improve the explanatory capacity of the model.

One thousand nine hundred and fifteen companies were contacted. The return figure includes responses from 414 companies that are involved in FDI (150 in SEE, 264 in CEE); 85 replied that they are not attracted from both markets (37 in SEE, 48 in CEE), thus classified as indifferent; and 294 companies explained that they are active in the region (115 in SEE, 179 in CEE) through exports. One thousand one hundred and sixty-four companies did not reply to our questionnaire.

Across the countries, no significant variation is being observed, in absolute terms. In terms of the companies in our sample reporting FDI in SEE, 78 have invested in Romania and 72 in Bulgaria, while for companies reporting FDI in CEE, 193 companies have invested in Hungary and 221 in Poland.

Results and Discussion

An analysis of the decision-making process of companies' internationalisation strategy is attempted using a multinomial logistic model on company-level data (Table 1). International activity may take several forms, depending on the firm's degree of involvement in the foreign country, including direct exportation or FDI. In this section, we seek to investigate the determinants of alternative expansion strategies, i.e. exports versus FDI, FDI vs. no involvement, and finally exports vs. no involvement, stressing the importance of company-specific characteristics and it is tested on evidence produced by investing companies (Johnson 2006).

Table 1

Definition of variables

Variables	Definition
TDEBT	Total debt/total assets
LDEBT	Medium & long-term debt/total assets
SIZE	Total capitalisation of the company
INTL	Value of exports/sales of the parent company
GEOGR	Number of foreign markets in which the parent company is active
GROWTH	Percentage change of sales in the year of the investment over the previous year, and it is used as a proxy for growth.
LABOUR	Number of sales/employees

Much of the literature on the foreign market entry concerned the choice between exporting and FDI (Root 1987, Young et al. 1989, Buckley and Ghauri 1993). The cost-based view of this decision suggests that a company must possess a compensating advantage in order to overcome the costs of foreignness (Hymer 1976). This led to the identification of ownership specific skills as the key elements in successful foreign entry (Hirsh 1976). Dunning (1993), in the OLI paradigm, has emphasised that the returns to FDI, and hence FDI itself, can be explained by the competitive-ownership advantages of companies, indicating who is going to produce abroad and for that matter other forms of international activity, by locational factors influencing where to produce and by the internalisation factor that addresses the question of why firms engage in FDI rather than license foreign firms to use their proprietary assets. Companies having ownership specific advantages are expected to exploit them more profitably outside their domestic market (Teece 1986, Dunning 1988a).

Buckley and Casson (1976) envisaged the companies as an internalised bundle of resources, which can be allocated between product groups and between national markets. Entry involves two interdependent decisions on location and mode of control. Exporting is domestically located and administratively controlled, and FDI is foreign located and administratively controlled. Companies expand abroad through either trade or FDI in order to capitalise on specific assets they hold, relative to the cost of doing so, as it is affected by sectoral or locational considerations (Dunning 1993). Companies select their strategy according to its risk adjusted expected return (**R**) (Goodnow and Hansz 1972, Anderson and Gatignon 1986, Root 1987, Resmini 2000, Demekas et al. 2005). Therefore, a company *i* will opt for strategy *j*, **jCJ**

(Greene 1997: 913) if $R_{ij} > R_{ik}$, where $k \in J$ but $k \neq j$. For the econometric analysis of the data, **unordered** multiple-choice models are most relevant (Greene 1997: 913). The alternative strategies are 0, 1 and 2, with 1 being the choice of a company to export in SEE, 2 to undertake FDI in SSE and 0 to follow any other strategy different from the first two, marked as the indifference choice in our model. The three alternative choices depend on a set of characteristics, w , and are not ordered. They just represent different reactions and not ordered choices, where $0 < 1 < 2$.

The return of strategy j that company i expects is given by $R_{ij} = \beta' W_{ij} + \epsilon_{ij}$. If strategy j is chosen (the choice $Y_i = j$ being a random variable) it must be because R_{ij} is the largest between the alternative returns. Therefore $\text{Prob}(R_{ij} > R_{ik}), \forall k \neq j$ is the highest. In the general case $w_{ij} = [z_{ij}, x_{ij}]$, where x_{ij} contains characteristics of company i not depending on choices, while z_{ij} contains the attributes of the choices varying across choices and companies. Utility depends on x_{ij} , which includes aspects specific to the individual as well as the choices. A model on the entry mode by individual companies specify that the choice depends on attributes of the ownership characteristics, which vary across individual companies. In our case, only x_{ij} is relevant, therefore, a multinomial logit model is suitable. If the J disturbances (strategic choices) are independent and identically distributed following the Weibull distribution $F(\epsilon_{ij}) = \exp(-\epsilon_{ij}^\beta)$ (Greene 1997: 913), and we normalise, assuming $\beta_0 = 0$, (Greene 1997: 915) the following probabilities result:

$$P(Y=j) = \frac{e^{\beta' x_{ij}}}{1 + \sum_{k=1}^j e^{\beta' x_{ik}}} \quad \text{for } j=1,2 \qquad P(Y=0) = \frac{1}{1 + \sum_{k=1}^j e^{\beta' x_{ik}}}$$

The general explanatory ability of the model is satisfactory, as the model likelihood test ratios shows (Table 2). The multinomial logistic regression has a significant overall explanatory power with a model chi-square of 121.773 and 175.765 ($p < 0.000$) respectively. Furthermore, in each of the pairs examined, export vs. indifferent, FDI vs. indifferent, and FDI vs. export, the regressions have a statistically significant explanatory power, as we can see from their chi-square statistics. In addition, 63.3% for the SEE and 61.5% of the CEE sample observations are correctly classified. In the indifferent category, 58.3% and 49.5% of the companies were correctly classified as indifferent based on the variables used in the analysis. The percent of correctly classified companies as export and FDI based on the above variables is 51.7% in SEE and 57.3% in CEE, 73.4% in SEE and 67.7% in CEE respectively. The predictions are adequate, given how unbalanced and non-homogeneous – by including both manufacturing and service companies – our sample has been.

TDEBT and LDEBT have a negative sign for CEE markets, suggesting that the financial resources of the investing company determine its ability to establish operations that draw on the investor's own transferable resources (Chatterjee 1990). The higher the long term and total debt of a company, the less likely it is to export in CEE, thus being indifferent to the market.

SIZE is a statistically significant determinant for export activity in SEE. Larger companies possess more managerial and financial resources, have greater production capacity, attain higher levels of economies of scale and tend to be associated with lower levels of perceived risks in exporting operations. These factors can facilitate the development and sustenance of a sound competitive position. It would therefore be reasonable to expect that large companies are likely to enjoy more competitive advantages in export markets and that there would also be

Table 2

Multinomial Logit Estimation for the Internationalisation Decision

Variables SSE	Exports: (P1/P0)		FDI: (P2/P0)		FDI: (P2/P1)	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Constant	0.163	0.644	21.778	0.001*	17.967	0.000*
TDEBT	-0.003	0.218	-0.002	0.058*	0.148	0.735
LDEBT	0.057	0.566	-0.075	0.611	-0.862	0.694
SIZE	1.679	0.037**	3.509	0.000*	4.661	0.023**
GROWTH	0.152	0.396	0.674	0.328	0.073	0.036**
LABOUR	-7.447	0.370	1.192	0.042*	2.251	0.000*
INTL	0.029	0.002**	0.075	0.093*	0.136	0.047**
GEOGR	0.638	0.417	-0.654	0.339	-3.836	0.792
Equation X ²	25.688 (p=0.003)		82.625 (p= 0.005)		54.969 (p= 0.000)	
Model X ²	121.773 (p< 0.000), Log likelihood -165.217, Pseudo R ² = 0.325, N= 302					
Variables CEE	Exports: (P1/P0)		FDI: (P2/P0)		FDI: (P2/P1)	
	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
Constant	0.126	0.835	16.300	0.002*	21.162	0.000*
TDEBT	-0.009	0.023**	-1.986	0.089*	0.012	0.502
LDEBT	-0.074	0.047***	-0.009	0.140	-4.979	0.361
SIZE	2.264	0.020	9.192	0.305	9.637	0.045*
GROWTH	-0.451	0.027**	0.017	0.216	5.461	0.023**
LABOUR	3.017	0.883	-1.182	0.042*	-0.730	0.512
INTL	0.063	0.005**	0.035	0.005**	2.722	0.034*
GEOGR	0.162	0.083**	-0.254	0.038**	2.159	0.001*
Equation X ²	18.863 (p=0.008)		43.158 (p= 0.010)		37.237 (p= 0.006)	
Model X ²	175.765 (p< 0.000), Log likelihood -203.644, Pseudo R ² = 0.365, N= 491					

*: p<0.01, **: p<0.05, ***:p<0.10. Two-tailed test, x² is according to Likelihood Ratio Test.

a positive relationship between company size and export choice.

The GROWTH variable is negatively signed and significant, suggesting that foreign companies facing constraints to growth or threats to survival, with their present strategic configuration in the present markets are forcefully pushed into exploring new opportunities. If markets are saturated or rising costs reduce competitiveness in established markets, this creates strong inducements towards restructuring, relocation and search for new markets in CEE. A large market is necessary for the exploitation of economies of scale and such a strategy is likely to include high start-up costs thus demand more dynamic followers (Günther and Kristalova 2016).

The positive, statistically significant relationship for INTL, suggest that the higher the export intensity the more interested companies are to export. By exporting in SEE and CEE markets, with low international standards and absence of big companies, foreign companies increased their probabilities of economic efficiency. Such strategy is likely to include high start-up costs and hence demand followers that are more dynamic.

Finally, the GEOGR variable is positive and statistically significant suggesting that the more geographic diversified exports are the more likely for a company to prefer exporting than being indifferent to the CEE markets. With increasing experience, companies acquire knowledge of foreign markets, perceive less uncertainty, and become more confident of their ability to correctly estimate risks and returns and manage foreign operations (Johanson and Vahlne 1977, Davidson 1982).

The second set of estimations presents the effects on the probability of FDI over indifference (P2/P0). TDEBT has a negative sign both in SEE and CEE. The lower their financing ability, the less likely they are to prefer FDI, while we should expect FDI companies to be more risk averse declining to favour FDI when their short term debt is high compared to indifferent companies. The negative relationship with TDEBT reinforces the argument that FDI oriented companies are financially apprehensive. The higher their total debt, the less likely they are to engage in FDI. Therefore, companies with internal funds, or low leverage, are more likely to choose FDI. This finding is in line with past literature arguing that severe financial constraints for FDI constitute a barrier for several firms (De Maeseeneire and Claeys 2012).

SIZE affects the FDI choice positively underlying the large companies are more likely to prefer expanding their production base in SEE. Organisational capabilities determine the opportunity costs of internationalisation. To compete with host country companies in their own markets, foreign companies must possess superior assets and skills that can earn economic rents that are high enough to counter the higher cost of servicing these markets. The size of the company reflects its capability for absorption of the costs and engages in FDI. Therefore, size may represent all or most of the possible ownership specific advantages (Hood and Young 1979, Kumar and Steinmann 1991).

Large companies are more likely to engage in FDI because the marginal costs of adding a new operation are lower, and because they have better possibilities to leverage investment risk. Companies need asset power to engage in international production and to successfully compete with host country companies. Resources are needed for absorbing the high costs of marketing, for enforcing patents and contracts, and on achieving economies of scale. The size of the company reflects its capability for absorption of these costs and engages in FDI (Buckley and Casson 1976).

LABOUR intensity suggests that the more labour intensive production is the more likely foreign companies are to initiate outward investment in cheap labour countries, therefore enabling these companies to balance the increasing cost of production in the host market. Since the relative comparative advantages of the SEE countries are labour intensive production processes, an efficiency-seeking role in SEE provides a cost-effective supply platform for companies aiming to improve their production competitiveness, thus entering SEE in search of low production costs (Georgiou and Komninos 2014).

On the contrary, LABOUR intensity for CEE suggests that labour costs do not put competitive pressures on companies, with relocation of production not a major motivation for business activity (Günther and Kristalova 2016). This might be due to the fact that these companies do not have a labour intensive production, or through their expansion they seek new market opportunities for our mature or technologically standardised products and therefore follow market seeking strategies (Paliwoda 1994, Svetličič and Rojec 1994, Gorynia et al. 2015b).

The positive and significant sign for INTL suggests that the more familiar with export markets companies are, the more likely they are to undertake FDI in order to strengthen their international competitiveness (Zubkovskaya and Michailova 2014). International companies having access to a large and diverse resource pool, gain competitive advantages that arise from their international activities as such (Szalucka 2015). This includes international

accumulation of know how, arbitrage opportunities, flexibility for production shifting, superior recognition of opportunities, and international diversification of risk (Kogut and Zander 2003). Companies with higher experience are expected to prefer investment modes of entry. As a result, they become more aggressive in committing resources and assuming control (Anderson and Gatignon 1986) in SEE and CEE.

The positive and significant sign for GEOGR suggest that foreign companies, which are more familiar with foreign tastes and habits, may want to create export platforms from which to satisfy other foreign markets. Companies may not be interested in satisfying just the demand of the CEE markets but in using their local plants as export platforms as well, thus increasing the value of their network by covering more countries.

The third set of estimations examines the probability of FDI with exports as the comparison choice (P2/P1). The SIZE effect confirms the result that the larger the company, the more likely it is it will prefer FDI to exports both in SEE and CEE regions. Large companies have more resources to invest abroad and absorb any fixed costs associated with foreign production, and pursue more aggressive expansion strategies. Large companies benefit from economies of scale, scope and learning, therefore they have developed solid corporate foundations before they expand abroad (Hood and Young 1979, Caves and Mehra 1986).

The GROWTH variable is positively signed and significant, suggesting that the transition markets are attractive to growing companies. Growing companies have more resources to redeploy and they would therefore be more likely to expand to new regions. As the results of the multinomial model suggest, companies experiencing higher growth rates are the ones who are pursuing FDI. Therefore, companies with high, satisfactory growth rates are engaging in new business with SEE, being in search of new markets, and new sources for growth (Dunning 1993, Meyer 1993, Caves 2007).

In high market potential countries, FDI is expected to provide greater long-term profitability to a company compared to exports, through the opportunity to achieve economies of scale and consequently lower marginal costs of production. Even if scale economies are not significant, a company may still choose investment modes since they provide the company with opportunity to establish long-term market presence and thus growth. The positive sign of GROWTH reflects the future possible gains from expanding. The economic growth potential by accessing markets in SEE, satisfying the demand for new products and services, as well as using the low cost production SEE countries to export, giving a combined character of market seeking and resource seeking motives, are the main driving forces of these investments (Brahim and Dupuch 2016).

The production relocation argument suggested that labour intensive companies would be more active in terms of FDI activity in SEE because they can use labour cost differences. Our results for the labour intensity variable are in agreement with the argument that the more productive companies, the more likely are to initiate outward investment in cheap labour countries, switching labour intensive activities from high labour costs to low labour cost locations (Ozawa 1979, Meyer 1993). On the contrary, LABOUR intensity for CEE suggests that labour costs do not put competitive pressures on companies, with relocation of production not being a major force to international production. This might be due to the fact that companies attracted to the CEE region do not have a labour intensive production, or through their expansion they seek new market opportunities for our mature or technologically standardised products and they therefore follow market seeking strategies (Paliwoda 1994, Svetličič and Rojec 1994).

The INTL and GEOGR variables are positively signed and significant, suggesting that foreign investors in CEE have lower costs of entry as they utilise synergies with other international operations (Kalogeris and Labrianidis 2010). According to Brainard (1997), cited in Brahim

and Dupuch (2016), the choice of FDI, rather than exporting to serve a foreign market, can be explained by a firm's trade-off between the advantages linked either to proximity or to the concentration of activities. In SEE, only INTL is positively signed and significant. Companies with international experience can use their industry-specific skills developed in foreign countries to overcome any market specific inexperience vis-à-vis local competitors (Caves 1971, Galbraith and Key 1986). Experience creates and it is sometimes the only way to achieve increased market knowledge and uncertainty reduction. Experience is therefore considered an ownership specific advantage in the so-called eclectic theory of international production (Bitzenis and Vlachos 2013). CEE markets, due to their size and openness, are attracting market orientated FDI (Brahim and Dupuch 2016), offering great market potential. Companies may be interested not only in the domestic markets, but also in creating export platforms from which to satisfy other foreign markets.

An Analysis of the Determinants of Ownership Structures

The previous section has focused on the determinants of FDI. This section takes the analysis one step further by investigating investment characteristics, based on a transaction costs theory of ownership choice and upon the ownership-company specific based view of the company (Anderson and Gatignon 1986, Teece 1986, Agarwal and Ramaswami 1992, Barkema and Vermeulen 1998). One of the important strategic decisions for a company to make concerns the ownership choice – the choice between full and share ownership in its foreign affiliate. Since ownership provides commitment and control to the involved parties, the level of commitment and control that a company and its local partner would hold toward an affiliate will differ, depending on the choice. Therefore, the ownership structure of an affiliate is closely related to the amount of risks and value created from the affiliate (Yu et al. 2015).

In this section, we have used a slightly different set of ownership specific advantages variables, for analysing the preference of ownership strategies on behalf of foreign companies. The reason that some company characteristics were omitted in the previous sections is that these variables made the explanatory ability of our model rather unsatisfactory. The resulting multinomial logistic regression had a statistically insignificant overall explanatory power ($p > 0.10$).

Our analysis will be based on the assumption that companies aim at maximising their expected rate of return from operating abroad, which, in turn, implies minimising the risk and cost of establishing their production units abroad. The viewpoint adopted in this section is that entry mode choices are most usefully and tractably viewed as a trade-off between control and the cost of resource commitments, often under the conditions of considerable risk and uncertainty (Vernon 1983, Anderson and Gatignon 1986, Root 1987, Hill et al. 1990).

Hill et al. (1990) elaborated on this idea of resource commitment when they differentiated between joint ventures and wholly owned entry modes, defining resources as dedicated assets that cannot be re-deployed to alternative uses without cost. To contingently differentiate between the wholly owned and joint venture modes one has to consider the nature and type of resource requirements. Two types of resource requirements are used to make this differentiation. The first is the perceived inimitability or transferability of resources, and the second is the core nature of the resources in the parent company.

Transaction cost theory arguments, together with ownership advantages, and resource-based theory, the considerations that influence the set of determinants of the optimal ownership as produced by the maximization of net profits. Our framework draws upon both resource-based and transaction-cost theories. The resource requirements have to be matched with resources available to the investor through an acquired company. Beyond this, the decision has to account for the costs of acquiring and integrating the resources causing costs of two kinds:

transaction costs in the markets where resources are acquired, and costs of adapting an acquired and/or transferred resources to the needs of the project. The choice of entry mode between joint venture, acquisition and greenfield is based on the following variables, and it is examined using a multinomial logistic model. These variables (Table 3) are based on a

Table 3

Definition of Variables

Variables	Definition
LABOUR	Number of sales/employees
RESRC	The resource intensity is measured by a dummy variable, equal to 1 if the main economic activity of the company is in a resource-intensive industry and 0 otherwise.
R&D	Technological intensity is proxied by the percentage ratio of R&D expenditures over sales.
ADVERT	Advertising intensity is proxied by the ratio of advertising expenditures/sales, and it attempts to control for possible sales promotion effects on the ownership choice
SIZE	The size of the company is measured by the affiliate's capital in the year of the investment.
INV	Capital intensity is proxied by the ratio of total assets/ sales.
PRF	The proxy for profitability is the operating profit margin over the year before the investment in SEE.
GROWTH RATE	Percentage change of sales in the year of the investment over the previous year, and it is used as a proxy for growth.
GEOGR	Number of different geographical markets in which the parent company is active.

company's capabilities, since these capabilities yield the competitive advantage in the marketplace.

Profit-maximising companies should, in theory, rank every alternative ownership structure in terms of expected return and select the best choice. Formally, we suppose a company i considering investing abroad in a production plant, has a set J of alternative choices regarding the ownership structure. Profitability of each alternative, say π_{ij} , can be derived as a function of its potential costs and benefits. If a company makes the choice j (the ownership structure), we assume that the choice is the maximum among the j choices, if and only if $\pi_{ij} > \pi_{ik} \forall k \in J, k \neq j$ (Greene 1997: 913).

When the expected economic gains of sharing ownership outweigh the organisational costs, partial ownership will be the preferred mode of operation. Otherwise, a fully owned affiliate structure would be selected. In the case of partnership, the issue of who has control of the affiliate is also relevant in determining the observed degree of partnership. Partial ownership may imply a mixed corporate culture and much looser ties to the parent company. But this option can offer a better knowledge of local market conditions. An interesting point to note is a relative disadvantage of acquisitions relative to greenfield and joint ventures. This problem is related to the high cost of integrating the target company's labour and technological asset. In fact, one reason for the formation of partnerships between foreign companies and local agents may be the need to share risk, notably that associated with the uncertainty of operating abroad. The risks associated with FDI can be classified in various types. For our study, the most relevant types appear to be control risks and resource risks. Assuming that a foreign partner transfers to its affiliate intangible assets, i.e. technology, the expected turnover from operating abroad (T) can be specified as a function of the amount of transferable resources (TR), for

which a transfer price should be agreed, and the profits of the affiliate (π_a). That is, $T = f_g(\mathbf{TR}, \pi_a)$.

The amount of assets transferred to an affiliate can be seen as a positive function of the ownership share, since the effort to transfer skills is likely to be better compensated the higher the share of the foreign partner who then receives a larger part of the direct or indirect rent yield by these assets. Similarly, the higher the foreign partner's ownership share, the larger its share in the affiliate's profits. Also, a company that decides to invest abroad may incur costs, notably those associated with monitoring the affiliate's operations, the last being a function of geographical and cultural distance. Therefore, the total costs that a foreign partner has to balance against expected gains can be expressed as $C = f_c(\mathbf{R}, \mathbf{OC})$, where R stands for potential resource costs and OC for control costs.

Combining the expected gains of the foreign partner and his cost of control, we obtain the net gains he can derive from operating abroad, i.e. $\pi_i = T - C = g(\mathbf{s})$ with $0 < s \leq 1$ which is assumed to be maximised with respect to the foreign ownership share, \mathbf{s} . The resulting optimal \mathbf{s} will be adopted. Control has a critical impact on the future of a foreign company. Without control, a company finds it more difficult that invariably arise when two parties to a contract pursue their own interests (Davidson 1982). Further, the entrant can use its control to obtain a larger share of the foreign company's profit. In short, control is a way to obtain a higher return. Yet control carries a high price (Vernon 1983). To take control, the entrant must assume responsibility for decision-making a company may be unwilling or unable to carry out in an uncertain foreign environment. Control also entails commitment of resources, including high overhead. Resource commitment also increases the company's exposure. This is due to the possibility of losses due to information leakage and opportunistic behaviour on behalf of a local partner (Davidson 1982). Thus to assume control is also to assume some form of risk (Czinkota et al. 1993).

Although TR and π_a are not directly observable, we can see them as a function of company-specific characteristics and host industry conditions. It would be expected that factors related to the structure of competition in the host industry might affect the affiliate's profits and hence the choice of ownership participation. In profitable and growing industries, expected profits from an affiliate may be greater than those in less profitable declining industries. Therefore, foreign partner's demand for ownership will be higher, the more profitable and dynamic is the host industry. However, when the domestic competition is imperfect, it may be advantageous to work with a local partner familiar with the environment. In an oligopolistic industry, the level of profits an affiliate can achieve may be higher, but its volatility may be higher as well. Therefore, the partnership with a domestic agent may be a mechanism to reduce or at least share the risk associated with an unknown market.

Still, related to company specific factors is the capital and R&D intensity. Companies characterised by high capital intensity require a large resource commitment but may yield large profits. Although high profits may induce foreign companies not to share ownership with local partners, high capital requirement may lead them to share potential financial risks by engaging in a partial ownership structure. This may be particularly relevant if the foreign company cannot afford the entire investment and it sees the partnership option as a way to complement its resources.

A similar reasoning predicts a negative relationship between the affiliate's size and the ownership structure. One reason underlying the decision to produce abroad may be a reaction to the moves of direct competitors. Some companies operating in an oligopolistic industry may find it optimal to follow the leading company's strategy and, hence to engage in FDI (Knickerbocker 1973, Franko 1989). Yet, the presence of economies of scale in the industry may force some companies to set up plants larger than they can afford and manage (Gomes-

Casseres 1989). In particular, the difficulty of managing alone a large local workforce may lead the foreign partner to reduce demand for ownership in order to decrease the control costs (TR) associated with large affiliate size (Nakamura and Xie 1998). In these situations, searching for local partners and sharing the ownership may be a profitable way to follow the leading company without compromising the success of the operation.

However, the size of the affiliate can have an opposite effect in determining foreign ownership choice, if it is conceived as proxy of market power. The greater the size and the market power of a company, the larger will be the potential for increasing profits. Hence, the larger the share the foreign partner may demand. Moreover, as Nakamura and Yeung (1994) have suggested, the affiliate's size may also affect the amount of assets that the investor finds optimal to transfer. If size affects positively TR, the ownership share demanded by the foreign partner will follow the size of the affiliate.

Regarding R&D activities, the company specific advantage may render large profits and hence create increased ownership demand. Thus, the propensity to search for local partners is lower. In R&D intensive industries, skill or technological costs tend to be of significant concern for foreign partners. The ownership control of their affiliate tends to be the mechanism used to protect their proprietary rights. In particular, a fully owned affiliate has the advantage of being tailor-made to fit the foreign companies' objectives with respect to R&D. Additionally, the potential gains of these activities can be fully internalised by the affiliate and parent company. In case of partial ownership, the cost of coordinating, monitoring and defending the proprietary rights may outweigh the potential gains of a partnership with local agents (Caves 2007).

The net gains a foreign partner can derive from operating abroad are a positive function of the TR and π_a and a negative function of the control costs. While a fully owned affiliate can minimise a foreign partner's loss due to misappropriation of its intangible assets, it might, however, be unable to maximise the return that these assets could potentially earn. That is, the observed π_a may differ from the potential maximum level of profits, say π_a^* . It may well occur when the production is natural resource or skilled labour intensive and the foreign company is unable to contract efficiently the necessary production inputs. When the main resources controlled locally companies may find partnership with a local agent as the best option to produce in the host country, since it may narrow the potential gap between π_a^* and π_a . In this case, the benefits of using the ownership channel to gain access to relevant inputs may outweigh the cost of sharing ownership. This is the main argument of the transaction costs theory in relationship to ownership choices.

Teece (1986) argued that the problem of structuring ownership is solved by evaluating the trade-off between the costs of using the market or the internal channels for transferring or gaining access to the relevant inputs. In this context, the choice of partial ownership can be seen as an incentive mechanism used by the foreign partner to induce the domestic partner to provide efficiently the required production resources instead of contracting them out.

Another factor that is likely to narrow the potential gap between π_a^* and π_a is related to the asymmetric information between the foreign and domestic agents. Partial ownership may be the appropriate way to acquire industry specific knowledge since the partnership with local agents may facilitate access to valuable information unknown to the foreign company.

Given the nature of the dependent variable, which represents the individual choice of each company among alternative ownership structures for their affiliates, discrete choice models offer the best approach to assessing the determinants of the observed ownership structures. In this research, regarding the definition of the dependent variable, we consider different types of

ownership; joint venture, acquisition and greenfield. This implies that our dependent variable assumes only three possible values: 0 for joint venture, 1 for acquisition, and 2 for greenfield.

Therefore, our hypothesis will be tested with multinomial logit analysis, because the dependent variable can have three possible values (Bell 1996 and 1997). As we have stated above, a company will choose alternative j if and only if it renders the highest expected

profits. The profit π can expect from choosing the alternative j is, $\pi_{ij} = \beta'x_{it} + \varepsilon_{ij}$ (Greene 1997: 913), where the vector x_{it} comprises the observed company specific characteristics, β is the compatible vector of unknown parameters to be estimated, and ε_{ij} the stochastic term associated with each choice and company. Given the stochastic nature of the profit function, the probability that ownership structure j is selected by any company i can be written as

$$P_{ij} = \text{Prob}(\pi_{ij} > \pi_{ik} \quad \forall k \in J, k \neq j) \quad (\text{Greene 1997: 913}).$$

The results are based on the multinomial logit model, which provides a set of probabilities for the choices of a company with characteristics x_i . These probabilities are (Greene 1997: 915):

$$P_{ij} = \frac{e^{\beta_j' x_i}}{1 + \sum_{k=1}^J e^{\beta_k' x_i}} \quad \text{for } j=1,2 \quad P_{i0} = \frac{1}{1 + \sum_{k=1}^J e^{\beta_k' x_i}}$$

The variables that have significantly and statistically explained the preference for the choice of entry mode are the affiliates' capital, the capital intensity, the R&D intensity, the resource intensity, the labour intensity, the adverting intensity, and, last but not least, the advantages related to the geographical diversification of the investing companies (Table 4).

Figures in parentheses are the significance levels. *, **, and *** mean that coefficients are statistically significant at 1%, 5% and 10% level, respectively. The indicator p_{ij} measures the proportion of correct predictions for choice j and, for each model, we present the average of p 's.

The multinomial logit regression has a statistically significant overall explanatory power with a model chi-square of 52.6 ($p=0.005$) and 59.0 respectively ($p=0.000$). In addition, 55% and 59% of the sample observations are correctly classified in SEE and CEE respectively. In the joint venture category, 52.9% of the companies in SEE and 70.7% in CEE were correctly classified as joint ventures. The percent of correctly classified companies as acquisitions and greenfield based on the above variables is 64.3% and 48.8% for SEE and 54.6% and 55.4% for CEE respectively. The predictions are adequate given how unbalanced and non-homogeneous – by including both manufacturing and service companies – our sample has been (Greene 1997). Although we have tried to include a dummy variable of 0,1 to differentiate between the manufacturing and the service companies, yet the results were statistically insignificant and not robust as the results presented in the above table.

Technology intensive companies are expected to choose wholly owned entry strategies since their business activities are subject to asset specificity and thus sensitivity to market failure. From our data analysis, it appears that foreign companies do exert more control as proprietary content increase. Companies with high R&D intensity preferred to have complete control over their proprietary know-how in order to preserve and or best exploit the knowledge, given the

Table 4

Multinomial Logit Estimation of the Ownership Structure Decision

Variables SSE	Acquisition	Greenfield	Joint Venture
Intercept	-8.40 (0.003)*	14.64 (0.036)*	3.17 (0.473)
SIZE	3.25 (0.009)*	-4.51 (0.034)***	-0.73 (0.074)***
INV	0.09 (0.428)	-4.36 (0.009)*	0.83 (0.025)**
PRF	-1.27 (0.826)	0.95 (0.761)	0.38 (0.694)
GROWTH	0.59 (0.355)	-0.141 (0.812)	-0.42 (0.347)
R&D	3.51 (0.036)***	-9.74 (0.124)	11.92 (0.207)
RESRC	4.26 (0.661)	-1.17 (0.471)	2.88 (0.053)***
LABOUR	6.14 (0.086)***	-1.78 (0.033)**	-4.79 (0.066)***
ADVERT	13.57 (0.063)**	-39.62 (0.150)	8.20 (0.173)**
GEOGR	0.84 (0.020)**	-4.17 (0.001)*	0.59 (0.557)
Equation X ²	36.270 (p= 0.009)	22.340 (p= 0.001)	14.378 (p= 0.230)
Log Likelihood	-176.935		
Pseudo R ² =	0.337		
N= 150			
X ²	52.653**		
Average of p _{ij}	55.33		
Variables CEE	Acquisition	Greenfield	Joint Venture
Intercept	-11.89 (0.007)*	-9.40 (0.003)*	1.18 (0.514)
SIZE	5.72 (0.006)*	-7.16 (0.066)***	-0.70 (0.080)***
INV	3.05 (0.755)	-0.20 (0.009)*	0.52 (0.26)**
PRF	-6.04 (0.477)	4.46 (0.176)	2.50 (0.452)
GROWTH	2.07 (0.350)	-0.047 (0.844)	-0.06 (0.123)
R&D	7.83 (0.241)	21.55 (0.20)**	-8.39 (0.075)**
RESRC	9.53 (0.689)	-8.11 (0.911)	6.84 (0.051)***
LABOUR	-10.97 (0.078)***	-5.86 (0.035)**	11.51 (0.079)***
ADVERT	3.78 (0.047)**	45.89 (0.074)**	-19.73 (0.067)***
GEOGR	4.94 (0.028)***	-9.58 (0.009)***	2.76 (0.002)*
Equation X ²	10.762 (p= 0.012)	33.112 (p= 0.009)	17.254 (p= 0.123)
Log Likelihood	-111.765		
Pseudo R ² =	0.440		
N= 264			
X ²	59.019*		
Average of p _{ij}	59.14		

imperfections in the external markets for technology. Thus, the higher the parent R&D intensity, the greater the possibility that the affiliate will be fully owned. Although we would expect that a parent's R&D level increases the likelihood that foreign expansions are greenfields rather than acquisitions, from a transaction cost perspective, the results for greenfield are in the opposite than expected direction in SEE. Our findings suggest that companies that had already developed proprietary technology will exploit abroad through an acquisition investment, hence high R&D intensity should encourage acquisition form of entry making sharing of specialised knowledge less risky in the long run particularly since it would not limit the flexibility they have in adapting to future contingencies (Anderson and Gatingnon 1986, Kogut and Zander 1995, Caves 2007). Transferred technology may not always be successfully commercialised in local marketplaces, and since greenfield subsidiaries will lack the networking necessary for the

commercialisation of technology, that leaves acquisition mode as the most appropriate for the control and commercialisation of technology in SEE (Brada 1981, Williamson 1981).

On the contrary, high R&D intensity encourages greenfield form of entry in CEE. The evidence also suggests a statistical negative relationship between R&D intensity and the propensity to joint venture. Transferring large amounts of tacit proprietary know-how to their subsidiaries, the pricing and enforcement of contracts with potential joint venture partners will be fraught with difficulties. It is difficult to price technology, and to prevent the dissemination of know-how in a joint venture with possibly deviating interests. According to transaction cost economics, loss of control increases the transaction costs in the case of transfer of specific assets in combination with possible opportunistic behaviour by the partner.

Technology-intensive companies prefer to internalise their transactions in technology intensive goods and services. This implies that companies tend to reserve proprietary knowledge for entry vehicles they control completely; high control is more often employed for technically sophisticated products, which tend to have higher proprietary content than unsophisticated products. Specialised knowledge comes into the open market as the innovation diffuses. Over the time, transaction-specific assets associated with an innovation become general purpose assets associated with a well-established product. As this diffusion occurs, we should expect to see less integration, as less administrative control is needed. Hence, older technology is likely to be handled by a joint venture, leaving new technology handled by a wholly ownership subsidiaries.

The propensity of a company to invest in a greenfield project in both SEE and CEE is statistically negative when we examine the effect of the affiliate's invested capital (SIZE) on the entry mode choice. We suggest that a greenfield investor should invest more money in establishing a production unit, hire and train employees and establish distribution networks, which of course in many cases can exceed the financial costs of just building on something that already exists, such as acquiring a domestic company.

An affiliate that requires larger resources relative to the resource availability of the parent is more likely to be structured as jointly owned in both regions. In that case, a partner may provide the money, personnel and other resources to ensure the necessary fit between the needs and resources. Without that correspondence, the goals of the foreign affiliate and the intentions of the foreign investor will not be easily realised. Joint venture arrangements allow companies to share costs and risks, as well as complementary assets and skills with host country partner companies. By doing so, a company is able to reduce the long-term uncertainty at a lower cost than through pure hierarchical or market approaches.

Our results show that a company with high labour costs will opt for an acquisition strategy, while labour costs seem to negatively affect the choice of greenfields and joint ventures in SEE. When a foreign affiliate uses a skilled workforce, subsequently resulting in relatively high unit labour costs, the most probable choice of the foreign partner will be an acquisition. The higher the labour intensity of an industry, the higher the post-investment costs due to the over-employment problem. Therefore, they preferred acquisitions to joint ventures, since acquisition provides more managerial control compared to a joint venture (Monteverdi and Teece 1982, Anderson and Schmittlein 1984).

Holding everything else constant, affiliates experiencing high unit labour costs tend to be shared by foreign partners, i.e. form a joint venture, in CEE. This means that when a foreign affiliate uses a skilled and qualified workforce, subsequently resulting in relatively high unit labour costs, the most probable choice in CEE of the foreign partner will be a joint venture. This finding is interesting if we consider that post- socialist CEE economies were experiencing a

major industrial restructuring process, which increase the post-investment costs for foreign investors. Increasing productivity often required to lay off a large number of employees, which could be costly to organise and could severely damage the investors' local reputation.

Contrary to the expectation that foreign investors would prefer acquisitions to joint ventures, in CEE, since acquisition provides more managerial control and autonomy compared to a joint venture in the relations with the labour force, the evidence suggests a statistical negative relationship between high unit labour cost and the propensity to acquire. Similarly, to access local human capital, a joint venture is more efficient because setting up a greenfield operation and hiring key individuals does not permit always the entrant to tap specialised knowledge.

Comparing the estimated effects of the variable associated with resources' intensity, RESRC affects positively the probability of observing joint ventures in both regions. It seems plausible that access to the best resources is already in the hands of local companies, and that the best way to access these resources is to invest in the target country company that holds them. In these companies the need for complementary inputs appears to be dominating over considerations concerning post-investment costs of restructuring and integrating the local company (Williamson 1981, Gomes-Casseres 1989 and 1990).

The explanatory company-specific variable ADVERT performs as it was expected. The sign of its estimated coefficient suggests that marketing intensive companies are more likely to prefer acquisitions and joint ventures in SEE, while greenfield is also the preferred mode of entry in CEE. In addition, for the CEE region, ADVERT affects negatively the probability of observing joint ventures. The process and experience of reputation building is time consuming and uncertain and when applicable to new markets, may be difficult to communicate to a joint venture partner. Companies opt for the fully owned entry mode so that they will take control to protect brand names from degradation by free-riders or to prevent the local operation from using the names in an inconsistent manner thus diluting or confusing the international position of the brands. Therefore, a transaction cost theory of entry choice is supported, favouring fully owned entry modes for the purpose of brand label or product adaptation (Anand and Delios 2002). A possible explanation for the preference of joint ventures in SEE might be that foreign investors entered mature industries, where established brand names are an asset, and differences in language and culture reduce the benefits of using their brand name in the SEE markets.

Regarding the capital intensity (INV) variable, there are significant differences among ownership preferences. Companies operating in capital-intensive industries tend to prefer joint ventures as opposed to acquisitions and greenfields. Our findings suggest that holding everything else constant, the resource commitment associated with investment intensity may out-weight the potential effect on the subsidiaries' profits and, as a result, capital-intensive companies tend to prefer joint ventures. The more capital intensive the company in question is, the higher the cost of wholly owned subsidiaries. In capital-intensive companies, it is more cost effective to establish a joint venture company.

The explanatory company specific variable GEOGR performs as it was expected. Internationally experienced companies prefer acquisitions. The findings support that a company with greater international business experience is better able to bear the risks associated with an acquisition and to integrate the acquired foreign companies of diverse managerial nationalities into the parent's systems. With international business experience, investors build the capabilities necessary to restructure and integrate the acquired companies (Caves and Mehra 1986). However, the explanatory company specific variable GEOGR has a statistically negative sign for the greenfield choice. Although, a greenfield investor can minimise the risk exposure of its investment, yet it has less opportunities to learn about the local environment.

Besides the production units, the investors in the acquisition category had the opportunity to take advantage of the market knowledge, networking, distribution systems and experience of their local partners, assets which are very much needed and they are not easily available to greenfield investors.

The positive sign of the coefficient for the joint venture entry mode in CEE support that the companies might have been motivated by survival instincts to quickly counter the potential loss of regional market share to other foreign companies. Market seeking motives can be easily realised by foreign firms engaging in joint ventures in CEE as markets are new and unexplored, making very low costs to achieving this target (Larimo and Nguyen 2015). The threat and costs associated with the potential loss of regional market share to competitors would be greater than the additional costs of assimilation of new routines into the overall corporate system as would be necessary under a joint venture. Research has suggested that such companies are more concerned with their international strategic position than with the transaction costs associated with a given market (Porter and Fuller 1986). Another possible explanation can be that these companies could organise a given transaction at lower costs; they could share their resources such as international management cadres and organisational capabilities, across operations. Their experience reduces costs of internal organisation, and this facilitates internalisation. Hence the marginal costs, if an additional entry appears, are lower.

Ownership Structure and Company Performance

Despite the large volume of research studying the entry mode choice, few studies have linked entry mode choice to performance (Janger 1980, Killing 1983, Burgelman 1985, Porter 1987, Hill and Jones 1989, Shama 1995, Nitsch et al. 1996, Ali 1997, Larimo and Nguyen 2015). Despite these studies, few scholars have explicitly measured and compared the performance of the various international entry modes, and fewer still have attempted to develop a parsimonious theoretical argument for performance differences. There is a considerable disagreement over which mode tends to yield higher profitability (Woodcock et al. 1994).

The most obvious indicator of performance is profitability (Frydman et al. 1997, Boubakri and Cosset 1998, Brada 1998). Revenue performance can reflect the advantages of companies' reflection and adaptation to the new market environment (Djankov and Hoekman 1997, Pohl et al. 1997). In inflationary periods, data on profitability are highly distorted and are a poor guide as to the viability of the companies. However, even when data does not suffer from an inflationary bias it should be regarded as suspect, since they are also sensitive to cross-country differences in accounting methods and exchange rates, making comparability much more difficult. Furthermore, we must recognise the significant downward pressure that the early stages of transition put on revenues. In order to avoid any possible bias on profitability, we asked the managers to provide subjective answers. Although they did not provide the actual financial figures, a dichotomous variable – profit or loss – was employed to capture differences in the profitability of companies in the region (Geringer and Hebert 1991, Woodcock et al. 1994). The measure has the virtue of being comparable across host countries and companies.

When investigating the relationship between performance and entry mode, one must consider the effects of entry age. The literature has shown that entry into a new international market requires a learning period over which entering companies established themselves (Johanson and Vahlne 1977, Cardozo et al. 1989, Forsgren 1989 and 2015). During this start-up period, performance is depressed because a new entrant is trying to establish market penetration and to achieve economies of scale and scope. Because of the tendency for new subsidiaries to take some time before their performance stabilises, we follow Woodcock et al. (1994) in analysing only those subsidiaries which are at least two years old at the time of data collection.

Thus, in our sample we have included only companies that have made an investment in SEE no later than 2012.

We further examined if a statistically significant relationship exists between entry mode and performance in each subset of the data (Table 5). From a cross tabulation analysis between pairs of modes, the Pearson Chi-squared was used to test any significance of the proportion of profitable to unprofitable companies for paired modes of entry. In SEE, significant differences are confirmed in each of the three subsets. The strongest result was the acquisition/greenfield comparison, which was significant at $p=0.009$. Since the value of chi-square is significant for each subset, this means that the proportion of profitable to unprofitable companies is not the same for both pairs of entry modes. In CEE, significant differences are confirmed between the acquisition/joint venture comparison and greenfield/joint venture comparison. The strongest result was the acquisition/joint venture comparison, which was significant at $p=0.017$. No significant results appeared to exist between the acquisition/greenfield comparison.

Table 5

Performance Breakdown by Entry Mode of the Affiliates

Entry mode	Performance SEE			Performance CEE		
	Loss	Profit		Loss	Profit	
1. Greenfield	43.51%	56.49%		40.87%	59.13%	
2. Acquisition	29.37%	70.63%		37.68%	62.32%	
3. Joint Venture	39.87%	60.13%		48.86%	51.14%	
Test	Sig.	Pearson X^2	Sig.	Sig.	Pearson X^2	Sig.
Pearson X^2	0.036	1 vs. 2	0.009	0.068	1 vs. 2	0.703
		2 vs. 3	0.046		2 vs. 3	0.017
		1 vs. 3	0.026		1 vs. 3	0.0781

Based on the above results, it is appropriate to conclude that the mode of ownership is associated with the behaviour and performance of foreign subsidiaries in a fairly measurable and predictable manner. The analysis provides evidence that different entry modes have different performance levels. Our findings in SEE are not entirely consistent with Dang (1977) who found no significant difference between wholly owned subsidiaries and joint ventures in terms of performance, and for CEE with Pan et al. (1999a, 1999b) who found that joint ventures have higher profitability than wholly owned subsidiaries. Furthermore, our results are not consistent with Nitsch et al. (1996) and Woodcock et al. (1994) who found that greenfield will perform better than joint ventures, and joint ventures will perform better than acquisitions. Therefore, there is considerable supporting evidence that international ownership-based entry modes have different performance levels. Our results suggest that the acquisition mode outperforms the joint venture and the greenfield mode in terms of profitability, in both regions, and joint ventures outperform greenfields in SEE, while in CEE the opposite tends to be true.

Conclusion

Companies seeking to expand into foreign markets have a choice regarding their modus operandi, ranging from exporting, FDI, joint ventures and wholly-owned subsidiaries among others. These strategies are distinguished by the degree of investment and the risk-investment potential. Given the above, while knowledge of the appropriate entry strategies into industrial markets and many parts of the developing world is well established, this is not the case in SEE. Indeed, because significant FDI into this region is occurring for the first time, much can be learned about the primary motives, etc. of foreign investors. Hence whilst previous studies on

the internationalisation process were developed and tested on familiar markets, SEE with its particular characteristics, offer unique opportunities to explore the changing patterns of investment. Therefore, the purpose of the study is to try to contribute to the field of international business, and the strategic aspects of a company's internationalisation decisions in SEE markets. To give a regional dimension in the analysis, we compared investment in SEE with investment in another European macro region, namely CEE countries.

Methods of empirical analysis were innovative for the research on entry decisions, in that multiple decisions were analysed in the same board data-set of potential investors, and integrated with a three- step decision model. At the first stage, the propensity of firms to be active was examined. The second stage investigated their choice between trade and FDI. The third stage tested hypotheses concerning the entry mode and ownership preferences of actual investors, as well as the performance resulted from the chosen ownership structure.

The entry strategies of foreign companies were analysed based on their ownership-company specific factors, based on Dunning's theory (1977, 1988b, 1993, Dunning and Lundan 2008), that make some companies express their interest in the region through FDI, whereas others opt for an export strategy or decide not to invest at all. Only through such an examination of the internationalisation strategies of the companies we evaluated how these companies expanded, how the corporate decision-making was affected, and how assets drove this FDI experience of the foreign companies.

The main concluding remark suggests that foreign companies increased markedly their shares of outward FDI in SEE and CEE through a rather careful consideration of their financial and market structures apparently being urged by the loss of local comparative advantage. An obvious example is the negative effect of the long and medium term borrowing capacity of companies engaged in FDI. The solid market basis is noticed in the positive effect, along with the relative company size as well as the growth rate of sales. In addition, the more intense the acquired familiarity with foreign markets through exports, the more likely the undertaking of FDI was found to be. Our findings evidenced differences in the labour and export intensity between FDI in SEE and CEE. These are not aligned with Kekic's propositions (2005) who found that the determinants of FDI to the SEE do not differ from those in other transition regions. Labour intensity, an old local comparative advantage, was found to affect positively only the FDI choice in SEE.

We found evidence that foreign investors select their ownership share based on affiliate's size, R&D and technology, resource and capital intensity of the company, labour and advertising intensity, and geographical diversification of international business activity. In previous studies of internationalisation, researchers have tended to treat uncertainties in foreign markets as given and they have viewed a company's international expansion as either an adaptive or a learning process in unfamiliar local environments (Andersson 1993). This perspective suggests that companies investing in a country with a greater uncertainty tend to perceive a higher level of investment risk and, thus, engage in less resource commitment in FDI. This theory is compatible with our findings in CEE, but not in SEE, for the resource commitments of the foreign companies. Based on the findings, we suggest that companies seem to transfer to their affiliates more intangible assets, especially in the acquisitions. Foreign companies are more concerned with potential monitoring costs in technological intangible assets, which together with the size effect lead them to select larger ownership shares, thus preferring acquisition. Although the joint venture may actually speed up entry into the market in the short term compared to acquisitions or even a greenfield investment, it does not necessarily facilitate activities in the medium-long term as modernisation is time consuming, expensive and can jeopardise the unique ownership assets of the companies by sharing knowledge specific assets in a joint venture or failing to exercise this knowledge in a greenfield investment, lacking the access to networking and markets.

We finally examined the links between entry mode and performance of FDI. The area investigated was the effect of entry mode choice on subsidiary profitability. We investigated whether different ownership-based entry modes have characteristics, which lead to a hierarchy of performance. This is particularly necessary and important because profitability is the outcome of many factors. We based our hypothesis on a transaction cost analysis of entry modes, predicting the three modes' relative performance based on their anticipating costs. Our theoretical model suggests that factors modify the transactions costs related to the resources commitment and controlling the new organisational entity, which in turn affects the entry mode performance (Caves and Mehra 1986, Hennart 1988 and 1991, Daniels 1991, Buckley and Casson 2010). However, we found that: (1) the acquisition mode tends to have the highest proportion of profits relative to losses, and (2) greenfields and joint ventures have a mixed performance. The above findings provide evidence that different entry modes have different performance levels. Therefore, there is considerable supporting evidence that international ownership-based entry modes have different performance levels.

Therefore, this study explained the strategic aspects of internationalisation, and it used this framework to explain the entry strategies of companies entering the markets of SEE and CEE and performance consequences of such entry. By offering different strategic entry options and describing their repercussions to the environment of the two regions and the experiences of foreign companies, the study provided insights into the environment for companies wishing to enter these markets. By analysing the characteristics and the resource commitments of the companies, we provided insights in the analysis of the companies' development in understanding and evaluating their environment.

References

- AGARWAL S., RAMASWAMI S. N. (1992), *Choice of foreign market entry mode: Impact of ownership, location and internalization factors*, *Journal of International Business Studies* 23 (1), 1-27.
- ALI S. (1997), *Market-entry, motives and performance in Central Europe: the case of British firms*, *Journal of East-West Business* 3 (2), 63-82.
- ALTER R., WEHRLÉ F. (1993), *Foreign direct investment in Central and Eastern Europe: An assessment of the current situation*, *Intereconomics* 28 (3), 126-131.
- ALTOMONTE C. (1998), *FDI in the CEEC's and the theory of real options: an empirical assessment*, LICOS, Retrieved from: www.feb.kuleuven.be.
- ALTOMONTE C., GUAGLIANO C. (2003), *Comparative study of FDI in Central and Eastern Europe and the Mediterranean*, *Economic Systems* 27 (2), 223-246.
- ANAND J., DELIOS A. (2002), *Absolute and relative resources as determinants of international acquisitions*, *Strategic Management Journal* 23 (2), 119-134.
- ANDERSEN O. (1993), *On the internationalisation process of firms: a critical analysis*, *Journal of International Business Studies* 24 (2), 209-231.
- ANDERSON E., GATIGNON H. (1986), *Modes of Foreign Entry: A Transaction Cost Analysis and Propositions*, *Journal of International Business Studies* 17 (3), 1-26.
- ANDERSON E., SCHMITTLEIN D. C. (1984), *Integration of the sales force: an empirical examination*, *The Rand Journal of Economics* 15 (3), 385-395.
- ARSLAN A., TARBA S. Y., LARIMO J. (2015), *FDI entry strategies and the impacts of economic freedom distance: evidence from Nordic FDIs in transitional periphery of CIS and SEE*, *International Business Review* 24 (6), 997-1008.
- ARTISIEN P. (1998), *Foreign Investment in CEE*, MacMillan Press, London.
- BARKEMA H. G., VERMEULEN F. (1998), *International expansion through start-up or acquisition: a learning perspective*, *The Academy of Management Journal* 41 (1), 7-26.
- BARTLETT W. (2008), *Europe's Troubled Region. Economic Development, Institutional*

- Reform and Social Welfare in the Western Balkans*, Routledge, London and New York.
- BASTIAN J. (2004), 'Knowing your way in the Balkans': Greek foreign direct investment in Southeast Europe, *Southeast European and Black Sea Studies* 4 (3), 458-490.
- BELL J. H. J. (1996), *Joint or single venturing? A comprehensive approach to foreign entry mode choice*, Avebury, Aldershot.
- BELL J. H. J. (1997), *Control and ownership in international joint ventures*, in: Larimo J., Mainela T. (eds.), *Choice and Management of Entry Strategies in International Business*, Vaasan Yliopiston, Vaasa, pp. 34-60.
- BENITO G. R. G., WELCH L. S. (1994), *Norwegian companies in Eastern Europe: past involvement and reaction to recent changes*, in: Buckley P. J., Ghauri P. N. (eds.), *The Economics of Change in East and Central Europe: Its Impact on International Business*, Academic Press, London, pp. 221-234.
- BEVAN A. A., ESTRIN S. (2004), *The Determinants of Foreign Direct Investment into European Transition Economies*, *Journal of Comparative Economics* 32 (4), 775-787.
- BEVAN A., ESTRIN S., MEYER K. (2004), *Foreign Investment Location and Institutional Development in Transition Economies*, *International Business Review* 13 (1), 43-64.
- BITZENIS A. (2001), *The determinants of FDI in transition countries: Incentives and barriers based on a questionnaire research: the case of Bulgaria, 1989-2000*, *International and Monetary Aspects of Transition in Southeastern Europe* 6, 89-144.
- BITZENIS A. (2003), *The determinants of FDI in transition countries*, in: Petrakos G., Liargovas P. (eds.), *Regional development and cross-border cooperation in Southern Europe*, University of Thessaly, Volos, pp. 99-154.
- BITZENIS A., VLACHOS V. A. (2013), *Bulgaria's inward FDI and EU accession*, *Journal of East-West Business* 19 (3), 222-236.
- BOUBAKRI N., COSSET J.-C. (1998), *The Financial and Operating Performance of Newly Privatized Firms: Evidence from Developing Countries*, *The Journal of Finance* 53 (3), 1081-1110.
- BRADA J. C. (1981), *Technology Transfer by Means of Industrial Cooperation: A Theoretical Appraisal*, in: Marer P., Tabaczynski E. (eds.), *Polish-U.S. Industrial Cooperation in the 1980s*, Indiana University Press, Bloomington.
- BRADA J. C. (1998), *Management 101: Behavior of Firms in Transition Economies*, The William Davidson Institute, Retrieved from: www.deepblue.lib.umich.edu.
- BRAHIM M., DUPUCH S. (2016), *Foreign direct investments in Europe: are the East-West differences still so noticeable?*, *The European Journal of Comparative Economics* 13 (1), 37-61.
- BRENTON P., DI MAURO F., LÜCKE M. (1999), *Economic Integration and FDI: An Empirical Analysis of Foreign Investment in the EU and in Central and Eastern Europe*, *Empirica* 26 (2), 95-121.
- BROUHERS K. D., BROUHERS L. E., NAKOS G. (1998a), *Central and Eastern European Investment: A Comparison of US, Dutch and German firm activities*, in: Hooley G., Loveridge R., Wilson D. (eds.), *Internationalisation: Process, Context and Markets*, Palgrave MacMillan, London, pp. 220-237.
- BROUHERS K. D., BROUHERS L. E., NAKOS G. (1998b), *Entering central and eastern Europe: Risks and cultural barriers*, *Thunderbird International Business Review* 40 (5), 485-504.
- BUCKLEY P. J., CASSON, M. (1976), *The Future of the Multinational Enterprise*, Palgrave Macmillan, London.
- BUCKLEY P. J., CASSON M. (2010), *A Theory of Cooperation in International Business*, in: Buckley P. J., Casson M., *The Multinational Enterprise Revisited: The Essential Buckley and Casson*, Palgrave MacMillan, London, pp. 41-67.
- BUCKLEY P. J., GHOURI P. N. (1993), *The Internationalisation of the Firm*, Academic Press, London.
- BUCKLEY P. J., PASS C. L., PRESCOTT K. (1992), *The internalization of service firms: a comparison with the manufacturing sector*, *Scandinavian International Business Review* 1 (1),

39-56.

BURGELMAN R. A. (1985), *Managing the new venture division: Research findings and implications for strategic management*, Strategic Management Journal 6 (1), 39-54.

CARDOZO R., REYNOLDS P., MILLER B., PHILLIPS D. (1989), *Empirical evidence on developmental trajectories of new businesses*, in: Brockhaus R., Churchill N., Katz J., Kirchoff B., Vesper K., Wetzel W. (eds.), *Frontiers of entrepreneurship research*, Babson College, Wellesley, pp. 360-369.

CARSTENSEN K., TOUBAL F. (2004), *Foreign direct investment in Central and Eastern European countries: a dynamic panel analysis*, Journal of Comparative Economics 32 (1), 3-22.

CAVES R. E. (2007), *Multinational Enterprise and Economic Analysis*, 3rd edition, Cambridge University Press, Cambridge.

CAVES R. E., MEHRA S. K. (1986), *Entry of foreign multinationals into U.S. manufacturing industries*, in: Porter M. E. (ed.), *Competition in Global Industries*, Harvard Business School Press, Boston, pp. 449-481.

CHATTERJEE S. (1990), *Excess Resources, Utilization Costs, and Mode of Entry*, The Academy of Management Journal 33 (4), 780-800.

CHOROMIDES C. (2015), *An Analysis of the Economic Determinants and the Quality of the Institutional Framework as Factors to Attract Foreign Direct Investment in South-Eastern Europe: the Case of Greece*, Journal of Urban and Regional Analysis 7 (1), 35-58.

CHRISTIE E. (2003), *Foreign direct investment in Southeast Europe*, WIIW, Retrieved from: www.wiiv.ac.at.

CZINKOTA M., RIVOLI R., RONKAINEN I. A. (1993), *International Business*, The Dryden Press, London.

DANG T. T. (1977), *Ownership, control and performance of the multinational corporation: a study of U.S. wholly owned subsidiaries and joint ventures in Philippines and Taiwan*, University of California, Los Angeles.

DANIELS J. D. (1991), *The utilization of international joint ventures by United States firms in high technology industries*, Journal of High Technology Management Research 2 (1), 113-131.

DAUTI B. (2015), *Determinants of foreign direct investment in South East European countries and new member states of European Union countries*, Economic and Business Review 17 (1), 93-115.

DAVIDSON W. H. (1982), *Global Strategic Management*, John Wiley and Sons, New York.

DE MAESENEIRE W., CLAEYS T. (2012), *SMEs, foreign direct investment and financial constraints: The case of Belgium*, International Business Review 21 (3), 408-424.

DEMEKAS D. G., BALAZS H., RIBAKOVA E., WU Y. (2005), *Foreign Direct Investment in Southeastern Europe: How (and how much) can policies help?*, IMF, Retrieved from: www.imf.org.

DEMOS A., FILIPPAIOS F., PAPANASTASSIOU M. (2004), *An event study analysis of outward foreign direct investment: the case of Greece*, International Journal of the Economics of Business 11 (3), 329-348.

DIKOVA D., VAN WITTELOOSTUIJN A. (2007), *Foreign direct investment mode choice: entry and establishment modes in transition economies*, Journal of International Business Studies 38 (6), 1013-1033.

DJANKOV S., HOEKMAN B. (1997), *Trade Reorientation and Productivity Growth in Bulgarian Enterprises*, The World Bank, Retrieved from: www.documents.worldbank.org.

DOBRINSKY R. (1997), *Transition Failures: Anatomy of the Bulgarian Crisis*, WIIW, Retrieved from: www.wiiv.ac.at.

DUNNING J. H. (1977), *Trade, location of economic activity and the MNE: a search for an eclectic approach*, in: Ohlin B., Hesselborn P.-O., Wijkman P. M. (eds.), *The International Allocation of Economic Activity*, Palgrave MacMillan, London, pp. 395-418.

DUNNING J. H. (1988a), *Explaining International Production*, Unwin Hyman, London.

- DUNNING J. H. (1988b), *The Eclectic Paradigm of International Production: a Restatement and Some Possible Extensions*, Journal of International Business Studies 19 (1), 1-31.
- DUNNING J. H. (1993), *The globalisation of business: The Challenge of the 1990*, Routledge, London.
- DUNNING J. H., LUNDAN S. M. (2008), *Multinational Enterprises and the Global Economy*, Edward Elgar, Cheltenham.
- ESTRIN S., XAVIER R., BRADA J. C. (eds.) (2000), *Foreign Direct Investment in Central Eastern Europe: Case Studies of Firms in Transition*, M. E. Sharpe, New York.
- ESTRIN S., UVALIC M. (2013), *Foreign direct investment into transition economies: are the Balkans different?*, LSE, Retrieved from: www.eprints.lse.ac.uk.
- FORSGREN M. (1989), *Foreign Acquisitions: Internalization or Network Interdependency*, in: Hallen L., Johanson J. (eds.), *Networks of Relationships in international Industrial Marketing*, JAI Press, Greenwich, pp. 141-159.
- FORSGREN M. (2015), *Managing the internationalization process: The Swedish case*, Routledge, London.
- FRANKO L. (1989), *Use of minority and 50-50 joint ventures by United States multinationals during the 1970s: The interaction of host country policies and corporate strategies*, Journal of International Business Studies 20 (1), 19-40.
- FRYDMAN R., GRAY C. W., HESSEL M., RAPACZYNSKI A. (1997), *Private Ownership and Corporate Performance: some lessons from transition economies*, The World Bank, Retrieved from: www.documents.worldbank.org.
- GEORGIU C., KOMNINOS N. (2014), *The internationalization of Greek firms: Determinants for relocating to neighboring regions of Bulgaria*, Proceedings of the International Conference for Entrepreneurship, Innovation and Regional Development, ICEIRD 2013, Istanbul, pp. 1-10.
- GEORGIU C., KYRGIDOU L. P., ARCHONTAKIS F., PETRIDOU E. (2015), *The Role of Location as a Selection Criterion in FDI: The Case of SMEs in Greece*, Journal of East-West Business 21 (3), 233-255.
- GERINGER J. M., HEBERT L. (1991), *Measuring Performance of International Joint Ventures*, Journal of International Business Studies 22 (2), 249-263.
- GLIGOROV V. (1999), *Trade and Investment in the Balkans*, in: Glogorov V., *The Kosovo Crisis and the Balkans: Background, Consequences, Costs and Prospects*, WIIW, Retrieved from: www.wiiv.ac.at.
- GLIGOROV V. (2000) (ed.), *Balkan Reconstruction: Economic Aspects*, WIIW, Retrieved from: www.wiiv.ac.at.
- GLIGOROV V., KALDOR M., TSOUKALIS L. (1999), *Balkan Reconstruction and European Integration*, LSE, Retrieved from: www.eprints.lse.ac.uk.
- GOODNOW J. D., HANSZ J. E. (1972), *Environmental Determinants of Overseas Market Entry Strategies*, Journal of International Business Studies 3 (1), 33-50.
- GOMES-CASSERES B. (1989), *Ownership structures of foreign subsidiaries: Theory and evidence*, Journal of Economic Behavior & Organization 11 (1), 1-25.
- GOMES-CASSERES B. (1990), *Firm Ownership Preferences and Host Government Restrictions: An Integrated Approach*, Journal of International Business Studies 21 (1), 1-22.
- GORYNIA M., NOWAK J., TRAPCZYNSKI P., WOLNIAK R. (2015a), *Establishment Mode Choices of Emerging Multinationals: Evidence from Poland*, Managing Global Transitions 13 (2), 101-124.
- GORYNIA M., NOWAK J., TRAPCZYNSKI P., WOLNIAK R. (2015b), *Outward FDI of Polish firms: The role of motives, entry modes and location factors*, Journal for East European Management Studies 20 (3), 328-359.
- GREENE W. H. (1997), *Econometric Analysis*, 3rd edition, Prentice Hall International, Inc., London.
- GROSSE R., TREVINO L. J. (2005), *New Institutional Economics and FDI Location in*

- Central and Eastern Europe*, MIR: Management International Review 45 (2), 123-145.
- GÜNTHER J., KRISTALOVA M. (2016), *No Risk, No Fun? Foreign Direct Investment in Central and Eastern Europe*, *Intereconomics* 51 (2), 95-99.
- HENNART J.-F. (1988), *A transaction costs theory of equity joint ventures*, *Strategic Management Journal* 9 (4), 361-374.
- HERITAGE FOUNDATION (2017), *Index of Economic Freedom 2017: Country Reports*, Retrieved from: www.heritage.org.
- HILL C. W. L., HWANG P., KIM W. C. (1990), *An Eclectic Theory of the Choice of International Entry Mode*, *Strategic Management Journal* 11 (2), 117-128.
- HILL C. W. L., JONES G. R. (1989), *Strategic management: An integrated approach*, Houghton Mifflin Co., Boston.
- HIRSH S. (1976), *An international trade and investment theory of the firm*, *Oxford Economic Papers* 28 (2), 258-270.
- HOOD N., YOUNG S. (1979), *The Economics of the Multinational Enterprise*, Longman, London.
- HOESCH D. (1998), *Foreign direct investment in Central and Eastern Europe: Do Mainly Small Firms Invest?*, IFO Institute for Economic Research, Munich.
- HOLLAND D., PAIN N. (1998), *The determinants and impact of foreign direct investment in the transition economies: a panel data analysis*, National Institute of Economic and Social Research, London.
- HOLLAND D., SASS M., BENACEK V., GRONICKI M. (2000), *The determinants and impact of foreign direct investment in Central and Eastern Europe: a comparison of survey and econometric evidence*, *Transnational Corporations* 9 (3), 162-212.
- HYMER S. H. (1976), *The International Operations of National firms: A Study of Direct foreign Investment*, M.I.T. Press, Cambridge.
- HUNYA G. (1997), *Large Privatisation, restructuring and foreign direct investment*, in: Zecchini S. (ed.), *Lessons from the Economic Transition*, Springer, Dordrecht, pp. 275-300.
- HUNYA G. (2000), *Recent FDI Trends, Policies and Challenges in South-East European Countries*, WIIW, Retrieved from: www.wiiw.ac.at.
- HUNYA G. (2003), *Foreign Direct Investment in South Eastern Europe in the Early 2000s*, in: Franicevic V., Kimura H. (eds.), *Globalization, Democratization and Development: European and Japanese Views of Change in South East Europe*, Masmedia, Zagreb, pp. 349-361.
- HUNYA G. (2011), *Diverging patterns of FDI recovery*, WIIW, Retrieved from: www.wiiw.ac.at.
- HUNYA G. (2012), *Short-lived recovery*, WIIW, Retrieved from: www.wiiw.ac.at.
- IAMMARINO S., PITELIS C. (2000), *Foreign direct investment and 'less favoured regions': Greek FDI in Bulgaria and Romania*, *Global Business Review* 1 (2), 155-171.
- JANGER A. R. (1980), *Organisation of International Joint Ventures*, Conference Board, New York.
- JANICKI H. P., WUNNAVA P. V. (2004), *Determinants of foreign direct investment: empirical evidence from EU accession candidates*, *Applied Economics* 36 (5), 505-509.
- JOHANSON J., VAHLNE J.-E. (1977), *The Internationalisation Process of the Firm – A model of Knowledge Development and increasing Foreign Market Commitments*, *Journal of International Business Studies* 8 (1), 23-32.
- JOHNSON A. (2006), *FDI inflows to the Transition Economies of Eastern Europe: Magnitude and Determinants*, CESIS, Retrieved from: www.swopec.hhs.se.
- KALOGERESIS A., LABRIANIDIS L. (2010), *From spectator to walk-on to actor: An exploratory study of the internationalization of Greek firms since 1989*, *The European Journal of Comparative Economics* 7 (1), 121-143.
- KALOTAY K. (2010), *Patterns of inward FDI in economies in transition*, *Eastern Journal of European Studies* 1 (2), 55-76.

- determination models in foreign direct investment, with an application to foreign operations in Japan*, International Journal of Industrial Organisation 16 (5), 571-599.
- NAKAMURA M., YEUNG B. (1994), *On the determinants of foreign ownership shares: evidence from US firms' joint ventures in Japan*, Managerial and Decision Economics 15 (2), 95-106.
- NITSCH D., BEAMISH P., MAKINO S. (1996), *Entry Mode and Performance of Japanese FDI in Western Europe*, MIR: Management International Review 36 (1), 27-43.
- OZAWA T. (1979), *International Investment and Industrial Structure: New Theoretical Implications from the Japanese Experience*, Oxford Economic Papers 31 (1), 72-92.
- PALIWODA S. (1994), *Investing in Eastern Europe: Capitalising on Emerging Markets*, Addison-Wesley, Reading.
- PAN Y., CHI P. S. K. (1999a), *Financial performance and survival of multinational corporations in China*, Strategic Management Journal 20 (4), 359-374.
- PAN Y., LI S., TSE D. K. (1999b), *The impact of order and mode of market entry on profitability and market share*, Journal of International Business Studies 30 (1), 81-103.
- PENEV S., ROJEC M. (2004), *Foreign direct investment and the investment climate in South-East Europe*, Economic Annals 49 (163), 71-92.
- PETRAKOS G., TOTEV S. (2000), *Economic structure and change in the Balkan Region: implications for integration, transition and economic cooperation*, International Journal of Urban and Regional Research 24 (1), 95-113.
- PETROCHILLOS G. A. (1997), *Theory, policy and practice of Greek outward foreign direct investment*, in: Kantarelis D. (ed.), *Business and Economics for the 21st Century*, B.E.S.I., Worcester, pp. 117-127.
- PETROCHILLOS G. A. (1999), *Explaining Greek outward foreign direct investment: a case of regional economic integration*, Economics Research Paper Series, Coventry University.
- POHL G., ANDERSON R. E., CLAESSENS S., DJANKOV S. (1997), *Privatization and restructuring in Central and Eastern Europe: evidence and policy options*, World Bank, Retrieved from: www.documents.banquemondiale.org.
- PORTER M. E. (1987), *From competitive advantage to corporate strategy*, Harvard Business Review 65 (3), 43-59.
- PORTER M. E., FULLER M. B. (1986), *Coalitions and global strategy*, in: Porter M. (ed.), *Competition in global industries*, Harvard Business School Press, Boston, pp. 315-344.
- RESMINI L. (2000), *The determinants of foreign direct investment in the CEECs: New evidence from sectoral patterns*, Economics of Transition 8 (3), 665-689.
- RIZOPOULOS Y. (1995), *Competitive constraints and western firms' strategies in Bulgaria*, in: Maroudas L., Tsardanidis C. (eds.), *The Greek-Bulgarian Relations: Contemporary economic and political dimensions*, Papazissis, Athens, pp. 185-217.
- RIZOPOULOS Y. (2001), *Foreign direct investment and Western firms' internationalisation strategies in the Balkan Countries*, in: Petrakos G., Totev S. (eds.), *The Development of the Balkan Region*, Aldershot, Ashgate, pp. 75-111.
- ROOT F. R. (1987), *Entry Strategies for International Markets*, D. C. Heath, Lexington.
- SHAMA A. (1995), *Entry strategies of U.S. firms to the newly independent states, Baltic states, and Eastern European Countries*, California Management Review 37 (3), 90-109.
- SIMON J. L. (1969), *Basic Research Methods in Social Science*, Random House, New York.
- STOIAN C., FILIPPAIOS F. (2008), *Foreign direct investment in Central, Eastern and South Eastern Europe: an 'eclectic' approach to Greek investments*, International Journal of Entrepreneurship and Innovation Management 8 (5), 542-564.
- SVETLIČIĆ M., ROJEC M. (1994), *Foreign Direct Investment and the Transformation of Central European Economies*, MIR: Management International Review 34 (4), 293-312.
- SZALUCKA M. (2015), *Does Location Really Matter? The Influence of the FDI Location on Enterprise Competitiveness: The Evidence from Polish Enterprises*, Managing Global Transitions 13 (2), 125-149.

- KAMARAS A. (2001), *A capitalist diaspora: the Greeks in the Balkans*, LSE, Retrieved from: www.eprints.lse.ac.uk.
- KEKIC L. (2005), *Foreign direct investment in the Balkans: recent trends and prospects*, Southeast European and Black Sea Studies 5 (2), 171-190.
- KILLING J. P. (1983), *Strategies for Joint Venture Success*, Praeger, New York.
- KITONAKIS N., KONTIS A. (2008), *The determinants of Greek foreign direct investments in southeast European countries*, Southeast European and Black Sea Studies 8 (3), 269-281.
- KNICKERBOCKER F. T. (1973), *Oligopolistic reaction and multinational enterprise*, Thunderbird International Business Review 15 (2), 7-9.
- KOGUT B., ZANDER U. (1995), *Knowledge, market failure and the multinational enterprise: A Reply*, Journal of International Business Studies 26 (2), 417-426.
- KOGUT B., ZANDER U. (2003), *Knowledge of the firm and the evolutionary theory of the multinational corporation*, Journal of International Business Studies 34 (6), 516-529.
- KUMAR B. N., STEINMANN H. (1991), *Technology transfer by Western small and medium sized enterprises to developing countries*, in: Trevor M. (ed.), *International business and the Management of Change: Euro-Asian Perspectives*, Avebury, Aldershot.
- LABRIANIDIS L. (2000a), *Are Greek companies that invest in the Balkans in the '90s Transnational Companies?*, in: Mitsos A., Mossialos E. (eds.), *Contemporary Greece and Europe*, Ashgate Press London, pp. 457-482.
- LABRIANIDIS L. (2000b), *The investment activity of Greek companies in the CEE countries: The situation beyond the myth*, in: Andrikopoulou E., Kafkalas G. (eds.), *Greece and the new European Space: the enlargement and the new geography of European Development*, Themelio, Athens, pp. 236-274.
- LABRIANIDIS L., KARAGIANNI S. (2001), *The pros and cons of SMEs going international: Greek Companies in Bulgaria*, Eastern European Economics 39 (2), 5-28.
- LABRIANIDIS L., KALANTARIDIS C. (2004), *The delocalization of production in labour intensive industries: instances of triangular manufacturing between Germany, Greece and FYROM*, European Planning Studies 12 (8), 1157-1173.
- LAMBROU C. (1996), *Penetrating in the Balkans*, Oikonomikos Taxydromos 20, 107.
- LANKES H.-P., VENABLES A. J. (1996), *Foreign Direct Investment in economic transition: the changing pattern of investments*, Economics of Transition 4 (2), 331-347.
- LANSBURY M., PAIN N., SMIDKOVA K. (1996), *Foreign direct investment in Central Europe since 1990: an econometric study*, National Institute Economic Review 156 (1), 104-114.
- LARIMO J. A., NGUYEN H. L. (2015), *International joint venture strategies and performance in the Baltic States*, Baltic Journal of Management 10 (1), 52-72.
- MAROUDAS L. (1995), *FDI in Bulgaria*, in: Maroudas L., Tsardanidis C. (eds.), *The Greek-Bulgarian Relations: modern economic and political dimensions*, Papazissis, Athens, pp. 151-183.
- MEYER K. (1993), *Direct Investment in South-East Asia and Eastern Europe: A Comparative Analysis*, in: Artisien P., Rojec M., Svetličič M. (eds.), *Foreign Investment and Privatisation in Eastern Europe*, Palgrave MacMillan, New York, pp. 102-128.
- MEYER K. (1998), *Enterprise transformation and foreign investment in Eastern Europe*, Journal of East-West Business 4 (1-2), 7-27.
- MEYER K. E. (2001a), *International business research on transition economies*, in: Rugman A. M., Brewer T. L., *Oxford Handbook of International Business*, Oxford University Press, Oxford, pp. 716-759.
- MEYER K. E. (2001b), *Institutions, transaction costs, and entry mode choice in Eastern Europe*, Journal of International Business Studies 32 (2), 357-367.
- MONTEVERDI K., TEECE D. J. (1982), *Supplier switching costs and vertical integration in the automobile industry*, The Bell Journal of Economics 13 (1), 206-213.
- NAKAMURA M., XIE J. (1998), *Nonverifiability, noncontractibility and ownership*

TEECE D. J. (1986), *Transactions cost economics and the multinational enterprise: An Assessment*, Journal of Economic Behaviour & Organisation 7 (1), 21-45.

UHLENBRUCK K. (1997), *Entry motives and firm capabilities: performance implications for foreign direct investment in Central and Eastern Europe*, Academy of Management Proceedings 1, 204-208.

UHLENBRUCK K., DE CASTRO J. O. (2000), *Foreign Acquisitions in Central and Eastern Europe: Outcomes of Privatization in Transitional Economies*, The Academy of Management Journal 43 (3), 381-402.

VERNON R. (1983), *Organisational and institutional responses to international risk*, in: Herring R. J. (ed.), *Managing International Risk*, Cambridge University Press, Cambridge, pp. 191-216.

WACH K., WOJCIECHOWSKI L. (2016), *Determinants of inward FDI into Visegrad countries: empirical evidence based on panel data for the years 2000-2012*, Economics and Business Review 2 (1), 34-52.

WILLIAMSON O. E. (1981), *The economics of organization: the transaction cost approach*, American Journal of Sociology 87 (3), 548-577.

WOODCOCK C. P., BEAMISH P. W., MAKINO S. (1994), *Ownership-Based Entry Mode Strategies and International Performance*, Journal of International Business Studies 25 (2), 253-273.

YOUNG S., HAMILL J., WHEELER C., DAVIES J. R. (1989), *International Market Entry and Development: Strategies and Management*, Prentice-Hall, London.

YU J., LEE S.-H., HAN K. (2015), *FDI motives, market governance, and ownership choice of MNEs: A study of Malaysia and Thailand from an incomplete contracting perspective*, Asia Pacific Journal of Management 32 (2), 335-362.

ZUBKOVSKAYA A., MICHAILOVA S. (2014), *The development of Russian Multinational Enterprises from the 1990s to the present*, Organizations and Markets in Emerging Economies 5 (2), 59-78.

Initial submission: 08.11.2016

Revised submission: 05.04.2017

Final acceptance: 09.06.2017

Correspondence: School for Work Based Education, Glasgow Caledonian University, 70 Cowcaddens Road, G4 0BA, Glasgow, UK.

Email: constantinos.choromides@gcu.ac.uk

THE ROLE OF SOCIAL CAPITAL AND INTERPERSONAL RELATIONS IN THE ALLEVIATION OF EXTREME POVERTY AND SPATIAL SEGREGATION OF ROMANI PEOPLE IN SZEGED

*Boglárka MÉREINÉ BERKI**, *György MÁLOVICS**, *Janka TÓTH***,
*Remus CREȚAN****

*University of Szeged, Hungary; **Independent researcher, Szeged, Hungary;
***West University of Timișoara, Romania

Abstract: Even more emphasis is set on social capital in understanding, analyzing and planning poverty alleviation measures and policies. However, our understanding of the role of social capital in alleviating extreme poverty, enhancing social mobility and fighting spatial segregation, is still inadequate. Within the present study, we aim to examine and understand (1) the mechanisms that relate to social capital in the case of the segregated urban underclass and (2) the potential interventions for poverty alleviation concerning social capital. In order to examine the dynamics of poverty alleviation measures related to social capital, special attention is paid to the experiences of a cooperative network aimed at creating artificial bridging capital through the introduction of interpersonal relations locally between the middle class and underclass, the patronage network, which was initiated within a broader participatory action research (PAR) process. Our results show that bonding ties and related specific norms as tools for everyday survival easily overwrite system integration efforts for poverty alleviation and social mobility with long-term and uncertain benefits for the segregated urban underclass. In order to overcome this failure, social institutions should place more emphasis on developing meaningful interpersonal relations with the underclass since these might be able to provide personalized help, facilitation, and approximation of perspectives – all being vital for poverty alleviation and social mobility.

Key Words: *poverty alleviation, bridging social capital, segregation, urban underclass, Romani communities, Szeged.*

Introduction

Social capital is a less concrete and measurable type of capital compared to human or physical capital. Therefore, its analysis and conscious application in development policies is yet immature. However, it is even more often seen as a missing link which is able to serve as a tool for strengthening or weakening the effects of human and physical capital and for understanding and redressing deeper structural problems (Woolcock and Narayan 2000).

As a rather relevant factor in understanding the problems of marginalized populations and the frequent failure of anti-poverty policies, social capital is able to both open up spaces for social mobility and poverty alleviation and to contribute to the conservation of given social structures for generations. Although the significance of social capital concerning poverty alleviation and social mobility has been recognized in the special literature for decades (Granovetter 1973, Putnam 1993, Woolcock and Narayan 2000), this is still neglected in the Hungarian development policy (Méreiné Berki et al. 2017).

Despite some numerous efforts on detailed typology, social capital does not have any unified conceptual definition (Esser 2008, Csizmadia 2015). In general, social capital is understood as a non-material resource appearing as connections between individuals and formal and informal social groups, which interweaves the political and economic life of societies (Hanifan 1916, Ben

-Porath 1980, Bourdieu 1986, Coleman 1998). Social capital plays an important role in the economic research and especially in strategic planning and development (Füzér et al. 2005, Savanya 2013, Schwab et al. 2015, Schwab 2016). International development organizations (e.g. the World Bank, OECD and UN) put an outstanding emphasis on social capital in relation to international development projects (Füzér et al. 2005). Social capital has also been becoming an even more influential concept in the Hungarian development policy planning – it is included in the Hungarian City Development Handbook (NFGM 2012), which serves as the main background document of the major Hungarian local development planning documents of Urban Development Concepts (UDP) and Integrated Urban Development Strategies (IUDS).

Social capital is able to have an influence on many other forms of capital. Its neglect might lead to impolitic development interventions (Méreiné Berki et al. 2017), as social capital is the key for the operability of democracy (Putnam 1995). Moreover, social capital might influence the situation of individuals, groups and settlements. It influences the opportunities of individuals to participate in development processes. It might play a role in the coming into being of formal and informal institutions and might be a key factor in different bottom-up initiatives. It might play a bridging but also a bonding role: it might encourage or set back the social integration of individuals and groups or the social cohesion in general and it can even give a new meaning to these notions (Lockwood 1964, Putnam 1995, Castel 2000, Woolcock and Narayan 2000). Therefore, social capital is extremely relevant in understanding extreme poverty and segregation. In order to examine the role of social capital in the alleviation of segregation and extreme poverty, we first examine how notions of solidarity and integration relate to the concept of social capital.

The notion of “integration” frequently appears as an unquestioned and undebated goal of poverty alleviation efforts. Examples are the earlier introduced UDCs and IUDSs of major Hungarian cities, the included local antisegregation plans, and Hungarian local development policies in general (Méreiné Berki et al. 2017). However, the notion of integration is by far not a simple one. Questions such as: “Why and with whom do we formulate connections?” and “What inward and outward forces keep certain communities together?”, and the meaning of social integration in relation to these is by far not evident. Durkheim (1893) aimed to address these questions by distinguishing two types of social solidarity. While mechanical solidarity is based on the feeling of belonging together because of similarity (we belong to the same family or ethnic group, we have a similar social status, we do the same work etc.), organic solidarity is based on differences: despite our differences we still have to cooperate with each other (most of all because of the division of work).

Castel (2000) distinguishes three degrees on the scale of integration. Lack of integration means “disaffiliation”, partial presence of integration means belonging to “disaffiliation zone”, while full integration means belonging to the “integration zone”. Integration is realized through performance in three dimensions: work, community embeddedness, and culture. These function in different areas such as our place in the division of work, family or school, and they are strongly related to the social capital acquired at these areas. But, Lockwood (1964) distinguishes the system integration from the social integration. While system integration is realized through participation in social institutions (most of all the division of labor), social integration means belonging to smaller communities including networks of relatives, friends or neighbors functioning as the “natural” milieu and support for individuals (Archer 1996). Social integration might be especially strong in the case of the segregated and marginalized extremely poor, mainly in the Central and Eastern European context (Crețan and Turnock 2008, Farkas 2012).

According to the social network theory of Granovetter (1973), societies are interweaved by strong and weak ties. Strong ties are usually closed and appear within communities. These are potentially able to provide security and resources for the members of the given group. Weak

ties span social groups, and these are the ones which are able to significantly contribute to upward social mobility and social integration (understood here as system integration) through connecting otherwise disconnected social groups.

The earlier interpretations of solidarity, integration and social ties show an eye-catching parallel with those social capital theories which aim to classify social capital by understanding and interpreting the direction and strength of social connections (Putnam 1993, Gittel and Vidal 1998, Woolcock and Narayan 2000). These theories distinguish either two or three types of social capital.

Bonding social capital is based on inner ties (Durkheim 1893) and most of all on mechanical solidarity (Granovetter 1973). Bonding connections are based on trust, solidarity and reciprocity (Messing and Molnár 2011). For the extremely poor, these closed and homogenous relations contribute to the everyday survival and they function as resources, on the one hand, but they reduce the opportunities to break out from poverty and they might be of a limiting nature, on the other hand, since group solidarity is often based on the opposition to the mainstream society (Fehér and Virág 2014). Therefore, these factors are also able to contribute to the conservation of extreme poverty for generations.

Mobility among social groups and system integration is supported by *bridging and linking social capital*, which are most of all based on weak ties (Putnam 1993, Woolcock and Narayan 2000, Messing and Molnár 2011, Füzér 2015). Bridging social capital means weak ties that span different social groups and thus provide access to the resources of other social groups. This type of capital functions through farther friends and acquaintances. Linking social capital “describes the ability of groups to engage with external agencies, either to influence their policies or to draw on useful resources” (Pretty 2003: 1913). Therefore, linking capital is related to formal organizations (institutions) having relative power over the given social group, including the providing of access to services or jobs (Hawkins and Maurer 2010, Messing and Molnár 2011). For the *underclass* urban Hungarian Roma (i.e. low-income families who live in segregated as ethnically homogenous ghettos and who are often referred to through stigmatization, and generally regarded as ‘outsiders’ by the majority population and constitute the underclass – Massey and Denton 1993, Ladányi and Szélényi 2004), such institutions might include non-governmental organizations (NGOs), local Roma minority self-governments (LRMSGs), the local municipality and representatives, the family support office, etc. These connections are also able to contribute to system integration since linking capital might contribute to openness and awareness among social groups and it encourages the flow of information and resources. Thus, linking capital is able to contribute to organic solidarity (Durkheim 1893).

By outlining the earlier duality, we do not want to suggest that system integration should be the major goal of poverty alleviation. Pure system integration is indeed a rather questionable goal both morally and practically in the case where it aims to overcome socially integrated life worlds: in such a case, system integration might not be a legitimate position (process) for the affected. “Integration” should be understood as cultural pluralism and based on the matching of socially integrated life worlds and system integration (Farkas 2012).

Social capital, solidarity and integration strongly influence and could be influenced by urban segregation which is a spatial appearance of social distances and inequalities among different social groups (Ladányi 2007). According to the Hungarian Central Statistical Office, segregated areas (often whole villages) can be determined objectively by using quantitative indicators related to education and unemployment (NFGM 2012).

The international scientific literature uses the notion of slum or ghetto instead of segregate to describe the spatial concentration of poverty. According to Wacquant (2012), the spatial

concentration of poverty and ethnicity are not the only characteristics of ghettos. In addition to these, (1) ghettos are spatially sharply separated from the other parts of the given settlement; (2) people living here are stigmatized by the majority; (3) living in a ghetto is not a decision based on free will, but people move into ghettos because of necessity; and (4) ghettos are characterized by a distinct and duplicative set of institutions. Since this definition of a ghetto (Wacquant 2012) is far more sophisticated compared to the official Hungarian interpretation of a “segregate” described earlier (NFGM 2012) and it fits to those places and communities which are in the focus of the present study, we will further use the expression “segregate” which is very close to the Wacquant’s (2012) definition of a ghetto.

Thus, although it is clear that social capital, solidarity, integration and urban segregation are strongly interrelated concepts, there is a research gap concerning their relationship in relation to segregated urban Roma communities in the international scientific literature. Much has been written earlier about social capital and its relationship to poverty (Woolcock and Narayan 2000). Recently, the relationship between social capital and poverty has been empirically examined most of all in the developing contexts of China (Zhang et al. 2017), South-Africa (Baiyegunhi 2014), Buthan (Tenzin et al. 2015), India (Das 2004) and Bangladesh (Khatun and Hasan 2015) but also in the developed countries of Italy (Andriani and Karyampas 2015), USA (Greenbaum et al. 2008, Hawkins and Maurer 2010) and New Zealand (Boon and Farnsworth 2011). Recent literature on the Roma extends to diverse topics, including: the effects of certain EU policies on the Roma (Van Baar 2015); the contradictions of “civilizing” projects against Gypsy-Travellers in the UK (Powell 2011); the power differentials between the Gypsies and the settled population in the UK and its relationship to stigmatization (Powell 2008); the struggle against Roma forced eviction seen as a need for revitalizing ‘the uncanny’ (Lancione 2017); the validity of the “myth of the placeless Gypsy” (Kabachnik 2010); the resistance of Gypsy-Travellers in the UK concerning the anti-nomadic legislation (Kabachnik 2014); the applicability of the Wacquant’s concept of ghetto concerning the Gypsy-Travellers in the UK (Powell 2013); the effect of the economic crisis and austerity politics on the strategies of pro-Roma non-governmental organisations (NGOs) and movements fighting for Roma access to housing in Rome (Italy) (Maestri 2014); the effects of post-socialist transformation in Eastern and Central Europe and the ways in which it has been lived through and reflected upon by the members of the Czech urban and Slovakian rural Roma (Gypsy) communities living in the urban ghettos and “Gypsy settlements” (Ruzicka 2012); and the adaptations of the Gypsies and the Travellers living in “bricks and mortar” accommodation and its effect on social segregation and ‘parallel communities’ (Greenfields and Smith 2010). However, the structured examination of inward and outward mechanisms connected to social capital and the social capital’s role in the social mobility of the urban underclass Roma are missing in the current literature.

After identifying the potential significance of social capital concerning the social mobility of the underclass Roma and the related research gap, we address two questions within the present study:

What inward and outward mechanisms are connected to social capital in the case of the underclass urban Roma communities living in segregates (ghettos)?

What kind of interventions related to social capital are able to potentially play a role in enhancing mobility and alleviating poverty for the segregated urban underclass Roma?

Methodology

Our research was carried out in the major Hungarian city of Szeged, with approximately 160000 inhabitants. Here, about 400 people live in the two isolated Roma segregates. The *smaller segregate* has nearly 125 inhabitants living in 4 buildings (16 flats) and it is situated on the outskirts of the city. The *larger segregate* is located on a walking distance to the city center

and it is almost double in size compared to the smaller one (Fig. 1). Both segregates correspond to the “ghetto” definition of Wacquant (2012) introduced in the previous section. In order to examine our research questions, two data collection methods were used. Both methods are grounded in a participatory action research (PAR) cooperation between the local underclass Roma, the local Roma representatives and the NGOs and local middle-class scholar-activists, which started in 2011. PAR “is a research paradigm within the social sciences

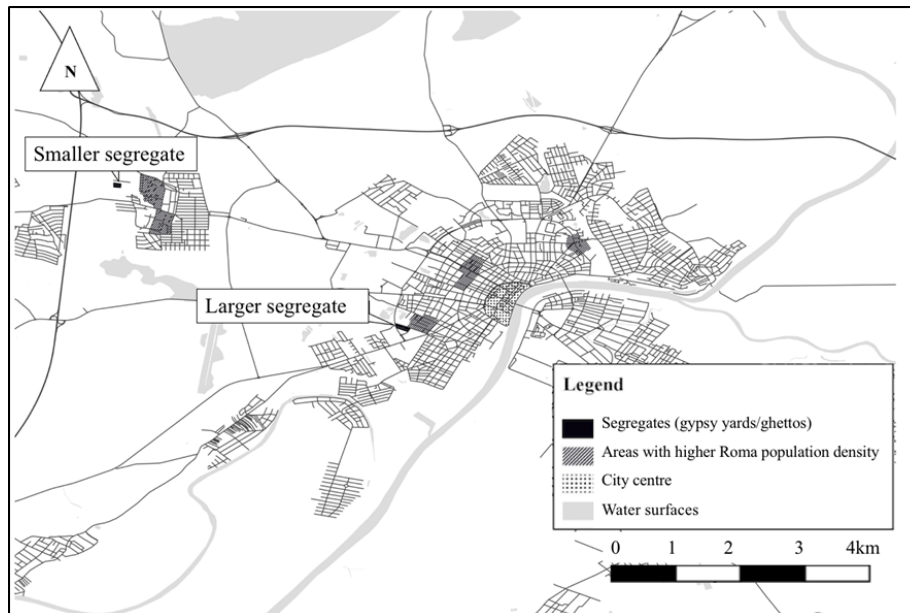


Fig. 1 – Study area: smaller and larger Roma segregates in Szeged

Source: Shape file was created from OpenStreetMap data and it is licensed under the Open Database 1.0 License from: <http://www.geofabrik.de/data/shapefiles.html>

which emphasizes collaborative participation of trained researchers as well as local communities in producing knowledge directly relevant to the stakeholder community” (Coghlan and Brydon-Miller 2016: 583). PAR intends to contribute to social change besides contributing to the theoretical corpus of the social sciences. Therefore, PAR is a structured social research process being based on a continuous and long-term cooperation of researcher and non-researcher participants and actions serving both to social change and to scientific observation and understanding.

Inside the present PAR process, Roma people have identified numerous problems to be dealt with during the past 6 years of cooperation, including the discrimination they face; extreme poverty and the lack of access to subsistence goods; poor and uncertain housing conditions (Fig. 2); the lack of legal, stable job opportunities; and the inability to provide perspectives for the future of their children (e.g. by helping them to succeed in school).

Within the present study, we rely on our observations related to one initiative within the broader PAR process: *the patronage network*. This network was initiated in 2014 within the broader PAR cooperation. The aim of the initiative is to create long-term personal, one-to-one connections between the local middle-class and the underclass Roma families mostly living in one of the segregates of the city. These connections then become rather heterogeneous: the only general pattern is that families cooperate and patron (middle class) families support the



Fig. 2 – Housing conditions in smaller segregates (left) and larger segregates (right)

Source: Janka Tóth (2017) and Méreiné Berki (2017)

patroned (underclass Roma) families concerning different issues in different ways, including recreation, educational and health issues, job search, etc. The initiative has built previously non-existent connections (bridges) between the local middleclass and underclass families. Such an initiative and related relationships between families of different social groups serve as extremely good objects of observation in the case the aim is to observe the interpersonal connections and connections between individuals and institutions (involved individuals/families often cooperate concerning the issues which involve cooperation with the social institutions, e.g. school issues, labor issues, housing issues, etc.). Thus, this initiative – and the broader PAR process – provides opportunities for observations concerning both bonding, linking and bridging social capital.

Two sources of data were used for the present analysis. First, three of the authors are involved in the patronage network (as patrons). These experiences are recorded in *research diaries* of scholar-activists. Besides this, 33 *semi-structured qualitative interviews* were conducted – 27 with Roma people living in local segregates and 6 with members of the patronage network (patrons) (Table 1).

Using and building on PAR as a research approach is important for us in being able to meaningfully examine our research questions for several reasons. Action orientation means the recognition of expectations of non-researcher participants towards the process of cooperation (taking joint actions serving their interests instead of only having scientific observations which are only useful for researchers) plays a crucial role in building trust among participants (Arieli et al. 2009) and overcoming the general distrust of marginalized groups (including the marginalized Roma) towards social research (Munté et al. 2011). Our experience shows that common actions and related commitments are prerequisites of engaged and honest participation in the research for the marginalized groups. The topic of extreme poverty is an extremely sensitive area for research and the world of segregates (ghettos) is a closed world that is rather difficult to approach. Moreover, successful approaching does not here in itself mean reliable and valid research results because of the existence of distrust, divergence in norms of communication, inner social relations (hierarchies) of communities, etc. Honesty and engagement cannot be reached by applying conventional research methods involving one-time data collection (interaction) between researcher and lay participants (e.g. quantitative surveys or qualitative interviews) in an environment characterized by high social distance and lack of trust. Our observations clearly show that, for example, the application of conventional formal research standards (e.g. making notes during interviews, or simply using the expression of “interview” instead of simply saying “talking” or “chat”) causes the underclass urban Roma to

Table 1

Interviewees characteristics: age, gender, profession

No	Interviewees	Age (years old)	Gender	Profession (Activity)
	Underclass Roma persons living in the larger segregate			
1	Interviewees no 1 and no 2	53 and 27	2 females	public workers
2	Interviewee no 3	38	Female	public worker
3	Interviewee no 4	35	Female	cleaning worker
4	Interviewee no 5	50	Female	unemployed
5	Interviewee no 6	25	Female	stay-at-home mom
6	Interviewee no 7	40	Female	cleaning worker
7	Interviewees no 8 and no 9	24 and 40	female and male	stay-at-home mom; unemployed
8	Interviewee no 10	20	Female	student
9	Interviewee no 11	40	Female	cleaning worker
10	Interviewee no 12	23	Female	public worker
11	Interviewee no 13	61	Female	pensioner
12	Interviewee no 14	35	Male	unemployed
13	Interviewee no 15	46	Female	unemployed
14	Interviewee no 16	50	Female	unemployed
	Underclass Roma persons living in the smaller segregate			
15	Interviewees no 17 and no 18	33 and 33	female and male	stay-at-home mom; unemployed
16	Interviewee no 19	40	Female	unemployed
17	Interviewees no 20 and no 21	40 and 40	2 females	public workers
18	Interviewee no 22	40	Female	disability pensioner
19	Interviewee no 23	23	Male	unemployed
20	Interviewee no 24	33	Female	stay-at-home mom
21	Interviewee no 25	35	Female	public worker
22	Interviewee no 26	18	Female	student
23	Interviewee no 27	40	Female	public worker
	Patrons belonging to local middle class			
24	Interviewee no 28	62	Female	teacher
25	Interviewee no 29	33	Female	academic
26	Interviewee no 30	37	Male	academic
27	Interviewee no 31	29	Female	academic
28	Interviewee no 32	56	Male	retired police officer
29	Interviewee no 33	41	Female	academic

become alert and distrustful. Thus, we can say that trust (and PAR, which enables it in our case) is a prerequisite of being able to collect reliable and valid data in the context of our research.

The action-oriented involvement of scholar-activists who “do not split their work from their life” (Van der Meulen 2011: 370) also enables (1) having idiographic observations concerning the diverse spheres of life of the local Roma underclass and (2) the conventional “researcher vs. subjects” roles to be increasingly enriched by the peer perspective allowing all voices and (unconventional) viewpoints to be expressed and to address “undiscussables” (Bradbury and

Reason 2003: 165).

PAR also provides opportunities for the long-term observations of dynamic phenomena which reveal themselves on interpersonal levels. Such phenomena cannot be meaningfully observed by applying “snapshot” observation methods involving one-time interaction and observation. Since the essence of social capital relates to dynamic interpersonal and inter-organizational connections (relationships, ties) between individuals and formal and informal social groups and the social effects of these connections, PAR provides an excellent approach (method) for observation here.

While cooperation, action orientation and engagement (as features of PAR) clearly appear as beneficial factors concerning data quality on the one hand, they are also challenging for researchers on the other hand. The “essential challenge in PAR is the unique combination of deep empathic and political involvement coupled with critical and reflective research, which expects the researcher to treat his or her own experiences at ‘arm’s length” (Levin 2012: 133-134). Experts have a dual task here: they have to be able to combine empathy and involvement with critical and analytical skills. Our experiences show that engagement makes it more difficult to take the position of the “outsider” researcher. Being aware of this dual challenge, continuous self-reflection on researcher roles and influence was applied by researchers during data recording and analysis.

Qualitative content analysis (Titscher et al. 2000) was carried out along our research questions on our data sources (those parts of our research diaries which are related to the patronage program and interview transcripts). Researchers looked for those parts of these texts which were related to the presence of (or lack of) the coming into being (or disappearing) and functioning of bonding, linking and bridging social capital. Relationships with individuals, communities and formal and informal institutions were all considered. Relevant text was also analyzed according to whether ties identified are related to alienating or approximating mechanisms concerning the majority society. Researchers paid special attention to being “open” during the process of analysis: to also consider those parts of the text which are able to bring in new perspectives to the analysis beyond the analytical framework (and categories) derived from the theory of social capital. All interviews were analyzed by two researchers. Results were compared and discussed until agreement was reached. Each researcher analyzed their own research diaries and results were circulated within the research team and discussed until consensus was reached about the messages of research diaries (Table 2). Below we present our analysis enriched with quotations encoding typical positions related to identified codes and categories. Unless stated otherwise, quotations belong to local underclass Roma residents living in urban segregates. Our results are presented in a comparative way – we always reflect on the differences we experienced between the examined segregates.

Results and Discussion

Tensions between bonding and bridging social capital

Our observations reinforce those research results (Stewart 2001, Albert and Dávid 2006, Farkas 2012) which found that the social network of Roma families living in segregates is rather closed. Inward ties within segregated communities are rather intense, especially that most underclass Roma living in the local segregates are also in affinity with many other inhabitants besides being neighbors – especially in the smaller segregate (Table 2).

The presence of bonding capital serves as a resource for those who possess it. It provides (1) material resources through reciprocity (including small loans, monetary support, food, medicines, electricity or internet) and (2) it contributes to non-material components of well-

Table 2

Units of analysis and results

Units of analysis	Results	
	Resource	Limiting factors
Segregated Roma families	Material resources through reciprocity and enhanced non-material components of well-being	Limits to social mobility
	Material support and welfare services by institutions	Institutional anomalies, distrust in formal institutions
	Artificial bridging connections – Patronage Network	Lack of naturally emerging bridging connections
Patrons and supported families	Social bridge through personal relationships, personalized resources, facilitation and mutual understanding	Divergent understanding of efficiency

being (the presence of friends, a feeling of home, the presence of recreational activities, a safe place for children, child care). However, we do not intend to highlight the notion of “romantic” ghetto, where there are strong community and family ties. Clough Marinaro (2015) precisely demonstrated how, at least in the Italian context, Roma camps are better seen as *neo-ghettos rather than ghetto*, because the solidarity once present there has been undermined. Recent research in Hungary found that ties based on inner solidarity have become weaker during the past decade, and support for the segregated underclass Roma is rather provided by the weaker ties of bridging and linking capital. Even more, some of the extremely poor might live in a “vacuum of ties”: they lack both strong inner and weak outward ties and therefore they are not able to convert any connections to resources (Solt 2010, Messing 2006, Messing and Molnár 2011) – clear signs of weakening supporting relationships also appear in our empirical results, especially in the case of the larger segregate.

Strong bonding ties also limit social mobility (Kemény et al. 2004). This involves (1) the lack of the private sphere and strong expectations of sharing, which limit the material development of families (people, households). A family living in the larger segregate serves as an expressive example of that. The family managed to buy a used car with the support of the patronage network. Immediately on the same day, numerous relatives and friends asked for their help in transportation (of people and goods). Such expectations meant a significant burden on the budget of the family. Such expectations are often sources of conflict because a basic self-defense strategy for better-off families is to hide material development and not to share extra material resources. In case such “secrets” are revealed, they are often sanctioned by the community, most often in the form of vicious gossip. Thus, material development is either sanctioned with obligatory sharing or hostile attitudes. Social mobility is also limited by (2) “dangerous”, “bad” (quotations resulted from interviewees no 2, 3, 5, 7, 9, 11, 12, 15-20, 22, 23) examples transmitted towards children on a daily basis of inhabitants living with addictions or earning their living from the grey economy or crime. As numerous parents often formulate it, “it is impossible to raise children in a normal way among such circumstances” (quote generally resulted from interviewees no 2, 5, 6, 9, 13, 15, 17, 18, 20, 22, 23). Last but not least, (3) people often have no alternatives than accepting the strong and oppressive inner hierarchy of the segregate where they live because of strong, closed bonding ties, poverty and missing bridging ties (see the following section). An example of that is the phenomena of usury. *Usurists* – persons providing loans (the usury) characterized by high interest rates and monthly interest periods for the community members who have no chance of accessing legal loans (e.g.

from private banks) – are generally very “strong” community members. Such loans – beside meaning extremely important resources – do not only mean extreme material burden for the affected families and strongly limited opportunities to break out from the debt trap (and poverty trap in general), but also cause that people having usury loans have no other chance but to accept oppression and injustices (e.g. the oppressive and unjust actions of the usurists) because of their dependent situation.

The above shows that although bonding social capital means a significant resource for the inhabitants of the segregated Roma communities on the one hand, it means a serious limiting factor concerning social mobility on the other hand. This contributes to the emergence of specific inner norms and rules which contribute to social integration (integration within the community), but it overwrites other rules and norms which are (would be) necessary for system integration (integration to the majority society) since this latter is based on the system of norms of the majority. Examples of such tensions between the norms of social integration and system integration, limiting material development (and social mobility) include two issues:

- strong community expectations of sharing described earlier (also called extreme egalitarianism by Ladányi and Szélényi 2004) or “feasts” (e.g. preparing a great amount of food, even if people are in a difficult financial situation and most of it will be wasted, when relatives come to visit); and
- behavior in the labor market such as when family members – three to five people – with a common employer often quit jobs together in cases when someone from the family quits or is fired in order to show their solidarity, “not to leave the other alone” (quotation presented by interviewee no 8), or when they do not attend their workplace for shorter periods (from one to several days) when there are family expectations towards help (e.g. when renovating homes).

While acting by the norms of the majority could play a role in social mobility in the long run, adaptation to the specific inner norms of segregated communities is a pledge of everyday survival for the underclass. The result is the tension between social and system integration, bonding and bridging ties (social capital). It is of small wonder that bonding ties (the need for everyday survival) often overwrite bridging ties (the long-term and uncertain benefits of social integration) in an environment characterized by daily hardships and continuous existential uncertainty.

Missing bridging and linking connections

The population of segregates is rather heterogeneous concerning their material well-being, resources, capabilities and social relations. While for certain families, social relations and resources are almost exclusively limited to the segregate and its community, others are materially better-off and more integrated into the majority society concerning both their resources and social ties. However, our observations reinforce those research results (Messing 2006) according to which the underclass Roma living in segregates mostly lack bridging connections – even in an urban environment. Despite this, bridging social capital means a significant resource when it exists – most of all for those families, which are already on their way to system integration. Our observations show that bridging connections most of all help in accessing (mostly unofficial) job opportunities – e.g. non-underclass, non-Roma acquaintances (ties) also help to overcome prejudices and lack of trust being present towards the (urban underclass) Roma in the labor market.

Connections to institutions are related to linking social capital. However, our observations show a high level of distrust towards formal social institutions in the case of the segregated underclass urban Roma. Trust between the segregated urban underclass Roma and the majority population is also a more general problem – see the following section. Numerous

institutional anomalies contribute to this phenomenon. Such anomalies are school failure and school (and kindergarten) segregation concerning the educational institutions. The experiences of most underclass Roma parents, according to which Hungarian schools are most of all places of exclusion for the underclass Roma and they rather reinforce social disadvantages instead of compensating for these, are in line with the related special literature (a good review of this topic is provided in Hungarian by Fejes et al. 2013). The most distrusted social institution is the police. Most underclass Roma think that the police apply a double standard towards the underclass Roma living in segregates. This means overdone sanctioning:

- “They also fined me for 5000 forints because I carried my smaller sister on my bicycle. They did not tell me to stop and get off the bike and do not do it again but started to write the citation immediately. (...) They are extremely one-sided with the Roma” (*quotation from interviewee no 1*).

The underclass Roma’s perspective also reinforces that segregates are also handled as beyond the pale areas (Harper et al. 2009) by the police:

- “They did not do anything. They say that these are only Gypsies, let them kill each other, we will at least have fewer problems after that” (*quotation from interviewee no 14*).

Beside the general distrust in official social institutions, positive experiences are also present. However, these are not related to (the functioning of) institutions themselves but to personal relationships with certain institutional representatives (e.g. a school director, certain workers of the local family support office or local district nurse). These relations are important forms of social capital for the underclass urban Roma, providing most of all enhanced access to the basic goods (including clothes) and help in administrative issues (connected to e.g. accessing social care) on the one hand, but often temporary and uncertain on the other hand – e.g. fluctuation within local institutions for the social support of the poor is rather high, workers are often changed several times a year.

Creating meaningful links – lessons learned from the patronage program

The patronage network is an initiative to create social ties which span social groups (see above). Ties created within this initiative cannot be univocally classified according to the standard social tie categories (bridging-bonding-linking) of social capital. Relationships created by the patronage program are (1) bridging in the sense that these span social groups; (2) bonding in the sense that quite a few of these are rather strong ties (“we are like family members for each other” – quotation reiterated by interviewees no 20, 21 and 30) as formulated by both patron and patroned families; and (3) linking in the sense that the initiative was begun and had been run by an informal network of people (as an institution) with the explicit goal of supporting the local Roma underclass.

Such a program provides a good opportunity for observing the functioning of both bonding, linking and bridging social capital; the effects of bonding and bridging interpersonal relations; and connections to social institutions. Such observations might help (1) to identify those points (stages) where poverty alleviation policies and measures through formal social institutions fail, and (2) to reveal those factors which pave the way to social mobility and poverty alleviation.

Local resources

The patronage network means significant resources for the underclass Roma participants. Material support is related to both family crises (e.g. lack of food or inability to pay bills) and investment in the future (e.g. being able to get rid of usury loans or support the concerning improvement of school performance of the underclass Roma children). Non-material support is

just as important: the network secures mutual learning, help in complicated administrative issues or simply providing mental/spiritual support. Mutual learning between underclass and middle class families about each other's life worlds emerges "naturally" through cooperation – e.g. by enhanced understanding and consciousness, but also in a more planned way: middle class families often help the underclass families to be able to better educate their children – patrons often learn with underclass children to directly improve their school performance:

- "There is something happening to É. [a mother from the smaller segregate], she knows that there are people she can count on. This is the most important: there someone out there on who I can count on" (*quotation from interviewee no 28*).

Support here functions independently of large social systems for redistribution allowing for flexibly and personalization. This is of vital importance concerning social mobility and poverty alleviation because of the heterogeneity of the segregated urban underclass Roma concerning material well-being, resources, capabilities and social relations. While in some cases minor support (e.g. cooperation in preparing CVs or using the social connections of patron families) is enough for the underclass Roma families to integrate into the labor market (to get proper jobs), in other cases, access to the labor market is a far more difficult issue if possible at all (e.g. for those families where parents are illiterate, struggling with addictions, depression, etc.) and it requires active and initiating institutional support. It is clear that families in such enormously different situations need differentiated support sensitive to differences in family situations for social mobility, contrary to the standardized services provided by social institutions as observable in the examined context.

Facilitation and representation

It is often a difficulty for the supported underclass families to use the formal institutions properly. These institutions constitute a "middle class arena": communication skills, capabilities, knowledge, material background and self-lobbying capacity fitting the middle class norms and capabilities are needed for someone to use these in an efficient way. This also refers to those formal social institutions whose functions are related to the fulfillment of everyday basic needs, including education or healthcare. For example, arranging an appointment to a specialist in public healthcare often requires several phone calls, meaning an unaffordable problem for the extremely poor who do not have a phone or money to pay for outward calls. And, there exist numerous obstacles concerning the understanding and filling out of official forms in cases when someone is less educated, especially for those who are illiterate. Underclass urban Roma also often meet discrimination in official institutional arenas, which alienates them even more from being able to use these (Kabachnik 2014).

Interviewed patrons all emphasized that they function as facilitators between supported families and social institutions:

- "We are like passports. We have an effect of raising trust between parties. I often feel myself as a facilitator between two worlds" (*quotation from interviewee no 32*).

Such institutions include education, health care, and the local public property (housing) company, but also firms (private institutions in the labor market). According to the perspective of patrons, supported families would fail more often concerning their relations with the social institutions without the support of patrons:

- "Institutions are like that: they leave everyone behind who do not belong to their responsibility... I stepped up as someone who is able to represent their (patroned family) interest" (*quotation from interviewee no 30*).

Such facilitation and interest representation clearly help mobility (e.g. in school issues). A general experience of patrons is that schools are not able to properly communicate with the

underclass Roma parents and they are often more cooperative towards the middle class patrons in cases when they appear as facilitators or representatives for these families. Reasons for improper communication include: (1) general prejudices and discrimination against the Roma (Harper et al. 2009, Kabachnik 2014) also characteristic to certain institutional representatives; (2) self-understanding of tasks and roles ("beyond my task" attitude) of institutions themselves and employees; (3) lack of resources (e.g. underclass Roma parents are not accessible through phones and institutions do not have resources to carry out more demanding communication channels – e.g. family visits); and (4) divergence in norms of communication (e.g. numerous underclass parents often simply do not understand bureaucratic language applied by the social institution, including schools).

Mutual understanding

We all tend to generalize and are capable of having prejudices in our relations to people and social groups which are different from us. According to our observations, becoming a patron – starting to support poor Roma families facing extreme prejudices – demands open and emphatic thinking and attitudes. However, patrons still often face their prejudices during their cooperation with the underclass Roma. Realizing this issue, together with a long-term commitment (feelings of love, friendship, caring and responsibility, as emphasized by both patron and patroned families), provides patrons with continuous motivation to reflect on their prejudices:

- "I experienced it myself, that however enlightened I consider myself, I also have my prejudices. But such prejudices are continuously left behind in such a situation" (*quotation from interviewee no 31*).
- "Our prejudices have become groundless, because if you understand what is happening and why, then your perspective changes" (*quotation from interviewee no 29*).

Bridging connections means that different life worlds meet. Cooperation creates a situation where the understanding and appreciation of each other's situation and behavior is starting to happen:

- "Now I understand it better what a poverty trap means. It is not like you read about it and then know it. It is a situation characterized by extreme inertia" (*quotation from interviewee no 32*).

Such understanding and appreciation is mutual. Middle class and underclass actors continuously reevaluate their presumptions:

- "I wrote it here, that Hungarians are forbidden to enter. But you are allowed to enter". "In cases when someone goes with them [the underclass Roma] she continuously experiences those looks and reactions, which she has not experienced before. You also become a Gypsy for that period" (*quotation from interviewee no 33*).

Questions of efficiency

Participants of the patronage network often experience that their measures and judgements concerning efficiency are often divergent. Even though most patrons are rather critical (skeptical) towards the existing social structures which are often organized by technocratic and neoliberal values and function in an inhuman way, they still consider most of all enhanced system integration as progress:

- "I wrote her a CV. Now she managed to get a job. I consider it a huge success" (*quotation from interviewee no 29*).

Meanwhile, the underclass Roma often value support related to the management of family crises as more important than long term "investments" – also called as "present orientation" by

some (Loewenstein 1985, Ladányi and Szelényi 2004, Romeo 2005):

- “They spend most of their days with trying to solve their everyday problems. Meanwhile I want kids to have some education” (*quotation from interviewee no 28*).

Connections between patron and patroned families seem to be able to approximate these diverging expectations. Middle class patrons are often able to understand the reasons behind present orientation through long-term and intense cooperation, and they also experience changes in the attitudes of supported families. The best example of that are the attitudes towards learning in the official school system. School is often an area of lack of success and exclusion for the underclass Roma, where “we always sat at the last row, separated from the others”, and the same used to apply to parents when they were of school age. Thus, knowledge acquired through schooling does not play a vital role in the subsistence strategies for the underclass Roma. Discrimination, exclusion and the lack of perceived importance of knowledge have significant consequences. Although most underclass Roma families emphasize that education is vital in providing their children perspectives for the future, e.g. by acquiring a profession, former experiences together with the lack of capabilities (e.g. analphabetism) and extreme poverty (problems with fulfilling subsistence needs on a daily basis), result in that, when it comes to actual actions, school and education of children are not among top priorities (Fejes et al. 2013). Patroning ties seem to be able to approximate (change) these priorities in a pro-education direction, and thus open up spaces for the enhanced mobility of the underclass participants:

- “They did not attend school last year at all. Then [children] they passed the re-take exam, which seldom happens. They did not think that they can make it”. “She is more interested in learning now. M. (the patron) has such an effect on her”. “He would like to raise their children in a different way, because he understands how important learning is” (*quotation from interviewee no 30*).

Conclusions

Observing an initiative aimed at creating social ties which span social groups in the approach of PAR provided us an opportunity to examine the dynamics of social relations on an interpersonal level for a longer period of time. Although both the reliability and validity of our analysis are limited by the fact that changes related to social capital appear on the long run (many years or even decades), our analysis being mostly related to a “fresh” (two-and-a-half-year-old) initiative, our observations still provide us interesting insights about the role of the social capital in social mobility and in alleviating poverty for the segregated urban underclass Roma. By observing the functioning of bonding, linking and bridging social capital, numerous points (stages) where poverty alleviation through formal social institutions fail and factors potentially paving the way to social mobility and poverty alleviation were identified.

Examining the inward and outward ties of two segregated urban underclass Roma communities showed that tensions might emerge between the bonding and bridging ties (social and system integration) in the cases where initiatives (e.g. anti-segregation policies) and social institutions are not responsive to the functioning and significance of bonding relations for the urban underclass Roma.

Strong bonding ties and social integration do not only mean the “natural milieu” for community members but also substantial material and non-material resources for day-to-day survival. Measures and institutions not taking this into account might lead to situations where social integration (bonding ties) will overwrite initiatives for system integration. System integration among such circumstances might mean being “forced” into hostile (discriminatory) environments with long-term and uncertain (or no) benefits for the discriminated and marginalized groups. Thus, measures and institutions for poverty alleviation and social mobility

which only focus on system integration and are not sensitive to the natural ties and milieu of the marginalized might lead to situations where the rift between the middle class and the underclass becomes even deeper. Meanwhile, naturally emerging bridging relationships are rare and hardly mean any resources for the urban underclass Roma, especially concerning system integration.

Our observations show that regular, long-term interpersonal relationships between the middle class and the underclass Roma are able to initiate changes in numerous areas through securing personalized resources, facilitation and mutual understanding. These observations carry important messages concerning the functioning of linking social capital. At the present, linking capital is not performing according to its planned function in the context under analysis: people do not trust social institutions which are more or less unable to contribute to poverty alleviation and social mobility for the underclass urban Roma. Rethinking the rigidity of social institutions, which are vital for social mobility, would be of essential importance here. Institutions should be made more "personal" and provide more "personalized" services which reflect both on the diversity of the urban underclass Roma families and on their life worlds: (1) more flexible material and non-material support concerning short term needs and investment in the future; (2) stepping out of purely middle class tools (resources) and norms of communication; (3) recognizing and fighting negligence, prejudices and discrimination within the society in general and the social institutions; and (4) acknowledging that the value of social integration, bonding ties and related norms of the underclass might all lead to enhanced understanding and (more trusted) relationships between the social institutions and the urban underclass – a better quality of linking social capital for social mobility and poverty alleviation.

Thus, our results show that (1) more personal, personalized and sensible, and (2) less standardized solutions are needed for linking social capital to better serve social mobility and poverty alleviation. This leads us to the dilemma of standardization vs. personalization. Standardized institutions are more rigid and thus not only offer less room for flexibility and personalization but also for autocracy. Thus, the personalization of social institutions might mean less rigidity and more room for flexibility and personalization on the one hand, but also for autocracy on the other hand. How to plan linking social capital for social mobility and poverty alleviation in a way that it is both flexible and personalized and resist autocracy, is a vital question open for further research where action research also has a great amount of potential to offer (Bradbury and Reason 2003).

Acknowledgements

We are grateful to all our Roma and patron participants in the PAR project and to Gyula Nagy for helping us with providing suggestions on the map of this paper.

References

- ALBERT F., DÁVID B. (2006), *A kapcsolati tőke dimenziói etnikai metaszemben (Dimensions of social capital – an ethnic approach)*, in: Kolosi T., Tóth I. G., Vukovich G. (eds.), *Társadalmi riport, Társi, Budapest*, pp. 351-369.
- ANDRIANI L., KARYAMPAS D. (2015), *Social capital, poverty and social exclusion in Italy*, *Revista Debates* 9 (2), 77-113.
- ARCHER M. (1996), *Social integration and system integration: developing the distinction*, *Sociology* 30 (4), 679-699.
- ARIELI D., FRIEDMAN V. J., AGBARIA K. (2009), *The paradox of participation in action research*, *Action Research* 7 (3), 263-290.
- BAIYEGUNHI L. J. S. (2014), *Social capital effects on rural household poverty in Msinga, KwaZulu-Natal, South Africa*, *Agrekon* 53 (2), 47-64.

- BEN-PORATH Y. (1980), *The f-connection: families, friends, and firms and the organization of exchange*, Population and Development Review 6 (1), 1-30.
- BOON B., FARNSWORTH J. (2011), *Social exclusion and poverty: translating social capital into accessible resources*, Social Policy and Administration 45 (5), 507-524.
- BOURDIEU P. (1986), *Gazdasági tőke, kulturális tőke, társadalmi tőke (Economic capital, cultural capital, social capital)*, in: Angelusz R. (ed.), *A társadalmi rétegződés komponensei (Components of social stratification)*, Új Mandátum, Budapest, pp. 138-155.
- BRADBURY H., REASON P. (2003), *Action research: an opportunity for revitalizing research purpose and practices*, Qualitative Social Work 2 (2), 155-175.
- CASTEL R. (2000), *The roads to disaffiliation: insecure work and vulnerable relationships*, International Journal of Urban and Regional Research 24 (3), 519-535.
- CLOUGH MARINARO I. (2015), *The rise of Italy's neo-ghettos*, Journal of Urban History 41 (3), 368-387.
- COGHLAN D., BRYDON-MILLER M. (2016), *The SAGE encyclopedia of action research*, SAGE, London.
- COLEMAN J. S. (1998), *A társadalmi tőke az emberi tőke termelésében (Social capital in the production of human capital)*, in: Lengyel G., Szántó Z. (eds.), *Tőkefajták: A társadalmi és kulturális erőforrások szociológiája (Types of capital: Sociology of social and cultural resources)*, Aula, Budapest, pp. 11-44.
- CREȚAN R., TURNOCK D. (2008), *Romania's Roma population: from marginality to social integration*, Scottish Geographical Journal 124 (4), 274-299.
- CSIZMADIA Z. (2015), *A kapcsolati tőke osztályszerkezeti aspektusai lokális metszetben (Class-system aspects of relational capital in a local approach)*, Századvég 78 (4), 49-75.
- DAS R. J. (2004), *Social capital and poverty of the wage-labour class: problems with the social capital theory*, Transactions of the Institute of British Geographers 29 (1), 27-45.
- DÜRKHEIM E. (1893), *The division of labor in society*, Free Press, New York.
- ESSER H. (2008), *The two meanings of social capital*, in: Castiglione D., Van Deth J. W., Wolleb G. (eds.), *The Handbook of Social Capital*, Oxford University Press, Oxford, pp. 22-49.
- FARKAS Z. (2012), *Hidak és sorompók. A telepfelszámolásban, a településeken végzett terepmunka tapasztalatai és integrációs hatásai (Bridges and barriers. Experiences and integrational effects of fieldwork related to anti-segregation)*, Társadalmi együttélés 4, 1-21.
- FEHÉR K., VIRÁG T. (2014), *Élet egy kisváros peremén (Living at the edge of a small town)*, Tér és társadalom 28 (3), 50-65.
- FEJES J. B., KELEMEN V., SZÜCS N. (2013), *Szülők mentorálása a hátrányos helyzet átörökítésének megelőzése érdekében (Mentoring parents in order to prevent the transmission of social disadvantages)*, SZTE JGYPK, Szeged.
- FÜZÉR K. (2015), *A bizalom társadalomelmélete és a társadalmi tőke szociológiája (The social theory of trust and the sociologic theory of social capital)*, Századvég (Társadalmi tőke különszám) 78 (4), 5-18.
- FÜZÉR K., GERŐ M., SÍK E., ZONGOR G. (2005), *A társadalmi tőke növekedésének lehetőségei fejlesztéspolitikai eszközökkel (Opportunities for increasing the level of social capital by applying development policy tools)*, TÁRKI, Budapest.
- GITTEL R., VIDAL A. (1998), *Community organizing: building social capital as a development strategy*, SAGE, London.
- GRANOVETTER M. S. (1973), *The strength of weak ties*, American Journal of Sociology 78 (6), 1360-1380.
- GREENBAUM S., HATHAWAY W., RODRIGUEZ C., SPALDING A., WARD B. (2008), *Deconcentration and social capital: contradictions of a poverty alleviation policy*, Journal of Poverty 12 (2), 201-228.
- GREENFIELDS M., SMITH D. M. (2010), *Housed Gypsy Travellers, social segregation and the reconstruction of communities*, Housing Studies 25 (3), 397-412.
- HANIFAN L. J. (1916), *The rural school community center*, The Annals of the American

- Academy of Political and Social Science 67, 130-138.
- HARPER K., STEGER T., FILCAK R. (2009), *Environmental justice and Roma communities in Central and Eastern Europe*, Environmental Policy and Governance 19 (4), 251-268.
- HAWKINS R. L., MAURER K. (2010), *Bonding, bridging and linking: how social capital operated in New Orleans following Hurricane Katrina*, British Journal of Social Work 40, 1777-1793.
- KABACHNIK P. (2010), *England or Uruguay? The persistence of place and the myth of the placeless Gypsy*, Area 42 (2), 198-207.
- KABACHNIK P. (2014), "Where can we put our homes?" *Gypsies and Travelers in the English Green Belt*, Journal of Cultural Geography 31 (3), 280-303.
- KEMÉNY I., JANKY B., LENGYEL G. (2004), *A magyarországi cigányság, 1971-2003 (Gypsies in Hungary, 1971-2003)*, Gondolat, Budapest.
- KHATUN F., HASAN M. (2015), *Social capital in microfinance: a critical investigation of Bangladesh*, Journal of Emerging Trends in Economics and Management Sciences 6 (5), 315-323.
- LADÁNYI J. (2007), *Az antiszegregációs programok szükségességéről és lehetőségeiről (On the necessity and possibilities of antisegregation programs)*, Kritika 36 (10), 2-4.
- LADÁNYI J., SZELÉNYI I. (2004), *A kirekesztettség változó formái (Changing forms of exclusion)*, Napvilág Kiadó, Budapest.
- LANCIONE M. (2017), *Revitalising the uncanny: challenging inertia in the struggle against forced evictions*, Environment and Planning D: Society and Space, DOI: <https://doi.org/10.1177/0263775817701731>.
- LEVIN M. (2012), *Academic integrity in action research*, Action Research 10 (2), 133-149.
- LOCKWOOD D. (1964), *Social integration and system integration*, in: Zollschan G. K., Hirsh W. (eds.), *Explorations in Social Change*, Houghton Mifflin, Boston.
- LOEWENSTEIN G. (1985), *The new underclass: a contemporary sociological dilemma*, The Sociological Quarterly 26 (1), 35-48.
- MAESTRI G. (2014), *The economic crisis as opportunity: how austerity generates new strategies and solidarities for negotiating Roma access to housing in Rome*, City 18 (6), 808-823.
- MÉREINÉ BERKI B., MÁLOVICS G., JUHÁSZ J. (2017), *A hazai antiszegregációs tervek értékelése Amartya Sen képességszemlélete alapján (Evaluating Hungarian antisegregation plan based on Amartya Sen's capability approach)*, in: Bajmócy Z., Gébert J., Málovics G. (eds.), *Helyi gazdaságfejlesztés a képességszemlélet alapján*, JATEPress, Szeged, pp. 137-160.
- MESSING V., MOLNÁR, E. (2011), *Bezáródó kapcsolati hálók: szegény roma háztartások kapcsolati jellemzői (Networks of connections in the process of closure: characteristics of the social connections of poor Roma households)*, Esély 5, 47-74.
- MESSING V. (2006), *Lyukakból szőtt háló: háztartások közötti támogató kapcsolatok roma és nem roma szegények körében (A net wrapped of holes: supportive relationships among households in case of Roma and non-Roma poor people)*, Szociológiai Szemle 2, 37-54.
- MUNTÉ A., SERRADELL O., SORDÉ T. (2011), *From research to policy: Roma participation through communicative organization*, Qualitative Inquiry 17 (3), 256-266.
- NFGM (2012), *Városfejlesztési Kézikönyv. Második, javított kiadás (City Development Handbook. Second, Corrected Edition)*, Nemzeti Fejlesztési és Gazdasági Minisztérium, Retrieved from: www.terport.hu.
- POWELL R. (2008), *Understanding the stigmatization of Gypsies: power and the dialectics of (dis)identification*, Housing, Theory and Society 25 (2), 87-109.
- POWELL R. (2011), *Gypsy-Travellers and welfare professional discourse: on individualization and social integration*, Antipode 43 (2), 471-493.

- POWELL R. (2013), *Loïc Wacquant's 'ghetto' and ethnic minority segregation in the UK: the neglected case of Gypsy-Travellers*, International Journal of Urban and Regional Research 37 (1), 115-134.
- PRETTY J. (2003), *Social capital and the collective management of resources*, Science 302 (5652), 1912-1914.
- PUTNAM R. D. (1993), *Making democracy work: civic traditions in modern Italy*, Princeton University Press, Princeton.
- PUTNAM R. D. (1995), *Bowling alone: America's declining social capital*, Journal of Democracy 6 (1), 65-78.
- ROMEO J. H. (2005), *Down and out in New York City: a participant-observation study of the poor and marginalized*, Journal of Cultural Diversity 12 (4), 152-160.
- RUZICKA M. (2012), *Continuity or rupture? Roma/Gypsy communities in rural and urban environments under post-socialism*, Journal of Rural Studies 28 (2), 81-88.
- SAVANYA P. (2013), *A társadalmi tőke jelentősége a gazdaságban, szerepe az innovációk társadalmi megformálásában (The role of social capital in economics and in the social formulation of innovation)*, in: Bajmócy Z., Elekes Z. (eds.), *Innováció: a vállalati stratégiától a társadalmi stratégiáig*, JATEPress, Szeged, pp. 140-149.
- SCHVAB A. (2016), *The area of influence of Baia Mare Municipality. Adaptation processes to a changing economy* (in Romanian), Ars Docendi, Bucharest.
- SCHVAB A., SÍRODOEV I., PARASCHIV M., VĂIDIANU N. (2015), *Steps in understanding the role of instability upon urban territorial systems*, Journal of Urban and Regional Analysis 7 (2), 193-207.
- SOLT Á. (2010), *Élet a reményen túl. A szegregált telepen élők mentalitásvizsgálatának összegzése (Life beyond hope. Summary of the examination of mentality of people living in gypsy segregates)*, Szociológiai Szemle 20 (3), 100-133.
- STEWART M. S. (2001), *Depriváció, romák és az "underclass" (Deprivation, Roma and the underclass)*, Beszélő 7-8, 82-94.
- TENZIN G., OTSUKA K., NATSUDA K. (2015), *Can social capital reduce poverty? A study of rural households in Eastern Bhutan*, Asian Economic Journal 29 (3), 243-264.
- TITSCHER S., MEYER M., WODAK R., VETTER E. (2000), *Methods of text and discourse analysis*, SAGE, London.
- VAN BAAR H. (2015), *The Perpetual Mobile Machine of Forced Mobility: Europe's Roma and the Institutionalization of Rootlessness*, in: Jansen J., Celikates R., de Bloois J. (eds.), *The Irregularization of Migration in Contemporary Europe: detention, deportation, drowning*, Rowman & Littlefield International, New York and London, pp. 71-86.
- VAN DER MEULEN E. (2011), *Action research with sex workers: dismantling barriers and building bridges*, Action Research 9 (4), 370-384.
- WACQUANT L. (2012), *A Janus-Faced Institution of Ethnoracial Closure: A Sociological Specification of the Ghetto*, in: Hutchinson R., Haynes B. D. (eds.), *The Ghetto. Contemporary Global Issues and Controversies*, Westview Press, Boulder, pp. 1-32.
- WOOLCOCK M., NARAYAN D. (2000), *Social capital: implications for development theory, research and policy*, World Bank Research Observer 15 (2), 225-249.
- ZHANG Y., ZHOU X., LEI W. (2017), *Social capital and its contingent value in poverty reduction: evidence from Western China*, World Development 93, 350-361.

Initial submission: 07.09.2016

Revised submission: 12.05.2017

Final acceptance: 08.06.2017

Correspondence: Faculty of Economics and Business Administration, Research Centre,
University of Szeged, Kálvária sgt. 1, 6722, Szeged, Hungary.

Email: malovics.gyorgy@eco.u-szeged.hu

COMBINING SYSTEM DYNAMICS AND PERFORMANCE MANAGEMENT TO SUPPORT SUSTAINABLE URBAN TRANSPORTATION PLANNING

Guido NOTO

Sant'Anna School of Advanced Studies, Pisa, Italy

Abstract: In a global context characterized by a growing and rapid urbanization, achieving a good performance in the urban transportation domain is closely linked to the pursuit of sustainability, seen as the ability to satisfy social needs – i.e. improving quality of life – without compromising the ability of the future generation to satisfy theirs. Addressing sustainability assumes to deal with certain social characteristics – namely pluralism, institutional fragmentation and uncertainty – that makes the challenge complex. In order to deal with this complexity, literature embarked the road of developing detailed models to support planning activities and decision-making processes. However, a number of limits raised with reference to the usefulness of these models to planning processes. This paper suggests an innovative planning approach tailored to complex urban transportation systems. This approach is based on the Performance Management theory and the System Dynamics modelling.

Key Words: *urban transportation planning, system dynamics, performance management, sustainable urban mobility.*

Introduction

The economic and social health of urban areas depends to a large extent on the performance of their transportation systems (Meyer and Miller 2001, European Parliament 2011). Poor urban transportation services have a negative impact on the economy and development of a city (World Bank 2002). However, in many areas of the world, urban transportation is getting worse rather than better with economic development (Peñalosa 2005). This negative trend is not necessarily related to the lack of investment, but, in some cases, to the side effects of policies that do not consider the complexity of the environment in which decision-makers operate – i.e. the positive effect of an improved mobility system have to be weighted, on the long run, with the negative externalities such as increasing the demand of mobility and effects on the spatial distribution of the residents (Waitt and Harada 2012).

This kind of behaviour occurs when policy interventions do not take into account the need to balance the different dimensions that characterize every urban system and influence its sustainable development. These dimensions are grouped into three main categories: economic, social and environmental (Lautso et al. 2004, Litman 2017). The presence of multiple feedback processes existing between these realms determines an environmental complexity (Forrester 1961) which makes the measurement and evaluation of urban transportation systems performance and sustainability more challenging.

The environment characterizing the urban area may be seen to have three characteristics, namely: pluralism, institutional fragmentation, and scientific uncertainty (Head and Alford 2013):

- *Pluralism* concerns the different needs and expectations of the community in relation to transportation systems in terms of infrastructures and supplied services. Different target populations demand different mobility services such as different businesses perceive infrastructure adequacy in different ways.
- *Institutional fragmentation* characterizes service provision when more than one player is

involved. This could be the case of a metropolitan area in which the bus services are run by several private companies that provide the service under the standard requirements of different public authorities. It is hard to monitor performance and to check whether public or private investments provide the expected return in terms of 'value' for the entire community.

- *Scientific uncertainty* permeates transportation systems in many aspects, among which we may identify environmental impacts and users' behaviour.

The three factors mentioned above characterize the environment in which 'wicked problems' exist (Head and Alford 2013). The term 'wicked' refers to issues that are difficult to define and manage because they often lead to counterintuitive behaviours in terms of time (trade-offs between short- and long-term) and space (trade-off between different institutions) when actions are taken to resolve them (Rittel and Weber 1973, Australian Public Service Commission 2007, Head and Alford 2013).

These wicked features make public policies difficult to monitor. Linear transportation planning approaches may produce poor results when dealing with these kind of issues because they are excessively static in assessing performance at a system level. The classical science approach, that consists in the isolation of the elements of the observed universe so as to understand the whole, is not suitable to deal with wicked and sustainability related issues (Hjort and Bagheri 2006). When dealing with urban transportation, "classical-science" models only focus on demand and supply sub-systems in a short-time perspective and without considering the feedback relationships intervening among them (Zuidgeest and van Maarseveen 2000, Wang et al. 2008). The result of the adoption of such approaches is the implementation of policies that lead to counterintuitive behaviours such as encouraging the use of private modes of transportation that leads to more congestion, or enhancing segregation of specific neighbourhoods.

In order to overcome the limits of linear planning and to tackle wicked problems, a systemic (or 'holistic') view is recommended (Rittel and Webber 1973, Head and Alford 2013). This view allows us to think broadly about the social problems and their possible solutions, considering major stakeholders' interests and expectations. For example, a systemic view would let us take into consideration possible behavioural distortions coming from the introduction of new constraints (e.g. speed limits, tolls) or new infrastructure (e.g. new motorways). For these reasons, over the last fifty years, transportation modelling has evolved producing always more sophisticated models able at capturing the systemic and dynamic complexity that characterizes mobility issues.

One of the main tool that was developed so as to cope with complexity is the land use transport interaction (LUTI) approach, whose aim is to understand the interactions between the economic and social development and transport demand (Pfaffenbichler et al. 2010). Among these models we find several applications such as IRPUD (Wegner 1998), DELTA (Simmonds 1999), Urbansim (Waddel 2002), MARS (Pfaffenbichler 2008, Pfaffenbichler et al. 2010) and other agent-based models (such as MATSim). The adoption of these models succeeded in capturing the multiple-feedback processes existing between the different urban dimensions. However, one of the main issues that LUTI and agent-based models faces is related to the scarce support that these had on actual planning processes (Saujot et al. 2016). In fact, except for the MARS model, all the other mentioned models have gone down the route of using always more detailed models (Pfaffenbichler et al. 2010). The result is that often these models are scarcely understood by planners and decision makers, who are not inclined to use these sophisticated "black boxes" (Pfaffenbichler et al. 2010, Saujot et al. 2016).

Transportation planners require accessible tools that are able at providing specific performance

indicators to predict and monitor the effects of implemented policies and to eventually take corrective actions (Wang et al. 2008, Litman 2017). These performance measures should be coherent with the systemic approach mentioned above and therefore must adopt the sustainability perspective necessary to deal with the wicked problems.

Sustainability may be defined as the ability to meet “the needs of today’s citizens without prejudicing the ability of future generations to meet their own needs” (United Nations 1987). Tackling sustainability means to relieve the pressure of current social, economic and environmental challenges. With reference to mobility this means to deal with traffic congestion, air quality, consumption of non-renewable resources, CO₂ emissions, social exclusion and urban sprawl (European Parliament 2011).

The aim of this paper is to suggest an intuitive and easy-to-use urban transportation modelling approach for tackling wicked problems and designing effective policies oriented to tackle sustainability issues through the development of specific performance indicators. In order to accomplish this purpose, the current work aims at answering the following research questions:

- Which features should the planning approach have, that are tailored to urban transportation and consider its social complexity?
- How such an approach may include performance measures to monitor the sustainability of the service in terms of resources and citizen satisfaction?

In order to answer these research questions, a modelling approach that considers the social, technical and financial aspects characterizing the urban mobility performance will be developed and discussed. This is based on Performance Management (PM) theory (Neely 1999, Otley 1999) and System Dynamics (SD) modelling (Forrester 1961, Sterman 2000).

An example based on a district of Buenos Aires (Argentina) is here presented. This is based on the development of a simulation model that, through five performance indicators, explains how transportation may develop and influence the local attractiveness and economic viability over the next twenty years.

Methodology

Due to the complexity of the environment in which urban transportation organizations operate, linear planning approaches appear to be excessively static in providing the appropriate performance measures (Wang et al. 2008). The result is that these kind of approaches tend to excessively focus on the service outputs, ignoring the final outcome for the community.

In order to deal with social complexity, the adoption of a systemic approach is suggested (Rittel and Webber 1973, Head and Alford 2013). As previously mentioned, from the 1960s transportation modellers, there start to develop new generation models able to gather the multiple-feedback processes existing in urban transportation systems with specific reference to those relating mobility issues with economic and spatial issues. However, few efforts have been made by the academics to fill the gap between lab application and operational use for planning practice (Wegener 1994, Saujot et al. 2016). Many researchers and modellers (Vonk et al. 2005, Brömmelstroet and Bertolini 2008, Waddell 2011) highlighted the need to connect with end-users (e.g. planners, public agencies or transport authorities). The distance between modellers and end-users is mainly depending on the model complexity and the decision makers’ difficulty of understanding these models (Saujot et al. 2016). In fact, a trend that characterized LUTI models such as other transportation modelling techniques is related to the use of always more detailed models (Pfaffenbichler et al. 2010). An exception to this trend is represented by the MARS models which are built at a more aggregate or strategic level (Pfaffenbichler et al. 2010).

These transportation modelling techniques take advantage from the System Dynamics (SD) approach. System Dynamics could be defined as “a perspective and set of conceptual tools that enable us to understand the structure and dynamics of complex systems” (Sterman 2000: 7). The primary assumption of SD is that persistence dynamics of complex systems arise from their casual structure – meaning all of the constraints, rules and goals that cause people to behave in a certain structured way (Meadows 1980). The core concept of SD is the feedback (two-way causation) process existing between the variables in a system. Complex systems are indeed characterized by multiple feedback loop structures and non-linear relationships between variables (Forrester 1961). Representing those feedbacks helps the analyst to understand the system structure which generates counterintuitive behaviour.

Others studies that applied System Dynamics to urban transportation issues may be found in Wang et al. (2008), Armah et al. (2010), Haghshenas et al. (2015) and Noto and Bianchi (2015). Analysing this contribution, it emerges how this methodological approach is suitable in order to adopt a sustainable perspective. Particularly: it supports a holistic perspective that considers the multiple internal dimensions of a system such as population, economic development, infrastructures, etc.; it provides the possibility to design key performance indicators oriented at measuring and monitoring the system’s external dimensions (economic, social and environmental); it allows planners to analyse transportation performance both in the short- and the long-term.

In the present work, SD was combined with traditional PM frameworks. This was done so as to take into account the need to monitor and measure urban mobility performance over time. PM allows us to build a set of performance indicators based on the objectives that one is willing to achieve. In the urban transportation case, the objectives are related to sustainability and the sustainable development of the mobility system (Wang et al. 2008, Litman 2017).

System Dynamics and Performance Management tools have been already merged by several authors (Morecroft 1999, Warren 2004, Bianchi 2010 and 2012, Cosenz and Noto 2016). According to an ‘instrumental view’ of performance, Bianchi (2010 and 2012) suggests that social systems can be framed by distinguishing strategic resources (resources held by the whole-system), end-results (what we want/need to achieve) and performance indicators (intermediate results that explain us how to employ the strategic resources in order to achieve our end-results).

In SD terms, we can represent strategic resources as ‘stock’ variables, meaning variables that are subjected to accumulation/depletion processes which characterize the state of the system. An example could be given by the number of vehicles available for the public transportation service: it is a variable that can be measured in unit and that can be observed at a given moment in time.

End-results are typically represented as ‘flows’. A flow is what changes the stock over a time period. Back to the number of vehicles example, one of its flow would be the ‘vehicles purchase rate’. This, that can be measured as unit per time, says to us how many vehicles have been purchased during the considered time period. The end-results depend on the intermediate results (performance indicators) that are causally determined by the employment of strategic resources. These indicators are usually measured in relative terms by comparing the actual state of a variable with a target value or a benchmark (e.g. no. of vehicles available in district A over the no. of vehicles available in district B). When dealing with social issues such as transportation, the indicators should not focus only on economic measures but should also include aspects relative to other dimensions of performance. As already mentioned in the previous paragraph, in order to run a sustainability oriented analysis, transportation performance measures should include economic, social and environmental measures (Lautso

et al. 2004, Haghshenas et al. 2015, Litman 2017).

In order to measure the transportation system performance in a sustainability perspective, some authors – such as Haghshenas et al. (2015) or Litman (2017) – focused on the development of a set of indexes. These are values or ratios that could be used to monitor performance. However, these are not causally linked to the achievement of the system’s end results. Vice versa, the indicators resulting from the adoption of the instrumental view mentioned above (Bianchi 2012) can be considered drivers of the system performance – i.e. intermediate results that are causally linked to the end-results achievement.

Closing the loop, end-results provide an endogenous source in a system to the accumulation and depletion processes affecting strategic resources. The structure model is then completed by linking the relevant stocks and flows by equations taking the form of integral, differential, or other forms, which determine a certain behaviour of the system over time (Wang et al. 2008).

This approach empowers a systemic view of transportation systems, since each performance driver shows how the employment of the linked strategic resources affects all the other interdependent resources within the system (Noto and Bianchi 2015). Due to this interdependence, each strategic resource has the power to foster others in the same system, or not.

Fig. 1 shows the dynamic performance management framework. The analysis starts from the bottom part of the image which concerns the end-results identification. These are causally related to performance indicators variables, which are represented as auxiliary variables (in black). These indicators represent the intermediate results that explain how the end- ones are achieved. Performance indicators depend (causal relationships) on the usage of strategic resources (squared variables). Strategic resources accumulate value when the end-results are achieved and they decrease it when they are employed in new activities.

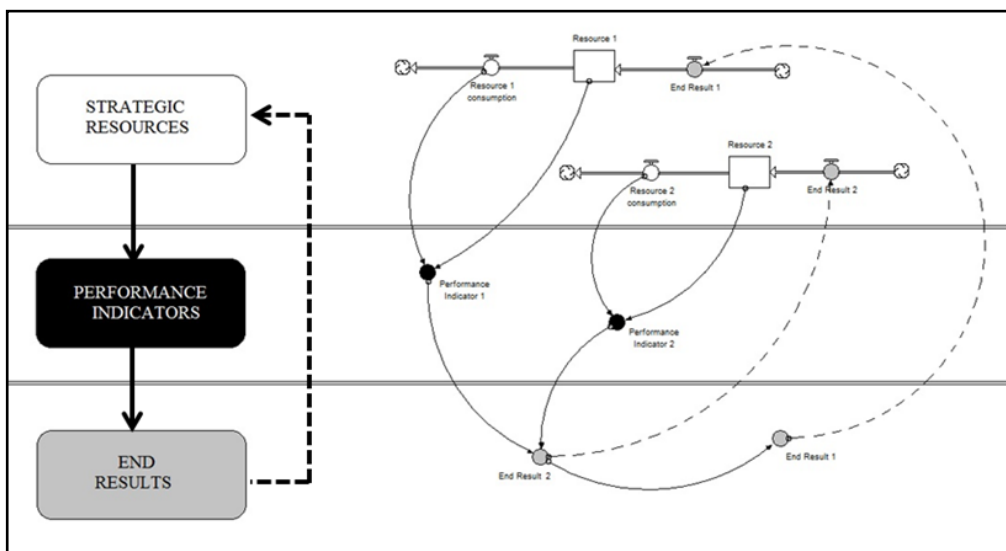


Fig. 1 – Dynamic Performance Management perspective (Bianchi 2012)

A general and comprehensive urban transportation model structure

When focusing on urban transportation dynamics, we may conceptually frame a model into different modules so as to take into account the main dimensions that characterize its structure (Wang et al. 2008, Haghshenas et al. 2015).

Considering the individual characteristics of each city, it is not possible to develop a general and quantitative model applicable to each urban system without a strong adaptation effort. This is due to the specificities in terms of social and geographical characteristics that distinguish each city and urban district and which require an ad hoc analysis of the urban social context. However, it is possible to define a general model structure including the main dimensions that characterize urban transportation systems and making explicit the dynamics that link those dimensions.

The end-results that a transportation system should achieve are related to broad community outcomes (Della Porta and Gitto 2013), such as quality of living. These results determine the urban area's attractiveness which produces its effect in terms of economic development and in- and out-migration (Wang et al. 2008). End-results can be achieved through the pursuit of those intermediate results that determine "good" mobility. These intermediate results, that directly affect system quality, can be built according to the DPM approach examined in the previous paragraph and they are aimed at measuring mobility performance according to the threefold sustainability perspective (economic, social and environmental).

System quality results from the match between travel demand and transport supply. These two dimensions are linked by direct relationships and influence each other. On the one hand, an increase in demand determines an effort toward the adaptation of transport supply. This can take different forms based on the local area specific objectives and goals – e.g. new infrastructure (road building, new metro line, new cycle lane, etc.) or services (new bus routes, web facilities, frequency of public service, etc.). On the other hand, transport supply provides a set of transportation modes and infrastructures that make users reacting by choosing between them based on their preferences.

In the last instance, both travel demand and transport supply are influenced by the end-results achieved – e.g. a bigger population with a growing income determines bigger travel demand, as such bigger financial resources determine the possibility to enhance transport supply (Fig. 2).

When dealing with real planning in cities, this general structure needs to be adapted to their specific characteristics and problems. To do that, we suggest the adoption of SD research principles which define four steps to be undertaken, also called P'HAP (Moxnes 2009):

- Problem identification (P'): identify symptoms and choosing a representative reference behaviour;
- Hypothesis (H): designing the system structure that may generate the problem;
- Analysis (A): testing structure and behaviour (through simulation) so as to understand if the hypothesis previously formulated is rejected or not;
- Policy design (P): finding policies that produce less problematic behaviours.

Through these steps it is possible to combine both scientific methods used to understand the roots of problems – P, H, A – and policy design. This is the challenge that modellers need to face in order to foster the adoption of transportation models by decision-makers and planners.

In the following section, a case study is developed according to the P'HAP research approach.

This case shows an application of DPM to urban transportation planning and it discusses its advantages and pitfalls.

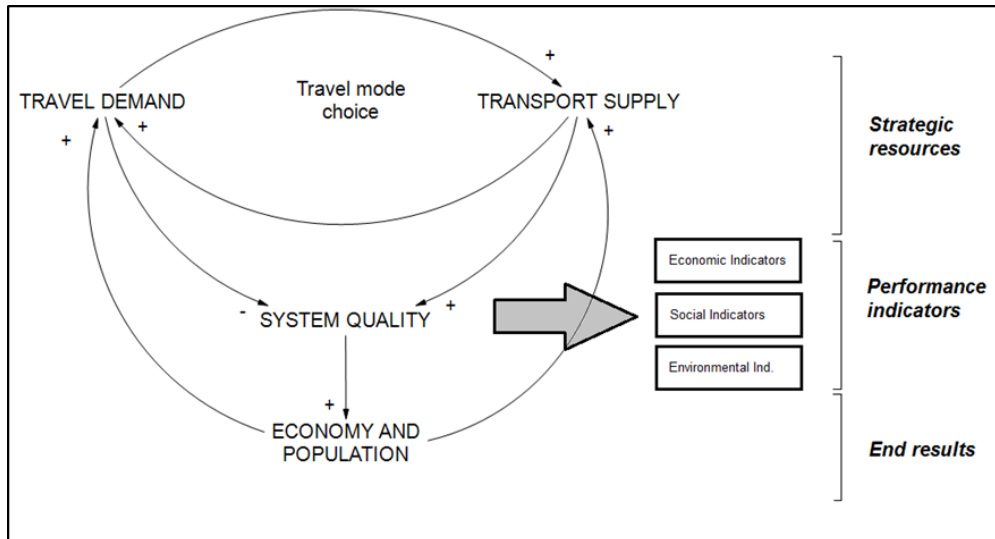


Fig. 2 – A general model for urban transportation

Results and Discussion

The case study here developed concerns the “Region Metropolitana Norte” (RMN), a complex of four municipalities composing the Buenos Aires urban area (Fig. 3). This region is one of the most important (in terms of production) in the whole Province of Buenos Aires. Even though the four municipalities composing it (Vicente Lopez, San Isidro, San Fernando and Tigre) represent a small portion of the total province area, they contribute about 10% to the total province GDP production (Dirección Provincial de Estadística 2010). Due to its proximity to the capital city of Argentina, many of the people residing in these municipalities conduct business in Buenos Aires. Therefore, every morning and evening, they go back and forth from home to the capital city (CABA). This behaviour causes traffic congestion in the main roads connecting the two areas.

Traffic congestion between RMN and CABA, and the related effect on local attractiveness and mobility performance, was identified by the experts’ interviews as the major problem (P’) of RMN transportation system.

The hypothesis (H) about the nature of this problem, namely traffic congestion, is related to the inadequacy of the existing transport supply in respect to the current demand. In order to tackle this problem, it is important for a policy solution to consider the set of causal relationships that affect the urban system in a dynamic perspective (Sterman 2000). The risk is to incur counterintuitive behaviours that, in the long-run, may result in a worse performance of the mobility system.

Traffic congestion impact on mobility is twofold (European Parliament 2011): first it has a direct economic impact on citizens in terms of delays and costs associated with the increased depreciation of vehicles and additional fuel and oil consumption; second, it negatively impacts

the environment (air and noise pollution, greenhouse gases emission). This congestion is determined by the number of vehicles travelling in the same road at the same time (Wang et al. 2008).

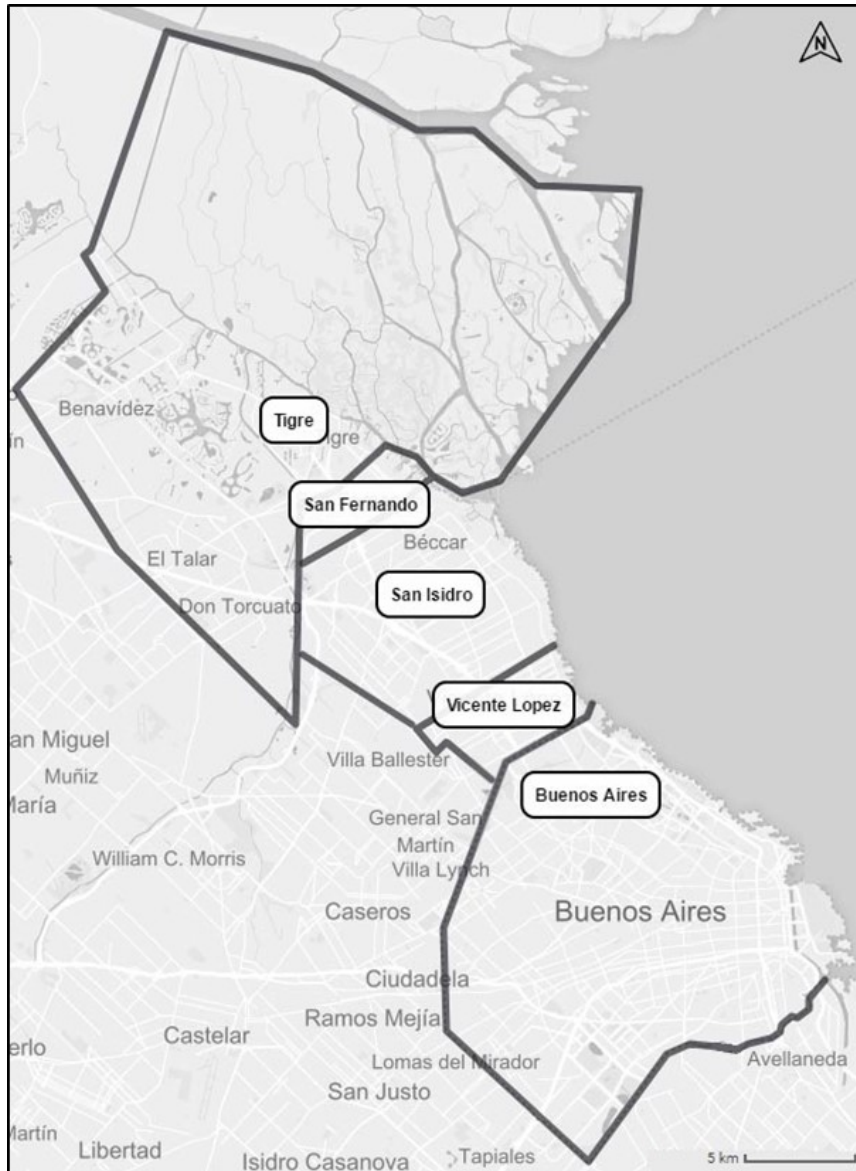


Fig. 3 – Buenos Aires Region Map

According to Golob (1990), the main features that influence the users' travel mode choice are travel time and cost. Therefore, if we want to reduce the number of vehicles in the street at a given moment in time, we should make collective modes of transportation more attractive in terms of cost and time.

Travel mode choice influences the overall system performance that consists in a multi-dimensional construct depending on the features of the different transportation modes (e.g. travel time, cost, emissions, line extensiveness) weighted with their rate of adoption (i.e. how many trips are run through each mode). Therefore, when evaluating how policy-makers' actions affect the systems' performance, we have to consider, on the one hand, the short-term effects they will produce (e.g. reduction in travel time, wider extensiveness, variation on travel cost). On the other hand, we should consider how these effects influence the citizens' behaviour in terms of travel mode adoption in the long-run (i.e. switch from one mode to another).

Summarizing, increasing the performance of peripheral area transportation systems not only means improving people's ability to move easier back and forth from the city centre (output), but, more importantly, it means to impact local attractiveness in both the short- and the long-term through travel demand and travel mode choice. These are influenced by the changes in transport supply (e.g. new infrastructure) on the basis of several factors (Kitamura 1990), both at the macroscopic level – continuing urbanization, evolving consumer technology and products, telecommunications systems, highway and transit improvements, and energy and air quality policies – and microscopic level – household conditions (e.g. income, composition), travel time and cost (Golob 1990, Wegener 2011).

To explore the complexity of the case described above, an analysis (p'hAp) was carried out thanks to the DPM approach. The SD model is based on the current structure of the transportation system between the RMN and the City of Buenos Aires (CABA). It allows us to simulate and test potential solutions (P) for transportation issues over a twenty-year period.

Data section

The formulation of the hypothesis (H), the estimation of variables and coefficients was made thanks to both a deep documents analysis¹⁾ and interviews with experts (the former Director of Infrastructure of the City of Buenos Aires, the former Director of the Ministry of Public Works of Argentina and an independent researcher). The data used to run the model and to develop figures 4, 5, 6, 7 come from the analysed documents (see footnote 1) and the official Argentinian statistics and other data. Table 1 summarizes the main data used.

Table 1

Data sources

Measure	Source
Number of trips per month	Observatorio de Movilidad Urbana
Travel time per mode	Observatorio de Movilidad Urbana
CO ₂ emissions	www.co2nnect.org
Population	Direccion Provincial de Estadistica Buenos Aires
Average incomes	Instituto Nacional de Estadística y Censos
Average firm production	Ministerio Economia
Argentinian tax system	Deloitte report (2011)

1) These documents include: "Enmodo: Encuesta de movilidad domiciliaria, 2009-2010"; "Intrupuba: Investigación de transporte urbano de Buenos Aires"; "Observatorio de Movilidad Urbana - Información disponible en línea, 2007"; "Comisión Nacional de Regulación del Transporte (CNRT). Red ferroviaria argentina, Informe estadístico 2010-2011"; "Academia Nacional de Ingeniería. Accesos a la Región Metropolitana de Buenos Aires. El transporte ferroviario y los subterráneos, 2011".

The model

As stated in the introduction of this paper, urban transportation models encounter difficulties in being adopted by planners and decision makers due to (Saujot et al. 2016): their complexity (namely, scarce understanding about models' functioning and potentiality); the high costs that make many authorities not able to afford it; the long time required to develop such models.

The model here presented is an aggregate and easy-to-read model that comprehends 457 equations and parameters in total. The model structure is formed by two connected sub-models: one (RMN-CABA) focuses on the mobility between the northern region and the city centre; whereas the other (RMN), represents the mobility inside the northern region (Fig. 4).

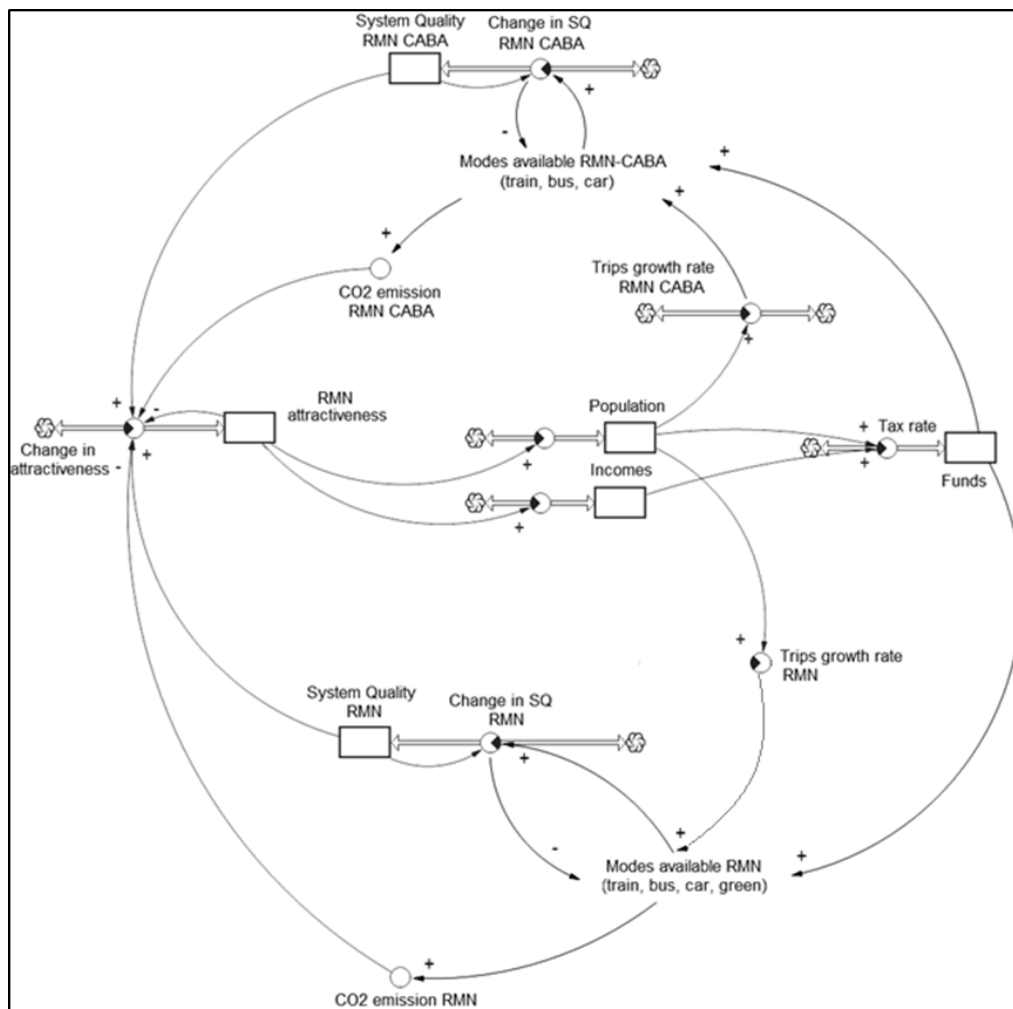


Fig. 4 – The model

These sub-models have a similar structure. In both cases, the match between the transport supply (the different travel modes available) and the travel demand determines the overall system quality as measured by a mix of economic, social and environmental aspects. According to the general model displayed in the third paragraph of the present work, the transportation system quality influences the RMN attractiveness which, in the long run, has an impact on both population (attracting new residents) and the economy (supporting firms' development). The money coming from taxes payed by both people and firms may then be invested again into the transportation system to improve its quality. These investments may be in different combination of available policy options (e.g. railroad, bus line, toll, cycle line, monorail, underpass) which have a different impact on the overall performance, seen as a construct of the different dimensions previously identified (economic, social, environmental).

Each performance dimension was measured thanks to a set of indicators built following a DPM approach. The main end-result (outcome) relevant to this case is the improvement of the urban area attractiveness. This, as argued by Wang et al. (2008), can be influenced by the performance of the transportation system. In other words, urban area attractiveness depends on some performance drivers (or indicators) that, in our analysis, has been defined as follow:

- **Economic:** Cost of travel (average cost of travel/historical value); Travel time (average travel time/historical value);
- **Social:** Extensiveness (no. of stops/historical value); Security (no. of accidents/historical value);
- **Environmental:** CO₂ emissions (CO₂ emissions/CO₂ emissions if no investments occur).

As previously stated, these indicators do not just depend on the policies input, but, in the long run, they are also influenced by the citizen behaviour.

In Fig. 5, a partial version of the causal model structure was sketched. It is partial because it displays the system's relationships related to an investment in a specific mode in one area (e.g. RMN-CABA viability). The full model comprehends all the potential investments modes, interacting to each other's, in both subsystems. For graphical reasons, due to the fact that the structure portrayed in Fig. 4 is the same for each transportation mode, we decided to show just a partial version of the model.

As we may notice, the partial model structure is formed by four reinforcing loops (feedback loops leading to exponential behaviour) and two balancing loops (feedback loops leading to exponential decay behaviour). The reinforcing loops describe the dynamics by which an investment in a certain mode improves its performance (economic, social and environmental characteristics) and, therefore, the transportation system quality since it impacts on a share of the total trips of the area. An improved system quality influences the RMN attractiveness with a direct, indirect and induced effect on the economy and population. A growth in population and the economy can be translated in a bigger amount of taxes collected by the public administration that may be used to payback previous investments or undertaking new ones.

The first balancing loop (B1) is related to the carrying capacity of the modes. Once a mode becomes more attractive due to a reduced travel time or cost, users will adopt it until its maximum capacity is reached. Then, that mode's performance will start decreasing due to its excessive adoption and users will switch to other transportation modes until an equilibrium is reached.

The second balancing loop (B2) is related to the dynamics that a growth in population and the economy would generate an increase in travel demand with negative consequences on the environment and, therefore, on system quality and RMN attractiveness. The causal link connecting "trips with mode 1" and the environmental indicator do not have a defined polarity

because this depends by the environmental performance of the other transportation mode available (non-linear function). These two balancing loops represent the main “limits to growth” of the transportation system.

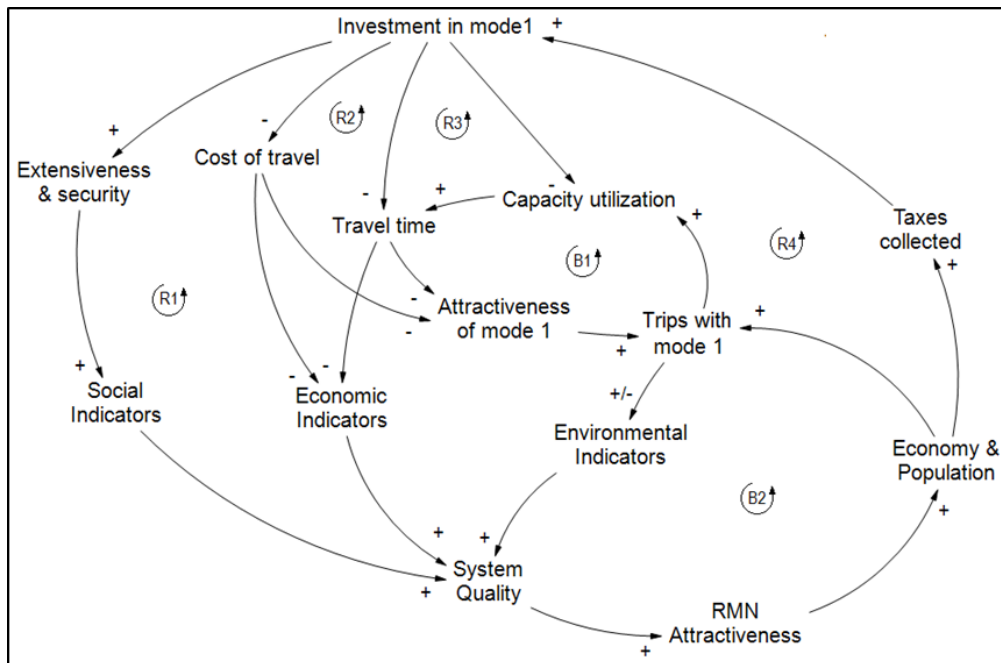


Fig. 5 – A causal loop diagram

In Fig. 6, a stock and flow version of the causal loop diagram was provided so as to discuss the quantification of the main relationships and the hypothesis made to run the model.

Even in this case, the model showed in Fig. 6 is a partial and simplified version of the one utilized to simulate the system’s behaviour and scenarios. The variables in grey portrayed in Fig. 3 represent the performance indicators previously described. These were built comparing the actual value with the historical one (e.g. the average travel time/initial average travel time). The variable in black groups these performance measures into synthetic economic, social and environmental indicators. The contribution of each performance dimension to the overall system quality was assumed to be equal for each group of indicators (economic, social and environmental). In order to estimate the effect of service quality on RMN attractiveness, system quality and RMN attractiveness were measured on the same scale. In our model, system quality has an impact equal to 1 to RMN attractiveness with a time delay of six months. The effect of territory attractiveness on population and economic growth was estimated thanks to a study conducted by Weisbrod et al. (2009). Tax system equations were taken from a Deloitte report (2011).

The potential investments were chosen looking at the set of policy options (P) that were on the table when this study was run (Table 2). Two options (investments in the existing rail infrastructure and tolling) directed to the viability between the two areas; two other options (investment in cycle line and a new monorail infrastructure) for the northern region; and two

Combining System Dynamics and Performance Management to Support Sustainable Urban Transportation Planning

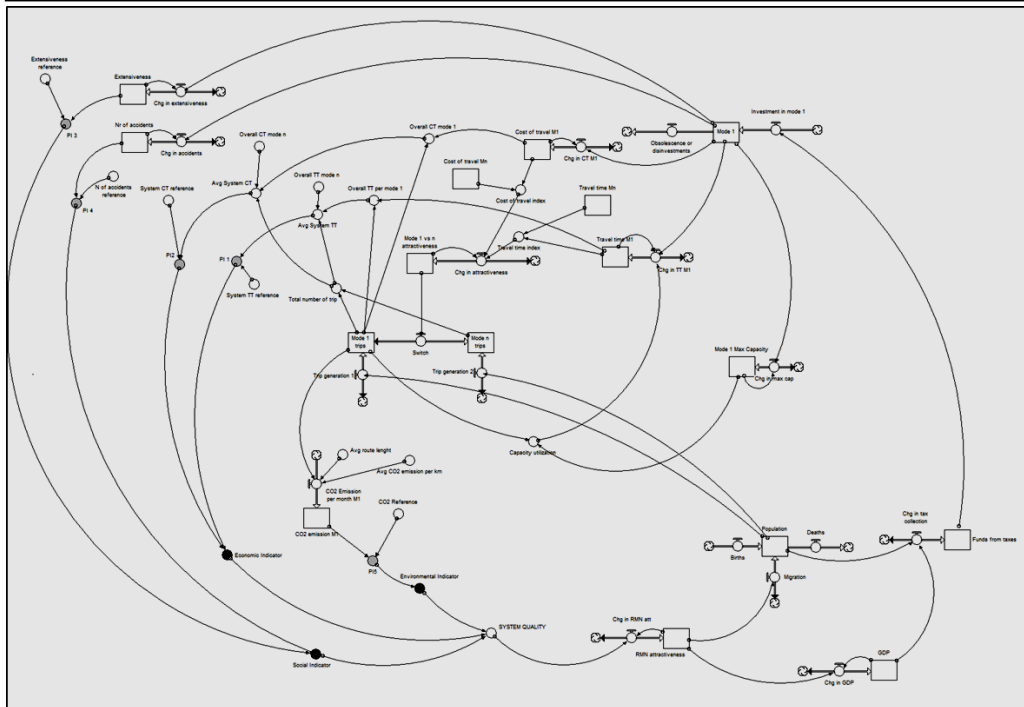


Fig. 6 – A stock and flow diagram

other options (investment in buses and in underpass) impact both sub-systems. In Table 2, the investment options considered in this study are summarized²⁾.

Each travel mode investment has the effect of impacting different service quality features. When these effects concern time and cost of travel, they will also impact on the travel mode choice. The latter depends on travel mode attractiveness which is a strategic resource that changes based on the flow “change in attractiveness”. Such a flow, that compare travel time and cost of the different modes available, is determined as the function showed in equation 1. In order to determine the overall travel mode choice (namely, how many trip/month per mode), equation 1 was used to compare each mode with all the other modes available. Fig. 7 shows in detail the model section related to the travel mode adoption in the RMN-CABA sub-model.

Equation 1:

$$\text{Change of attractiveness of mode (i) compared to mode (ii)} = \frac{\left(\frac{\text{Travel time } i}{\text{Travel time } ii} + \frac{1}{2} + \frac{\text{Cost of travel } i}{\text{Cost of travel } ii} + \frac{1}{2} \right) - \text{Previous conditions}}{\text{Time to switch travel mode}}$$

2) The investment options costs and impacts have been estimated by a project designed in 2012 by Bereco SA, an Argentinian Research & Development lab

Table 2

Flight simulator game policy options

INVESTMENT OPTIONS	COST	IMPLEMENTATION TIME (yr)	CONSEQUENCES
RAILWAY	USD 146.000.000,00	2	This investment will improve capacity, extensiveness and quality of service. This will generate a shift of travels from the private mode to the railway mode.
UNDERPASS	USD 100.000.000,00	2	Investing in underpass will make the railway system more efficient and safe, bringing benefits in the social sphere.
TOLL	USD 5.000.000,00	1	This small investment will allow a future cash flow and it will have the effect of discouraging the use of cars. However, citizens quality perception in the short term will decrease.
METROBUS	USD 100.000.000,00	1	This investment is alternative to the railway one. It has the benefit of increasing the service extensiveness, however it has a smaller impact on the environmental benefit.
MONORAIL (30 km)	USD 600.000.000,00	5	This investment will have the effect of decreasing travels by private mode inside the RMN. Also it will be a driver for shifting 'centrality' to this metropolitan area.
CYCLING LINE	USD 6.000.000,00	2	This small investment will incentive the use of cycling inside the RMN which will result in less emission of CO ₂ in the area.

The hypothesis made and the model structure just described rise validation issues. Literature about System Dynamics modelling connects the concept of validity with the one of usefulness (Meadows 1980, Barlas 1996). This means that, having performed a number of qualitative and quantitative validation tests (Barlas 1996), a model is valid as long as it results to be useful for a specific purpose. The model hereby presented can be considered useful in exploring and understanding how the analysed urban transportation system works and how to pursue its sustainability.

In order to ensure its validity some tests were performed. First of all, a direct structure test (direct comparison with knowledge about the real system structure) and a dimensional consistency (checking the unit of measures consistency) were put in place in order to verify if each relationship was coherent with the available knowledge about the real system (Barlas 1996). Second, when possible (e.g. population dynamics) a partial-model testing was performed taking into account the coherence with reference behaviours (Homer 2012). Third, an extreme condition test (Barlas 1996) was conducted on the maximum capacity variables for each mode to check whether the model-generated behaviours were coherent with the real dynamics.

Simulations

In order to better explore the system performance, the model was structured in the form of a flight simulator game of the type used by Sterman (2014). This kind of modelling increases the

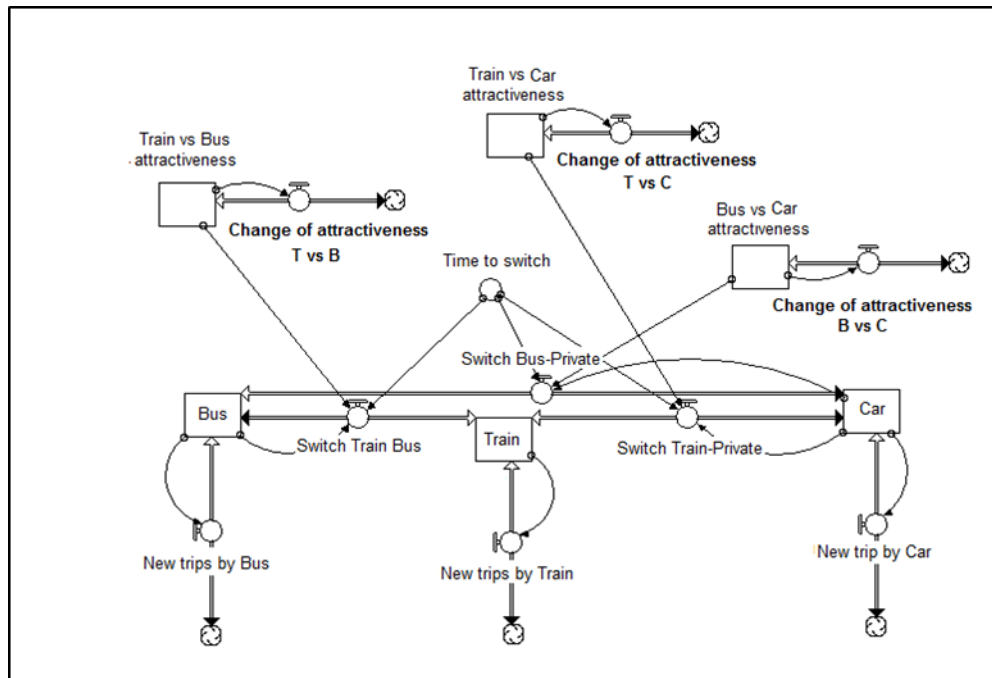


Fig. 7 – Travel mode choice structure

understanding of the environment because it allows policy-makers to experiment and explore different solutions. Simulations can compress or expand time and space, allowing learners, for example, to simulate decades in the life of a business or a century of climate change in a few minutes (Sterman 2014). When real experimentation is too slow, too costly, unethical or just plain impossible, that is, for most of the social issues we face nowadays, simulation becomes the main tool we can use in order to discover how complex systems work and where high leverage points may lie (Sterman 2014).

The graphs in Fig. 8 compare how travel mode adoption develops in the two sub-systems here considered when no policies are adopted (left column) and when all the possible investments are made (right column). The travel modes analysed are the most relevant to the two sub-systems. For what concerns the CABA-RMN sub-system these are: private mode (car), bus and train. For what concerns the RMN sub-system, these are: private mode (car), bus, no vehicles (here called “green”) and a non-existent infrastructure, the monorail. The time scale of the simulation is 20 years, and the investments are made once at the beginning of the period.

The y axes of the above graphs measure the number of trips per month. The graphs on the left side show that, when no investments are made, the number of trips per month grows linearly (assuming a population growing linearly) and with the same rate for each of the travel modes. On the contrary, when all the investments here considered are made, we may observe that trips grow with different rates and shapes for each travel mode. Particularly, we notice that, even though the service quality improvement results into a population growing faster than the previous case (due to the influence of an improved urban area attractiveness), the overall impact of these measures are addressed at discouraging the use of private modes of transportation.

In order to evaluate how these actions may affect the performance of transportation systems, the graphs in Fig. 9 show the simulation results of the indicators related to the three selected sustainability dimensions.

Even though the simulations come from a conceptual model (a model that starts from real data

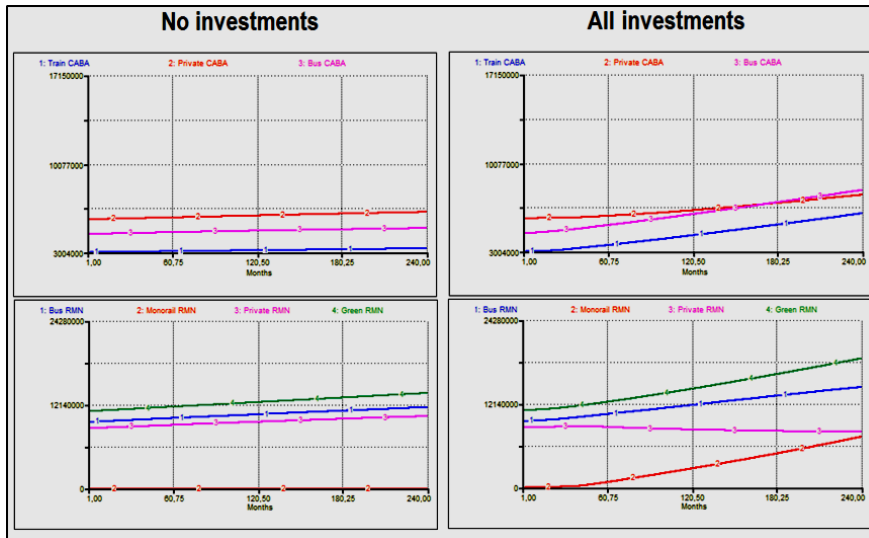


Fig. 8 – Two scenarios of trip development

but presents limits concerning calibration), the result is that a change in the system structure in terms of new mobility solutions drives a user behaviour that determines the system's performance in the long term. The performance drivers designed through the DPM approach allowed us to understand the real impact of policy-makers' actions in a sustainability perspective.

For instance, if we would like to evaluate a single investment, we may examine which dimension/s it influences the most. As an example, Fig. 10 shows the impact in terms of performance of the investment in underpass of the railway line.

Thus, the investment does not improve the economic performance (see the two top charts). However, it has a strong impact for both the social dimension (security of the network) and the environmental one, since it makes the train more attractive (the train emissions per person are significantly lower than the ones produced by other modes).

Such a modelling approach could also be useful for financial planning. In fact, we may evaluate in how much time the investments made can be refunded through the collected tax. In Fig. 11, two investment examples are displayed. In the right graph, it is shown the investment in buses; in the left one, the investment in monorail. Line 2 represents the financial equilibrium, while line 1 represents the stock of funds initially deployed by the investments made and then fostered by the tax collected.

The graphs show that, in about 100 months (8 years), Public Administrations may payback their investment in buses. While in the case of a Monorail, they would need more than 20 years

Combining System Dynamics and Performance Management to Support Sustainable Urban Transportation Planning

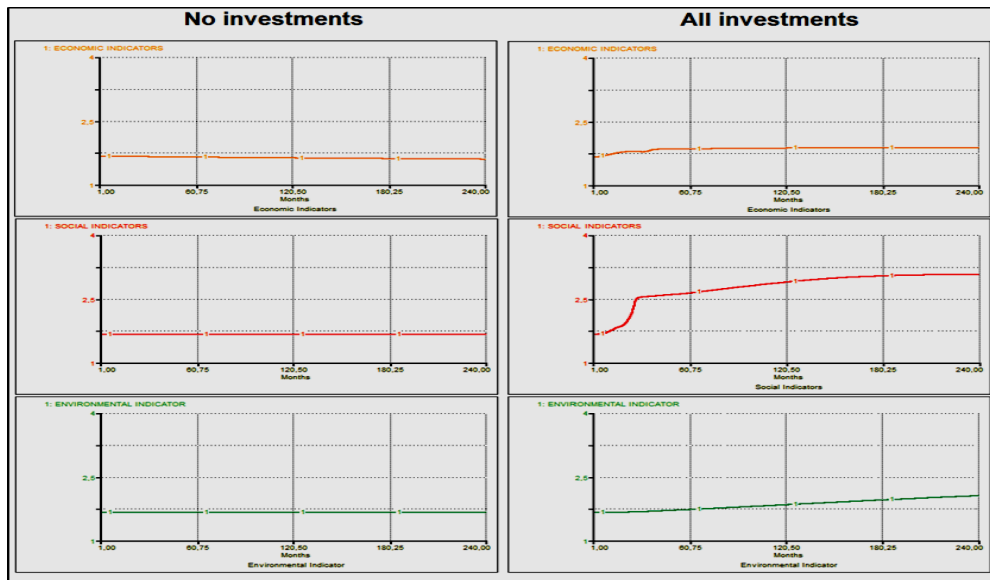


Fig. 9 – Performance Driver behaviours in both scenarios

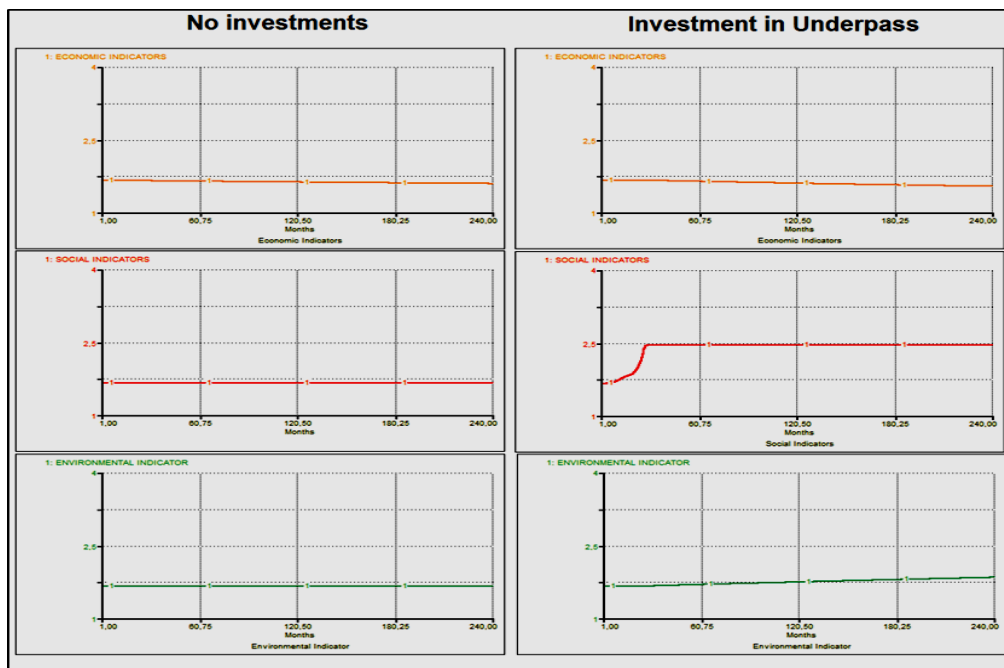


Fig. 10 – Impact of Underpass investment on PD

to payback its building. The rate at which financial resources are recovered depends on the territory attractiveness which, in this model, drives both population growth and incomes of local enterprises. Bigger population and incomes determine a greater amount of taxes collected. The limit of this analysis is related to the fact that not all the collected taxes are invested in the transportation sector – even though in Argentina around 70% of the public expenditure is devoted to transportation (Barbero et al. 2011).

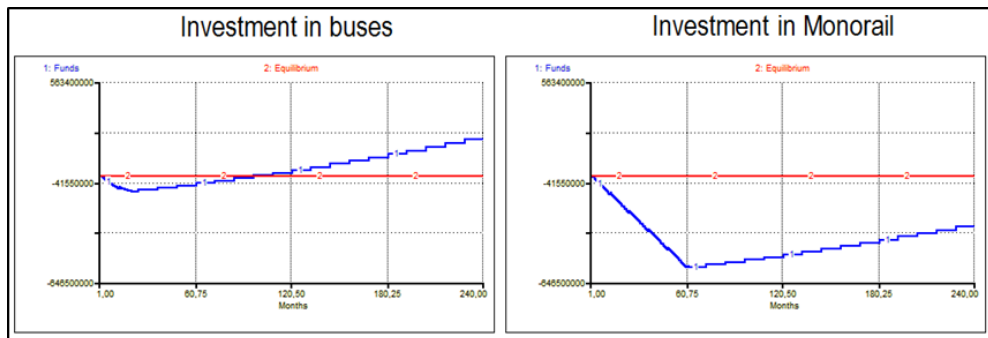


Fig. 11 – Implications for financial planning

The implications of such an analysis are of particular interest regarding the public sector borrowing. Knowing how many years are needed so as to payback an investment could help decision-makers in planning their finances. In the Monorail case, for instance, when making a loan to build the new infrastructure, it is important that this loan expires in no less than 30 years, otherwise there will be insolvency.

Conclusions

Solutions for improving urban mobility may be various. Their effectiveness depends on the structure of mobility systems and the willingness of people to adopt them. In order to plan actions directed at solving mobility issues in a sustainable perspective, we need to take into account the complexity of urban environments. From the 60's, this challenge has been tackled through the use of always more sophisticated models. However, these resulted to be hard to understand for decision makers and planners who do not have a modelling background (Saujot et al. 2016). Also, the design and calibration of these models may be particularly time consuming and not suitable to support a rapid decision making activity.

What we suggest in this paper is the adoption of more aggregate and flexible models that can be easily and quickly applied to the planning processes. In this sense, the Dynamic Performance Management approach resulted to be useful when planning urban transportation for two main orders of reasons:

- It allows us to frame an urban transportation system in a simple and fast way without neglecting the systemic and performance oriented perspective needed to deal with wicked issues.
- It allows us to understand the main dynamics of the system taking advantage from simulation.

The result is the provision of a set of performance indicators that considers the whole system of relationships and the short- and long-term implications of the undertaken policies. This may help us to better monitor the system's outcomes and to address the overall sustainability of the system by taking into consideration its multiple dimensions (economic, social and

environmental).

This study presents a number of limitations. First of all, at epistemological level, it must be recalled that “all models are wrong” (Sterman 2002). This means that, being a model a simplification of what is going on in the real world, we need to distinguish between the model and the reality it attempts to represent. As discussed in the model paragraph, the work presented here can be considered useful in exploring and understanding how complex urban transportation systems work and how to pursue a comprehensive sustainability within their domain.

Second, when dealing with transportation planning and traffic congestion it should be appropriate to take into account also a discrete time analysis since traffic congestion is not constant overtime but it is usually experienced in certain ‘rush hours’. System Dynamics however do not allow us to do that. A solution to this problem could be to merge SD with Agent-Based Modelling (Hesan 2016).

Third, when adopting DPM, the spatial dimension of the urban transportation system is not necessarily considered due to the high level of aggregation that this modelling approach proposes. A potential solution to overcome this limit may be to frame the urban area into different homogeneous areas (in terms of income, house holding characteristics, etc.), applying these models to each of those.

Fourth, a limitation that needs to be outlined is related to the model calibration that presents some shortages (e.g. the weight of the different sustainability dimensions on the overall territorial attractiveness). Therefore, the presented model could be considered somehow ‘conceptual’.

Nevertheless, this study presents important managerial implications. Particularly, modelling urban mobility through DPM could help planners and policy-makers to explore and evaluate both the short- and long-term effects of different mobility solutions and innovations. Also, DPM resulted to be useful in financial planning activities (e.g. ranking investment priorities, scheduling public sector borrowing).

References

- ARMAH F. A., YAWSON D. O., PAPPOE A. A. N. M. (2010), *A Systems Dynamics Approach to Explore Traffic Congestion and Air Pollution Link in the City of Accra, Ghana*, Sustainability 2, 252-265.
- AUSTRALIAN PUBLIC SERVICE COMMISSION (2007), *Tackling Wicked Problems: A Public Policy Perspective*, Commonwealth of Australia, Barton.
- BARBERO J., CASTRO L., ABAD J., SZENKMAN P. (2011), *Un transporte para la equidad y el crecimiento. Aportes para una estrategia nacional de movilidad y logística para la Argentina del Bicentenario*, CIPPEC, Retrieved from: www.cippec.org.
- BARLAS Y. (1996), *Formal aspects of model validity and validation in system dynamics*, System Dynamics Review 12 (3), 183-210.
- BIANCHI C. (2010), *Improving performance and fostering accountability in the public sector through system dynamics modelling: from an ‘external’ to an ‘internal’ perspective*, Systems Research and Behavioral Science 27 (4), 361-384.
- BIANCHI C. (2012), *Enhancing Performance Management and Sustainable Organizational Growth Through System-Dynamics Modelling*, in: Groesser S. N., Zeier R. (eds.), *Systemic Management for Intelligent Organizations*, Springer, Berlin, pp. 143-161.
- COSENZ F., NOTO G. (2016), *Applying System Dynamics Modelling to Strategic Management: A Literature Review*, Systems Research and Behavioral Science 33 (6), 703-741.

- DELLA PORTA A., GITTO A. (2013), *Reforming Public Transport Management in Italy: the Continuous Search for Spending Better*, in: Sargiacomo M. (ed.), *Public Sector Management in Italy*, McGraw-Hill, New York, pp. 155-180.
- EUROPEAN PARLIAMENT (2011), *Sustainable Urban Transport Plans. Urban transport sustainability: concept and current challenges*, Report, Dictus Publishing, Brussels.
- FORRESTER J. W. (1961), *Industrial Dynamics*, Cambridge, MIT Press.
- GOLOB T. F. (1990), *The dynamics of household travel time expenditures and car ownership decisions*, *Transportation Research Part A: General* 24 (6), 443-463.
- HAGHSHENAS H., VAZIRI M., GHOLAMIALAM A. (2015), *Evaluation of sustainable policy in urban transportation using system dynamics and world cities data: A case study in Isfahan*, *Cities* 45, 104-115.
- HEAD B. W., ALFORD J. (2013), *Wicked Problems: Implications for Public Policy and Management*, *Administration & Society* 47 (6), 711-739.
- HESAN R. (2016), *Multi-methodology Modeling to Support Policy Analysis in Socio-technical Systems*, PhD Thesis, University of Palermo, Italy.
- HJORT P., BAGHERI A. (2006), *Navigating towards sustainable development: A system dynamics approach*, *Futures* 38 (1), 74-92.
- HOMER J. B. (2012), *Partial-model testing as a validation tool for system dynamics* (1983), *System Dynamics Review* 28 (3), 281-294.
- KITAMURA R. (1990), *Panel Analysis in Transportation Planning: An Overview*, *Transportation Research Part A: General* 24 (6), 401-415.
- LAUTSO K., SPIEKERMANN K., WEGENER M., SHEPPARD I., STEADMAN P., MARTINO A., DOMINGO R., GAYDA S. (2004), *PROPOLIS: Planning and Research of Policies for Land Use and Transport for Increasing Urban Sustainability*, LT Consultants, Retrieved from: www.spiekermann-wegener.com.
- LITMAN T. (2017), *Autonomous vehicle implementation predictions: implications for transport planning*, Victoria Transport Policy Institute, Retrieved from: www.vtpi.org.
- MEADOWS D. M. (1980), *The unavoidable a priori*, in: Randers J. (ed.), *Elements of the system dynamics method*, Pegasus Communications, Waltham.
- MEYER M. D., MILLER E. J. (2001), *Urban Transportation Planning: a decision oriented approach*, McGraw-Hill, New York.
- MORECROFT J. (1999), *Visualising and Rehearsing Strategy*, *Business Strategy Review* 10 (3), 17-32.
- MOXNES E. (2009), *Diffusion of System Dynamics*, *System Dynamics Newsletter* 22 (4), Retrieved from: www.systemdynamics.org.
- NEELY A. (1999), *The performance management revolution: why now and what next?*, *International Journal of Operations & Production Management* 19 (2), 205-228.
- NOTO G., BIANCHI C. (2015), *Dealing with Multi-Level Governance and Wicked Problems in Urban Transportation Systems: the case of Palermo Municipality*, *Systems* 3 (3), 62-80.
- OTLEY D. (1999), *Performance management: a framework for management control systems research*, *Management Accounting Research* 10, 363-382.
- PEÑALOSA E. (2005), *Sustainable Transport: A Sourcebook for Policy-makers in Developing Cities. Module 1a: The Role of Transport in Urban Development Policy*, GTZ, Retrieved from: www.collaboration.worldbank.org.
- PFAFFENBICHLER P. (2008), *MARS - Metropolitan Activity Relocation Simulator: A Systems Dynamics based Land Use and Transport Interaction Model*, VDM, Saarbrücken.
- PFAFFENBICHLER P., EMBERGER G., SHEPHERD S. (2010), *A system dynamics approach to land use transport interaction modelling: the strategic model MARS and its application*, *System Dynamics Review* 26 (3), 262-282.
- RITTEL H. W. J., WEBBER M. M. (1973), *Dilemmas in a general theory of planning*, *Policy Sciences* 4 (2), 155-169.
- SAUJOT M., DE LAPPARENT M., ARNAUD E., PRADOS E. (2016), *Making Land Use – Transport models operational tools for planning: from a top-down to an end-user approach*,

Transport Policy 49, 20-29.

SIMMONDS D. C. (1999), *The design of the DELTA land-use modelling package*, Environment and Planning B: Urban Analytics and City Science 26 (5), 665-684.

STERMAN J. (2014), *Interactive web-based simulations for strategy and sustainability: The MIT Sloan LearningEdge management flight simulators, Part I*, System Dynamics Review 30 (1-2), 89-121.

STERMAN J. D. (2000), *Business Dynamics: Systems Thinking and Modeling for a Complex World*, McGraw-Hill, London.

STERMAN J. D. (2002), *All models are wrong: reflections on becoming a systems scientist*, System Dynamics Review 18 (4), 501-531.

TE BRÖMMELSTROET M., BERTOLINI L. (2008), *Developing land use and transport PSS: Meaningful information through a dialogue between modelers and planners*, Transport Policy 15 (4), 251-259.

UNITED NATIONS (1987), *Our Common Future*, Oxford University Press, Oxford.

VONK G., GEERTMAN S., SCHOT P. (2005), *Bottlenecks blocking widespread usage of planning support systems*, Environment and Planning A 37 (5), 909-924.

WADDELL P. (2002), *UrbanSim: modeling urban development for land use, transportation, and environmental planning*, Journal of the American Planning Association 68 (3), 297-314.

WADDELL P. (2011), *Integrated land use and transportation planning and modelling: addressing challenges in research and practice*, Transport Reviews 31 (2), 209-229.

WAITT G., HARADA T. (2012), *Driving, cities and changing climates*, Urban Studies 49 (15), 3307-3325.

WANG J., LU H., PENG H. (2008), *System Dynamics Model of Urban Transportation System and its Application*, Journal of Transportation Systems Engineering and Information Technology 8 (3), 83-89.

Warren, K. (2002), *Competitive Strategy Dynamics*, Chichester, Wiley.

WEGENER M. (1994), *Operational urban models: state of the art*, Journal of the American Planning Association 60 (1), 17-29.

WEGENER M. (2011), *From macro to micro - how much micro is too much?*, Transport Reviews 31 (2), 161-177.

WEISBROD G., CUTLER D., DUNCAN C. (2009), *Economic impact of public transportation investment*, American Public Transportation Association, Retrieved from: www.apta.com.

WORLD BANK (2002), *Cities on the Move: A World Bank Urban Transport Strategy Review*, The World Bank, Washington.

ZUIDGEEST M. H. P., VAN MAARSEVEEN M. F. A. M. (2000), *Transportation planning for sustainable development*, Conference Papers of South African Transport Conference, Retrieved from: doc.utwente.nl.

Initial submission: 12.10.2016

Revised submission: 31.05.2017

Final acceptance: 19.06.2017

Correspondence: Institute of Management, Sant'Anna School of Advanced Studies, 24 Piazza
Martiri della Libertà, 56127, Pisa, Italy.

Email: guido.noto@santannapisa.it

BIOENERGY BASED ON WOOD CHIPS AS THE DEVELOPMENT DRIVER OF NON-URBAN FORESTED AREAS – THE CASE STUDY OF URAL REGION, RUSSIA

*Natalia VUKOVIC**, *Sergey ZALESOV***, *Darko VUKOVIC****

*Ural Federal University, Russia, **Ural State Forest Engineering University, Russia,

***Perm National Research Polytechnic University, Russia

Abstract: One of the most important key factors for the development of non-urban areas is infrastructure, and energy generation is one of the fundamental infrastructure elements. This paper provides a new solution for energy generation based on wood chips which has a multi-sector effect because the authors offer to combine planning of forest cleaning cutting with bioenergy generation in one complex project, which will have socio-economic and ecological effects. The situation with forest fires makes the authors' idea more attractive because after forest fires the problem of cleaning cutting in forest becomes very important and urgent by ecological and economical points: after cleaning cutting there are a lot of low quality wood which can be recycled into chips for the production bioenergy by the authors' idea. This enriched methodology has successfully been applied into the regional strategical planning in the field of bioenergy and forestry of the Ural region of Russia; however, it is suitable for applications in regional development in any non-urban forested region of the world.

Key Words: *regional development, development driver, non-urban areas, bioenergy, forestry, cleaning cuttings.*

Introduction

Development of non-urban areas that are located far from economic centers is one of the most important tasks and challenges of regional development. Infrastructure plays the key factor in the development of territory. Modern infrastructure for industry and business continuously needs the accessible energy. Without available energy, resources' territory cannot develop sustainably.

Nowadays in forested regions widely known energy generations are actively developing. These projects represent a bioenergy capacity based on wood chips. Statistics shows that it is the cheapest and most accessible raw material for bioenergy with low level of start-up investments (Appendix 1).

The impact of a wood chip project on the regional economy was started to investigate by Ferguson (1972). He found out that it was a very effective solution for regional economy, because the total employment created by a wood chip project had probably doubled the direct employment in the project itself. Also, he concluded that these features made a wood chip project particularly desirable in a depressed area or a less developed region. His research was continued in the works of Schwarz and Steininger (1997). In addition to the theory of Ferguson (1972), they offered to recycle waste based on wood in the industrial recycling network, which integrated the reuse of former waste by an intercompany matching of production processes. They showed that it helped to reduce material and energy through put in the economic system to sustainable level. The effectiveness of using wood chips projects in regional development and the effect of location (North 1955) and facility demand on the marginal cost of delivered wood chips from energy crops were also investigated in the articles of Graham et al. (1997),

Abrahamson et al. (1998), Harris et al. (2004), Sipilä (2015), Tammi et al. (2016), and Paolotti et al. (2017).

Over time, the scale at which bioenergy is used has considerably increased due to integral policy approach for bioenergy incorporating energy, agricultural, forestry, waste and industrial policies in the world (Romanova and Lavrikova 2012). Modern research analyses a new approach in bioenergy and regional development, emerging international bioenergy markets and opportunities for socio-economic development (Faaij and Domac 2006, Shegelman et al. 2011, Tretyakov 2015, Cambero and Sowlati 2016, Goncalves et al. 2016, Lenz et al. 2016).

In science and practice, the model of wood chips application based on recycling of the logging waste dominated. The authors propose to change the existing approach and consider as the driver of regional development (Mingaleva and Mingaleva 2013, Tulumović 2015) for forested non-urban distant territories the application of bioenergy based on wood chips, which are the waste product of cleaning cuttings and thinning. With such solution, it is possible to implement a complex approach into the territory development.

Methodology

Fuel chips are a small fraction of wood with bark, obtained by mechanical cutting of the trunk portion by wood chipping machines. By the official data of the Russian statistical Organization ROSSTAT, the production of wood chips for bioenergy has the lowest share in comparison with wood chips to the needs of wood panels and cellulose industries.

Solid fuel, accordingly to Pre-Norm prCEN/TS 14961 European standards is divided into groups. For the generation of electricity and heat, wood chips are used, which belong to an important group of woody biomass (this group includes firewood, briquettes etc.). Woody biomass is classified accordingly to these standards on their origin (method of receipt). Each group is assigned by its own code. Because of the diversity of origin of the fuels in this group it differs in quality: chips obtained from the sanitary and thinning cuttings of forest; chips derived from waste lumber and woodworking, recycled waste, free of chemical impurities.

Nowadays, in practice the main part of wood chips for bioenergy comes from logging, lumber and woodworking. Usually this bioenergy generation capacity is located near wood storages or industrial sites, which are specialized in forest engineering sectors. In such cases, it is mainly recycling of wood chips and bioenergy projects based on wood chips do not have enormous influence on regional economy because of a big share in the regional gross regional product industrial production. In the territories with low level of industrialization, the number of manufacturing enterprises is low. Main economic activity in these regions is connected with farming and agriculture. That is why forestry is one of the leading sectors of regional economy (Niskanen et al. 2003). Mainly non-urban territories do not have enough developed infrastructures, and the situation is the same in energy supply, because for the government budget it is not effective and expensive to invest money in power infrastructure without effective and successful turning back from industries.

The authors offer a solution to combine the interests of different regional stakeholders into one project and to develop the local economy of non-urban areas. The authors' idea is to choose a wood chips bioenergy projects as driver for regional development in non-urban forested areas, while having multi-sector effects (Lavrikova et al. 2015) and a positive impact on local economic development (Fig. 1).

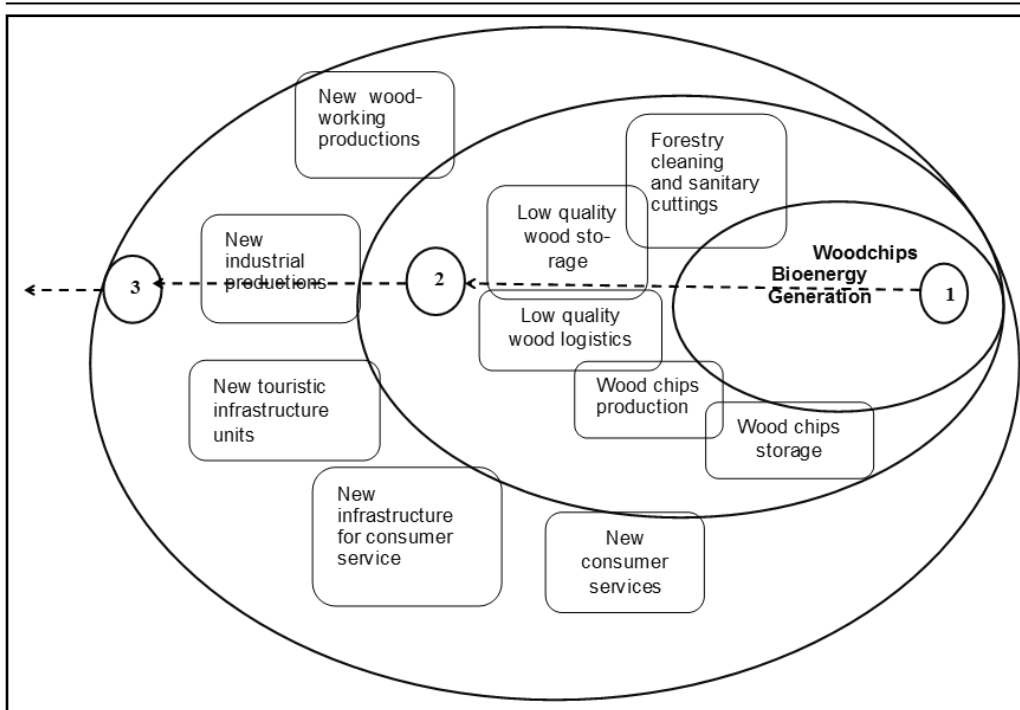


Fig. 1 – Model of the regional development for non-urban forested areas based on woodchips bioenergy

Source: Authors (2017)

By the authors' model, the total employment created by a wood chip project probably doubles the direct employment in the project itself, because this project will have a long macro-economic effect. In the first step, the start-up of bioenergy generation based on woodchips in non-urban areas will attract investments into the regional economy and it will stimulate development of new business activities connected with low quality wood – wood storage, wood logistics, wood chips production, and wood chips storage. It is an attractive business because low quality wood is a waste product from cleaning and thinning cutting and usually forestry enterprises give it for free to business because with this scenario they avoid any cost to utilize it.

So the cost of wood chips for bioenergy generation includes only the cost of logistics and processing the low quality wood, while the main raw material-wood is free of charge. New investments and cheap accessible energy open new opportunities for the development of local business projects connected with wood-working production, other industrial productions, tourist infrastructure units, new infrastructure for consumer service and other new consumer services. So we can see the wave of economic effect which starts from the start-up of a new bioenergy generation project. By the modern theory of regional development, this scenario can develop by different models such as the model of growth and development of poles (Perroux 1970), the model of unbalanced development (Hirschman 1958), the model of circular cumulative causality (Myint 1954), the dependence model (Prašo 2001), the model of central place and gravity (Christaller 1933), and the model of production speciality (Ibreljić 1994).

From the authors' point of view, the using of bioenergy based on woodchips, given the offered

scientific context, for the economic development of non-urban forested regions is the most appropriate approach to the theory of “growth and development of poles” (Perroux 1970). Perroux’s (1970) “Space as force” is a view on spatial interaction, which defines space as a type of network that is held together by centripetal forces, and it has formed the basis of most growth pole theories. In Perroux’s (1970) original theory, the growth pole referred to linkages between firms and industries. The “propulsive firms” are those that are largely relative to other firms and generate induced growth through interindustry linkages as the industry expands its output. It means that due to cheap energy generation from wood chips it is possible to attract and stimulate new business projects, which will develop and diversify the local economy (Jovanović et al. 2012).

Also, it is well known that such natural disasters as hurricane-force winds, loss of wet snow and freezing rain lead to the formation of forest trash, which latter dramatically increase the risk of reproduction of secondary pests and increasing of forest fires. Recycling of this forest trash is also ignored by foresters due to low marketability of wood. The use of this wood as a biofuel will allow solving major environmental challenges to prevent the spread of hotbeds of forest pests and to minimize wildfires as well.

Usually, non-urban areas are located far from industrial centers and they have problems with logistic infrastructure and in this case the usage of coal, oil, gas and refined products as fuel are connected with the problem of transporting fuel over long distances (Domashchenko 2016), which is not only costly, but also risky to be untimely or not fully performed for the purchase and delivery of fuel, and consequently, it is a great risk for the life of the local population, especially in remote settlements. The problem is not solved only by providing these settlements with electricity, because there is always a danger of outages because of natural (freezing rain, hurricane) and anthropogenic (theft of wires, etc.) factors. The usage of local fuel minimizes the problem of providing electricity and heating in such settlements regardless of their remoteness and availability of transportation routes.

So, implementing this approach in regional development of remote non-urban forested areas improves the local economic situation and it minimizes the different social and ecological risks.

Results and Discussion

The current situation of the Russian economy is very favourable for the implementation of the project of bioenergy on renewable biofuels. The market is full of offers from local and international manufactures of bioenergy equipment for wood chips for the production of heating and electricity with high efficiency, because these energy generations settle the main problems of the Russian economic high energy intensity. The specific energy intensity of GDP in Russia is three times higher than in some other Western European countries. First of all, the problem concerns the housing and communal services. The reason lies in the growing losses and increasing energy costs of utility networks and boiler-houses due to their wear, sometimes reaching 60%. Villages located in the forest areas of the Urals, Siberia and the Far East have to buy fossil fuels (coal, fuel oil, diesel oil) and move it hundreds or thousands of kilometres, while in Russia millions of tons (more than 65) forest residue, sawmill waste and low-grade wood are not used. But such waste, collected within a radius of 50 km from the village and processed into wood chips, can provide heat even at the district center, not to mention the villages and towns in the region. The splint, which is often called the fuel or “green” (as twigs, bark, twigs with leaves, comprising 20 to 25% of tree biomass in grinding machine serves) was not used in slab and hydraulic industries.

It is economically feasible to harvest in regions with distressed forest management, because forests fell and forest management becomes unprofitable. One of the major reasons of under-

utilization of the allowable cut in such regions is a lack of industries for the processing of low-grade wood (small timber and dead wood from thinning), and reforestation. In addition, it minimizes the worsening of the ecological situation and the growing of environmental pollution connected with the emission of CO₂.

The area of the Russian forest is of 1.2 billion hectares, which comprises up to 22% of the world forest area. The forest area of the Ural Federal Okrug is more than 114 million hectares; and it covers about 70% of its territory. The Ural region also has a similar situation on forest coverage; it is all covered with forest between 20% till 38% of its surface (Table 1).

Table 1

The area of forest resources of Ural Federal Districts by regions

Federal District of Russia	The total area of forest land (thousand hectares)	The territory forest cover (%)	The total stock of standing timber (million m ³)
Kurganskaya oblast	1 877	21.5	199
Sverdlovskaya oblast	16 000	68.7	2 141
Tyumenskaya oblast including:	93 976	43.5	5 360
Khanty-Mansiysk Autonomous Okrug	50 312	53.8	3 266
Yamalo-Nenets Autonomous Okrug	32 279	21.8	1 167
Chelyabinskaya oblast	2 961	29.4	406
UrFD Total	114 814	38.5%	8 106

Source: according to data of ROSLESHOZ Russian Federal Department

In all these regions, there is a problem with the utilization of low quality wood but due to their big territories it is always topical for the economic development of remote non-urban areas.

The Ural Federal District is one of the biggest in Russia – 1.8 km², which is equal to 10.62% of the Russian territory. The Ural District is almost forested and it has an enormous potential for the development of bioenergy based on biomass and “green” economy (Fig. 2).

But, in the major regions of the Urals, the sanitary cuttings and thinning are carried out in extremely limited volume: foresters have a very limited budget for this. That is why the actual amount for 20 years period thinning and sanitary cutting in the main part of Ural region, Sverdlovskaya oblast, did not exceed 6.5% of the planned forest management. The preliminary calculations of the actually available resources of renewable biofuels show that the same situation we can find in other parts of the Ural Federal Okrug. So there are enough wood resources in the forest for the implementation of the authors’ model and, besides the economic effect, the region will implement the key tasks of sustainable forest management.

Among the silvicultural measures to procure a significant amount of wood for bioenergy wood chips are the following:

1. *Cleaning up after logging.* One way to clear the ground felling is recycling, which consists in using the logging residues as raw material for the chemical or mechanical processing, and also as fuel. To date, this method of cleaning the places of cutting in the Urals and Western Siberia is almost never used. The potential resources of logging residues depend on the type of logging, the inventory indices, the cutting down the forest stands and the applied technology of logging operations (Rubtsov et al. 2011). In particular, according to the Department of natural

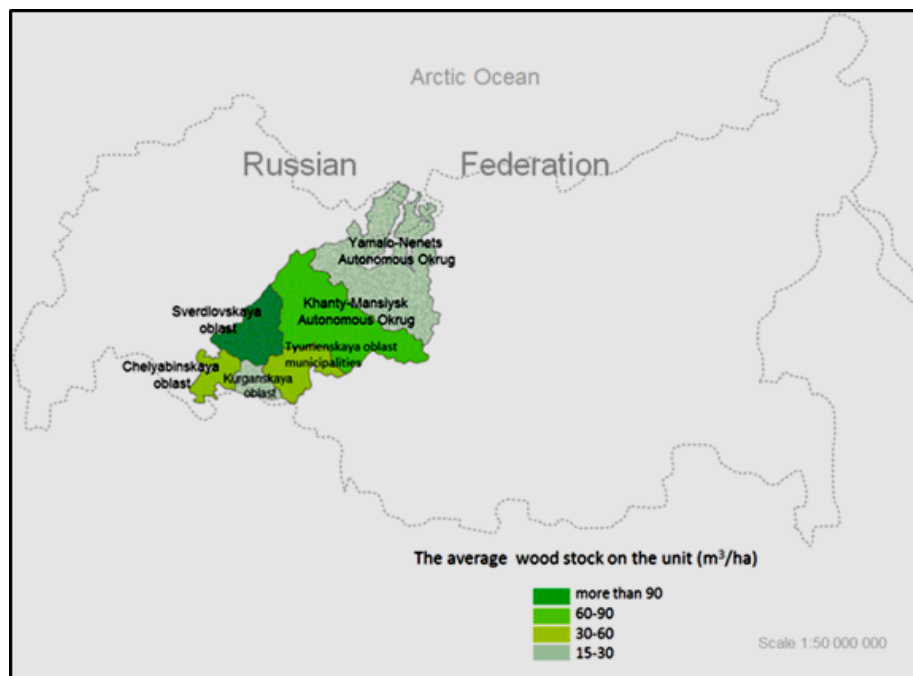


Fig. 2 – Representation of the average wood stock on the unit of the area in the Ural Federal District

Source: according to data of ROSLESHOZ Russian Federal Department

resources and non-resource sector of economy of Khanty-Mansi Autonomous Okrug – Yugra (KHAMAO - Yugra), on the number of the felling after clear cuttings, made on the assortment technology (harvester+forwarder), the supply of forest residues left after logging is up to 80 m³/ha. Considering the allowable cut mature and over-mature stands, it is possible to receive 4.92 million m³ of logging residues annually in KHAMAO-Yugra and over 8 million m³ in all Ural Federal Okrug.

2. *Cleaning burnt forested areas and burnt wood.* Unfortunately, up to the present time, on the territory of the Ural Federal District (UFD) forest fires are frequent. A part of the mature wood, burnt by forest fires, of course, dies, but the main square, especially the low-grade plants, are transformed into dead forest and it remains on-site undeveloped, creating a real threat of new fires and hampering the process of reforestation. The average range of these stands is of 97 m³/ha. During 2016, there emerged and were eliminated more than 2.7 thousand fires in the Ural region, while the situation in other regions was: in Sverdlovskaya oblast – more than 760 fires, in Tyumenskaya oblast – more than 90 fires, in the Yamalo-Nenets Autonomous Okrug – more than 530 fires, and in the Khanty-Mansi Autonomous Okrug – more than 450 fires. It should be particularly noted that in the conditions of Yamal-Nenets Autonomous Okrug (YNAD), KHAMAO-Yugra and the North of Sverdlovskaya oblast, the dry dead forest can be used as the object of procurement of raw materials for bioenergy for many decades (Table 2). The burned area of UFD has 309.8 thousand hectares with timber reserves of 30.05 million m³.

Table 2

The average number of forest fires in the Ural Federal District and their area during 2012-2016

Ural Regions	Forest fires, times per year (ha)		Burned forest territory (ha)		Middle square of forest fire (ha)	
	Average for 5 years	2016	Average for 5 years	2016	Average for 5 years	2016
Sverdlovskaya oblast	679	607	8 546.7	3303.4	12.6	5.4
Tyumenskaya oblast	395	89	3 902.7	351.2	9.9	3.9
Chelyabinskaya oblast	849	572	9 158.3	2 679.4	10.8	4.7
Kurganskaya oblast	444	245	4 820.2	523.5	10.9	2.1
Khanty-Mansiysk Autonomous Okrug	703	454	43 576.0	8 117.9	62.0	17.9
Yamalo-Nenets Autonomous Okrug	325	407	50 115.6	64 811.0	154.3	159.2
UFD Total	3 394	2 374	120 120	79 786.4	35.4	33.6

Source: according to data of ROSLESHOZ Russian Federal Department

3. *Continuous and selective sanitary cuttings.* In addition to forest fires, the Urals and Western Siberia have problems with the storm winds, harmful insects and diseases. The possibility of using of low-quality wood as raw material for bioenergy opens unlimited possibilities for continuous and selective sanitary cuttings, and thus it improves forest health. The most conservative estimate of raw material resources for bioenergy, subject to the continuous and selective sanitary cuttings, will make more than 30 million m³.

4. *Conducting thinning and improvement of felling in young stands.* Thinning in young stands and thinning in whole are the most important from a silvicultural point of view within the types of care for the forest. However, the volume of these cuttings is extremely small, because the young wood is not in demand. On rare occasions, the transfer to intensive care can produce up to 50-75 m³ of timber on 1 ha. In turn, the implementation of the projects of bioenergy development will start the actual care of the forest, based on research-based recommendations. The resources of low-grade and small-sized wood from thinning in young stands and mainly from thinning exceed 15 million m³.

5. *Logging reformation.* The consequence of clear cuttings is a massive change of fir trees derived softwood. From the silvicultural point of view, these forest stands need operations aimed at restoring the indigenous conifers. Such generations are developed, but their implementation is hampered by the lack of marketing of hardwood timber. With 300-350 m³/ha, the demand is not more than 50% of the stem wood. The usage of low-quality deciduous wood as raw material for bioenergy would allow reshaping and rejuvenating the derived softwood plantations. Raw material resources in the implementation of these types of cabins accordingly to conservative estimates reach more than 14-15 million m³.

6. *Logging in low fertility rate and low-grade plantings.* When establishing the annual allowable cut, it is calculated as such both for mature and low fertility rate low-grade plantings. However, this cut has never mastered because of the actual lack of sales of timber. The result was the accumulation of over-mature plantings. It is logical that these trees can be mastered if you use

a part of commendable harvested wood as raw material for bioenergy. A resource of that raw material exceeds 10 million m³.

7. *Other cuttings*. Considerable volumes of timber harvested in the process of conducting other felling. The latter includes the development of routes of communications, area features, etc. The enterprises of bioenergy allow the use of specified wood as well as wood produced for the care of green spaces within settlements and cities. In our current research, we estimate this kind of cuttings to be equal to zero and we do not take this resource in our calculations.

Resuming all sources of low quality wood for chip bioenergy generation, we can see that the potential of resources for wood chips in the Ural Federal Okrug is more than 107 thousand m³.

Table 3

The wood potential for bioenergy based on chips in Ural Federal District delivered from different kinds of forest cuttings (m³)

Ural Regions	After logging	After fire	Sanitary care	Thinning	Logging reformation	Low-grade plantings	Total:
Kurganskaya oblast	131	491	490	245	229	163	1 749
Sverdlovskaya oblast	1 115	4 188	4 181	2 090	1 951	1 394	14 919
Tyumenskaya oblast including:	6 548	24 596	24 555	12 278	11 459	8 185	87 621
Khanty-Mansiysk Autonomous Okrug	3 506	13 168	13 146	6 573	6 135	4 382	46 910
Yamalo-Nenets Autonomous Okrug	2 249	8 448	8 434	4 217	3 936	2 811	30 095
Chelyabinskaya oblast	206	775	774	387	361	258	2 761
UrFD Total	8 000	30 050	30 000	15 000	14 000	10 000	107 050

Source: Authors (expert calculations based on data of ROSLESHOZ Russian Federal Department)

It is important that our model uses the principles of the “zero kilometre energy” model of Santoli et al. (2015). Due to this model of efficient bioenergy, woodchips are used in the nearest 50-100 km. Taking into account the two main conditions that wood will be cheap and that its logistic will be short, we are able to estimate the total economy in comparison to the traditional fuel for the Ural Federal Okrug (Table 4).

According to the calculations of the leading factory manufacturing boilers of BALTLOTOMASH, the price of fuel chips, in the case of their preparation on the place of logs or forestry that are not related to the wood business, has the following structure. The price of timber costs from 500 to 1000 rubles per 1 m³ (the price depends on region and supplier), cutting chips costs are about 170 rubles for one dense cubic meter. Accordingly, the price of fuel per 1 Gcal will range from 420 to 730 rubles. In these calculations, the humidity of wood chips is up to 55% and the boiler efficiency is of 80%. This data collected from practice show that the average price per cubic meter of dense chips is around 1000 rubles. Also, the 1 Gcal in this case will be equal to 625 rubles. Traditional heating is much more expensive, for example, in 2017, by the official municipal unitary enterprise “Ekaterinburgenergo” (Ekaterinburg), the price of 1 Gcal is 1585.22 rubles. So, our final calculations show that if wood chips fuel is

based on the waste from logging or byproducts from forestry, the direct effect of the implementation of chips bioenergy is the saving of approximately 1 thousand rubles or \$ 17/ Gcal.

Table 4

The economy of using wood chip bioenergy instead of traditional fuel

Ural Regions	Total (m ³)	Production of heating (Gcal*)	Total economy in comparison with traditional fuel (thous. rub/year**)	Total economy in comparison with traditional fuel (thous. \$/year***)
Kurganskaya oblast	1 749	5 605.8	5 383	93
Sverdlovskaya oblast	14 919	47 817.3	45 915	792
Tyumenskaya oblast including:	87 621	280 836.5	269 665	4 650
Khanty-Mansiysk Autonomous Okrug	46 910	150 352.6	144 372	2 489
Yamalo-Nenets Autonomous Okrug	30 095	96 458.3	92 621	1 597
Chelyabinskaya oblast	2 761	8 849.4	8 497	147
UFD Total	107 050	343 109	329 460	5 680

* Fuel consumption = 0,312 m³/Gcal

** Economy = 960 Rub/Gcal by condition that wood chip is a byproduct of forestry and logging with fixed price close to 0

*** Economy = \$17/Gcal (Exchange rate = 58 rub/\$)

The indirect effects of implementing the bioenergy generation based on wood chips are enormous and connected to the improvement of regional economy and ecology. Today, in Russia and also in the Ural region, losses in heat production and the ways of its delivery to the final consumer reaches up to 40-50%, which means that the equipment heats the streets and it burns precious non-renewable fossil fuels in an almost twice more power than required. Also, the implementation of bioenergy generation based on wood chips will minimize the emission of CO₂, which will influence positively on the local ecological situation and the area can become positive on the market as eco-territory with eco-business.

In previous studies, regional economic impacts of using biomass energy in the world have been examined (Mingaleva and Shpak 2015, Manolis et al. 2016, Picchi et al. 2016). In the research of Timmons et al. (2007), in the study of Massachusetts (USA) and in the 1992 Northeast Regional Biomass study updating the 1985 effort, the same methodology is used: a "hybrid model", with spending and employment from the biomass industry itself estimated directly and indirect effects using an IMPLAN model. The combination resulted in \$ 74.8 million in direct and indirect economic activity, as well as 1 482 jobs (again from both direct and indirect effects). A 2004 report on potential biomass energy impacts in South Carolina (Harris et al. 2004) estimated the impacts of new (rather than existing) biomass use. The study projects that 49% of the total RPS requirement will come from biomass (representing 6.8 million tons), though they calculated that only 13% of the total would come from woody biomass. Annual employment (operations) impacts of all renewables in this scenario are estimated to 2 229

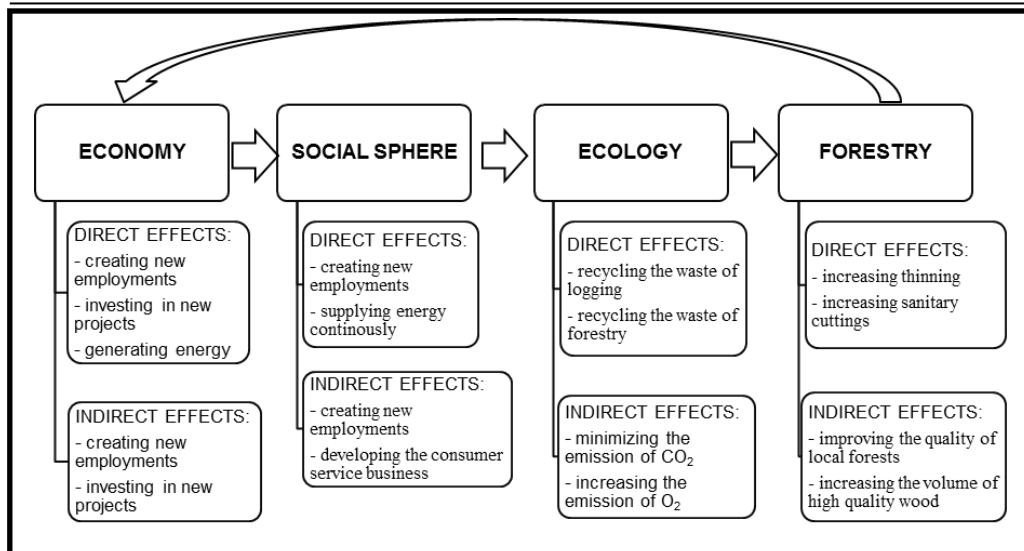


Fig. 3 – The effects of the implementation of a model of socio-economic development of remote areas on the basis of bioenergy with the application of wood chips

Source: Authors (2017)

direct jobs, and to 16 291 jobs in total, including the indirect impacts. Biomass for the generation of electricity is estimated to create 1 681 direct jobs, and 8 256 jobs in total. The study notes that the positive impacts on rural employment are one of the primary attractions of an RPS in general, and of the large dedicated to energy-crop approach in particular.

In the Ural Federal Okrug, wood chips bioenergy can generate more than 343 thousand Gcal of heating with the direct effect of creating more than 345 jobs in total. The indirect effect due to previous theories can represent more than 2 760 jobs. This scenario of development needs low level of investments and it is attractive for regional development through its multi-sector effects.

Given that coal boilers and boilers on wood chips are of broadly similar design, but the basic device itself is of identical boilers, a coal boiler can be transferred into wood chips boiler without replacing the boilers themselves – after minor upgrading (in particular, the provision of supply and automation). It is possible to apply co-combustion of coal and wood chips that is practiced in many European countries. Of course, not all boilers are suitable for such projects. The first thing is to consider problematic boilers, then boiler plants in remote areas, where a very high cost of coal and raw material base of logging waste in the region is sufficient to produce the required amount of fuel chips.

In these areas, the authors' model could give the most enormous effect (Fig. 3). The direct effect of the implementation of bioenergy generation based on wood chips is complex and it consists of creating new employments and new investment projects, energy generating and continuously supplying, waste recycling of logging and forestry, while increasing of thinning and sanitary cuttings.

The indirect effect of the implementation of bioenergy generation based on wood chips is also complex and it consists of creating new employments and investments in new sectors, developing the consumer service, improving the quality of local forests and the emissions of CO₂ and O₂.

The main goal of our research was to approve that bioenergy based on wood chips can be the driver of regional development for remote areas, by the case study of the Ural region of Russia. This was empirically proved through the above calculations. The approximate direct economic effect of the total economy in comparison to the traditional fuel is of more than \$ 6 million per year for the case study of the Ural region.

The study found that more than 343 thousand Gcal can be generated by wood chips bioenergy for heating the Ural region, which does not exist in its territories mainly. New wood chips bioenergy projects can create more than 3 000 jobs directly and indirectly. Based on our results, it seems that economic prerequisites for the transition to renewable fuels actually already exist. The competitiveness of fuel chips compared to other alternative solid fuels underlines the success of wood chips in the fuel market and their stable rate of growth.

The study paper also highlights several limitations that might inhibit the efficiency of bioenergy projects based on wood chips: the logistics to boiler must be minimized and it should be less than 50-100 km.

Research results show that the implementation of bioenergy projects based on wood chips in remote areas creates a complex multi-sector effect and it has a lot of direct and indirect economic, social, ecological and forestry effects. Thus, bioenergy based on wood chips represents an interesting driver for the sustainable development of remote forested areas and this enriched methodology has been successfully applied into regional strategically planning in the field of bioenergy and forestry in the Ural region of Russia and it started to be implemented; however, it is suitable for applications in the regional development of any non-urban forested region in the world.

References

- ABRAHAMSON L. P., ROBISON D. J., VOLK T. A., WHITE E. H., NEUHAUSER E. F., BENJAMIN W. H., PETERSON J. M. (1998), *Sustainability and environmental issues associated with willow bioenergy development in New York (U.S.A.)*, Biomass and Bioenergy 15 (1), 17-22.
- CAMBERO C., SOWLATI T. (2016), *Incorporating social benefits in multi-objective optimization of forest-based bioenergy and biofuel supply chains*, Applied Energy 178, 721-735.
- CHRISTALLER W. (1933), *Die zentralen Orte in Süddeutschland: Eine ökonomisch-geographische Untersuchung über die Gesetzmässigkeit der Verbreitung und Entwicklung der Siedlungen mit städtischen Funktionen*, Gustav Fischer, Jena.
- DOMASHCHENKO D. V. (2016), *Correlation between Economic Growth, Oil Prices and the Level of Monetization of Economy in Oil and Gas Exporting Countries: Challenges for Russia*, Economic and Social Changes: Facts, Trends, Forecast 1 (43), 96-107.
- FAAIJ A. P. C., DOMAC J. (2006), *Emerging international bio-energy markets and opportunities for socio-economic development*, Energy for Sustainable Development 10 (1), 7-19.
- FERGUSON I. S. (1972), *Wood chips and regional development*, Australian Forestry 36 (1), 15-23.
- GONCALVES G., MASSON E., WEI X. (2016), *Sustainable Management of Energy Wood Chips Sector: Case Study of the Regional Park "Caps et Marais d'Opale"*, Procedia - Social and Behavioral Sciences 221, 352-361.
- GRAHAM R. L., LIU W., DOWNING M., NOON C. E., DALY M., MOORE A. (1997), *The effect of location and facility demand on the marginal cost of delivered wood chips from energy crops: a case study of the state of Tennessee*, Biomass and Bioenergy 13 (3), 117-123.
- HARRIS R. A., ADAMS T., HIOTT V., VAN LEAR D., WANG G., TANNER T., FREDERICK J. (2004), *Potential for biomass energy development in South Carolina*, South

- Carolina Forestry Commission Retrieved from: www.trees.sc.gov.
- HIRSCHMAN A. O. (1958), *The strategy of economic development*, Yale University Press, New Haven.
- IBRELJIĆ I. (1994), *Regionalization and Regional Development*, Faculty of Economics, Tuzla.
- JOVANOVIĆ A., VUKOVIĆ D., ZAKIĆ N. (2012), *Allocation problems of institutional support for regional development financing in Serbia*, Actual Problems of Economics 138 (12), 370-380.
- LAVRIKOVA Y. G., SUVOROVA A. V., KOTLYAROVA S. N. (2015), *Accounting of multiplier effect as a required element in assessing the effects of social programs*, Economic and Social Changes: Facts, Trends, Forecast 6 (42), 123-138.
- LENZ H., PECENKA R., HARTUNG E., IDLER C. (2016), *Development and test of a simplified method to calculate dry matter loss during open-air storage of poplar wood chips by analysing ash contents*, Biomass and Bioenergy 94, 258-267.
- MANOLIS E. N., ZAGAS T. D., PORAVOU C. A., ZAGAS D. T. (2016), *Biomass assessment for sustainable bioenergy utilization in a Mediterranean forest ecosystem in northwest Greece*, Ecological Engineering 91, 537-544.
- MINGALEVA Z., MINGALEVA A. (2013), *Assessing Innovation Susceptibility of Regions and Municipal Districts*, Procedia - Social and Behavioral Sciences 81, 595-599.
- MINGALEVA Z., SHPAK N. (2015), *Possibilities of solar energy application in Russian cities*, Thermal Science 19, 457-466.
- MYINT H. (1954), *An interpretation of economic backwardness*, Oxford Economic Papers 6 (2), 132-163.
- NISKANEN A., FILIOUSHKINA G., SARAMÄKI K. (eds.) (2003), *Economic accessibility of forest resources in North-west Russia*, EFI Proceedings 48, European Forest Institute, Joensuu.
- NORTH D. C. (1955), *Location theory and regional economic growth*, Journal of Political Economy 63 (3), 243-258.
- PAOLOTTI L., MARTINO G., MARCHINI A., BOGGIA A. (2017), *Economic and environmental assessment of agro-energy wood biomass supply chains*, Biomass and Bioenergy 97, 172-185.
- PERROUX F. (1970), *Note on the Concept of Growth Poles*, in: McKee D. L., Dean R. D., Leahy W. H. (eds.), *Regional Economics: Theory and Practice*, The Free Press, New York.
- PICCHI G., PARI L., AMINTI G., SPINELLI R. (2016), *Cost-effective biomass supply from orchard termination with highly-mobile low-investment equipment*, Biomass and Bioenergy 94, 78-84.
- PRAŠO M. (2001), *Economics of Development*, University book, Mostar.
- ROMANOVA O. A., LAVRIKOVA Y. G. (2012), *Industrial policy as a tool of neo-industrialization of regional industrial systems*, Economic and Social Changes: Facts, Trends, Forecast 6 (24), 58-67.
- RUBTSOV Y., KONNOVA V., RUD'KO S. V. (2011), *The technology of processing low-quality wood into chips by chipping machines in the United States and Russia*, Scientific notes of Komsomolsk-on-Amur State Technical University 1 (8), 108-114.
- SANTOLI L.-de, MANCINI F., NASTASI B., PIERGROSSI V. (2015), *Building integrated bioenergy production (BIBP): Economic sustainability analysis of Bari airport CHP (combined heat and power) upgrade fueled with bioenergy from short chain*, Renewable Energy 81, 499-508.
- SCHWARZ E. J., STEININGER K. W. (1997), *Implementing nature's lesson: the industrial recycling network enhancing regional development*, Journal of Cleaner Production 5 (1-2), 47-56.
- SHEGELMAN I., SHCHUKIN P., MOROZOV M. (2011), *Place of bioenergetics in energy balance of forestry region*, Science and Business Development Ways 6, 151-154.
- SIPILÄ K. (2015), *Cogeneration, biomass, waste to energy and industrial waste heat for district heating*, in: Wiltshire R. (ed.), *Advanced District Heating and Cooling (DHC) Systems*,

Woodhead Publishing, Saint Louis, pp. 45-73.

TAMMI I., MUSTAJÄRVI K., RASINMÄKI J. (2016), *Integrating spatial valuation of ecosystem services into regional planning and development*, Ecosystem Services, <http://dx.doi.org/10.1016/j.ecoser.2016.11.008>.

TIMMONS D., DAMERY D., ALLEN G., PETRAGLIA L. (2007), *Energy from forest biomass: Potential economic impacts in Massachusetts*, University of Massachusetts, Retrieved from: www.bct.eco.umass.edu.

TRETYAKOV A. (2015), *Economic accessibility of forest resources: its determining factors and the reliability of the assessment*, Journal of Forestry 5 (1), 274-287.

TULUMOVIC V. (2015), *Models of regional aspect and development underdeveloped regions*, The Journal of International Social Research 8 (40), 806-814.

Appendix 1

Energy Resources Prices 2017

Commodity (% Moisture Content)	pence/ ltr	£/tonne	Net Calorific Value		Pence/kWh (input)	pence/kWh ("on the meter")
			kWh/ tonne	kWh/ltr		
Electricity (Domestic)					12	12.00
Liquefied petroleum gas (Domestic)	40			6.6	6.06	7.13
Wood Pellet Bagged		250	4800		5.21	6.13
Firewood (30%)		150	3500		4.29	5.04
Heating oil	40			10.3	3.9	4.6
Main Gas (Domestic)					3.50	4.12
Wood Chip (50%)		70	2300		3.04	3.58

Source: Forest Fuels (2017)

Initial submission: 12.10.2016

Revised submission: 31.05.2017

Final acceptance: 19.06.2017

Correspondence: Ural Federal University, 19 Mira street, 620002, Ekaterinburg, Russia.

Email: shpak@usfeu.ru

IS ENVIRONMENTAL PROTECTION A CENTRAL ISSUE TO THE BUSINESS STRATEGY OF HIGH PROFILE COMPANIES? CONTENT ANALYSIS OF WEBSITE CORPORATE COMMUNICATION

Claudia POPESCU

Institute of Geography, Romanian Academy & Academy of Economic Studies,
Romania

Abstract: The paper focuses on exploring the way high profile companies with direct environmental impact use the website corporate communication to report on their environmental policies and practices. Employing a semantic analysis based on computer-aided techniques (VOSviewer), the paper aims to identify the themes revealed by the terms' frequency and co-occurrence from sustainability reports that indicate how central environmental protection is integrated to business strategy. The findings pinpoint to substantial differences of approach regarding the extent and content of environmental disclosure. State-owned enterprises and privatized firms display poor environmental reporting due to their long past of non-accountability and the weak motivation to engage in legitimacy building. On the contrary, MNEs are aware of the role of corporate communication in enhancing organizational legitimacy, thus their reporting encompasses a wider range of issues related to environmental protection. Corporate disclosure is well-structured in three major themes regarding environmental policy, environmental management system and social impact. Although MNEs acknowledge their environmental footprint and show a strong commitment to reduce the negative externalities, the themes relevant to the environmental management system display less connectivity and semantic coherence.

Key Words: *environmental protection, polluting firms, business strategy, corporate communication, Romania.*

Introduction

Romania has a strong legacy of environmental sensitive industries dating back from the end of the Second World War when the mechanisms of centrally-planned economy started to be firmly put in place. Industrial hazardous emissions are, at a large extent, responsible for air pollution and the hypertrophy of heavy industries serving COMECON markets has contributed to enhancing the environmental degradation in the long run (Schwab and Stoian 2009). The political turn in the early 1990s and the openness to the global economy generated expectations that the environment would be the primary beneficiary of the on-going economic changes. Several assumptions converged to supporting this view: the technological transfer from the West helping to mitigate the environmental damage; the industrial restructuring and re-balancing of the economic structures away from heavy industries (Schwab 2016); and, the increased efficiency of industrial firms searching to gain access to the global market. Recent assessments of air pollution show that these expectations were too high. On one side, legislation failed to deliver effective pollution controls and on the other side, the slow-down in the economy contributed to reduce the scale of environmental damage, but rising unemployment helped to breed a survival mentality which had made the public wary of supporting radical environmental programs (Dragomirescu et al. 1998).

Despite the dismantling of basic industries and rationalization of production in the last two decades, industrial firms have a significant contribution to environmental damage and Romania was ranked the 6th among the EU-27 in terms of the damage costs to health and environment resulting from pollutants emitted by industrial firms (European Environment Agency 2011). When GDP is used as an indicator of national production to normalize the damage costs against the level of services generated by the national economy, Romania is placed on the 2nd position in the EU-27 due to the lower power of the government to deal with air pollution. A recent survey of the European Commission (2014) shows that the Europeans (Romanians included) share a high level of awareness of environmental issues and consider that the measurement of the progress should be based equally on social and environmental criteria besides the economic criteria. In particular, the Romanians state that air pollution is ranked first amongst the issues and they feel mostly lacking the necessary information on it. Additionally, they consider that the protection of the environment can boost economic growth and that big companies and industry are not doing enough to reduce environmental damage. Public perception is high on environmental issues and especially on those related to industrial air pollution, suggesting that there is a serious gap between the societal expectations and the business performance.

Environmental responsibility and communication is increasingly becoming a mainstream issue for business, governments and society in transition economies. Firms are expected to operate within the boundaries and norms valued by the society, so their activities are perceived as legitimate and firms' image and reputation are not threatened. They have to convince the public that they are „responsible” agents working for the benefit of communities and the environment.

Corporate documents are distinct in that they are designed to persuade the audience (stakeholders, local communities) of business concerns related to environment. Thus, it is possible to understand how environmental policy and management system are defined and used by observing the frequency and relatedness of associated key terms. Within this context, the paper aims to explore the way high profile companies with direct environmental impact use website corporate communication through non-financial reports to express their environmental policies and practices. In order to achieve this goal, semantic analysis based on computer-aided techniques (VOSviewer) is looking to gain insights into the main themes related to environment and, therefore, to compare the similarities and differences between the top polluting companies in terms of environmental disclosure. The paper is structured in the following sections: the literature review is aiming to reveal the findings of extant literature on corporate environmental communication; then the research method by which the companies are analyzed and the justification of the sample selection are outlined; finally, the findings and the discussion report on the cluster mapping of environmental disclosure.

Literature review

Interest in environmental communication is growing worldwide (Cox and Pezzullo 2016). The environmental communication strategy is part of the firms' environmental management system and it has evolved recently as one of the fastest growing area of academic inquiry. Environmental communication is used by governments, companies and the public as a symbolic medium in constructing environmental issues and in negotiating the society's responses (Cox 2013).

Environmental communication has a constitutive and pragmatic character. On one side, it helps composing and constructing representations of nature and environmental concerns enabling the logical chain of subjects, problems and values to become central to our understanding and action. On the other side, environmental communication helps solving the environmental problems and it contributes to the public education. Within the legitimacy theoretical framework, companies disclose their environmental targets, risks and performance aiming to enhance the

communication of information relevant to their stakeholders' interests (Solomon and Lewis 2002) and to shape the stakeholders' views and expectations on the environmental responsibility practiced by companies (Gray et al. 2009). Such communication invites a particular perspective, it evokes certain values and it creates conscious referents for public understanding (Cox 2013). Cox and Depoe (2015) demonstrate the rapid expansion and diversification that environmental communication has experienced in the recent decades by focusing on four emerging issues: climate change communication, sustainability science, 'imaging of nature' and the problematizing of the human/nature binary.

Previous research focused on national case studies or on an international sample of companies in the attempt to measure disclosure and to investigate the determinants based on binary scores (Andrikopoulos and Kriklani 2013). They analyze two main categories of firms: listed companies with large market capitalization (Kolk 2003, Lodhia 2006, Zhang et al. 2007, Chatterjee and Zaman Mir 2008, Creel 2010) or companies belonging to specific industrial sectors (Rodríguez Bolívar 2009) in different contexts where the emphasis on the environmental effects of business activities is either a long-standing concern or in an early stage. There is an increasing awareness of environmental issues at the international level, but the extent of environmental disclosure varies according to the institutional context of business activity and corporate reporting (Kolk 2003).

Although there is a lack of standardized corporate practices of environmental disclosure (Rodríguez Bolívar 2009), these studies found relationships between environmental reporting and the size of companies (Cormier et al. 2005), industrial membership (O'Dwyer 2003, Rodríguez Bolívar 2009) and profitability (Brammer and Pavelin 2006). Findings also refer to the relationship between environmental disclosure and high profile companies with direct environmental impact. Companies belonging to environmentally sensitive industries tend to communicate on their corporate websites more extensive sustainability information (O'Dwyer 2003, Brammer and Pavelin 2006, Buniamin 2010). Environmentally "challenged" companies focus their reputation building strategy mainly on preserving/repairing legitimacy (Dragomir 2010).

Environmental reporting has been recently adopted by the industrial organizations in Romania. Previous studies on corporate responsibility and communication in Romania argue that the environment is the second-ranked priority area for action for more than half of the 100 top companies (Băleanu et al. 2011), but environmental communication is incomplete and irrelevant to the users (Ienciu et al. 2011) although the Romanian companies are aware of the financial advantages brought by the disclosure of non-financial information, including environmental communication (KPMG 2011). In the same time, research advocated the need for real corporate social responsibility programs instead of engaging in philanthropic initiatives in the attempt to build a positive image (Jindrichovska and Purcărea 2011).

Methodology

In its 2011 Report, the European Environment Agency ranked the most polluting firms across Europe listing 622 companies that contributed to the 75% damage costs of air pollution (European Environment Agency 2011). Among them, 22 companies are located in Romania and they represent the sample of this analysis. They display various employment size, industry membership, scale of production and organizational form by the type of capital (State-owned Enterprises – SOEs, privatized firms and Foreign Direct Investment – FDIs). Their position as top industrial polluters was reconfirmed by the EEA Report issued in 2014 (European Environment Agency 2014) that provided a synthesis for the 2008-2012 period. Twelve of the companies are listed within the Top 100 most valuable companies in Romania.

The analysis sample is made up of 12 state-owned enterprises – SOEs (Complexul Energetic

Turceni, Complexul Energetic Rovinari, Sucursala Electrocentrale Isalnita, RAAN Romag Termo, SC Electrocentrale Deva SA, Sucursala Electrocentrale Craiova II, SC CET Govora SA, SC Electrocentrale Oradea SA, Sucursala Electrocentrale Paroseni, SC CET Arad SA, CET Bucuresti Sud, SC Centrala Electrica de Termoficare Brasov SA), 2 privatized firms (SC Azomures SA, SC Amonil SA Slobozia), 6 West European-based multinational enterprises – MNEs (SC Arcelor Mittal Galati SA, OMV Petrom SA Petrobrazi, Cement Roadstone Holdings Hoghiz, Cement Roadstone Holdings Medgidia, Lafarge Holcim Campulung, Lafarge Holcim Alesd) and 2 Ex-Soviet space-based MNEs (SC Petrotel Lukoil SA, SC Rompetrol Rafinare SA -Kaz Munay Gas International).

The research method is the content analysis based on the application of VOSviewer. This is a java-based program initially developed for constructing and viewing bibliometric maps (Van Eck and Waltman 2010). It combines the VOS mapping technique and an advanced viewer into a single computer program that is freely available. More recently, the program was used as an efficient and accurate tool for content analysis in a wider range of disciplines and fields of research (political discourses – Albaugh et al. 2013, policy documents – Derrick et al. 2014, cross border cooperation documents – Cojanu et al. 2016, corporate communication – Grigore et al. 2015) as well as academic articles and editorials (Derrick et al. 2014).

Applying VOSviewer to the analysis of policy documents in the UK regarding the conceptualization and understanding of the term “impact” of scientific research, Derrick et al. (2014) found out that there is a lack of transparency related to the content of the definition of impact. The authors advocated the use of VOSviewer to the analysis of government policy documents because it can identify key phrases independent of being related to the argument constructed within the text. Additionally, “it is possible to discern how key noun phrases are defined and used within the text by observing those words clustered together, and/or closely associated” (Derrick et al. 2014: 153).

The analysis of cross-border cooperation documents issued by various Regional Councils in Europe enabled the identification of models and strength of cooperation in three areas: economic, social and environment (Cojanu et al. 2016). The most frequent words that were found in all CBC refer to official names of organizations showing the interest for a formalized relation of cross-border cooperation and for a careful planning of the objectives and their achievement.

A growing body of literature uses VOSviewer for investigating the corporate communication on websites. The disclosure of three pharmaceutical companies was the focus of semantic research enabled by the use of VOSviewer and it pinpointed the differences in strategic approach, the corporate response to the stakeholders’ interests and expectations, and the commitment to engage in responsible activities (Grigore et al. 2015).

The diversification of uses started from the assumption of communication studies that the meaning of communication frames itself on words, among which complex relations exist. VOSviewer employs a linguistic filter to select the most relevant noun phrases helping the identification of thematic clusters. The analysis of various corpora of texts identify clusters of words based on their occurrence and relatedness (co-occurrence). The analysis focuses on explaining the semantic of the text by looking at the relationships between the terms based on their proximity within sentences and paragraphs. Connections between the terms and the distance between them are potential indicators of the way organizations construct their messages, whether they use the same terms in similar contexts and prefer a certain type of discourse. In this way, the words are hierarchically associated and the spatial proximity within various sections of the text determines semantic fields. These are visualized as maps or graphical charts where the size of the circle reflects the number of occurrences while the

relative distance between the terms shows the relatedness among them.

Before using the VOSviewer, relevant documents are sourced, usually via websites, and saved as plain text documents and then converted into a text corpus for analysis. To increase the validity of the results, a number of checks are carried out. The documents are analyzed in order to ensure that they are similar in structure and style. The pre-analysis assessment of documents guarantees that the analysis run by VOSviewer would be robust and that it yields representative results (Derrick et al. 2014). A stop-words list is used to remove the irrelevant information (common words, place names). The words with a minimum number of occurrences of 10 are further analyzed in terms of proximity and relatedness (Fig. 1).

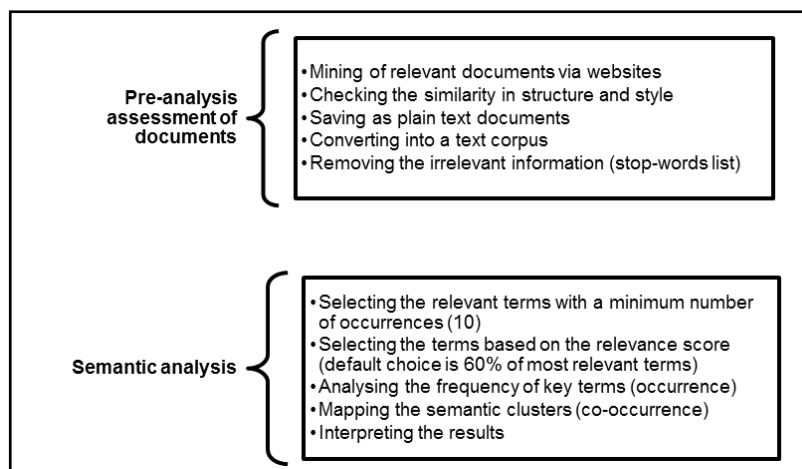


Fig. 1 – Description of the research method – content analysis based on the application of VOSviewer

Results and Discussion

A number of 14 documents directly (environmental policy, integrated management system, sustainability report, corporate responsibility report) or indirectly (strategy, mission, vision, values) related to environmental communication were sourced from the corporate websites and prepared for the semantic analysis using VOSviewer. The analysis of all three different groups of firms distinguished by the origin of capital investment (SOEs, privatized firms and MNEs) failed because of the low level of convergence of environmental reporting of these categories of companies. More precisely, the breath and content of corporate communication vary at a large extent between the former two groups and the latter undermining the validity of the results. Therefore, the analysis was carried out for each group separately.

Environmental disclosure of SOEs is spread across various sections of the Menu, from Environment, Quality and Environment, Integrated Management to Social Responsibility. Environmental information is also found under additional headings, such as: strategy, mission and vision. Most of the SOEs display a short statement of the top management (approximately one page) regarding the environmental policy. Equal weight is given to environmental objectives, quality, occupational health and safety, suggesting a comprehensive outlook that links environmental protection with social and economic performance. The policy statements follow a patterned model with a high level of content standardization and uniformity.

Among the objectives, varying from five to ten, those related to environment either focused on pollution reduction or targeting a wider range of environmental issues. Word clustering identified two words relevant by the number of occurrences found in the documents uploaded by SOEs on their websites (*environment and quality*), whereas the privatized firms focused their disclosure on *environment and integrated management system*. Public and privatized companies design an environmental policy and institutionalize environmental management systems supporting their commitment to govern their operations through an environmental policy and to translate their policy into practice by integrating their environmental concerns throughout functions, processes and activities. Environmental policy, as a part of the integrated management system, plays a strategic role for the organizational development of SOEs and privatized firms. However, none of them presents in detail their management system. Even if these companies use a certain type of rhetoric to persuade that they are committed to improve the environmental performance, the lack of information regarding the corresponding management system questions whether they carry out their environmental policies. The content of the environmental reporting shows that the statements and the overall argument structure are poorly linked.

In contrast with SOEs, MNEs reporting is more extended and better structured. Anyway, the approach and issues addressed differ largely by the home base and experience of working in regulated business environments. The environmental disclosure is streamlined along different headings: policy, integrated management system, strategy, responsibility report, sustainability report or a combination of these, either targeting the environment or embracing the whole range of corporate responsibility areas (quality, occupational health and safety, environment). The documents disclosed by MNEs contain 3 259 terms out of which 80 meet the threshold (minimum number of occurrences of a term is 10). Forty-eight terms were selected based on the relevance score (the default choice is to select the 60% most relevant terms).

VOSviewer combines the quantitative analysis to assess the occurrences of the terms and, implicitly, their relevance, and qualitative methods based on the co-occurrences for mapping the clusters of terms. The cluster analysis based on their size and composition is aiming to answer several questions: which is the central term for each cluster? How is the cluster structured? Which terms are connected and which are not? What terms are missing and why?

The frequency of key terms

The terms most frequently used suggest that environmental disclosure of MNEs is streamlined along three major themes and corresponding terms (Table 1).

Table 1

Major themes and relevant terms of environmental disclosure

Major themes	Relevant terms
Environmental policy	Emission (85), reduction (46), production (40), waste (38), material (35), climate change (27), raw material (26), sustainability (17), quality (17), environmental protection (13)
Environmental management system	Project (47), program (24), objective (21), target (26), energy efficiency (26), implementation (16), compliance (16), ISO (15), environmental performance (11)
Social impact	Safety (33), health (26), community (30), stakeholder (26), employee (22), respect (10), society (10)

The first theme shows that the priority of these organizations is to lower environmental impact and it is revealed by terms like *emission, production, reduction, waste, raw material and climate change* which illustrate the major environmental concerns related to pollution abatement, waste

management and challenges of climate change. The wording of environmental disclosure suggests a high level of awareness of the environmental damage caused by the production processes and the subsequent quantity of emissions released into the air, in particular. The commitment to reduce the environmental footprint demonstrates that *environmental protection* is a central goal of the business strategy. Therefore, low impact production methods, updated technology and processes, environmental friendly products focusing on their use and subsequent recycling and waste generation reduction, and the efficient use of natural resources would be among the measures employed in line with the MNEs objectives. Additionally, the concerns regarding climate change are of growing importance. Climate change as a ruling paradigm of environmental strategy seems to be a central issue given that GHG emissions represent a core determinant of their environmental damage.

On the contrary, the term *sustainability* is less approached although it is one of the guiding principles of corporate behavior and an essential factor in enhancing business performance. As a rule, the companies which pursue an environmental policy embrace the concept of sustainable development, therefore a stronger emphasis of sustainability as philosophical underpinning of their policies and practices would have been expected. Designing and pursuing the environmental policy, the companies acknowledge the damage they produce upon environment but also express their commitment to act as responsible agents of change. Nevertheless, the term *responsibility* is missing. The discourse on environment would be centred on the term responsibility (or/and its variants) which is commonly used to characterize the relation between business and society/environment.

The second theme suggests the interest of companies to *implement* the business strategy and a focus on economic and *environmental performance* through *programs and projects*. MNEs seem to master the management processes and practices that enable them to reduce their environmental impacts and to increase their operational efficiency. *Objectives* and corresponding *targets*, measures and timelines lie at the centre of the management system. Having set the environmental requirements, the performance assessment is likely to be done. Usually, the recent achievements and the positive effects for the further reduction of the environmental footprint are emphasized. When the environmental objectives have not been met and the liability is acknowledged, companies would explain the causes in the attempt to enhance the corporate transparency and to stress their commitment to further improvements. On the contrary, omitting to report on key performance indicators that are relevant to stakeholders, including environmental impacts, might be regarded as an attempt to keep the public perception low on environmental damage.

In MNEs' view, *compliance* with the law is a relevant rationale behind engagement in environmental practices and certifications/authorizations (*ISO*) are mentioned as evidence of their capacity to manage the environmental impact while enhancing their credibility. Mentioning a wide range of certifications, environmental permits and inspection reports, provides the framework for establishing and analysing the general and specific environmental objectives pursued at corporate level. Certifications (*ISO*) are essential for companies to continue operating by stressing the credibility of sustainability reports. The companies state their commitment to comply with environmental regulations set at national or EU level while having a major contribution to environmental damage in contradiction with the legal provisions. In this way, companies use their potential to influence the outlook of the stakeholders by directing attention to positive results and creating particular meanings and understandings convenient for their image. Anyway, a number of terms central to fair and accurate environmental reporting are overlooked. For example, reference to thresholds set at the European level beyond which emissions cause air pollution is missing. Avoiding the subject of emissions thresholds, the companies avoid naming the problem of air pollution and its association with values such as health, well-being and economic prosperity. Thus, environmental communication is not used to help composing representations of environmental problems.

Consequently, environmental risk is another term missing in the corporate disclosure together with closely related terms such as identification, management, monitoring, control, and corrective measures. Environmental risks should be identified and further measures aiming at improving performance through environmental risk assessment implementation and quantitative impact analysis have to be outlined. As a rule, targets are set annually and deployed within all business segments and the monitoring of environmental indicators is embedded in the standardized, regular reporting processes. The benefits of conducting a proactive management are widely recognized: it helps to set priorities, make effective environmental decisions, ensure compliance with legal requirements and loss prevention/minimization, as well as raise environmental awareness. MNEs are reluctant to give details on their environmental impact, thus corporate transparency and credibility are negatively affected.

Finally, *safety*, *health* and *community* form another central theme which pinpoint the relationships of organizations and society. Organizations are accountable to a number of *stakeholder* groups in particular with regards to environmental concerns (governmental bodies, local and central authorities, NGOs), but *employee*, *community* and *society* seem to be critical for environmental management efforts of the majority of companies. MNEs are essentially profit-seeking organizations interested in expanding the social acceptance of their operations, especially those that produce negative externalities on their stakeholders and the environment. To this end, they engage in reputation building strategies so that society continues to provide necessary resources such as legitimacy of companies' existence and growth. Therefore, the term *respect* seems to define the quality of the relationships between companies and society. There is a mutual interconnection between the stakeholders' involvement and corporate environmental practices. The actions to involve the community may take a number of forms from philanthropic actions to well-structured many-sided programs that target environmental education, entrepreneurship skills and sustainable community development. Training programs aiming to increase the understanding of environmental footprint and risk management competencies for employees and suppliers would be regularly delivered by companies, especially those with the worst environmental record as the sampled companies are.

The map of semantic clustering

Besides the quantitative analysis of the frequency of relevant terms that highlight the emphasis of companies on issues related to environmental protection, the qualitative analysis of cluster mapping adds deeper insights into the way companies construct their messages and communicate their environmental concerns. Cluster mapping analysis explains the semantic of the text based on the identification of the relationships between the terms measured by their proximity within sentences and paragraphs. Therefore, cluster mapping is a valuable tool of interpretative analysis for measuring the quality of corporate environmental disclosure and, eventually, it might indicate the type of rhetoric used by companies to enhance their legitimacy.

Several clusters are identified, each made up of a combination of terms that emphasizes a particular approach to environmental issues. The most extended cluster is built around the term "safety". Semantically close are the terms "quality", "respect", and "health". As a rule, companies design an integrated policy on quality, environment, health and safety and, consequently, take an integrated approach on development. Continuous improvement of products, technologies and services pursued by the companies and *compliance* with the law and regulations provide the basis for achieving *environmental performance*. Alongside companies, suppliers and customers are critical in sharing the same environmental standards within the value chain and engaging in environmental practices. One of the main objectives of the integrated policy is to ensure occupational *health* for employees and to respond to the interests and expectations of *stakeholders*. *Society* and *community*, in particular, are targeted by companies' activities, thus they associate environmental issues with corporate *sustainability* and performance.

Another significant cluster is centred on the term “emission” which suggests a high level of awareness of companies’ environmental impact, especially that on the air quality. This central term is closely associated with “production” as the main cause of producing different types of emissions, but also with “reduction” and “target” showing that companies are pursuing actions aimed to reduce the environmental footprint based on pre-determined *targets*. Increasing *energy efficiency* is a priority for companies searching to lower their environmental impact. The term “project” seems to be placed between emission reduction and energy efficiency and energy consumption, suggesting that the actions are multi-directional targeting both production and consumption patterns. A significant semantic coherence is shown by the association of the term “material” with “raw material”, which in a broader sense means natural resources. In the same way, “water” comes next to “water management” and “waste” to “efficiency” which shows a good match of the terms used in the context of materiality. Under this framework, the understanding of the environmental issues is comprehensive including besides the abatement of pollution, the sustainable use of *raw materials*, and *water* and *waste management*. The corporate vision on the environmental policy and practice is envisaged at the level of *group-company*, suggesting the consistency of the approach among production subsidiaries.

Less connectivity is characteristic of the cluster built around the term “project”, closely related to the term *implementation*, although the overall cluster composition suggests a low level of semantic coherence. Environmental protection might be linked to biodiversity, although biodiversity would have been better integrated into the cluster dealing with the environmental issues discussed above. The term *employee* seems to be disconnected from any of the other clustered terms. A similar poorly linked cluster is that putting together the terms *asset*, *ISO* and *objective*. On the contrary, an interesting match is made by the terms “climate change”, “challenge” and “opportunity”. Climate change is both a challenge for companies with a strong impact on environment and an opportunity to develop innovative products and technologies. Sustainability is part of the cluster based on the semantic correlation but relatively disconnected from the group which renders sustainability a peripheral position. The same disconnected location is attributed to the term “implementation”. Moreover, the terms “project” and “program” are placed in proximity but included in different clusters. The terms “objective” and “targets” hold a similar position and they are semantically linked but placed in separate clusters (Fig. 2).

The clusters contain some of the names of the companies in the sample and their role in constructing the messages is emphasized in this way. OMV Petrom is part of the most extended cluster focused on the integrated management system and the related terms of quality, performance, safety and sustainability. The high connectivity and semantic coherence are evidence of a well-structured and clearly conveyed message to the audience. Relationships between the organization and stakeholders (society, community) are given a special focus. HolcimLafarge is connected to the cluster “emission” and associated terms of “reduction”, “target”, “production” and “project”, pinpointing the importance given to the implementation of the management systems. KazMunayGas International can hardly be associated with a coherent semantic cluster, having a rather isolated position between the other more clearly patterned clusters. The absence of Lukoil Romania and ArcelorMittal Galati could be explained by their shorter and less structured environmental disclosure.

Relatedness of the key terms

The co-occurrence map indicates a well-framed image of sampled companies with some persistent themes within the dimensions of environmental protection. If connections between terms are strong and the distance is small, it shows that they are employed in similar contexts using a common language that reveals a common understanding of environmental concerns. The density of connections between terms summarizes the emphasis of companies on specific issues related to environmental protection. The strongest density reflects the high level of

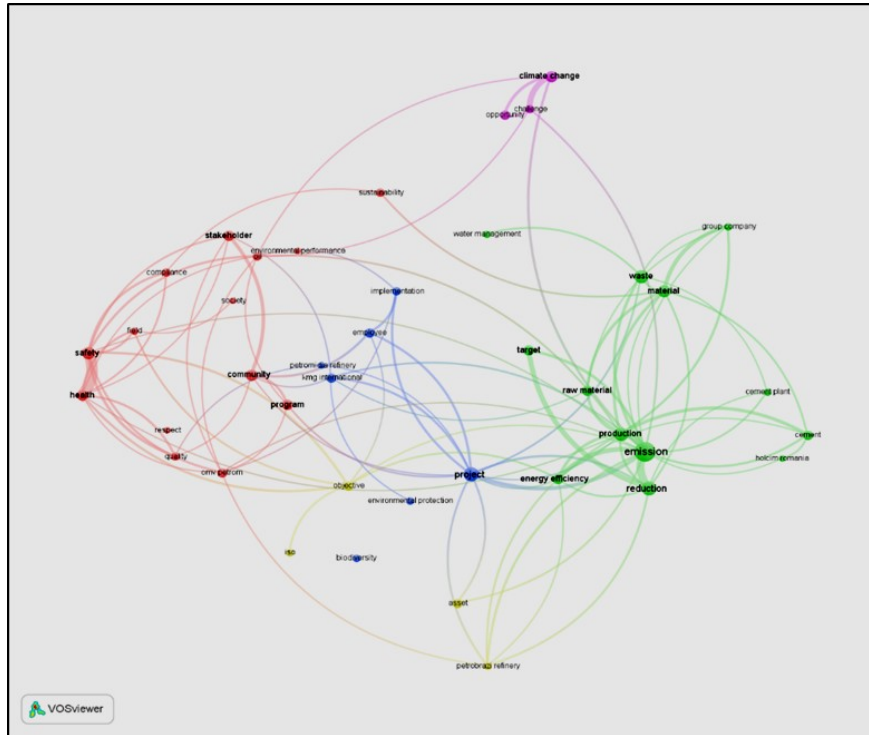


Fig. 2 – Cluster mapping of environmental reporting

corporate awareness of the environmental damage as well as the companies' commitment to engage in pollution abatement by reducing the emissions into the air (Fig. 3). *Safety* and *health* are strongly connected suggesting that the provision of a safe and healthy environment for employees and the community is a priority for the business strategy, given that increasing *environmental performance* is the corporate response to the needs and expectations of the stakeholders. Sustainable development suggested by the connection between *waste* and *material*, and *climate change*, both as a challenge and an opportunity, represents the guiding principle that underpins the corporate behaviour.

Conclusions

While corporate environmental responsibility has emerged as a concept for business from the developed Western economies and it has recently received increased attention in developing countries, the process is in its early stage within transition economies and, hence, largely under researched. Employing the content analysis of the corporate websites, the study investigates the way high profile companies with direct environmental impact use website corporate communication through non-financial reports to express their environmental policies and practices. In order to achieve this goal, the semantic analysis based on computer-aided techniques (VOSviewer) is looking to gain insights into the main themes related to the environment as addressed by the top polluting companies.

The findings pinpoint to substantial differences of approach regarding the extent and content of environmental disclosure. State-owned enterprises and privatized firms display large scale of

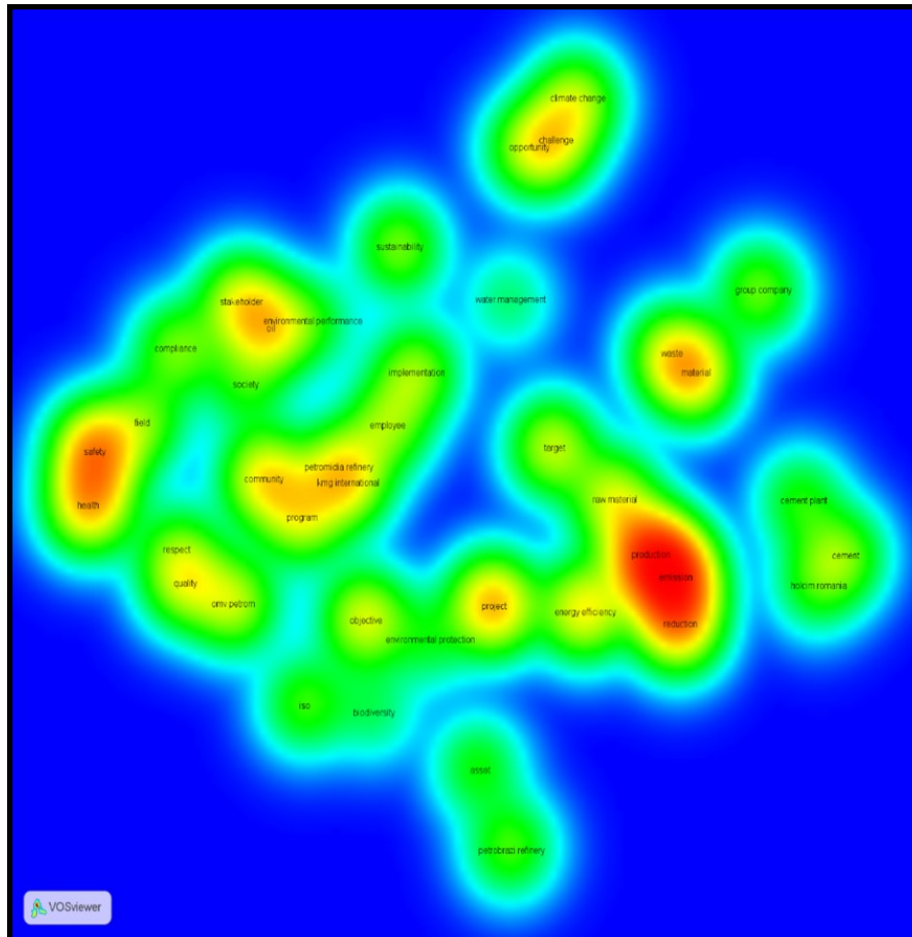


Fig. 3 – Density of connections between terms

operations, visibility, economic impact and environmental footprint. Having these characteristics, public and privatized firms would have been expected to disclose more extensively their environmental concerns. The poor environmental reporting reminds their long past of non-accountability as well as the weak motivation to engage in legitimacy building given the socio-economic and political context. Overall, the content analysis of environmental reporting suggests that SOEs fail to engage in environmental sustainability due to their low take-up rates of sustainable business practices. On the contrary, MNEs are aware of the role of corporate communication in enhancing organizational legitimacy, thus their reporting encompasses a wider range of issues related to environmental protection. The reporting is well-structured in three major themes regarding environmental policy, environmental management system and social impact. The companies acknowledge their environmental footprint and show a strong commitment to reduce the negative externalities. Anyway, there is a variation of coherence among the themes displayed by the corporate environmental disclosure with less connectivity and relatedness regarding the environmental management systems.

The case of a transition economy reveals that the understanding of environmental policy and practice through corporate reporting is inherently different since SOEs/privatized and MNEs display different types of organizational culture which affects not only their productivity and performance, but also the concern for the environment. Therefore, further research is needed to understand the micro - and macro - contextual factors which influence the corporate environmental disclosure.

References

- ALBAUGH Q., SEVENANS J., SOROKA S., LOEWEN P. J. (2013), *The Automated Coding of Policy Agendas: A Dictionary-based Approach*, the 6th annual Comparative Agendas Project (CAP) conference, Antwerp, Retrieved from: www.lexicoder.com.
- ANDRIKOPOULOS A., KRIKLANI N. (2013), *Environmental Disclosure and Financial Characteristics of the Firm: The Case of Denmark*, *Corporate Social Responsibility and Environmental Management* 20 (1), 55-64.
- BĂLEANU T. E., CHELCEA L., STANCU A. (2011), *The Social Responsibility of the Top 100 Romanian Companies. An Analysis of Corporate Websites*, *Amfiteatru Economic* 13 (29), 235-248.
- BRAMMER S. J., PAVELIN S. (2006), *Corporate Reputation and Social Performance: The Importance of Fit*, *Journal of Management Studies* 43 (3), 435-455.
- BUNIAMIN S. (2010), *The quantity and quality of environmental reporting in annual reports of public listed companies in Malaysia*, *Issues in Social and Environmental Accounting* 4 (2), 115-135.
- CHATTERJEE B., ZAMAN MIR M. (2008), *The current status of environmental reporting by Indian Companies*, *Managerial Auditing Journal* 23 (6), 609-629.
- COJANU V., GAVRIS A., ROBU R. G. (2016), *In search of Emerging Polities: Thematic Agendas of Selected European Cross-Border Cooperation Structures*, *Romanian Journal of European Affairs* 16 (1), 57-71.
- CORMIER D., MAGNAN M., VAN VELTHOVEN B. (2005), *Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions?* *European Accounting Review* 14 (1), 3-39.
- COX R. (2013), *Environmental Communication and the Public Sphere*, 3rd ed., Sage Publications, Los Angeles.
- COX R., DEPOE S. (2015), *Emergence and growth of the "field" of environmental communication*, in: Hansen A., Cox R. (eds.), *The Routledge Handbook of Environment and Communication*, London, Routledge, pp. 13-25.
- COX R., PEZZULLO P. C. (2016), *Environmental Communication and the Public Sphere*, 4th ed., Sage Publications, Los Angeles.
- CREEL T. S. (2010), *Environmental reporting practices of the largest U.S. companies*, *Management Accounting Quarterly* 12 (1), 13-19.
- DERRICK G. E., MEIJER I., VAN WIJK E. (2014), *Unwrapping "impact" for evaluation: A co-word analysis of the UK REF2014 policy documents using VOSviewer*, *Proceedings of the science and technology indicators conference 2014 Leiden: Context counts: pathways to master big and little data*, pp. 145-154.
- DRAGOMIR V. D. (2010), *Environmentally sensitive disclosures and financial performance in a European setting*, *Journal of Accounting & Organisational Change* 6 (3), 359-388.
- DRAGOMIRESCU S., MUICA C., TURNOCK D. (1998), *Environmental action during Romania's early transition years*, *Environmental Politics* 7 (1), 162-182.
- EUROPEAN COMMISSION (2014), *Special Eurobarometer 416: Attitudes of European citizens towards the environment*, Retrieved from: www.ec.europa.eu.
- EUROPEAN ENVIRONMENT AGENCY (2011), *Revealing the costs of air pollution from industrial facilities in Europe*, Publications Office of the European Union, Luxembourg.

EUROPEAN ENVIRONMENT AGENCY (2014), *Costs of air pollution from European industrial facilities 2008-2012 – an updated assessment*, Publications Office of the European Union, Luxembourg.

GRAY R., OWEN D., ADAMS C. (2009), *Some theories for social accounting?: A review essay and a tentative pedagogic categorisation of theorisations about social accounting*, in: Freedman M., Jaggi B. (eds.), *Sustainability, Environmental Performance and Disclosures* (Advances in Environmental Accounting and Management, volume 4), Emerald Group Publishing Limited, Bingley, UK, pp. 1-54.

GRIGORE G., ADI A., THEOFILOU A. (2015), *Digital reflections of pharmaceutical companies and their CSR communication strategies*, in: Adi A., Grigore G., Crowther D. (eds.), *Corporate Social Responsibility in the Digital Age* (Developments in Corporate Governance and Responsibility, volume 7), Emerald Group Publishing Limited, Bingley, UK, pp. 221-239.

IENCIU A., MULLER V., MATIS D. (2011), *Environmental Reporting within the Romanian Companies*, *International Journal of Energy and Environment* 5 (1), 123-131.

JINDRICOVSKA I., PURCĂREA I. (2011), *CSR and Environmental Reporting in the Czech Republic and Romania: country comparison of rules and practices*, *Accounting and Management Information Systems* 10 (2), 202-227.

KOLK A. (2003), *Trends in sustainability reporting by the Fortune Global 250*, *Business Strategy and the Environment* 12 (5), 279-291.

KPMG (2011), *KPMG International Survey of Corporate Responsibility Reporting 2011*, Retrieved from: www.kpmg.de.

LODHIA S. K. (2006), *The world wide web and its potential for corporate environmental communication: A study into present practices in the Australian minerals industry*, *International Journal of Digital Accounting Research* 6 (11), 65-94.

O'DWYER B. (2003), *The ponderous evolution of corporate environmental reporting in Ireland. Recent evidence from publicly listed companies*, *Corporate Social Responsibility and Environmental Management* 10 (2), 91-100.

RODRÍGUEZ BOLÍVAR M. P. (2009), *Evaluating corporate environmental reporting on the internet. The utility and resource industry in Spain*, *Business and Society* 48 (2), 179-205.

SCHVAB A. (2016), *The area of influence of Baia Mare Municipality. Adaptation processes to a changing economy* (in Romanian), *Ars Docendi*, Bucharest.

SCHVAB A., STOIAN D. (2009), *Geographic analysis of territorial disparities in Maramureş County*, *Romanian Review of Regional Studies* 5 (1), 37-50.

SOLOMON A., LEWIS L. (2002), *Incentives and disincentives for corporate environmental disclosure*, *Business Strategy and the Environment* 11 (3), 154-169.

VAN ECK N. J., WALTMAN L. (2010), *Software survey: VOSviewer, a computer program for bibliometric mapping*, *Scientometrics* 84, 523-538.

ZHANG T., GAO S. S., ZHANG J. J. (2007), *Corporate environmental reporting on the web – An exploratory study of Chinese listed companies*, *Issues in Social and Environmental Accounting* 1 (1), 91-108.

Initial submission: 19.07.2016

Revised submission: 03.04.2017

Final acceptance: 07.06.2017

Correspondence: Institute of Geography, 12 Dimitrie Racovita Str., 023993, Bucharest, Romania; Department of Tourism and Geography, Academy of Economic Studies, 6 Piata Romana, 010374, Bucharest, Romania

Email: cldpopescu@yahoo.com

BOOK REVIEWS

TOURISM AND GEOPOLITICS. ISSUES AND CONCEPTS FROM CENTRAL AND EASTERN EUROPE

Edited by: DEREK HALL, CABI (CAB International), Wallingford, Oxfordshire,
UK / Boston, MA, USA, 2017, 378 pp., ISBN: 978-178-064-761-6

Reviewed by OLIMPIA COPĂCENARU,
University of Bucharest, Romania

In recent years, tourism development in the post-communist European countries has been characterized by a growing number of international visitors, attracted by the favorable geopolitical evolution.

'Tourism and Geopolitics. Issues and Concepts from Central and Eastern Europe', edited by Derek Hall, presents the various connections between tourism and geopolitics and it brings an important contribution to the literature regarding the formerly communist countries situated in this part of the European continent.

The book consists of 26 clearly organized chapters, structured in 7 parts (I-VII), representing articles written by 29 contributors from different countries of Central and Eastern Europe. From these 26 articles, 7 belong to Derek Hall, the editor of the book, as an unique author or contributor.

The book gathers information on a wide range of post-communist European countries and territories: Romania, Bulgaria, Poland, Czech Republic, Albania, the states that belonged to the Socialist Federal Republic of Yugoslavia (Croatia, Bosnia and Herzegovina, Kosovo or Montenegro) or the ex-Soviet countries (Ukraine, Russian Federation, including the exclave of Kaliningrad).

The publication can be described as extremely

topical and of immediate interest, as it brings to the public attention important recent geopolitical events and changes that took place in Eastern and Central Europe, such as the annexation of Crimea by the Russian Federation, the recent migrations, the Middle East refugee crisis or the growing number of terrorist attacks and their impact on local tourism. What is more, the focus is explicitly on the idea of tourism as a promoter of peace and cooperation.

The first part, *'Introduction and Overviews'* gathers three chapters, *'Bringing Geopolitics to Tourism'* (Author: Derek Hall), *'Tourism and Geopolitics: The Political Imaginary of Territory, Tourism and Space'* and *'Tourism in the Geopolitical Construction of Central and Eastern Europe (CEE)'*, and it provides a rather theoretical approach of the evolution of the connexions between tourism and geopolitical strategies, interpreted in the authors' view.

The second part of the book, *'Reconfiguring conceptions and reality'*, consists of 4 chapters that bring into focus the concepts of 'post-socialism' and 'post-communism'.

These concepts and ideas are illustrated with relevant examples: the Adriatic region, which faces a continuous cultural development, Ukraine and Crimea, whose tourist activities have been highly affected by the unilateral reunification of the peninsula with Russia, or

Montenegro, whose tourism expansion may cause difficulties in the European integration process due to the close economic relations with The Russian Federation.

'*Tourism and transnationalism*', the third part of the book, gathers four chapters and it examines the way in which transnational corporations have exerted their economic power in the countries situated in Central and Eastern Europe. Therefore, the articles focus on the large-scale tourism development in Czech rural areas, highly influenced by the great flow of Dutch tourists, the expansion of international hotel chains in the former communist states or cross-border consumption practices, very obvious especially in the case of the Romanian - Hungarian border. Moreover, this part of the book brings into attention important trends, such as the liberalisation of post-socialist markets, the decentralisation, the privatisation processes or the rapid growth of transnational companies.

The fourth section of the book is called: '*Borderlands*', it consists of four chapters and it develops the widely debated idea of the changing character of political frontiers and its both internal and international impact. In the last years, a great number of cross-border collaborative projects were implemented all across Central and Eastern Europe, changing the pace of local development. This issue can be easily exemplified through transborder tourism in the Polish - Czech space. Another important topic addressed in this part of the book is the problem of historical barrier effects of the border and their impact on the present state of tourism, illustrated through the example of the Finnish - Russian geopolitical relations. Two chapters of this fifth part of the publication highlight tourism issues related to the exclave of Kaliningrad, characterized by a much higher level of international tourism compared to other parts of the Russian Federation. Kaliningrad, whose main economic activity has become tourism, is a theme rarely encountered in the international specialized scientific literature.

The fifth part, '*Identity and image*', consists of five chapters and it is probably the most

heterogeneous section of the book. It approaches various aspects of tourism market development in Central and Eastern Europe. Polish gastronomic tourism and ethnic cuisines, the growth of tourism in rural areas of Bosnia and Herzegovina, recreational tourism and ecotourism in Kosovo, and destination safety in a post-conflict area, are all explained in relation to geopolitical processes. Two of the five chapters are centred on the situation of Romania. The first article focuses on the case of the European Night of Museum and it develops the idea that cultural tourism in Romania changed significantly since the collapse of communism, while the second one addresses a very current theme: the power and influence of social media, more exactly blogging, in promoting travel destinations, based on the case of Bucharest and Sofia.

'*Mobilities*', the sixth section of this publication, is organized in five chapters and it highlights a wide range of concepts, from critical geopolitical aspects, such as the earlier forced migrations and the refugee crisis in Central and Eastern Europe to the traditions of accepting culturally different refugees. The authors focus their studies on different tourism-related aspects of mobility: the role of Western tour companies offering trips to Central and Eastern Europe during the Cold War, the impact of the expansion of low-cost flights over tourism development in the area, the international footballer mobilities, the migrants' transit and the way it is reflected in the tourists' perceptions or the case of Albania and the inter-relationship between co-ethnicity and tourism' development.

The seventh and last part of the book, '*Conclusions*', reviews the previously presented aspects, discussing the key concepts, theories, examples and approaches brought together by the wide range of authors. The publication is complemented by a consistent list of figures, tables, boxes, abbreviations and an extended index.

To sum up, the book represents an extremely complex collaborative work and it is fully coherent in introducing the current political issues that shape the European continent nowadays and demonstrating the

characteristics of the contemporary underestimated branch of globalisation, the relationships between geopolitics and tourism authors prove that the political aspects and in Central and Eastern Europe. Although tourism are closely interconnected. international tourism is apparently an

**10 Years of EU Eastern Enlargement:
The Geographical Balance of a Courageous Step.
Proceedings of the Symposium in Vienna, 3-4 December 2014**

Edited by: Peter Jordan, Austrian Academy of Sciences Press, Vienna, 2017, 542 pp. ISBN: 978-3-7001-8100-2

Reviewed by FLORIN ALEXANDRU ZAHARIA,
University of Bucharest & Ministry of Transport, Romanian Government

The European Union has faced a series of political, economic and social challenges over the last few years that have led to more public debate about the future of the Union. Political events such as the Brexit and the problems of increasing the frequency of terrorist attacks, threatening the national security of the Member States, and, last but not least, the migratory flows faced by certain countries have led to an increase in the number of Euro sceptics. In this context, the approaches of scientists, in fields such as economics, sociology and geography, to the evolution of the European space and the European community are welcomed, opening new perspectives on how the EU should evolve over the coming decades. Also, the future can not be properly planned without a systematic approach and a detailed understanding of the problems that the European community has faced in the past.

In this context, through the articles it brings, the book provides a perspective on the evolution of the European space since the last decisions on its enlargement to date. While the European Union currently seeks to reconfigure itself, the informal European Summit held in

Malta in 2017 brought to the public opinion the desire of the EU countries to pursue the process of European integration and to increase the degree of economic and social cohesion of the European territory in the coming years.

The book includes papers presented at the "10 Years of EU Eastern Enlargement -The Geographical Balance of a Courageous Step" Symposium organized by the Austrian Academy of Sciences, held in Vienna, in 2014.

The Symposium was organized to mark the 10th anniversary of the Eastern enlargement of the EU space, and it was centered on regional development, regional disparities, urban development, intercultural contacts, migration and geopolitical and geostrategic aspects of Europe as presented at that moment. As the editor says, the symposium gathered 126 participants from 20 countries and three continents.

The proceedings present 31 papers presented at the symposium, involving the contributions of many individuals and institutions. The book has its structure organized in 9 chapters corresponding to the nine main themes of the Symposium,

indeed very current in an analysis of the enlargement of the European Community space. The papers cover various areas of study in the domain of social, economic and geographical sciences, in the context of EU Eastern enlargement, such as: geopolitical perspectives and European integration, migration, economic transformation, regional development and spatial planning, rural development, urban development, inter-cultural contact and minorities, other cultural-geographical and political-geographical aspects and data processing for planning and regional development.

The first chapter deals with a number of geopolitical aspects and the problem of the integration process in the community space for the new member states. The chapter begins with the work of Giuliano Bellezza, which immortalizes the image of the EU enlargement from the ECSC (European Coal and Steel Community), which at the beginning of the 50s had only six states, to the European community as we know it today with the 28 member states. The themes presented in the first chapter deal with different geopolitical aspects from a geographic point of view on the EU's spatial dynamics and the implications that the expansion of the community space has assumed over time or may involve them. Starting with the analysis of Orient Express's influence on the cultural links between the East and the West of Europe, responding to the impact of East Germany's inclusion in the EU from an economic, demographic and geopolitical point of view, analysing the geopolitical implications of the economic crisis on the various regions of the community space, giving a point of view on the status of the Adriatic region in the EU space, and ending with an analysis of the political uncertainties in Bosnia and Herzegovina that stops its development and EU integration, the chapter covers

the approached themes in a generous way.

Chapter 2 brings us the issue of migration in the context of the enlargement of the European space. Heinz Fassman's first paper analyses migration to and from South and South-Eastern Europe from three different perspectives, with an emphasis on the factors that determine these migratory flows. The second paper deals with migration issues in Albania and their effect on the development of this state. The approach is very modern, considering the new concepts it treats like transnationalism and multilocality as social practice.

Chapter 3 contains three papers and it addresses the economic issues appeared in the context of the growth of the European Community space. The papers deal with the economic issues in countries such as Hungary, Serbia and Romania. The first paper analyses food tax evasion in Hungary, presenting the causes of this growing phenomenon and the consequences for the economic development of this state. The second paper represents an analysis using GIS tools to see the dynamics of the private pension insurance market in Serbia. The author's contribution to developing a methodology based on modern GIS tools in identifying spatial models in the analysis of this private pension insurance market should be welcomed and encouraged. The 3rd paper captures a study realized by a transnational college of researchers on the transport network in Romania. The focus of the analysis is on the trans-European networks for all modes of transport and it discusses their development prospects and the impact on the increased accessibility of the territory.

The chapter on regional development and spatial planning is the most consistent

and it includes six works with authors from different countries. The first paper analyses the evolution of the urban system in Croatia and its challenges in the context of the European regional development policies applied at the level of NUTS regionalization. Another paper is Hunor Bajtalan's work on the regionalization process in Romania and the questions posed by the implementation of policies, analysed from two perspectives of centrality and regionalization. Another work is the one of Igor Sirodov et al., related to the dynamic analysis of foreign direct investments and their impact on regional inequalities. The analysis is intended to capture the positive and negative effects of these foreign direct investments on regional development at the different stages of the transition in Romania. The following two papers analyse elements related to socio-economic changes in Poland and spatial planning in Slovakia in the context of their accession to the European Community space. The last paper analyses comparatively the policies and spatial planning system in Austria and Bulgaria, immortalizing how the two, especially the Bulgarian system, could be improved.

The next two chapters refer to rural and urban development. The first paper in the rural development section analyses the public policies of rural development in the context of Romania's accession to the EU, concluding with the inconsistency between the part of the strategic documents and the difficulties in the implementation process. The second one presents a number of issues that could be the starting point for the sustainable development of rural areas in the Eastern European area, with case studies of rural settlements in Romania.

The urban development chapter contains

three papers addressing various themes, from metropolitan development in Poland, to the effects of retrocession by the Catholic Church in Croatia, and the revitalization of industrial heritage in Romania, with all the themes responding to the current challenges of urban spaces. The chapter on inter-cultural contacts and minorities contains a series of papers analysing the specific issues of this theme in Central and Eastern Europe. The papers analyse the problems faced by minorities in countries such as Romania, Slovenia, Slovakia, the Czech Republic, Latvia, Hungary, Bosnia and Herzegovina and Bulgaria, as well as the causes and effects of these problems in the new context of these states, in relation to the integration policies of EU. Other cultural-geographical and political-geographical chapter contains two papers that address the globalisation and glocalisation concepts over the Slovak language in the context of the European Union and on the theme of functional and territorial differences of post-communist elections in Romania.

The last chapter on data processing for planning and regional development highlights the role of the European integration transposed in the visibility and interconnectivity of authors who have written in „Europa Regional”, the regional geographical scientific journal by the Leibniz Institute for Regional Geography (IfL). Evelin Muller explains the evolution of the journal in the scientific context of the European Community space. The last paper presents a series of successful projects conducted by Ukrainian geographers in the European context of Ukraine's development, such as the National Atlas of Ukraine and the Atlas of Natural, Technological and Social hazards and Emergency Risks in Ukraine. In terms of graphic and cartographic representation, the majority of works in

this book can be appreciated by their high quality and professionalism. What can be noticed in most papers is the high quality and transdisciplinary optimal character, where the geographic perspective is not diminished at all, and which, through the varied and tangential methods from other social sciences, succeeds to answer a number of concluding questions related to the approached themes.

In conclusion, the book manages to bring together, in a very clear structure, works that answer various questions on the last 10 years of the EU. The analysis of the problems related to the dynamics and evolution of the community space

following the choice of enlargement to the Eastern area is a necessary one and it answers to some concerns about the future evolution of the EU. In the new European context in which the evolution of the EU, as we know it, is called into question, approaches such as this book are absolutely necessary. Specialists should analyse what was good and what did not succeed so well in the European integration and development process so that the future policies established at the level of the European community to better respond to the territorial realities in which they are applied.

Aims and scopes

Analysis of the urban and regional condition needs to be interdisciplinary. In reality, urban researchers usually tend to belong to a discipline reflecting their training whether as sociologists, geographers, planners or any number of subjects concerned with the study of space and place. Our training very often endorses an appreciation of how other disciplines explore the city. For the journal the acknowledgement of the many disciplines that concerned with understanding cities and regions will be indicated by the different disciplinary back-grounds reflected in the papers published. Articles will be published by geographers, sociologists, planners, economists, political scientists, to mention just few of the disciplines involved in urban and regional study.

The Journal of Urban and Regional Analysis plans to be a key outlet publishing topical articles dealing with cities and regions. In later issues we plan to include sections devoted to notes and comments as well as a policy section outlining and discussing state and non-state initiatives aimed at improving cities and regions, together with the problems confronted by their implementation.

Instructions to Authors

1. The Journal of Urban and Regional Analysis seeks to redefine and revigorate the links between geography, sociology, planning, economy, political science. It aims to publish original academic research, critical studies and discussions of the highest scholar standard in the field of urban and regional development. Submitted papers will be evaluated on the basis of their creativity, academic quality and contributions to advancing understanding of the complex problems related to urban and regional development.

2. Submitted manuscripts must be original, unpublished contributions. They must not be submitted or accepted by any other publications. All articles submitted to the Journal will be available online, free of charge.

3. One electronic copy of the manuscript (sent by email in PDF format) should be submitted to either of the two Editors listed below.

Ioan IANOS
University of Bucharest -
Interdisciplinary Centre for
Advanced Research on
Territorial Dynamics,
030018, Bucharest,
Romania 4-12, Regina
Elisabeta Blv.
E-mail: office@cicadit.ro

Ronan PADDISON
University of Glasgow -
Department of
Geographical and Earth
Sciences East Quadragle
University Avenue,
Glasgow
G12 8QQ UK
E-mail: Ronan.Paddison
@ges.gla.ac.uk

4. Layout: Manuscripts should be written in English and contain no more than 8000 words. Page setup: A4 size, 3 cm. all margins; title: Arial Bold, 12 pts, all caps, centered.; 2 empty rows (same font); name of authors using Arial, 10 pts.: first name italic, last name upper-case, centered. Affiliation follows below, centered; 2 empty rows (same

Font). The abstract: start with the word "Abstract", followed by the text, not to exceed 150 words. Use Arial, 8 pts., justified alignment, indent 2 cm. left and right; 1 empty row, same font. Three or four keywords should start after the word "keywords", written using Arial, 8 pts., justified alignment, indent 2 cm. to the left. Keywords should be written using Arial Italic, 8 pts.; 2 empty rows, same font. The text uses Arial, 9 pts., Justify alignment. Headings use Arial Bold, 9 pts., centered. Research articles should use the following headings: Introduction, Materials and Methods, Results and Discussion, Conclusions, References. The text of tables uses Arial, 9 pts. Captions and titles of tables are centered and use Arial Bold, 9 pts. Tables and figures should be centered and numbered consecutively throughout the manuscript and referred in the text using Arab numbering. Captions should use the word table/figure with italic characters followed by the title with bold font. Citations in the text should use the Harvard System of short references, for example, (Geyer 2002) followed by a, b,... when two or more references to works by one author are given for the same year, e.g. (Geyer 2002a, 2002b). Page numbers should be indicated for quotations. At the end of the article, a full listing of references in alphabetical order should be provided in the following style; use Arial, 9 pts, hang at 1cm:

GIDDENS A. (1990), *The Consequences of Modernity*, Polity Press, Cambridge.

MARSHAL R. (1995), *The global job crisis*, Foreign Policy, 100, 50-68.

*** (1938-1941), *General Romanian Population and Settlements Census on December the 29th 1930*, I-X, ICS, Bucharest.

Images should be submitted in their final form, both as good quality hard copy and electronically.

Authors not proficient in English should have their manuscripts checked before submission by a competent English speaker. To edit your manuscript, use the template available at www.jurareview.ro.

5. Paper submissions must be printed on one side of A4 or US Letter-sized paper, double spaced (including footnotes and references) with a 1.5 inches margin and numbered pages. Submissions will not be normally returned to authors. Avoid excessive use of footnotes. Tables and figures should be attached on separate pages at the end of the manuscript and their approximate position indicated in the text.

6. Final versions of papers accepted for publishing should be submitted electronically in a MS Word compatible format suitable for editing.

7. The Journal of Urban and Regional Analysis also publishes reviews of selected books in the field of urban and regional development. Books should be sent for potential review by JURA to the University of Bucharest - Interdisciplinary Centre for Advanced Research on Territorial Dynamics, 030018, Bucharest, Romania, 4-12, Regina Elisabeta Blv.

Open-access journal



www.editurauniversitara.ro