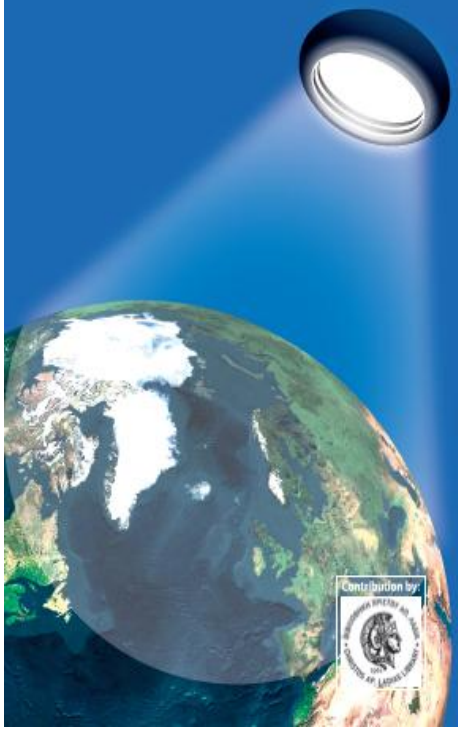
Regional Science Inquiry



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19b Navarinou Street, 15232 Chalandri, Athens, Greece Tel. / Fax: +30 210 6833700

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Contents

RSI Journal, Volume III, Issue 2 – Editorial

Income Inequalities in the European Union

Inequality matters because it contravenes the values of the EU citizens, the European Commission's objectives for economic and social cohesion, and the specific objectives of 'Europe 2020' Strategy for 'smart, sustainable' and inclusive growth. Research very convincingly shows that egalitarian societies are associated with higher levels of economic growth and political inclusion.

By contrast unequal societies experience higher rates of crime, ill-health drug abuse and persistent poverty. Cohesion and growth objectives are therefore complementary as well as critical to socio-economic well being. Socio-economic inequality refers to differences in a range of economic and social factors that influence well-being, including income, education and health. Economic inequalities relate primarily to disparities in earnings, derived from paid employment and in household incomes, which reflect the combined effects of earnings and net social transfers (taxes and benefits). Social inequality refers to differences in access to social commodities, e.g. health care or education, or to social and institutional networks. Poverty is defined primarily in economic terms and relates to people whose incomes and resources preclude them from having a standard of living considered acceptable in the society in which they live (European Council's definition, 1975). Changes to either poverty or inequality may occur independently of each other but generally countries with high levels of inequality tend to have high rates of poverty. Social exclusion encompasses aspects of poverty and inequality and highlights the complex, dynamic and relational natures of disadvantage as well as the processes through which people become excluded. The EU uses an 'at risk of poverty' measure, defined as 'those living below 60% national median equalised disposable income', as not all those with low incomes are necessarily poor. The poverty threshold is the value of PPS in euros at the 60% median income level for any particular state. This means that those defined as poor living at or below the poverty threshold in one country – for example UK (poverty threshold = PPS 17,000 euros and 17% of the population live in poverty) are considerably richer than those in another, for example the Czech Republic (poverty threshold = PPS 6,000 euros and 10% live in poverty). Currently, nevertheless, in the UK there is a clear growing divide between the North and South (Leroux, 2011).

A five year evaluation of the Lisbon Strategy signalled that the objectives of sustainable economic growth leading to more and better jobs and improved social cohesion were far from realized and that the Strategy needed refocusing. Consequently, in 2006, on the basis of the Commission's Communication, the European Council adopted the Social Protection and Social Inclusion process, whereby the fields of social inclusion, pensions, and health and long-run care were brought together.

Financial instruments available to MS and their regions, such as the European Regional Development Fund, the European Social Fund and the Cohesion Fund, comprised a significant effort towards strengthening the economic and social cohesion of the enlarged EU. For example, over the period 2007-2013 the European Social Fund will distribute about 75 billion euros to EU MS and regions.

'The inability of labour to capture an adequate share of productivity gains constitutes a major problem in Europe' (ILO, 2008). European Workers, especially the lower paid, have not benefited from increases in productivity in recent years. Furthermore, an increasing proportion

of European workers have experienced a decline in total income – wages plus social contributions.

Earning inequalities are moderated by social transfers, taxes and benefits are generally measured at the household level. But income inequality remains and has been increasing in recent decades. Variations in inequality between MS show that inequality is not inevitable and that policies can redress undesirable outcomes. Inequality matters because it impacts negatively on social welfare and undermines social cohesion.
Economic restructuring, innovation and highly educated and well trained workforce are critical to the development of a competitive, smart, knowledge economy (Europe 2020) but these economic, employment and educational changes are associated with wage polarization, primarily due to the expansion of earnings at the top of distribution relative to those lower down at the inability of labour (especially lower paid labour) to capture an adequate share of productivity gains (ILO, 2008)

The inability of labour to capture an adequate share of productivity gains constitutes a major problem in Europe. It is important to combat low pay directly as well as finding ways of allowing productivity gains to be shared more equally between capital and labour and between high and low paid workers. To redress market imperfections, the EU and the MS should support labour market institutions as they play a critical role in wage negotiation and can ensure a fairer and ultimately more effective distribution of productivity gains.

References

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Leroux, M. 'Spending power sinks to new low as households step up saving', *The Times*, October 26, 2011

In the 2nd Issue of Volume III of the RSI Journal

This issue includes twelve papers and a research report, all written by academics and policy-makers from all over the world. It is the intention of the editorial board of the Regional Science Inquiry Journal to present in this issue a wide range of topics, such as economics, environmental, politics, theoretical aspects of regional development, empirical case studies.
Hiroyuki Shibusawa and Yuzuru Miyata develop a dynamic spatial model of general equilibrium to investigate the economic impacts of earthquakes on the regions of Japan, together with the indirect and distributional economic impacts before and after an earthquake.
The spatial relation between development and accessibility is examined in the context of the NUTS3 regions of the EU by Géza Tóth and Áron Kincses.
Stilianos Alexiadis and Christos Ladias attempt to determine the conditions for optimal allocation of distribution of investment in regional inequalities in the third paper of this issue.
Yasuhiro Hirobota, Yuzuru Miyata and Hiroyuki Shibusawa evaluate the improvements in road networks using the San-En region of Japan as a case study while Lubor Hruska-Tvrdy and Ivana Foldynova show the relation between social risks and sustainable urban development.
Vicky Katsoni provides evidence on the role of ICTs in regional tourist development. Mergers and acquisitions in Mexico are examined by José G. Vargas-Hernández and Mohammad Reza Noruzi. Regional innovation in the process of regional convergence

in the EU is the main concern of the paper by George M. Korres and Aikaterini Kokkinou.

Mariusz Sokolowicz examines the impact of foreign direct investment on regional development using the Łódź Metropolitan Area in Poland as a case study while a behavioural approach is taken by Vicky Katsoni, Athina Papageorgiou and Maria Giaoutzi to examine the profile of cultural travellers.
Contemporary issues in the mergers and acquisitions are reported by José G. Vargas-Hernández and Mohammad Reza Noruzi.
Mediha Sahin, Alina Todiras and Peter Nijkamp provide a contextual and empirical framework for assessing the business performance of migrant entrepreneurs in major cities in the Netherlands.
Finally, a research report by Bános Katalin and Somogyi Andrea, examines possible problems and perspectives in the participation of Budapest as EU capital over the period 2004-2010.
The present issue of the RSI Journal concludes with presenting general news and announcements related to regional science research undertake, academic profiles of worldwide distinguished academic scholars in regional science together with the presentation of selected books, useful to regional scientists.

Dr. Alexiadis Stilianos
Dr. Kokkinou Aikaterini
RSI Journal

Papers

EVALUATING THE DYNAMIC AND SPATIAL ECONOMIC IMPACTS OF AN EARTHQUAKE: A CGE APPLICATION TO JAPAN

Hiroyuki SHIBUSAWA*
Department of Architecture and Civil Engineering, Toyohashi University of Technology, Japan
hiro-shibu@tut.jp
Yuzuru MIYATA
Department of Architecture and Civil Engineering, Toyohashi University of Technology, Japan
miyata@ace.tut.ac.jp

Abstract
We have developed a dynamic spatial computable general equilibrium model to investigate the regional economic impacts of an earthquake. In our spatial model, Japan is subdivided into 47 regions. All the regions are connected by transportation networks. Our model is of a decentralized economy with utility-maximizing consumers and value-maximizing firms in a dynamic context. The model embodies both the spatial commodity flows among regions and the dynamics of regional investments. The model is calibrated for the regional economy using a multi-regional input-output table for Japan. We estimate the impacts of a hypothetical earthquake, which is expected to occur in the near future, on the regional economy in a case study of the Tokai region of Japan. The results show the indirect and distributional economic impacts before and after an earthquake. This study suggests that any disaster analysis should evaluate the economic impacts of a disaster based on both ex-ante and ex-post criteria.

Keywords: Disaster Protection, Indirect Economic Impacts, Tokai Earthquake, Dynamic Spatial CGE Modeling

1. Introduction

In this paper, we develop a dynamic spatial computable general equilibrium (DSCGE) model to evaluate the economic impacts of an earthquake on the Tokai region of Japan. Our model is of a decentralized economy with utility-maximizing consumers and value-maximizing firms in a dynamic context. The model embodies both the spatial interactions among regions and the dynamics of regional investments.

A numerical simulation model is developed of an inter-regional inter-sectoral economy in which Japan is subdivided into 47 regions. All the regions are connected by transportation networks. The model is calibrated for the regional economy in Japan. As a case study, the dynamic impacts of an earthquake in the Tokai region are analyzed by numerical simulation. In our hypothetical scenario, the primary physical damage caused by an earthquake is simply given by the reduction in the industrial capital stock. The dynamic optimizing production sector would make an investment before and after an earthquake to protect against economic losses or repair crucial damage. Regional economic growth would be more sensitive to a disaster.

The Tokai region is located at the center of Japan and faces the northern end of the Philippine Sea plate. The Tokai region is a potential location for a great earthquake. An earthquake is expected to occur in the Tokai Region (Mogi 1970, Sato 1970, Ando 1975). In this region, earthquakes with a magnitude of 8 recur with an interval of about 100-150 years. The most recent earthquake occurred in the Tonankai region in 1944. The occurrence of great earthquakes is approximately periodic (Mogi 1985).

Computable general equilibrium (CGE) analysis is a major tool in economics, regional science, and engineering. It is also widely recognized as a policy evaluation method (see, e.g., Shoven and Whalley 1992, Kehoe et al. 2005, Borglin 2004). There is a vast literature reporting

* Corresponding author

applications of static CGE models, but few studies have employed dynamic and spatial frameworks (see, e.g., Oosterhaven and Knaap 2003, Donaghy 2009). Recent trials of dynamic spatial or multi-regional CGE modeling have been undertaken by Ciesecke (2002,2003), McGregor, Swales and Yin (1995), and McKibbin and Wilcoxen (1992). Those previous studies mostly rely on a quasi-dynamic framework, which is characterized by an evolutionary approach and a sequential procedure.

The economic impacts of disasters have been analyzed by computational modeling approaches, such as the input-output model, mathematical programming, CGE, and econometric models (see, e.g., Ellson et al. 1984, Rose et al. 1997, Shon, Kim, Hewings 2003, Lee and Jang 2003, Okuyama and Chang 2004, Rose et al. 2005). Those studies mostly focused on assessing the economic impacts of damage to the public infrastructure such as transportation links, electric utility lifelines, water facilities, and telecommunications networks.

The CGE model gives us an excellent framework for analyzing disaster impacts and policy responses both across and between industries, households, and government. To assess the distribution impacts of a disaster in multi-regional settings, the spatial CGE model approach, which disaggregates the world or a country into a number of regions or counties, has also been developed. The models were characterized by the optimizing behavior of individual consumers and firms, subject to market balances and resource constraints in a static framework. The spatial interactions between regions are internalized by the transportation networks and trade costs. The spatial CGE (or CGE) model is a powerful tool but has some disadvantages as regards disaster analysis. The major reason for these disadvantages is that the economy is always established in equilibrium.

In Japan, several disasters have been assessed including the Tokai, Tonankai, and Niigata-Chuetsu earthquakes. Empirical studies have adequately estimated direct and some indirect economic losses based on actual data and input-output models (see e.g. Toyoda and Kochi 1997, Taniguchi 2007). On the other hand, the spatial CGE models have been used to capture spatial and distribution impacts (see, e.g., Koike and Ueda 2005, Tsuchiya, Tatano and Okada 2003, Tatano and Tsuchiya 2008). In such practical studies, to incorporate a disequilibrium phenomenon after a disaster in the SCGE models, short-run and long-run equilibriums were defined in a non-perfect competitive regional market condition, and the model was solved in a static environment. Those solutions were compared based on a hypothetical scenario. The distributional impacts across economic institutions and between regions, and caused by the direct economic loss in specific regions after an earthquake, were adequately estimated.

In disaster analysis, another important issue has largely been neglected in the SCGE literature, namely, the indirect effects of disaster protection before an earthquake. Tsuchiya, Tatano and Okada (2003) presented one of the few attempts to implement an SCGE model for an ex-ante disaster analysis. They focused on the impacts of information provision in a potential disaster and the transported-related economic losses induced by an earthquake warning were estimated under a short-term equilibrium using an SCGE model. However, a natural disaster inevitably involves both indirect and distributional effects before and after its occurrence. Natural disasters have been recorded throughout history, and the periodic characteristics of disasters have been investigated and widely recognized. Economic assessments before and after a possible disaster are expected to be resolved simultaneously in an analytical framework.

In this study, a dynamic spatial CGE model is developed based on dynamic macroeconomic theory with a multi-regional and multi-sectoral specification (ref. Abel Blanchard, 1983). Regional investment is endogenously determined by the behavior of value-maximizing firms, which involve capital adjustment functions. The dynamic impact of an earthquake is evaluated by using our dynamic spatial CGE model. Here, we extend our earlier work (Shibusawa, Yamaguchi and Miyata 2009). Specifically, our model is calibrated using the multi-regional input-output table in Japan. A steady state solution is derived as a base case. By numerical simulation, we assess the economic impacts of an earthquake in the Tokai region using our hypothetical scenarios. Two cases, i.e. unpredicted and predicted occurrences, are

assumed and the two solutions, which are characterized as non-steady state, are compared with the base case.

Our contributions are as follows. Firstly, since industrial investment is determined by a firm's dynamic optimizing behavior, we can assess dynamic changes in investment before and after an earthquake. We derive the optimal investment before an earthquake from our model. Although we do not fully resolve the disequilibrium phenomena related to a disaster, we derive industrial investment responses before and after an earthquake as a non-steady state solution. A dynamic analytical framework highlights the estimation of indirect and distributional economic impacts before and after an earthquake. Secondly, since our model involves the transportation networks, we can also evaluate dynamic distributional impacts through the intra- and inter-regional trade before and after an earthquake. Lastly, we describe the methodological advantage of DSCGE modeling for application to periodically predicted disasters. It may contribute to an understanding of artificial and non-natural disasters caused by human activity, such as global warming and other environmental issues.

The paper is organized as follows. We first describe basic assumptions in Section 2. In section 3, we outline the dynamic spatial CGE model, and describe the optimization behaviors of firms and households. To obtain the market prices, we also define the equilibrium conditions. Section 4 provides simulation results. Two cases are compared to a base case, which is a steady state solution for a 21-year period. Section 5 summarizes the paper and offers some concluding remarks.

2. Basic Assumptions

The world is subdivided into regions. Throughout the world there are general industries, transportation industries and households. The economy is endowed with the primary factors of labor and capital. Labor is mobile across industries but not regions and capital is immobile across industries and regions. Goods and factor prices are determined in perfectly competitive regional markets. The commodity trade between regions in a country generates demand for transportation services, and unit transportation costs are endogenous. Commodities are perfect substitutes, i.e., trade between regions is calculated by trade coefficients. The movement of commodities among regions is enabled by road, rail, sea and air transportation networks. The modal share is also given. The model is solved for rational expectation equilibrium under the assumptions of perfect competition and foresight. However, we assume that firms place priority on the investment-savings balance. Then the level of investment is determined by the firm's optimizing behavior.

The model is finitely set up in discrete time. $T \equiv \{1, 2, \cdots, t_F\}$ denotes a planning period index and t_F is the final planning period. The world is divided into a home country and a foreign country. These are subdivided by region. R denotes a regional index in the home country. There are three kinds of industries, i.e. general, transportation and distribution industries. The general industry involves domestic and foreign trade between regions. I denotes a sector index for the general industry. M is a sector index for the transportation industry. All the regions interact with each other via the transportation networks. A transportation network is defined by nodes and links. A transport path connecting two regions is fixed and the transport link distance is exogenously given.

3. The Model

The model is based on dynamic macroeconomic theory with a multi-region and multi-sector specification. Each region has production and household sectors. Commodity trade flows are determined by the trade and modal share coefficients. We characterize the problems related to the maximization of the production and household sectors in this economy.

3.1 Production Sectors

Each sector of the general and transportation industries maximizes its present cash flow value in each period NC_{jt}^r and the asset value of their industrial capital in the final period $\Phi_j^r(\cdot)$. The sectors operate with constant returns to scale technology. The sectors choose the optimal investment and labor employment strategies. The behavior of the production sector $j \in I \cup M$ in region $r \in R$ is given as

$$\max_{\{K_{jt}^r, L_{jt}^r, \mathbf{X}_{jt}^r, \mathbf{Z}_{jt}^r\}} \quad \sum_{t \in T} \rho_{jt} NC_{jt}^r + \rho_{t_F+1} \Phi_j^r(K_{j,t_F+1}^r),$$

subject to $K_{j,t+1}^r = (1-\delta_j)K_{jt}^r + \Delta K_{jt}^r(\mathbf{Z}_{jt}^r)$,

where $NC_{jt}^r \equiv p_{jt}^{Or} Y_j^r(K_{jt}^r, L_{jt}^r, \mathbf{X}_{jt}^r) - w_t^r L_{jt}^r - \sum_{i \in I \cup M} p_{it}^{Dr} X_{ijt}^r - \sum_{i \in I \cup M} p_{it}^{Dr} G_i^r(Z_{ijt}^r)$.

$\rho_{jt} \equiv 1/(1+\rho_j)^{t-1}$ represents the discount factor and ρ_j is the positive discount rate. $Y_j^r(\cdot)$ is a production function of capital K_{jt}^r, labor L_{jt}^r, and a vector of intermediate input $\mathbf{X}_{jt}^r = \{X_{1jt}^r, \cdots, X_{Ijt}^r\}$. The value added production function for labor and capital has a Cobb-Douglas form, while the intensities of intermediate goods are fixed. The asset value for the final period $\Phi_j^r(\cdot)$ is a linear function of the capital stock for the final period. The capital stock K_{jt}^r is accumulated by an investment function $\Delta K_{jt}^r(\cdot)$ with constant returns to scale. It is a function of a vector of intermediate inputs for the investment $\mathbf{Z}_{jt}^r = \{Z_{1jt}^r, \cdots, Z_{Ijt}^r\}$, and a Leontief type technology is assumed. δ_j is the depreciation rate. It is assumed that the cost function of intermediate goods for investment $G_i^r(\cdot)$ has increasing returns to scale. It can be interpreted that the function reflects both the costs of intermediate goods and the costs of adjusting their capital inputs.

In these sectors, there are two kinds of prices in each region, namely, the producer's price p_{jt}^{Or} and the purchaser's price p_{jt}^{Dr} in region r. If a commodity j is tradable between regions o and d, then the producer's price in region o is represented by p_{jt}^{Oo} and the purchaser's price is represented by p_j^{Dd} $(j \in I)$. In the transportation sector, p_{jt}^{Or} $(j \in M)$ means the unit price of the transportation services in region r. w_t^r is the wage rate.

After paying wages to households, the sector has to decide how to distribute profit and finance investment. In this model, the net investment is financed by new bonds. Let B_{jt}^r be the number of bonds in period t and r_{jt}^r be the interest rate. The bonds are traded in each region. The initial number of bonds is normalized by $B_{j1}^r = K_{j1}^r$. In this case, the profit dividend is calculated as

$$\pi_{jt}^r = p_{jt}^{Or} Y_j^r(K_{jt}^r, L_{jt}^r, \mathbf{X}_{jt}^r) - r_{jt}^r B_{jt}^r - w_t^r L_{jt}^r - \sum_{i \in I \cup M} p_i^{Dz} X_{ij}^z - p_{Bjt}^r \delta_j K_{jt}^r.$$

If net investment is financed by issuing new bonds, it holds that

$$p_{Bjt}^r \Delta B_{jt}^r = \sum_{i \in I \cup M} p_{it}^{Dr} G_i^r(Z_{ijt}^r) - p_{Bjt}^r \delta_j K_{jt}^r,$$

where ΔB_{jt}^r is the number of new bonds issued by sector j in region r for period t. p_{Bjt}^r is the price of the new bond. Therefore the outstanding bond is given by $B_{j,t+1}^r = B_{jt}^r + \Delta B_{jt}^r$ with

$B^r_{j1} = \bar{B}^r_{j1}$. It is assumed that the price of the new bond is given by $p^r_{Bjt} = q^r_{jt}$ where q^r_{jt} is the costate variable of the current-value Hamiltonian function

$$H^r_{jt} = NC^r_{jt} + q^r_{jt}[\Delta K^r_{jt}(\mathbf{Z}^r_{jt}) - \delta_j K^r_{jt}].$$

In this model, we assume that tradable goods are perfect substitutes. The profit of the distribution sector is given by $(j \in M)$

$$\pi^r_{Djt} = p^{Dr}_{jt} \sum_{o\in R}\sum_{m\in M} \mu^{or}_{jmt} F^{or}_{jt} - \sum_{o\in R}\sum_{m\in M} (p^{Oo}_{jt} + p^{Tor}_{jmt})\mu^{or}_{jmt} F^{or}_{jt} \quad \text{where} \quad p^{Tor}_{jmt} \equiv \kappa_{jmt} p^{Or}_{mt} D^{or}_{mt}.$$

μ^{or}_{jmt} is the given modal share. The commodity flow F^{or}_{jt} is calculated as

$$F^{or}_{jt} = \tau^{or}_{jt}\left(\sum_{i\in I\cup M} X^r_{jit} + C^r_{jt} N^r_t + \sum_{i\in I\cup M} G_{ji}(Z^r_{jit})\right)$$

where τ^{or}_{jt} is the given trade coefficient. p^{Tor}_{jmt} is the transportation cost of mode m from region o to region r. D^{or}_{mt} is the distance between origin and destination along with a given path. κ_{jmt} is a given unit transportation service of mode m for goods j. From the zero profit condition, the purchaser's price is given by

$$p^{Dr}_{jt} = \sum_{o\in R}\sum_{m\in M} (p^{Oo}_{jt} + p^{Tor}_{jmt})\mu^{or}_{jmt}\tau^{or}_{jt}.$$

3.2 Household Sector

A representative household maximizes the utility level subject to income constraints. The full income consists of wages and interest on bond holdings. The behavior of a household in region $r \in R$ is given as

$$\max_{\{\mathbf{C}^r\}} \quad \sum_{t\in T} \rho_t U^r(\mathbf{C}^r_t),$$

subject to $$w^r_t + \sum_{i\in I\cup M} r^r_{it} A^r_{it} + d^r_t + FA^r_t - \sum_{i\in I\cup M} p^{Dr}_{it} C^r_{it} - \sum_{i\in I\cup M} p^r_{Bit}\Delta A^r_{it} \geq 0.$$

$U^r(\cdot)$ is a Cobb-Douglas utility function for period t, and it is a function of consumption $\mathbf{C}^r_t = \{C^r_{1t}, \cdots, C^r_{It}\}$. A^r_{it} is the number of bond holdings per household. ΔA^r_{it} represents new bonds issued for industrial investments. The household can receive the interest income but must pay to obtain a new bond. FA^r_t is the income transfer that provides a balance against a surplus or deficit in foreign and regional trade. d^r_t is the profit dividend that is given as $d^r_t \equiv \sum_{i\in I\cup M} \pi^r_{it} / N^r_t$ since the utility function is not identical among regions.

In this model, we assume that the level of investment is determined by a firm's optimization behavior. Firms place priority on the investment-savings balance. Therefore, the level of household savings is adjusted to coincide with the level of investment. In this case, the new bonds and the bond holdings per household are calculated as

$$\Delta A^r_{it} = \Delta B^r_{it} / N^r_{it} \ (i \in I \cup M) \text{ and } A^r_{i,t+1} = (\Delta A^r_{it} + A^r_{it}) N^r_t / N^r_{t+1} \ (i \in I \cup M).$$

3.3 Equilibrium Conditions

To obtain an equilibrium solution, the following market clearing conditions should be satisfied in each region $(r \in R)$.

(1) Goods and Services Markets

General Goods

$$Y^r_j(K^r_{jt}, L^r_{jt}, \mathbf{X}^r_{jt}) = \sum_{i\in I\cup M} X^r_{jit} + C^r_{jt} N^r_t + \sum_{i\in I\cup M} G_{ji}(Z^r_{jit}) + \sum_{d\in R} F^{rd}_{jt} - \sum_{o\in R} F^{or}_{jt} + E^r_{jt} - M^r_{jt} \ (j \in I)$$

where E^r_{jt} is a given export from region r and M^r_{jt} is a given import to region r.

Transportation Services

$$Y_m^r(K_{mt}^r, L_{mt}^r, \mathbf{X}_{mt}^r) = \sum_{i\in I}\sum_{o\in R} \kappa_{imt}^r \mu_{imt}^{or} D_{mt}^{or} F_{imt}^{or} \quad (m \in M)$$

(2) Labor

$$N_t^r = \sum_{i\in I\cup M} L_{it}^r$$

N_t^r is the total labor force (population) in each region and it is exogenously given.

(3) Capital

$$\Delta A_{it}^r N_t^r = \Delta B_{it}^r \quad (i \in I \cup M)$$

$$A_{it}^r N_t^r = B_{it}^r = K_{it}^r \text{ with } \bar{A}_{i1}^r N_1^r = \bar{B}_{i1}^r = \bar{K}_{i1}^r \quad (i \in I \cup M)$$

$\bar{A}_{1i}^r$ is the initial number of bond holdings of a household.

4. Numerical Application

(1) Scenarios

In the simulation model, the world is subdivided into 47 regions, which cover all Japan's prefectures. The economy is divided into seven sectors. General industry is divided into three sectors ($I = \{1,2,3\}$), i.e. agriculture, manufacturing, and services. There are four kinds of transportation networks: road, railway, sea, and air. Then the transportation industry is also divided into four sectors ($M = \{4,5,6\}$). The network structure, which is defined by the distance between an origin and a destination, is given for each period. The simulation period is set at *tF*=21. Population growth and technological progress are also fixed over time. Utility, production, and investment functions are specified for the simulation analysis as shown in the Appendix. Our simulation model is calibrated using the multi-regional input-output table in Japan (ref. Hitomi and Bunditsakulchai 2008).

Three cases are examined to evaluate the dynamic impacts of an earthquake in the Tokai region. The primary physical damage is simply assumed in terms of the reduction in the industrial capital stock in the Tokai region. In this simulation, the Tokai region covers ten prefectures, Chiba, Tokyo, Kanagawa, Yamanashi, Nagano, Gifu, Shizuoka, Aichi, Mie, and Wakayama as our target area.

(a) Base Case

The base case is the business as usual case where there is no earthquake. In this case, a steady state solution is derived where it holds that $K_{j,t+1}^r = K_{jt}^r$ and $q_{j,t+1}^r = q_{jt}^r$. The population growth rate and the technical progress growth are also both given as 0%.

(b) Case 1

We assume that an unpredicted earthquake occurs suddenly and hits the target area. In this simulation, the earthquake occurs in the 11th period. The level of physical damage is also assumed to comprise a reduction in capital stocks. The estimated rate of the damage is shown in Table 1 (ref. Central Disaster Prevention Council 2003, Taniguchi 2007). In this situation, no industry can make a new investment to protect itself from the disaster before the earthquake.

No. Prefecture	Rate of Damage Loss
12 Chiba	0.016%
13 Tokyo	0.001%
14 Kanagawa	0.058%
19 Yamanashi	0.247%
20 Nagano	0.147%
21 Gifu	0.011%
22 Shizuoka	10.000%
23 Aichi	1.421%
24 Mie	0.237%
30 Wakayama	0.016%

Table 1. Rate of Damage Loss in Capital Stock in Tokai Region

(c) Case 2

In this case, it is assumed that an earthquake is accurately predicted. Here, the earthquake occurs in the 11th period. Then the capital stocks are reduced in the 11th period as shown in Table 1. The amount of the reduction is the same as in Case 1. In Case 2, each industry can make an additional investment to protect itself before the earthquake.

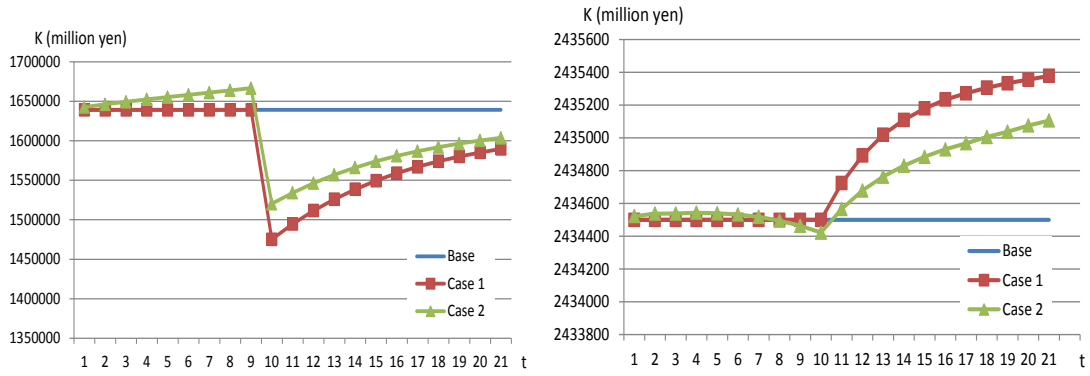
(2) Simulation Results

(a) Impacts on Capital Stock

The dynamic solutions for the capital stocks and the value of the capital stocks (i.e., the costate variable) of the manufacturing sector are examined. We focus on two prefectures, Shizuoka and Osaka, as the more influenced regions. Shizuoka is directly affected by the earthquake and suffers great losses. Osaka is not adjacent to the Tokai region and in our scenario but it is indirectly influenced by the earthquake through the transportation network. Figures 1 and 2 show the dynamic impacts of the earthquake on the capital stock and its value. In our dynamic simulation, the capital stock is accumulated by forward calculation, while the costate variable is solved by backward calculation.

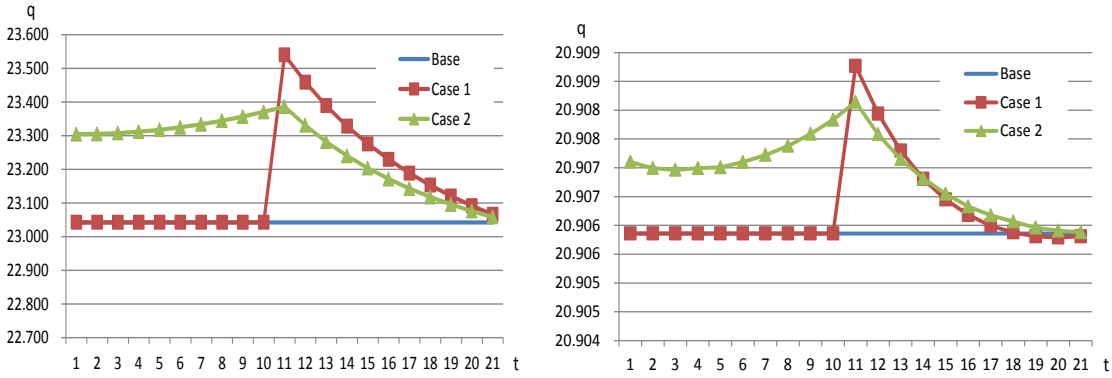
In Shizuoka prefecture, the capital stock suddenly decreases during the 11th period and is gradually restored after the earthquake in Case 1. The capital stock value is unchanged before the earthquake, and it increases unexpectedly during the 11th period due to the capital stock damage in Case 1. In Case 2, the capital damage seems to be more rapidly repaired after the earthquake by an increase in investment to protect against the earthquake. In Case 2, the capital stock value would increase more before the earthquake than in the Base case and Case 1. This implies that industrial sector would exactly estimate the value of the capital stock before the earthquake since it can accurately predict the occurrence of an earthquake.

Osaka prefecture is severely influenced by the earthquake and is indirectly affected by the Tokai region through the inter-trade between prefectures. In Case 1, Osaka prefecture experiences an increase in investment since the output in the Tokai region decreases after the earthquake. By contrast, in Case 2, due to an increase in investment and output in the Tokai region before the earthquake, the capital stock and output in Osaka prefecture partly decreases more than in the Base case.



Shizuoka Osaka

Figure 1 Capital Stock



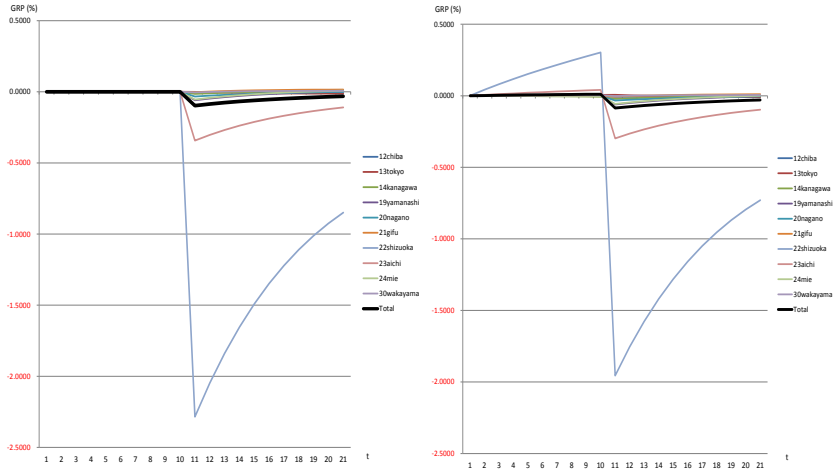
Shizuoka Osaka

Figure 2 Value of Capital Stock

(b) Impacts on GRPs

Figure 3 shows the results of the impacts of the earthquake on the GRP (Gross Regional Products) in the Tokai region. The change in the GRP is defined as $\Delta x = (x_{\text{Case}} - x_{\text{Base}}) / x_{\text{Base}} \times 100\%$. In both cases, the earthquake occurs in the Tokai region during the 11th period. This figure shows the dynamic impacts of the earthquake in the Tokai region, i.e. Chiba, Tokyo, Kanagawa, Yamanashi, Nagano, Gifu, Shizuoka, Aichi, Mie, and Wakayama prefectures as our target area. In addition, the bold line depicts the change in the total GRP of Japan and it implies the average impact of the earthquake. It may be useful to compare a regional impact and a national impact. The industrial capital stocks in those prefectures are directly reduced by the earthquake. In both cases, the Tokai region suffers damage from the earthquake and the percentage of damage in Shizuoka and Aichi prefectures appears to be greater than that of the whole of Japan. In particular, Shizuoka prefecture sustains crucial damage.

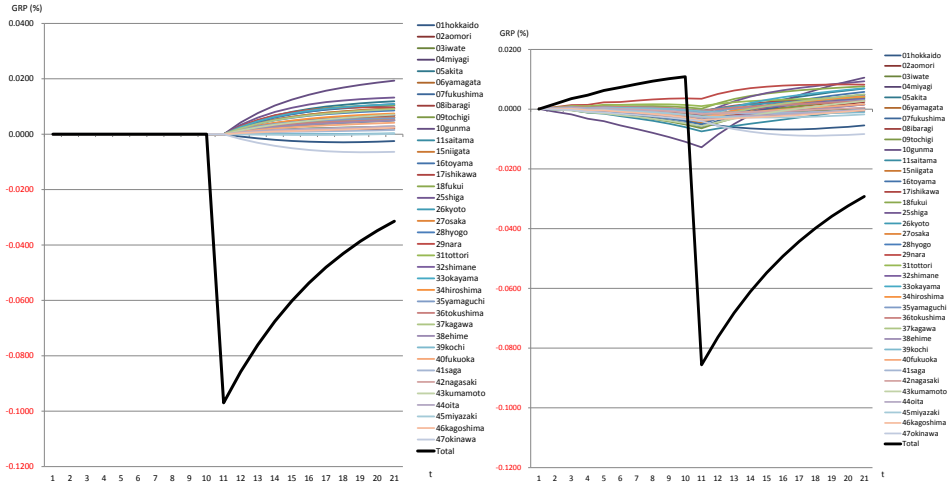
In Case 2, the production sectors can make an additional investment before the earthquake. It is assumed that the disaster hits in the 11th period, and the earthquake is accurately predicted. Before the earthquake, the Tokai region experiences a positive impact owing to the increase in investment designed to protect the region from earthquake damage. In particular, the GRP in Shizuoka prefecture is largely influenced by the additional investment before the disaster and the change in the GRP would be greater than that of Japan. After the disaster, the Tokai region in Case 2 is more rapidly restored by the investment from other prefecture than Case 1.



(a) Case 1 vs. Base (b) Case 2 vs. Base

Figure 3 GRPs in Tokai Region

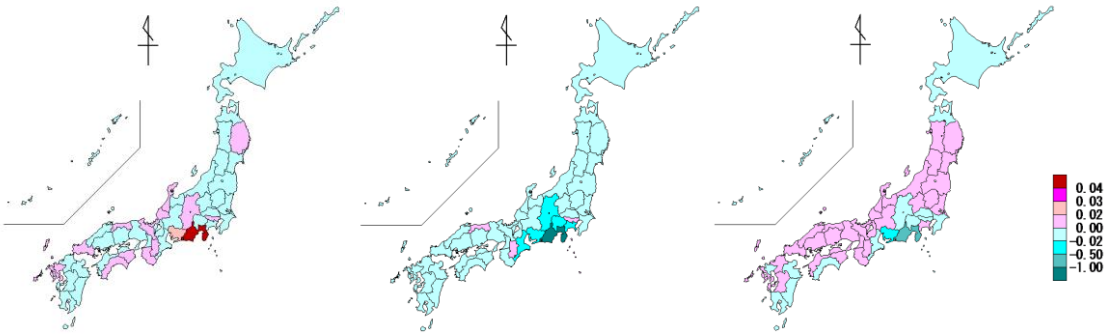
Figure 4 shows the results of the changes in the GRPs in every region except for the Tokai region. In Case 1, most prefectures far from the Tokai region experience positive changes in their GRPs after the earthquake, although the change in the total impact in Japan has a negative value, which is depicted by the bold line. In Case 2, most prefectures except for the Tokai region are affected by a negative impact before the earthquake owing to increases in investment designed to protect the Tokai region from earthquake damage, although the change in the total GRP in Japan has a positive value. On the other hand, after the earthquake, most prefectures experience a positive impact owing to the increase in investment to repair the damage.



(a) Case1 vs. Base (b) Case 2 vs. Base

Figure 4 GRPs in Non-Tokai Region

The geographical and dynamic impacts of the earthquake in Case 2 are shown in Figure 5. In the figure, blue and red, respectively, indicate negative and positive impacts on GRP compared with the Base case. The Tokai region experiences positive changes in its GRP before the earthquake, and sustains great damage after the earthquake. On the other hand, in other regions, most prefectures experience negative impacts on their GRPs before the disaster. After the earthquake, the situation becomes positive.



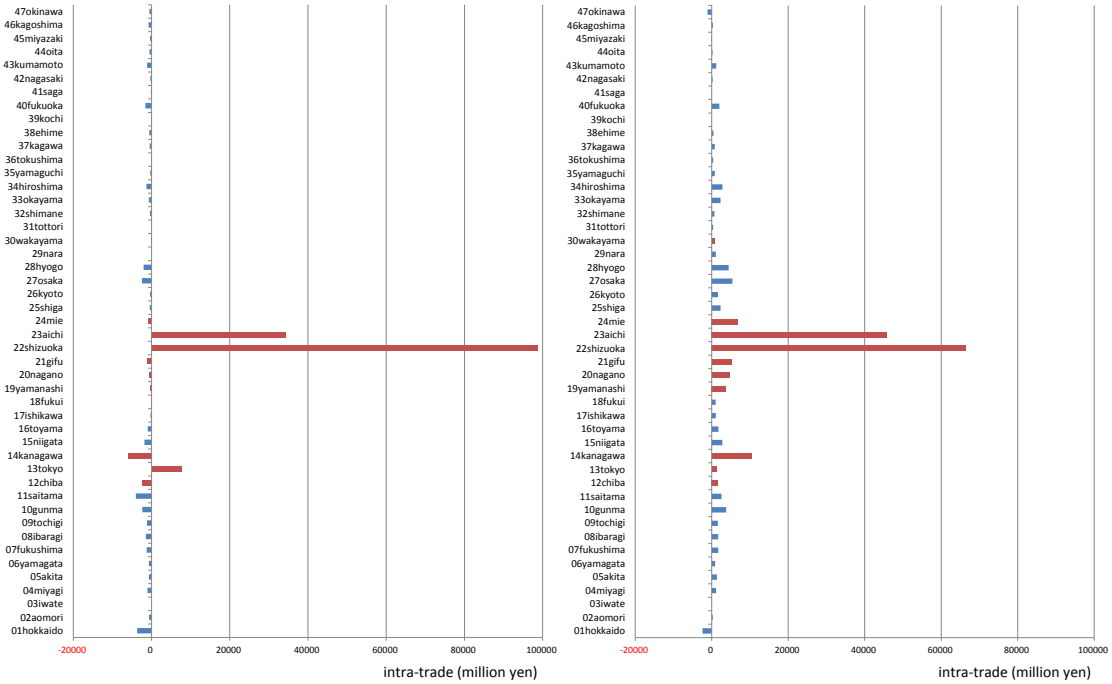
t=5 t=11 t=21

Figure 5 Distributional Effects (%)

(c) Impacts on Commodity Flows

Here, we examine the dynamic impacts of the earthquake on the commodity flows between regions. The changes in investment before and after the earthquake inevitably involve changes in the intra- and inter-trade commodity flows through the transportation networks. The intra- and inter-trade of manufactured goods during the 9th and 11th periods are shown in those figures.

Figure 6 shows the changes in the intra-trade commodity flows of manufactured goods for all the transport modes before and after the earthquake in Case 2. The change is defined as $\Delta x = (x_{\text{Case}} - x_{\text{Base}})$. The intra-trade commodity flows in Chiba, Tokyo, Kanagawa, Yamanshi, Nagano, Gifu, Shizuoka, Aichi, Mie, and Wakayama prefectures, which are shown as red lines, increase both before and after the earthquake, and the change in Shizuoka before the earthquake is particularly noticeable. In other prefectures, the intra-trade commodity flows increase in most prefectures after the earthquake, while they decrease in some prefectures before the earthquake. In Case 1, after the earthquake, similar changes can be seen, i.e. there is an increase in intra-trade commodity flows in the Tokai region and other prefectures.



(a) Before (t=9) (b) After (t=11)

Figure 6 Changes in Intra-trade Commodity Flows

The landscape of the commodity flows between prefectures is shown in Figure 7. The figure presents the changes in the inter-trade commodity flows of manufactured goods for all the transport modes between prefectures. We observe that the changes in the commodity flows before the earthquake are smaller than those after the earthquake in Case 2. Three kinds of major change can be seen in the figures. The first is a noticeable increase in commodity inflows to the Tokai region from other prefectures. The second is a noticeable increase in the inter-trade commodity flows between prefectures in the Chubu region, which is adjacent to the Tokai region. The last major change is an increase in the inter-trade commodity flows between prefectures in the Kanto region where the Tokyo metropolitan area is located and economic activity is concentrated. It shows that the commodity flows in the Chubu and the Kanto regions seem to be influenced by an increase in the investment in the Tokai region.

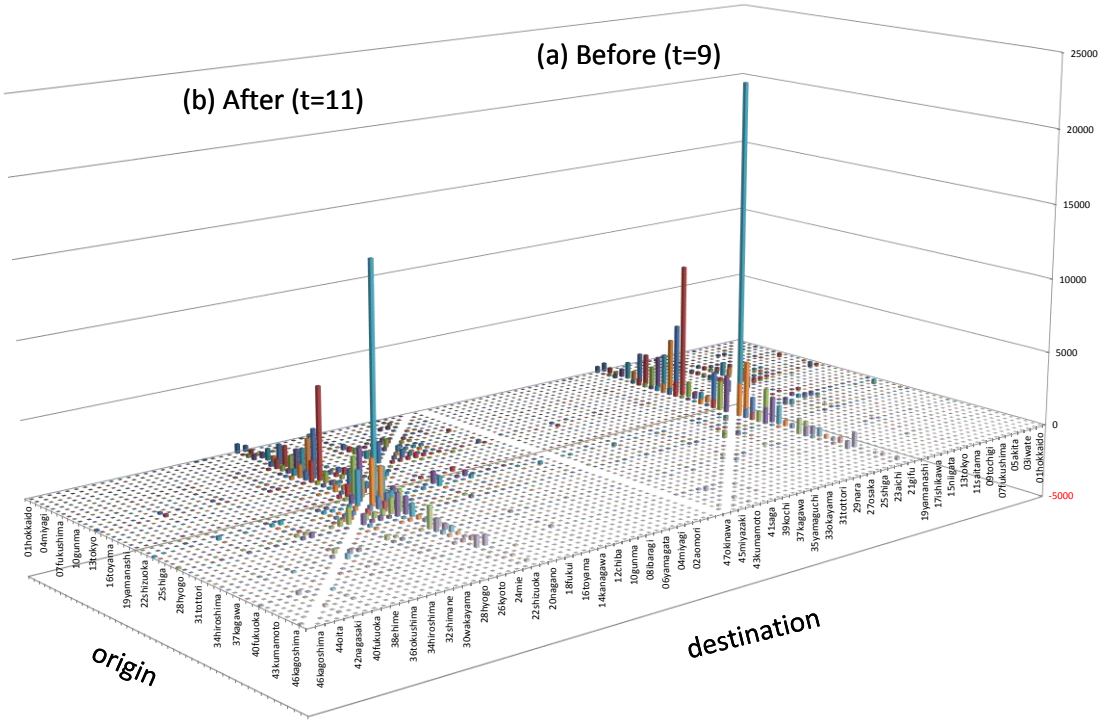


Figure 7 Changes in Inter-trade Commodity Flows

5. Concluding Remarks

In this paper, we described a dynamic spatial general equilibrium model. A decentralized economic system, which linked with the transportation networks, was constructed in a dynamic framework. The main purpose of the paper is to assess the impacts of a disaster in the Tokai region on the regional economy in Japan. We presented the results of three simulations: no earthquake, unpredicted earthquake and predicted earthquake in terms of the occurrence of an earthquake. We estimated dynamic and spatial impacts, i.e. industrial investments and commodity flows between regions before and after the earthquake. The indirect effects before and after a disaster were simultaneously solved. Two cases were compared with a base case. The results showed the importance of investment in terms of protecting the regional economy in the event of a disaster, i.e., an ex-ante evaluation. Our results suggest that any disaster analysis should evaluate the economic impacts of a disaster based on both ex-ante and ex-post criteria.

Many aspects of this study require further investigation. We could introduce the logit model or the Armington assumption to determine the traffic assignments and trade patterns between prefectures endogenously. We could also consider the impacts of the damage to transportation links. As another ex-ante criterion, an insurance system should be employed to relieve the effects of the damage. The investment-savings balance should be endogenously determined by both the firm's and consumer's optimizing behaviors. This approach may provide fruitful results for comparison with deterministic and stochastic models. The basic assumptions in the decentralized model should be relaxed to internalize regional policies such as the tax-subsidy system and regulation.

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Appendix

$$Y_j^r(K_{jt}^r, L_{jt}^r, \mathbf{X}_{jt}^r) = \min\left\{\frac{Y_{Vjt}^r}{A_{Vjt}^r}, \frac{X_{1jt}^r}{a_{1jt}^r}, \frac{X_{2jt}^r}{a_{2jt}^r}, \cdots\right\} \text{ with } Y_{Vjt}^r = A_j^z (K_{jt}^r)^{\alpha_j^r} (L_{jt}^r)^{\beta_j^r} \quad (j \in I \cup M)$$

$$\Delta K_{jt}^r(\mathbf{Z}_{jt}^r) = \min\left\{\frac{Z_{1jt}^r}{\phi_{1jt}^r}, \frac{Z_{2jt}^r}{\phi_{2jt}^r}, \cdots\right\} \quad (j \in I \cup M)$$

$$U^r(\mathbf{C}_t^r) = A_U \prod_{i \in I} (C_{it}^r)^{\omega_{Ci}} \quad \left(\sum_{i \in I} \omega_{Ci} = 1\right)$$

$$G_{ij}^r(Z_{ijt}^r) = G_{ij}^r(\phi_{ij}^r \Delta K_{jt}^r) = \phi_{ij}^r \cdot c_{Kj} (\Delta K_{jt}^r)^{\varpi_{Kj}} \quad (j \in I \cup M, i \in I) \quad (\varpi_{Kj} > 1)$$

$$\Phi_j^r(K_{j,T+1}^r) = \eta_j^r K_{j,T+1}^r \quad (j \in I \cup M)$$

FACTORS OF ACCESSIBILITY POTENTIAL MODELS

Géza Tóth*
Hungarian Central Statistical Office, Budapest,
and
Áron Kincses
Hungary, 1024 Budapest, Keleti Károly út 5-7, Hungary

Abstract

The use of accessibility potential models is widespread in transport geographical studies. In this analysis the connections between the different accessibility models and development conditions are examined. In connection with the use of the models, the problem arises that, due to their complexity, their interpretation may meet some difficulties. In order to solve this problem, a method which is suitable for breaking down the accessibility potentials into factors has been developed. The study analyses the spatial relation between development and accessibility taking as example the EU NUTS3 regions, the factors of the accessibility potential models are presented and the relations between these factors and the components of development are examined. Finally, the population potential in the NUTS3 regions of EU27 is examined according to the nationality of the dominant region influencing it.

Keywords: accessibility potential; regional development, European Union

Introduction

The methods of accessibility modelling have had a long history in scientific literature. The most widespread and most frequently used indicators in the topic are the accessibility potential models. The accessibility potential models (models based on gravitational analogy) have been widely used in urban and geographical studies since the 1940s, the most well-known among them are those in: Stewart (1947), Harris, (1954) Hansen (1959), Ingram (1971), Vickerman (1974), Keeble et al. (1988), Linneker and Spence (1992), Smith and Gibb (1993) Spence and Linneker (1994). After the disjoint, fully covered territorial division, the potential models assess the possibility to access the optionally encircled territories (i) separately in relation to all the other territories (n), within them, those of smaller mass and/or those more remote have a decreasing effect and vice versa (Rich, 1980), (Geertman–van Eck, 1995).

The general form of the accessibility potential model is the following:

$$A_i = \sum_j D_j \cdot F(c_{ij})$$

where A_i is the accessibility of territory i, D_j is the mass of territory j accessible from territory i, c_{ij} is the general travel cost between territories i and j, $F(c_{ij})$ is the impedance function.
In accessibility studies, the authors using different accessibility potential models apply different impedance functions. The reason for applying an impedance function in socio-geographical studies is first of all that spatial separation hinders the cooperation among the different regions, so it is worth quantifying in some way. The simplest application of the model is naturally the use of distances in air kilometres.
The main difference in the application of the accessibility potential model and the physical potential model is that, in contrast to physical space, social space in an everyday sense is typically not continuous but discrete. Socio-economic formations (e.g. settlements, towns) are generally concentrated at a given point of space, and their 'mass' can be connected to this point. As these mass points do not fill the space, it would be difficult to determine the potential value

* Corresponding author. Email: geza.toth@ksh.hu

of any point of an encircled part of space (e.g. a country), which depends naturally on the effect of all the other points (Tagai, 2007). The mass points' spatial concentrations of different extent induce potential surfaces of different characteristics, the consequence of which is that the distance between the points and thus the impedance function can be described by different functions in the different analyses. That means that the formula of the impedance function used in analyses for different regions, territorial levels or for different numbers of mass points in the same territorial level is different.

Therefore several forms of the impedance function appear in the accessibility studies. The models take into consideration the distance between certain 'masses' also in different ways. Several approaches are known when the researchers apply the reciprocal of the distance or one of its powers (see among others Hansen, 1959; Davidson, 1977; Fortheringham, 1982). Among them, the most 'everyday' solution is provided by the models applying linear impedance function (when determining the potential, the distance is in the first power in the denominator), as here we do not perform any mathematical modification on the duration and cost of access. In models insisting strongly on gravitational analogy, due to the physical demonstration of the model, the second power of distance, duration and the cost are always applied. This, however, is not a rule that must not be broken, so in models based on gravitational analogy there may be other power values as well. In this case, their role is only to quantify the probability of reaching the targets at different distances in the model.

Researchers use the models applying the exponential impedance function essentially in order to specify this objective (Wilson, 1971; Dalvi–Martin, 1976; Martin–Dalvi, 1976; Song, 1996; Simma–Vritic–Axhausen, 2001; Schürmann–Spiekermann–Wegener, 1997). Models applying the impedance function of Gauss (Ingram, 1971; Guy, 1983) or the log-logistic impedance function (Bewley–Fiebig, 1988; Hilbers–Veroen, 1993) are known as well. In similar studies, exponential (see among others Espon, 2007) and linear (Gutiérrez, 2001) impedance functions are used in numerous cases. The present study – especially in respect of the later parts – applied only the linear impedance function, as it was the most suitable for interpreting the results. It is noted, however, that the connection between the specific GDP and the potentials received as a result is by no means the strongest by applying the linear model (Tóth–Kincses, 2007), but, as the aim was first of all to present the methodological possibilities, this model was applied further on.

In the present examination, the regions of France, Portugal and Spain outside the continent were disregarded, so the term amount or average of EU27 regions covers the regions on the continent in case of each variable. Furthermore, the work did not deal with models taking into account competition either (see among others Weibull, 1976; Knox, 1978; Van Wee et al., 2001; Joseph–Bantock, 1982; Fotheringham, 1982).

The accessibility model applied

In the course of applying the potential model, not only the own strength, i.e. the value of the so-called own potential of spatial units can be expressed but, with the value of the internal potential, also the interaction between the masses taken into account. External potential can be demonstrated by taking into account the masses outside the territory observed.

Accordingly, the total potential value is the sum of these three results.

The accessibility potential model applied is the following:

$$A_i = \frac{W_i}{c_{ii}} + \sum_j \frac{W_j}{c_{ij}} + \sum_j \frac{W_o}{c_{io}}$$

Total potential = own potential + internal potential + external potential

where the value of the own potential of point A_i is the quotient of W_i, the own mass of the given territorial unit (in this study the population value) and the distance data ordered to the territorial unit d_{ii} (the simplest way is the length of the radius of the circle equal to its territory).

When calculating the internal potential, the sum of effects of the other spatial units involved in the analysis of the given spatial unit must be calculated. The size of effect depends on the mass of the other points and on their distance from the given spatial unit. The larger the mass of the spatial unit at a nearer distance in space, the higher its value.
The calculation of the external potential is practically the same as that of the internal potential, but here the effects of spatial units outside the territory examined are taken into account.
In the case of internal potential, 1,288 NUTS3 regions of the European Union were taken into account. In the case of external potential, the known territorial units of the EFTA countries, the candidate countries (Croatia, Turkey) as well as further (first of all Eastern) European countries were taken into account. When calculating the external potential, either national data (e.g. Liechtenstein) or data broken down regionally (e.g. oblasts of Russia) were used. The number of territorial units taken into account in respect of external potential is 251.
In connection with the external potential, it has to be noted that each point on the Earth can be considered to be one affecting the potentials of all other points. This naturally does not mean that a researcher takes into account the data of all territorial units; due to practical reasons, the number of points and territorial units considered has to be decreased. On the other hand, each decision made by the researcher when choosing the boundaries of the territory examined can be considered partly arbitrary and this is said to be the central problem of all macroscopic models (Lukermann and Porter, 1960, p 503). Despite the fact that accessibility indicators quantify the accessibility to points in other regions, the total territory examined must be adjusted so that accessibility conditions are influenced not only by the internal accessibility of the region but also by the external points. So, as long as it is possible, it is worth applying as broad an examination territory as possible, where all the target territories relevant in respect of the examination are taken into account. By trying to take into account effects from each country of Europe in a geographical sense for determining the potential of EU27, it was intended to meet this objective.

Dimension	Notes
Source	In the analysis, accessibility is calculated and interpreted from each person's point of view, and no differentiation is made between the social groups or the different travel targets of travellers.
Objective	The objective to be achieved is quantified by the population of the given NUTS3 region.
Resistance	The territorial impedance function means in this case the theoretical accessibility times between the centres of the regions on public roads, in minutes.
Limits	When using the routes between two regions, the limit is the maximum speed in the given area according to the type of road.
Boundaries	When determining the territory examined, the boundaries of Europe were taken into account in a geographical sense.
Way of transport	The analysis did not differentiate the different aspects of passenger and freight transport.
Modality	The analysis calculated unimodal accessibility in respect of public roads.
Regional level	The basic regional level of the research is NUTS3.
Equal chances	The major aims of the research are modelling the centre-periphery differences in the EU27 regions and studying the resulting differences.
Dynamics	In the research, the population and the public road network on 1 January 2007 are taken into account.

Table 1: Dimensions of the analysis

The analysis

The starting point in this study, similarly to other works (Geurs–Wee, 2004), was that accessibility can be used as an economic indicator as well, since improving accessibility improves the productivity and competitiveness of companies. Due to accessibility improving as a consequence of investments, the labour market is affected by positive impulses as well, which results in further advantages in competitiveness (Forslund–Johansson, 1995). Thus, it was

deemed worth examining the connection between the accessibility potential and economic development.

The first examination attempted to find an answer to what kind of connection can be demonstrated between the GDP and the population potential of the 1,288 NUTS3 regions of the European Union. In connection with the analysis, it has to be noted that the primary objective of accessibility models is to map the potential probability of movements between certain territorial units and thus to model the spatial fields of force. The probability of movement, however, does not mean movement by all means, and movement in itself is not an evidence of development (or its absence does not necessarily mean underdevelopment). By examining the strength of the connection with a simple regression function, it can be found that population potential accounts for 16.4% of the dispersion of GDP per capita in the NUTS3 regions of the European Union.

The problem of breaking down accessibility potential into factors

Several analyses report on the advantages and disadvantages of the accessibility potential model (Geurs-Ritsema van Eck, 2001; Geurs-Wee, 2004). We, on our part, would have liked to deal first of all with the disadvantages of the model. In this respect, the authors cited herewith, say the following: ”Disadvantages of potential measures are related to more difficult interpretation and communicability; the measure is not easily interpreted and communicated as it combines land-use and transport elements, and weighs opportunities (according to the cost sensitivity function). ” (Geurs-Wee, 2004 p. 134) The reason for the problem is that accessibility potential models measure the effects of spatial structures, spatial division, the location of a certain spatial domain and the size distribution of masses at the same time. The location of the spatial domain is essentially determined by the geographical location, which is somewhat modified by the accessibility (depending on the way of transport). It means that in case of a certain potential value it cannot be determined whether it is the consequence of the (settlement, regional) structure or the location of the mass sizes, or of the size of the region or the effect of the own mass.

Thus the gravitational space of social masses should be imagined as an optional division of the space (settlement, micro-regional structure, etc.) and then a mass distribution on this division (like masses distributed to the given spatial structure as quanta or counters). The value of the potential at a given point is determined by the sum of these effects (internal potential and external potential) and the effects of own mass and own spatial size (own potential).

The effect of the potential deriving only from the division of the territory at an optional point of the space (briefly spatial structure effect) is the value which would result if the mass were the same in each encircled territorial unit. The mass distribution effect is the difference between the sum of the internal and external potential at an optional point of the space and the value of the spatial structure effect on this point. The value of the total potential is influenced by the size of the given region (in this case NUTS3 region) as well. The effect of the size of the region is the value which would result if the mass were the same in each territorial unit. Subtracting this from the own potential, we get the value of the effect of own mass (Kincses – Tóth, 2011).

The connections described above are as follows:

$$U_i^{total} = U_i^{mass\_distribution} + U_i^{spatial\_strukture} + U_i^{own\_mass} + U_i^{size\_of\_territory}$$

$$U_i^{spatial\_structure} = \sum_j \frac{\sum_{k=1}^{n} m_k}{f(d_{ij})^n}$$

$$U_i^{mass\_distribution} = U_i^{internal+external\_potential} \_ U_i^{spatial\_structure}$$

$$U_i^{size\_of\_territory} = \frac{\sum_{i=1}^{n} m_i}{\frac{n}{f(d_{ii})}}$$

$$U_i^{own\_mass} = U_i^{own\_potential} \_ U_i^{size\_of\_territory}$$

After breaking down the potential model, the situation based on the connection between the factors and the GDP per capita is somewhat different. If we examine the connection between the potential models and the specific GDP with multivariable linear regression, as a result of the regression applying more than one variable, the determination coefficient is higher than in case of the basic model. Here, the value of R^2 amounts to 31%. The two factors determining the potential to the greatest extent (i.e. those having the highest standardized beta coefficient) are the territory of the given region and its own mass. It is important to highlight that the effect of spatial structure has the lowest but not significant standardized β coefficient.

Model	Standardized β coefficients
Adjusted R Square	0.311
SPATIAL STRUCTURE	*-0.017*
MASS DISTRIBUTION	-0.271
SIZE OF TERRITORY	0.475
OWN MASS	0.345

Table 2: Connection between the factors of the accessibility potential model and the GDP per capita, R^2 and standardized β coefficients

Characteristics of the factors of the accessibility potential

According to our accessibility potential analyses, the region in the most advantaged situation in the European Union is Paris followed by Seine-Saint-Denise and Val-de-Marne. We can state in general that the central regions of France, South England, the Netherlands, Belgium and the regions of North Italy are in the most advantageous situation. The potential is continuously decreasing from the core area indicated to the peripheries. The lowest potential value is in Värmland (Sweden), Lappi (Finland9 and the Shetland Islands (Scotland). In some respects, our results confirm the Blue Banana spatial structural model (Brunet, 1989), as well as its extension (Kuzmann, 1992).

The effect of the spatial structure is positive in all cases, i.e. it always contributes to the total potential. The effect of spatial structure was the highest in case of Oberhausen, Kreisfreie Stadt; Frankenthal (Pfalz), Kreisfreie Stadt and Rhein-Pfalz-Kreis regions (Germany). By contrast, the lowest values were found in Pohjois-Pohjanmaa, Lappi (Finland), and in Cyprus.

The share of the effect of spatial structure in the total potential is between 71 and 176%. For the former value Bucureşti (Rumania), while for the latter one the Bamberg, Landkreis region

(Germany) can be mentioned. The effect of spatial structure is the most important factor in the total potential for each region.

The effect of the mass distribution – in contrast to the former factor – contributes negatively or positively to the total potential. In 1,224 among the 1,288 regions examined, the sign is negative and it is positive only in the remaining 64 regions. The situation is the worst in those (first of all German) regions, which, by themselves, represent a significant mass, but the masses accessible from them are relatively low. Such regions are: Rhein-Pfalz-Kreis, Bamberg, Landkreis, Frankenthal (Pfalz), Kreisfreie Stadt (Germany). On the other hand, in respect of mass distribution, the regions in the most advantageous situation are: West Inner London, Val-de-Marne, and Seine-Saint-Denis (France).

The share of the effect of mass distribution in the total potential is between -76 and 10%. For the former value, we can point out the regions in Germany with Bamberg, Landkreis region in the lead, while in respect of the latter value we can point out the regions in Southern Europe, especially Guadalajara being in the best situation.

The following two factors are parts of the own potential of the accessibility potential model. The first factor in this part is the size of territory. As when calculating own potential, the territory of the given region, the size of this factor changes along with the territory of the region are taken into account. The sign of the size of the territory is always positive, and its value is the higher, the smaller the territory of the region is. The size of the factor refers first of all to urbanisation, since regions of smaller area are mostly great cities. Accordingly, the maximum value of the territory size factor can be observed in Blackpool (England), while the minimum value in Norrbotten county (Sweden).

The share of the territory size factor in the total potential is between 0.4 and 14%. For the former value Norrbotten county (Sweden), while for the latter one Stralsund, Kreisfreie Stadt (Germany) is an example. It can be highlighted that the share of the territory size factor in the total potential does not even reach 5% in nearly 1,200 regions.

Finally, the last factor is the own mass of the given region. Its sign may also be negative or positive. Due to the method, the sign of regions more populated than the average is positive, while that of sparsely populated ones is negative. The share of the own mass factor in the total potential is between -48 and 22%. Among the negative values, we can mention the Stralsund, Kreisfreie Stadt, Greifswald, Kreisfreie Stadt and Bad Doberan regions (Germany), while among the positive ones Bucureşti, Athens and Paris.

Comparison of the accessibility and development of regions

In the comparison, we followed the method already used by Espon (2003) as well as classification. Based on this, regions can be classified into four groups.

In the first group, those regions are classified which are above the average in respect of both accessibility and development. Here are the regions of South England, Benelux, South Germany, North Italy and North France which are considered the economic engines of the European Union. According to our examination, the range of these regions is somewhat more significant than in the Espon study in 2003. Slightly more than 30% of the regions belong to this category.

The second group includes those regions whose accessibility is more advantageous than the EU27 average, but their state of development is below that. West Germany, some regions of Central European countries having joined the EU in 2004 and some regions of North France are placed in this group. 23% of the regions belong to this second group.

To the third group belong those regions whose accessibility lags behind the average, but whose performance in respect of GDP per capita is above average. First of all, the Swedish, Finnish and Irish regions belong to this category, but most of the regions of North Spain and South and West France, as well as some English, Scottish and Italian regions can be found here. Although many countries are involved in this group, its size is the smallest among the four groups, as only 12% of the regions belong here.

Finally, in the fourth group are those regions which are below the average in respect of both accessibility and state of development. Most of the Central European regions having joined in 2004, as well as many of the regions in Spain, South Italy and Greece can be found in this group. Among the four groups, this one is the most populous, as more than one third of the regions are placed here.

In connection with the spatial image of development and accessibility, we can state that between the two phenomena an essential connection can be demonstrated. The group of regions of high development and good accessibility and that of low development and bad accessibility are the largest groups. These together represent nearly two thirds of all regions.

Connection between the factors of development and accessibility potential

Hereafter, we intended to examine how far spatial distribution of territorial development can be attributed to accessibility and its components. In the interest of deeper analysis, we deemed it practical to break down GDP into parts which can be easily interpreted in their own.

$$\left(\frac{GDP}{Population}\right)=\left(\frac{GDP}{Economically\_actives}\right)*\left(\frac{Economically\_actives}{Active\_aged}\right)*\left(\frac{Active\_aged}{Population}\right)$$

The GDP per capita shows the state of development of regions, which can be broken down into factors according to the above formula. The GDP per economically active persons approaches basically the productivity of the economy in the regions, the proportion of the economically active people in the population gives an estimate of employment, while the proportion of the people of active age in the population can be considered regional resources as a kind of indicator of age structure.

In connection with the linear accessibility potential broken down into factors and the state of development, as well as with its factors, we calculated a correlation matrix (see Table 4). In the matrix, italics indicate the connections which are not significant at a 5% level.

We can state that the total potential is in the closest connection with the effect of spatial structure, which is followed by mass distribution. So, the basic relations of the structure of the potential result from the relations of the spatial structure, i.e. they are “coded” according to these relations, which is somewhat modified by the mass distribution.

On the other hand, the state of development (GDP per capita) depends first of all on productivity. Among the factors of the accessibility potential, the connection is the closest with territory size and spatial structure. The former refers to the high development of regions with small areas, first of all large cities. Similarly, in respect of the spatial structure, the high development of the European central regions and the relative underdevelopment of the peripheries are outlined.

Among the factors of the accessibility potential, the state of development is in the closest connection with territory size and spatial structure. Consequently, we can state that in respect of the European spatial structure of development, accessibility can only slightly modify the productivity and employment conditions basically characteristic of the given region and the general spatial structural conditions characteristic of Europe.

On the basis of our examinations, we can point out that within the European Union, the geographical location of the regions (effect of structure), their central or peripheral character are in relatively close connection with productivity and employment. It is well-known that incomes per capita and economic growth rates are significantly higher in regions which are near the present centres of world economy (Gallup- Sachs-Mellinger, 1999). So we can state that development and economic activity within the European Union will most probably concentrate in the geographical centre regions in the future as well.

Dominance of the potentials of the NUTS 3 regions

The European population potential presented earlier can be further analyzed. Namely, an analysis can be also performed with the NUTS3 regions being classified according to which country's regions had the most significant effect on the establishment of the total potential (Tagai, 2009). The examination is somewhat influenced by the fact that in Europe, apart from the European Union, there is no regional system similar to NUTS. While EFTA countries and candidate countries established their own regional systems very similar to NUTS, this is not the situation in the Eastern European countries. The Eastern European regional units which were included in the calculation of the potential of the EU regions as external potentials are much larger than the limit of 800,000 persons determined for NUTS3 regions (Regulation EC No. 1059/2003 of the European Parliament and of the Council), or in several cases even larger than the maximum of 7 million persons set for NUTS1 level. This fact does not influence the total potential in its merit, but it may affect the determination of dominance in respect of some (above all Eastern) regions, which fact must be taken into account in the analysis.

One of the most important results of the examination is that in the potential of the European regions, the German regions have the most significant effect. In the GDP and the population of the EU27 (only European regions) in 2007, Germany has a share of nearly 20% and 17%, respectively. If we sum up those regions which are influenced the most by the potential of German regions, this share grows by nearly 1–1 percentage point. Following Germany, the second most significant economy of the EU27 is the United Kingdom, representing nearly 17% of the GDP and 12% of the population in the Union. As opposed to the former, though the dominance of the potential extends over the country, the share of the British potential territory does not basically differ from that of the country. The share of France in the GDP of EU27 is 15%, while it is 12% in its population. The share of regions with French dominance is higher by 0.6% and 0.3%, respectively. The share of Italy is nearly 13% in the GDP and 12% in the population of EU27. The share of regions with Italian dominance is by 0.7–0.7% higher.

If we examine which is the country where the socio-economic importance of regions dominated by its potential differs the most from the share of the country in the Union, we can say that the largest difference is in respect of Denmark. The share of Denmark in the GDP of EU27 is nearly 2%, and it is 1% in the EU27 population. On the other hand, this share is by 1.8 and nearly 1 percentage point lower in the region dominated by the potential of the country. A similar difference can be seen in respect of the regions dominated by the Belgian regions.

Conclusions

This study presented a methodological experiment about breaking down the accessibility potential into factors. By examining the connection between the factors and the components of regional development, the structure of reasons for the state of development is outlined. Based on this, it can be stated that the state of development depends first of all on productivity and, among the factors of accessibility, on the size of territory and spatial structure. When comparing the spatial location of development and accessibility, it was possible to demonstrate a close connection in respect of the location of highly developed and easily accessible or underdeveloped and hardly accessible regions. The potentials of the regions according to the

nationality of the region having the most dominant effect on them were examined. The most significant result was the demonstration of the degree of German dominance.

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Countries	Regions dominated by the potential of regions in certain countries		
	share in the EU27's		GDP per capita compared to the EU27 average
	GDP	population	
Austria	2.0	1.6	126.4
Belgium	1.8	1.3	142.4
Bulgaria	0.1	0.3	31.6
Belarus	0.1	0.3	23.5
Switzerland	0.3	0.2	116.1
Cyprus	0.1	0.2	81.8
Czech Republic	1.0	1.9	50.4
Serbia	0.3	1.1	31.9
Germany	20.6	17.6	116.8
Denmark	0.0	0.0	135.5
Estonia	0.1	0.1	71.3
Spain	9.1	9.8	93.6
Finland	0.9	0.6	152.5
France	15.8	12.9	122.6
Greece	1.5	1.7	88.2
Croatia	0.0	0.0	55.0
Hungary	0.8	1.8	41.4
Ireland	1.6	0.9	169.9
Italy	13.3	12.7	104.6
Lithuania	0.2	0.4	40.1
Luxembourg	0.0	0.0	95.4
Latvia	0.1	0.3	45.6
Moldova	0.0	0.3	14.9
The Netherlands	4.7	3.5	136.3
Poland	2.2	6.6	33.7
Portugal	1.1	1.8	63.3
Romania	0.7	2.7	24.9
Russia	0.7	1.0	65.2
Sweden	2.8	1.9	144.1
Slovenia	0.2	0.2	90.4
Slovakia	0.4	1.1	40.6
Turkey	0.6	2.6	24.5
Ukraine	0.1	0.2	23.8
United Kingdom	16.6	12.3	134.5
EU27	100.0	100.0	100.0

Table 3: Characteristics of the regions dominated by the regions of certain countries, 2007

Indicators	Total potential	Spatial structure	Mass distribution	Territory size	Own mass	State of development	Productivity	Employment	Age structure
Total potential	1.000	0.931	-0.752	0.485	*-0.040*	0.405	0.381	0.176	*-0.048*
Spatial structure	0.931	1.000	-0.939	0.499	-0.253	0.388	0.351	0.260	-0.117
Mass distribution	-0.752	-0.939	1.000	-0.468	0.376	-0.348	-0.302	-0.310	0.150
Territory size	0.485	0.499	-0.468	1.000	-0.435	0.444	0.420	0.159	*0.003*
Own mass	*-0.040*	-0.253	0.376	-0.435	1.000	*0.040*	*0.052*	-0.150	0.249
State of development	0.405	0.388	-0.348	0.444	*0.040*	1.000	0.966	0.282	-0.139
Productivity	0.381	0.351	-0.302	0.420	*0.052*	0.966	1.000	0.074	-0.195
Employment	0.176	0.260	-0.310	0.159	-0.150	0.282	0.074	1.000	-0.174
Age structure	*-0.048*	-0.117	0.150	*0.003*	0.249	-0.139	-0.195	-0.174	1.000

Table 4: Correlation matrix of the factors examined

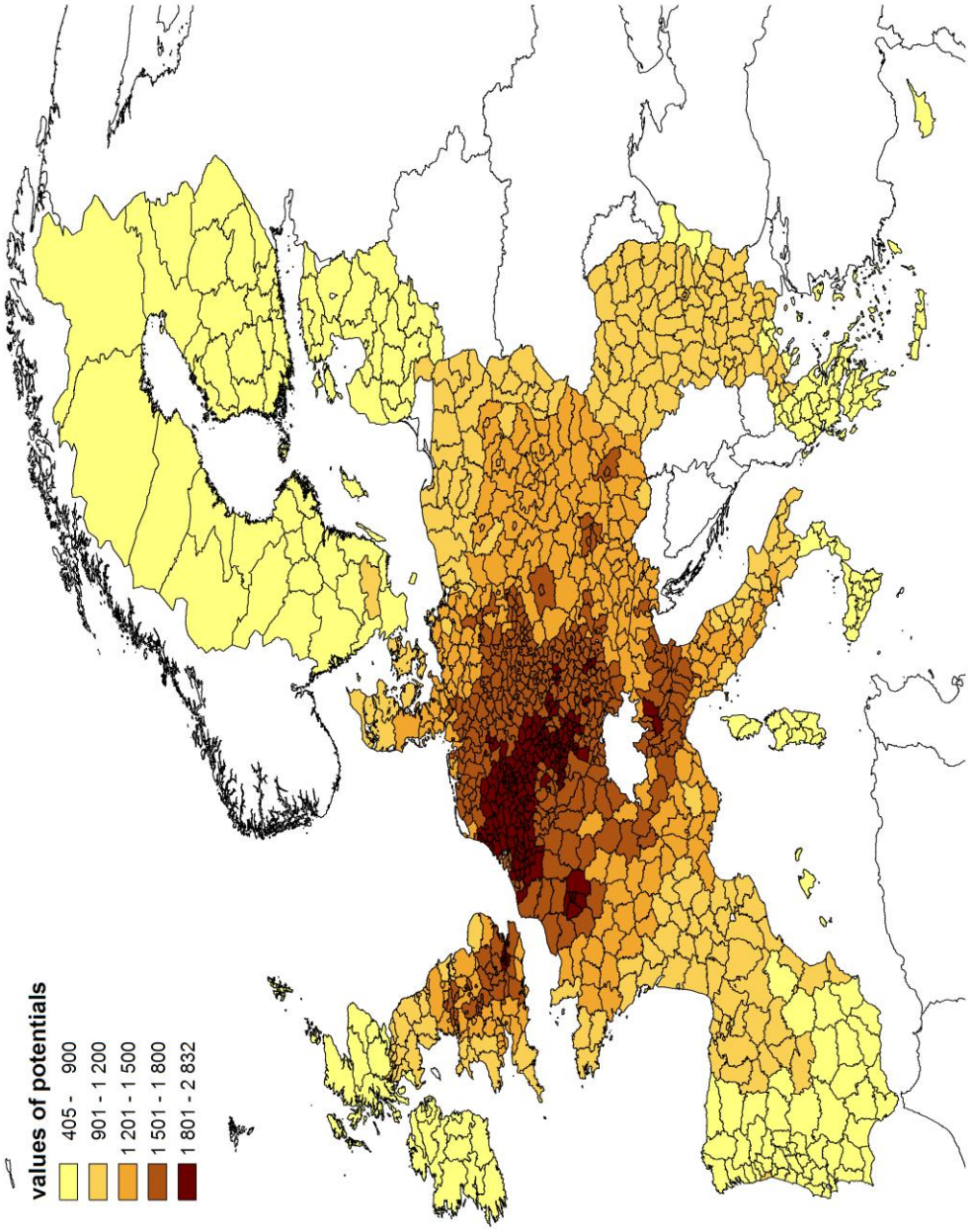

Fig 1: Population potential of the European Union's regions

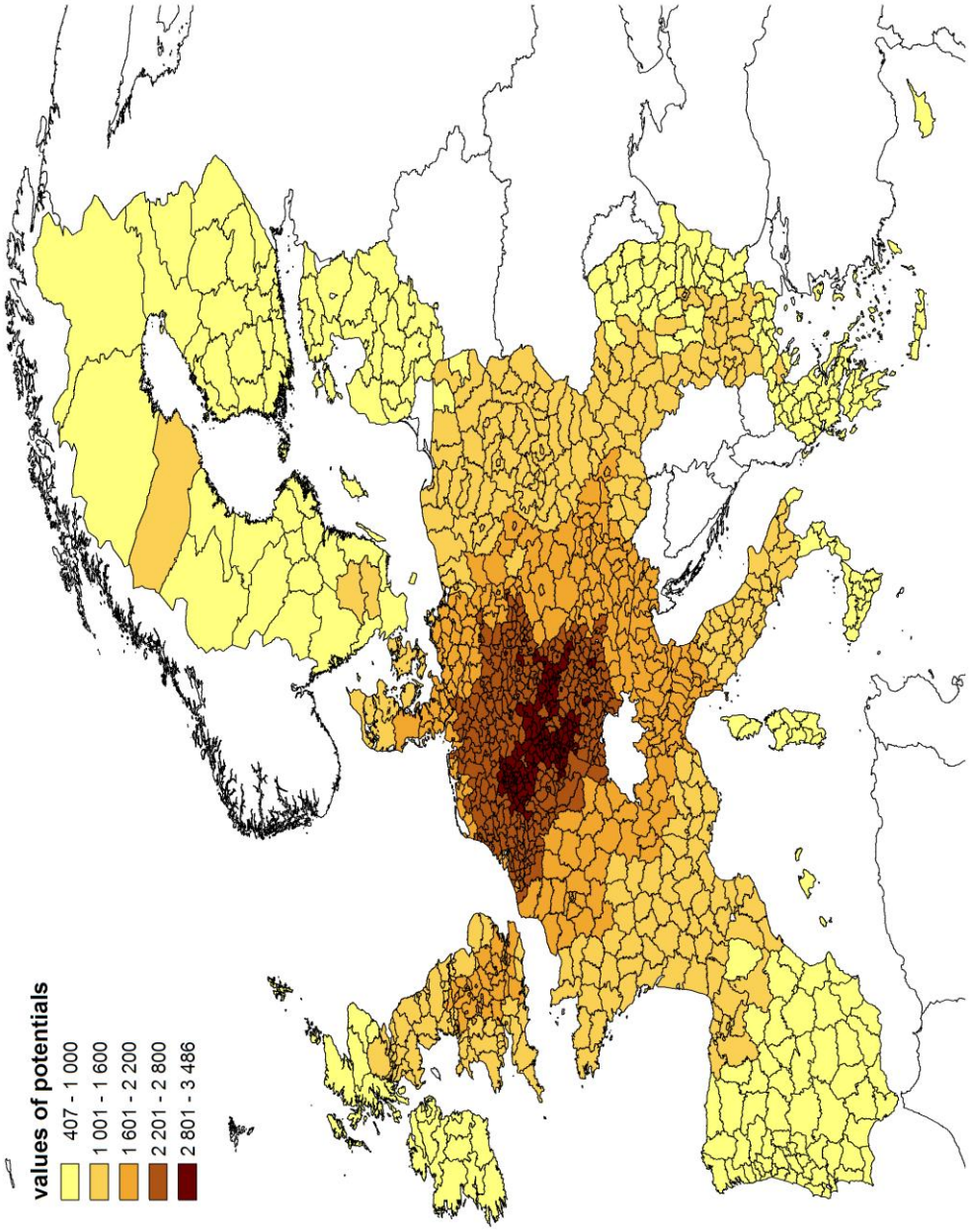

Fig 2: Role of spatial structure in population potential

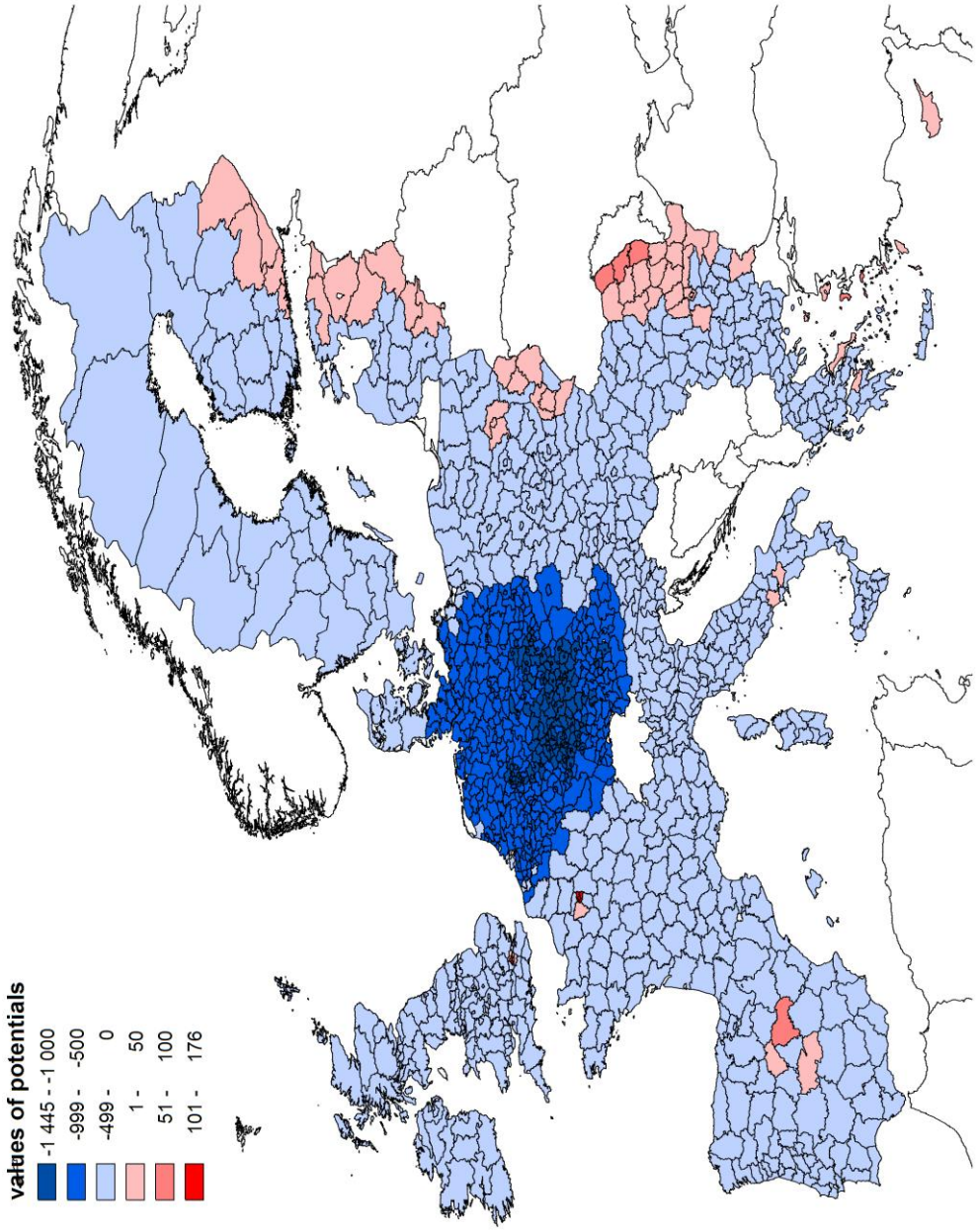

Fig 3: Role of mass distribution in population potential

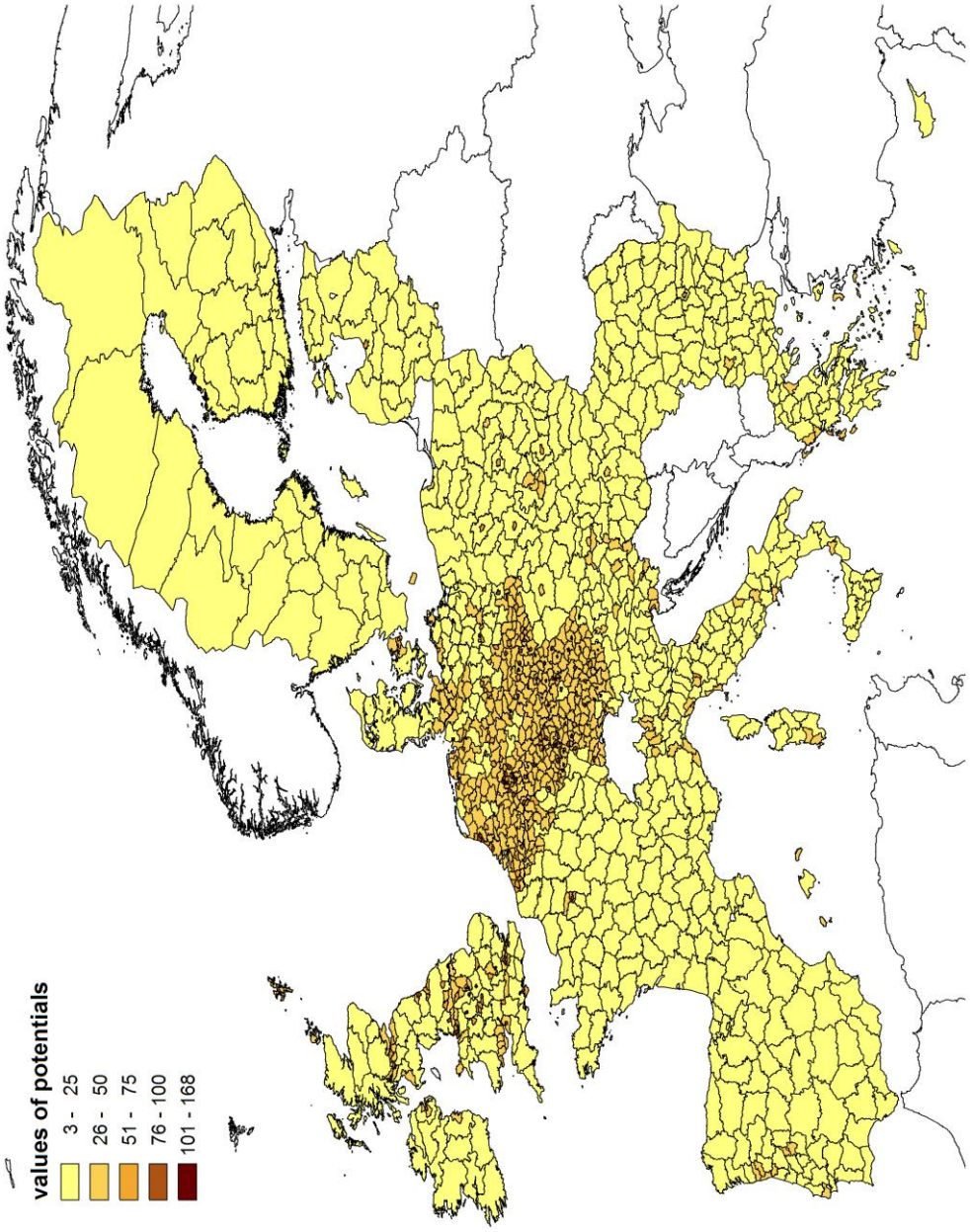

Fig 4: Role of territory size in population potential

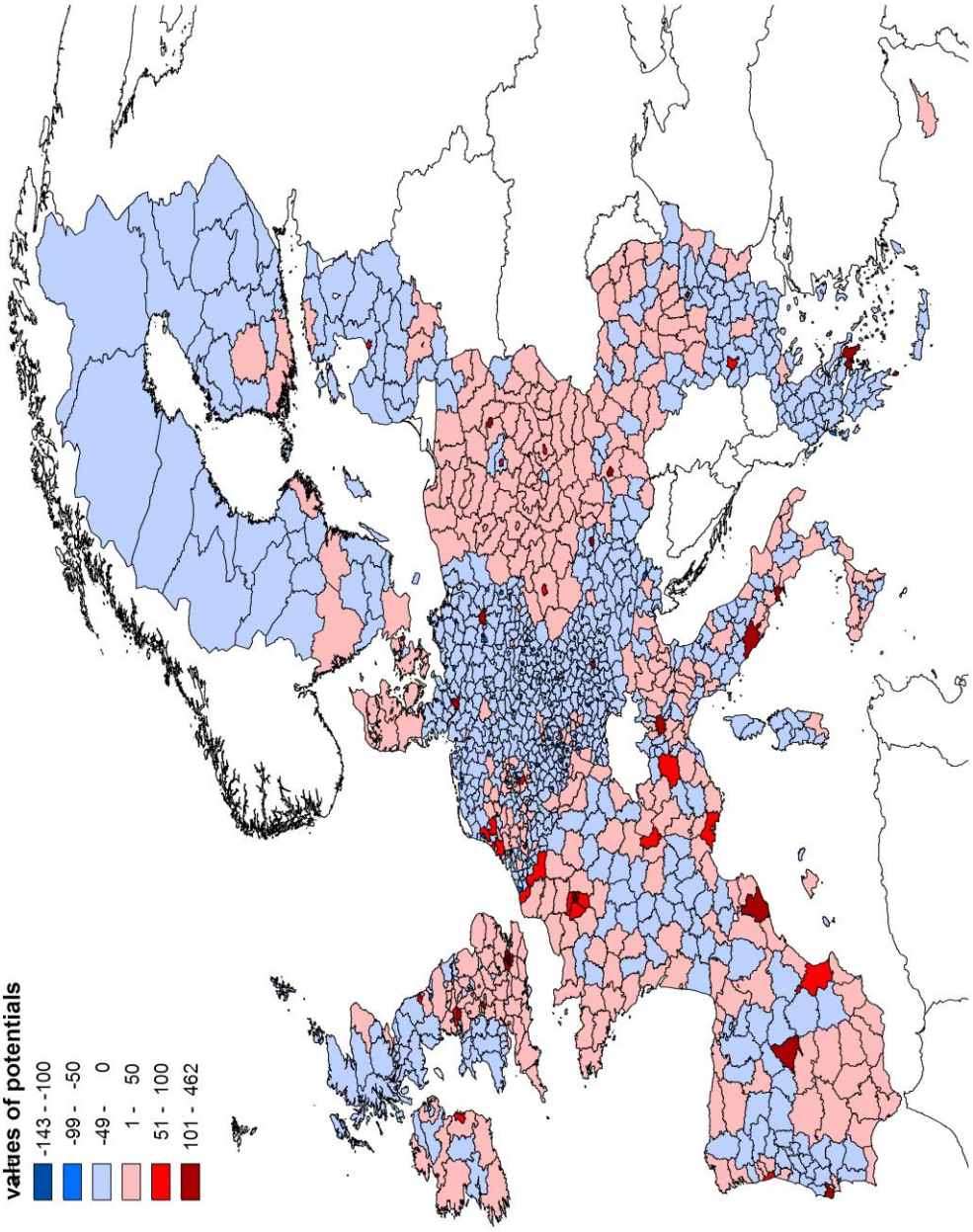

Fig 5: Role of own mass in population potential

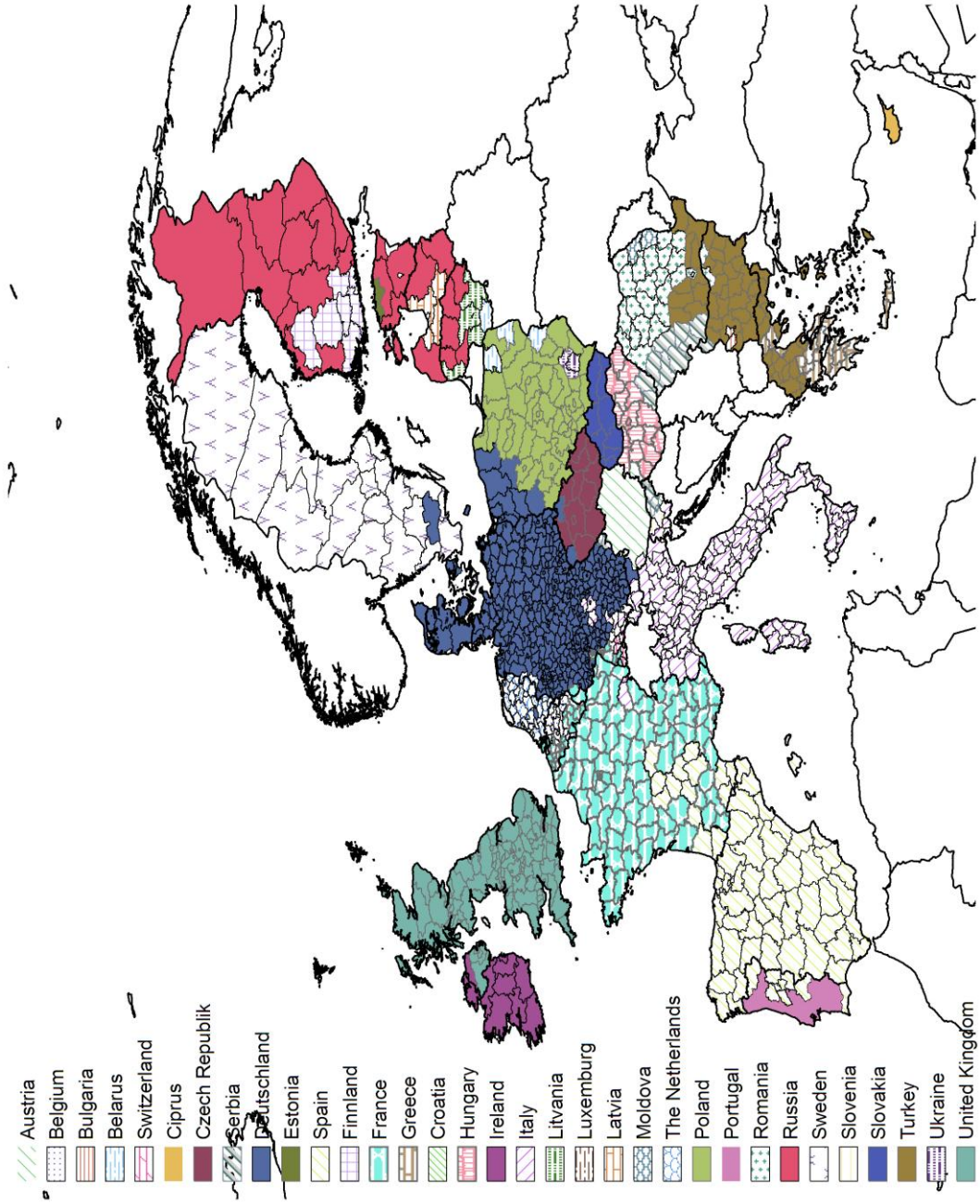

Fig 6: Regions having the greatest effect on the potential of NUTS 3 regions by nationality

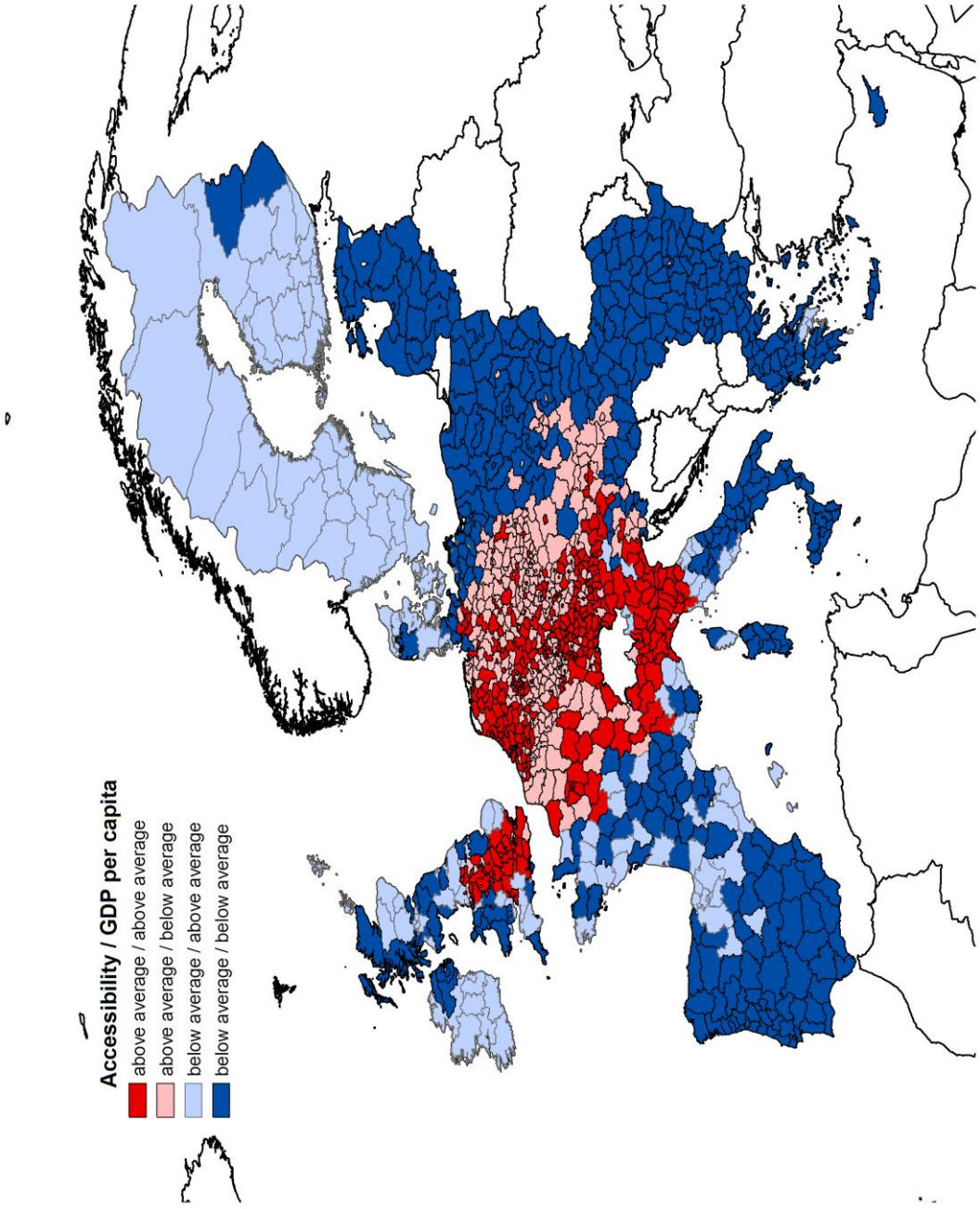

Fig 7: Comparison of accessibility and state of development of NUTS 3 regions

OPTIMAL ALLOCATION OF INVESTMENT AND REGIONAL DISPARITIES

Alexiadis Stilianos[1] and Ladias Christos[2]
[1] Ministry of Rural Development and Foods, Department of Agricultural Policy & Documentation, Division of Agricultural Statistics[*], e-mail: salexiadis7@aim.com
[2] Department of Regional Economic Development, University of Central Greece

Abstract

A model of optimal allocation of investment across regions is developed. It is shown that the optimality conditions may lead to increasing inequalities at the spatial level. Introducing an element of endogenous innovation dualistic situation emerges. An empirical analysis, using data for the NUTS-2 regions of the European Union seems to confirm this argument.

Keywords: Regional Allocation of Investment, Regional Inequalities, Regional Policy
JEL: C21; O18; R11

1. Introduction

The enlargement of the EU to 25 Member States, and later to 27, and the intensification of cooperation between the EU and Norway and Switzerland, presents an unprecedented challenge for the competitiveness and internal regional cohesion of the European Union. 'Economic and social cohesion', is mentioned in the Preamble of the Treaty of Rome and has become one of the major goals of the EU (as formulated in the Single European Act, title XIV, currently title XVII, Articles 2 and 4). According to Article 158 of the Rome Treaty 'reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions or islands, including rural areas' is one of the primary objectives of EU development policies, given that 'imbalances do not just imply a poorer quality of life for the most disadvantaged regions and the lack of life-chances open to their citizens, but indicate an under-utilisation of human potential and the failure to take advantage of economic opportunities which benefit the Union as a whole' (European Commission, 1996, p. 13). The strongest argument for regional policies lies in the persistence and even widening of regional disparities over the long-run. Indeed, market forces and social trends are increasing the geographical concentration of activities. Furthermore, externalities and market failures are needed to justify policy intervention from an economic efficiency point of view (Hurst et al., 2000). Differences in output, labour productivity and income across the regions of the EU are far more extreme than in similar economies such as the US or Japan. The richest regions on the EU are eight times richer than the poorest regions (European Commission, 2004). The primary dimension of income disparities remains East-West, with a weaker North-South dynamic and core-periphery at both EU and national levels. As a result, the EU has implemented a range of development policies and projects (and continues to do so) to achieve regional cohesion, such as the Mediterranean Integrated Programs the direction of funds towards less-advanced areas of Europe from sources, such as the European Regional Development Fund (ERDF), the European Social Fund (ESF) – the two 'Structural Funds', supplemented by the 'Cohesion Fund'[1]. The

[*] The findings, interpretations and conclusions are those entirely of the authors and do not necessarily represent the official position, policies or views of the Ministry of Rural Development and Foods and/or the Greek Government.

[1] The Cohesion Fund was established by the Maastricht Treaty (Article 130d) for countries with: per capita GDP less than 90% of the community average, an agreed programme to 'avoid excessive government deficits' (i.e. in accordance with Article 104c of the Treaty) and to be used for environmental and Trans-European transport networks.

structural funds are now the most important financial instruments for supporting the renewed Lisbon strategy and in some countries were able to increase their GDP by almost 4% (European Commission, 2004). The concentration of the Structural Funds and the Cohesion Funds in the less privileged areas of the Community has meant that European development support throughout the 1990s has hovered between 3-3.5% of GDP in Portugal, between 2.5-3% in Greece and Ireland, between 2-3% in many Italian and Spanish Objective-1 regions (Cuadrado-Roura, 2001).Cohesion policy aims to promote a more balanced territorial development and is broader than the 'conventional' regional policy, with the latter specifically linked to the ERDF. The Structural Funds cover a wide range of areas – technological Research and Development (R&D), the information society, support for business, infrastructure development (transport, telecoms, healthcare and education), energy, risk prevention, the environment, employment, tourism, culture, etc. There are many potential recipients, such as business, especially Small and Medium Enterprises (SMEs), associations, public bodies and individuals. It is up to each individual country to divide the funds between the EU's 'Convergence Objective' and regions covered by the 'Competitive and Employment Objective'. Countries then use the funds to finance thematic programmes covering the whole country (for instance on environment, transport, etc) or programmes channelling funds to particular regions. Regional policy in the EU has to tackle with an 'inconsistent triangle' (Mancha-Novarro and Garrido-Yserte, 2008): budget restrictions, the aspirations of the new member-states as the main beneficiaries of the European regional policy and the vindication of the cohesion countries (Ireland, Spain, Portugal and Greece) of maintaining their financial resources. Thus, the regional-geographical dimension is increasingly important for a rational allocation of the existing resources.

Recently, the Lisbon strategy, and its successor 'Europe 2020', aims to make Europe the most competitive and dynamic knowledge-based economy in the world capable of sustainable growth (promoting a more resource efficient, greener and more competitive economy) with more and better jobs and greater social and territorial cohesion (inclusive growth). The transformation to a knowledge and service economy is profound as the earlier changeover from agriculture to industry. This strategy is monitored by a set of indicators, covering the domain of employment, innovation, research, economic reforms, social cohesion, overall economic and environmental background. In 2004, the European Commission suggested a 'short list' of 14 structural indicators, allowing for a "concise presentation and a better assessment of achievement over time vis-à-vis the Lisbon agenda". These indicators include for example, gross domestic product per-capita and per-worker, employment rate, gross domestic expenditure on R&D, long-run unemployment rate, etc. Of these indicators only the 'dispersion of employment rates' has, by definition, an explicit spatial dimension, suggesting that 'Europe 2020' is in sharp contrast to aim of regional cohesion. There is a need, therefore, for an *optimal allocation* of resources/funds in order to achieve the aims of competitiveness and cohesion.

This paper attempts to approach this issue empirically using a model that attributes the process of regional growth to the degree that the regions of the EU are able to *absorb* technology. To complete this introduction, mention must be made to the structure of this paper. The issue of optimal allocation of investment across regions is developed in the next section. The analysis is extended further by introducing the notion of technology adoption and it is argued that differences in the adoptive abilities of regions might lead to dualism. These considerations are introduced in the ambit of a single model. The model is submitted to the usual econometric tests yielding the main findings in section 3. Section 4 concludes the paper.

2. Optimal allocation of investment

The issue of the optimal allocation of investment across regions was introduced initially by Rahman (1963). Nevertheless, Intriligator (1964) demonstrated that the conclusions by Rahman (1963) can be derived using the framework of Optimal Control Theory. Consider an economy divided into two regions, denoted by $i = 1,\ 2$. Total output (Y_N), i.e. at the national level, is the sum of regional outputs: $Y_N = Y_1 + Y_2$. In each region output is a function of capital stock (K_i), available in each region. More specifically, $Y_i = v_i K_i$, where $v_i = Y_i / K_i$ denotes the constant

output-capital ratio. National investment (I_N) is conceived as additions to the capital stock of the economy as a whole (K_N), i.e. the sum of the changes in the capital stock of each region. Thus, $I_N = \dot{K}_1 + \dot{K}_2$. Investment is financed through the available savings in the economy: $I_N \equiv S_N$. In other words it is assumed that all savings are automatically invested[2] Assuming that investment is a constant proportion of output, i.e. $S_i = s_i Y_i$, then $S_N = s_1 Y_1 + s_2 Y_2$. Given that $Y_1 = v_1 K_1$ and $Y_2 = v_2 K_2$, then $S_N = s_1 v_1 K_1 + s_2 v_2 K_2$. The identity $I_N \equiv S_N$ is known as 'Say's Law'. Despite its simplicity, its implications are quite deep. On the assumption that markets, i.e. for goods and services, and for the factors of production, respond instantaneously to market signals, and that income is spent immediately, Say's Law must hold. By the same assumptions, though, it must be the case that an increase in demand will create its own supply. In both cases, the limiting situation would be given by the condition of full employment, when all the labour resources are utilised to the full (Chisholm, 1990). In the present context Say's Law implies that $I_N = s_1 v_1 K_1 + s_2 v_2 K_2$ and $\dot{K}_1 + \dot{K}_2 = s_1 v_1 K_1 + s_2 v_2 K_2$, or $\dot{K}_1 + \dot{K}_2 = \gamma_1 K_1 + \gamma_2 K_2$, where $\gamma_i = s_i v_i$ denotes the constant growth rate of each region.

The problem, therefore, is how to allocate savings in order to achieve a certain objective, given the constraints outlined above. Intriligator (1964) assumes constant returns and that once capital is placed in one region, it cannot be shifted into the other region. The 'allocation parameter', δ, is defined as the proportion of investment allocated to a specific region. Therefore, in a two-region economy:

$$\dot{K}_1 + = \delta(\gamma_1 K_1 + \gamma_2 K_2) \tag{1.1}$$

$$\dot{K}_2 = (1-\delta)(\gamma_1 K_1 + \gamma_2 K_2) \tag{1.2}$$

$$0 \le \delta \le 1 \tag{1.3}$$

Given the assumption of constant returns the optimal time path of the allocation parameter, $\delta^*(t)$, at any point in time is either $\delta^*(t) = 0$ or $\delta^*(t) = 1$, namely savings are allocated in only one region. Intriligator (1964) considers the problem of maximising national output at some terminal time (T): $Y_N(T) = v_1 K_1(T) + v_2 K_2(T)$ by choice of $\delta(t)$, subject to the constraints, given by equations (1.1), (1.2) and (1.3). Since $\delta^*(t) = 0$ or $\delta^*(t) = 1$, this is a typical 'bang-bang' solution and the problem is solved by the $\delta(t)$ that maximises the Hamiltonian function[3]:

$$H = p_1 \delta(\gamma_1 K_1 + \gamma_2 K_2) + p_2 (1-\delta)(\gamma_1 K_1 + \gamma_2 K_2) \tag{2}$$

where p_1 and p_2 are the auxiliary variables, interpreted as the shadow price of capital.

Equation (2) can be written equivalently as follows:

$$H = [p_1 \delta + p_2 (1-\delta)](\gamma_1 K_1 + \gamma_2 K_2) \Rightarrow H = (p_1 \delta + p_2 - p_2 \delta)(\gamma_1 K_1 + \gamma_2 K_2) \tag{2.1}$$

implying that

$$H = [\delta(p_1 - p_2) + p_2](\gamma_1 K_1 + \gamma_2 K_2) \tag{2.2}$$

The optimal path of δ depends on the sign of the difference $(p_1 - p_2)$. In particular, if $(p_1 - p_2) > 0$, then $\delta^* = 1$ while if $(p_1 - p_2) < 0$, then $\delta^* = 0$. This condition simply states that the funds should be invested in the region where the implicit (shadow) price of capital is higher. According to the Maximum Principal the auxiliary variables must satisfy the following

[2] For a more detailed analysis of savings behaviour see Cesaratto (1999).

[3] The reader interest in these issues can refer to the contribution Pontryagin et al (1962).

terminal conditions: $p_1(T) = \frac{\partial Y_N(T)}{\partial K_1(T)}$ and $p_2(T) = \frac{\partial Y_N(T)}{\partial K_2(T)}$, implying that $p_1(T) = v_1$ and $p_2(T) = v_2$. Additionally, the Hamiltonian system must satisfy the conditions: $\dot{p}_1 = -\frac{\partial H}{\partial K_1}$ and $\dot{p}_2 = -\frac{\partial H}{\partial K_2}$. Thus, $\dot{p}_1 = [\delta(p_1 - p_2) + p_2]\gamma_1$ and $\dot{p}_2 = [\delta(p_1 - p_2) + p_2]\gamma_2$, implying that $\dot{p}_1 / \dot{p}_2 = \gamma_1 / \gamma_2$. Setting $\frac{\partial H}{\partial \delta} = 0$ yields:

$$(p_1 - p_2)(\gamma_1 K_1 + \gamma_2 K_2) = 0 \tag{2.3}$$

Adding a time dimension in equation (2.3) yields

$$[p_1(t) - p_2(t)][\gamma_1 K_1(t) + \gamma_2 K_2(t)] = 0 \tag{2.4}$$

Differentiating equation (2.4) with respect to time yields:

$$(\dot{p}_1 - \dot{p}_2)(\gamma_1 K_1 + \gamma_2 K_2) + (p_1 - p_2)(\gamma_1 \dot{K}_1 + \gamma_2 \dot{K}_2) = 0 \tag{2.5}$$

In the steady-state $\dot{K}_t = 0$, so $(\dot{p}_1 - \dot{p}_2)(\gamma_1 K_1 + \gamma_2 K_2) = 0$ and given that $\frac{\partial H}{\partial \delta} = 0$, then $\dot{p}_1 - \dot{p}_2 = p_1 - p_2$, implying that $(p_1 - p_2) = p_2\left(\frac{\gamma_1 - \gamma_2}{\gamma_2}\right)$ for $0 \le t < T$. Given that $\frac{p_1(T)}{p_2(T)} = \frac{v_1}{v_2}$, then $(p_1(T) - p_2(T)) = p_2(T)\left(\frac{v_1 - v_2}{v_2}\right)$ for $t = T$. For a given planning period (T), the optimal time path can be described as follows. Before at the end of the planning period ($0 \le t < T$) invest only in the region with the higher rate of growth, i.e. $\delta^*(t) = 1$ if $\gamma_1 > \gamma_2$ or $\delta^*(t) = 0$ if $\gamma_1 < \gamma_2$. At the end of the planning period ($t = T$) invest only in the region with the highest output/capital ratio, namely $\delta^*(t) = 1$ if $v_1 > v_2$ or $\delta^*(t) = 0$ if $v_1 < v_2$.

In a critical appraisal Rahman (1966) argues that the theory of optimal control is applicable only if the switch was to occur always at $t = T$ only. Thus $(p_1 - p_2)_T = v_1 - v_2$, implying that if $v_1 > v_2$, then $\delta^*(t) = 1$. Therefore, equation (2.2) can be written as $H = p_1(\gamma_1 K_1 + \gamma_2 K_2)$. Combining the conditions $\dot{p}_1 = -\frac{\partial H}{\partial K_1} = -p_1\gamma_1$ and $\dot{p}_2 = -\frac{\partial H}{\partial K_2} = -p_1\gamma_2$ yields the differential equation $\dot{p}_1 = -p_1\gamma_1$. Given the initial condition $(p_1)_T = v_1$ the following solution is obtained:

$$(p_1)_t = v_1 e^{\gamma_1 t_1}, \text{ with } t_1 = T - t \tag{2.6}$$

Given the initial condition $(p_2)_T = v_2$, then the differential equation $\dot{p}_2 = -p_1\gamma_2$ implies the following solution:

$$(p_2)_t = \frac{\gamma_2}{\gamma_1} v_1 e^{\gamma_1 t_1} + v_2 - \frac{v_1 \gamma_2}{\gamma_1} \tag{2.7}$$

Subtracting $(p_1)_t$ from both sides of equation (2.7) yields

$$(p_1 - p_2)_t = \frac{(p_1)_t(\gamma_1 - \gamma_2) + v_1\gamma_2 - v_2\gamma_1}{\gamma_1} \tag{2.8}$$

Differentiating equation (2.8) with respect t_1 the following expression is obtained:

$$\frac{d(p_i - p_2)_t}{dt_1} = (p_1)_t(\gamma_1 - \gamma_2) = -\frac{d(p_1 - p_2)_t}{dt} \tag{2.9}$$

Rahman (1966) points out that the condition $\gamma_2 > \gamma_1$ does not imply that $(p_i - p_2)_t < 0$ and $\delta^*(t) = 0$, for any $t < T$, as Intriligator (1964) argues. As $t' = T - t$ increases, then $(p_i - p_2)_t < 0$ is possible and a 'switch' in δ takes place. Nevertheless, at this point, it is worth mentioning that the conditions $\dot{p}_1 = -p_1\gamma_1$ and $\dot{p}_2 = -p_1\gamma_2$ imply $\dot{p}_1 / \dot{p}_2 = \gamma_1 / \gamma_2$. It is clear, therefore, that the solution is equivalent to that suggested by Intriligator (1964).

While the analysis by Intriligator (1964) suggests a 'switch' in the allocation parameter, nevertheless, the particular conditions under which this 'switch' takes place are not specified, at least in an explicit way. These issues constitute the departure point for a more extensive analysis by Takayama (1967) who attempts to show whether, and under which particular conditions, a 'switch' will (or will not) occur. Takayama (1967) concludes that a 'switch' takes place if $\nu_1 < \nu_2$. Rahman (1966), however, claims that the analysis by Intriligator (1964) does not include an explicit 'political constraint on regional income disparity' (p. 159). Indeed, the objective function considered by Intriligator (1964) and Takayama (1967) is to increase output at the national level or maximising aggregate growth. The possibility that the allocation of investment, which is optimal at the aggregate level, might increase regional disparities is not considered. Stated in alternative terms, the analysis by Intriligator (1964) ensures maximising aggregate output or increasing competitiveness, nevertheless, regional incomes will deviate. Regional incomes can be equalised if the allocation parameter switches according to the initial conditions of regions. Introducing the question of regional income inequalities modifies the optimal program as follows. At the beginning of the planning period invest in the region with the highest output while at the end of the planning period invest in the region with the lowest output. In this case there will be an improvement in the distribution of income at the regional level but the competitiveness of the economy as a whole will be reduced. Which specific measure will be applied depends on the available resources, budget constraints, the time length or the 'tolerable' level of regional inequalities and the weight that policy-makers attach to the issue of regional inequalities. According to Intriligator (1964), the allocation decision is based on the parameters γ and v. But which factors determine the 'autonomous' growth rate of a region and the productivity of capital?

According to the 'conventional' neoclassical model arbitrage possibilities arising from competition and factor mobility were expected to induce a more than average growth performance in lagging regions (Hurst et al., 2000, p.9) where convergence was not swift enough, most likely this could be accelerated by increasing public infrastructure. An implicit assumption of this model is that all regions are able to absorb technology to the same degree, so that the higher the technological gap the higher the effect on growth, ceteris paribus. However, it may be argued that large gaps do not necessarily promote growth in this way. It is quite possible that a significant technological gap is associated with unfavourable conditions for the adoption of new technological innovations[4]. Assume that the ability of a region to implement technological innovations (ξ) is *endogenously* determined, as a decreasing function of the 'technological proximity', expressed in terms of the *initial* technological gap: $\xi_i = f(b_{lf_{i,0}})$, with $f' < 0$, or in a non-linear specification: $\xi_i = \rho b_{lf_{i,0}}^{-\pi}$ with $\rho, \pi > 0$. Thus, the rate of adoption is not constant but varies across regions, according to the size of the gap[5]. For a given value of ρ, a high technological gap implies a low capacity to absorb technology. The

[4] Innovation is an iterative process, building upon the results of R&D activities and in turn inform, and being informed by, new research and innovations in product and processes.

[5] A more detailed elaboration of this model can be found in Alexiadis (2010).

parameter ρ can be interpreted as a constant underlying rate of diffusion, which would apply to all regions if there were no infrastructure/ resource constraints upon technological adoption. However, the existence of such constraints causes the actual rate to diverge from ρ, depending on the value of π, which determines the extent to which the existing gap impacts on the rate of diffusion. Alternatively, the higher the technological gap, the slower the rate of technological adoption (ξ_i). Assuming that the growth rate of output per-worker (y_i) is an increasing function of ξ_i: $g_{y_i} = h(\xi_i)$ with $h' > 0$, then $g_{y_i} = h(f(b_{lf_{i,0}}))$, with $h' \cdot f' < 0$. Consider a two-region's economy $(i = 1, 2)$ with $b_{lf_{1,0}} - b_{lf_{2,0}} > 0$ and $\xi_1 - \xi_2 < 0$, implying that $g_{y_1} - g_{y_2} < 0$. If $(\Delta\xi_{1,2})_t \to 0$, then $(\Delta b_{lf_{1,2}})_t \to 0$ and $(\Delta g_{y_i})_t \to 0$, which implies that region 2 converges with region 1. If, on the other hand, $(\Delta\xi_{1,2})_t \to \infty$, then $(\Delta b_{lf_{1,2}})_t \to \infty$ and $(\Delta g_{y_i})_t \to \infty$, as $t \to \infty$. From this perspective, this model implies a dualistic economy. There are several approaches to dualism ranging from the one-sector neoclassical transitional dynamics to models based on the existence of increasing returns (economies of agglomeration, for instance) and on technology diffusion[6]. According to this approach migration towards the modern sector may leave unaffected the level of output in the traditional one. Paci and Pigliaru (1999) depart from this approach and develop a model of dualism, based on the neoclassical two-sector model of the dual economy, as proposed by Dixit (1970) and Mas-Colell and Razin (1973). According to this approach, the value of marginal productivity in agriculture along the transitional path to the steady-state is neither zero nor constant, and it stays continuously below that of the other (non-agricultural) sector. Contrary to what happens in non-dualistic models, therefore, equalisation of marginal productivity values across sectors takes time, with workers shifting from the low- to the high-wage sector, where the capital-good is produced. On the assumption that the rate at which workers migrate from agriculture is a decreasing function of the wage differential, poorer dualistic economies are generally characterised by faster expansion of their high-productivity sector, and by higher growth rates of per-capita output. Assume, further, that output in each region is produced by two sectors; a technologically advanced and a 'traditional' sector: $Y_i = Y_A + Y_T$. The technological gap can be approximated in terms of a decreasing function of the labour employed in the technologically advanced sector: $b_i = f(l_{A,i})$ with $f' < 0$. Assume further that productivity and wages are higher in the advanced sector relative to the 'traditional' sector: $w_A - w_T > 0$. This framework implies that $l_{A,i} = h(r_i)$, where $r_i = w_{A,i1} / w_{T,i2}$ with $h' > 0$ and $b_i = f \cdot h(r_i)$, with $f' \cdot h' < 0$. The condition $w_A - w_T > 0$ induces labour to move from the 'traditional' to the advanced sector. If $r_1 - r_2 > 0$, then the advanced sector in region 1 attracts labour from the 'traditional' sector in that region and labour from both sectors in region 2, leading to $b_1 - b_2 < 0$.

Essentially, this condition implies that the property of convergence is restricted to a *selected* group of regions. The argument runs as follows. Consider a given distribution of output per worker across a system of *n* regions: $y_i, \forall i = 1, \ldots n$. The average growth rate of each region over a given time period, $T = t - t_0$, is $g_{i,T}, \forall i = 1, \ldots n$. The relation between initial output per worker and average growth rate is shown in Figure 1:

[6] See for example Lewis (1954), Fei and Ranis (1961), Sen (1966) inter alia.

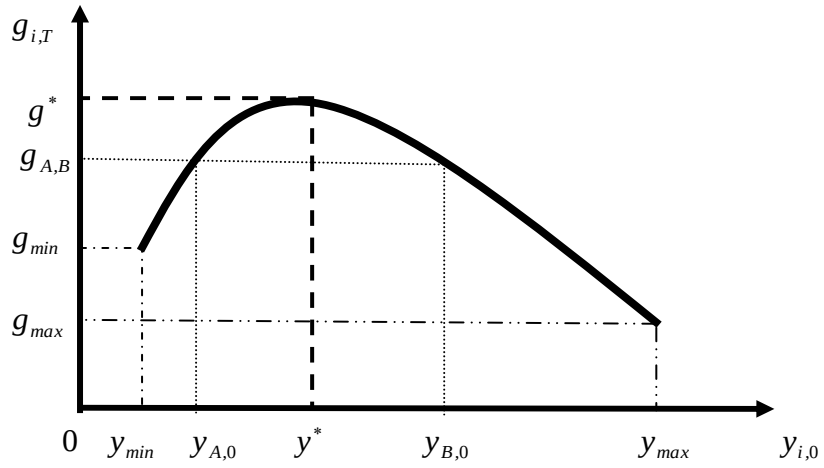

Figure 1. Club convergence

A negative relation between the initial level of output per worker and the growth rate, $\partial g_{i,T} / \partial y_{i,0} < 0$, is apparent only for the regions in the range $[y^* \quad y_{\max}]$ while for regions in the range $[y_{\min} \quad y^*]$ $\partial g_{i,T} / \partial y_{i,0} > 0$. This relation is also evident amongst the 'poorest' and the 'richest' region, given that $y_{\min} < y_{\max}$ and $g_{\min} > g_{\max}$. If, however, this growth differential remains the same, the 'poor' region is not to able to close the gap $y_{\min} - y_{\max}$. This is feasible if $(g_{\min} - g_{\max})_t > 0$ and $(g_{\max})_t \to 0$ as $t \to \infty$. Consider two regions, A and B, for which $y_{A,0} < y_{B,0}$ and $g_{A,T} = g_{B,T}$. Although both regions exhibit similar rates of growth, ($g_{A,T} = g_{B,T} > g_{\max,T}$) nevertheless region B is able to close the gap faster given that $(g_{A,T} - g_{B,T})_t = 0$, as $t \to \infty$. Indeed, the gap between region B and the richest region is smaller compared to that of region A, i.e. $(y_{\max,0} - y_{A,0}) > (y_{\max,0} - y_{B,0})$. Region A will be able to catch-up with region B, if $(g_{A,T} - g_{B,T})_t > 0$, as $t \to \infty$. In short, there are two groups; one includes regions with $\partial g_{i,T} / \partial y_{i,0} < 0, \forall i \in [y^* \quad y_{\max}]$ and another including regions for which $\partial g_{i,T} / \partial y_{i,0} > 0, \forall i \in [y_{\min} \quad y^*]$.

Nevertheless, this issue is, to a certain extent, an empirical one. The general framework, discussed in this section will be tested empirically in an extensive regional context, viz. the NUTS-2 regions of Europe[7].

The empirical literature on regional convergence makes extensive use of two alternative tests for convergence, namely absolute and conditional convergence:

$$g_i = a + b_1 y_{i,0} + \varepsilon_i \quad (4)$$

$$g_i = a + b_1 y_{i,0} + b_{\mathbf{X_i}} \mathbf{X_i} + \varepsilon_i \quad (5)$$

where $g_i = (y_{i,T} - y_{i,0})$ is the growth rate and ε_i is the error-term. The rate of convergence is calculated as $\beta = -[\ln(b_1 + 1)]/T$, where T is the number of years in the period. Absolute convergence is signalised by $b_1 < 0$. Conditional convergence is based upon the argument that different regional characteristics will lead to different steady-states. A test for conditional convergence, with variables representing technology, is more suitable to accommodate the empirical analysis.

[7] Nomenclature des Unités Territorial les Statistiques.

Technical change originates either from within the region, namely indigenous innovation (IC_i), or technological spillovers from adopting innovations created elsewhere (ADP_i). In the former case, technical change may be approximated in terms of the 'Human Resources in Science and Technology' (HRST), i.e. persons who have completed a tertiary education in a field of science or technology and/or are employed in science and technology. The second source of technical growth is approximated as the percentage of total employment in technologically dynamic sectors (ADP_i), which indicates a capacity for technology adoption, since these are taken to apply high technology; two variables in accordance with the notion of 'smart growth', i.e. attempts to strengthen knowledge and innovation, which conceived as drivers of future growth. Therefore, a model of 'technologically-conditioned' convergence can be structured as follows:

$$g_i = a + b_1 y_{i,0} + b_2 IC_{i,0} + b_3 ADP_{i,0} + \varepsilon_i \quad (6)$$

The time dimension of variables describing technology refers to the initial time. From an econometric point of view, this helps to avoid the problem of endogeneity. Moreover, Pigliaru (2003) claims that models which include measures of technology require data on total factor productivity. In the absence of such data, econometric estimation requires that the technological variables ought to be included in initial values. Broadly speaking, it is anticipated that $b_2 > 0$, since high levels of innovation are normally associated with high levels of growth and vice versa. However, it is not automatically the case that this condition promotes convergence. If poor regions have a low level of $IC_{i,0}$, then no significant impacts on growth are anticipated and, hence, it may be difficult to converge with advanced regions. The latter case is the more likely.

The $ADP_{i,0}$ variable reflects two distinct features, namely the initial level of 'technological adoption' and the degree to which existing conditions in a region allow further adoption of technology. A low level of $ADP_{i,0}$ combined with a high rate of growth may indicate, ceteris paribus, that less advanced regions are able to adopt technology, which is transformed into high growth rates and, subsequently to converge with the advanced regions. Conversely, a low value for $ADP_{i,0}$ may indicate that although there is significant potential for technology adoption, infrastructure conditions are not appropriate to technology adoption and, therefore, there are no significant impacts on growth. If the latter effect dominates then convergence between technologically lagging and advanced regions is severely constrained.

Equation (6) treats regions as 'closed' economies. It is possible to overcome this, clearly unrealistic, assumption by introducing in equation (6) the effects of spatial interaction. Indeed, in the light of recent literature (e.g. Fingleton, 2001) it may be argued that any empirical test for regional convergence is misspecified if the spatial dimension is ignored the presumption being that the extent of regional interactions, such as technology spillovers are significantly dependent upon the location of regions relative to each other. Assume that any effects from spatial interaction are captured in the error term. Thus,

$$\varepsilon_t = \zeta \mathbf{W} \varepsilon_t + u_t = \left(\mathbf{I} - \zeta \mathbf{W}\right)^{-1} u_t \quad (6.1)$$

Equation (6), then, can be written as follows:

$$g_i = a + b_1 y_{i,0} + b_2 PI_{i,0} + b_3 ADP_{i,0} + \left(\mathbf{I} - \zeta \mathbf{W}\right)^{-1} u_i \quad (7)$$

In equation (7) ζ is a scalar spatial-error coefficient to be estimated, $\mathbf{W}$ is the $n \times n$ spatial weights matrix and u_t is the new error term. The spatial links between regions are constructed as to produce declining weights as distance between regions increases:

$$w_{ij} = \frac{1/d_{ij}}{\sum_j 1/d_{ij}} \quad (8)$$

Here, d_{ij} denotes the distance between two regions *i* and *j*. The denominator is the sum of the (inverse) distances from all regions surrounding region *i*, within a selected boundary.

Equation (8) implies that interaction effects decay as the distance from one area to another increases (weights decline as distance increases). From econometric point of view, estimation of equation (7) is carried out by the maximum likelihood (ML) method, as Ordinary Least squares (OLS) estimator may result in problems of bias.

3. Empirical Application

In this paper we exploit data on Gross Value Added (GVA) per-worker since this measure is a major component of differences in the economic performance of regions and a direct outcome of the various factors that determine regional competitiveness (Martin, 2001). EUROSTAT is the main source for data used in this paper.

The regional groupings used in this paper are those delineated by EUROSTAT and refer to 267 NUTS-2 regions[8]. Estimation of equation (4) suggests that the regions of the EU converge at a low rate (0.65% per-annum).

Table 1. Regional Convergence, GVA per-worker, EU regions: 1995-2006

Depended Variable: g_i n = 267 NUTS-2 Regions	Equation (4) (OLS)	Equation (6) (OLS)	Equation (7) (ML)
a	0.5714**	0.6144**	0.6902**
b_1	-0.0747**	-0.0825**	-0.1087**
b_2		0.0014	0.0021*
b_3		0.0203*	0.0349**
ζ			0.1451**
Implied β	0.0065**	0.0071**	0.0086**
LIK	137.552	148.832	152.670
AIC	-271.104	-289.663	-295.340
SBC	-263.922	-275.314	-277.385

Notes: ** indicates statistical significance at 95% level of confidence, * 90% level. AIC, SBC and LIK denote the *Akaike*, the *Schwartz-Bayesian* information criteria and Log-Likelihood, respectively.

A positive coefficient is estimated for the variable describing technology creation, which does not necessarily promote convergence as such, since regions with relatively high initial level of innovation exhibit relatively higher rates of growth. A positive value for the $ADP_{i,0}$ variable is also estimated. This suggests that, on average, regions with low values of $ADP_{i,0}$ at the start of the period grow slower than regions with high values, ceteris paribus. If technologically backward regions were successful in adopting technology, which subsequently is transformed into faster growth, then the estimated coefficient b_3 would be negative. Since $b_3 > 0$, this indicates that infrastructure conditions in lagging regions are inhibiting this process of technology adoption. Technology adoption, although it might be the best 'vehicle' for lagging regions, nevertheless, this is a process which might be difficult, especially during the early stages of development when conditions are least supportive. Normally, conditional convergence implies a slower rate of convergence. Nevertheless introducing the technological variable increases the estimated rate of convergence. To be more precise, the non-spatial version of the technologically conditional model implies that the regions of the EU-27 converge at an average rate 0.71% per annum. An even faster rate of convergence (0.86%) is implied by the spatial version of the technologically conditional model, encapsulated by equation (7). Moreover, the estimated coefficient of the $ADP_{i,0}$ variable is highly significant.

The superiority of the model described by equation (7) is supported by both the criteria for model selection applied here, namely the Akaike (AIC) and the Schwartz-Bayesian (SBC)

[8] The NUTS regions are not the same with the so-called 'Euro-regions', which are associations without a precise legal status, dating back to the period after World War II when local politicians in border regions tried to promote common interests on both sides of the borders.

information criteria[9] and the value of the Log-likelihood (LIK), which increases with the introduction of the technological variables.

The empirical analysis is extended further by estimating a model that incorporates the possibility of 'club-convergence', which implies that the property of convergence is restricted to a selected group of regions. Although, there are several approaches for identifying convergence-clubs[10] nevertheless, the empirical analysis is based upon application of Baumol and Wolff's (1988) specification: $g_i = a + b_1 y_{i,0} + b_2 y_{i,0}^2 + \varepsilon_i$. A pattern of club-convergence is established if $b_1 > 0$ and $b_2 < 0$. Members of a convergence-club are identified as those regions which exhibit an inverse relation between the growth rate and initial level of GVA per-worker and exceed a threshold value of initial GVA per-worker, calculated as: $y^* = -b_1 / 2b_2$.

Introducing the two technological variables in a club-convergence context yields the following regression equation:

$$g_{\mathbf{i}} = a + b_1 y_{i,0} + b_2 y_{i,0}^2 + b_3 \ln IC_{i,0} + b_4 \ln ADP_{i,0} + \varepsilon_i \quad (9)$$

The hypothesis of club convergence due to differences in technology in an explicit spatial context can be expressed in terms of a spatial version of equation (9). Thus,

$$g_{\mathbf{i}} = a + b_1 y_{i,0} + b_2 y_{i,0}^2 + b_3 \ln IC_{i,0} + b_4 \ln ADP_{i,0} + \left(\mathbf{I} - \zeta \mathbf{W}\right)^{1} u_i \quad (10)$$

Estimating equation (9) and (10) yields the results in Table 2.

Table 2. Club-Convergence

Depended Variable: g_i n = 267 NUTS-2 Regions	Equation (9) (OLS)	Equation (10) (ML)
a	-0.1226	-0.0854
b_1	0.4486**	0.5896**
b_2	-0.0922**	-0.1203**
b_3	-0.0124	-0.0839*
b_4	0.0439**	0.0674**
ζ		0.8651**
Implied y^*	2.43**	2.45**
LIK	167.098	172.134
AIC	-324.196	-332.268
SBC	-306.241	-310.722

Note: ** indicates statistical significance at 95% level of confidence, * 90% level.

The coefficients b_1 and b_2 have the appropriate signs suggesting the existence of two groups across the EU-27 regions; one which includes regions with $y_{i,0} - y^* > 0$ and another including regions with $y_{i,0} - y^* < 0$. The former group corresponds to the convergence-club while the latter constitutes a diverging-club. Turning to the impact of the other explanatory variables, only the $ADP_{i,0}$ variable yields a statistically significant coefficient at the 95% level. The $IC_{i,0}$ variable indicates a negative relationship with growth for the overall period, which can be interpreted as a source of convergence. The condition $b_4 > 0$, however, suggests a substantial barrier to the diffusion of technology across the regions of the EU-27. In the lagging, and remote geographically regions of the EU, the adoption process is not immediate and these regions generally access innovations at a later stage. If this time-lag remains then regional

[9] As a rule of thumb, the best fitting model is the one that yields the minimum values for the AIC or the SBC criterion.

[10] The reader interest in this issue can, for instance, refer to Alexiadis et al (2010).

disparities in the EU, and the centre-periphery pattern, will take a persisting character. As previously, the spatial version of the model is to be preferred, based on the AIC and the SBC criteria.

Figure 5 shows the spatial distribution of the convergence-club member regions. The convergence club includes, almost exclusively, regions from the 'advanced' members-states of the European Union (EU-15). The club includes regions with large agglomerations, London, Paris, Milan, Munich and Hamburg, the so-called 'central pentagon' (Figure 6), together with peripheral regions of the EU-15 (e.g. Dublin, Central Scotland, Lisbon, Madrid, Athens, Rome, Naples and Stockholm). Such an outcome is in accordance with the view put forward by Dunford and Smith (2000), which highlight a significant 'development divide' between the EU-15 and the East Central Europe.

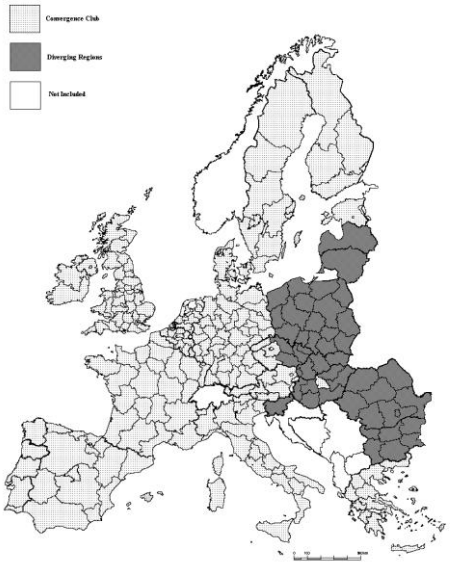

Figure 5. Converging and Diverging clubs

Figure 6. The 'Central Pentagon'

Table 3. Regional Convergence and Technology, Diverging group

Depended Variable: g_i n = 49 NUTS-2 Regions	Equation (3) (OLS)	Equation (4) (ML)
a	-0.1583	-0.1628
b_1	0.2863**	0.2061**
b_2	-0.0062*	-0.0091*
b_3	0.0486**	0.0643**
ζ		0.3478*
Implied β	-0.0210**	-0.0156**
LIK	140.907	142.866
AIC	-273.814	-275.732
SBC	-266.246	-266.272

Note: ** indicates statistical significance at 95% level of confidence, * 90% level.

Conditioning upon levels of technology confirms the diverging tendencies of the regions excluded from the convergence-club (2.1% per-annum). Nevertheless, the rate of divergence is reduced when spatial interaction is explicitly introduced. The results in Table 3 imply that regions with a low $ADP_{i,0}$ grow at a relatively lower rate. The condition $b_2 < 0$ is not enough to cancel-out this diverging effect. There may also be increased mobility for the highly-skilled, but a continued lack of mobility for the lower-skilled workforce. Together with inflexible labour markets this situation could reinforce a very unequal distribution of unemployment. Given that

the scope for innovation is subject to sectoral variations, it is possible that there could be the polarisation of Europe into more advanced regions and poorer lagging regions in the long-run.

In this light, regional policy should first identify which regions in a diverging-club are characterised by relative high adoptive levels. These regions have more possibilities to innovate if they are connected to central regions[11]. Improving conditions and the adoptive ability of these regions by investing the existing funds will, therefore, increase their growth rates, enabling them, in a subsequent period, to join the initial convergence-club. In terms of the model presented in section 2, the sequence of investment should be as follows. Before the end of the planning period invest in the regions of the convergence club. At the end of the planning period invest in the regions of the diverging club with the highest initial conditions. This will cause positive effects to the degree of competitiveness of the EU-27, as a whole, improving also the long-run process of regional convergence[12]. In this context, a critical question arises: which particular conditions should be the target of regional policy? Accordingly, it may be adequate, but with much caution, to associate the prevailing conditions in the diverging group with a series of structural elements that characterize the regions in this group. Although it is beyond the scope of this paper to go into detail, nevertheless it is worth mentioning that the list of these elements includes the usual suspects such as science, technology, which constitute the focus of the econometric specification, R&D and conditions related to the structure of the regional economy. In 2005 the R&D intensity, measured in terms of R&D expenditure as a percentage of GDP[13] in the diverging group was less than 0.5%. Only in two regions the R&D intensity is about 1% (Mazowieckie in Poland and Bucuresti-Ilfov, the capital-region of Romania). Over the periods 1998-2000 and 2005-2007, GDP per-capita in these regions was above 75% of the EU average; a threshold, which is a key criterion for being eligible to support from the Structural Funds. In the remaining regions, GDP per-capita is still below this threshold. The patent applications to the European Patent Office (EPO) in this group, is less than 5 patents per million inhabitants. In 2006, the HRST indicator was less than 35%. An exemption is Bucuresti-Ilfov with a percentage above 40%[14]. An average share of high-tech sectors in total employment was less than 4% in the diverging group, contrary to the central regions (above 5%). A similar share can be found in regions Közép-Dunántúl, Közép-Magyarország Nyugat-Dunántúl (in Hungary) and in Bratislavský-Kraj (in Slovakia). The three Hungarian regions are located in close geographical proximity while the regions Bratislavský Kraj and Nyugat-Dunántúl are close to Austria. Agriculture is of importance to the diverging regions and contributes about 3-6% in their GDP and in several cases over 6% (mainly in Romania and Bulgaria). The percentage of rural population in these regions is in the range between 20% and over 50%. Furthermore, the diverging group exhibits a low degree of business concentration (an exception is Bucuresti-

[11] A view put forward by Rodríguez-Pose and Crescenzi (2008).

[12] It should be noted, however, that there is no clear model available which shows the maturity period required in order to obtain results on the long-run growth of these regions

[13] A target set is the EU as whole to reach R&D intensity above 3%, responding to the new world-wide division of labour and globalisation The EU should reach a level of R&D intensity, by 2010, above 3%. This target is set by the Barcelona Council in 2002 and maintained in the EUROPE 2020 strategy. R&D spending in Europe, however, is below 2%, compared to 2.6% in the US and 3.4% in Japan, mainly due to low levels of private investment. It would take more than 50 years for Europe to reach the US level of innovation performance. Only 10% of the EU regions were able to reach this target. In 2007, only 19 out of 287 NUTS-2 regions, corresponding to only (6.6%) were able to meet the target of 3% . These include regions Pohjois-Suomi, Länsi-Suomi and Etelä-Suomi in Finland, Stockholm, Östra Mellansverige, Västsverige and Sydsverige in southern Sweden, seven regions in Germany (Dresden, Oberbayern, Darmstadt, Karlsruhe, Unterfranken, Stuttgart and Berlin), two in France (Île-de-France and Midi-Pyrénées) and Austria (Wien and Steiermark) and one in the Netherlands (Noord-Brabant). In some of these regions, capital-cities are located (e.g. Paris, Vienna, Berlin, Stockholm and Helsinki). Overall, there is a tendency for R&D expenditure to be higher in urban parts of Europe.

[14] The best educated labour force is located in the urbanised regions of Northern Europe. There is a tendency for HRST to concentrate in or around capital cities, particularly in countries with a low overall proportion of HRST.

Ilfov) due to demographic decline[15] and to the rural nature of those regions[16]. These regions are characterized by high unemployment[17], a large proportion of the labour force employed in declining industrial sectors and a relatively small proportion of young people, reflecting migration to other areas[18] as well as by low fertility rates. Low population density[19] and a low growth potential (due to a shrinking labour force) intensify income disparities in the diverging group. A ratio between 60 and 120 is estimated for the diverging group[20]. This puts them in a difficult position to finance essential public goods and services (e.g. health care, housing, transportation, ICT infrastructure) in a sustainable manner in order to avoid increasing social polarisation and poverty and, as a result, the operation of favourable externalities, which will put them in a path of fast growth, is constrained.

'Spatial development is increasingly understood as a complex, multi-dimensional phenomenon and the illusion about the existence of simple, short-cut strategies is progressively abandoned' (Camagni & Capello, 2010, p. 12). While economic and social fluctuations in the short (or medium) run are frequent, the features of the territory are largely shaped by factors that change extremely slowly. These features include the settlement pattern, the infrastructure endowments, the basic environmental characteristics and even the cultural peculiarities of the population. Overall, focusing on challenges such as energy security, transportation, climate change and resource efficiency, health and ageing, environmentally-friendly production methods and land management is essential.

Nevertheless, an important point to grasp, from a policy perspective, is the impact of technology adoption in the process of regional growth and convergence. Technology adoption, however, is not a simple and automatic process. Instead, it requires that lagging regions should have the appropriate infrastructure to adopt the technological innovations[21]. High-technological and knowledge-creating activities should be directed, if possible, at regions with unfavorable infrastructure conditions, as to stimulate the production structure in those regions towards activities that implement high technology. Regional policies should promote high-technology activities, and R&D, including universities, scientific and research institutions, support clusters, modernize the framework of copyright and trademarks, improve access of SMEs to Intellectual Property Protection, speed up setting of interoperable standards, and improve access to capital by reducing transaction costs of doing business.

Policy makers should also identify bottlenecks and develop a strong knowledge base with encouragement of 'knowledge partnerships' and links between business, research, innovation and education. Improvements in education will help employability and increase the rate of employment. A greater capacity for R&D as well as innovation across all sectors, combined with increased efficiency will foster job creation and improve competitiveness. A reform of regional R&D and innovation systems, will reinforce cooperation between universities, research

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[15] Only few EU-27 NUTS-2 regions (e.g. Ireland, Malta and Cyprus) appear to be in a relatively favourable position. An inspection, however, at the NUTS-3 level might reveal a different picture.

[16] Nevertheless, a rural character is not always a disadvantage. Several rural regions, for example, attract retirees, which provide a source of income and future growth.

[17] In 2008, regions with the highest unemployment rates (above 10%) are mainly located in Southern Spain, Southern Italy, Greece, Eastern part of Germany, Poland, Hungary and Slovakia. The lowest levels can be found in the United Kingdom, Belgium, and Netherlands and in capital city-regions of Eastern Europe.

[18] Population in several Central-Eastern European regions, which joined the EU in 2004 or 2007, has decreased due to migration.

[19] Population density is defined as the ratio of the population of a territory to its size (inhabitants per km^2).

[20] The capital city-regions of the EU-27 are among the most densely populated, located in central areas of Europe especially around Brussels. 'It has often been noted that night-time satellite photos of Europe reveal little of political boundaries but clearly suggest a *centre-periphery pattern* whose hub is somewhere in or near Belgium' (Krugman, 1991, p. 484., emphasis added).

[21] An argument commonly attributed to Abramovitz (1986).

and business, and will enable to implement joint programming, which will enhance cross-border cooperation. Adjustments of school curricula, based on creativity, innovation and entrepreneurship is also an effective policy tool.

Regional policies should oriented towards supporting internationalisation of SMEs, technologies and production methods that reduce natural resource use and increase investment in the EU's existing natural assets. Of particular importance is the transition of manufacturing sectors to greater energy and resource efficiency. Research in cleaner, low carbon technologies will not only help the environment by contributing to fighting climate change, but also will create new business and employment opportunities.

Finally, an important feature that policy-makers should take into consideration refers to the appropriate *timing* for policy intervention, given that their effects differ from region to region. Clearly this factor increases the need for policy coordination. Nevertheless, developing answers to policy issues requires a good deal of further work specific regional case studies, which will evaluate the efficiency of regional policies and programs and the contexts in which they are likely to succeed.

5. Conclusion

Regional growth is a complex phenomenon, based upon a number of factors, which shape, to a considerable extent, the regional policies. There is a need to rethink regional policy along the lines of the implementation of more innovative and region-specific development strategies. Hence, new analytical tools are needed. The relatively fragmented nature of the spatial patterns of mobility and persistence suggests that broad administrative regions are a poor basis for the implementation of policy. Consequently, policy may need to be targeted towards specific localities rather than broad areas such as those, for example, covered by the current regional grouping of the EU. A classification of areas based on the notions of persistence, divergence and the conditions identified in this paper may provide a useful framework for policy development at the regional level.

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EVALUATING ROAD NETWORK IMPROVEMENT: ECONOMIC IMPACTS ON SAN-EN REGION IN JAPAN

Yasuhiro HIROBATA
Graduate School of Architecture and Civil Engineering, Toyohashi University of Technology
1-1, Tempaku, Toyohashi, 441-8580, Aichi, Japan. e-mail: hirobata@ace.tut.ac.jp
Yuzuru MIYATA*
Graduate School of Architecture and Civil Engineering, Toyohashi University of Technology
1-1, Tempaku, Toyohashi, 441-8580, Aichi, Japan. e-mail: miyata@ace.tut.ac.jp
and
Hiroyuki SHIBUSAWA
Graduate School of Architecture and Civil Engineering, Toyohashi University of Technology
1-1, Tempaku, Toyohashi, 441-8580, Aichi, Japan. e-mail: hiro-shibu@tut.ac.jp

Abstract:
Japan's economy is entering a new phase of economic growth after the so-called "lost 15 years" since 1990. Particularly Tokyo and Aichi prefectures have been drawing attention as engine of new economic growth in Japan. Although the recovery of Japan's economy has resulted in an increase in the demand for transportation, construction of new roads in region-wide areas has been in a serious situation. It is attributed to a decreasing trend in Japan's population and aging which will cause Japan's national budget being reduced in the future. Due to this situation, stricter economic assessment of new roads development in region-wide areas has particularly been required than before. Taking into account these backgrounds, this article aims to present a model integrating the equilibrium concepts of economic and transport network. Moreover this model will be able to be extended into a full spatial equilibrium model. And then setting San-En region in Aichi and Shizuoka prefectures as a study area which consists of many urban and countryside areas, this study also aims to measure the economic impacts of construction of new roads development in this region.

Key words: computable urban economic model, transportation forecasting model, location model

1. Introduction

Under the limited budget for infrastructure, selective investment is required which maximizes the total benefit brought by the investment. The study area is the San-En region which is the industrial base of Japan that also includes many urban and rural areas. The improvement of road network including the construction of high standard roads is necessary to meet the increasing demand for the capacity in logistics. However, there exists a concern over the cost and benefit for/from the road construction. This study aims to develop a model to forecast the total benefit by new roads construction and network improvement in the study area. The concept of benefit is based on the theory of economic equilibrium. The transportation equilibrium model is developed to estimate the benefits which are led back into the economic equilibrium model focusing on the land use (location choice behavior of households and firms). The location choice behavior of economic sectors follows the standard maximization of household's utility function and firm's profit captured in this region.

In the following sections, the authors review the concept of equilibrium and the approaches for the measurement of economic impact by similar existing models. Then, the model for the evaluation of economic impact is proposed. This model is applied to measure the economic impact by alternative scenarios of new roads construction and improvement in the study area.

* Corresponding author.

The paper concludes with the description of the issues to be improved in the model and the future challenges.

2. Transport Demand Forecasting

2.1 Review of Transport Network Equilibrium Model

The objective of transportation equilibrium model is to estimate the benefits generated by transport network development. In the model transport demand at equilibrium is equated to the economic equilibrium model. The total benefit generated by transport network improvement will be computed as transport users' surplus, in the model travel-demand is calculated by the forecasted combined land-use and transport system at equilibrium. Equilibrium in transport system is linked to the assignment of travelers in road network considering travel cost and travel time to maximize their utility. The transport users' surplus in transport system can be measured from their travel demand as it represents their willingness to pay, that is his or her monetary value of performing activities that are distributed in space (Martinez, 2000). The travel demand in real transportation network depends on the level of transport service between OD pairs. Consequently the travel demand is elastic and the transportation equilibrium model is based on this hypothesis. Furthermore, the equilibrium is based on the principle that no transport user will be able to improve his/her utility by unilaterally switching to another route. In other words, equilibrium is regarded to be achieved when all transport users are in their individual minimum cost paths, or, when travel time is equal in all used paths connecting an origin-destination pair. Travelers' surplus represents a measure of the road network improvement/development in access at zone *i* to travel to get opportunities in zone *j*. This important feature is described in studies of commodity transport, by Samuelson (1952) for competitive markets, Jara-Díaz (1986) for the monopolistic case, and by Mohring (1961, 1976) and Wheaton (1977) in the context of urban-passengers trips.

The integrated transport and economic model is applied to calculate the travelers' surplus in this study, as this study aims to obtain the total benefit where the economic/location choice model and the transport model reach equilibrium simultaneously. It allows for endogenous transportation costs and prices, and is based on the assumptions of individual's rational behavior and optimization of welfare, utility, profit or cost (de la Barra, 1989). Reviews of integrated transport and economic models can be found in Anas (1982), Anas and Duann (1986), Berechman and Gordon (1986), Henderson (1988), Berechman and Small (1988), Webster et al.(1988), and Rietveld (1944), and so on.

2.2 Procedure of Transport Demand Forecasting

The forecasting of transport demand means to obtain the equilibrium transport flow considering socio-economic system of demand side and future transport systems of supply side. The transport model in this study aims to calculate the reduced travel time as the positive effect by road network improvement within transport market in consideration of reduced travel cost. The methodology of demand forecasting is based on the conventional four traditional steps, trip generation/attraction, trip distribution, modal split, and traffic assignment. The trip attraction/generation is firstly forecasted, then, future OD trip volume, modal split, and traffic assignment are calculated. Vehicle OD data is used for calculation because of the limitation of available data. Therefore, modal split step is skipped in this study.

The procedure of transport demand forecasting is shown in Figure 1. The trip generation/attraction model transforms the activities by type per zone estimated by the economic equilibrium model into trip generations and attractions, that is, the number of trips that originate in each zone and the number of trip ends in each zone respectively. The trip distribution model connects generations with attractions to produce a set of origin-destination trip matrices. The resulting OD trips by mode are then assigned to the different routes available in the network by the assignment model.

This study forecasts the OD trip rate by travel purpose considering the performance characteristics of each mode. Consequently the traffic assignment is calculated repeatedly in this paper. In the process of this calculation, the mode distribution rate by trip purpose is multiplied. Then the future traffic is assigned to reach equilibrium. In the last stage, the travel cost in the

equilibrium state is estimated. This effect is fed back to the economic equilibrium model which estimates the socio-economic benefit brought by road network improvement considering location choice.

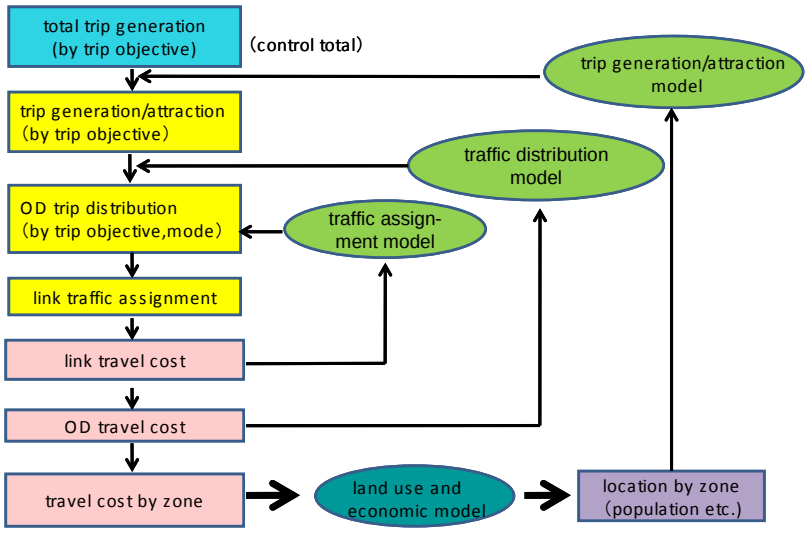

Figure 1. Procedure of Transport Demand Forecasting

2.3 Trip Generation/Attraction Forecasting

The study utilizes data from the national road traffic census, 1999. The case study area is divided into 76 zones based on the definition in the census. Equation (1) is specified as the formulation of trip generation/attraction forecasting model for this case study.

$$\hat{G}_i = \alpha_0 + \sum_{k=1}^{K} \alpha_k X_{ki} \qquad (1)$$

where

$\hat{G}_i$: trip generation/attraction from/to zone *i*

α_0, α_k : parameters

X_{ki} : explanatory variable (the number of population or the number of workers in zone *i*).

The number of population and workers are verified as they significantly affect the trip generation/attraction from the result of correlation analysis. Consequently they are applied as explanatory variables in the model. Other factors related to trip generation/attraction are considered applying factor k_i as follows:

$$G_i = k_i \hat{G}_i \qquad (2)$$

In equation (2), k_i represents an adjustment factor which eliminates the gap in the actual and estimated trips. The estimation result of parameters is shown in Table 1. The figures in parentheses show *t* values. From the result, we observe that the parameters of the numbers of population and workers are statistically significant.

Table 1. Result of Parameters Estimation: Trip Generation and Attraction

	trip objective	constant term	population	workers	R^2 value
trip generation	Commuting	2064.7 (3.99)	-	0.370 (9.17)	0.539
	leisure/shopping	460.8 (0.84)	0.215 (7.89)	0.136 (3.12)	0.680
	Business	1298.7 (1.98)	0.176 (5.38)	0.281 (5.37)	0.659
	return home	1811.4 (1.95)	0.419 (10.7)	-	0.615
trip attraction	Commuting	926.5 (2.06)	0.244 (12.8)	-	0.696
	leisure/shopping	877.0 (1.71)	0.247 (9.64)	0.032 (0.78)	0.684
	Business	1208.9 (1.85)	0.194 (5.92)	0.254 (4.84)	0.660
	return home	1694.3 (1.90)	0.266 (5.96)	0.314 (4.40)	0.644

Note: *t* values are in parentheses.

2.4 Future OD Trip Forecasting: Linear Multiple Regression Model and Poisson Regression Model

At this point, the future OD trip associated with a change of travel condition is estimated by the gravity model mentioned below.

$$T_{ij} = k(G_i)^{\alpha}(A_j)^{\beta}\exp(\gamma C_{ij}) \tag{3}$$

where

T_{ij} : number of OD trips between zone *i* and *j*

G_i : trip generation in zone *i*

A_j : trip attraction to zone *j*

C_{ij} : generalized travel time between zones *i* and *j* induced by adding the travel cost in terms of time which is obtained by dividing monetary travel cost by time value

k, α, β, γ : parameters.

In order to estimate the values of parameters in equation (3), we applied two methods; linear multiple regression method and Poisson regression method. Taking logarithm of the both sides in equation (3), the following linear multiple regression models is derived.

$$\ln T_{ij} = \ln k + \alpha \ln G_i + \beta \ln A_j + \gamma C_{ij} \tag{4}$$

$$k = e^{a\,0} \tag{5}$$

The Poisson regression method is applied by assuming that the number of trips between *i* and *j* follows the Poisson distribution with expectation value λ_{ij}. In this method, the values of parameters are estimated by maximum likelihood method.

$$\lambda_{ij} = k(G_i)^{\alpha}(A_j)^{\beta}\exp(\gamma C_{ij}) \tag{6}$$

The parameters are estimated applying the trip distribution. Table 2 shows the results of parameter estimations of both methods. Statistically significant results are obtained referring the *t* values, although the coefficients of correlation R^2 are not so high for the linear multiple regression model. Therefore, these parameters are interpreted as expressing aggregate trend in the study area. Comparing the results among two methods, the results of Poisson regression model is more statistically significant. In addition, the effect of a decrease in traffic volume (value γ) indicated in Figure 2 is higher in the Poisson regression. It can be attributed to the fact that zones with zero trips are to be excluded in the process of estimation with linear regression. Considering the results, Poisson regression model is applied in the evaluation henceforth. In the study, two census data of the years 1999 and 2005 are utilized for parameter estimation. Table 3 shows the estimation results of two period of time applying Poisson regression model.

Table 2. Parameter Estimation Result of OD Trip Model

	Trip Purpose	*k*	α	β	γ	R^2
Linear Multiple Regression Model	commuting	0.143 (-4.13)	0.510 (12.9)	0.433 (12.1)	-0.029 (-31.7)	0.439
	leisure/ shopping	0.479 (-1.22)	0.442 (8.72)	0.370 (7.40)	-0.033 (-28.0)	0.423
	business	1.140 (0.26)	0.347 (9.51)	0.356 (9.50)	-0.036 (-43.4)	0.522
	Return home	0.109 (-4.27)	0.444 (11.3)	0.517 (12.9)	-0.032 (-33.2)	0.431
Poisson Regression Model	commuting	7.18×10^{-6} (21.4)	1.105 (271)	1.106 (306)	-0.050 (-591)	0.493
	leisure/ shopping	4.38×10^{-5} (20.2)	0.921 (233)	1.015 (256)	-0.064 (-593)	0.537
	business	3.66×10^{-6} (21.3)	0.952 (264)	0.938 (265)	-0.052 (-625)	0.589
	Return home	5.56×10^{-6} (24.1)	1.015 (339)	1.075 (332)	-0.055 (-764)	0.537

k: constant, α: trip generation, β: trip attraction, γ: generalized time, *t*: values are in parentheses

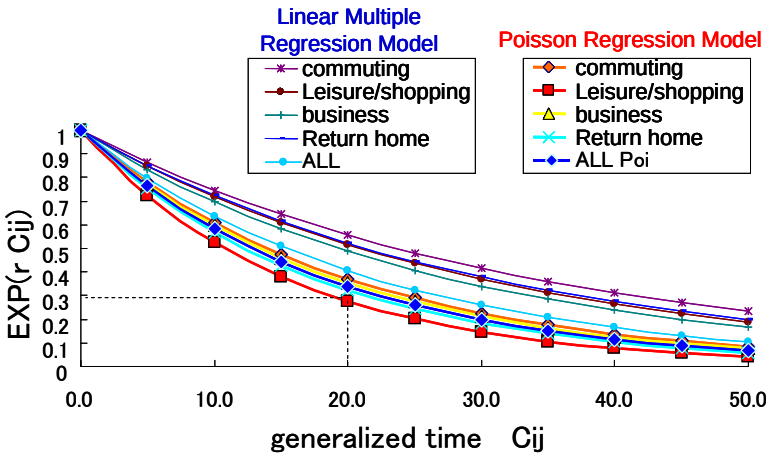

Figure 2. Effect of Travel Cost on Decrease in Traffic Volume

Table 3. Parameter Estimation Result of Trip Distribution (1999 and 2005)

		num.of sample	k	α	β	γ	R^2
commuting	1999	5476	0.718×10^{-5}	1.105	1.016	-0.0496	0.493
	2005	5476	0.957×10^{-5}	1.078	1.004	-0.520	0.447
leisure/ shopping	1999	5476	4.380×10^{-5}	0.921	1.015	-0.0643	0.537
	2005	5476	1.538×10^{-5}	0.998	1.023	-0.0657	0.501
business	1999	5700	3.660×10^{-5}	0.952	0.938	-0.0517	0.589
	2005	5550	5.696×10^{-5}	0.914	0.915	-0.0498	0.541
Return home	1999	5476	0.556×10^{-5}	1.015	1.075	-0.0552	0.537
	2005	5476	0.580×10^{-5}	1.013	1.068	-0.0573	0.523

Note: k: constant, α: trip generation, β: trip attraction, γ: generalized time

3. Land Use and Economic Sectors

In the previous sections, transportation models were emphasized. In turn, land use (location choice behavior) and economic sectors in our model are described referring to Muto et al (2004 and 2006).

3.1 Firms Behavior

Each firm is defined as per worker, that is, the number of workers in each firm is unity. Each firm in this study is assumed to input land, business trips, and labor, and produce single type commodities (composite commodity) maximizing its profit. The behavior of each firm is denoted as:

$$\pi^F_i \equiv max\ Z_i - R_i A_i - Q_i X_i - wL_i - \sum_{j=1}^{I} p_{ij} n_{ij} / E_i \tag{7}$$

with respect to A_i and X_i

subject to

$$Z_i = mA_i^{\beta_A} X_i^{\beta_X} \qquad (0 < \beta_A + \beta_X < 1) \tag{8}$$

where
Z_i : output of a firm (numeraire good)
R_i : land rent for business use
A_i : input of business land
Q_i : generalized price of business trip
X_i : input of business trip
w : wage rate (exogenous variable)
L_i : labor input (= 1)
p_{ij} : commuting cost between zones i and j
n_{ij} : the number of workers residing in zone j and working in zone i
E_i : the number of workers in zone i
m, β_A, β_X : technological parameters in a firm

In the formulation of the above, households' commuting costs are assumed to be paid by firms. Solving this profit maximization problem, demand functions in a firm for business land and business trip can be obtained as;

$$A_i = \left[\frac{m\beta_A}{R_i} \left(\frac{\beta_X}{\beta_A} \right)^{\beta_X} \left(\frac{R_i}{Q_i} \right)^{\beta_\alpha} \right]^{\frac{1}{1-\beta_A-\beta_X}} \tag{9}$$

$$X_i = \left[\frac{m\beta_X}{Q_i} \left(\frac{\beta_A}{\beta_X} \right)^{\beta_A} \left(\frac{Q_i}{R_i} \right)^{\beta_A} \right]^{\frac{1}{1-\beta_A-\beta_X}} \tag{10}$$

These factor demand functions are substituted into the firm's profit yielding the following profit function:

$$\pi^F_i = m \left[\frac{m\beta_A}{R_i} \left(\frac{\beta_X}{\beta_A} \right)^{\beta_X} \left(\frac{R_i}{Q_i} \right)^{\beta_\alpha} \right]^{\frac{\beta_A}{1-\beta_A-\beta_X}} \left[\frac{m\beta_X}{Q_i} \left(\frac{\beta_A}{\beta_X} \right)^{\beta_A} \left(\frac{Q_i}{R_i} \right)^{\beta_A} \right]^{\frac{\beta_X}{1-\beta_A-\beta_X}}$$

$$- R_i \left[\frac{m\beta_A}{R_i} \left(\frac{\beta_X}{\beta_A} \right)^{\beta_X} \left(\frac{R_i}{Q_i} \right)^{\beta_\alpha} \right]^{\frac{1}{1-\beta_A-\beta_X}} - Q_i \left[\frac{m\beta_X}{Q_i} \left(\frac{\beta_A}{\beta_X} \right)^{\beta_A} \left(\frac{Q_i}{R_i} \right)^{\beta_A} \right]^{\frac{1}{1-\beta_A-\beta_X}} - wL_i - \sum_{j=1}^{I} n_{ij} p_{ij} / E_i$$

(11)

Subsequently the firm's location choice probability for zone *i* is obtained by applying the Logit model.

$$P_i^F = \frac{exp\theta^F g_i^F \pi_i^F}{\sum_{k=1}^{I} exp\theta^F g_k^F \pi_k^F} \tag{12}$$

where

P^F_i : location choice probability of a firm for zone *i*

θ^F : Logit parameter in firm's location choice behavior

g_i^F : adjustment parameter (the number of workers in zone *i* is applied to this parameter.)

π^F_i : maximized profit in a firm in zone *i*

3.2 Households Behavior

Households are assumed to be holding the utility maximization behavior. Thus household behavior is specified as;

$$\begin{aligned} & v_i^H \equiv max \;\; z_i^{\alpha_z} a_i^{\alpha_a} x_i^{\alpha_x} f_i^{\alpha_s} \qquad (\alpha_z + \alpha_a + \alpha_x + \alpha_f = 1) \\ & with\ respect\ to\ z_i, a_i, x_i, f_i \\ & subject\ to \end{aligned} \tag{13}$$

$$z_i + r_i a_i + q_i x_i + w f_i = w \left[T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i \right] + y_i \tag{14}$$

where

z_i : consumption of composite goods by a household in zone *i* (numeraire good)

a_i : area size of land used by a household in zone *i*

x_i : household trip per capita in zone *i*

f_i : leisure time of a household in zone *i*

r_i : land rent for residence in zone *i*

q_i : generalized price of a household trip in zone *i*

w : wage rate (exogenous variable)

T : total time available of a household

y_i : dividend from firms to a household in zone *i*

n_{ij} : the number of households residing in zone *i* and working in zone *j*

t_{ij} : commuting time between zones *i* and *j*

N_i : the number of households in zone *i*

Solving this utility maximization problem, the following demand functions for a household are derived,

$$z_i = \alpha_z [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] \quad (15)$$

$$a_i = \alpha_a [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] / r_i \quad (16)$$

$$x_i = \alpha_x [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] / q_i \quad (17)$$

$$f_i = \alpha_f [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] / w \quad (18)$$

Substituting these demand functions into the utility function, the indirect utility function of a household is obtained,

$$v_i^H = \alpha_z^{\alpha_z} \left[\frac{\alpha_a}{r_i}\right]^{\alpha_a} \left[\frac{\alpha_x}{q_i}\right]^{\alpha_x} \left[\frac{\alpha_f}{w}\right]^{\alpha_f} [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] \quad (19)$$

Finally household's location choice probability for zone *i* is calculated by applying the Logit model,

$$P_i^H = \frac{exp\theta^H g_i^H v_i^H}{\sum_{k=1}^{I} exp\theta^H g_k^H v_k^H} \quad (20)$$

where

P_i^H : household location choice probability for zone *i*

θ^H : Logit parameter in household location choice behavior

g_i^H : adjustment parameter (the number of households in zone *i* is applied to this parameter)

v_i^H : indirect utility function in zone *i*

3.3. Equilibrium Conditions

In the economic sectors mentioned above, we consider only the land market to be equilibrated fixing the commodity price and wage rate. The reason is that the size of the study area is small, so deriving full equilibrium model seemed unrealistic. Extension of the present model into a full equilibrium model is left as an important issue in the future studies. Thus the equilibrium conditions in the land markets are specified as follows:

$$\text{residential areas : } a_i^S = N_i a_i \quad (21)$$

$$\text{business areas : } A_i^S = E_i A_i \quad (22)$$

where

a_i^S : supply of residential area in zone *i* (fixed)

A_i^S : supply of business area in zone *i* (fixed)

The equilibrium demand for land in each zone is obtained through finding land rents which clear the conditions (21) and (22) by the Walras algorithm.

3.4. Parameters in Firms

Parameters in firms and households must be estimated for the empirical study. However available data for parameter estimation is quite limited even in advanced country, since the area size of each zone is very small. So the IO table becomes the most significant data source in parameter calibration.

In this subsection, first, let us explain parameters in firms. Equation (8) shows the technology of a firm being specified as a Cobb-Douglas production function with homogenous degree less than unity. One can add other production factors to equation (8) to transform it with homogenous degree of unity.

$$Z_i = mA_i^{\beta_A} X_i^{\beta_X} L_i^{\beta_L} K_i^{\beta_K} \qquad (\beta_A + \beta_X + \beta_L + \beta_K = 1) \tag{23}$$

where

L_i : labor input of a firm in zone i (= 1)

K_i : input of other production factor in a firm in zone i

Euler's identity yields;

$$Z_i = \frac{\partial Z_i}{\partial A_i} A_i + \frac{\partial Z_i}{\partial X_i} X_i + \frac{\partial Z_i}{\partial L_i} L_i + \frac{\partial Z_i}{\partial K_i} K_i \tag{24}$$

When the firm behaves to maximize its profit, the marginal productivity principle holds leading to;

$$PZ_i = P(\beta_A Z_i + \beta_X Z_i + \beta_L Z_i + \beta_K Z_i) = R_i A_i + Q_i X_i + wL_i + \eta_i K_i \tag{25}$$

where

η_i : price of other production factor

P: price of composite good

The parameters, therefore, in the production function are obtained as follows:

$$\beta_A = R_i A_i / PZ_i \quad \text{and} \quad \beta_X = Q_i X_i / PZ_i \tag{26}$$

Assuming that w, L_i, η_i, and K_i are fixed, the efficiency parameter is calculated as follows:

$$m = Z_i / (A_i^{\beta_A} X_i^{\beta_X}) \tag{27}$$

These parameters are estimated by employing Aichi prefecture's IO table as presented in Table 4. Finally, the Logit parameter in firm's location probability is estimated by the maximum likelihood method,

$$\theta^F = 3.740 \times 10^{-9}, \ t = 61.4, \ R^2 = 0.854 \tag{28}$$

Here the correlation coefficient R^2 is derived from the regression analysis between the actual number of workers and the estimated one obtained by the Logit model.

Table 4. Parameters in Production Function

efficiency parameter m	elasticity parameter β_A	elasticity parameter β_X
19818.465	0.016	0.086

3.5 Parameters in Households

Transforming equations (15) to (18) yields;

$$\alpha_z = 1 \cdot z_i / [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] \tag{29}$$

$$\alpha_a = r_i a_i / [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] \tag{30}$$

$$\alpha_x = q_i x_i / [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] \tag{31}$$

$$\alpha_f = w f_i / [w(T - \sum_{j=1}^{I} n_{ij} t_{ij} / N_i) + y_i] \tag{32}$$

The right hand sides in equations (29) to (32) are observable, thus one can calculate the parameters in household utility function by employing Aichi prefecture's IO table. The calibration results are shown in Table 5.

Same as in the firm's behavior, the Logit parameter in household location choice probability is estimated by the maximum likelihood method.

$$\theta^H = 2.345\times10^{-7},\ t = 22.6,\ R^2 = 0.988 \quad (33)$$

Here the correlation coefficient is derived from the regression analysis between the actual number of population and the estimated one obtained by the Logit model.

Table 5. Parameters in Household Utility Function

composite good α_z	land α_a	trip α_x	Leisure α_f
0.325	0.086	0.021	0.568

4. Evaluation of Road Network Improvement

4.1. Road Network Improvement Scenarios

Three scenarios are set up for the estimation of the benefit of road network improvement in the study area. Three scenarios assume that the network improvements are implemented gradually. They include road construction in national expressways, inter-regional highways, and a harbor road. Table 6 and Figures 3 to 5 illustrate the outlines of these scenarios.

4.2. Result of Transport User's Surplus Evaluation

In this paper, the total travelers' surplus of 40 years after the improvement of road networks derived from the transport demand forecasting is evaluated. The total generalized cost and time in each scenario is calculated. Then, the benefit in transport and total surplus is calculated. The evaluation results in using two census data are showed in Figure 6. It is indicated that as the road networks are improved to higher level, the benefit will increase. But the marginal efficiency declines as the road network improvement proceeds to the final stage.

Table 6. Outline of Road Network Development Scenarios

	Scenario 1	Scenario 2	Scenario 3
national expressway	Construction of new Tomei expressway	Extension of new Tomei expressway	Extension of San-En-Nanshin Expressway
inter-regional highway	Extension of Road 23	Increase in lanes of Road 259	Increase in lanes of Road 23
harbor road	-	Construction of Mikawa harbor road	Increase in lanes of Mikawa harbor road
number of link	2083	2124	2145
number of node	1406	1431	1442

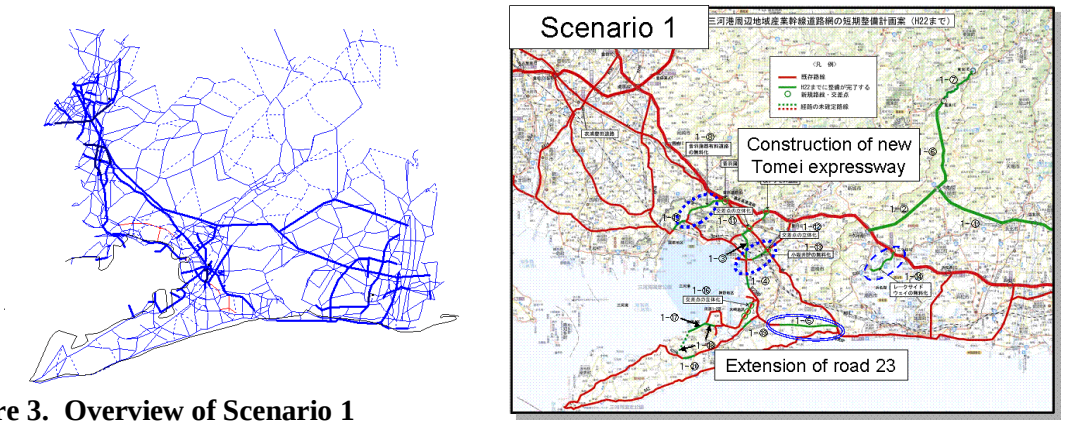

Figure 3. Overview of Scenario 1

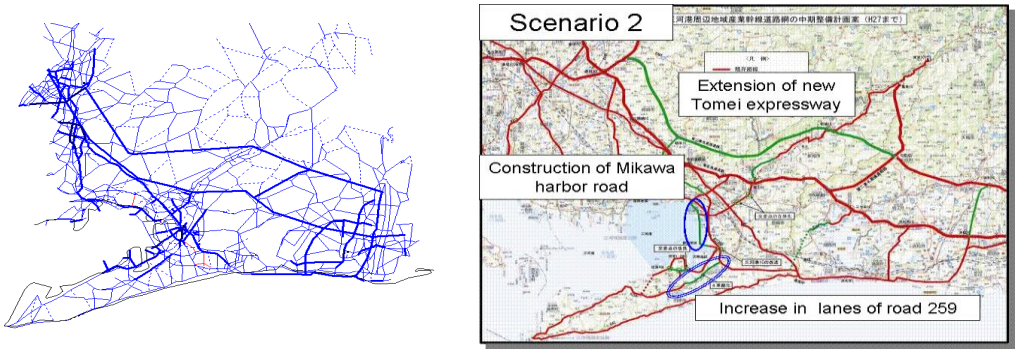

Figure 4. Overview of Scenario 2

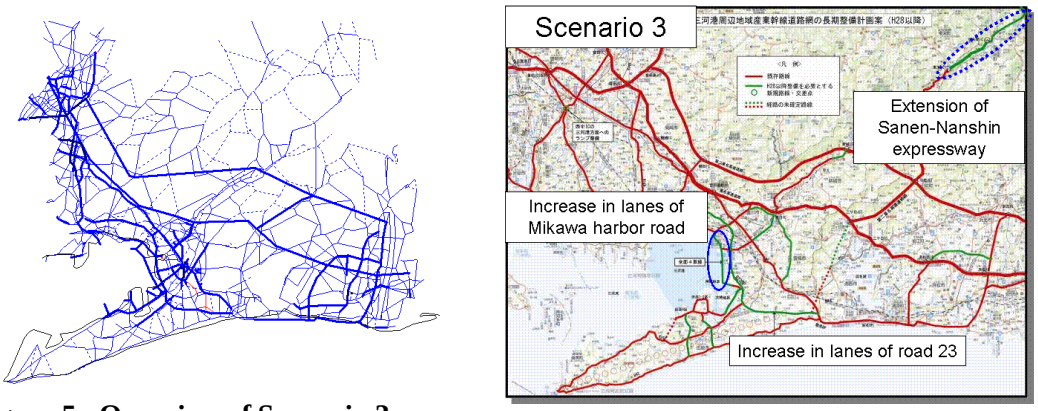

Figure 5. Overview of Scenario 3

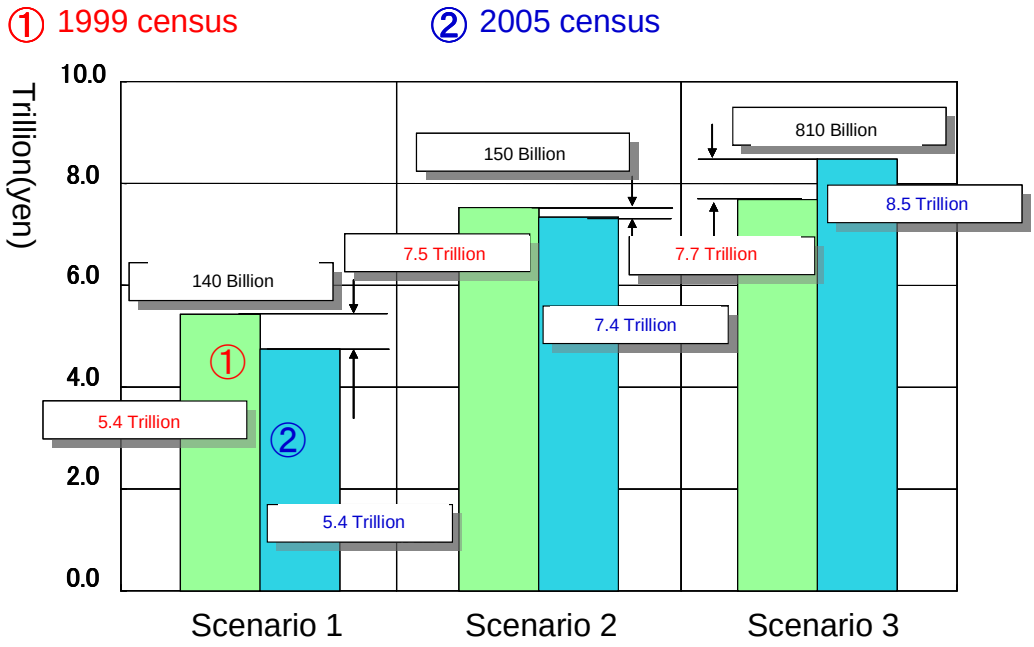

Figure 6. Change in Transport Surplus

4.3 Estimating the Economic Benefit by Zone

In turn, the study is ready to present the economic benefit by zone under the three scenarios. The economic benefit in each zone is defined by the equivalent variation (EV) plus land rent

paid to absentee landowners. EV is defined as an income to compensate a change in household indirect utility, and it can be specified as follows:

$$v_i^H(r_i^A, q_i^A, y_i^A + ZCEV_i) = v_i^H(r_i^B, q_i^B, y_i^B) \tag{34}$$

where

v_i^H : household indirect utility function

A, B : indices expressing the states before and after a project, respectively

$ZCEV_i$: EV per capita in zone i

Since EV by zone is defined for a household, the benefit in each zone is obtained by multiplying the number of population in each zone by EV. Households change their residential places according to a change of transport networks in this model. Thus the benefit by zone differs depending on the number of population before or after a project. Therefore, if one takes the number of households before a project, a change in the number of households after the project is not taken into account at all. Conversely, if one takes the number of households after the project, the benefit may be overestimated or underestimated. To avoid this ambiguity, consideration of migration during the road construction is rational. Therefore we derive the benefit of a project as follows:

$$ZSNB_i = \oint_{A \to B} [N_i(\tau) dZSNB_i(\tau) + d\pi_i^L(\tau)] \tag{35}$$

Formula (35) is expressed by line integral from the state without the project, A, to the state with the project, B. This line integral depends on the process of road construction, however, we assume that the roads are constructed being proportional to time. Thus an approximation of the integral (34) may be written as follows:

$$ZSNB_i = N_i(A) ZCEV_i + \frac{1}{2}(N_i(B) - N_i(A)) ZCEV_i + \Delta\pi_i^L \tag{36}$$

where

$N_i(A)$ and $N_i(B)$: the numbers of households before and after the project, respectively

This study employs formula (36) as definitions of the social benefit of the road construction in zone i. Following formula (36), the calculation results of the benefit by zone in Scenarios 1 to 3 are graphically illustrated in Figures 7 to 9.

First of all, the total annual benefits in the three scenarios are estimated as 722 billion yen in Scenario 1, 1,133 billion yen in Scenario 2, and finally 1,602 billion yen in Scenario 3 with census 1999 data as presented in Table 7. On the other hand, they are 1,858 billion yen in Scenario 1, 4,100 billion yen in Scenario 2, and finally 5,700 billion yen in Scenario 3 with census 2005 data. As compared with the GRP in this region, it is estimated as about 8 trillion yen resulting in the fact that the impact ratios are 4.77%, 6.23%, and 6.69%, respectively. Taking into account that the environmental damage in GDP in Japan is estimated 1.5% to 2%, thus it can be said that this project has relatively higher efficiency. Calculating the benefit during 40 years with the social discount rate of 4%, it is 5,423 billion yen in Scenario 1, 7,510 billion yen in Scenario 2, and 7,690 billion yen in Scenario 3 with census 1999 data. They are 5,260 billion yen in Scenario 1, 7,360 billion yen in Scenario 2, and 8,500 billion yen in Scenario 3 with census 2005 data. Comparing these values with the saving of generalized costs is shown in Figure 6, the equilibrium benefits are more than double of the saved costs in the three scenarios in the calculation with census 2005.Moving back to benefit in each zone, benefits of the new Tomei expressway, which connects Tokyo and Nagoya, the bypath of national road 23 and Mikawa harbor road, which connect the east and west regions in Toyohashi, and San-En-Nanshin road, which connects the south area in Nagano prefecture and Toyohashi, are significant as shown in Figures 7 to 9.

Table 7. Results of economic impacts evaluation of road network improvement

scenario	data	annual benefits(yen)	total annual benefit in 40 years(yen)
scenario 1	census 1999	722 billion	5,423 billion
	census 2005	1,858 billion	5,260 billion
scenario 2	census 1999	1,133 billion	7,510 billion
	census 2005	4,100 billion	7,360 billion
scenario 3	census 1999	1,602 billion	7,690 billion
	census 2005	5,700 billion	8,500 billion

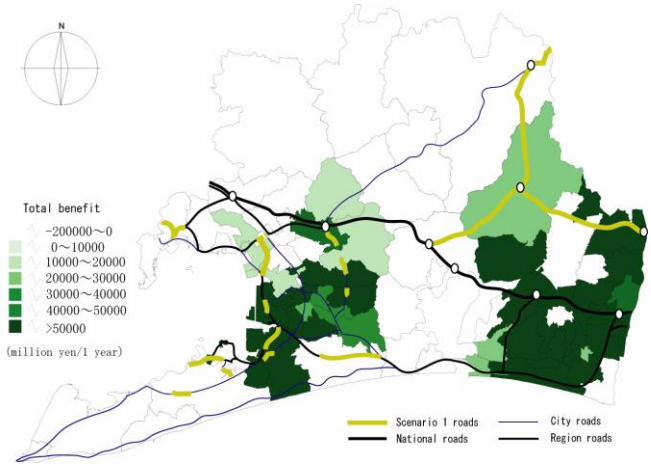

Figure 7. Economic Benefit in Scenario 1

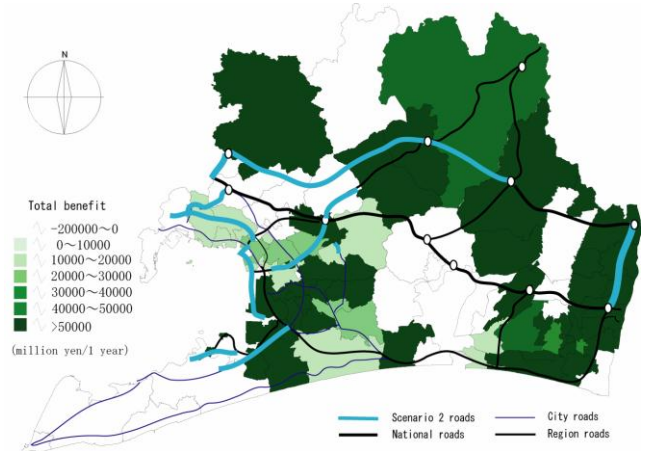

Figure 8. Economic Benefit in Scenario 2

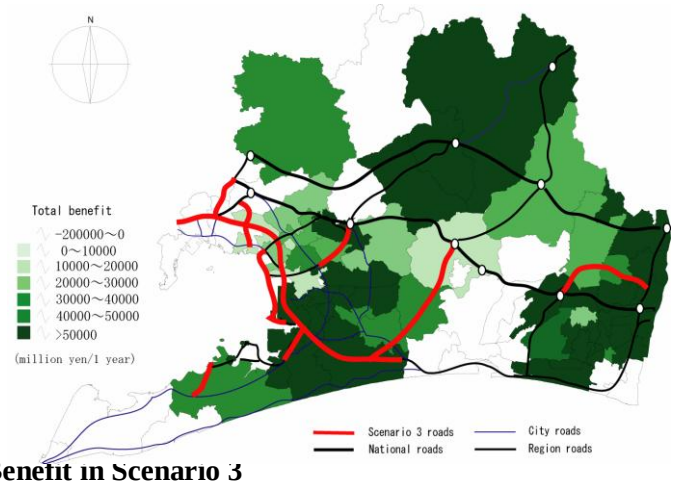

Figure 9. Economic Benefit in Scenario 3

5. Concluding Remarks

In this article, we have developed an integrated transportation and economic model for San-En region in Japan, and measured the economic impacts of road network improvement by zone based on the equivalent variation. From the evaluation results, even countryside in the study area has shown a possibility of future growth, if those zones would be linked to newly constructed roads.

Similar models have already been developed by other researchers, but the present model deals with much more complex road networks being appreciated as the first attempt for small zones' transportation, land use, and economy as far as the authors know. The evaluation method proposed in this study can be applied to the appraisal of new infrastructure development which has a great impact on the region. The advantage is that the benefit in each zone is estimated and the results can be referred to secure equality in decision making process. However the market under consideration is only land rental market excepting commodity and labor markets. Thus area worth examining in the future is to consider internalization of these markets.

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NEW SOCIAL RISKS AND SUSTAINABLE DEVELOPMENT OF URBAN AREA

Lubor Hruska-Tvrdy and Ivana Foldynova
VSB-Technical University of Ostrava, 17.listopadu 15
Ostrava-Poruba, 70833, Czech Republic

Abstract
New social risks are key factors for social cohesion of local community and society. Currently new social risks which are caused by changes in a society appear more frequently than before. While previously the groups of underprivileged were counted in endangered groups, now the middle class can be affected as well. This report shows a spatial distribution of these risks. How to obtain this result is shown on a particular example of the city of Ostrava. This report seeks to establish future influence of industrial city cohesion. Mainly processes of industrialization and deindustrialization are examined in a detail, especially their effect on demo-social structure of the city.The results are based on the research of the project called „Industrial society in a postindustrial city" under which there were large sociological research of Ostrava and a long term monitoring of statistical indicators carried out.All social problems lead to inability to retain basic residential standards. Social risk distribution is surveyed in Ostrava however the context of larger area (the Moravian-Silesian Region) is also taken into consideration.

Key words: new social risks, excluded localities, spatial, sustainable development, city

Introduction

Currently within the scope of the transition of an industrial society to the post-industrial, there is a significant polarization of territory and the growth of regional disparities. This leads to the transformation of existing social structures and ways of work, causing a decline in traditional areas of economy, traditional professions and traditional family roles. In the recent decades, also in Europe, we have been experiencing significant changes, the responsibility of the state is shifting to individual citizens and families, which however requires a change in the way of thinking within the society. An important strand in political science argues that trust in state institutions is in decline and work in sociology claims that citizens are becoming more independent, reflexive and keen to the responsibility for meeting their own needs'' (Tailor-Gooby, Hastie [10]).

These changes, however, bring along impacts on society, affecting more and more numerous groups, and unlike in the past, they affect also the middle class. In relation to these changes the groups, those are very probably going to feel the impact of social changes, and therefore will be in need of support to handle their actual situation, were defined.

Through a gradual transformation of the social state, which was built on strong social interaction, we are being transformed to a state, which behaves under all circumstances economically, according to market rules and the ability to compete. We are leaving the society of the old social safety and insurance systems, which were guaranteed by the state to all those who worked, paid taxes and insurance all their lives. A diversified inequality of social classes is sinking ever deeper into the state of absolute incomparability in terms of ownership, power and social status. Until recently, the development of modern society was driven by an effort to come over the vast differences from the periods of feudalism or early capitalism, trying to substitute them with just slightly divesified incomparability. Success brought by this effort was the base for an open society theory and a basic presumption for the development of democracy. This situation lasted for more than a hundred years. An insurance system included a system of social protection related to an employment. A part of the financial benefits resulting from work was devoted, in the form of insurance, to a long-term maintaining of an individual and their entire families. Currently, the society is again divided into totally different and mutually incomparable social segments. Exceeding a certain threshold of incommensurability always leads to the

resignation of individuals as well as to unpredictable bursts of group rage. Huge differences in wealth point out at huge differences in the capability to influence the orientation of society, to interfere in other people's destiny and in the fate of the whole country. It turned out that the contemporary post-industrial society brought the hard reality of social incommensurability, poverty, homelessness, social insecurity in the middle of the most economically developed countries. (Keller [4])

RISK

The idea of a risk has gradually become related with the area of social needs and fighting against poverty, thus being turned into a political issue under solution. The risk is generally related to the uncertain situations in the lives of people and to their actions and decisions. The risk is associated with the possibility, chance or probability of occurrence of some events that represent a result of human activities. Historically, the risk is associated with the loss of control of the people over the results of their actions, with ignoring the boundaries of their actual knowledge, with the loss of influence within the social environment in which they are located and with the disintegration of social structures in which they had traditionally lived. (Sirovátka, Winkler [8])

The risk is statistically understood as a probability that the individual encounters an unexpected situation, against which they are not secured, for instance the unemployment, debt, family disintegration. Individuals within the statistical models are usually classified according to their age, education, gender, income and wealth, housing type and location.

New social risks, as listed below, are determine according to Keller [4]:

- The old risk was that for a shorter or longer period, people were unable to find a job, new social risk means that a person does so low-paid job that he and his family balance in the line leading to poverty. Working poverty.
- Before, people were victims of unemployment due to an insufficient qualification. New social risk means that also those, who have invested to their qualification (up to the level of university degree) may be left jobless for a long period Unused skills.
- Before, people grew old in poverty, in case they had not paid for the retirement. The new risk - people will grow old in poverty, even though they have worked all their life and they paid their retirement. Third age spent in poverty.
- Before, sick people lived in poverty, in case they did not pay health insurance. New risk means that a sick person will live in poverty, even though they worked and paid insurance. Poor sick.
- A single mother is not able to earn living for herself and a child in case she doesn´t work. The new risk - a woman is unable to make living for herself and a child even when she has a job. Single mothers.
- The risk increases with the number of children in the family. In the past, people greatly reduced their standard of living with three or more children, today it happens with only one child. Families with more children.
- A household is becoming insolvent, in case the people there are financially illiterate. The new risk – a household is becoming insolvent, even if it is financially literate. (Household members become unemployed, divorced, ill etc.). Indebted households.
- A family where parents are unemployed ends up in the ghetto. New risk – even the family where the parents are employed may end up in the ghetto. Excluded and deprived localities.

CITY

This present state of society has influenced the structure of contemporary cities in recent years, and will bear an influence on their further development. The city is a dynamic socio-economic system, internally very heterogeneous. This heterogeneity is significantly reflected in the spati

layout.. This is why the sociologists of the city often focus on the social morphology of urban settlements and they are looking for patterns in the distribution of the individual population components in these settlements. The organization and spatial distribution of social activities (functions) and related objects (buildings, networks, etc.) is also examined. (Musil [5])

The spatial distribution of the social risks in the city is the main topic of this paper, however, we cannot see it as new, because it was Charles Booth in 1885-1903, whose research was already focusing on Mapping London's Poverty. (Booth [1]). Also, in the beginning of the 20th century, the representative of Chicago School of Social Ecology Robert E. Park (1925), focused in his researches on the segregated areas, and he also introduced the concept of marginality in sociology, particularly within in the context of the neighborhood. There, the marginality was understood as the boundary separating the two culturally different worlds. Those who caused the main discrepancy were above all immigrants. At present, the marginality is rather understood the fact of living on the edge of the society. Another representative of the Chicago School Ernest W. Burgess (1925) developed the first sociological study of the spatial structure of the town, based on ecological principles. He described an expansion of the city as a process of differentiation, resulting in the spatial distribution of groups and individuals according to the nationality, occupation and other socioeconomic characteristics. "Differentiation according to natural and cultural groups gives the shape and character to a city (Burgess [2]).

Socio-spatial structure is mainly determined by housing of residents, on the other hand availability of work becomes a key factor for functioning of cities in the actual world. The cities, or urban areas are being gradually abandoned by people but most of the jobs are created right in these areas. It is no coincidence that the socio-spatial differentiation of the city also affected the labor market, as the crisis of U.S. cities in the sixtieth of the 20th century, which was related to growth of poor ghettos with high rate of unemployment, s was one of the main reasons for creating a conception of labor markets segmentation (Cain [3]). Labor market segmentation is the process in which the separation of certain groups of professions or occupations is carried out, thus creating labor market segments, i.e. dividing the market into smaller internally homogeneous parts, which are, to a certain extent, independent on each other due to the existence of barriers. The barriers can have a geographic or professional character, they can depend on a relationship of an employee to the employer and in some cases, barrier can also be socio-demographic characteristics of the worker, such as race, gender or age. (Tvrdý [11])

The evolution of cities in the twentieth century was significantly influenced by the Athens Charter adopted in 1933, which defined the primary functions of a city (dwelling, work, recreation and transportation connecting all its parts), i.e. the aspects determining the form of a city.

OSTRAVA

Ostrava is an atypical city with a polycentric structure created under an unconventional historical development. The discovery of coal in 1763 determined the industrial character of Ostrava. The expansion of Ostrava happened within the years 1830 – 1880 when the agricultural villages barged into the industrial city. Coal utilization in modern metallurgy, energetic, chemical industry and transport supported economic development and stimulated the industrialization of unusual scale. The industrialization progressed so quickly that urbanization process was not able to adapt to this trend, falling behind the industrial interests. The expansion of mining brought residential fragmentation which slowed down the development of city-creating activities and resulted into dividing the city into three centers. Along with the expansion of industry and mining, the population rate increased notably. This phenomenon stimulated the development of the construction in the housing sector where, besides private entrepreneurs, also participated owners of the mines and other industrialists who had built and later rented apartments to workers and officials. These historical events, along with the construction of new residential areas for industry employees (Poruba, Hrabuvka, Vyskovice, Dubina,) still affect the actual character of the city. Housing and residential construction in the

area of Ostrava is now concentrated in peripheral rural municipalities and it is focusing on building new family houses. Thus, the actual density of residential units on the edge of the city becomes thicker.

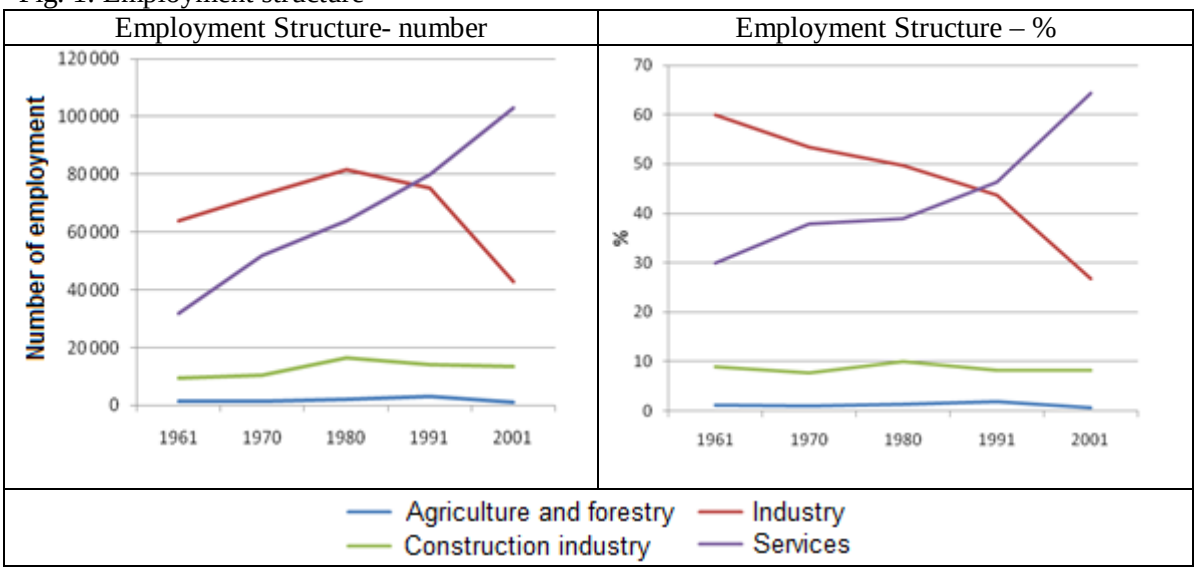
Transformation of Ostrava

Since 1989, the process of deindustrialization of Ostrava has accelerated, nevertheless, certain characteristics could be monitored already in the previous period. This process is called deindustrialization and affects all industrial cities (Glasgow, Dortmund). All the mines of Ostrava were filled up (mining was stopped in the city in 1994) and heavy industry was gradually decreasing. The loss of social and economic prestige under the market economy conditions had a profound impact on unilaterally oriented city and the region. A low rate of tertiary sector in Ostrava was the cause of the low rate of civic facilities in the city center. The construction of the housing estates was gradually ceased, it continued only in the southern part of Ostrava. Since 1991, there has also been a decline in population, which is primarily caused by migration losses. The exit of the population is caused by both economic reasons (lack of job offers), which is reflected in the exit of mainly young and educated people especially to Prague or abroad, and by environmental problems associated mainly with the quality of air, which supports the trend of suburbanization of middle-class population.
The impact of deindustrialization in Ostrava is not so dramatic, due to the reducing of employment rate of temporary residents, but also thanks to the process of re-industrialization (i.e. creating of jobs in the new industrial companies, which have come from abroad, or were created by updating of an obsolete technology). Actually, Ostrava begins to gain a character of agglomeration and one third of jobs from the Moravian-Silesian Region, is located there.

Process of Deindustrialization

In 1961 and 1970 more than half of the Ostrava population worked in industry, especially in the mining and processing coal. There was a long-term shift of jobs from industry to services in progress.
Since 1989 the restructuring in two of the largest industry employers has taken place and it has led to significant decline of jobs. In 1989 there were 61 thousand workers in total in both plants, but nowadays there are 13 thousand employees in total in both of them.
In 2001 the employment in industry declined to 26.8 % (in 1991 it was 43.7 %).

Fig. 1: Employment structure

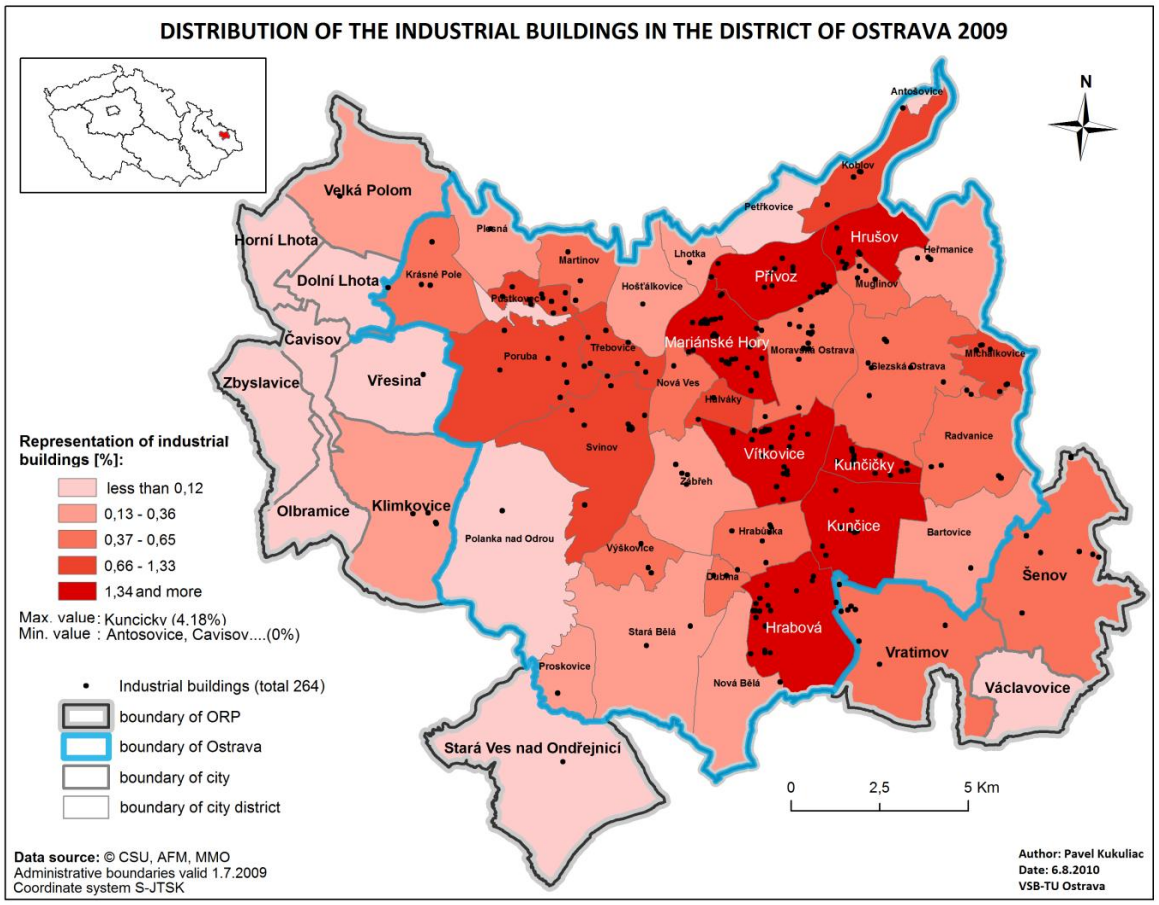


Data source: The Czech Statistical Office – Census

The Spatial Distribution of Economic Activities

Change in employment structure amended the distribution of economic activities in the city and it can prove that old industrial areas provide fewer jobs than before and the economic activity in the center is growing. Distribution of economic activities in industry may partially be identified through the spatial positioning of buildings in the city. Higher representation of industrial buildings is obvious in S-shaped stripe in the eastern part of the city (from Hrabova through Kuncice, Vitkovice, Marianske Hory, Privoz to Hrusov). See the following map.

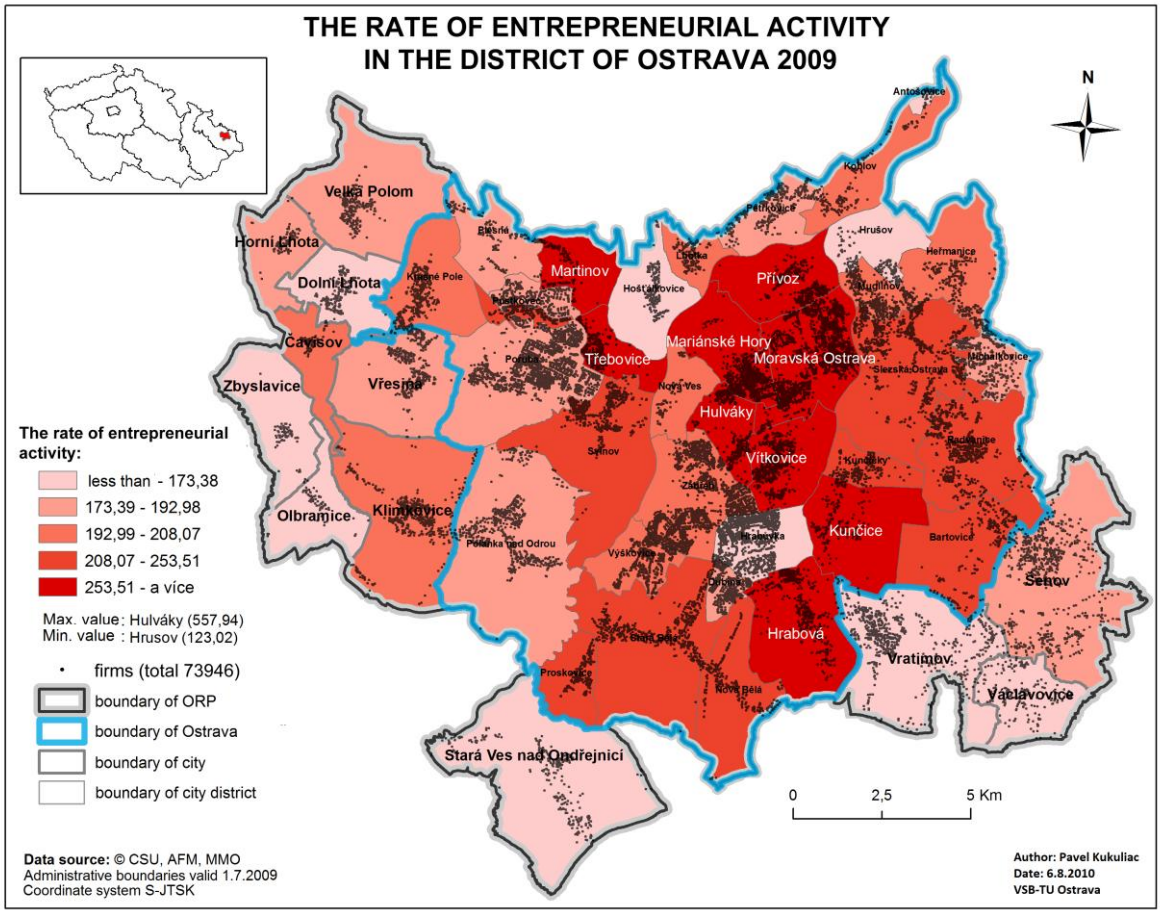
Fig. 2: Distribution of the Industrial Buildings in the District of Ostrava in 2009



Heavy industry has always played an important role in Ostrava. Its concentration in three main areas lying in the aforesaid S-shaped stripe (Kuncice, Vitkovice and Marianske Hory) is characteristic for the city. Light industry is evenly distributed al over the stripe, while in recent years there has been an evident and significant concentration of light industry enterprises in the southern part of that area, industrial zone Hrabova.

Focusing on the distribution of the entrepreneurs throughout the city, measured by the amount of entrepreneurial activity, we can compare a similar spatial structure. The S-shaped stripe does not include Hrusov, but newly there were added urban districts of Ostrava - Moravska Ostrava and Hulvaky. Among those urban districts with the higher rate of entrepreneurial activity, where the construction of houses has rapidly increased in the recent period, belong Trebovice and Martinov.

Fig. 3: The Rate of Enterpreneurial Activity in the District of Ostrava in 2009



Suburbanization of Economic Activities

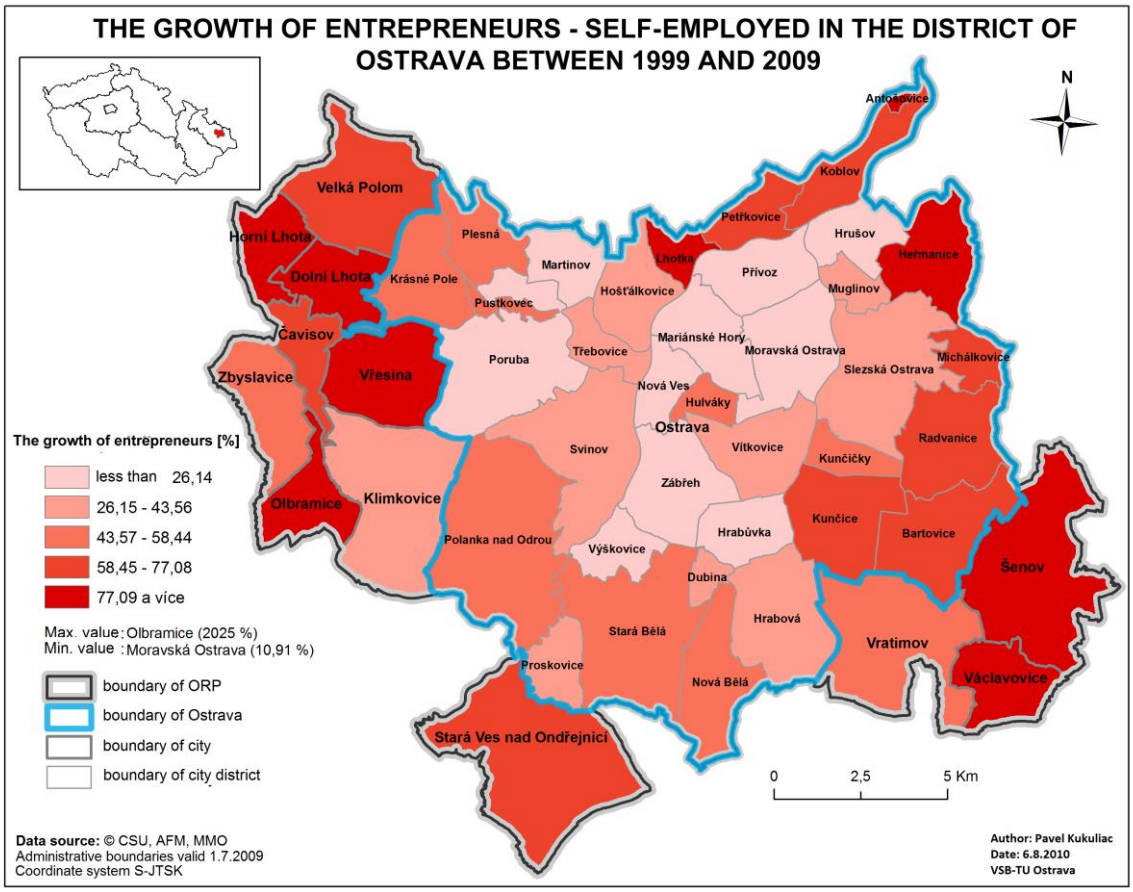
In Ostrava occurs, mainly in relation to the entry of foreign investors since the second half of the nineties, a significant transformation of the economic potential - First, there has been the decline in heavy industry, on the other hand there is a we can see a development of commercial-industrial zones along the main transport routes in suburban areas. It is called the suburbanization of economic activities, i.e. commercial suburbanization, when certain functions slowly move out of the city center to more peripheral locations or totally outside the city.

Commercial suburbanization in Ostrava is obvious, considering the concentration of retail services in large retail shopping centers located primarily in the suburbs, the development of new industrial zones (Hrabova, Mosnov) and the location of warehouses and technology parks.

Investors prefer locating their business on the „green field“. Preparation of the so-called greenfield sites is technically, financially and time more favorable than the intensive regeneration of brownfield sites, which, however, often represent high development potential. This situation results in the negative influence on the development of the territory, because on the one hand, there are more demands for using agricultural land and on the other hand, the number of unused areas of brownfields is growing.
Location of economic activities along the main routes brings along a growing demand for manpower exceeding its own resources results in decline in commuting to Ostrava, but simultaneously it is the reason of increased commuting out of the city, especially out of large housing estates. The trend of suburbanization of economic activity, an increased rate of

entrepreneurial activity, can also be perceptible in the peripheral parts of the city (Lhotka Petrkovice, Koblov, Hermanice) and adjacent areas (Vresina, Dolni Lhota, Horní Lhota).

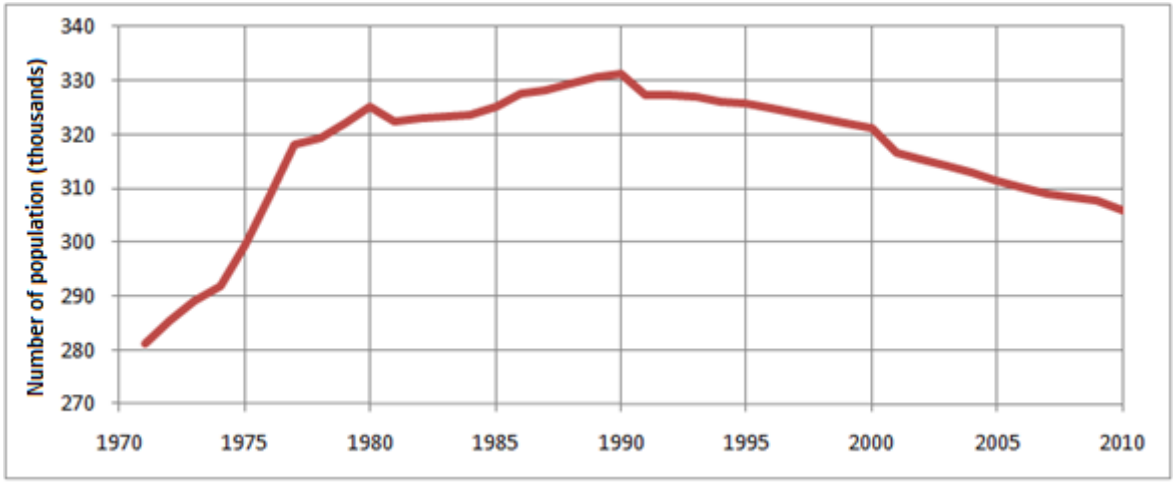
Fig. 4: The Growth of the Entrepreneurs – Self-employed in the District of Ostrava between 1999 and 2009



Population Progression

There was a significant period of population growth between 1869 and 1970. The nineteen-eighties were a period of stagnation for the city of Ostrava.
There were the most inhabitants in Ostrava in 1990, with the population of more than 331 thousand. Since this year, the city has been suffering from decline in its population, mainly because of massive closing of mines and heavy industry in the city and surrounding areas. In the nineteen- nineties Ostrava started losing in average 600 inhabitants per year, since the year 2000 the loss has doubled and the city lost annually almost 1,200 inhabitants. In 2010, the population dropped to 306 thousand. (Šotkovsky [9])

Fig. 5: Population Progression in Ostrava after 1970



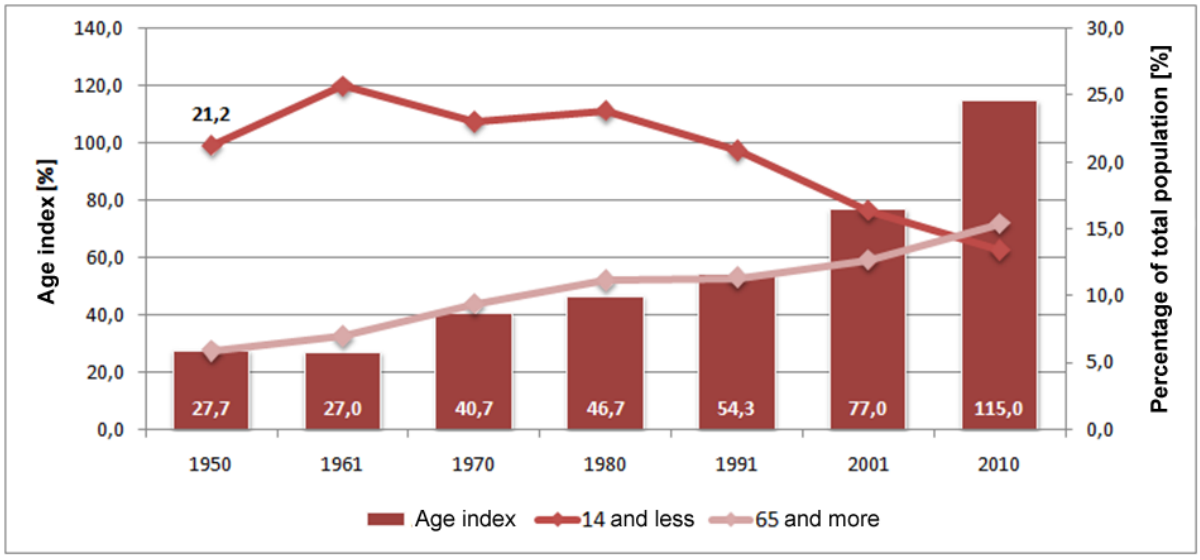
Data source: The Czech Statistical Office

Since 1991 until these days, the city of Ostrava has lost 10% of its population, especially because of the migration. Compared to other cities going under the process of deindustrialization, the situation is not so bad.

Age Structure of Population

Age structure of population has changed within last 60 years dramatically. After 1950 there was an increase in the child component of the population at the age of 0-14. In 1950 this stake represented one fifth of the total population in Ostrava. The situation stayed the same until Census in 1991, then a decrease of population within 0-14 years started and in 2001 the value was under 16 % of total population. At the beginning of 2010 the stake of early age within the population was only 13.5 %. On the other hand, the proportion of a post-productive part of the population (over 64 years) has been increasing continuously, after 2005 there was even a change in the representation of both age groups and the number of the inhabitants above 64 is now higher than the number of the children of age lower than 15.

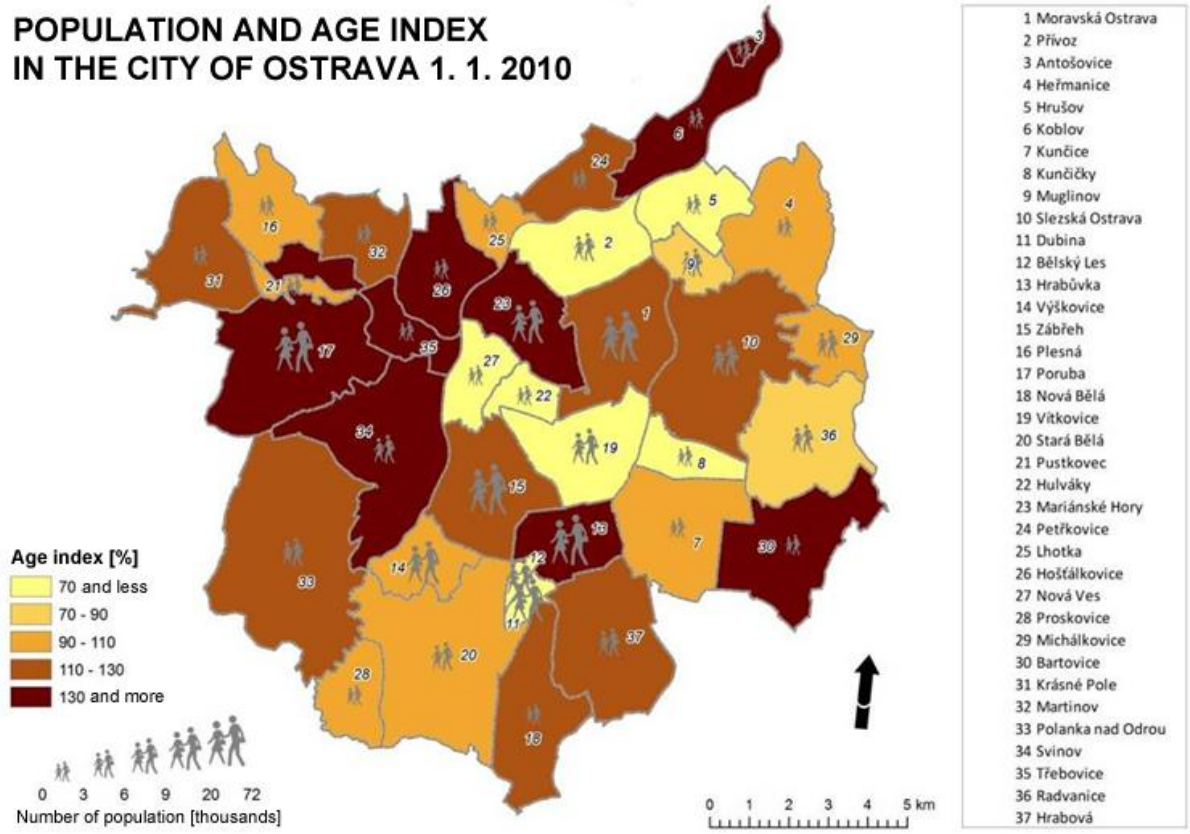
Fig. 6: Process of the Population Aging in Ostrava after 1950



Data source: The Czech Statistical Office

The elderly population is concentrated mainly in the west and northwest side of the city. It is determined by the deployment of residential buildings in the city. Housing estates built in the fifties are largely inhabited by the first inhabitants who have grown old there. Ostrava is threatened by the danger of the formation of „senior ghettos“, especially in localities of Poruba and Hrabuvka. The lowest age index is detectable in localities with high representation of gypsy people who have higher number of children than the general population. The neighborhood of Dubina is the very specific locality with the most concentrated housing estate in Ostrava and with younger population. Currently there is a big problem with increasing crime in Dubina.

Fig. 7: Process of Aging in Ostrava in 2010



Data source: MMO, made by IVAN

Social Risks in Ostrava

The analysis of the survey conducted in 2010 in Ostrava shows differences in spatial distribution of three social groups: entrepreneurs, unemployed and old age pensioners. The unemployed are those who are most spatially segregated. The survey also confirms that Ostrava is divided into the rich areas, the areas with medium levels of wealth and the poor localities. The highest differences in the spatial distribution are showed by groups with the highest and lowest incomes respectively, both residing in the different parts of the city. In the nineteen-sixties these groups were more "mixed" in the city area. (Musil, Ivan [6])

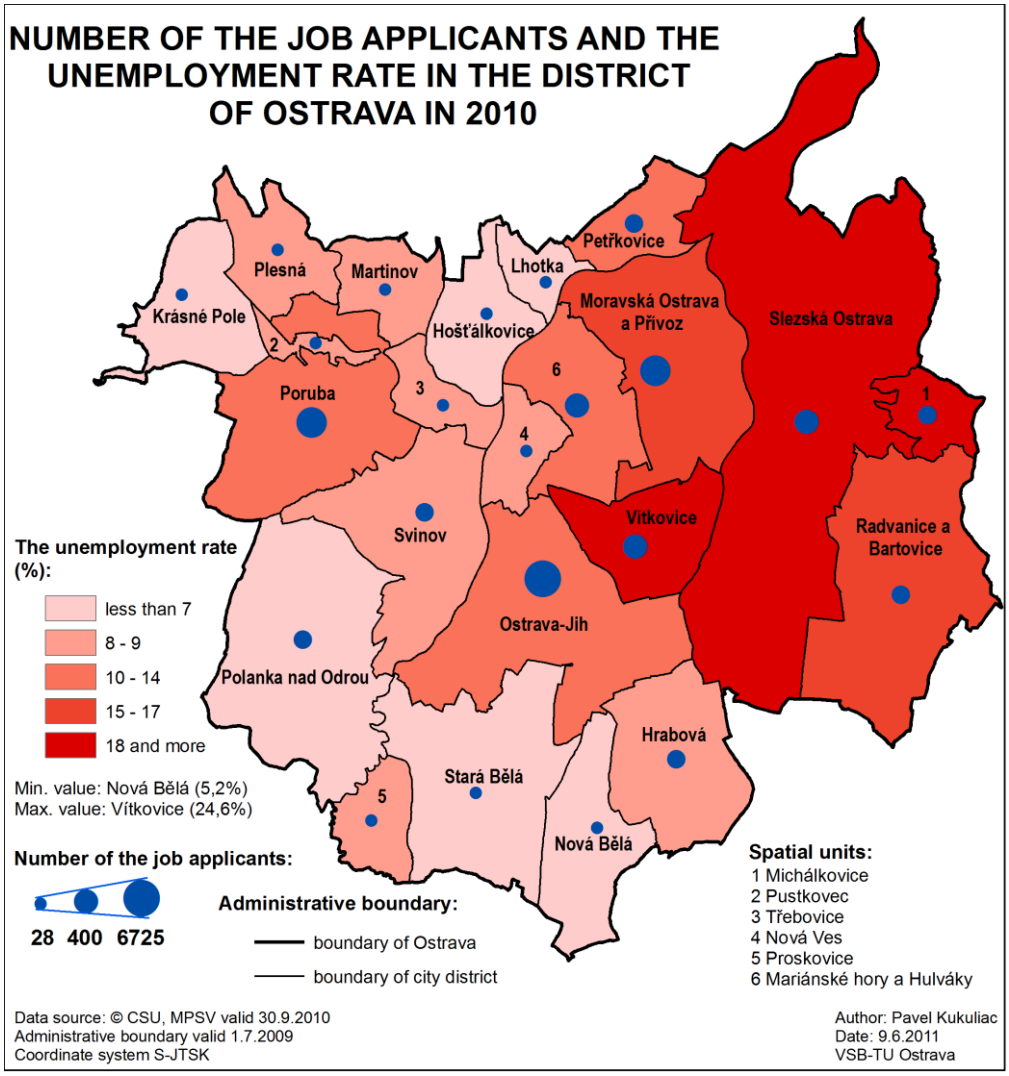
Often, the residential senior facilities are located close to the excluded areas in Ostrava which is usually explained by an unattractiveness of the site for housing construction before excluded area originates and that is why the area is chosen for the construction of the residential senior facilities.

There are the following indicators for the spatial representation of the social risks in the city of Ostrava: the unemployment and the number of job applicants, the debt for the housing rent, the system of assistance in material need, household incomes and housing costs. These indicators were chosen to provide picture on unemployment, the economic situation of population and dwelling situation. All the risk social groups (people with debt, families with low incomes, etc.) are threatened by homelessness that drives the all affected people beyond border to places from where it is very difficult to return to normal life.

Unemployment

The unemployment in the urban districts of Ostrava is distributed very unevenly. In the small peripheral urban districts we encounter relatively lower values.. On the other hand, the highest values of unemployment rate are detectable in the urban districts Vitkovice (25%), Silesian Ostrava (19%) and Michalkovice (18%). Other urban districts with higher unemployment rate are the Moravian Ostrava and Privoz, Radvanice and Bartovice, Marianske Hory and Hulvaky.

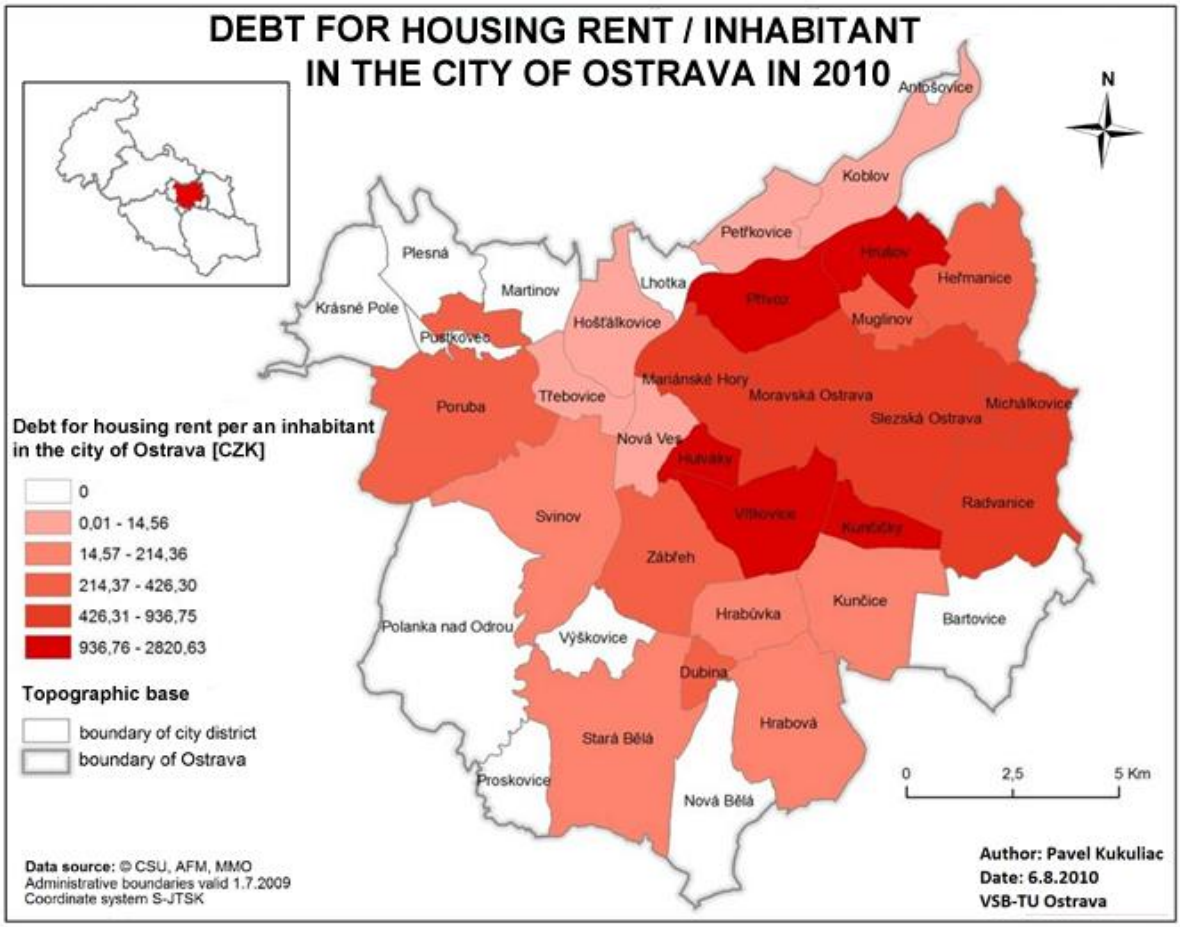
Fig. 8: Number of the Job Applicants and the Unemployment Rate in the District of Ostrava



A Debt for Housing Rent

A common social problem in the excluded areas is a high number of families in debt; they owe tens of thousands for rent and are objectively threatened by a court order to abandon the residential unit without any housing compensation. The most troubled urban districts with high numbers of people, who have debts for rent and services, are Hrusov, Hulvaky, Vitkovice and Kuncicky. In the urban district Ostrava-South, in the Jubilee Colony, due to revitalization of this urban district, these inhabitants have started moving to other locations, or urban districts, such as Cujkovova street in Zábreh, which may ultimately result in the transfer of problems and the emergence of new segregated sites.

Fig. 9: Debt for Housing Rent / Inhabitant in the City of Ostrava in 2010



The System of Assistance in Material Need (Benefits in Material Need)

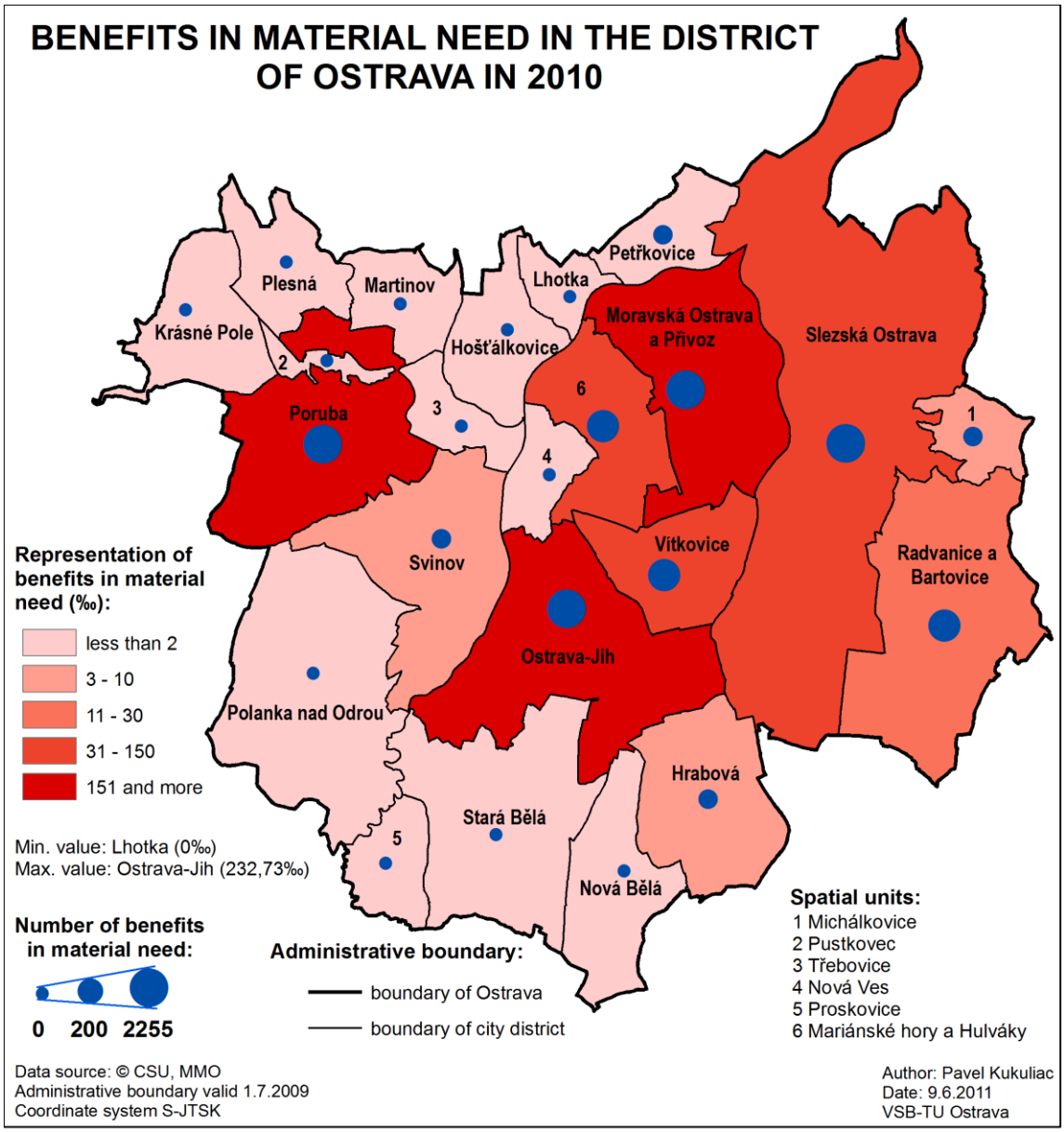
Another indicator for the district assessment is the number of benefits under the system of assistance in material need, which is regulated by Act No. 111/2006 Coll. on assistance in material need, as amended. As a modern system to assist those with insufficient income; it motivates them to strive actively in order to secure the resources they need to meet their living requirements. It is one of the means applied by the Czech Republic to reduce social exclusion. It is based on the principle that "all people who work must be better off than those who are out of work or who avoid work".

Benefits of assistance in material need are:

- ► Allowance for Living

► Supplement for Housing
► Extraordinary Immediate Assistance

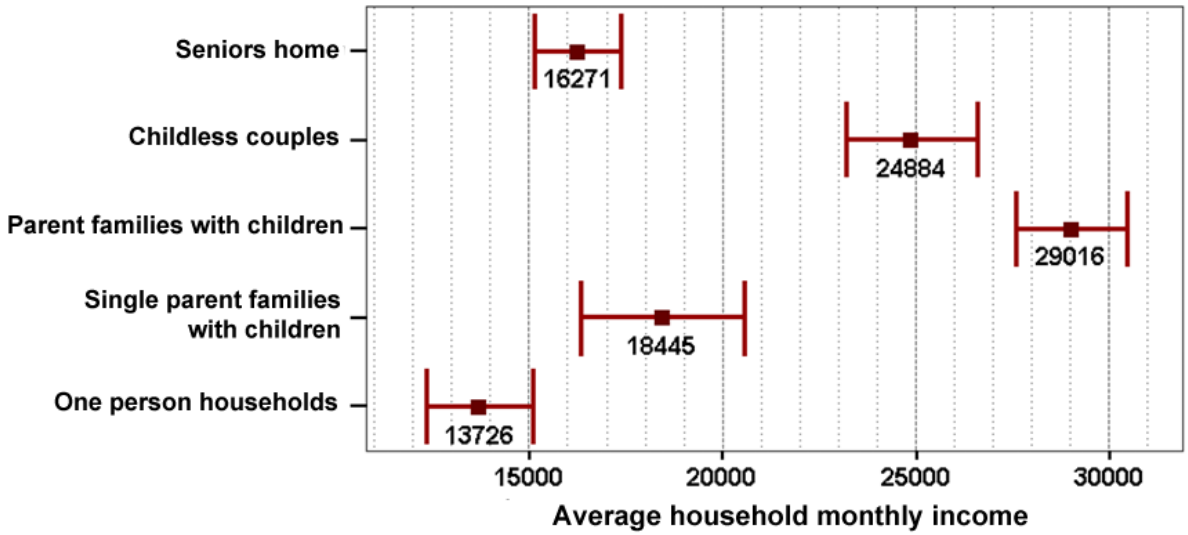
Fig. 10: Benefits in Material Need in the District of Ostrava in 2010



Household Incomes and Housing Costs

The analyses were performed on data originating from the research "Industrial town in a postindustrial society", which was carried out in Ostrava in 2010. [1]
The following chart shows the average household income of sample households. Outputs are in Czech crowns (CZK), where approximately 24 CZK = 1 EUR. This is a point estimate of the actual average of the basic population, ie all the households of that type in Ostrava with the 95% confidence intervals.

Fig. 11: Average Household Monthly Income in CZK

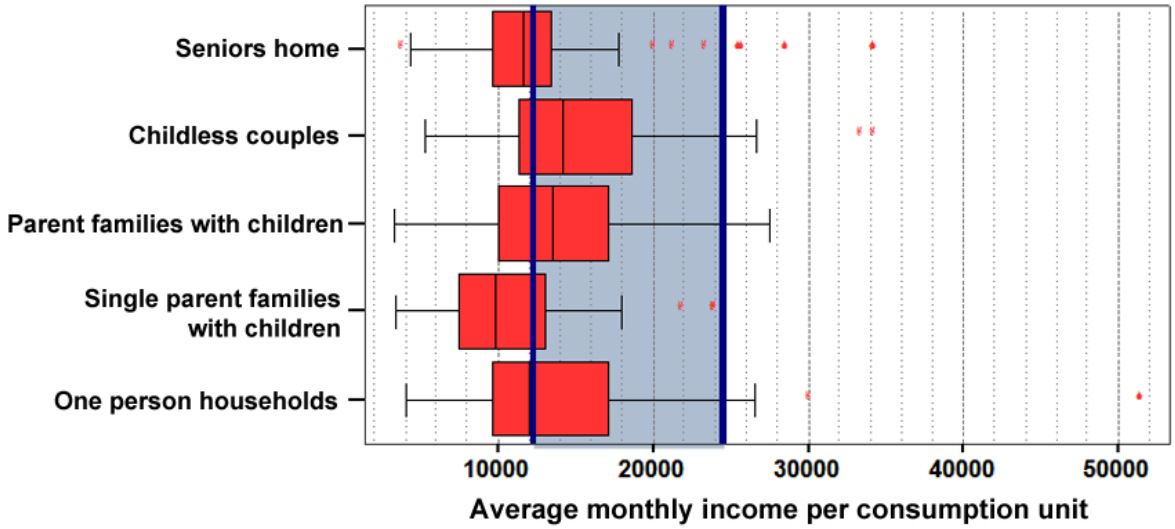


Data source: OSU, the Survey - "The Industrial City in a Post-Industrial Society", Ostrava 2010

The middle classes in Ostrava, contrary to other cities, live a panel houses, and they prefer this type of housing. The seniors prefer living on housing estates either because of good accessibility. The middle classes are according to their incomes on the lower boundary of the middle class range but there is a high probability of their fall into the lower classes in case of some changes of their social situation because they do not have any reserves.
The survey showed that 58% of respondents belonged to the middle class, the lower class included 32.2% of respondents and only 9.8% of households were in the higher class.

[1] This is a representative set of 900 households in the city of Ostrava. Probability sample was done from the list of addresses in the selected areas. Interview with the head of household was conducted using CAPI (Computer Assisted Personal Interviewing). The length of the interview was approximately 45 minutes, there were used the auxiliary cards to questioning. This card had allowed conducting the interview effectively, in terms of time and with respect to validity and reliability of responses. Data collection was conducted from November 2009 to February 2010.

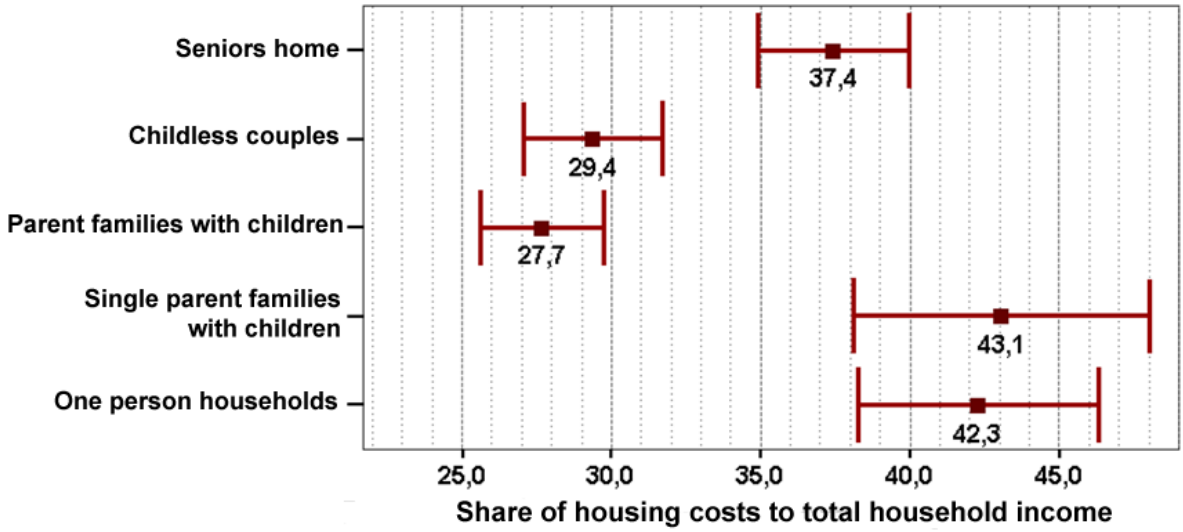
Fig. 12: Average Monthly Income Per Consumption Unit in CZK



Data source: OSU, the Survey - "The Industrial City in a Post-Industrial Society", Ostrava 2010

The area limited by blue lines shows the middle class space according to the income per consumption unit. All groups are in average on lower interval of the middle class. The childless couples are in the best position.

Fig. 13: Share of Average Housing Costs on Household Incomes in %



Data source: OSU, the Survey - "The Industrial City in a Post-Industrial Society", Ostrava 2010

The figure 13 shows which proportion from the net monthly income cover the cost of housing. There are again the averages from the selecting file considered, therefore to these averages were determined the interval estimates for the averages of basic set.

Process of deindustrialization and reindustrialization is going to continue in Ostrava. We can expect increase of employment in services but Ostrava will remain an industrial city. Social problems will rise and it will be visible on the growing unemployment with unequal spatial impacts. All social problems lead to homelessness at first. On 1st January 2011, regulation of the housing rent rates in the area of Ostrava has ceased to exist and we can expect an increase of the number of housing rent debtors and people dependent to the benefits in material need.

The future development of indicators depends on the social politics of the state and future reforms. We can expect the increase of social problems in Ostrava in a larger scale than before. The urban discontinuity of Ostrava contributes to the formation of socially excluded localities, mainly in northern and eastern parts of the city.

CONCLUSION

New social risks increase the pressure on the management of municipalities and counties (regional management) during planning of the future development of the region and its sustainability. It is necessary to increase the efficiency in the function of local public administration and public services, to determine priorities, take into account social conditions and focus on communication with the public.

Currently, the long-term strategies for cities should be updated more frequently to be able to develop continuously and respond to the current situation. Further development of cities must be carried out in accordance with the European Charter for regional / spatial planning, which was adopted in 1984 and which states that the objectives of regional / spatial planning requires using new criteria for targeting and use of technological development in accordance with economic and social needs and it is necessary to critically review the principles of spatial organization and eliminate their influence by short-term economic plans, temporarily inconsiderable towards social, cultural and environmental requirements.

In order to retain the basic city functions, especially in housing and work, it is currently necessary to implement measures in both areas. In the area of housing, there is a need to provide sufficient opportunity to reside for middle and lower social classes in the labour market to achieve the diversification of employing subjects by planning ahead in the region. It should be noted that the participants in regional development may not be, as before, directly connected with the space in which it operates, but the location of their businesses is often outside the region or country.

New social risks will be a central topic within the planning of sustainable urban development and in case we do not to pay attention to it, we can experience an extensive increase in homelessness, crime rate and socio-pathological phenomena. The crime rate is currently growing in Ostrava, however it is only the visible tip of an iceberg.
Interactive planning makes it possible to accept early measures and it will help to target financial resources without unnecessary losses. To percept the negative trends in their beginning before they broke out into the crisis situation, reduces the costs spent on their solutions.

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THE ROLE OF ICTS IN REGIONAL TOURIST DEVELOPMENT

Katsoni Vicky, MBA, Ph.D,
Lecturer, Dept. of Hospitality and Tourism Management,
School of Business and Economics,TEI of Athens,
Ag.Spyridonos and Milou 1, Aigaleo Campus,
Athens 122 10 - Greece, E-mail:katsoniv@teiath.gr

Abstract
Advances in electronic-based information and communication technologies (ICTs) are rapidly transforming social and economic conditions across the globe. As the cost of ICTs continues to fall and their capabilities increase, their applications are becoming even more vital to all sectors of the economy and society. Developments and continued growth in ICT and its application in the tourism sector have empowered the tourism consumer and are driving significant change within the tourism industry. The increasing spread and uses of ICT create new opportunities for countries to harness these technologies and services to promote social and economic development and human justice. Given the growing importance of technology in all organizational functions and areas, organizations can either adapt to technological changes or will have to face a decline in their organizational viability. This article is concerned with the administration of ICT in tourism regional planning and the concept of organizational change. The paper explores areas of ICT literacy, and concludes that a number of challenges must be addressed if the full benefit of the use and application of ICT in tourism. The article draws the attention of all the stakeholders in the tourism sector to the need to support and promote ICT as the most effective tool for tourism regional planning, tourist information access and dissemination as well as the tourism regional development participants need for organizational change.

Key words: ICT, tourism regional planning, DMOs, organizational change

1. Introduction

Advances in electronic-based information and communication technologies (ICTs) are rapidly transforming social and economic conditions across the globe. As the cost of ICTs continues to fall and their capabilities increase, their applications are becoming even more vital to all sectors of the economy and society. Developments and continued growth in ICTs and their application in the tourism sector have empowered the tourism consumer and are driving significant changes within the tourism industry (Werthner & Klein, 1999a). Mansell (1999) points out that the increasing diffusion of ICTs creates new opportunities for low-income countries to promote not only social and economic development but also social justice. Given the growing importance of technology in all organizational functions and areas, organizations can either adapt to technological changes or face a decline in their organizational viability.

Despite the increasing importance of ICTS for the development of the world regions, the exact nature and scale of the challenges set for policy making in the tourist sector still remains unclear. A number of studies in the tourism and ICTs literature have discussed the significance of the Internet as a communication channel and the variables explaining online information search and patterns of the tourist purchasing behaviour (Kah, Vogt, and MacKay, 2008; Buhalis and Law, 2008; Pan and Fesenmaier, 2006; Morrison et al., 1999; Bonn, Furr, and Susskind, 1999; Weber and Roehl, 1999). Other studies have investigated the spread of innovation in tourism businesses and DMOs and the internal and external factors explaining ICTs adoption and usage (Huh et al., 2009; Garkavenko and Milne, 2008; Hornby, 2004; Gretzel, Yuan, and Fesenmaier, 2000; Collins, Buhalis, and Peters, 2003; Paraskevas and Buhalis, 2002; van der Borg et al., 1997). Other researchers emphasise the effects of inequalities in access, use, and involvement with ICTs on the tourism system at both global and local levels (Minghetti and Buhalis, 2010).

The purpose of this article is to address the role of ICTs in regional tourism development and to bring a critical commentary in order to challenge policy makers to engage in more appropriate sets of policy orientations

2. Tourism and Regional Development

Tourism is a global industry (Wahab and Cooper, 2001), and although the biggest part of international tourist flow is still generated by and between developed countries and regions, there is a strong center–periphery relationship as many emerging destinations are located in peripheral or less developed areas (Scheyvens, 2002). Even within developed countries, tourists generally leave rich metropolitan areas toward popular resorts in peripheral regions (e.g., beaches and ski resorts, small art cities). All these peripheral locations are often less accessible from the main tourist-generating regions, both physically and electronically (Nash and Martin, 2003; Buhalis, 2000; Hall and Page, 2006; Hohl and Tisdell, 1995; Minghetti and Buhalis, 2010). However, the evolution of tourism demand, the emergence of a more skilled and demanding traveller who wishes to explore new destinations and live new experiences, supported by transport developments (low-cost carriers, fast trains, and the proliferation of private cars) and the Internet, make all these destinations close to their potential markets (Minghetti and Buhalis, 2010).

In recent decades the region has been seen to be an increasingly vital component in the global–local context of development (Storper, 1997, p.3). Through a mixture of networks, notions of regions stimulating economic growth and cultural/political attributes have dominated much of the social science discourse on economic development since the early 1980s (Amin, 1989; Sayer, 1995). In tourism the region has become seen as an important driving force in linking disparate segments of the industry and enabling destination networks to form (Milne, 1998). It is also argued that many of the natural and cultural resources upon which the industry depends are regional in nature – ranging from complex ecosystems through to patterns of culture and economic identity (Milne and Ateljevic, 2001).

The globalization of the economy is a continuous challenge for the spatially orientated regional innovation systems. Drawing on Amin's (2002) spatial ontology for a globalized world, it is emphasized that the nation, and region for that matter, are constituted through a topology of overlapping near and far connections and relations (p. 386) that are 'produced through practises and relations of different spatial stretch and duration' (p. 389). Thus, a nation and region together constitute a form of 'place making, through the myriad network practices and memoralisations that mark the sites we choose to call places' (Amin 2002, p.392; 2004, p.40) and geographical demarcation is becoming highly malleable and uncertain. Sectoral innovation systems are based on the idea that different industries and sectors, such as tourism, operate under different knowledge, regulatory and technology regimes, and that these are characterized by particular combinations of opportunity, through mobilization of their specific constellation of regimes (Hjalager, 2010). These driving forces may be highly integrated into national or even regional dynamics, but may also transcend spatial boundaries. (Hjalager, 2010)

A globalized economy raises new challenges to tourism regional development. Because of the concentration of people and political, economic, and social functions, regions are starting to be thought of and designed as active components of a "globalized" world. (Santinha and Castro, 2010). Regions assemble several types of social and institutional networks, whose existence and function depend on some specific conditions, namely: 1) the existence of a telecommunications infrastructure capable of supporting strong economic activity; 2) the availability of qualified human resources; 3) the possibility of easily establishing personal contacts; 4) the existence of working relationships among political, administrative, religious, and cultural sectors; 5) the availability of more public and private services; and 6) the possibility of developing a strong and regular personal and institutional interaction which, in turn, promotes territorial proximity. (Santinha and Castro, 2010).

The new paradigm proposes a different view from the classical monocentric models, underlying the importance of developing a balanced and polycentric settlement system of the regional structure. The idea, initially supported by the European Spatial Development Perspective (CEC, 1999) and more recently by the Territorial Agenda (CEC, 2007), is that, by promoting the establishment of cooperation networks between tourism systems of certain proximity (underpinning the existing scale benefits), it is possible to overcome some of the weaknesses affecting the less favoured and peripheral areas.

As a means to an end, the importance of ICTs increases in proportion with both the network of contacts and the quantity and complexity of the information exchange between those networks, either from the individual or institutional viewpoint. In this light, ICTs help in the creation of immaterial networks both within regions (internal) and between these and other places (external), an idea reinforced by Castells in his well-known concept of the "space of flows"(Santinha and Castro, 2010). Such arguments can be illustrated by two examples: the use of ICT in the provision of services of general interest to citizens, such as health (e.g., telemedicine), education, culture, justice, and mobility, engendering opportunities for social equity and territorial cohesion and the use of ICT by tourism services to diminish firms' internal bureaucracies and times of response, to facilitate a variety of contacts, to reduce transaction costs, and to improve tourism production and marketing processes.

Tourists and destinations within developed countries and between developed and developing countries suffer from a multiplicity of technological divides (motivational, physical, informational, etc.), which lead to different levels of digital exclusion(Minghetti and Buhalis, 2010). The OECD (2003, p.4) defines digital divide as "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both opportunities to access ICTs and the use of the Internet for a wide variety of activities". The geographical evolution of tourism follows a similar development of the global and domestic digital divide. More than 50% of the international tourism flows and receipts is concentrated in the developed areas of the world (Europe, with the exception of Eastern European countries, North America, and Oceania) and are mostly generated by intraregional tourism (especially within Europe; UNWTO 2008). The rest of the international traffic is determined by trips from the northwest to the southeast regions, made by tourists coming mainly from Western developed countries who visit less developed regions (Minghetti and Buhalis, 2010).

Recent studies show that high-tech tourists and regions or enterprises meet in an electronic marketplace and communicate directly through electronic channels, eliminating the need for spatial concentration of production and distribution, but in contrast, medium- and low-digital-access tourists and destinations still depend on analogue transactions and physical intermediaries to develop their vacation planning process and to transact (Minghetti and Buhalis, 2010). Thus, digital inclusion or exclusion is expected to have a major impact on tourism competitiveness, as it creates and/or deepens economic and social disparities between tourists and destinations. Analyzing these effects implies integrating macro and micro perspectives, taking into account the environmental (technical, political, economic, etc.) conditions in which tourism markets, businesses, and organizations develop and operate as well as the structural, cultural, and motivational aspects driving their attitudes and decision-making processes(Minghetti and Buhalis, 2010).

3. ICTs Integration into Destination Marketing Organizations (DMOs) Tourism Strategy

Given that the development of ICTs infrastructure and use has positive effects on economic growth and that tourism often acts as a driver of economic and social development, especially in developing areas, the exploitation of technology is critical for the tourism industry to achieve competitive advantage and to provide economic benefits for their locality, by reducing the asymmetric distribution of economic, political, and cultural capital globally. The tourism industry can be seen as one of the first business sectors where business functions are almost exclusively using information and communications technologies (ICTs) (Garzotto et al., 2004).

Over the last decade, investments in ICT in the tourism and hospitality industry have substantially increased. The challenge for the tourism operator is the provision of accurate, localised data,

increasingly via ICT, whilst maintaining a trust relationship with the tourist. Developing destinations face increasing disadvantages in establishing links with their clientele, promoting their resources, distributing their products, and collaborating with industry partners, especially in high- and upper-digital access markets. This has considerable effects, as not only do they fail to fulfil their full potential and then to gain sufficient economic and socio cultural benefits but also they are unable to build their resources and expertise in order to improve their competitiveness and ensure their future prosperity.

The benefits from ICTs, particularly the Internet, for tourism are substantial. The Internet is especially relevant to tourism since it enables knowledge about the consumer or tourist to be gathered, as well as vice versa. Online resources are proliferating and fewer and fewer components of tourism products are willing to risk being invisible in cyberspace (Milne and Ateljevic, 2001). At the same time, numerous governments are implementing policy frameworks to foster the adoption of ICTs by the industry, and tourists everywhere are beginning to see the potential for new technologies to improve their ability to make travel plans (Sheldon, 1997; Smith & Jenner, 1998).

Online technologies within the tourism industry have significantly impacted on communications, transactions and relationships between the various industry operators and with the customer, as well as between regulators and operators (Galloway, Mochrie and Deakins, 2004; Sharma, Carson and De Lacy, 2000; Sheldon, 1998; Werthner and Klein, 1999a; World Tourism Association, 1999) According to Buhalis, (2002), the internet offers the tourism industry opportunities to provide wider, deeper, and more customised offerings to a greater number of clients, all with greater interactivity, at lower costs, and without substantially altering the quality of information delivered.

Web 2.0 brings a second generation of opportunities for collaboration and information sharing based on web-based communities and hosted services. For tourism the benefits include enhanced information sharing between consumers and between business and consumers. The Web gives tourist firms and organisations the ability to reach highly motivated customers with information-rich messages at a negligible cost. Nevertheless, competitive advantage on the Internet will not be realized by applying existing marketing models but, rather, by developing innovative concepts. Integrated approaches that build on the advantages and capabilities of technology need to be translated into concrete innovative marketing actions. The Internet, Dogac, et al (2004) argues, enhances the level of collaboration between tourist operators and brings about greater levels of interoperability with internal and external applications, previously available to technologically advanced tourism stakeholders via proprietary systems.

ICTs have the potential to upgrade the quality of life by providing new tools for better access to information, knowledge management as well as sharing. A shift of power to the buyer is also evident in that the modern day tourist has ready access to the World Wide Web and a store of information. The tourist consumer has more choice when buying travel products also because of the options provided by on-line travel agents and direct marketing by airlines. Sterne, (1997) adds getting management support, assigning responsibilities, establishing procedures, and setting standards against which the efforts are measured to this list.

In tourism, the ability of destination organizations and businesses to select, to aggregate, and to distribute information to the right consumer at the right time and in the right place is critical. ICT-skilled tourism enterprises and destination marketing organizations (DMOs) have huge opportunities to apply ICTs for communicating their offering, enhancing their visibility on the market and strengthening their competitiveness (Gretzel, Yuan, and Fesenmaier 2000; Buhalis 1998). Design, content, and production access can be achieved through appropriate training, which stimulates the development of specific skills and also trigger staff behavioural intention to use ICTs. In addition, institutional and governmental incentives can support businesses' decision to invest in innovative tools and applications.

The integration of IT into the organizational fabric of the destination marketing organization (DMO) is an important key to success. It is difficult for most DMOs, however, to keep pace with the evolution of new technologies, the emergence of innovative advertising strategies, the changes in the consumer market, and the growing competition due to increasing globalization. They often have to struggle with limited financial and human resources, a lack of technological expertise, and time constraints. The question of how to move from the current way of doing business to one that is responsive to these changes becomes a vital concern.

Many countries are having a two-tiered structure (Werthner, 1999) in which Tier 1 is made of a small number of large, often global, players, and Tier 2 is made up of a much larger collection of small and medium tourism enterprises (SMTEs). Larger players are well versed in current management practices, including information technology applications. Large enterprises are keen on facilitating the uptake of online technologies because they have a critical mass of infrastructure, personnel, and related experience to undertake this transition. These enterprises are generally high up the distribution chain and undertake a large percentage of their communication with other businesses in the chain; hence, they are primarily concerned with business-to-business applications for online technologies. They involve information exchange, inventory management, and alliance facilitation, like for example, association with Travelport, Sabre and Amadeus GDSs.

In contrast, Tier 2 enterprises have mostly limited technological infrastructure and financial power, the level of marketing know-how is generally low, and direct access to the market is limited and they tend to be located in regional and rural areas. Tourism businesses (especially small to medium enterprises (SMEs)) and DMOs with low use of ICTs are often cut off from electronic distribution channels and eCommerce (Buhalis and Kaldis, 2008; Collins, Buhalis, and Peters, 2003). Tourism destinations and SMEs in peripheral, low digital- access regions are even more disadvantaged than their colleagues located in developed countries (Buhalis, 1998, 2003; UNCTAD 2004). Not only are they excluded from the considerable set of their prospective customers but they also struggle for access to expertise, capital, and technologies that could enable them to promote their products and develop suitable tools for attracting new markets (Minghetti and Buhalis, 2010). Their online presence often reflects the level of ICTs deployment in their own location rather than the expected level of use by their clientele, which often operates in high-ICT regions. These destinations and businesses have a high dependence on external traditional intermediaries (i.e., tour operators and incoming agents) to promote and sell their products (Bastakis, Buhalis, and Butler, 2004; Buhalis, 2000).

According to Warschauser (2004), "What is most important about ICTs is not so much the availability of a computing device or the Internet line, but rather people's ability to make use of that device and line to engage in meaningful social practices." Awareness of the functionality of the Internet, as well as resources and expertise necessary to take advantage of this functionality may be lacking, especially with respect to SMTEs. The nature of the Web provides new opportunities but also poses serious threats, especially to small tourism organizations. Naisbitt, (1994) refers to this phenomenon as the "global paradox." This ambiguous situation calls for risk taking and at the same time requires careful management. It is not clear that individual SMTEs are able to use this intelligence, or recognise its value. Information potentially available therefore is lost. Also infrastructure issues, such as access to broadband, may impede its use. Disparities in possessing, controlling, processing, communicating, and distributing information have a greater impact on tourism production and consumption than in other economic sectors. These disparities are determined by both the technological tools available to provide and distribute accurate information widely, and the ability to use these tools effectively(Minghetti and Buhalis, 2010).

Paradoxically, as technology progresses, the gap between the "ICTs – included" and "the ICTs-excluded" widens, further jeopardizing the social, cultural, and economic development at the global level. Highly developed tourism markets and destinations that systematically use and benefit from advanced computer-based and Internet applications will continue to strengthen their position and affect the evolution of the sector. Conversely, others who are able to use basic or simple electronic applications, or those that do not use them at all, will stay behind and be excluded from the first tear of

the global tourism community. They will inevitably be more dependent on offline and online tour operators and travel agencies for putting their offerings forward to the marketplace.

Digital divide may lead to digital and social exclusion—when individuals, communities, and organizations are unable to fully participate in the network society and determine their own destiny (Selwyn 2004). For tourists and destinations, this means being unable to participate in the emerging electronic market and benefit from arising opportunities. Recent studies carried out in Thailand (Vatanasakdakul, Tibben and Cooper, 2004) and in the tourism sector (Cosh and Assenov, 2007) have shown that although the government has funded projects to improve ICTs infrastructure and widen Internet and e-Commerce functionalities, their use in firms is still very limited. The reason is that immediate social and cultural expectations of e-Commerce users in the country are not met by current technologies.

In addition, the high dependency of the local industry on external trade operators and, in the case of tourism, from intermediaries located in highly developed markets, does not give incentives to Thai travel agents to modify their business model. Local agencies generally show a lack of knowledge of e-Commerce and poor Web design capabilities (content management, security issues, etc.). Many of them also feel "that the online channel is already overpopulated, while they are already busy in satisfying physical customers" (Cosh and Assenov, 2007, p. 499). Consequently, digital divide initiatives should be combined with development policies for tourism in order to support the welfare of destinations.

Although the diffusion of ICTs has a great potential for ensuring sustainable global and tourism development, especially in less developed areas (UNCTAD, 2004), disparities still exist in access, skills, use of ICTs, and services. Many infrastructural and above all knowledge barriers have to be overcome therefore to support a wide use. This also applies to the developed regions of the world, which face the challenge of ensuring that everybody has the opportunity to benefit from Internet services (Minghetti and Buhalis, 2010).

4. Use of Innovation Systems and ICTs in Regional Tourist Development

Over the past two decades, inquiry into regional economic development processes has increasingly looked towards determinants in national, regional or sectoral innovation systems (Hjalager, 2010). Competition and globalization are factors that challenge tourism enterprises and destinations to develop and introduce new products, services and concepts at an increased speed (Hjalager, 2010). Keeping pace with new customer demands under cost and other constraints requires a continuous innovative response.

Although providing a more concise understanding of the determinants, mechanisms and outcomes of economic action, the innovation systems approach has been brought into tourism research only to a limited extent (Sundbo and Gallouj, 2000; Hjalager et al., 2008). Dynamic national or regional environments are not cut off from the forces of globalization. Johnson and Lundvall, (2000) argue that sustainable national and regional innovation systems are those able to enhance institutional learning and build social capital on a continual basis. In the context of globalization, innovation emerges as a key factor for acquiring competitive advantages. Innovation has been a stout subject in a wide range of literature, usually related to the development of a productive system and knowledge distribution (Lundvall, 1992; Lundvall and Borras, 1997; Nelson, 1993).

In the modern economy, knowledge is commonly recognized as the most important factor in increasing the competition among firms and regions. If one considers knowledge as the organization of information designed to provide an answer to a question or solve a certain problem, information can be seen as the fuel of knowledge. Innovation is a continuous learning process because the strategic value of information, changes in time; therefore a regular knowledge update is important. It is also a highly coordinated process, because it demands the interaction of several actors, the selective acquisition of information, and the creation of networks in an attempt to produce value through the use

and exchange of information throughout several activities inherent to the innovation process (Santinha and Castro, 2010).
The innovation process thus demands a selective collection, use, and dissemination of information, as well as an intensive interaction among multiple actors. And so, innovation would seem to call for a systematic reorganization of how society and economies function, aiming to enhance the creation and development of social and economic networks, supported by trust and structured around the sharing of common interests, languages, and knowledge. Being able to integrate global knowledge and networks into local innovative processes is of crucial importance, and the existence of an absorptive capacity and learning atmosphere is therefore needed in a contemporary innovation system (Asheim and Isaksen, 2002).

ICTs are driving the innovation process by reducing distance and time constraints in inter-personal and inter-institutional contacts and by reducing the complexity of exchanging and acquiring information (Santinha, Castro, and Sobral, 2006). However, while it is important to acknowledge their important role, these technologies only play a part in enabling the many processes and relationships that characterize the patterns of socioeconomic development. An efficient use of ICT-based services demands the existence of dense immaterial networks, related to social interactions that occur within and between places and socioeconomic activities, allowing in turn the constant production of innovation.

Innovative solutions are the key to the promotion of tourist regional development. Rapid developments in mobile telephony, cable, fibre-optics, and wireless applications as well as in the field of computer hardware and software products appear to offer excellent opportunities to tourism development (Santinha and Castro, 2010; Batlle et al., 2009; Bell, 2008; Van der Meer and Van Winden, 2003). Numerous empirical studies of innovation systems and industrial districts indicate advantages in terms of adaptability and viability. As a consequence, single enterprises, when interlinked to collaborative relations, tend to be more shielded from the exposure to immediate competition (Markusen, 1996). However, the individual and collaborative actors in innovation systems need to address external pressures continuously, such as, for example, shifts in technological paradigms or changed regulatory environments (Hjalager, 2010). If innovations systems slide into a 'comfort' zone and lose their ability for rapid catch-up, their vulnerability may increase (OECD 2006). This perspective is perhaps most important in environments with many small enterprises, as is the case in tourism (Hjalager, 2010).

In the newly evolving production environment the most efficient relationships are based on the creation of alliances, partnerships and networks among firms (Castells, 2004). Destination communities and regions rely on network formation (between businesses, between the private and public sectors) for the development of competitive tourist products. These can be attained through a number of mechanisms including mutual dependency and adaptation, discussion and negotiation, honesty, long-term commitment, quality control and shared knowledge. Networks may also be created and enhanced by the emergence of new information and communication technologies (ICTs). Virtual networks, which can be defined as permeable structures without physical borders of separation from the environment, comprising a multiplicity of autonomous, interdependent, and self-organizing actors that rely on the internet infrastructure to integrate and exchange value, are an example of these new concepts (Romano, Eliva and Passiante, 2001; Pollock, 1998).

Tourist places have often been treated as more or less territorially bounded destinations with the focus laid on organizational and marketing strategies. The destination is seen as a 'container' of attractions and various facilities such as transport, accommodations and food and hence the tourism experience (Tinsley and Lynch, 2001). As a result, the complexities of tourism practices disappear behind dualistic categorizations; on the one hand are tourists, on the other tourist organizers working within destinations. However, the territorial model of industrial districts, where tourism networks are made of relations between fixed nodes in one-dimensional time–space and resting on the physical proximity of homogeneous actors, does not seem to be successfully implemented in tourism. (Bærenholdt et al., 2004). Studies based on this understanding of networks have shown that tourism industries are rather weak in networking, at least in the same way as traditional production industries (Hjalager, 2000;

Tinsley and Lynch, 2001). Instead, the concept of networks is in line with much of economic geography and innovation theory, which has focused on the significance of inter-firm relations and learning economies.

The apparent association of growth in regions and of industries with conspicuous networking activity has encouraged suggestions that successful regional economies in the world economic system must be 'intelligent' or learning regions (Feldman, 1994). Networks are thus part of the dynamics of organizational creativity, directed towards building and maintaining competitive links to the global economy, and based on strengthening existing competitive activities (Hansen, 1992; Castells, 2004). At the same time, the sustainability of the industry may well be tied to creating effective alliances between the private and public sectors. Thus, networks become fundamentally based not on spatial proximity, or shared interests, but on notions of trust and reciprocity. The future competitiveness of destinations, and the development performance of tourism, will not simply depend on a destination's natural and cultural resource base, its ability to harness new technologies, or its depth of human capital.

5. ICTs and Organisational Change in Tourism Stakeholders Business: Towards a model of a learning organisation based on co-operation and co-opetition.

A growing attention has been devoted to the mechanisms through which firms acquire information on new products and processes in order to enhance their productivity. Following different theoretical approaches, the literature has identified and analysed several channels of knowledge diffusion (Marrocu and Paci, 2010). These mechanisms operate, often in a complementary way, through contacts with other firms and final consumers, both at the regional, national and the international level. Knowledge can be conveyed via interactions with suppliers and competitors in the market, trade embodied in goods, foreign direct investment (FDI), direct contacts with customers in the local market and in the case of exporter firms, in the external ones as well. It is worth remarking that all these mechanisms may present some shortcomings that may limit the possibility of acquiring valuable information. As mentioned before, enterprises operating in closed narrow markets receive a limited amount of useful information because of the small number of localised firms and final consumers and this can negatively influence their efficiency levels. At the same time, the fixed costs required to access larger markets prevents them from being exposed to international knowledge spillovers (Marrocu and Paci, 2010). This reservation also applies to tourism, where large multinational corporations in the hotel, airlines and tour operation business control certain knowledge acquisition and dissemination processes (Shaw and Williams, 2009).

Most of the problems organizations face today when designing and implementing online strategies stem from their efforts to fit everything into existing structures and models. Organizational structure can be characterized by how rigid or flexible and how adaptive or non adaptive an organization is, and how it deals with uncertainty and risk (Zeira and Avedisian, 1989). ICTs facilitate the emergence of new structures but do not drive their developments. With information being available to all organizational members regardless of their position within the organization and regardless of time and space, multiple management layers and hierarchies are no longer needed to move information up and down. Rossetti and DeZoort, (1989) mention the shape, composition, and degree of decentralization as an important structural factor that influences an organization's capacity to change. Referring to Drucker,(1997), they suggest that eliminating middle management leads to a better diffusion of knowledge within organizations. The old command-and control model of organizational structure will not be suitable for the environment that organizations are going to face in the 21st century. Organizations of the future will build their competitive advantage on learning instead of controlling. It is suggested that DMOs need to redefine their nature of business and the underlying models and processes. This requires fundamental organizational changes that have to be managed carefully and should be directed toward increasing the organizational flexibility and openness to change. DMOs need to develop organizational cultures that encourage innovations and risk taking and see failures as opportunities to learn.

Becoming a learning organization is vital for establishing competitive advantages in the new economy. Learning should occur on the individual and organizational level. Knowledge creation is useless if the knowledge is not processed and transferred, so that active learning can occur and become incorporated into the online advertising concept. It is clear that boundary-less organizations that are able to form networks with others quickly to pool resources and leverage competencies can best take advantage of the dynamic nature of the Web. In a rapidly changing global climate, DMOs are challenged to understand the needs and aspirations of tourists and to foster innovative approaches to securing existing and enticing potential new markets World Tourism Organisation (1999). For individual destinations understanding consumers' pre-travel expectations and how these contribute to the post-trip image of the destination may be important (Jenkins, 1999). At a destination level, for example, knowledge about these facets of consumer behaviour can be incorporated into improving positioning strategies (Pühringer and Taylor, 2008). Knowledge of this type may also assist in the identification of opportunities for collaborative product marketing and packaging and even in the development of new products according to Pearce, Morrison and Rutledge, (1998). A more fundamental outcome may be achieved by individual businesses who are cognisant of consumer expectations and perceptions and who act on post-travel feedback. Specific opportunities for individual businesses to apply such knowledge include service level improvements, product differentiation for markets and developing effective information and communication strategies (Pühringer and Taylor, 2008). A suitable definition of knowledge is the transformation of contextualized facts (pieces of information) into resources for learning (Turner, 2000). Informational strategies such as knowledge management are a direct threat to the hierarchical nature of most organizations.

The production and distribution of knowledge of these types has been proposed as one pre-condition for innovation in the complex regional tourism systems in which most DMOs operate (Taylor, 2005a). Increasingly business network behaviour is becoming more prominent in research and is of interest to the tourism industry. A sharing of information, either in a centralised or more collaborative way, would assist in the maximization of the value of information and knowledge. In such systems, the value placed on knowledge about markets, competitors and the performance of the system itself can facilitate the identification of and penetration into new markets (Fountain, 2005).

Scholars have identified the need for greater collaboration in the industry (Joo 2002; Palmer and McCole 2000; Picoli 2004; Werthner and Klein 1999a), recognising the need to exploit technologies to become more responsive to the market. Eikebrokk and Olsen (2005) completed a study looking at the incidence and impact of co-opetition on e-business success. Co-opetition can be defined as the simultaneous cooperation and competition between businesses that occurs as a consequence of the formation of virtual organisations amongst competitors in a marketplace (Eikebrokk and Olsen, 2005; Palmer and McCole, 2000).

Collaboration around technology may assist in the promotion of the destination and enhance economic development of regions, especially given the shift in power to the tourist as earlier outlined. Taylor (2005a) has described the types of tourism information resources which can be used for these including online sources, tabular data, industry news and reports, case studies, research publications, maps, media files and how-to guides. The internet-based Consumer Generated Content (CGC) is found on a burgeoning range of e-communities, online forums and social networks which are formed around groups of people with common interests. Of particular interest to DMOs is the potential for Web blogs to inform strategic marketing efforts and to be used by consumers as a source of information in their trip planning and purchasing decisions.

Joo, (2002) argues that ICTs are a critical driver of integration and co-operation as he asserts that "Information technology enables businesses to integrated business activities or functions that otherwise would not be possible to achieve. This integration though requires internal integration of processes and systems as well as externally with other organisations and this has acted to impede co-operation in the past." (Joo, 2002, p.59). It is argued that successful online marketing strategy is not

just about technology and new communication channels, but it is mainly about deconstructing traditional business models and reinventing the organization.
The e-Commerce tourism marketing strategy needs to be continuously revised because things are changing rapidly on the Web, consumers tend to forget, and competition is tough. Unfortunately, limited resources, lack of proper management, insufficient knowledge, lack of communication, legal regulations and restrictions, and ownership issues were the most important barriers to technology implementation and adoption. Whilst centralised bodies such as tourist bureaus promote a tourist destination and disseminating information about a region, others see the importance of demonstrating a unified face of a destination by the actual tourist operators themselves. Yet a proliferation of 'html document-based' websites (Joo, 2002) with respect to operators located there exists, meaning that tourists are not provided with a concerted and unified tourist experience which they are increasingly coming to expect. Therefore, effective communication between all individuals and organizational units involved in the design and implementation of online strategies can greatly facilitate the process and enhance the outcome. If possible, expertise should be acquired in-house to have more control over the outcome and to be able to increase the intellectual capital of an organization, which is necessary for developing innovative approaches. If an external agency is charged with the design and/or implementation, goals and expectations have to be clearly communicated.

The integration of innovative technologies will allow firms to break away from obsolete and ineffective approaches to differentiate themselves in a highly competitive, global, and networked economy. What really matters is how change is integrated into the DMO. Change can be defined as "thinking or doing something new or differently" (Hultman, 1998). It describes the move from one stage to another. Companies cannot avoid change, but they do have a choice in how proactively they seek it. According to Keffeler (1992), organizations have only two options: to choose change or to chase it. There is risk in change, but there is also the risk of not changing (Hultman, 1998). No success or competitive advantage is permanent; therefore, the winners can only be those who keep moving (Prokesch, 1997), and they have to move a lot faster than anybody else. Change has always been the driving force in the evolution of systems, whether they are ecological, biological, social, or organizational entities. And it has always been difficult for people to deal with those changes. Machiavelli wrote in the 15th century, "There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage, than the creation of a new system" (Goldberg 1992, p. 41). What is new is the accelerating speed with which it occurs and the growing outreach of its implications.

Bill Gates (1999) emphasized in his book *Business and the Speed of Thought* that business is going to change more in the next 10 years than it has in the past 50. This trend to a large extent is caused by the emergence of new information technologies and, as a result, the ease with which information can travel across the globe because information acts as a catalyst for change (Lutz, 1986). Yet, ICTs not only accelerate the speed with which environmental changes occur but also make it possible to respond quickly to such changes. But the pace of change is only one part of the current scenario (Shukla, 1997). The other main factor is the complexity of change. Changes not only are becoming less predictable but also are occurring simultaneously.

Given the growing importance of technology in all organizational functions and areas, organizations can either adapt to technological changes or will have to face a decline in their organizational viability. Productivity in the knowledge era involves creative thinking, flexibility, and the ability to change and adapt quickly (Koch and Steinhauser, 1983). Change implies questioning old goals and functions and establishing new organizational frameworks; profound change also involves a rethinking of who the partners and competitors are and how networks with other organizations could increase the organizational capacity to learn. Organizational changes are the prerequisite for successful and fast technology integration. Adaptation to technological change cannot be realized without changes in the organizational structure and culture. Thus, the relationship between IT and organizational change has become a vital concern for most organizations (Rossetti and DeZoort, 1989).

"If change is about learning, it is also about communicating" (Schiemann, 1992). The more comprehensive and flexible the corporate communication network is, the more likely employees know where the organization wants to go. This is an important factor for reducing employee resistance and for initiating and sustaining change because change tends to ignore the proper channels and established bureaucratic lines (Waterman 1990). Bureaucracy has been designed to resist change (Waterman 1990). It is necessary for establishing consistency and stability in an organization, but hierarchies make the free exchange of knowledge more difficult and, thus, limit the organizational capacity to change.

It is argued that organizations need to be very flat, team-based organizations designed to motivate and help people to learn (Prokesch, 1997). Flat organizations have a built-in flexibility. They have a less rigid division of work, a constant search for innovative solutions, participation in decision making, a free flow of communication in all directions, very general job descriptions, a delegation of authority, and a greater sensitivity to environmental changes (Zeira and Avedisian, 1989). Organizational structures should be as flat as possible so that information can be passed on easily and ideas shared extensively. Top-down management reinforces fear, distrust, and internal competition and reduces collaboration and cooperation. It leads to compliance, but a high capacity to change requires commitment (Drucker et al., 1997).

6. ICTs and Tourism Public Governance

Evidence shows that it is possible to identify different levels in the use of ICTs by public administration in its tourism governance mechanisms, ranging from the simple creation of a front-office information service to a full citizen and institutional involvement in tourism policy design, decision-making, and service delivery. Essential ingredients of success are the continuous learning and the competence to use what is learned. Consequently, it will be human infrastructure that will constitute the crucial element of success for regional tourism development. A sufficient supply of "intellectual capacity" in terms of its quantity and quality, to sustain continual innovation and to broaden the knowledge base in the economy as a whole, is a prerequisite of development. Addressing the human resource requirements of the new age demands a multifaceted approach with central and local governments playing key roles, particularly in terms of developing local talents in line with the information and knowledge needs of the emerging economy.

Key actions for public policy include (Keivani, Ali Parsa and Younis, 2003):

- adapting the education system to the knowledge requirements of the new economy
- initiating and supporting research and development to foster innovation
- initiating and supporting local initiatives for broadening ICT access and skills development through community ICT networks
- upgrading public service delivery and administrative systems through the use of the e-government
- creating the legal and regulatory conditions as well as the incentives for promoting knowledge- and ICT-based activities by market actors
- establishing, and/or participating in local, national, regional, and international inter-government ICT networks,
- promoting a vision of the networked knowledge society through public awareness programs and practical measures for engaging ordinary citizens, including e-government initiatives and innovative ICT-based interaction programs encompassing public, community, and private spheres.

Public administration must, therefore, examine its state of the art in order to determine the best path to efficient tourism governance through the use of ICTs. The creation of virtual platforms for consulting spatial planning and tourism policy design documents, supporting tourism industry localization patterns, enhancing synergies between higher education systems, technological centres and other educational centres, and promoting local and regional tourist products in the global market, can result in heightening the management efficiency of tourism businesses, intensification of business's

interactions with actors from the scientific and technological communities, amplification of the network of contacts with clients and suppliers, and also reinforcement of the value of the local and regional tourism industrial fabric in a global context. Also the use of GIS technology, the establishment of virtual discussion forums with respect to public policy processes, and the construction of ICT-based tourism portals with information about specific themes (cultural events, sports events, etc.) of local and regional scope are some examples of tourist governmental actions (Santinha and Castro, 2010).

In this challenge, four specific criteria must be taken into account: to guarantee an integrated vision of the tourism regional development strategy, to include initiatives that spread the advantages of using virtual platforms so that ideas can be replicated and new initiatives stimulated, to assure the collection and spread of tourism information concerning the productive system and firms' needs, and to facilitate the access to information and supporting services by tourism stakeholders(Santinha and Castro, 2010). Regional tourism initiatives are driven by the need to maximize marketing penetrations for the region and its product, facilitate the entry of local enterprises into e-commerce and demonstrate comprehensiveness of coverage of product in the region, whether or not individual products have independent online presence.

Recently, in many countries, has emerged the need to establish a resource centre to develop education, training, and projects' facilitation, to support the move to online tourism business practices. The responsibilities of the National Online Tourism Resource Centre could include:
• maintaining a resource directory, including a directory of high-standard examples, to be accessed by industry for identifying opportunities and impediments to the uptake of online technologies;
• assisting industry associations to promote online technology among their members, including organizing and conducting workshops;
• developing national competency standards in online technologies
• developing a set of guidelines for minimum infrastructure needs for online business practices;
• monitoring and providing information about tax and legal issues relating to online tourism initiatives; and
• undertaking applied research and data gathering about the most effective online strategies for SMTEs.
While the resource centre will be online, it will have to be supported by considerable offline activities in its initial phases.

6. Conclusions

The emergence of innovative Web-based technologies has led to a reconfiguration of the environment in which tourism business is conducted. These fundamental technological shifts have a profound impact on the perception, consumption and construction of tourism spaces, and their local development outcomes. 'Traditional' regional communities have new tools through which to disseminate their concerns, and may, via global networks, gain new 'community members' that can represent their interests around the world (Gurstein, 2000; Rheingold, 2000). As Zeldin (1994, p. 467) notes, the Earth is being 'criss-crossed afresh by invisible threads uniting individuals who differ by all conventional criteria, but who are finding that they have aspirations in common'. Understanding these changes is crucial for creating a vision in the tourism organization that things are going to evolve.

Tourism leaders need to convince stakeholders to come along on this move toward innovative strategies, knowing that it will cost money, require a lot of training, and take time. The problem with many current online tourism strategies is that organizations try to fit everything into existing structures and models. The co-evolution of innovative Web based technologies and communication strategies will lead to a quantum change in the way business is conducted, from business to consumer, from business to business, and internally. Understanding the medium, the customer, the business, and partners seem to be the key variables for the successful integration of ICTs in regional tourist development. Understanding usually comes from knowledge. Since no expertise is readily available, learning, collaboration, and the active sharing of online experience become extremely important in the

process of knowledge creation. Only DMOs and other tourist stakeholders with an ability to learn quickly and to translate that learning into action rapidly will be able to gain competitive advantages in these high velocity marketplaces.

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THE EXECUTION OF MERGERS AND ACQUISITIONS AS A STRATEGY FOR MEXICAN COMPANIES WITHIN THE GROWTH ACHIEVEMENT IN MAJOR WORLD RANKINGS

José G. Vargas-Hernández, M.B.A;Ph.D.
Profesor Investigador miembro del Sistema Nacional de Investigadores
Departamento de Mercadotecnia y Negocios Internacionales
Centro Universitario de Ciencias Económico Administrativas Universidad de Guadalajara.
Periférico Norte 799 Edificio G-306
Zapopan, Jalisco C.P. 45100; México
Tel y fax: +52(33) 3770 3343 Ext 5097
josevargas@cucea.udg.mx,jgvh0811@yahoo.com,jvargas2006@gmail.com

Mohammad Reza Noruzi, EMBA, PhD Candidate
Public Administration, Policy Making in Public Sector
Islamic Azad University, Bonab Branch, Iran
Young Researchers Club Member, IAU Bonab, Iran
Tell: +98- 412-7238893-5
mr.noruzi@modares.ac.ir mr_norouzi@pnu.ac.ir mr.noruzi.pnu@gmail.com

Abstract
Mergers and Acquisitions, M & As has become a trend for the growth of Mexican companies. Although the diverse, all companies seeking the ultimate goal of growth of the firm. Through the job description in the three largest companies in Mexico and the results we achieved demonstrate the profitability of this kind of strategic alliances and detected elements which may be useful for growing companies that are selecting the appropriate strategy to their resources and goals. This article aims to describe the execution of mergers and acquisitions as a strategy for Mexican companies best positioned within the major world rankings to achieve growth. The corporate strategy is critical to achieving the higher rank and must be set out clearly and according to their needs.

Keywords: Corporate Strategy, Mergers and Acquisitions, Mexican leader.
JEL: L19, M10

INTRODUCTION

Companies must give direction to the resources. They have to change their environment and absorb uncertainty in order to maximize their profits. There are different perspectives and strategy firms, according to their particular situation and the area of interference, they use one that most suits of them.

The strategies of Mexican companies tend to focus on the use of resources and capabilities to generate profit. But the results obtained by some of the strongest Mexican worldwide companies are the result of market development and practice of M & A, which are mostly related to areas of its core business.

There is no universal strategy that works for all organizations and generates the best profits. Company must also assess favorable and unfavorable conditions for implementation and most importantly, act on that strategy which is most appropriate and effective company in the search to achieve their goals.

There are a number of multinational companies originating from emerging economies, but there are few that generate a level of utility comparable to large multinationals in the developed economies.

THEORETICAL FRAMEWORK

Strategic management is responsible for developing the knowledge in this era. From the study of the actions taken by companies for their growth and measuring the results obtained with the different perspectives that have been consolidated. From this we find that the organizational structure is the foundation for large businesses to achieve their goals, but there must be a record in its efforts to continue to achieve its objectives through the implementation of its corporate philosophy in the various processes that are performed. Corporate behavior is what really makes a company great and make it successful and internationally recognized.

We must understand the nature of the signatures; leaving conceive as seeing them as productive functions and structures of governance, in which economic goals are internal structures (Williamson, 2000). In pursuit of creating value firms have turned to new business models that have changed schemes and developed new strategic options, both in their local markets as its internationalization, strategic alliances are voluntary arrangements between firms to exchange or jointly develop products, technology or services are increasingly common, and the problem for those responsible for making decisions is to establish the appropriate changes to their specific structures.

The key is that organizations seeking returns must have a good understanding of the resources they acquire to maximize their profits. In recent years, emerging economies have reached a considerable level of development, foreign investment has greatly facilitated the growth of these economies through the strategies and policies have been established (Wright, 2005), not only as host economies capital but also through numerous international investment that you make on other economies around the world.

Strategic alliances are an alternative to the growth of organizations whether we speak of contractual alliances in which by signing a contract two of the undertakings, specific projects, joint marketing, research and development contracts or licenses and franchises. Or question of alliances based on the exchange of capital through: joint ventures, mergers or acquisitions. According to the desired degree of integration with the other hand, have the resources and reach goals they had set the strategy, the selection will depend on the type of alliance. With special emphasis on understanding the rules of the game on the market in which you want to venture and an analysis of the advantages and scope to be the alliance (Peng, 2006).

The goal of all business decisions is the highest possible value creation, and here you can establish whether a strategic decision, as it can be an alliance based in the capital, has the right motivation. The rationale for mergers and acquisitions (M & A) is that they must create the new company in the case of mergers or the signing buyer in the case of acquisitions, has a value greater than the sum of values that had the signatures independently before integration (Herrera Avendaño, 2001).

Some companies in Latin America (LA) have achieved little by little making its global market space, including several Mexican companies also achieved success at national level, also found in international markets through growth opportunities F & A, both public and parastatal companies in different countries.

According to the ranking of the magazine América Economía, of the 500 most important companies in AL, in 2009 Brazil was the country's 226 companies with more companies in the ranking, while only 119 signatures were from Mexico (Figure 1). Note that in 2002 Mexico had peaked in the 20-year history of this ranking, with 241 companies (América Economía, 2010).

Some of the major companies that lead this list have made F & A of other companies and this could be a cause of increased participation in international markets and their stay in the charts. There are several reasons to consider before establishing a strategy of this kind, although sometimes the reasons do not seem logical, the view of strategists usually yield good fruit in the medium term. Among the main reasons we can mention the interest of achieving increased revenues, reduced costs, gaining market power, integration with specialized companies in areas where the other is weak, eliminating a competitor, getting a raise certain types of resources, improving yields through new management, achieve tax benefits or a combination of resources to increase productivity (Mascarenhas, 2006).

In late 2009 and early 2010 the major Mexican companies dedicated to consolidate and integrate into their organization the various F & A conducted in early 2009, the global economic crisis affected the growth of companies, but most knew how to deal with the situation and move forward

to consolidate their resources. The strategy not only carried out in its own lines of business but also the incursion into areas outside their main economic activities. but in some way help them make a profit. A clear example of this was the purchase of 17% of the New York Times by the billionaire Carlos Slim, who despite having businesses in different economic sectors had not yet ventured in press (Buchanan, 2010).

In that sense, M & A has become a trend for the growth of Mexican companies, although this was not the only alternative strategy carried out by the firm and sometimes the companies selected were not the most appropriate in most cases we can see increases for firms that make us assume the effectiveness of F & A. Regardless of the reason that companies choose to implement this strategy, the results should be beneficial and be oriented growth of the firm considering the organizational team, without affecting the innovation and not follow the trend to acquire by purchase.

OBJECTIVE

Based on the foregoing, setting a goal to describe the execution of mergers and acquisitions as a strategy for Mexican companies best positioned within the major world rankings to achieve growth. Mexican companies seeking development and media can find items for their own consolidation in the markets.

Of which raised the hypothesis of whether the major Mexican companies in their strategies have made M & A, if these have been within its sector and if they got support their growth.

METHODOLOGY

The methodology developed will be first the selection and justification of Mexican companies which made the descriptive analysis of the implementation of F & A from determining what is your current place in the world rankings?, This analysis pointed out aspects main and a brief description of the strategy developed for each of the selected companies responding to the questions of what strategies are being implemented for growth? And what are the benefits of M & A? then be presented general findings of the strategies carried out, based on what is the level of income and productivity achieved?, and finally identify elements to be considered by other organizations choice of M & A value creation and growth of their firms.

Selection and justification of Mexican companies

Different worldwide rankings to recognize the largest companies in the world by their level of income, profit margins, production capacities and other factors significantly outweigh the other organizations worldwide. Two of the most internationally recognized tabs are the FORBES and FORTUNE magazine, and journal Economics in Latin America.

From 2009 to date has remained constant the number of Mexican companies (18) in the 2000 world leading companies (Forbes Staff, 2011), while ranking in the magazine America Economia in a period of only seven years, from 2002 to 2009, the number of Mexican companies within the first 500 in TO 50% down (América Economía, 2010). From this we can conclude that a small number of Mexican organizations have consolidated their presence in international markets while other smaller companies have lost its position in international markets and their productivity has decreased significantly.

Moreover, when analyzing the situation of Brazilian companies, whose country was compared to Mexico early this century by its geographical location, economic conditions and growth potential, since both countries were seen as major economies region, we find that these companies generally have a better development. From the figure of 19 companies that appeared on the Forbes list in 2006, has grown to 37 companies in 2011 within the first 2000 worldwide (Forbes Staff, 2011) While in the region, by 2009 already had 226 companies in the ranking of America Economia magazine top 500 companies (América Economía, 2010).

Mexico is widely recognized in international markets, is the country with the largest number of international trade agreements, products and quality of its workforce have accepted worldwide and is a nation favored by their geographical position it occupies. For this and other issues is that it is difficult to understand why more companies do not have positioned in the world and what has relied on only a few companies have managed to gain a favored position as compared to other national firms, this concern arises to analyze and understand the strategy of these leaders and Mexican companies to make their activities serve as an example in the development of other large and medium enterprises.

Mexican companies included in Forbes' list of 2011 are shown in Table 1, among which are America Movil (# 88), Femsa (# 406) and Grupo Mexico (# 485) as the first three Mexican companies and they are the only Mexican in the top 500 worldwide in this ranking. Therefore be at these three firms in which to base the study to analyze their strategies, seen as the main cause of their achievements, and what subsequent to refer to them as we do with the term leading Mexican companies (EML).

BUSINESS ANALYSIS

Below is a description of the situation of EML and a narrative of the main strategies of F & A who have developed, starting with the corporate Grupo Mexico ranks third, followed by analysis of FEMSA to conclude this section with the company America Movil.

Grupo Mexico.

Utilities 2010: 1.800 million dollars

Director: Larrea.

National companies that comprise: Minera Mexico, Southern Copper Corporation, Ferromex, Ferrosur, Intermodal, PEMSA, Mexico and Consutec Construction Company.

International companies owned: Americas Mining Corporation and ASARCO.

Grupo Mexico is the number one Mexican mining company and has the second largest copper reserves in the world, has operations in Mexico, Chile and Peru. It currently has 13 operating mines and 10 projects in operation.

Mexico Construction Company was the first of this group, created in 1942 soon becoming one of the main building of the country. For the year 1965, acquired 49% of ASARCO is a mining company based in Arizona and created ASARCO Mexicana, which in 1974 became Industrial Minera Mexico (IMMSA). To be listed on the Mexican stock exchange was created in 1978 Grupo Industrial Minera Mexico (GIMMEX) will be replaced by Grupo Mexico in 1994.

In 1997 buys 24% share of Union Miniere Acec the Cananea mine, and that same year, Grupo Mexico (74%) with ICA (13%) and Union-Pacific (13%) take on the granting of various lines of rail, creating the subsidiary Ferrocarril Mexicano purchase SA de CV (Ferromex). Soon Union-Pacific acquired the part of ICA.

Grupo Mexico acquired Asarco Incorporated in 1999, which controlled 54% of Souther Peru Copper Corporation and with this acquisition becomes the second company with the largest reserves of copper in the world. Later the company went through a phase of investment in infrastructure improvements at its mines and extraction was not until 2005 where he returned to participate in the market for corporate control, through the merger of Southern Peru Copper Corporation and Minera Mexico, Southern Copper Corporation transformed into and that Grupo Mexico's participation in the company grew to 75.1% (Grupo Mexico, 2011).

During the period from 2006 to 2010 the company went through a process of restructuring and reorganization of its business units and assets, channeling their income primarily in the modernization process, both in the extraction of minerals such as administrative control.

FEMSA

Utilities 2010: 3.300 MDD.

Director: José Antonio Fernández.

Companies that integrate national: Coca-Cola FEMSA and OXXO.

International companies owned: Heineken (20%).

FEMSA is a leading company engaged in the beverage industry, through Coca-Cola FEMSA, the largest independent bottler of Coca-Cola products in the world with presence in 9 countries of LA, is also involved in trade, operating OXXO chain of convenience stores larger (8.621 stores) and fastest growing in AL with facilities in Mexico and Colombia, and participates in the sale of beer, the second largest shareholder of Heineken, one of the leading brewers in the world with presence in over 70 countries. (Femsa, 2011)

Each business unit has this interesting aspect of corporate analysis, but in this article we only focus on the strategies undertaken by each of them in their process of growth through M & A.

OXXO opened a daily average of 3 stores in Mexico during 2010, the same year began operations in Colombia and now has eight stores, the company has a large potential for growth in the region, and all of its growth strategy has been made based on resources the firm already operates as a franchise that has not carried out and F & A to boost growth.

Coca-Cola FEMSA's bottler in Mexico that is born of the acquisition of the franchise in the year 1979, distributing its products in much of the country, in 1994 acquired 51% of the shares of Coca-Cola in Buenos Aires, Argentina and in 2002 announced the acquisition of Panamco, the largest bottler of AL at the time, from this point the company's growth was substantial and that the acquisition was another part of the territory of Mexico, the countries of Costa Rica, Colombia, Guatemala, Nicaragua, Panama and Venezuela, and some regions of Brazil, becoming the leader of al-bottling company.

The company decided to follow the line of drinks and when it was believed that the soft drink market share would be enough, the company surprised in 2007 with the acquisition of Jugos del Valle in Mexico and Brazil REMIL bottling in 2008, it grew participation in the Brazilian market, together with Mexico are the most attractive markets in Latin America.

Not all acquisitions must be of large international companies and the purchase in 2008 of the Water Company of Angels, Valley of Mexico, is proof of that since the acquisition was achieved with double the share of that market in the city. In 2009, FEMSA acquired the Brisa bottled water and in 2010 returned to surprise us with the purchase of the Dairy Industry Group Panamanian Company, which will enter the milk products is one of the most dynamic markets and value in the beverage industry. As mentioned in the introduction, firms not only do strategies of F & A, but also establish other strategic alliances and contractual in the case of FEMSA such implementations are common such as recently showed in a contract with HP for that will provide technology services for five years in the business unit, Coca Cola FEMSA who provide not only computer equipment but also focus information operations in South America and perform tests and evaluations to identify growth options the company (Hewlett Packard Development Company, 2011), arguably is a contract research and development specialists left to the management of information and FEMSA only cares to continue doing a good distribution of their products.

Beer is the oldest business unit of the company and its history goes back to its founding in 1890 under the name of Cerveceria Cuauhtemoc Mexico, will later be established firms that were born as part of domestic production of inputs in brewery that later would become self-sufficient and independent companies, which contribute in making the bottles, labels and bottle caps necessary for packaging beer.

In 1985 a merger between two of the largest breweries in Mexico, Cerveceria Cuauhtemoc Cerveceria Moctezuma, a case that serves to show that the strategy of M & A has been several years a good option for growing firms, with the merger the company not only expanded its product offering to the market and therefore they also managed to increase their participation. In 1994, partners with the Canadian brewer John Labatt Ltd., which buys 30% stake in the brewery and thus the company gets an increase in its share capital to tackle the country's economic crisis. Later in 2004 the share repurchase was sold to begin its expansion strategy internationally which shows us a clear example that M & A does not always mean total loss of corporate control and in many cases are a source of impetus for the development of the organization.

That same year, implement a trade agreement with Heineken to distribute the products in the U.S. territory, responsible for the distribution, promotion and sales, for the domestic market signed an agreement with Coors Brewing Company for the exclusive marketing Coors Light beer. During 2005 continued the strategy of Sleeman Breweries contractual alliances in Canada and Molson Coors in the UK, establishing them as strategic suppliers to market their products in these territories.

It was in 2006 when the firm makes first acquisition in its history the purchase of Brazilian brewer Kaiser, acquiring 68% of the shares and thus operate in two Latin American markets more attractive. In what was a considerable increase in revenue and a commercial boost with greater market share, through which has been pushing their products through the extensive distribution network operates.

The consolidation of Cervecería Cuauhtémoc Moctezuma led the company Heineken, who already owned the U.S. distribution, acquired in 2010 for signature by the exchange of 100% of its operations by 20% of the shares of Heineken, this acquisition was a of the most important of the year with the sale of the company FEMSA Brewery will focus more on growing its other business units (OXXO and Coca-Cola FEMSA) and participate in the administrative council of Heineken to care for the performance of the firm.

America Movil
Utilities 2010: 7.300 MDD.
Director: Carlos Slim.
National companies that comprise: Telcel and Telmex.
International companies of their property: Telmex Internacional, Claro (15 countries: Argentina, Brazil, Chile, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Dominican Republic and Uruguay) Comcel (Colombia), Embratel (Brazil), Net (Brazil) and Tracfone (USA).
America Movil is not only a leader in the mobile telecommunications sector in Latin America operating in 18 countries, it is the fourth largest in the world in terms of proportionate subscribers and number one Mexican company by market value and income-rich.
Through the acquisition of several public companies and parastatals telephony has been consolidating its presence in the principal in the cell phone. Your participation in the cellular market in Mexico is 71%, 33% in Central America, Caribbean 43% and 9 countries in which it operates in South America all have a stake greater than 30% except for Chile where their participation is barely 22%. (America Movil, 2010)

"The acquisition by America Movil of its parent company, Carso Global Telecom (which controls Telefonos de Mexico or Telmex and Telmex International) was by far the largest merger in Latin America in 2010, valued at 33 billion dollars ". (Agree, 2011)
America Movil was born in 2001 when it separated from fixed telephony company TELMEX, and nine years of his division is now the purchaser of the company that was born, the case of telecommunications companies of Mr. Carlos Slim is full of examples successful mergers and acquisitions for 20 years in which through its consortium of Southwestern Bell Telecom acquired the state-owned Telmex, while in turn the company America Movil was acquiring various telephone companies in Latin America and step to form the signature course, trade name under which it operates in most countries.
The acquisition by America Movil of its sister companies Telmex and Carso Global Telecom International, will report that in 2010 represented 211.3 million wireless subscribers, 27.4 million fixed lines, 12 million fixed broadband connections and 8.6 million TV subscribers . The company also reported an outstanding financial performance with net profits rising contrary to its main rival Telefonica in the last year reported a decline in profits. (Datamonitor, 2010)
America Movil continues its strategy of M & A in LA countries, and the proof is the recent purchase of the company Digicel in early 2011 who operated in Honduras and El Salvador, users of the company will become part of CLARO.
The current government in Mexico has not allowed America Movil to sell packages of telephony, television and the Internet, which have proved very attractive for the income from them and from which only the big national broadcasters are benefiting. But America Movil continues to grow despite the hardships and will strengthen this marketing strategy in Colombia, where it already does and Brazil in which the fusion medium-term business that has begun. Therefore no surprise that eventually will achieve its mission to perform in Mexico.
The growth in demand for bandwidth and pay TV in Latin means the sustained growth of the company, which only have to overcome institutional constraints to maximize their profits, and even in this sense the strategy of mergers that has been done will be useful to market their services in countries like Brazil with barriers of entry into foreign ownership of telecom case for which the company has decided to increase its share of Net through its subsidiary Embratel.

EFFECTIVENESS OF MERGERS AND ACQUISITIONS

The purchase of Asarco in 1956 makes clear that the use of M & A as a means for the development of the company is not a strategy that just being started, and is an example of the vision they have had the EML for several years.
M & As has become steadily more present and in the last 15 years has increased the tendency of local firms to make such alliances. Even in areas other than the main economic activity of the company, either in activities that have a relationship, as in the case of Grupo Mexico, which through Ferromex rail networks can transport material from mines (Mascarenhas, 2006), or in

activities that are not related to its activity as for the purchase of Slim a percentage of the New York Times commented in the introduction to this article.
In the latest merger by Grupo Mexico to Southern Peru Copper Corporation, clearly identified as their main motivation access to more resources and greater expertise that contributed significantly to the growth of the firm and its consolidation, giving reason to the reasons cited for a F & A.
In the case of Grupo Mexico is clear that, thanks to M & A can gain access to the resources that became the second company with the largest copper reserve on the planet, which could hardly have been achieved through other means, but we cannot downplay made to other strategies, mainly in the processes of restructuring, as though in recent years has not made any acquisition revenues and profits increased significantly in the last year.
At Coca-Cola FEMSA's strategic alliances have been crucial since its inception through the acquisition of the concession for the distribution of Coca-Cola. Its main thrust of internationalization has been achieved through acquisitions, Coca-Cola first in Buenos Aires in 1994, in 2002 and finally in 2008 PANAMCO REMIL. It is clear that M & A are effective strategies to support access to international markets (Femsa, 2011).
Even in small markets an acquisition may represent a source of consolidation as the example of Los Angeles Water, or can also serve to diversify and increase the product line as was the case with the purchase of Del Valle and Dairy Industries Group.
The area brewery is not very different from Coca-Cola FEMSA and in this area we also find that growth has been sustained in practice M & A throughout its history, from the merger of Cervecería Cuauhtémoc Moctezuma Brewery to reduce and production costs and gain greater power in the domestic market, to then develop a series of agreements to distribute its products with different breweries worldwide in order to internationalize their brand, After Kaiser bought the company I represent an increase in AL.
Increased participation in AL, their rapid growth and income levels were reported in 2010 decisive for the Dutch brewer Heineken, who already was familiar with their products marketed in the United States was willing to hand over 20% of its shares return of all brewery operations (Buchanan, 2010).
The case of FEMSA shows that even within the same firm strategies in its business units are not the same and although M & A have been an important factor for the growth of its operations in two business units to OXXO have not been the growth medium, although this does not mean that if done would not succeed, perhaps for future growth would be predicted to get OXXO in the event that made M & A.
Although revenues declined FEMSA in the last year, as expected mainly by revenues from brewery failed to receive after the sale the profits and assets which increased due to continued growth, a result of their internationalization in its other two business units (Forbes Staff, 2011).

The company America Movil was from the beginning a successful business and began growing by leaps and bounds through the voracious acquisition of a large number of telephone companies in different markets of LA, which gradually consolidated their position as the company the continent's leading mobile growth projections and a substantial number of customers. But the determining factor of growth in recent years did so by buying the company Carso Global Telecom, which despite being the same owner does not mean you should not have the resources to acquire and thus establish his position far above its competitors (Agree, 2011).

With this acquisition the company managed to improve performance through new management and increased productivity through shared resources. In the case of the Brazilian market we find that M & A conducted achieved integration of telephone and television companies, achieving also prevent the entry barriers to foreign companies on television. A through M & A company America Movil has gained access to markets, competitors and has been removed has increased its presence in Latin by the large number of mobile phone users.
America Movil has income greater than twice those of FEMSA and Grupo Mexico together and last year were 50% higher than those achieved in the previous year (Forbes Staff, 2011). It has a considerably higher amount of assets to the rest of the EML and the resources to continue to give the talk of the coming years, and probably will be so for your next marketing packages that include

television services in Mexico which is not far from become a reality now and thanks to a cooperative alliance with Dish satellite television company, has partially offset the inability to provide the services themselves. So surely soon find out how to enter and possibly move to Televisa in the medium term.

CONCLUSIONS

The EML has consolidated its place in the main rankings because of its strategic vision and outstanding performance compared to other firms, and their efforts are recognized worldwide, as mentioned in the beginning of this article are not unique strategies to achieve growth companies and many alternative firms, who based their resources attempting to find the most suitable for their own development.

In the analysis of companies is stated that M & A is a common strategy in organizations despite being of sectors and business activities very different, it is clear the importance that has occurred in recent years this type of strategic alliance as EML all have used at some stage as a means to grow and achieve their goals. Because of the variety among the reasons companies have obviously not been the same since we find cases that look from reduced costs and increased resources to improving the management and reduction of entry barriers, although to the above if it can be concluded that the implementation of the strategy has a tendency among the EML to be used to facilitate the internationalization of the firm and meets expectations in this regard as an effective tool in the process of incursion into new markets.

Growing companies need to analyze M & A as an attractive option for growth, regardless of the sector where they are and whatever economic activity they perform, trying to combine this strategy with others to maximize the performance of the firm as as mentioned from the beginning, no strategy is complete and the best results are obtained from the right combination. Using this type of partnership should be done by companies with an average degree of maturity and sufficient resources to operate efficiently to the party who performed the alliance, because otherwise result in detriment to the benefit of the parties involved.

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APPENDIX
TABELS

	COMPANY	RANKING
1	**América Móvil**	**88**
2	**Femsa**	**406**
3	**Grupo México**	**485**
4	Grupo Modelo	719
5	GFNorte	785
6	Cemex	810
7	Grupo Inbursa	864
8	Grupo Televisa	880
9	Grupo Bimbo	974
10	ALFA	1010
11	Industrias Peñoles	1077
12	Minera Frisco	1097
13	Fresnillo	1151
14	Grupo Carso	1256
15	El Puerto de Liverpool	1344
16	Soriana	1493
17	Grupo Elektra	1548
18	Kimberly-Clark de México	1926

TABLE 1. Fuente: (Forbes Staff, 2011).

Period	Company	Sales	Earnings	Assets
2011	**América Móvil**	49.2	7.3	69.7
	Femsa	13.7	3.3	18.1
	Grupo México	8.3	1.8	14.9
2010	**América Móvil**	30.22	5.4	34.7
	Femsa	15.08	0.76	16.07
	Grupo México	5.02	0.9	12.01
2009	**América Móvil**	25.01	4.35	31.64
	Femsa	12.16	0.49	13.27
	Grupo México	4.69	8.1	8.82

TABLE 2. Fuente: (Forbes Staff, 2011).

GRAPHS

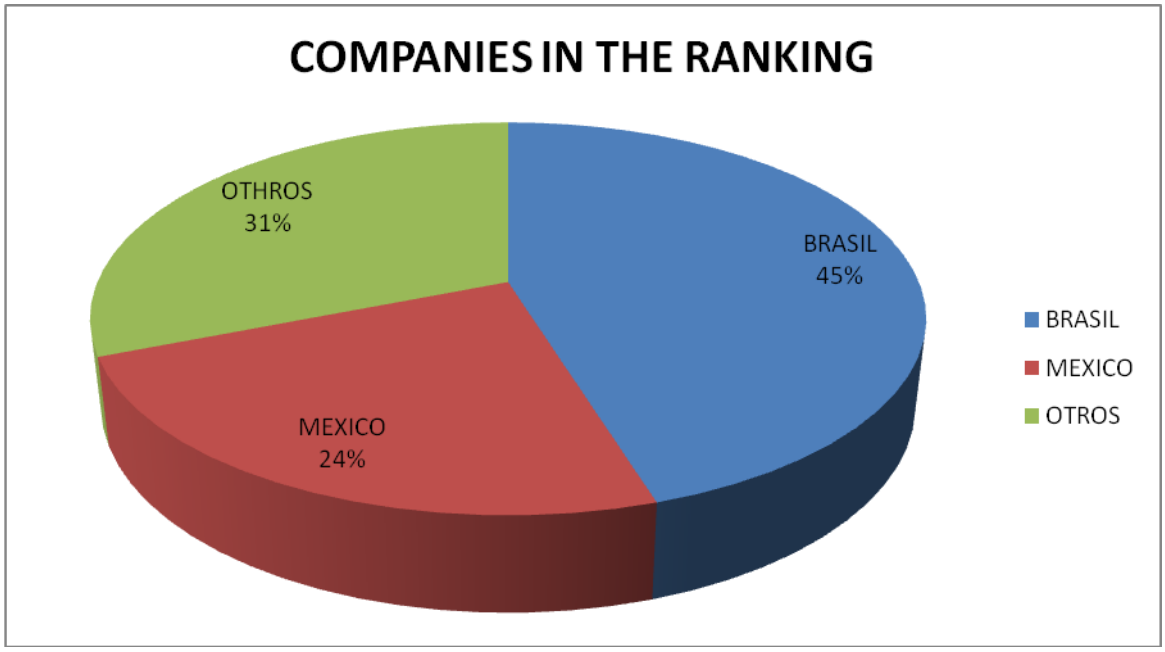


CHART 1. Source: (América Economía, 2010).

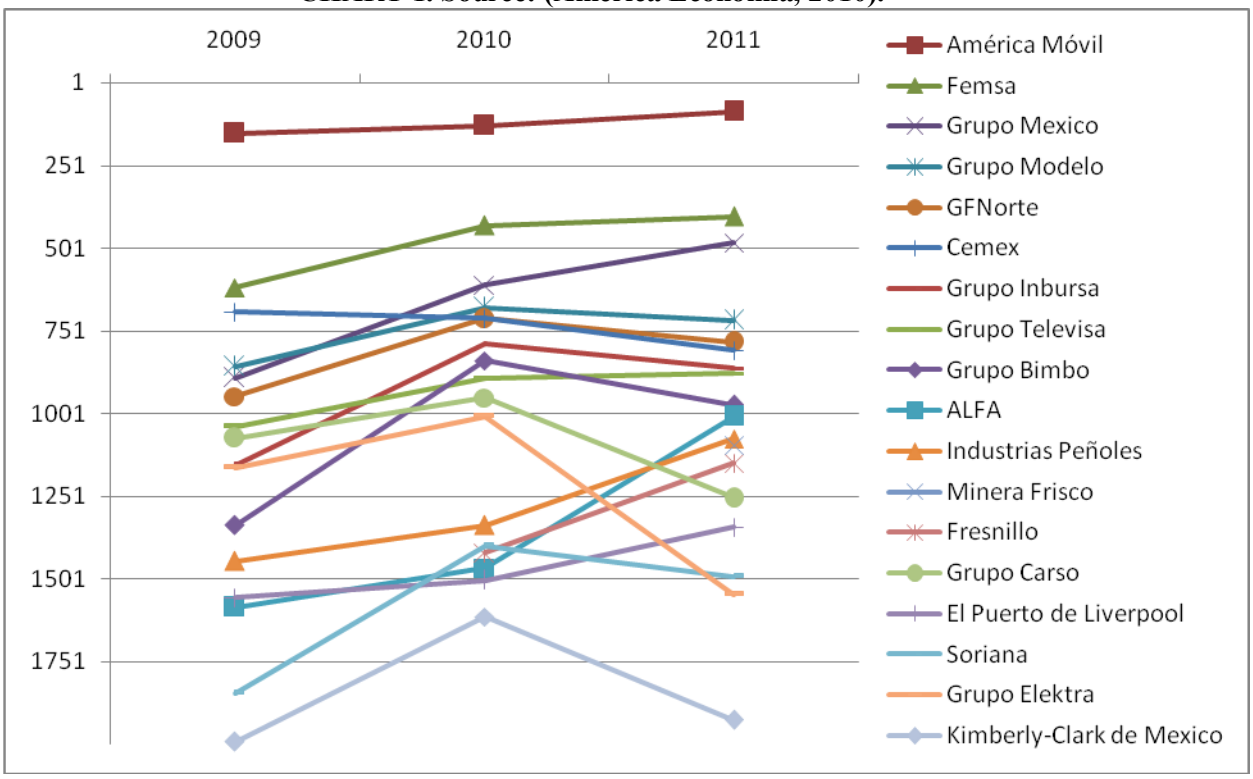


FIGURE 2. Source: (Forbes Staff, 2011)

THE ROLE OF INNOVATION IN COMPETITIVENESS AND CONVERGENCE PROCESS: A BENCHMARKING STUDY FOR EUROPEAN REGIONS

George M. Korres
Visiting Fellow, University of Newcastle, Centre of Urban and Regional Development Studies, CURDS, Newcastle, United Kingdom, George.Korres@ncl.ac.uk and Associate Professor at the University of Aegean, Department of Geography, Email: gkorres@hol.gr and gkorres@geo.aegean.gr
and
Aikaterini Kokkinou
Department of Economics, University of Glasgow, Adam Smith Building, G12 8RT, Glasgow, United Kingdom, E-mail: a.kokkinou.1@research.gla.ac.uk

Abstract:
Globalization and competition has shifted the comparative advantage of economies towards the factor of knowledge and innovation, where productivity based on the endogenous development capabilities plays a rather important role, as far as growth and competitiveness enhancement are concerned. In order to promote innovation activities and technological opportunities, productivity enhancement seems to have significant effects on the long run performance of the economy. Within this framework, the enhancement and convergence of growth and productivity are a major topic in the economic and social policy agenda of E.U. members, since governments seek to concentrate on problems not only related to low employment growth, high unemployment, fiscal deficits and public debt, but also to national disparities and convergence attainment. This paper aims to review the main topics related to innovation activities, as well as competitiveness and economic convergence attainment. It also attempts to analyze, using a benchmarking approach, the effects of innovation activities, in order to clarify the related implications on regional convergence process.

Key Words: Innovation, Research and Development, Regional Convergence, Regional Growth, Disparities, Development

1. Introduction

Innovation activities play an important role to productivity and competitiveness of a country. Innovation is particularly important for regional development and cohesion (Pavitt & Walker 1976). Technology policy has been heavily concerned with the external gap of the EU *vis-a-vis* Japan and USA. However, the same gap also exists among EU countries. It is true that technological competition among Japan, the USA and European Community is intense. However, Europe still needs to exploit better its scientific and technological output, notably in terms of selling high-tech goods on world markets. While its share of high-tech exports has grown slightly since the mid-2000s, in 2010, the EU still had a lower market share than the US. Over the past decade, we have seen developing Asian producers emerging as important players in high-tech market niches.

The EU must make full use of the international dimension of innovation. Two-thirds of world innovations and scientific discoveries are made outside the EU, and most expanding markets are to be found outside Europe. The main effort must nevertheless be made at a local, regional or national level. The European Union proposes to analyse in more detail those activities which, in collaboration with local governments, in order to establish a joint reference framework and help them identify priority options and opportunities for cooperation. Priorities differ among European member states according to the current situation of science, technology and innovation system in each country. Greater priority should be given at both national and European level to disseminate organisational innovations and use information and communication technologies.

This paper focuses in a benchmarking analysis for innovation activities, competitiveness and regional growth for European member states. The paper attempts to examine the implementation of European innovation policy and furthermore to analyze the effects in competitiveness and cohesion process for European member states.

2. European Innovation Policy: Lessons and Prospects

For many years, technological change has been widely considered as an *engine of growth* and an important factor in development process. Today, there is keen technological competition among EU, the USA and Japan. The aim is to reinforce technological capabilities and international competitiveness. European technology policy also aims to increase convergence among member states and to reduce disparities of the Community's less favoured regions. European technological policy is implemented through various rolling framework research programmes, which consist of various research projects and cover various sectors and scientific subjects.

Today, there is a large technological gap between advanced and less favoured regions within the EU. The countries of Europe have a long cultural and scientific tradition. Major scientific discoveries and the main developments in technology are products of European civilisation. The Treaty of Rome did not endow the Commission with explicit power to conduct research and technology policy. The Commission operated only through unanimous decisions of the Council of Ministers. In the first phase of the Community's research policy only eight articles from Euratom (1957) treaty were devoted to the promotion of research activities. The evaluation of European innovation policy can be summarised as following (Korres, 1996 & 2011):

- During the 1960s, several attempts were made to develop cross national research groupings. In 1960s, nuclear power was one of the most important areas of new technology; the Commission's power in this field derived from the Euratom treaty of 1957.
- In the early 1970s, the research that was undertaken at JRC (Joint Research Centres) focused on other fields, such as the environment, solar energy and materials. In the 1970s, the European Space Agency (ESA) was developed with participation of all Western European countries. This created a *research space community* of scientists, engineers, policy makers and industrialists. In November 1971, the COST European programme in the field of Cooperation in Scientific and Technical research was established. COST was a useful framework to prepare and carry out pan-European projects in applied scientific research.
- During 1980s there was an unsteady technological policy without any apparent results. In this period, there was a tendency to increase the allocation of funds to R&T activities. The Commission launched FAST (Forecasting and Assessment in the field of Science and Technology) experimental programme. The main objective of FAST was to define the long-term priorities and objectives of the Community's technological policy. The EUREKA project was launched in 1985 and it had already reached total committed investment by governments, companies and research institutes of more than 8 billion €, deriving from almost 500 projects.
- In the 1990s, the Single European Act (SEA) makes substantial amendments to the Treaty of Rome. The European Single Act aims to develop social and environment policies and to establish a genuine European research and technological Community. The Single European Act (SEA) explicitly legitimised the Community dimension in scientific and technical co-operation within Europe by giving the Community formal power in the fields of research and technology. Articles 130f-130g of SEA embody a research and technology policy that enjoys equal status with other Community areas, such as economic, social and competition policy. The principles introduced by the Single European Act are repeated, confirmed and extended in Maastricht. The European' action plan covers successively some aspects linked to the effectiveness of support for research and to improvement regarding the framework and the effectiveness for R&D activities and redirecting public resources towards research and innovation;
- Agenda 2000 made a major effort to simplify the Structural Funds and develop structural adjustment of lagging regions and to increase modernization through, innovation education and training systems. The European Council of Barcelona (March 2002) emphasized the importance of research and innovation by setting the goal of increasing the level of expenditure in research and development to 3% of GDP by 2010. This has been initiated through the creation of the European Research Area (ERA) and related policy actions, such as the "benchmarking of national research policies". The ERA is the broad heading for a range of linked policies attempting to ensure consistency of European research and facilitate the research policies of individual member states in order to improve the efficiency of European research potentialities. The EU is making a great effort in developing and coordinating innovation policies, adopting a joint innovation

- framework based on common legal bases (Art. 157 and 163-173 of EU Treaty), policy plans (Lisbon Strategy), programs of action (R&D Framework Programs) and networks, all conforming the European Research Area (ERA).
- "Europe Strategy 2020" is a 10-year growth strategy proposed by the European Commission in March 2010 for reviving the economy of the European Union to become a sustainable and inclusive economy. The EU identifies three key drivers for growth, to be implemented through concrete actions at EU and national levels towards sustainable and inclusive growth fostering knowledge, innovation, education and digital society, making production more resource efficient while boosting competitiveness and raising participation in the labour market, the acquisition of skills and the fight against poverty.

To sum up, we can say that there were at least three major benefits from technological collaboration within European Union:

- Cost savings for both research and production;
- Reinforced competitiveness as against USA and Japan;
- Technological convergence of European member states.

3. The Puzzle of Innovation and Regional Competitiveness: A Benchmarking Approach

Europe is, however, still under-investing in knowledge and skills. The EU is still lagging far behind the US and Japan in R&D investment and the exploitation of technological innovations; in many domains the gap is still widening.

The EU is one of the most prosperous economic areas in the world but the disparities between its member states are striking, even more so if we look at the EU's 250 regions. To assess these disparities, we must first of all measure and compare the levels of output generated by each country, as determined by their gross domestic product (GDP). For instance, in Greece, Portugal and Spain, average per capita GDP is only 80% of the EU average. Luxembourg exceeds this average by over 60 percentage points. The ten most dynamic regions in the EU have a GDP almost three times higher than the ten least developed regions. Figure (1) illustrates the innovation gaps for the period 2005-2009 for EU27 *vis-a-vis* US and also Japan, respectively. The performance for each reference year is measured using on average data with a two years lag. Figure (2) illustrates the gross domestic expenditure on R&D as a percentage of GDP for EU27 *vis-a-vis* US and Japan, respectively for the period 1997-2007. Table (1) illustrates some of the main factors explaining the American and Japanese success. Figure (3) illustrates the few regions of high technology clusters in the world. Table (2) illustrates a relative research activity index for EU for the time span 1996-2008.

Figure 1: Innovation Gaps: EU27 *via-a-vis* US and EU27 *vis-a-vis* Japan (Source: Eurostat)

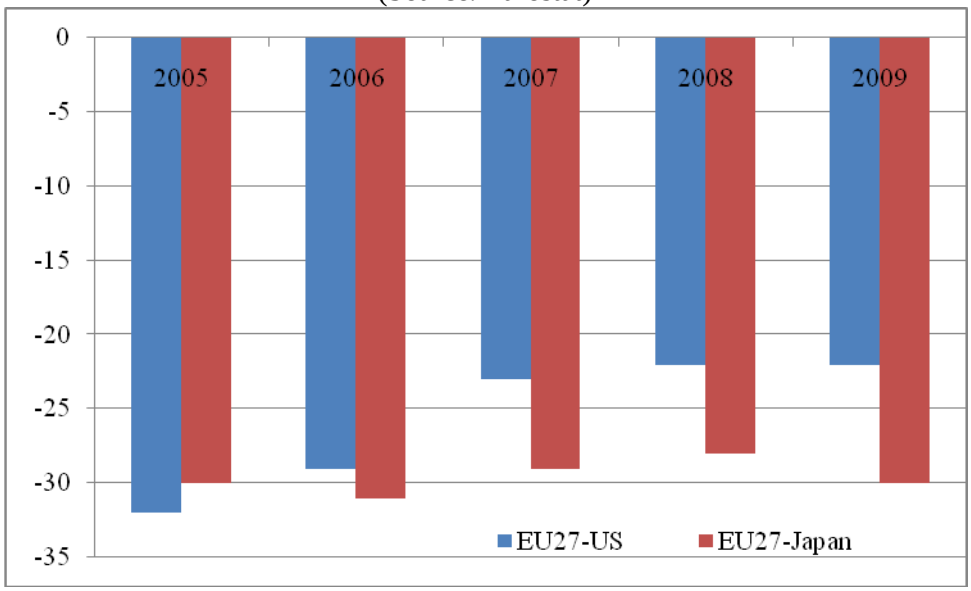


Figure 2: Gross Domestic Expenditure on R&D as a percentage of GDP (Source: Eurostat)

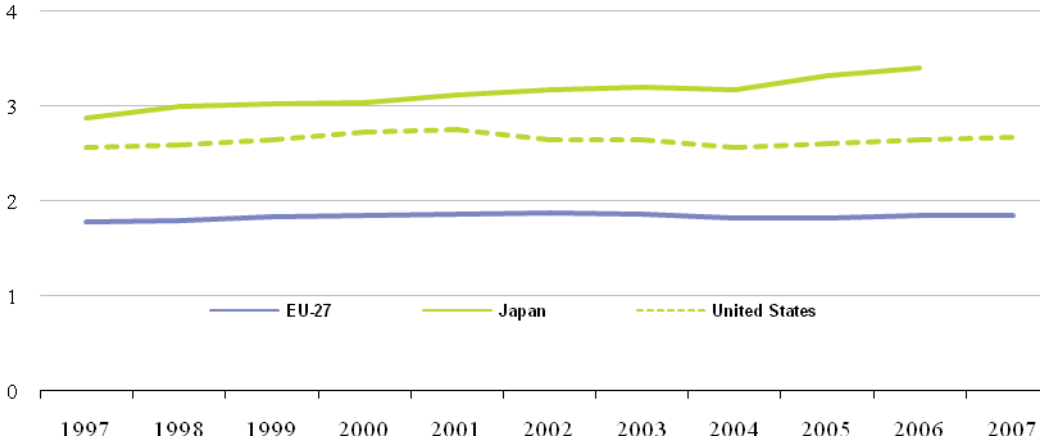


Table 1: Factors Explaining American and Japanese Success

United States	Japan
• A more intense research effort	• high level
• A larger proportion of engineers and scientists in the active population	• high level
• Research efforts better coordinated, in particular with regard to civilian and defence research (in particular in the aeronautic, electronic and space sectors).	• A strong ability to adapt terchnological information, wherever it comes from. A strong tradition of cooperation between firms in the field of R&D
• A close University - Industry relationship allowing the blossoming of high technology firms.	• An improving cooperation University / Industry, especially via the secondment of industrial researchers in Universities
• A capital risk industry better developed which invests in high technology. NASDAQ, a stock exchange for dynamic SMEs.	• Stable and strong relationships between finance and industry fostering long term benefits and strategies.
• A cultural tradition favourable to risk taking and to enterprise spirit, a strong social acceptation of innovation.	• A culture favourable to the application of techniques and on going improvement.
• A lower cost for filing licenses, a single legal protection system favourable to the commercial exploitation of innovations	• A current practice of concerted strategies between companies, Universities and public authorities
• Reduced lead time for firms creation	• A strong mobility of staff within companies.

Source: Korres (2011)

Following the results of the European Innovation Scoreboard, (2009 & 2010) for the innovation and R&T performance between Japan *vis-à-vis* EU, Japan is performing better than the EU27 in 12 indicators, only in trademarks, technology balance of payments flows, knowledge-intensive services employment and Knowledge-intensive services exports is the EU27 performing better. The Japanese innovation lead is however decreasing, as its innovation performance has grown at 1.65% while the EU27 is growing at an annual rate of 2.65%. The EU27 is closing the performance gap with Japan in S&E graduates, tertiary education, researchers, public R&D, public-private co-publications and medium-high and high-tech manufacturing exports. The EU27 is increasing its lead in trademarks, technology balance of payments flows and knowledge-intensive services employment. Japan is improving its lead in business R&D, patents, medium-high and high-tech manufacturing employment and Japan is marginally closing the gap in knowledge-intensive services exports

Figure 3: World High Technology Clusters

Source: OECD

Regarding innovation and R&T performance between USA *vis-à-vis* EU, the innovation and R&T performance the US is performing better than the EU27 in most of research and innovation indicators. Only in S&E graduates, trademarks, technology balance of payments flows and medium-high and high-tech manufacturing employment is the EU27 performing better. There is a clear performance gap in favor of the US. The US innovation lead is declining, as its innovation performance has grown at an annual rate of 0.95% while the EU27 is growing at an annual rate of 2.65%. The EU27 is closing the performance gap with the US in tertiary education, researchers, public R&D, venture capital, broadband subscribers, public-private co-publications, knowledge-intensive services employment and medium-high and high-tech manufacturing exports. The EU27 is increasing its lead in S&E graduates, trademarks, technology balance of payments flows and medium-high and high-tech manufacturing employment. The US is slightly improving its lead in business R&D, EPO patents, (European Innovation Scoreboard, 2009 & 2010).

Table 2: Research Activity Index (RAI) in EU-15, 1996-2008

	Engineering	Physics, Astrophysic Astronomy	Mathematics, Statistics & Computer Sciences	Chemistry	Earth & Environmental Sciences	Life Sciences
Greece	+		+		+	
Poland		+		+		
Bulgaria		+		+		
Latvia		+		+		
Italy		+				
Slovenia	+			+		
Cyprus						
Turkey	+					
Germany		+		+		
Russia		+		+		
Estonia		+			+	
Slovakia				+		
Spain				+		
Czech Republic				+		
France						
Japan+			+			
Israel						
UK						
US						
Austria						
Switzerland						
Denmark					+	
Belgium						
Norway					+	+
Ireland						
Iceland					+	+
Finland						+
Sweden						+

Source: DG Research, Key Figures

The innovation and R&T performance for EU member states are the following (European Innovation Scoreboard, 2009 & 2010 and Innometrics 2009):

- There is considerable diversity in regional innovation performances. The results show that all countries have regions at different levels of performance. The most heterogeneous countries are Spain, Italy and Czech Republic where innovation performance varies from low to medium-high. The results show that all countries have regions at different levels of performance. Regions have different strengths and weaknesses. It can be noted that many of the "low innovators" have relative weaknesses in the dimension of innovation enablers which includes human resources.
- Denmark, Finland, Germany, Sweden, Switzerland and the UK are the innovation leaders, with innovation performance well above that of the EU27 and all other countries.
- Austria, Belgium, France, Ireland, Luxembourg and the Netherlands are the Innovation followers, with innovation performance below those of the innovation leaders but above that of the EU27.
- Cyprus, Czech Republic, Estonia, Greece, Iceland, Italy, Norway, Portugal, Slovenia and Spain are the moderate innovators with innovation performance below the EU27.
- Bulgaria, Croatia, Hungary, Latvia, Lithuania, Malta, Poland, Romania and Slovakia are the catching-up countries. Although their innovation performance is well below the EU average, this performance is increasing towards the EU average over time with the exception of Croatia and Lithuania.
- The most innovative regions are typically in the most innovative countries. Noord-Brabant in the Netherlands is a high innovating region located in an innovation follower country. Praha in the Czech Republic, Pais Vasco, Comunidad Foral de Navarra, Comunidad de Madrid and Catalupa in Spain, Lombardia and Emilia-Romagna in Italy, Oslo og Akershus, Agder og Rogaland, Vestlandet in Norway are all medium-high innovating regions from Moderate innovators. The capital region in Romania, Bucuresti – Ilfov, is a medium-low innovating region in a catching-up country.

- Most of the changes are positive and relate to Cataluρa, Comunidad Valenciana, Illes Balears and Ceuta (Spain), Bassin Parisien, Est and Sud-Ouest (France), Unterfranken (Germany), Kzıp-Dunαntϊl (Hungary), Algarve (Portugal) and Hedmark og Oppland (Norway).

Table (3) summarizes the changes in innovation performance for European regional groups. The performance results appear, between 2004 and 2006, the following 16 changes in group membership. Innovation is a priority of all European Union member states and various policy measures and support schemes for innovation have been implemented. Table (4) illustrates the dispersion of regional Gross Domestic Product (GDP) per inhabitant as a percentage. Dispersion of regional GDP at NUTS 2 level, calculated as the sum of the absolute differences between regional and national GDP per inhabitant, weighted with the share of population and expressed as a percentage of the national GDP per inhabitant. Finally, Figure (4) illustrates the prospects and the implications from European innovation policy of 3 % objective for the period 201-2030 towards the European competition vis-à-vis US and Japan. There is an apparently "innovation-gap" between EU and USA. In particular, in the fields of R&D the expenditures of public funding gap and the business funding gap amounts every year 25bn € and 105bn €, respectively. The estimated gains for the "3 % objective" until 2011 accounts around 0.25 % GDP every year and 2 million jobs for a period of four years, while after 2011 accounts around 0.5 % GDP every year and 400,000 jobs for every year.

Table 3: Changes in Regional Groups for Innovation Performance

Regions	2004	2006
BE2 Vlaams Gewest	High innovator	Medium-high innovator
DE26 Unterfranken	Medium-high innovator	High innovator
ES51 Cataluña	Average innovator	Medium-high innovator
ES52 Comunidad Valenciana	Medium-low innovator	Average innovator
ES53 Illes Balears	Low innovator	Medium-low innovator
ES63 Ciudad Autónoma de Ceuta (ES)	Low innovator	Medium-low innovator
FR2 Bassin Parisien	Medium-low innovator	Average innovator
FR4 Est	Average innovator	Medium-high innovator
FR6 Sud-Ouest	Average innovator	Medium-high innovator
ITG2 Sardegna	Medium-low innovator	Low innovator
HU21 Közép-Dunántúl	Low innovator	Medium-low innovator
PL11 Lódzkie	Medium-low innovator	Low innovator
PL31 Lubelskie	Medium-low innovator	Low innovator
PL61 Kujawsko-Pomorskie	Medium-low innovator	Low innovator
PT15 Algarve	Low innovator	Medium-low innovator
NO02 Hedmark og Oppland	Medium-low innovator	Average innovator

Source: Innometrics (2009)

Notes: Based on regional data availability the analysis will cover at most 201 regions for all EU Member States and Norway at different NUTS levels as follows (cf. RIS Methodology report):

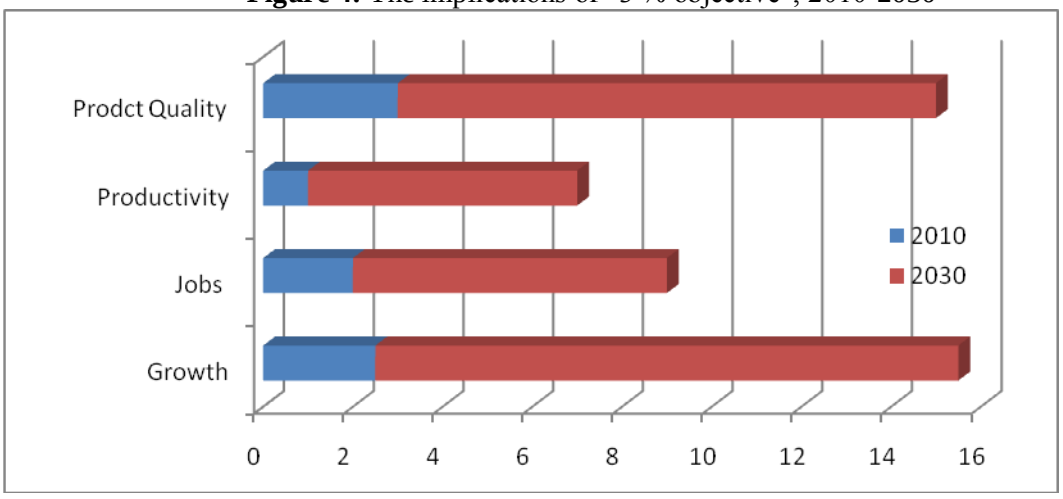
- NUTS 1: 3 regions from Austria, 3 regions from Belgium, 2 regions from Bulgaria, 9 regions from France, 9 regions from Germany, 3 regions from Greece, 1 region from Hungary, 2 regions from Spain, 12 regions from UK.
- NUTS 2: 8 regions from Czech Republic, 4 regions from Finland, 29 regions from Germany, 1 region from Greece, 6 regions from Hungary, 2 regions from Ireland, 17 regions from Italy, 12 regions from the Netherlands, 7 regions from Norway, 16 regions from Poland, 5 regions from Portugal, 8 regions from Romania, 2 regions from Slovenia, 4 regions from Slovakia, 17 regions from Spain, 8 regions from Sweden.
- 1 merged region for Greece (Anatoliki Makedonia Thraki GR11, Dytiki Makedonia GR13 and Thessalia GR14), 2 merged regions for Italy (Valle d'Aosta ITC2 and Piemonte ITC1; Molise ITF2 and Abruzzo ITF1), 1 merged region for Portugal (Região Autónoma dos Açores PT2 and Região Autónoma da Madeira PT3).
- Denmark, Estonia, Cyprus, Latvia, Lithuania, Luxembourg and Malta will be included at the country level.

Table 4: Dispersion of regional GDP per inhabitant as a percentage

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
EU-27	:	:	:	:	:	31,8	30,9	30,3	30,0	29,5	28,9
Belgium	25,3	25,2	24,3	25,2	25,3	25,4	25,4	25,0	25,2	25,6	25,5
Bulgaria	18,0	18,6	17,7	21,3	17,4	20,3	23,7	23,7	26,0	26,4	31,0
Czech Rep.	16,6	18,2	20,9	22,1	22,7	24,3	24,8	24,9	24,2	25,1	25,4
Denmark	:	:	:	:	:	:	:	:	14,4	16,3	15,7
Germany	17,0	17,0	17,2	17,5	17,6	17,9	17,9	17,8	17,6	17,3	17,3
Ireland	-	-	-	-	-	-	-	-	-	-	-
Greece	:	:	:	:	20,6	21,8	24,2	24,5	26,2	25,6	26,8
Spain	19,1	19,7	20,1	20,5	20,5	20,3	19,8	19,1	18,8	18,4	18,4
France	19,9	18,9	19,6	20,7	20,9	20,5	20,6	20,9	19,9	20,3	20,4
Italy	24,8	24,4	24,5	24,1	:	24,3	24,2	24,3	24,2	23,8	23,4
Hungary	27,4	28,7	29,2	32,1	32,6	33,0	35,4	34,2	33,4	35,7	37,6
Malta	-	-	-	-	-	-	-	-	-	-	-
Netherl.	10,3	10,5	10,7	10,8	10,9	10,9	11,2	11,0	11,3	11,9	11,7
Austria	19,3	18,5	18,5	18,5	18,1	18,4	18,7	18,0	16,8	16,9	16,1
Poland	15,4	15,8	16,1	17,7	17,6	18,2	18,1	18,3	18,7	19,4	19,5
Portugal	19,8	20,8	23,0	21,3	22,8	22,1	23,0	22,8	23,0	23,3	22,6
Romania	:	:	:	:	23,8	24,7	23,3	23,7	23,0	27,0	27,5
Slovenia	-	-	-	-	-	-	-	-	-	-	-
Slovakia	26,0	26,5	26,1	26,0	26,5	27,3	28,3	27,8	28,3	31,7	30,1
Finland	15,1	15,5	17,2	17,8	17,6	17,5	16,8	15,4	15,7	15,4	15,5
Sweden	12,6	14,4	15,4	16,2	15,7	14,8	15,3	14,8	15,6	16,4	15,3
United Kingdom	17,6	18,8	19,6	20,1	21,1	21,3	22,0	21,9	22,1	22,4	22,4
Croatia	:	:	:	:	:	17,8	18,0	18,3	17,6	19,2	19,1

Source: Eurostat

Figure 4: The implications of "3 % objective", 2010-2030



Source: Eurostat

The European innovation policy should facilitate the identification, adaptation and adoption of technological developments in a specific regional setting. It might be also facilitate towards technology transfer and the flow of knowledge across regions, maximising the benefit of the European dimension by facilitating access from less favoured regions to international networks of excellence (Stoneman, 1995). European innovation policy should take main actions, such as (Korres, 2011):

- Promoting innovation and introducing new financing forms in order to encourage start-ups, specialised business services, technology transfer,
- Interacting between firms and higher education/research institutes,
- Encouraging small firms and regions to carry out R&D for the first-time,
- Networking and co-operating among regions,
- Developing human skills.

4. Concluding Remarks

There is considerable evidence that investment in research and technological development and innovation (R&D) has a positive correlation with the level of economic development. Efforts in the area of R&D have been associated with higher growth rates, increases in exports and trade, gains in productivity, growth in income and output, higher business profits and international competitiveness. Given the correlation between innovation and R&D efforts and regional economic development, closing the inte-regional R&D gap in the EU becomes a requirement for reducing the cohesion gap, which is the primary objective of regional policy.

Most of the efforts in European innovation and R&D activities have been directly linked to the following policies:

- In the 1980s and 1990s, attention towards USA and Japan was put mainly in the Research Framework Program. The European research framework programmes have been launched to meet the specific needs of the weaker member states. Financial and technological flows through the research programmes should reduce the disparities between member states and to expand the opportunities for the European less favoured regions
- In 2000s, for EU attention was given towards competition with USA based in Lisbon strategy.
- Today, attention towards importance of ICT, sustainability, social innovation and demand pull measures

Looking first at scientific and technological output, EU is still ahead compared with US and Japan regarding the share of scientific publications, but lags behind in most of the other performance indicators, especially patents. There is, nonetheless, a substantial variation within the EU and certain EU member states often score better than the US and Japan (most notably Sweden and Finland). We can summarize some of the main findings:

- Per head of population, the EU generates fewer patent with a higher economic value than the US and Japan.
- The EU is lagging behind the US in patents in biotechnology and information and communications technology. International collaboration in patenting is lower in EU than in USA. In Japan, international co-operation in science and technology is rather limited.
- There has been a slight increase in the EU share of global exports of high-tech products in value terms.
- The production of scientific research and technological know-how increasingly depends on research conducted in other countries.
- In terms of scientific publications while actual numbers are still rising, however the EU share of world publications is declining, whereas the US share is recovering.
- Links between science and industry are not equally developed across countries.
- Technology policy has been relatively successful in certain fields like telecommunications or traffic control systems. In other fields, like microelectronics and computers, the results have been mixed.
- Less favoured regions spend comparatively lower levels of public funds on innovation and, on top of this, having greater difficulties in absorbing these funds than more developed regions within EU.

In the light of the above analysis, the European innovation policy has to be reinforced and oriented on several fronts:

- Establish a coherent innovation policy aiming towards industrial modernisation and competitiveness;
- Target and concentrated more effectively on the technological capabilities of the small member states targeting quality and productivity improvements and an exploitation of human and natural resources;.
- The traditional industries that are quite an important factor for the weaker states should be supported by appropriate research and technological programmes;
- The EU could envisage specific programmes for technological diffusion and dissemination of new technologies in small member states;
- Human capital formation should have a particular position in the EU policies *vis-a-vis* the smaller technologically countries. The European innovation policy aims to enhance the international demand

- for research activities and consequently to reinforce the weak internal market demand of the small member states aiming to regional convergence and a better quality of life.
- Investment in knowledge – research and development expenditure, education, software – and venture capital investment, for instance, spending patterns in the perspective of the knowledge economy.

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ACTIVITY OF FOREIGN CAPITAL-OWNED ENTERPRISES IN POLAND – IS IT REALLY EMBEDDEDNESS SO FAR? THE CASE OF ŁÓDŹ METROPOLITAN AREA (POLAND)

MARIUSZ E. SOKOŁOWICZ
Department of Regional Economics and Environment, University of Łódź
90-014 Łódź, ul. Rewolucji 1905 r. no. 39
Ph. D., Assistant Professor, University of Łódź, Poland
sokol@uni.lodz.pl; http://www.region.uni.lodz.pl/Mariusz_Sokolowicz.html

Abstract:

This paper depicts the level of international capital flows attractiveness in Łódź Metropolitan Area in Poland and identifies the key attractiveness' factors in the context of potential (or only hypothetical?) features that can decide about embeddedness of large, foreign capital-owned companies. From the point of view of the every territory's aspiration to build its long-term competitive advantage, it is worth considering whether it is better for a region to be a "container" of cost-minimizing resources for foreign capital-owned enterprises or to offer a well developed environment, enhancing the innovative potential of both territory and its companies. A questionnaire-based research among foreign capital-owned companies having their subsidiaries located in the Łódź Metropolitan Area and employing more than 50 workers, has been conducted. It has revealed that among FDI location factors in this territory, cost factors definitely prevail. At the same time, one can observe relatively low importance of pro-efficiency location factors (except some elements of local educational offer), which could determine the potential for innovativeness of regional economy. Therefore, in Łódź Metropolitan Area and probably in most of other Polish regions, a change of the character of pro-investment policy should be considered. This "policy switch" shall be directed towards building more efficient environment for stronger economic ties at the regional level. This also means a need of strengthening the institutional framework for innovation by human resources' development or development of research capacities of the public sector, which seems to be the most important aim for creating a potential for an effective "marriage" of global R&D network of TNCs with regional innovation system.

Keywords: embeddedness, territorialisation, foreign direct investment, location factors, regional development, Łódź Metropolitan Area

Introduction

It is surpising that in the age of globalization, cities and regions remain more and more open for FDI investment. However, in order to build a long-term competitive advantage for a destination, it is worth considering whether it is better for a territory to be a "container" of cost-minimizing resources for foreign capital-owned enterprises or to offer a well developed environment, enhancing the innovative potential of both territory and its companies. In the first case, regions can count on relatively quick profits in the form of growing employment rates and catalyzing their growth thanks to investment multiplier effect. However, the price they pay is not only a reduced tax income, as regions are trying to almost override each other in the level of tax credits, but also a risk of resources' exploitation and then quick delocalization in case of losing cost advantages, which recently are melting very quickly. The alternative strategy can be thus based on the processes of embeddedness, shifting the focus from low costs toward efficiency-based.

The aim of this paper is to depict the level of attractiveness of one Polish region for international capital flows and identify its key attractiveness factors in the context of potential features that can decide about embeddedness of large foreign capital-owned companies. Poland is an example of a European country, which takes advantage of accelerating FDI inflows. However, besides that low costs of labor or tax incentives are still the most popular location factors, it is worth verifying whether there is a shift towards more sophisticated ones, based on

regional and local mutual interdependencies, called in regional economics as" embeddedness" or "territorialisation".

The paper consists of seven parts. The first one refers to theoretical concepts, describing what embeddedness means and what are its most important elements. It is followed by the picture of FDI flows to Poland with the special emphasis on the region of Łódź and Łodź Metropolitan Area. The third part explains main methodological points of research described here. The next three parts present main results in the context of FDI location factors in Łodź Metropolitan Area, the role of its local *milieu* in building the conditions for embeddedness and investment attractiveness of this region compared with other parts of the world respectively. Conclusions, policy recommendations and possibilities of future research prospects close this study.

1. Foreign direct investment and territories – mutual interdependencies and embeddedness as a condition for building territorial sustainable competitive advantage

Nowadays, in the age of globalization, more and more cities and regions encourage international capital flows, transferred in the form of foreign investment. The latter is usually being analyzed as so-called foreign portfolio investment, when an enterprise from one country is undertaking less than 10% of shares in enterprise operating in another country, and foreign direct investment (FDI), when the number of undertaken shares or voting rights exceeds 10%, which implies a long-term strategy of controlling resources located in another country in order to economize them in the international or even global scale [1, p. 8]. From the regional economics point of view, FDI is considered to have much more important impact on the place where it is located. Striving to achieve long-term income, it implies the existence of long-term relationships between two units of the same company operating in different states as well as between subsidiary or branch of foreign direct investor and its new local / regional economic milieu (e. g. local contractors, business partners, buyers, authorities, local workforce, etc.).

However, as many authors argue, (Dunning [2], UNCTAD [3] and Edwards [4, p. 165-184]), a "classic" analysis of FDI on local and regional economies (growing employment rate, regional multiplier effect, technological modernization of local economy, etc.) touches the issue of its most quickly perceived effects, leaving the problem of its impact on long-term term regional competitiveness rather unresolved.

Meanwhile, researchers working on issues of the role of space and territories in the economy are often underlining that, what really decides about the success of regions, is the ability of not only attracting but maintaining capital. Among them one can mention A. Markusen [5] about "sticky places", J. Rifkin [6] about the role of territorial ties in today's world of hypercapitalism with its logic of "pure action and temporality", A. Scott and M. Storper [7], J. Hardy [8] about "cathedrals in the desert" or Doremus *et al.* [9] about the myth of global corporation. Today, a debate whether FDI brings more benefits than costs, cannot be simplified. The growing number of companies operating abroad organizing international value chains as well as in global knowledge and technology transfer, is indisputable. What is really important for cities and regions, is the way in which they adapt to conditions shaped by the activities of transnational corporations and to what extent they will be able to benefit or even influence changes in the global space of capital movement.

These aspects are partially reflected by the concept of embeddedness. According to B. Domański et al. [10, p. 18], this term can be defined as entirety of factors that decide about durability of investment in specific place. Among factors of embeddedness of a multi-branch company one should mention (N. Etlinger [11], M.Sokołowicz [12]): specificity of branch, stability of both global and local environment of every enterprise's activity, managers' attitudes translated into their location decisions, the effect of the choice between a dilemma "cost-strategy vs. quality-based-strategy", economic policy on every territorial level (local, regional, national, international) and, what remains really important – quality of local business environment (*milieu*). As M. Sokołowicz suggests [12, p. 8], these elements, should be interpreted not only in economic, but also sociological, political or more broadly – institutional context. The essence of this phenomenon defines a situation in which the company at the same time profits from and participates in the creation of so-called specific resources of a given region; these resources

cannot either be "copied" in another territory or duplicate in different place, as the latter is too expensive or impossible.

The problem of embeddedness uses a similar concept of territorialisation, based on the assumption that it is a territorial proximity which contributes to the process of strengthening institutional framework supporting business activities (see: A., Rallet, A., Torre [13, p. 49]. Co-location of enterprises (also economic rivals) in a local production system is a classic example of external economies, where the success of one company does not remain unnoticed by the others [P. Maskell, 14]. This concept refers directly to the idea of spillover effects [Marshall, 15], treated as an intangible but very important source of spatial externalities.

It should be noticed that in contemporary economy, enterprises operating in the international scale rarely or never act separately from other economic entities and are bounded by the need of cooperation between suppliers, subcontractors or other business partners. That is why enterprises are under strong influence of three different structures, having different logic, dynamics, objectives, time horizon and criteria of rationality. According to C. Dupuy and J. P. Gilly [16], these variables are: 1. industrial group, which formulates the general policies and strategies and whose internal structure affects the degree of autonomy of the company; 2. industrial sector, specifying the technical and technological solutions and 3 territory where a given enterprise is located and which has its own organization and development policy. In other words, a single company participates simultaneously in the development of industrial group it belongs to, technology and region (territory).

Capital, especially financial one, is by its nature, a-territorial. One basic condition of regional competitiveness is to "tie" this capital by offering specific resources, enhancing its territorialisation processes. This kind of strategy seems to be the only rational response to the potential risk of delocalization of foreign capital. From the regional policy point of view, cities and regions should change their strategies of attracting foreign capital from cost to efficiency- and innovation-based. As A. Nowakowska *et al.* [17] underlined, among actors that may play an important role in this process are: the authorities of territorial units (municipalities, cities, regions), the boards of special economic zones and other public and quasi-public agencies, responsible for stimulating the development processes.

2. Foreign direct investment in Poland with particular emphasis on the region of Łódź and Łódź Metropolitan Area

The Central and Eastern European Countries, despite their growing role as FDI recipients, receive a relatively small percentage of global capital flows. In the years 1990-2008, the average share of CEE countries in total FDI flows stood for 2.7%. In this period of time, one can notice growth, but these flows have also been characterized by annual fluctuations (table 1). However, the position of Poland as a recipient of FDI among the other countries of CEE, remains significant. In this country between 1990 and 2008, there was an increase in FDI inflows from $ 88 million to $ 16.5 billion. The average of Poland's participation in the FDI inflows to that part of the continent was thus 29.2%.

Table. 1. The inflow of FDI into Central and Eastern European (CEE) Countries compared to other parts of the world (in billions of American dollars) in the period 1990-2008

	1990	2000	2005	2008	1990	2000	2005	2008
	billions of USD				%			
World	207 273	1 381 675	973 329	1 697 353	100.0%	100.0%	100.0%	100.0%
European Union	97 309	680 729	498 440	503 453	46.9%	49.3%	51.2%	29.7%
Euro zone	62 934	501 774	258 787	290 440	30.4%	36.3%	26.6%	17.1%
Developing Countries: Asia	22 660	148 561	213 751	387 828	10.9%	10.8%	22.0%	22.8%
Developing Countries: America	8 926	98 355	77 070	144 377	4.3%	7.1%	7.9%	8.5%
Developing Countries: Africa	2 805	9 737	38 222	87 647	1.4%	0.7%	3.9%	5.2%
CEE Countries	**646**	**22 397**	**47 668**	**66 726**	**0.3%**	**1.6%**	**4.9%**	**3.9%**

Source: Own composition, based on database of United Nations Conference on Trade and Development (UNCTAD), available at: http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx, accessed 20.11.2010.

Poland remains the largest recipient of FDI not only as one of the CEE countries but also compared to most developed countries of the European Community (table 2). In 2008, Poland attracted 16.5 billion U.S. dollars, which put the country in sixth place just after France, Great Britain, Spain, Belgium and Germany.

Table 2. FDI Inflows to the largest European Union countries in the period 1990-2008

	1990	1995	2005	2008	1990	1995	2005	2008
	billions of USD				%			
France	15629.2	23673.2	84951.3	117509.8	19.8%	23.8%	18.7%	27.0%
Great Britain	30461.1	19969.4	176006.1	96938.7	38.6%	20.1%	38.7%	22.2%
Spain	13294.3	8070.5	25020.2	65539.4	16.9%	8.1%	5.5%	15.0%
Belgium	n/a	n/a	34370.5	59679.9	n/a	n/a	7.6%	13.7%
Germany	2962.4	12024.7	47440.1	24938.5	3.8%	12.1%	10.4%	5.7%
Poland	**88.0**	**3659.0**	**10249.0**	**16533.0**	**0.1%**	**3.7%**	**2.3%**	**3.8%**
Austria	653.0	1904.5	10784.5	13551.1	0.8%	1.9%	2.4%	3.1%
Romania	n/a	419.0	6482.9	13305.0	n/a	0.4%	1.4%	3.1%
Denmark	1132.2	4328.9	8916.2	10921.4	1.4%	4.4%	2.0%	2.5%
Czech Republic	n/a	2561.8	11602.8	10730.6	n/a	2.6%	2.5%	2.5%
Bulgaria	4.0	90.4	3922.7	9204.7	0.0%	0.1%	0.9%	2.1%
Hungary	553.8	5103.5	7705.8	6514.4	0.7%	5.1%	1.7%	1.5%
Portugal	2901.5	689.7	3929.6	3532.0	3.7%	0.7%	0.9%	0.8%
Slovakia	n/a	2587.1	2428.6	3413.9	n/a	2.6%	0.5%	0.8%
Estonia	n/a	201.5	2942.8	1968.9	n/a	0.2%	0.6%	0.5%
Lithuania	n/a	72.6	1032.0	1815.1	n/a	0.1%	0.2%	0.4%
Slovenia	n/a	150.5	587.6	1814.8	n/a	0.2%	0.1%	0.4%
Latvia	n/a	179.6	713.4	1425.6	n/a	0.2%	0.2%	0.3%
Netherlands	10515.5	12304.0	47791.4	-3492.1	13.3%	12.4%	10.5%	< 0
Ireland	621.9	1442.9	-31689.3	-20030.0	0.8%	1.5%	< 0	< 0
Total	**78816.9**	**99432.9**	**455188.0**	**435814.7**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: Own composition, based on database of (UNCTAD), available at: http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx, accessed 20.11.2010.

Poland is a middle sized country and the spatial distribution of foreign direct investment remains uneven. Disparities in foreign investors' activity can be observed among Polish regions (the highest level of administrative units in Poland with established self-government bodies, corresponding to NUTS2 level[1]), but one can observe a radical concentration of FDI in Polish metropolitan areas. It should be noted that metropolitan areas are the most preferred

[1] http://epp.eurostat.ec.europa.eu/portal/page/portal/nuts_nomenclature/introduction, accessed 16.11.2010

locations for transnational corporations' branches and subsidiaries in most countries. For example, in the nineties of 20th century, half of all TNCs from Austria were concentrated in Vienna. In Japan, 4 of every 5 their representations were located in Tokyo metropolitan area [18, pp. 63-65]. In this context, the study agrees with the ESPON analyses, which underlined five basic functions of metropolitan areas[2] and that their openness to FDI contributes to strengthening four of them: hosting subsidiaries and branches of transnational corporations (decisive function), forces the investment in infrastructure, increases its international accessibility (communication function), contributes to strengthening the innovative capacity of the area through technology transfer (function of knowledge creation) and strengthens the development of tourism infrastructure.

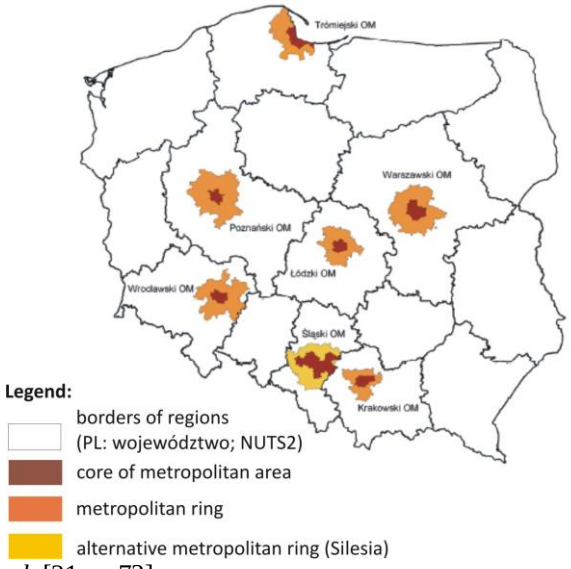
Polish metropolitan areas, despite not being delimitated as separate administrative units, constitute functional regions playing more and more important role in settlement structure of Poland as economic and social "growth poles". According to ESPON analyses, in Poland there are 8 metropolitan areas (MEGAs: Metropolitan European Growth Areas), one of which (Warsaw) is classified as MEGA2 (potential metropolis) and 7 (Gdańsk with Gdynia, Szczecin, Poznań, Wrocław, Łódź, Katowice with the rest of Silesia conurbation and Kraków) were classified as MEGA3 (weak metropolis) (ESPON [20, p. 12]). In elaborations considering delimitation of Polish metropolitan areas conducted on the national level, the territorial units of metropolitan areas' classification do not correspond directly with NUTS classification. Polish MEGAs are "composed" indirectly as a structure consisting of usually two or more NUTS3 statistical areas, when one refers to the core city and the other refers to suburban areas surrounding it. They also correspond to LAU1 and LAU2 level of European nomenclature of territorial units and so, metropolitan areas are structures consisting of Polish departments (in Polish called "powiat", LAU1) and in some cases communes (Polish "gmina", corresponding to LAU2 as basic self-government territorial units) (see map 1). From the research point of view, this blurred delimitation of metropolitan areas as functional regions must be treated as a disadvantage, since it provides difficulties in collecting statistical data concerning FDI flows in Poland, where the "lowest" level of territorial disaggregation refers to NUTS2 (never to NUTS3, LAU1 or LAU2) and even this level offers very limited statistics.[3]

[2] 1. Administrative (metropolis as place of location of government and self-government institutions). 2. Decisive (metropolis as the seat of subsidiaries and representative offices of transnational corporations). 3. Communication (metropolis as a major transport hub). 4. Knowledge and innovation (metropolis as a place conducive to the creation of innovation). 5. Tourism (the metropolis as an attractive tourist product of international significance). See ESPON [19, p. 12].

[3] In Poland, there are two institutions responsible for collecting data concerning FDI: National Bank of Poland (for the purposes of accounting national balance of payments) and Central Statistical Office (which however excludes the sector of finances from its analyses). Because of problems with obtaining reliable data on regional (NUTS2) level, National Bank of Poland has stopped doing it a few years ago, collecting it only on national level. On the contrary, Central Statistical Office continues to collect FDI data on regional level but stresses the methodological limitation of this practice. FDI data on regional level is, in fact, collected by the address of company's registration. In other words, when Polish subsidiary of TNC is formally registered in Warsaw (usually main office) but has also branches in other Polish regions (e.g. factories), it appears in official statistics only once, in Warsaw. Because most foreign-owned companies decide to register main office in the capital of Poland, it leads to overrepresentation of FDI in the region of Warsaw (PL: mazowieckie).

It should be also noted, that the study of Polish Information and Foreign Investment Agency is, to some extent, helpful in the analysis of FDI flowing to specific locations in the country. Although the Agency does not perform an exhaustive study, it registers every foreign-owned company that invested in Poland more than 1 million U.S. dollars, by exact place of its every investment project location. By the end of December 2008, altogether 1.536 foreign investors from 42 countries were included in the List of Major Foreign Investors in Poland [22, p. 3]. These investors were in control of 2.083 corporations registered in Poland. The most numerous group were investors from Germany (366), the Netherlands (169) and the United States (161). Companies from these three countries made up to 45% of the investments studied by the Agency.

Map 1. Potential major metropolitan areas in Poland – proposal of delimitation



Source: M. Smętkowski *et al.* [21, p. 73]

According to Polish Central Statistical Office, at the end of 2008, 867 enterprises with foreign capital shares were operating in Łódzkie region, which placed it on the 8th position after other Polish regions (table 3). From this number, one could observe 217 enterprises employing 50 to 249 employees as well as 61 large companies (employing over 250 persons). Total employment in this companies counted for 68.781 (around 12% of all persons employed in all enterprises on the region), where 52.369 worked in enterprises employing 50 to 249 employees and 16.412 in enterprises employing over 250 persons[4].

It should be noted that while in terms of number of companies with foreign capital, the region of Łódź is in good position, close to the national average, in terms of their growth dynamics it comes only to twelfth place. In 2008, in the region of Łódź they were about 25% more companies with foreign capital than in 1999 (compared to average growth rate of 57% in Poland) – see Table 3.

Table 3. Dynamics of the number of companies with foreign capital, by province in 1999-2008

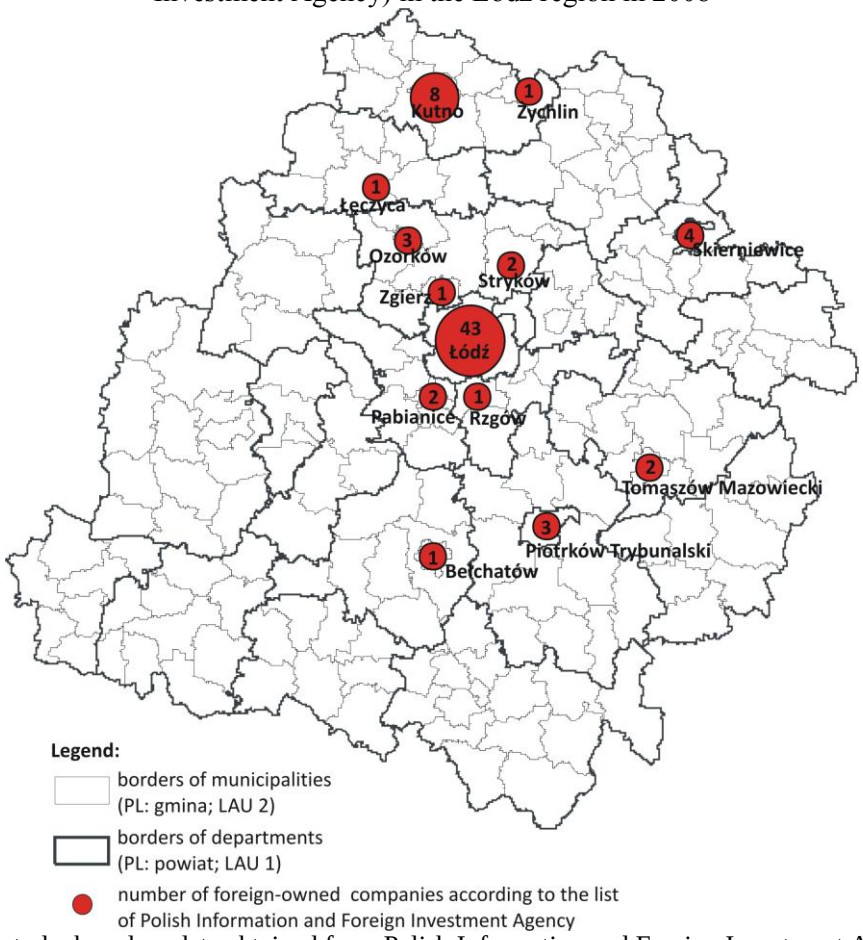
Region (PL: „województwo") – NUTS2	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**1999-2008 (1999=100)**
mazowieckie (Warsaw)	3278	3791	4306	4306	4913	5026	5530	5934	5930	7622	233
podlaskie	57	92	92	87	88	95	100	102	114	127	223
wielkopolskie	1258	1256	1253	1262	1314	1345	1385	1436	1488	1923	153
małopolskie	834	902	794	745	813	844	920	1092	1110	1251	150
podkarpackie	222	244	246	260	244	251	271	298	294	317	143
dolnośląskie	1556	1587	1522	1593	1675	1758	1831	1962	2048	2112	136
lubuskie	576	648	604	570	592	637	682	718	793	776	135
kujawsko-pomorskie	400	403	378	392	420	433	457	485	520	537	134
śląskie	1437	1408	1452	1491	1618	1624	1652	1708	1861	1882	131
pomorskie	960	1002	1024	1002	902	943	1041	1127	1190	1216	127
łódzkie	**693**	**690**	**666**	**671**	**653**	**699**	**726**	**792**	**808**	**867**	**125**
zachodniopomorskie	1005	1023	961	955	963	993	1074	1166	1163	1216	121
lubelskie	275	294	289	297	299	308	332	336	329	329	120
warmińsko-mazurskie	254	270	287	296	287	278	268	265	247	291	115
opolskie	426	449	445	426	419	412	420	428	459	462	108
świętokrzyskie	169	185	150	135	171	170	148	166	161	164	97
POLAND	**13400**	**14244**	**14469**	**14488**	**15371**	**15816**	**16837**	**18015**	**18515**	**21092**	**157**

Source: Own study, based on data obtained from Polish Central Statistical Office, 2010.

[4] Data obtained from Polish Central Statistical Office, 2010.

A relative weak position of the region of Łódź does not mean that areas of one of the highest activity of subsidiaries and branches of big foreign capital-owned enterprises have not occurred here. The analysis of Polish Information and Foreign Investment Agency shows that Łódź Metropolitan Area (formally a part of the region of Łódź), is one of the most important destinations of foreign capital in Poland. Besides Łódź[5] , the capital of the region, one can also mention other destinations, like: Kutno, Skierniewice, Bełchatów, Tomaszów Mazowiecki i Piotrków Trybunalski (see map 2). However, the biggest number of investment is located undoubtedly in Łódź Metropolitan Area.

Map 2. Largest foreign investors (according to the list of Polish Information and Foreign Investment Agency) in the Łódź region in 2008

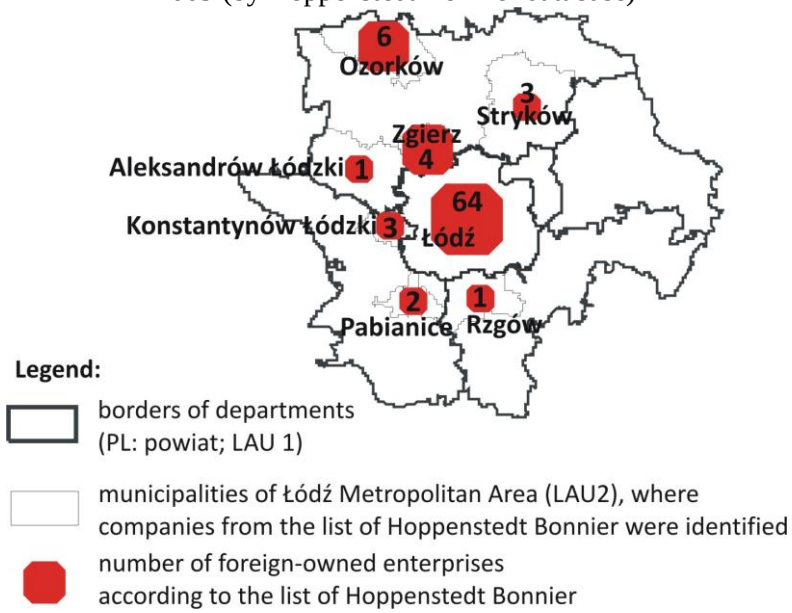


Source: Own study, based on data obtained from Polish Information and Foreign Investment Agency, 2009.

An important concentration of foreign investment is also revealed by an analysis of commercial databases on the activities of companies in Poland. For example, data from Hoppenstedt Bonnier database, popular in the countries of Central and Eastern Europe, showed that in July 2009, there were 84 entities with foreign capital, employing 50 or more people, having their headquarters in all municipalities of Łódź Metropolitan Area.

[5] Since the adoption of the strategy for economic development of Łódź, prepared by McKinsey and Company (strategy based of attracting FDI to the city), it has recorded a rapid inflow of foreign direct investment, mainly large companies. According to data from the Investor Assistance Center of the City Hall of Łódź, by the end of 2008, foreign-owned companies invested nearly 2.9 millions of U. S. dollars in the city, while forthcoming investment plans exceeded the amount of the next 1 million.

Map 3. Foreign investors employing 50 or more employees in the Łódź Metropolitan Area in 2009 (by Hoppenstedt Bonnier database)



Source: Own study, based on data obtained from Hoppenstedt Bonnier database.

Of this number, 64 entities were located in the capital of region and the core of Metropolitan Area – Łódź. In addition, six companies were registered in Ozorków (in one of subzones of Special Economic Zone), 4 the came from Zgierz, and 3 from Stryków. Also, 3 companies were registered in Konstantynów, 2 in the city of Pabianice, 1 in Aleksandrów and 1 in Rzgów. What is very discernible is almost total lack of activity of subsidiaries of foreign capital-owned companies in the eastern part of Metropolitan Area (see map 3).

3. Methodology of examining territorialisation (embeddedness) of business processes of transnational corporations in Łódź Metropolitan Area

To verify if one can observe the embeddedness processes in Łódź Metropolitan Area, a research had been conducted between 20.11.2009 and 31.01.2010[6]. The main aim of this research was to examine if among advantages and incentives that Łódź Metropolitan Area offers to foreign direct investors, one can identify those which not only decide about comparative cost advantage of this region but also about its long-term competitiveness, based on region's specific resources. The quantitative research was based on interviews made among foreign capital-owned companies having their subsidiaries located in the Łódź Metropolitan Area and employing more than 50 workers.

The sampling frame was a commercial database of firms – Hoppenstedt Bonnier Company Database, where 97 entities meeting above criteria have been identified. After further verification it came out that only 84 met these criteria in reality (map 3), of which 21 companies agreed to participate in the research (24.7%). In consequence, one was able to make 19 computer aided personal interviews (CAPI) as well as 2 computer aided telephone interviews (CATI) were additionally made. 17 interviewers were located in Łódź, and one each in the case of: Ozorków, Pabianice, Zgierz and Stryków. Among those who did not participate in the study:

- one missed to contact with 16 companies due to the lack of validity of contact data;
- 35 companies refused to participate in the study without giving reasons;
- 6 companies refused to participate in the study, despite an earlier interview appointment;
- 7 companies failed to participate in the study as a result of continuous postponing the date of the interview.

[6] This study was a part of research project financed by Polish Ministry of Science and Higher Education (grant no. N N114 051335, *The processes of integration and disintegration in the Łódź Metropolitan Area*, led by Professor Aleksandra Jewtuchowicz).

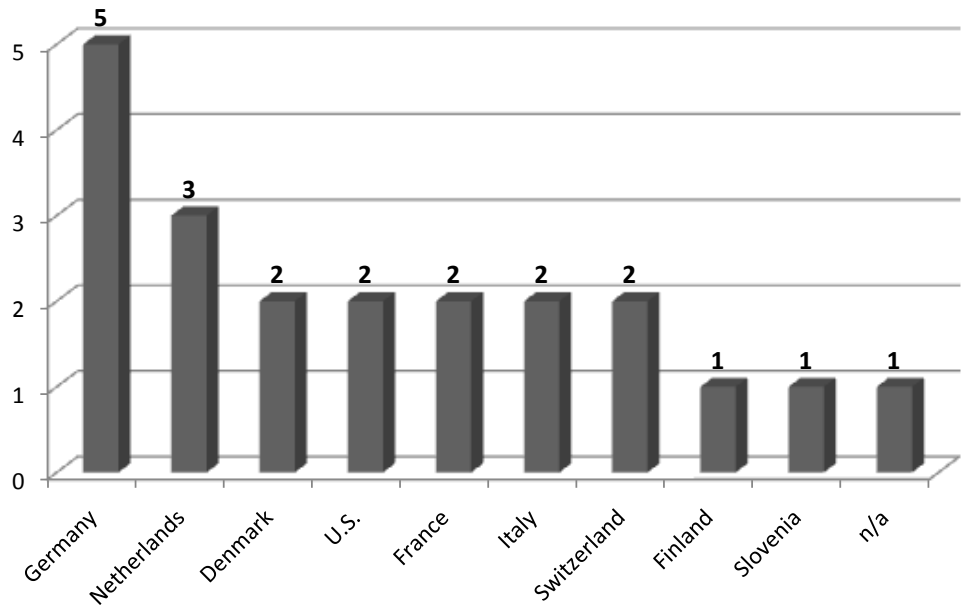
The respondents in the survey were mainly the managers of subsidiaries of foreign capital-owned companies (board members in 11 cases). In other situations, answers were given by a person occupying a different position than board member but the one identified as competent in the range of asked questions (e.g. assistant manager, chief accountant, director of marketing, company's spokesman).

The interview questionnaire consisted of five parts. The first one contained basic information about the company (sector of activity according to NACE, durability of activity in the Łódź Metropolitan Area, the capital structure, the number and location of the branches abroad). The second part was devoted to study the location factors and the verification of the significance of these factors over time. The next section contained questions about local public support for the location of foreign direct investment; questions were about the type and scope of support from public sector institutions (town hall departments responsible for investor service, the Regional Investor Assistance Centre of the Region of Łódź, the Polish Information and Foreign Investment Agency, Łódź Special Economic Zone) and the main forms of contacts between these agencies and investors.

Another part of the interview was devoted to the strength and barriers to cooperation between branches of big transnational companies investigated and the local *milieu*, in the context of the level of their current and potential future embeddedness. The last group of questions concerned the assessment of the competitive advantages of Łódź Metropolitan Area in relation to other Polish regions, as well as whether there is a competition or cooperation among municipalities of metropolitan area in the process of attracting FDI (the context of integration of pro-investment policies in the region).

The structure of industries represented by investigated companies remains quite dispersed. Among the surveyed companies, 6 were producers of textiles, wholesale trade was represented by 4 while 2 of them came from pharmaceutical industry. Other sectors (one each) were represented by individual entities among them: non-metallic mineral products, chemicals, rubber and plastics, electrical equipment, disposal collection, treatment and recycling, retail trade, software and consultancy services, employment outsourcing).

Figure 1. The structure of the surveyed companies by country of origin of capital



Source: Own study.

Among the surveyed companies, the largest number of them had their roots in Germany (5) and the Netherlands (3). Two companies came respectively from: Denmark, France, Italy and Switzerland and the United States. It is worth noting that only two companies came from outside the European Economic Area.

The structure of location of the other international branches of companies reveals the same pattern as the structure of the origin of capital. Among the 21 surveyed entities, 5 of them refused to determine the structure of the whole group in the international capital network. In other cases, 5 companies declared that beyond Poland, they have one delegation and in other cases they declared having 2, 3 or more agencies abroad. One can identify the domination of capital ties with European Economic Area countries (mainly Western Europe), however some enterprises also have their branch offices in such countries such as the United States, China and Turkey.

4. Location factors of the branches of foreign capital-owned enterprises in the Łódź Metropolitan Area

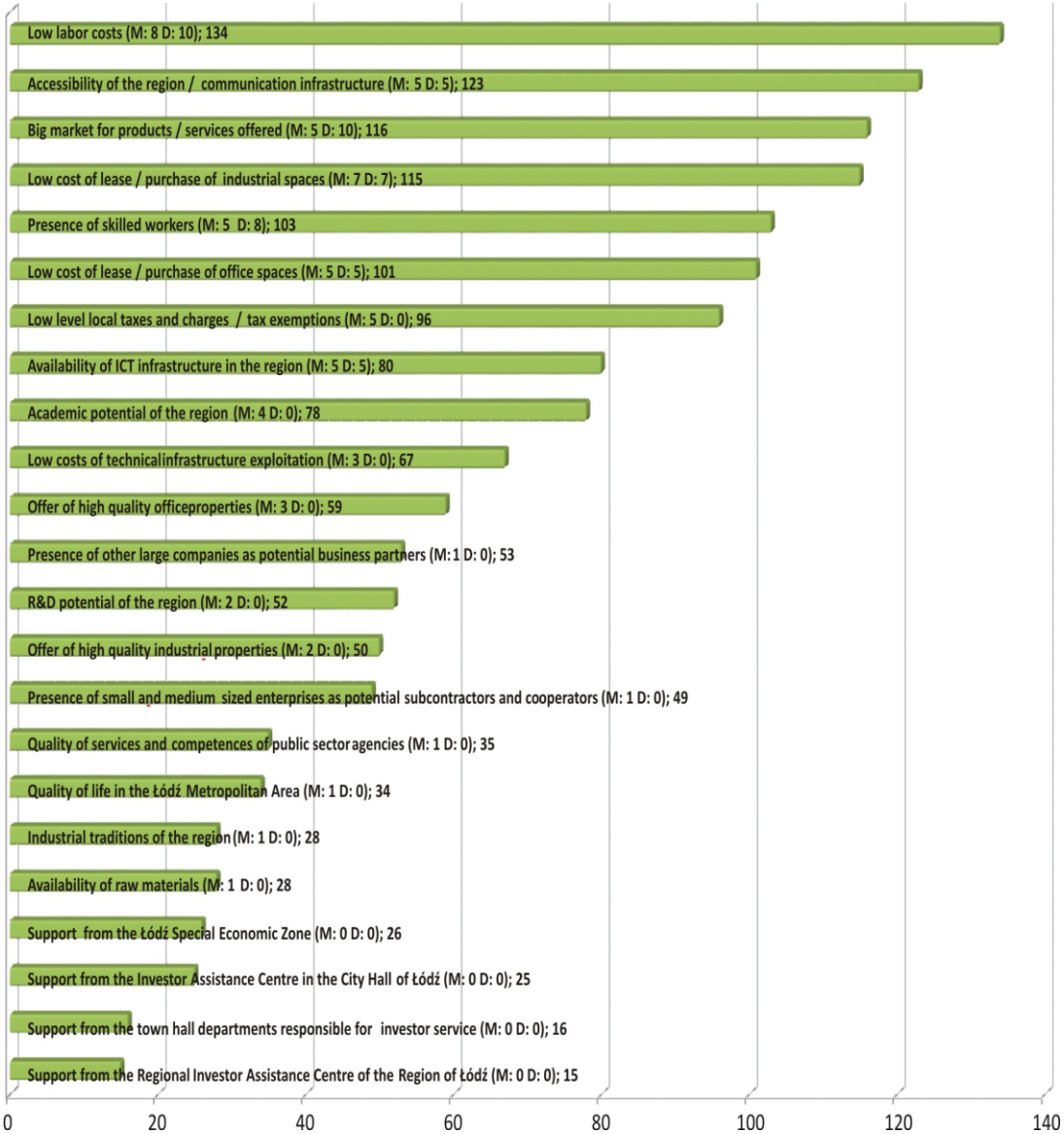
It should be noted that the list of location factors indicated by corporate representatives in Łódź Metropolitan Area is dominated significantly by those concerning diminishing costs of activity. For instance, among most popular factors of investment attractiveness were: low labor costs (1st position) and low costs of leasing, renting or buying a property (4th position). Another important group of location factors considered spatial availability of the region (communication assuring minimization of transportation costs) and subsequently, big market as well as the level of local taxes and fees (see figure 2).

Location factors influencing the efficiency and long-term competitiveness (academic potential, R&D potential, the presence of suppliers assuring backward and forward linkages as well as knowledge transfer), with the exception of the presence of skilled workers in the region, are much less likely to be indicated by foreign capital-owned companies. It should be also noted that the significance of such location factors as the presence of potential suppliers or research potential was rated by the respondents at a lowest level (usually no more than 3 on a 1-10 scale), which is reflected by low values of such measures of central tendency like median and dominant (see figure 2).

Additionally, a particular attention must be paid to the fact that the surveyed large foreign-owned companies did not indicate the pro-investment support from the public sector as an important location factor. This can be confirmed by low significance rates given to such responses as: the support of the Łódź Special Economic zone, municipalities, or the Regional Investor Assistance Centre of the Region of Łódź. Also, a quality of service and competences of public sector entities revealed during contacts concerning various administrative procedures, have been also low-rated by surveyed companies. These observations raise questions about the sense and the effectiveness of pro-investment policies, especially taking into account still high the income tax reliefs offered to investors in Polish SEZs. In Łódź Special Economic Zone, investors employing 50-249 workers can expect the advantage of the public aid in the form of 60% income tax exemption, while those who employ more than 250 workers can expect the advantage of the public aid in the form of 50% income tax exemption (by 2017, in accordance with European Commission regulations).

There was a low correlation between the date of start-up of foreign capital-owned companies' subsidiaries in Łódź Metropolitan Area and the level of their satisfaction with the support from pro-investment policy agencies. However, it should be noted that among those who took part in the survey were almost no top-brands of large companies with foreign capital, treated by such institutions as strategic ones (e. g. ABB, Bosch-Siemens Group, Dell, Procter and Gamble). It is anyhow symptomatic that these world-brand corporations having their branches and subsidiaries in Łódź and the rest of Łódź Metropolitan Area, consistently refuse to participate in such studies. This fact remains contradictory to the declarations of their representatives about openness to cooperation (e.g. with local universities).

Figure 2. Business location factors in Łódź Metropolitan Area, as indicated by the respondents



Letters in brackets refer to significance of a given location factors, rated on 1-10 scale, where M is a median and D is a dominant. The number at the end of each indication shows the sum of the responses rated on a 1-10 scale.
Source: Own study.

The surveyed companies indicated that they are not experiencing a situation in which factors that had a significant influence on their location choices at the moment of starting-up in Łódź Metropolitan Area, have not met their expectations, and have been a motive for the decision to relocate. On the other hand, among the factors that had a significant impact on the choice of location and are still important and determine today's decision to continue their activities in region, companies mention mainly low labor costs (this factor was indicated by 16 out of 21 surveyed companies), as well as low prices of properties. It prejudges about the fact that companies with foreign capital operating in the Łódź Metropolitan Area, mainly apply cost strategies, leaving aside efficiency-based and pro-innovative strategies.

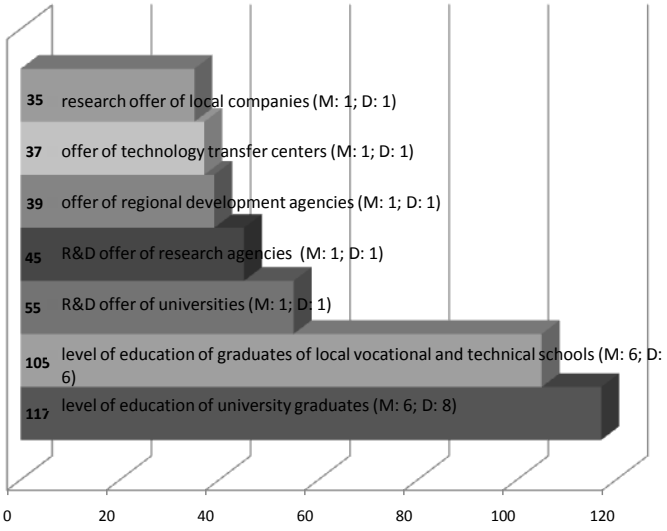
5. The attractiveness of the local business *milieu* as a condition of terrritorialisation

The analysis of the effects of presence of such regional actors in Łódź Metropolitan Area like universities, vocational schools, R&D institutions or regional development agencies, from the point of view of their aptness for foreign capital-owned companies, leads to the conclusion that what really matters for the latter, it is an educational offer of high schools and universities.

Respondents strongly emphasized that in terms of investment attractiveness of the region, what they valued the most is the level of education of graduates from local universities as well as from local vocational and technical schools (see figure 3).

The offer and the activity of other institutions have been assessed more than twice less. This leads to the conclusion that the offer of R&D institutions in the region (both private and public ones) is not the subject of major concern for corporate representatives. In this context it should be noted that among the competitive advantages of Łódź Metropolitan Area, cost advantages continue to dominate to the detriment of regional innovation potential.

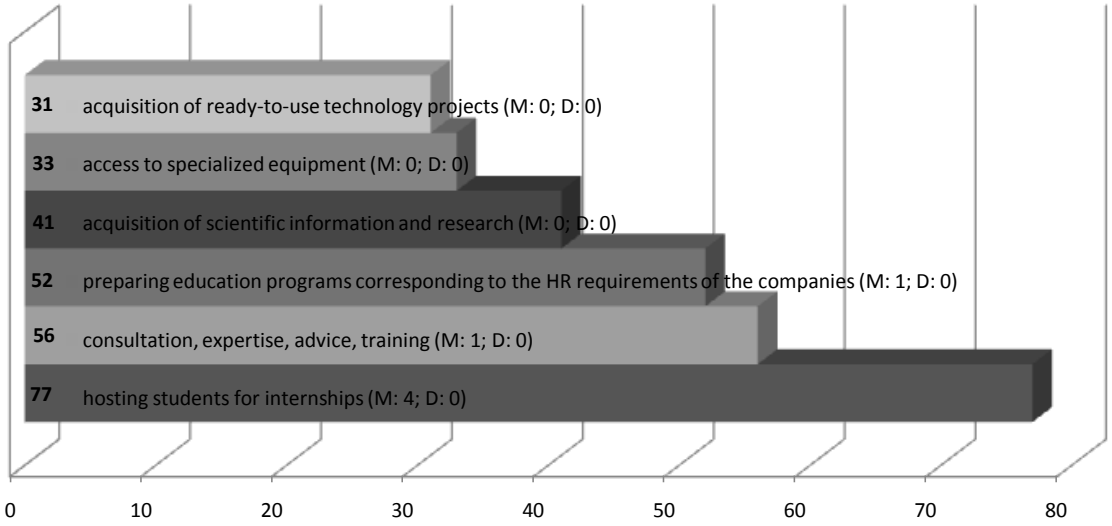
Figure 3. Evaluation of the aptness of the offer of institutions operating in Łódź Metropolitan Area in the eyes of corporate representatives



Letters in brackets refer to significance of a given indication, rated on 1-10 scale, where M is a median and D is a dominant. The number at the beginning of each indication shows the sum of the responses rated on a 1-10 scale.
Source: Own study.

Going further, hosting students for internships is still a dominant area of cooperation between TNCs and regional universities. This confirms that the strongest relationships of cooperation relate to the educational offer of Łódź Metropolitan Area, whereas foreign capital-owned companies benefit from the expertise and training to much lesser extent. What is more, opening by local schools universities learning programs that correspond to the requirements of employers is still not a common practice in the region.

Figure 4. Areas of cooperation of foreign capital-owned companies with the institutional environment in Łódź Metropolitan Area



Letters in brackets refer to significance of a given indication, rated on 1-10 scale, where M is a median and D is a dominant. The number at the beginning of each indication shows the sum of the responses rated on a 1-10 scale.

Source: Own study.

Especially the last of these areas of cooperation should be considered as a positive direction of building strong ties between subsidiaries and branches of TNCs with their local *milieu*. However, this conclusion should be treated with extreme caution due to the fact that, despite its indication as one of important areas of cooperation, the respondents judged it extremely low on the 1-10 scale (see Figure 4).

Table 4. The barriers of cooperation of foreign capital-owned companies with the institutional environment in Łódź Metropolitan Area

Barrier	**Sum of the responses on a 1-10 scale**	**Median**	**Dominant**
No information about the functioning of such institutions, their offer and opportunities for transfer of new technologies, ideas, solutions	82	3	0
Limited opportunities to adapt R&D offer to the needs of business	82	2,5	0
The poor quality of the offer of these institutions	76	1	0
Lack of confidence to these institutions	45	1	0
Too small number / lack of such institutions in the city of Łódź / Łódź Metropolitan Area	43	1	0
The reluctance of these institutions to cooperate	43	1	0

Source: Own study.

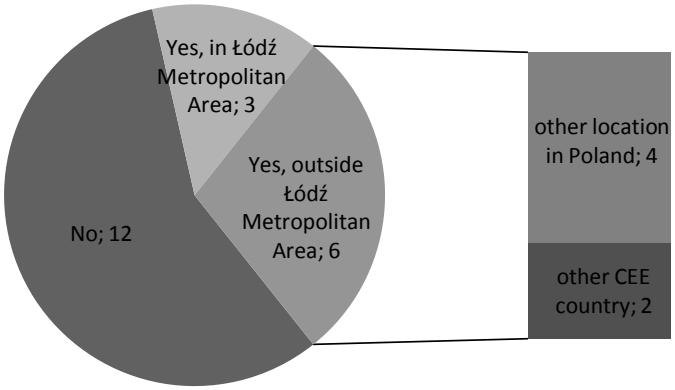
The surveyed companies indicated that the primary barriers of cooperation with the institutional environment in Łódź Metropolitan Area were: lack of information about their offer as well as their inability to adapt this offer to the business needs. This creates an image of regional institutions that do not have the ability to commercialize their inventions, especially in the case of cooperation with foreign capital. In terms of mutual relations, the offer of R&D institutions has been assessed relatively well because such barriers of cooperation as distrust, dislike or too small number of R&D institutions have been pointed out much less frequently.

6. Investment attractiveness of Łódź Metropolitan Area compared with other regions

More than a half of surveyed companies (15) unambiguously declare that they have not considered an alternative location to Łódź Metropolitan Area. Among the remaining 6 entities,

one noted declarations about considering leaving this location. Among these companies, 4 related to other towns in Poland while 2 related to other country in Central and Eastern Europe.

Figure 5. Location patterns of economic activity alternative to Łódź Metropolitan Area



Source: Own study.

In case of alternative location outside Poland, respondents indicated Romania and Ukraine, countries offering mainly lower costs of labor. What has caused choosing Poland at the very end instead of these countries, it was a higher quality of institutional environment for economic activities, an important factor at the national level. However, it is difficult to identify relevant factors of "institutional" competitiveness at the regional level. Only a few indications of concerning delocalization strategies make it impossible to generalize this conclusion to the entire surveyed group of enterprises.

7. Conclusions

In relation to the dominant location factors in Łódź Metropolitan Area, cost factors definitely prevail (among them: relatively low labor costs, low property prices, localization of the region in the center of the country conducive to minimizing transport costs, and finally tax credits in the Łódź Special Economic Zone and selected municipalities). At the same time, one can observe relatively low importance of pro-efficiency location factors, which could determine the potential for the innovativeness of the regional economy. Furthermore, the research has not revealed significant changes in the perception of location factors in time. It is worrying that the lowest-rated factors are those related to the support from those pro-investment policy agencies in the region. What can be regarded as a positive phenomenon,is the fact that investors rate the level of education and skills of local workers as very high. On the other hand, however, an R&D offer of the region is still not the subject of major concern of surveyed companies. To sum up, among the most important competitive advantages of Łódź Metropolitan Area, cost advantages continue to dominate with the detriment of regional R&D and innovative potential.

In the context of the processes of embeddedness, the strongest cooperation ties are observed between surveyed companies and regional high schools, vocational schools and universities, mainly in the field of education. Subsidiaries and branches of companies benefit from the regional expertise to a much lesser extent. It means that areas of cooperation of the most innovative character (access to scientific information and R&D potential, specialized equipment as well as the acquisition of ready-to-use technology projects) are rarely appreciated by the surveyed companies. Among the basic barriers of cooperation with the local *milieu*, the surveyed companies underline the lack of information about innovative institutions in the region and the limited possibilities of adaptation of the effects of R&D activity to the business needs (problems with their commercialization).

In the context of the above research results, some policy recommendations can be indicated. Bearing in mind that despite high tax exemptions, a public aid and support of public bodies is not highly appreciated by investors, a change of the character of pro-investment policy

should be considered. This policy switch can be directed towards building more efficient environment for stronger economic ties at the regional level. These ties should concern both relations with universities (where first best practices of such cooperation can be already identified in Łódź Metropolitan Area), but also with R&D institutions and, what seems to be most important, with local small and medium sized enterprises, which could play the role of subcontractors and business partners for TNCs. It must be indicated that, in the age of global capital flows, SME support policy should not be in opposition to pro-TNCs policy, but should be treated as a complementary one. One tool of such a "combined" policy can be bounding the size of investment incentives and support from the public sector offered to foreign capital-owned companies with the level of share of local SMEs in their structure of suppliers, customers and business partners. Among the latter, one can mention a creation of the platform of knowledge exchange about the potential business partners.

Another important way of building long-term competitiveness of regional economy should be based on enhancing innovative potential of Łódź Metropolitan Area. Strengthening the institutional framework for innovation by human resource development or development of research capacities of the public sector seems to be the most important aim for creating a potential for an affective "marriage" of global R&D network of TNCs with regional innovation system (see UNCTAD [23, p. 202) and Liang [24, p. 171]). This development goal seems to be a strategic one for all Polish regions and metropolitan areas, especially when taking into consideration the big gap between gross expenditure on R&D (GERD)[7] of this country with both EU average and one of "Europe 2020" strategy goals (the value of GERD in EU 3% by 2020) [26].

The research undertaken and described in this paper does not undoubtedly affect all aspects of foreign capital-owned enterprises' activity in Łódź Metropolitan Area. Among problems met during its execution one can mention the relatively low number of enterprises that agreed to participate in research, especially world-brand companies operating in the region. The enlargement of the size of the research sample in order to reach satisfying level of statistical significance, is one of the biggest challenges of the future research. In order to better assess the approach to public support from foreign investors' point of view, it would be interesting to compare the opinions expressed by companies operating in Łódź Special Economic Zone, with opinions formed by companies who did never take advantage of it. Finally, a bigger sample could allow to verify correlations between firms' strategies and their age, sector, level of innovativeness, etc., as well as to make international and interregional comparisons, especially that there is a lack of such studies in the literature. However, analyses of this kind would exceed the scope and financial capabilities of this study; the author hopes that the approach presented here can contribute, at least to some extent, to a number of regional case studies already described by economists, geographers and regionalists.

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PROFILING CULTURAL TRAVELERS ON THE BASIS OF A CONSUMER BEHAVIORAL APPROACH

Katsoni Vicky, MBA, Ph.D,
Lecturer, Dept. of Hospitality and Tourism Management,
School of Business and Economics, TEI of Athens,
E-mail:katsoniv@teiath.gr
Papageorgiou Athina, Ph.D,
Lecturer, Dept. of Hospitality and Tourism Management,
School of Business and Economics,TEI of Athens,
E-mail:papageorgiouath@yahoo.gr
Giaoutzi Maria, Professor NTUA,
Dept. of Geography and Regional Planning,
School of Rural and Surveying Engineering,
National Technical University of Athens,
E-mail: giaoutsi@central.ntua.gr

Abstract
This article identifies typical patterns of information sourcing behavior in the travel decision process of the cultural traveler. Trip characteristics, degree of packaging, choice of accommodation and sociodemographic variables are also discussed. Using data from the province of Arcadia, Greece, which serves as the research field of a longitudinal study, the present article provides some new insight into how information search affects cultural travelers. Tourists interested in learning about the local culture/history would primarily seek information on their destination place from recommendations made by friends and family and secondly by looking for information on the Internet. The findings suggest strategies for marketing management decisions and a comprehensive understanding of the cultural travel market segment from a consumer behavior perspective.

1.INTRODUCTION

Cultural attractions have become a crucial component in constituting the attractiveness of tourism destinations (Hewison, 1987; Hughes, 1987; Prentice, 2001; Richards, 2002). Statistical data on Europe, reported by Europa Nostra (2006), show that more than 50% of tourism in Europe is driven by cultural services. The present research focuses on cultural tourism and refers specifically to Arcadia, a historic land of intense and continuous presence, from antiquity to the Byzantine and modern periods — a land which in Renaissance European art and literature, symbolized a utopian pastoral world of innocence and tranquillity, and thus might even today influence Arcadia's 'destination image'.

It has been more than two decades since Van Raaij (1986) posited that consumer research on tourism should be a cornerstone of marketing strategy and while the tourism literature evidences that several factors influence travelers' behavior to consume tourism products (Lepp and Gibson, 2008; Hsu, Tsai and Wu, 2009); to date, investigations into the determinants of cultural tourism consumption remain inadequate in the literature. For example, the relative importance of the various information sources (such as ICT) used by cultural travellers is not yet systematically analyzed. Given the increasing importance of this particular market segment for destinations, additional research is needed to understand the behavior of cultural tourists in an attempt to bring further theoretical and practical contributions to this field of study. This article provides a comprehensive overview on behavior patterns of cultural travellers to Arcadia and contributes to the study of information sourcing behavior in the travel decision process of cultural travellers. It also provides a basis for channel members, especially suppliers, to assess their distribution strategies.

2. BACKGROUND LITERATURE

2.1 Cultural Tourism Defined

O'Leary and Deegan (2003) suggested culture defined a destination's tangible and intangible heritage, which includes its music, museums, historical places and traditional richness. Thus, while a destination's image includes such dimensions as local attractions, climate and scenery, it also has a cultural aspect that can influence people's choice to visit. Some researchers have also studied culture as a destination attribute (O'Leary and Deegan, 2003), or as an important reason for travelling to a destination (McKercher and Cros, 2003), indicating that cultural differences might be a driver of tourism destination choice, as people want to experience living places and cultures other than those of their own environment (Prentice, 2001). From a producer's perspective, cultural tourism is the marketing of cultural products to tourists as cultural experiences (Craik, 1995). Thus, many researchers define cultural tourism as an experiential consumption (Prentice, 2001; Edensor, 1998; Gunn, 1988; Leiper, 1990), as it is "tourism constructed, proffered and consumed explicitly or implicitly as cultural appreciation, either as experiences or schematic knowledge gaining". Cultural tourism consumption is defined as a behavioral intent to consume cultural products in the focal decision context (Ramkissoon, Uysal and Brown, 2011).

Because of the powerful symbolic benefits of cultural consumption, including social honor and prestige (Belk, 1988) the consumption of cultural products is a key factor in the stratification of social class (Lamont & Fournier, 1992; Bourdieu, 1984; Di-Maggio & Useem, 1978) as it requires a certain level of knowledge and familiarity (cultural capital) that is disproportionately accessible to different social classes (e.g. participation in arts/cultural events).

Much tourist literature describes a close linkage between tourists' socioeconomic and demographic status and their participation in cultural attractions, not only within the everyday context but also during the pleasure trip (Munt, 1994; Richards, 1996). For instance, Hall and Zeppel (1990) observed that tourists at art festivals tend to be mature professionals with high income who are willing to travel to attend major events. Moreover, mature individuals were overrepresented among tourists, particularly at some cultural attractions such as art festivals (Hall & Zeppel, 1990; Zeppel & Hall, 1991). Hughes (1987) argued that higher socioeconomic groups are overrepresented as consumers of art and culture (cultural and heritage attractions), while Craik (1997) found that people with lower socioeconomic status and lower educational level are unlikely to consume cultural tourism products. Herbert (2001) observed that tourists visiting literary heritage sites usually belong to relatively higher social class (managerial, professional, and white-collar workers) and females, in general, are known as more active consumers of cultural products than are males(Hall & Zeppel, 1990; Urry, 1995; Zeppel & Hall, 1991; Craik, 1997;).

2.2 Tourist segmentation

Market segmentation is a technique used to subdivide a heterogeneous market into homogeneous subgroups that can be distinguished by different variables, such as consumer needs, characteristics, or behaviour (Kotler, 1998; Middleton, 1994). Because people have individualized needs, tastes, and attitudes, as well as different life stages and lifestyles, no single variable can be used to segment travel markets (Andereck and Caldwell, 1994). The primary bases for segmentation include demography, geography, behaviour (Morrison 1996), lifestyle, personality, motivations and benefits sought (Cha et al., 1995; Madrigal and Kahle, 1994).
However, some bases (e.g. demographic and behavioural) have been criticised for their failure to predict actual consumer behaviour (Andereck and Caldwell, 1994; Cha et al., 1995; Morrison et al., 1994; Prentice, Witt and Hamer, 1998). Employing multiple variables should yield greater explanatory power than using a single variable. In several major hospitality and tourism texts, the use of "multistage segmentation" (Middleton, 1994; Havitz and Dimanche, 1990; Morrison, 1996) or a "combination" (Kotler et al., 1998) of multiple variables rather than just one has been been recommended. A review of the literature indicates that there is no one correct way to segment a market.

Market segmentation is a valuable instrument in planning appropriate marketing strategies and framing management thinking (Porter, 1985). Segmentation is justified on the grounds of achieving greater efficiency in the supply of products to meet identified demand and increased cost effectiveness in the marketing process as well as to maximise financial resources (Perdue, 1996). Numerous methods of tourist segmentation exist, including a posteriori or factor-cluster segmentation, a priori or criterion segmentation and neural network models . A priori market segmentation can be less time consuming and more effective for separating markets at less cost (Hsieh and O'Leary,1993).

In tourism, the importance of segmentation is widely acknowledged (Cha, McCleary, & Uysal, 1995; Kastenholz, Davis and Paul, 1999). To date research has centred upon building tourist profiles for a destination using visitor data and creating bases which can be used by tourism destinations to effectively segment tourism markets (Bieger & Laesser, 2002a,b; Mo, Havitz, & Howard, 1994).

"Purpose of trip" is recognized as one of the non-traditional segmentation bases closely associated with travel motivation, and has been approached from different perspectives. Examples of such studies include the interaction of trip purposes with activities (Hsieh, O'Leary, & Morrison, 1992; Jeffrey & Xie, 1995; Morrison, Hsieh, & O'Leary, 1994; Moscardo, Morrison, Pearce, Lang, & O'Leary, 1996), interest (Sorensen, 1993; Wight, 1996), motivation (Cha, McCleary and Uysal, 1995;Wight, 1996), opinion (Cohen & Richardson, 1995), and value (Madrigal & Kahle, 1994). In using trip type as a key variable to segment the travel market, inclusion of more trip-related characteristics in the analysis is highly recommended for comprehensive understanding of the target segment from a consumer behavior perspective(Sung , Morrison , Hong and O'Leary, 2001), such as length of stay and size of the travel party (Hsieh, Lang, and O'Leary,1997).

2.3 Information search and distribution channels' usage

Buhalis (2001, p. 8) saw the functions of distribution in these terms: "The primary distribution functions for tourism are *information*, combination and travel arrangement services. Most distribution channels therefore provide information for prospective tourists; bundle tourism products together; and also establish mechanisms that enable consumers to make, confirm and pay for reservations". These purposes and functions have received unequal attention from researchers examining the visitors' perspective, and relevant studies are often not set squarely in the literature on distribution channels. This is especially the case with questions of information search, in which a large discrete body of work has developed as "an enduring interest in consumer behaviour" (Schmidt and Spreng 1996, p. 246).

Understanding how customers acquire information is important for marketing management decisions. This is especially true for travel and tourism products, which are delivered away from home, often in unknown places, inducing functional, financial, physical, psychological, and social risks (Lovelock and Wright 1999; Teare 1992; Srinivasan 1990). Travel products mostly are intangible personal service products, involving personal interactions between customers and service providers (Lovelock and Wright 1999; Normann 1996; Teare 1992) and the consumption and production of tourism products always coincide, creating high personal involvement (Bieger,2002a,b). According to the economics of information, these characteristics often lead to high personal investments of time, effort, and financial resources for customer decision making (Lambert 1998).

Information source usage has also been used empirically as a segmentation variable. When employed as a descriptor to profile the behavior of tourists who have been segmented on some other basis, information search has provided valuable insights for planning marketing strategies and targeting marketing communications (Moutinho, 1987). With increasing frequency, tourists have been directly segmented based on their search behavior (Bieger and Laesser, 2000a,2004; Fodness and Murray, 1997, 1999; Mansfeld, 1992; Um and Crompton, 1990; Baloglu, 1999;

Crotts, 1998; Beatty and Smith, 1987; Snepenger and Snepenger, 1993; Etzel and Wahlers, 1985; Perdue, 1985; Schul and Crompton, 1983; Woodside and Lysonski, 1989). With regard to information search behavior research, three major theoretical streams can be identified (Schmidt and Spreng, 1996; Srinivasan, 1990; Bieger and Laesser, 2004; Pearce and Schott, 2005):

a) The Psychological/Motivational/Individual Characteristics Approach

Traditional perspectives of information search focus on functional needs, defined as motivated efforts directed at or contributing to a purpose (Vogt and Fesenmaier, 1998). According to this approach, the search for information enables travellers to reduce the level of uncertainty and to enhance the quality of a trip (Fodness and Murray, 1997; Teare, 1992). The psychological/motivational approach can be linked to travel motivation theory, where a differentiation between a push and pull demand stimulation is stipulated (Cha, McCleary and Uysal 1995). The idea behind this dimensional approach lies in the proposition of people being pushed by their own internal forces and pulled by the external forces of the destination attributes (Yuan and McDonald 1990; Shoemaker 1994, 1989). Consequently, the individual's characteristics influence the utilization of available internal and external information sources (Bonn, Furr and Hausman, 2001; Schonland and Williams, 1996; Crompton, 1992; Snepenger et al., 1990; Leiper, 1990; Hugstad and Taylor, 1987). After identification of needs, customers may first start internal search, using existing knowledge that is also dependent on consumers' ability to access stored knowledge and information contained in memory related to past experiences with the provider and other related learning about the environment/situation, such as vicarious learning when actual experience is not available (Peter, J. P. and Olson, J. C. 1996). Examples of vicarious learning include gathering information via word of mouth about the experiences of others with service providers. (Bettman, 1979; Alba and Hutchinson, 1987; Brucks, 1985; Gursoy and McLeary, 2003; Kim and Fesenmaier, 2009; Vogt and Fesenmaier, 1998).

If internal search is not successful and consumers face uncertainty, then they continue with external search, that is information seeking from the environment (Beatty and Smith, 1987; Murray, 1991). Various typologies exist for classifying external sources of information, including service provider dominated (advocate) versus independent/objective sources, (Murray,1991), personal versus impersonal sources (Hawkins, Best and Coney,1998) and, from the tourism literature, professional versus non-professional sources (Opperman, 1999). Typically, the consumer will prefer one source over another based on the perceived effectiveness of a particular information source. Implicit in the concept of source effectiveness is the notion that some types of sources are more influential than others in providing useful information with which to form pre-service encounter expectations (Hawkins, Best and Coney, 1998).

Although information seeking is often coupled with a cultural (and therefore regionally different) background that results in different patterns of behavior (Dawar 1993), a number of common travel-specific factors regarding information collection have also been identified. Variables of information search behaviour, such as length of trip, previous experience and/or visits to the destination, and travel party characteristics (e.g. composition of the vacation group, the presence of family and friends at the destination) need to be examined (Fodness and Murray 1999; Woodside and McDonald 1994; Schul and Crompton 1983; Bieger and Laesser 2002a,b; Snepenger et al. 1990).

Gursoy and McLeary, (2003) proposed a model of tourist information search behavior that integrated internal and external search, cost of search, concepts of familiarity, expertise, and previous visits with involvement and learning of the individual. In addition, Zins and Teichmann, (2006) conducted a longitudinal study where they found that credibility of information channels change from the pretrip to the posttrip phase. Bieger and Laesser (2004) also investigated the differences in information channels before and after a trip decision is made. Consistent with the Zins and Teichmann (2006) study, the Bieger and Laesser (2004) study shows that the selection of the information channel differs significantly depending on type

of trip, degree of packaging, and choice of destination. They also found that friends or, in the web context, other users are very important channels, as are guide books, regional and destination information brochures, and tourist boards (Bieger and Laesser, 2004).

b) The Cost/Benefit Approach (Economics Approach)

According to the cost/benefit approach, tourists' search for information and the use of information sources depends on the expected costs and benefits of the information sourcing alternative. In that regard, most traditional perspectives of information search are embedded in processing theory and consumer behavior models (Bettman, 1979), addressing issues such as the role of product knowledge (Hirschman and Wallendorf, 1982), uncertainty (Murray, 1991) either with regard to knowledge uncertainty or choice uncertainty (Urbany, Dickson and Wilkie, 1989), utility (Bettman and Sujan, 1987), and efficiency (Bettman, 1979). Costs within this framework are either generated on behalf of risk-limiting search costs or the assumption/acceptance of risk.

The assessment of risk is perceptual; the information search strategy with the greatest possible efficiency reduces risk and uncertainty (Murray 1991; Urbany, Dickson and Wilkie 1989; Bettman, 1973; Schiffmann, 1972). According to Mitra, Reiss and Capella (1999), perceived risk derives from a cognitive conflict between customer expectations and the anticipated outcome of the purchase decision, with information sourcing as a reaction to this conflict in order to re-establish cognitive balance. Murray (1991) and Lutz and Reilly (1973) further suggested that perceived risk and information search are positively correlated. Risk encountered in service purchase can be reduced by seeking additional information about the service (Lutz and Reilly, 1973; Hugstad and Taylor, 1987). This implies that the higher the perceived risk (associated with the purchase of services), the more likely a heightened information search effort on the part of the tourist. However, consumers' information behavior is also likely to be influenced by the perceived costs of information search. When the perceived costs of acquiring additional information is high, information search declines. The economics of information perspective implies a consumer trade-off between the perceived benefits and costs of acquiring additional information.

c) The Process Approach

Recent studies have recognized that travel decision making is complex, involving multiple decisions including length of trip, primary destinations, companions, activities, attractions, accommodations, trip routes, food stops, and shopping places (Fesenmaier and Jeng, 2000; Mountinho, 1987; Woodside and MacDonald, 1994). For multiple product decisions, travellers search for information and move back and forth between search and decision-making stages (Woodside and MacDonald 1994). In addition, actual travel behaviors do not always follow plans (March and Woodside 2005; Stewart and Vogt 1999). Accordingly, in studying travel behaviors, researchers should consider interactions or intersections of multiple goals and decisions, information search as an ongoing process, and differences in planned and actual behaviors. The process approach focuses on the process of information search rather than on the action itself.

A number of authors have reported that the choice process adapted by consumers with regard to non-routinized, high involvement purchases are phased (Correia, 2002; Vogt and Fesenmaier, 1998; Hsieh and O'Leary, 1993; Crompton, 1992; Um and Crompton, 1990;Woodside and Lysonski, 1989; Bettman and Sujan, 1987). A number of concepts are proposed to describe the process of decision making. Basically, they include a number of input variables and a phased process that includes an information acquisition phase, a procession phase, a purchase phase, and last but not least, a consumption phase (Vogt and Fesenmaier, 1998; Correia, 2002). Crompton (1992) proposed three stages of this process, including an initial consideration set, a late consideration set, and an action and interaction set. Leiper (1990) puts forward a model in which a generating information marker (i.e., information received before setting out) creates a reaction on the needs/wants of a potential traveler, leading to positive expectations/motivations

and to a travel decision. Vogt and Fesenmeier, (1988) propose a five-stage model, focusing on the heuristics of information finding and decision making. In this model, purchase and consumption

coincide. Correia, (2002) examined and expanded the decision-making process of travellers and classified the act of purchasing a trip into three distinctive stages: the pre-decision stage, the decision stage, and the post-decision stage.

A few researchers have suggested that travel-planning theories are more suitable to explain or predict complex travel behaviors compared to single goal-oriented decision-making theories, because a planning process includes multiple decisions and interactions among decisions (Fesenmaier and Jeng, 2000; Pan and Fesenmaier, 2003; Stewart and Vogt, 1999). A plan is a traveller's reasoned attempt to recognize and define goals, consider alternative actions that might achieve the goals, judge which actions are most likely to succeed, and act on the basis of those decisions (Hoc, 1988; Stewart and Vogt, 1999). This definition of planning includes all information search behaviors, information uses or applications, purchase behaviors, actual trip behaviors, and the learning from all these experiences (Vogt and Fesenmaier, 1998).

The Internet has also intensified the complexity of the travel decision-making process, as it has become an important channel for travelers' information search (Gretzel, Fesenmaier and O'Leary, 2006; Gursoy and McLeary, 2003; Pan and Fesenmaier, 2006; Xiang, Weber and Fesenmaier, 2008 Jun , Vogt Mackay, 2007), creating an environment whereby online information providers such as tourist boards, hotel and resort websites, travel agents, bloggers and magazines actively compete for attention to attract searchers and ultimately, bookers. Many travel decision-making models present information search and assessment as processed before decision making (Um and Crompton, 1990; Woodside and Lysonski, 1989); however, the Internet has made it easier for travellers to collect information, purchase travel products, and change their decisions at any stage of the decision-making process.

Many destinations have also invested in Information and Communication Technologies (ICT), in their effort for more efficient and effective ways of managing tourism demand and facing domestic and global competition (Zins, 2009). The Internet provides an opportunity for travel and tourism service providers to intermix traditional marketing channels (i.e., distribution, transaction, and communication) that were previously considered independent processes (Peterson, 2003; Zins, 2007). A single interaction on the Internet can provide product information, a means for payment and product exchange, and distribution, whereas more traditional interaction approaches frequently separate these functions (Jun, Vogt and Mackay, 2007). Particularly interesting studies haveconsidered the use of online information sources relative to more conventional ones.

2.4 Implications of the Literature Review

The literature review offers a number of options to analyze the profile of cultural travellers: firstly, an analysis of the sociodemographic characteristics. Secondly, an analysis of their trip characteristics: trip organization (package holiday/self guided holiday), time used to make the trip decision, type of accommodation, travel companion and booking. Thirdly, an analysis of their information sourcing behaviour, based on internal and external information sources, and ICT use in particular: the Internet, the use of Global Positioning System (GPS) and the Personal Digital assistant (PDA).

3. METHOD

3.1. Data collection

This investigation was designed to further understand the tourism market in the province of Arcadia, Greece, over a period of 12 months, between July 2007 and July 2008 to eliminate seasonality. The survey, included Greek and foreign tourists in the region. Hotel owners or managers had agreed to collect the data for the study and the survey questionnaires were distributed to the survey sites. Respondents freely participated in answering the survey questionnaire after they had stayed in the hotel for at least one night and finally, researchers visited and collected the survey questionnaires from each hotel accommodation.

Data were collected by using a four-page self-administered questionnaire, in Greek and English, primarily designed to gather information on the subjects' general motivations for travel. A total of 3500 questionnaires were distributed to the sites and 820 usable questionnaires were collected, which leads to the response rate of 23.43%. Their participation in cultural attractions

was identified through the question: ‘‘As part of your vacation how likely are you to be interested in learning about local culture/history (i.e. visiting historic sites, museums, cultural exhibitions, going to the theater, concerts, ballet, etc.)

3.2. Analysis

The survey data were coded and analyzed using R, an open-source statistical package.Descriptive statistical analysis was applied to the collected data to explore the overall sample profile. In order to identify special characteristics of the sub-population of tourists that had replied positively to the question on how likely they were to be interested in learning about local culture/history on their vacation, the cultural travellers' group was separated from the rest of respondents and the following sub-groups for subsequent analysis were constructed:

- Group A or 'Cultural travellers' (N = 593): 'Very likely' or 'Likely' to be interested in learning about the local culture/history
- Group B (N = 200): 'Very unlikely' or 'Unlikely' or 'Neither likely nor unlikely' to be interested in learning about the local culture/history

Then, the special characteristics of the two sub-groups were analysed. Chi-square tests were conducted to verify whether differences between the two sub-groups, as regards particular characteristics of the population of tourists, were due to chance variation or revealed some statistically significant trend. Chi-squared tests were chosen for use in this exploratory investigation to aid in making inference about the uniform distribution (or not) of the two sub-groups in relation to demographic, trip characteristics, selection of information sources for their journey and degree of satisfaction from the use of these information sources.

4. RESULTS

4.1.Sociodemographic characteristics

The initial chi-square analyses were conducted to determine differences among the Group A and Group B tourists in terms of gender, age, education, occupation and nationality. Results in Table 1 reveal a significant chi-square for the following variables: Gender ($\chi^2_{1df} = 12.4, p < 0.0004$), Age ($\chi^2_{5df} = 32.97, p < 0.0001$), Education ($\chi^2_{4df} = 24.0, p < 0.0001$) and Occupation ($\chi^2_{9df} = 86.7, p < 0.0001$), suggesting that gender, age, education and occupation are not independent of the tourists' reported preference/interest in learning about the local culture/history.

Table 1. Chi-Square Analysis of Demographic Characteristics of Tourists who find interest in learning about the local culture/history

	Very likely/likely to be interested (Group A)		*Unlikely/very unlikely or neither likely nor unlikely to be interested opinion (Group B)*		
	n	%	n	%	
	593		200		
Gender					
Male	227	38.3	106	53	***X-squared = 12.3693, df = 1, p-value = 0.0004364***
Female	350	59	90	45	
Age					
15-25	62	10.5	50	25	
25-35	174	29.3	65	32.5	
35-45	151	25.5	35	17.5	***X-squared = 32.9792, df = 5, p-value = 3.799e-06***
45-55	112	18.9	27	13.5	
55-65	59	9.9	11	5.5	
over 65	21	3.5	9	4.5	
Higher level of education					
Primary	21	3.5	9	4.5	
Secondary/high school	131	22.1	65	32.5	
Tertiary	255	43	65	32.5	***X-squared = 24.0048, df = 4, p-value = 7.97e-05***
Postgraduate Studies	138	23.3	30	15	
Other	32	5.4	23	11.5	
Occupation					
Scientific, free professional, technical and related worker	189	31.9	32	16	
Administrative and managerial worker	100	16.9	14	7	
Clerical worker	107	18	38	19	
Trade and sales worker	37	6.2	17	8.5	***X-squared = 86.651, df = 9, p-value = 7.631e-15***
Farmer, fisherman and related worker	3	0.5	13	6.5	
Craftsman, worker, operator	22	3.7	18	9	
Pensioner	34	5.7	11	5.5	
Housework	23	3.9	15	7.5	
Unemployed, looking for job	33	5.6	3	1.5	
Student	42	7.1	35	17.5	
Nationality/origin					
Foreign tourists	86	14.5	33	16.5	*X-squared = 0.3244, df = 1, p-value = 0.569*
Native (Greek) tourists	507	85.5	167	83.5	

Note : 27 respondents have not replied this question

Statistical differences in the patterns for international and domestic visitors were tested using chi-square, and no statistically significant differences occurred between the two groups' demographics. Amongst cultural travellers (Group A) the number of female participants was greater than the number of male participants: with females at 59% and males at 38.3%. The overall distribution of different age groups is not evenly represented. A young age group (between 15 and 25 years old) was under-represented (10.5%) in the study sample, as well as among the age group between 55 and 65 years old with representation of only 9.9% and the lowest representation occurs in of the age group of above 65 years old tourists (3,5%).

The level of education indicates that only 22% of the respondents were high-school graduates while 43% had a college degree and 23% held advanced degrees. In general, the figures on Table 1 reveal that it is more likely for females, for age categories from 25 to 55 years of age, for graduates of tertiary education and holders of postgraduate degrees to be interested in learning about the local culture/history of the place that they visit. The same interest is manifested amongst the occupational groups: scientific, free professional, technical and related worker or administrative and managerial workers.

4.2. Trip characteristics

Trip characteristics were analysed according to trip organization (package holiday/self guided holiday), time used to make the trip decision, type of accommodation, travel companion and booking.

Table 2. Chi-Square Analysis of Trip Characteristics of Tourists who find interest in learning about the local culture/history

	Very likely/likely to be interested (Group A)		*Unlikely/very unlikely or neither likely nor unlikely to be interested opinion (Group B)*		
	n	%	n	%	
	593		200		
Trip organization					
Package tour/holiday	35	5.9	10	5	*X-squared = 1.7297, df = 2, p-value = 0.4211*
Partial package tour/holiday	63	10.6	28	14	
Self-guided tour/holiday	484	81.6	160	80	
Final decision for the trip was taken					
Less than 1 month before departure	377	63.6	129	64.5	***X-squared = 22.3043, df = 2, p-value = 1.434e-05***
1 to 6 months before the departure	176	29.7	38	19	
More than 6 months before the departure	34	5.7	30	15	
Type of accommodation					
Hotel/club (4*/5*)	169	28.5	50	25	***X-squared = 18.3724, df = 6, p-value = 0.005366***
B&B	102	17.2	39	19.5	
Friends & Relatives	38	6.4	15	7.5	
Hotel/club (2*/3*)	144	24.3	46	23	
Holiday Home	43	7.3	22	11	
Camping (including tent, trainer, mobile home)	18	3	18	9	
Combination of the above	47	7.9	8	4	
Travel with					
On your own	34	5.7	16	8	*X-squared = 1.6774, df = 2, p-value = 0.4323*
With one or more friends	291	49.1	100	50	
With your family	258	43.5	80	40	
Book accommodation through					
Travel agent	66	11.1	15	7.5	***X-squared = 20.7713, df = 3, p-value = 0.0001174***
By yourself directly from the producer via the telephone	363	61.2	114	57	
By yourself directly from the producer via the Internet	50	8.4	40	20	
By other person	101	17	28	14	

The majority of culture travelers (81.6%) organize their holidays on their own and take the final decision of their trip in a period of less than one month before their departure. They prefer to stay in upgraded hotels: first choice (28,5%) is hotel/club of 4 and 5 star categories. Only 3% prefer camping facilities. Bookings are made by phone, directly from the producer (61.2%).

The tests on the trip characteristics of the tourists, as displayed in Table 2, reveal that it is more likely for cultural tourists (GroupA) as compared to other tourists (Group B) to take their decision for the trip no later than 6 months in advance ($\chi^2_{2df} = 22.3, p < 0.0001$), to stay in a hotel/club ($\chi^2_{6df} = 18.4, p < 0.005$) and to make the reservation either via an agency or through the telephone ($\chi^2_{4df} = 20.8, p < 0.0001$).

4.3. Selection of information sources

The aim in this part of the analysis is to explore the tourists' habits as regards the preference they show in the selection of information sources for their journey. Information sources are displayed in Table 3 in descending order of preference for cultural tourists (Group A). Thus, cultural tourists would primarily seek information on the place that they visit from recommendations made by friends and family (55.8%) and secondly by looking up information on the Internet (51.4%). Third in their preference are travel guidebooks and travel magazines, while personal experience/knowledge, radio & TV broadcasts, and advertisements and information brochures are also high in their choices. The two last ranked are video/cd-rom/dvd/videotext and oral information provided by tourist information at destination or from local tourist offices.

Table 3. Chi-Square Analysis of Booking Characteristics of Tourists who find interest in learning about the local culture/history

	Very likely/likely to be interested (Group A)		*Unlikely/very unlikely or neither likely nor unlikely to be interested opinion (Group B)*		
	n	%	n	%	
Total	616		173		
Recommendations from friends and relatives	331	55.8	100	50	*X-squared = 1.8126, df = 1, p-value = 0.1782*
INTERNET	305	51.4	112	56	*X-squared = 1.0744, df = 1, p-value = 0.2999*
Travel guidebooks and travel magazines	214	36.1	60	30	*X-squared = 2.1892, df = 1, p-value = 0.1390*
Personal experience / knowledge	138	23.3	40	20	*X-squared = 0.7412, df = 1, p-value = 0.3893*
Radio and TV broadcasts (documentary and news)	123	20.7	47	23.5	*X-squared = 0.5216, df = 1, p-value = 0.4701*
Information brochures	103	17.4	26	13	*X-squared = 1.7877, df = 1, p-value = 0.1812*
Advertisments and articles in newspapers/magazines	98	16.5	28	14	*X-squared = 0.5376, df = 1, p-value = 0.4634*
Hotel listings	39	6.6	10	5	*X-squared = 0.3982, df = 1, p-value = 0.528*
Oral information provided by retailer/agency	31	5.2	11	5.5	*X-squared = 0.0011, df = 1, p-value = 0.973*
Information from using a Global Positioning System (GPS)	29	4.9	10	5	*X-squared = 0.0161, df = 1, p-value = 0.8989*
Information from using a P.D.A (Personal Digital assistant)	17	2.9	21	10.5	***X-squared = 17.464, df = 1, p-value = 2.928e-05***
video/cd-rom/dvd/videotext	12	2	31	15.5	***X-squared = 50.3681, df = 1, p-value = 1.274e-12***
Oral information provided by tourist information at destination or from local tourist offices	10	1.7	4	2	*X-squared = 4e-04, df = 1, p-value = 0.9847*

Comparisons between the two sub-groups (Group A and Group B) were conducted using the chi-squared test (Table 3) and a significant chi-square was derived only for video/cd-rom/dvd/videotext ($\chi^2_{1df} = 50.4, p < 0.001$) and PDA ($\chi^2_{1df} = 17.4, p < 0.001$) showing that cultural tourists (Group A) are not very keen on the use of these particular information channels examined.

4.4. Satisfaction from the use of information sources

Overall tourists interested in learning about the local culture/history (Group A) are satisfied with the information sources that they have used to a greater extent than the rest of the tourists (Group B). This is evident in the significant chi-square ($\chi^2_{2df} = 34.5, p < 0.0001$) in Table 4.

Table 4. Chi-Square Analysis of the Degree of satisfaction with information sources for Tourists who find interest in learning about the local culture/history

	Very likely/likely to be interested (Group A)		*Unlikely/very unlikely or neither likely nor unlikely to be interested opinion (Group B)*		
	n	%	n	%	
	593		200		
Satisfied	435	73.4	120	60	***X-squared = 34.5236, df = 2, p-value = 3.186e-08***
Somewhat satisfied	148	25	61	30.5	
Not satisfied	6	1	17	8.5	

5. CONCLUSION

The preceding analysis has revealed significant differences between cultural travellers and other travellers not interested in the consumption of cultural products. Consequently, several practical implications for destination managers have emerged, as it is a marketing truism that the promotion of a product should be tailored to the characteristics of a target market. The results of the present study can help managers carry out this task in a more informed and strategic manner. Firstly as regards the important effects of demographic traits on the consumption of cultural attractions, the present findings agree with other research. In particular, cultural products may require a certain level of cultural capital (cultural/aesthetic knowledge or taste) in order to be enjoyed and thus they appeal more to the individuals of higher socioeconomic status (and specifically high level of education) who are considered to have more cultural capital than individuals of lower socioeconomic status(Hall and Zeppel, 1990; Herbert, 2001;Squire, 1994; Zeppel and Hall, 1991: Kim, Cheng and O'Leary, 2007).It is important to note that other research has shown that education may be a better determinant of cultural tastes than the level of income (DiMaggio and Mukhtar, 2004). Additionally, the greater presence of female tourists in all attractions supports the widely accepted view that females are major participants in arts and cultural tourism (Hall and Zeppel, 1990; Urry, 1990; Zeppel and Hall, 1991; Craik, 1997).

The research implies that a segmentation based on the information search behavior is an appropriate way to develop marketing strategies and to target marketing communications. It also supports the position that trip-related (situational) descriptors have a strong influence on travel information search behavior. Culture travellers in Arcadia are independent visitors as 81.6% organize their holidays on their own. Consequently it is surprising that oral information provided by tourist information at destination or from local tourist offices is their lowest choice in information seeking behaviour. One logical explanation of this preference is that the present forms and methods used by local tourism destination marketers to provide information are ineffective., As many of the attraction providers, especially the smaller ones, depend on generating local awareness through the information center, the dissemination of brochures, and fostering links with other providers (Pearce and Tan, 2004) the finding of this research should have an important substantive impact

As Craik, 1997 asserts, the promotion of cultural attractions should be based on the understanding of culture travellers behaviour for the long term success of tourism and providers of cultural products need to acknowledge and support the efforts of regional and national tourism organizations. In addition, accuracy of the information is an important quality factor for building and maintaining trust in a specific source (Bieger and Laesser, 2004). Information from professional sources like tour operators or travel agencies only plays a significant role before a definite trip decision is made and mainly for nonstandardized tours (Bieger and Laesser, 2004). Professional distribution channels should therefore seek to cooperate with local independent "direct information providers" (cf. "infomediaries") to provide comprehensive

information solutions (Bieger and Laesser, 2004). Thus, the role of direct information providers as well as the need to fund them properly should not be underestimated (Bieger and Laesser, 2004).

The present study agrees with other research which finds that travellers usually rely on multiple information channels depending on their travel planning process (Bieger and Laesser, 2004; Zins, 2007). After evaluating internal and external sources of information and developing subsequent perceptions, the consumer has to decide whether they are going to buy or not. A consumer's behavioural intention is a reflection of predicted future purchase behaviour and can be used as an appropriate indicator or representation of that behaviour (Murray, 1991). An important finding of this research indicates that cultural travel consumers tend to strongly prefer internal sources:, recommendations from friends and relatives account for 55.8% of the respondants' choices. After a definite trip decision, the information from friends and relatives is even more important and discriminates travel behavior. Since most of this information stems from a person's travel experience (and possibly word of mouth), quality management and customer loyalty management are therefore crucially important for all tourist service providers (Bieger and Laesser, 2004). This is very important for the future success of the tourism marketing strategy of this area. Recommendation of the product to others and positive word-of-mouth are specific indicators of future positive behavioral intent (Reichheld and Sasser, 1990; Williams and Soutar 2009), such that that tourists who have revisit intentions are more likely to recommend the destination to others (Hutchinson, Lai and Wang, 2009).Overall, one recommendation that can be extracted from this study is to increase the use of external information from an effective promotional campaign in order to improve the perception of its value and its availability. Tourism boards can have a significant impact on these processes.

Many destinations have also invested in Information and Communication Technologies (ICT), in their effort for more efficient and effective ways of managing tourism demand and facing domestic and global competition. The second source of information is the Internet (51.4%). This increased use of the internet shows its enormous importance, as a single interaction on the Internet can provide product information, a means for payment and product exchange, and distribution, whereas a more traditional interaction frequently separates these functions (Jun , Vogt and Mackay, 2007). It is noteworthy though, that the use of the internet was quite limited for booking purposes in Arcadia (8%), a fact than needs to be investigated in future studies.

Information from a Global Positioning System (GPS) and Information from a P.D.A (Personal Digital assistant) is still a very low percentage of cultural travellers use (4.9% and 2.9% respectively), but there is no doubt that in the future, mobile technology will increasingly provide opportunities for real-time travel information. Even today mobile technology can bring the latest up-to-date information anytime and anywhere to customers. Tomorrow developments such as select cell phones and personal digital assistants (PDAs) provide real-time Web links (Jun,Vogt and Mackay, 2007). Select automobiles offer telematics (Web access in a vehicle). A new generation of mobile broadband networks provides wireless communication spurring development of location based services using global positioning systems (GPS) (Jun,Vogt and Mackay, 2007). In addition, travellers have begun to use other so called Web 2.0 websites which enable them to share their views and opinions about products and services (Pan, MacLaurin and Crotts, 2007; Xiang and Gretzel, 2009) All these developments will influence both information search and provision (Berger, Lehmann and Lehner, 2003; O'Brien and Burmeister, 2003). Future studies should be conducted to understand how to connect customers' Internet use to mobile use for cultural products.

A limitation of the present study was that it did not reflect the nature of specific diversified cultural attractions (e.g. art galleries, opera, amusement parks, history museums, music concerts, etc.) in Arcadia. Future study might focus on these individual attractions such that destination marketers can categorize their cultural attractions and promote each type of attraction to the most receptive segments (Benton, 2011).

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A STUDY ON THE CONTEMPORARY RISEN ISSUES IN THE MERGERS AND ACQUISITIONS: STRATEGY OF THE MEXICAN BUSINESS LEADERS

José G. Vargas-Hernández, M.B.A;Ph.D.
Profesor Investigador miembro del Sistema Nacional de Investigadores
Departamento de Mercadotecnia y Negocios Internacionales
Centro Universitario de Ciencias Económico Administrativas Universidad de Guadalajara.
Periférico Norte 799 Edificio G-306
Zapopan, Jalisco C.P. 45100; México
Tel y fax: +52(33) 3770 3343 Ext 5097
josevargas@cucea.udg.mx,jgvh0811@yahoo.com,jvargas2006@gmail.com

Mohammad Reza Noruzi, EMBA, PhD Candidate
Policy Making in Public Sector
Islamic Azad University, Bonab Branch, Iran
Young Researchers Club Member, IAU Bonab, Iran
Tell: +98- 412-7238893-5
mr.noruzi@modares.ac.ir mr_norouzi@pnu.ac.ir mr.noruzi.pnu@gmail.com

Abstract
The corporate strategy is critical to achieving the goals of the firm and must be set out clearly and according to their needs. M & As have become a trend for the growth of Mexican companies, despite having diverse motivations through the description of their implementations in the three largest Mexican firms and the results we achieved demonstrate the effectiveness of this type strategic alliances and other useful items detected less consolidated companies.

Keywords: Business strategy, mergers and acquisitions, leading Mexican companies.
JEL: L19, M10.

1. INTRODUCTION

Companies must give direction to the resources they have to change their environment and absorb uncertainty in order to maximize their profits. There are different perspectives and strategy firms use one that most suits them. The strategies of Mexican companies tend to focus on the use of resources and capabilities to generate profit. But the results obtained by some of the strongest Mexican companies worldwide are the result of market development and practice of mergers and acquisitions (M & A), which are mostly related to areas of its core business.

There is no universal strategy that works across organizations and generates the most money will also be assessed favorable and unfavorable conditions for implementation and most importantly, act on that strategy which is most appropriate and effective company in the search to achieve their goals. There are a number of multinational companies originating from emerging economies, but worldwide there are few that generate a level of utility comparable to large multinationals in the developed economies.

We must understand the nature of the signatures; leaving conceive as seeing them as productive functions and structures of governance, in which economic goals are internal structures (Williamson, 2000). Looking to create value firms have turned to new business models that have changed schemes and developed new options, strategic alliances are increasingly common, and the problem for decision makers is to establish the appropriate changes to their specific structures. The key is that organizations seeking returns must have a good understanding of the resources they acquire to maximize its usefulness. In recent years, emerging economies have reached a considerable level of development, foreign investment has greatly facilitated the growth of these economies through the strategies and policies have been established (Wright, 2005), not only as host economies capital but also through numerous international investment.

Strategic alliances are an alternative to the growth of organizations whether we speak of contractual partnerships or alliances with exchange of capital. According to the degree of

integration desired, have the resources and reach goals they had set the strategy will depend on the selection. With special emphasis on understanding the rules of the game on the market in which you want to venture and an analysis of the alliance (Peng, 2006).
The goal of all business decisions is the highest possible value creation, and hence to establish if a strategic decision, as it can be an alliance based in the capital, has the right motivation. The rationale for M & A is that they must create the new company in the case of mergers or the signing buyer in the case of acquisitions, has a value greater than the sum of values were independent firms prior to integration (Herrera Avendaño, 2001).
Some companies in Latin America (LA) have achieved little by little making its global market space, including several Mexican companies also achieved success at national level, also found in international markets through growth opportunities F & A, both public and parastatal companies in different countries.
There are several reasons to consider before establishing such a strategy. Among the main reasons we can mention the interest of getting the increased revenue, reduced costs, obtain market power, integration with specialized companies in areas where the other is weak, eliminating a competitor, achieve an increase in certain types of resources, improving yields through new management, achieve tax benefits or simply a combination of resources to increase productivity (Mascarenhas, 2006).
In late 2009 and early 2010 the major Mexican companies dedicated to strengthening and integrating their organization the various F & A made the global economic crisis affected the growth of companies, but most dealt with the situation and moved forward to consolidate its resources. The strategy not only carried out in their own lines of business but also the incursion into areas outside their main economic activities.

A. Problematization
According to the ranking of the magazine América Economía, of the 500 most important companies in AL, in 2009 Brazil was the country's 226 companies with more companies in the ranking, while only 119 signatures were from Mexico. Note that in 2002 Mexico had peaked in the 20-year history of this ranking, with 241 companies (América Economía, 2010). Some of the major companies that lead this list have made F & A of other companies and this could be a cause of increased participation in international markets and their stay in the charts.
In that sense, M & A has become a trend for the growth of Mexican companies, although this was not the only alternative strategy carried out by firms and sometimes the companies selected were not the most appropriate in most cases we can see increases for firms that make us assume the effectiveness of F & A.

B. OBJECTIVE
Based on the foregoing, it is established to analyze the execution of mergers and acquisitions as a strategy for Mexican companies best positioned within the major world rankings to achieve growth. Of which raised the hypothesis of whether the major Mexican companies in their strategies have made M & A, if these have been within its sector and if they got support their growth.
The methodology developed will be in the selection of Mexican companies which made the descriptive analysis of the implementation of F & A from determining what is your current place in the world rankings?, This analysis pointed out the main aspects and a brief description of the strategy developed for each selected company responding to the questions of what strategies are being implemented for growth? And what are the benefits of M & A? then general conclusions will be presented and finally identify items to choose M & A in the value creation and growth of their firms.

2. Mexican leader (EML)
A. SELECTION OF COMPANIES
Different rankings worldwide to recognize the largest companies in the world by their level of income, profit margins, production capacities and other factors significantly outweigh the other organizations worldwide is a kind of selecting process.

From 2009 to date has remained constant the number of Mexican companies (18) in the 2000 world leading companies (Forbes Staff, 2011), while ranking in the magazine America Economia in a period of only seven years, from 2002 to 2009, the number of Mexican companies within the first 500 in TO 50% down (América Economía, 2010). From this we can conclude that a small number of Mexican organizations have consolidated their presence in international markets while other smaller companies have lost its position in international markets and their productivity has decreased significantly.

Moreover, when analyzing the situation of Brazilian companies we find that these companies generally have a better development. From the figure of 19 companies that appeared on the Forbes list in 2006, has grown to 37 companies in 2011 within the first 2000 worldwide (Forbes Staff, 2011) While in the region, by 2009 already had 226 companies in the ranking of the magazine America Economia (América Economía, 2010).

Mexico is a country recognized in international markets, has the largest amount of international trade agreements, products and quality of its workforce have accepted worldwide and is a geographically favored nation. For this and other issues is that it is difficult to understand why more companies do not have positioned elsewhere in the world, this concern arises to analyze and understand the strategy of these leaders and Mexican companies to make their activities serve as an example in the development of other large and medium enterprises.

Mexican companies included in Forbes' list of 2011 are shown in Table 1, among which are America Movil (# 88), Femsa (# 406) and Grupo Mexico (# 485) as the first three Mexican companies and they are the only Mexican in the top 500 worldwide in this ranking. Therefore be at these three firms in which to base the study analyze their F & A as the main cause of their achievements, and what subsequent to refer to them as we do with the term leading Mexican companies (EML).

B. BUSINESS ANALYSIS

Below is a description of the situation of EML and a narrative of the main strategies of F & A who have developed, starting with the corporate Grupo Mexico ranks third, followed by analysis of FEMSA to conclude this section with the company America Movil.

1) GRUPO MEXICO

Utilities 2010: 1.800 million dollars (MDD).

National companies that comprise: Minera Mexico, Southern Copper Corporation, Ferromex, Ferrosur, Intermodal, PEMSA, Mexico and Consutec Construction Company.

International companies: Americas Mining Corporation and ASARCO.

Grupo Mexico is the number one Mexican mining company and has the second largest copper reserves in the world, has operations in Mexico, Chile and Peru. It currently has 13 operating mines and 10 projects in operation.

Mexico Construction Company was the first of this group, created in 1942 soon becoming one of the main building of the country. For the year 1965, acquired 49% of ASARCO is a mining company based in Arizona and created ASARCO Mexicana, which in 1974 became Industrial Minera Mexico (IMMSA). To be listed on the Mexican stock exchange was created in 1978 Grupo Industrial Minera Mexico (GIMMEX) substituted by Grupo Mexico in 1994.

In 1997 buys 24% share of Union Miniere Acec the Cananea mine, and that same year, Grupo Mexico (74%) with ICA (13%) and Union-Pacific (13%) take on the granting of various lines of rail, thus creating subsidiary Ferrocarril Mexicano buys S. A. C. V. (Ferromex).

Grupo Mexico acquired Asarco Incorporated in 1999, which controlled 54% of Souther Peru Copper Corporation and with this acquisition becomes the second company with the largest reserves of copper in the world. Later the company went through a phase of investment in improvement and even a merger between Southern Peru Copper Corporation and Minera Mexico, Southern Copper Corporation transformed and expanded its ownership to 75.1% (Grupo Mexico, 2011).

During the period from 2006 to 2010 the company went through a process of restructuring and reorganization of its business units and assets, channeling their income primarily in the modernization process, both in the extraction of minerals such as administrative control.

2) FEMSA

Utilities 2010: 3.300 MDD.
Companies that integrate national: Coca-Cola FEMSA and OXXO.
International companies: Heineken (20%).
FEMSA is a leading company engaged in the beverage industry, through Coca-Cola FEMSA, the largest independent bottler of Coca-Cola products in the world with presence in 9 countries of LA, operates OXXO (8.621 stores) and participates the sale of beer, the second largest shareholder of Heineken beer leader with presence in over 70 countries (Femsa, 2011).
Each business unit has this interesting aspects of corporate analysis, but in this article we only focus on the strategies undertaken in their processes of growth through M & A.

a) OXXO

The company opened an average of 3 stores a day in Mexico in 2010, the same year began operations in Colombia and now has eight stores, all of its growth strategy has been made based on the resources of the firm and not operating as a franchise and has not made F & A to boost growth.

b) COCA-COLA FEMSA

Bottling born in Mexico of the acquisition of the franchise in the year 1979, distributing its products in much of the country, in 1994 acquired 51% of the shares of Coca-Cola in Buenos Aires, Argentina and in 2002 announced PANAMCO acquisition, the largest bottler of AL at the time, from this point the company's growth was substantial and that the acquisition was another part of the territory of Mexico, the countries of Costa Rica, Colombia, Guatemala, Nicaragua, Panama and Venezuela, and some regions of Brazil, becoming the leader of al-bottling company.
The company decided to follow the line of drinks and in 2007 was surprised with the acquisition of Jugos del Valle in Mexico and Brazil REMIL in 2008, which increased its stake in the Brazilian market, together with Mexico are the most attractive markets in LA. Not all acquisitions must be of large international companies, bought the company in 2008 Agua de los Angeles, the Valley of Mexico, and the acquisition was achieved double the share of that market in the city.
In 2010 he returned to surprise us with the purchase of the Dairy Industry Group Panamanian Company, which will enter the milk products is one of the most dynamic markets and value in the beverage industry. Firms do not only F & A strategies, but also establish contractual alliances.

c) BREWERY

Founded in 1890 with the name of Cervecería Cuauhtémoc Mexico, in 1985 merges with Cervecería Moctezuma, the event serves to show that the strategy of M & A has been several years a good option for growing firms, with the merger of company not only expanded its product offering to the domestic market but also increase thus achieved their participation. In 1994, partners with the Canadian brewer John Labatt Ltd., which buys 30% stake.
Later in 2004 the share repurchase was sold to begin its expansion strategy internationally. That same year established a trade agreement with Heineken taking responsibility for the distribution, promotion and sale in the United States signed an agreement with Coors Brewing Company for the exclusive marketing of Coors Light beer in Mexico.
During 2005 continued the strategy of Sleeman Breweries contractual alliances in Canada and Molson Coors in the UK, establishing them as strategic suppliers to market their products in these territories. It was in 2006 when the firm acquired the Brazilian brewer Kaiser, acquiring 68% of the shares and therefore begins to operate in the two Latin American markets more attractive. For this was a considerable increase in revenue and a commercial boost with greater market share, through which has been pushing their products through the extensive distribution network operates.
The consolidation of Cervecería Cuauhtémoc Moctezuma led the company Heineken, who already owned the U.S. distribution, acquired in 2010 for signature by the exchange of 100% of its operations by 20% of the shares of Heineken and participate in the council Administrative Heineken.

3) AMERICA MOVIL

Utilities 2010: 7.300 MDD.

National companies that comprise: Telcel and Telmex.

International companies: Telmex Internacional, Claro (15 countries: Argentina, Brazil, Chile, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Dominican Republic and Uruguay), Comcel (Colombia), Embratel (Brazil), Net (Brazil) and Tracfone (USA).

America Movil is not only a leader in the mobile telecommunications sector operating in 18 countries AL, but is the fourth largest in the world in terms of proportionate subscribers and number one Mexican company by market value and income-rich. Through the acquisition of several public companies and parastatals telephony has been consolidating its presence in Latin America. Your participation in the cellular market in Mexico is 71%, 33% in Central America, Caribbean 43% and in 9 South American countries it operates has a stake greater than 30% except for Chile (22%) (America Movil 2010).

The purchase of Carso Global Telecom by America Movil, valued at 33 billion dollars, was the largest merger in Latin America in 2010, "(Agree, 2011). America Movil was born in 2001 when it separated from fixed telephony company TELMEX, and nine years of his division is now the purchaser of the company that was born, the telcos Carlos Slim have examples of successful mergers and acquisitions from 20 years ago in which through its consortium of Southwestern Bell Telecom acquired the state-owned Telmex, while in turn the company America Movil took on various telephone companies in Latin America and joined the firm course.

The acquisition by America Movil from Telmex and Carso Global Telecom International, will report that in 2010 represented 211.3 million wireless subscribers, 27.4 million fixed lines, 12 million fixed broadband connections and 8.6 million TV subscribers. He has also reported an outstanding financial performance with net profits rising contrary to those of his rival Telefónica who reported a decrease in earnings (Datamonitor, 2010).

America Movil continues its strategy of M & A in Latin American countries, where growth continues to consolidate, the purchase of telecommunications companies has been confirmed, the proof is to buy in Central operations in Honduras and El Salvador the company Digicel Group Limited in early 2011, the company has 11.5 million customers in 32 markets in the Caribbean and the Pacific by buying the users of these countries will become part of the user network Claro (Digicel, 2011). It is expected to enter these companies trade in Jamaica and is likely to continue establishing alliances.

The current government in Mexico has not allowed America Movil to sell packages of telephony, television and the Internet, which have proved very attractive for the income from them and from which only the big national broadcasters are benefiting. But America Movil continues to grow despite the hardships and will strengthen this marketing strategy in Colombia, where it already does and Brazil, where the fusion medium-term business that has begun. Therefore no surprise that eventually will achieve its mission to perform in Mexico.

C. EFFECTIVENESS OF MERGERS AND ACQUISITIONS

The purchase of Asarco in 1956 makes clear that the use of M & A as a means for the development of the company is not a strategy that just being started, and is an example of the vision they have had the EML for several years.

M & As have become steadily more present and in the last 15 years has increased the tendency of local firms to make such alliances. Even in areas other than the main economic activity of the company, either in activities that have a relationship, as in the case of Grupo Mexico, which through Ferromex rail networks can transport material from mines (Mascarene, 2006), or in activities that are not related to its activity as for the purchase of Slim a percentage of the New York Times commented in the introduction to this article.

In the latest merger by Grupo Mexico to Southern Peru Copper Corporation, clearly identified as their main motivation access to more resources and greater expertise that contributed to the growth of the firm and its consolidation, giving reason to the reasons cited for an F & A. In the case of Grupo Mexico is clear that, thanks to M & A can gain access to resources that became the second company with the largest copper reserve on the planet, a situation which could hardly

have been achieved through other means, but we cannot downplay made to other strategies, mainly in the restructuring processes, as though in recent years has not made any acquisition revenues and profits have increased significantly.

At Coca-Cola FEMSA's strategic alliances have been crucial since its inception through the acquisition of the concession for the distribution of Coca-Cola. Its main thrust of internationalization has been achieved through acquisitions, Coca-Cola first in Buenos Aires in 1994, in 2002 and finally in 2008 PANAMCO REMIL. It is clear that M & A are effective strategies to support access to international markets (Femsa, 2011).

Even in small markets an acquisition may represent a source of consolidation as the example of Los Angeles Water, or can also serve to diversify and increase the product line as was the case with the purchase of Del Valle and Dairy Industries Group .

The area brewery is not very different from Coca-Cola FEMSA and in this area we also find that growth has been sustained in practice M & A throughout its history, from the merger of Cervecería Cuauhtémoc and Cerveceria Moctezuma to reduce production costs and gain greater power in the domestic market, to then develop a series of agreements to distribute its products with different breweries worldwide in order to internationalize their brand, then bought the company I represent growth Kaiser in LA.

Increased participation in AL, their rapid growth and income levels were reported in 2010 decisive for the Dutch brewer Heineken, who already was familiar with their products, was willing to hand over 20% of its shares for the total brewery operations (Buchanan, 2010).

The case of FEMSA shows that even within the same firm strategies in its business units are not the same and although M & A have been an important factor for the growth of its operations in two business units to OXXO have not been the growth medium, although this does not mean that if done would not succeed, perhaps for future growth would be predicted to get OXXO in the event that made M & A.

Although revenues declined FEMSA in the last year, as expected mainly by revenues from brewery failed to receive after the sale the profits and assets which increased due to continued growth, a result of their internationalization in its other two business units (Forbes Staff, 2011).

The company America Movil was from the beginning a successful business and began growing by leaps and bounds through the voracious acquisition of a large number of telephone companies in different markets of LA, which gradually consolidated their position as the company the continent's leading mobile growth projections and a substantial number of customers. But the factor determinant of growth in recent years did so by buying the company Carso Global Telecom, which despite being the same owner does not mean you should not have the resources to acquire and thus establish its position well above their competitors (Agree, 2011).

With this acquisition the company managed to improve performance through new management and increased productivity through shared resources. In the case of the Brazilian market we find that M & A conducted achieved integration of telephone and television companies, achieving also prevent the entry barriers to foreign companies on television. A through M & A company America Movil has gained access to markets, competitors and has been removed has increased its presence in Latin by the large number of mobile phone users.

America Movil has income greater than twice those of FEMSA and Grupo Mexico together and last year were 50% higher than those achieved in the previous year (Forbes Staff, 2011). It has a considerably higher amount of assets to the rest of the EML and the resources to continue to give the talk of the coming years, and probably will be so for your next marketing packages that include television services in Mexico which is not far from become a reality now and thanks to a cooperative alliance with Dish satellite television company, has partially offset the inability to provide the services themselves. So surely soon find their way into and possibly move to Televisa in the medium term.

3. CONCLUSIONS

The EML has consolidated its place in the main rankings because of its strategic vision and outstanding performance compared to other firms, and their efforts are recognized worldwide, as mentioned in the beginning of this article is not unique strategies to achieve growth companies and many alternative firms, who are trying to find the most appropriate.

The F & A is a common strategy in organizations despite being of sectors and business activities very different, it is clear the importance that has occurred in recent years this type of strategic alliance as all EML have used in some stage, as a means to grow and achieve their goals. Because of the variety among firms' motivations are varied, although the above if it can be concluded that the implementation of the strategy has a tendency among the EML to be used to facilitate the internationalization of the firm.

Growing companies need to analyze M & A as an attractive option for growth, regardless of the sector where they are and whatever economic activity they perform, trying to combine this strategy with others to maximize the performance of the firm. Using this type of partnership should be done by companies with an average degree of maturity and sufficient resources to operate efficiently to the party who performed the alliance, because otherwise result in detriment to the benefit of the parties involved.

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TABLE 1.

Ranking Mexican companies in 2011 COMPANY	PLACE RANKING	
1	América Móvil	88
2	Femsa	406
3	Grupo México	485
4	Grupo Modelo	719
5	GFNorte	785
6	Cemex	810
7	Grupo Inbursa	864
8	Grupo Televisa	880
9	Grupo Bimbo	974
10	ALFA	1010
11	Industrias Peñoles	1077
12	Minera Frisco	1097
13	Fresnillo	1151
14	Grupo Carso	1256
15	El Puerto de Liverpool	1344
16	Soriana	1493
17	Grupo Elektra	1548
18	Kimberly-Clark de México	1926

COLOURFUL ENTREPRENEURSHIP IN DUTCH CITIES:

A REVIEW AND ANALYSIS OF BUSINESS PERFORMANCE

Mediha Sahin
Dept. of Regional Economics, VU University Amsterdam **m.sahin@ vu.nl**
Alina Todiras
Dept. of Regional Economics, VU University Amsterdam **todiras.alina@gmail.com**
and
Peter Nijkamp
Dept. of Regional Economics, VU University Amsterdam **p.nijkamp@vu.nl**

Abstract
Entrepreneurship has clearly evolved as a critical element in the organization and restructuring of modern economies. It has been further fostered by the deregulation and privatization process in many Western countries. In addition, governments have acknowledged and started promoting the role of entrepreneurship in stimulating economic growth and development. In recent decades, we witness an increasing importance of migrant (or ethnic) entrepreneurs, in particular in big cities in the Western world. The aim of the present study is to provide both a contextual and empirical framework for assessing the business performance of migrant entrepreneurs in major cities in the Netherlands. The study is organized as follows. After an exposition of entrepreneurship and migrant entrepreneurship, the urban orientation of this new form of entrepreneurship is highlighted. Then the database and the methodology are presented. Next, the statistical findings are provided, followed by a concluding section.

Key words: Entrepreneurship, migrants, Netherlands

1. Entrepreneurial Heroes and New Entrepreneurship

The old American myth praises the entrepreneur, who has built his business from scratch, as a hero who embodies the values of freedom and creativity. The 'entrepreneurial heroes' are those who come up with new ideas, and then – despite much resistance – turn them into reality. They take the initiative, are proactive, come up with technological and organizational innovations, and find new solutions to old problems. They are the architects of vibrant new companies and the rescuers of the failing ones. The term 'entrepreneurial hero' has been persistently used in the small and medium-size enterprise (SME) literature, even though it has also been questioned whether it is an appropriate term describing the struggle of a single man or a collective force (Reich, 1987). Various scholars have agreed on the idea that, rather than giving praise to the individual, more focus should be on collective entrepreneurship, since the whole of the effort is greater than the sum of individual contributions (Cooney and Bygrave, 1997).

'Entrepreneurial heroes' are not born in a passive environment, but are the offspring of challenging conditions that facilitate and induce new business activities. Such conditions may partly be found in competitive local situations, but also in socio-economic background factors (e.g. unemployment, social exclusion) that prompt economic actors to look for alternative and daring endeavours. Especially in an age of mass migration – often into metropolitan areas – many newcomers are encouraged or forced to become self-employed or to start their own business. There is an increasing body of literature on the implications of cultural, ethnic or migrant diversity for new business formation (for a review, see Baycan-Levent, 2010).

The concepts of 'ethnic entrepreneurs', 'ethnic minority entrepreneurs', 'migrant entrepreneurs' and 'new entrepreneurs' are often used interchangeably (van den Tillaart, 2007). Light and Gold (2000) speak in this context of 'the ethnic economy', which they define as any ethnic or immigrant's self-employed group, its employers, their co-ethnic employees, and their unpaid family workers. Ethnic entrepreneurship finds its origin in "a set of connections and regular patterns of interaction among people sharing a common national background or migration experiences" (Waldinger et al., 1990).

An alternative term to 'ethnic' that is used is 'immigrant entrepreneurs', but this only includes individuals who have actually immigrated over the past few decades. This definition therefore excludes those members of ethnic minority groups who have been living in a country for several centuries, such as Afro-Americans in the US, Jews in Europe, or aboriginals in Australia. In our study, however, we use these terms 'ethnic' and 'immigrant' interchangeably.

This study is organized as follows. In the next section we provide a concise general orientation on entrepreneurship, followed by a focus on migrant entrepreneurship, which is the subject matter of the present study. Next, we highlight the urban orientation of migrant entrepreneurship. After a description of the database of our research, the methodological approach based on Multiple Response Questions is presented. The paper offers an extensive concluding section on migrant entrepreneurship.

2. The Entrepreneur as a Catalyst

Entrepreneurship has been the subject of numerous debates and investigations over the last few decades. It has gained a wealth of attention, and it has become an important factor in the organization of economies and the creation of innovations. According to Audretsch and Thurik (2004, p. 144): "Entrepreneurship has emerged as the engine of economic and social development throughout the world." Entrepreneurship is recognized as a source of economic growth through job creation, knowledge spillovers, the stimulation of competition, etc. The rise of interest in entrepreneurship over the last decades has been caused by multiple factors, among which are globalization, ICT revolutions, flexibilization and decentralization, etc.

Entrepreneurship in the classical sense refers to the combining of resources in novel ways so as to create something of value (Aldrich and Waldinger, 1990). Another definition of an entrepreneur is "someone who specializes in taking responsibility for and making judgemental decisions that affect the location, form and the use of goods, resources and institutions" (Hébert and Link, 1982). This definition is based on a more economic point of view. The importance of entrepreneurship as a strategic tool for economic growth has been clearly recognized for many decades by politicians and policy makers. However, it was not until the mid-1970s that entrepreneurship was given due attention; until then the dominant form of organization was mainly the large enterprise characterized by mass production and economies of scope. A dramatic shift toward smaller enterprises has occurred as a result of the joint effect of globalization and the ICT revolution, which subsequently reduced the cost of moving capital and information to low-cost locations outside Europe and North America, and which also offered new and unprecedented opportunities for local economic vitality.

Entrepreneurship has clearly evolved into an imperative element in the organization and restructuring of economies. It has been further fostered by the deregulation and privatization process in many Western countries. Furthermore, governments have acknowledged and started to promote the role of entrepreneurship in stimulating economic growth and development. However, entrepreneurship has not emerged concurrently in all countries and regions: North America was far ahead of Europe in 'embracing the entrepreneurial energy' and absorbing its merits (Thurik, 2009). Currently, the European Union regards entrepreneurship as a central driver for an innovation economy. Multiple EU programmes for building and fostering a climate in which entrepreneurial initiatives and business activities can thrive are being put in place.

There is an abundance of definitions for the term 'entrepreneurship', but, despite that, there is no generally accepted definition. Most of the definitions, however, converge at certain points, and thus it can be said that the main key drivers of entrepreneurial activity according to various definitions are the sensing of opportunities, risk-taking propensity, efficient use of scarce resources, and innovative activities (Knight, 1921; Kirzner, 1973; Schumpeter, 1934; Sharma and Chrisman, 1999; Kuratko and Hodgetts, 2001). As there is no commonly agreed definition of entrepreneurship, there is also ambiguity about the functional definition of 'entrepreneur'. However, from the key drivers of entrepreneurship listed above, we can form the profile of an entrepreneur. Thus, the entrepreneur is an individual able to recognize business opportunities, willing to take a risk despite often encountering high degrees of uncertainty; he must also possess the ability and resources to follow the recognized opportunities rather than opting for employment or unemployment positions (Thurik, 2009). Schumpeter (1934) emphasized the role

of the entrepreneur as an innovator who creatively destroys existing market structures. In his view, entrepreneurs do not only invent things but rather also exploit the existing ones by introducing new processes and new types of organization, by identifying new markets and sources of supply, etc. According to Schumpeter (1934), these entrepreneurs can be found mainly in small firms, and they can evolve into entrepreneurial managers (intrapreneurs), or choose to start new ventures (serial entrepreneurs) (Carree and Thurik, 2010).

The main determinants of entrepreneurial activity can range from psychological, demographic and social to economic determinants. Verheul et al. (2001) have combined these perspectives in a structured framework on entrepreneurship. According to their framework, entrepreneurship may be analysed on three different levels: the micro-, industry and macro- level. At the micro-level we refer to the decision process and the motivation to become self-employed. Here, we also look at the entrepreneur's personal factors, psychological traits, age, education, work experience, financial assets, etc. At the industry level, we consider market determinants, such as profit opportunities, competition, business networks, etc. The third level is the macro-level, which covers environmental factors, policy factors, and technological, economic, and cultural variables.

Carree and Thurik (2010) present a rather comprehensive definition of entrepreneurship; according to them it is 'the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations to perceive and create new economic opportunities and to introduce their ideas to the market in the face of uncertainty and other obstacles by making decisions on location, form, and the use of resources and institutions'. Porter (1990) realized early on that entrepreneurship is at the heart of national advantage, being a catalyst for new firm formation, innovations, and market rivalry. Furthermore, these authors consider that market rivalry is more conducive to knowledge externalities than local monopolies (Jacobs, 1969; Porter, 1990). Acs et al. (2006) also emphasize that there is a strong relationship between knowledge spillover and entrepreneurial activity. Therefore, one way in which entrepreneurship capital generates economic growth is by knowledge spillover, when firms can appropriate some of the returns by taking advantage of the investments made externally (Cohen and Levinthal, 1989). Another way is by increasing the number of firms, which in turn augments the competition for new ideas, and facilitates the entry of new firms specializing in a particular new product niche (Thurik, 2009). Entrepreneurship can also generate economic growth by promoting diversity among firms. Another important contribution is often the element of 'newness', through the transformation of inventions and ideas into economically viable entities (Carree and Thurik, 2010). We will now present some important characteristics of a new class of entrepreneurship, viz. migrant (or ethnic) entrepreneurship.

3. Colourful Entrepreneurship

Over the past decades, we have thus clearly witnessed a significant shift in the orientation of migrant groups, namely, towards self-employment (Baycan-Levent et al., 2003). This movement has prompted the rise of migrant entrepreneurship (van Delft et al., 2000; Kourtit and Nijkamp, 2011; Masurel and Nijkamp, 2003; Waldinger et al., 1990). The latter phenomenon distinguishes itself from 'normal' entrepreneurship through its orientation on migrant products, on migrant market customers, or on indigenous migrant business strategies (Choenni, 1997). Migrant entrepreneurship is also generally regarded as an important self-organizing principle, by means of which migrant minorities are able to improve their weak socio-economic position (Baycan-Levent et al., 2003) (for a further comprehensive explanation, see Dana, 2007).

In the 'age of migration' many migrants of foreign origin have thus had to resort to starting their own business. A tendency over the last decades has also been the choice of migrants to become self-employed, which has led to the emergence of the term 'migrant entrepreneurship'. Kloosterman and Rath (2003) suggest that self-employed migrants play an important role in the emergence of small firms. In most of the cases, they are pushed to engage in entrepreneurial activities due to restricted access to jobs and blocked opportunities for upward social mobility. Numerous studies attest that most of the entrepreneurial activity of migrants takes place in the traditional labour-intensive industries, e.g. retail, catering, hospitality, which have lower access

barriers and require fewer skills (Sahin et al., 2011; Baycan-Levent et al., 2009; Hermes and Leicht, 2010). Hermes and Leicht (2010) argue that the more advanced is a country's economic development, the higher the probability of migrant entrepreneurial activity in simple routine services. However, self-employment rates vary more between countries than between migrants and natives (Tubergen, 2004).

The level of entrepreneurship varies substantially between different countries, and, furthermore, between different populations within countries. These levels of both native and migrant entrepreneurship within countries are influenced, on the one hand, by the opportunity structures on the demand side and, on the other, by the talents of entrepreneurs and their resources or individual capital on the supply side (Hermes and Leicht, 2010). The opportunities in small business are usually available for both native and migrant entrepreneurs, but the latter group experiences various restrictions, and consequently develops different strategies (Waldinger et al., 1990). Therefore, the migrants have a different self-employment trajectory than the natives, one of the most obvious being the divergence in sectoral choice.

The merits of migrant entrepreneurs have been recognized by many host societies, which have subsequently introduced various policy measures to stimulate self-employment among migrants and create a business environment where ethnic enterprises can thrive. Among the most well-known merits of migrant entrepreneurship is the stimulation of economic growth, new job creation, and promotion of diversity, which, according to Jacobs (1969), is the main cause of the prosperity of urban economies. Furthermore, immigrant entrepreneurship may especially improve the economic position of immigrants from non-Western countries and support the general integration of these immigrant groups in the host society. Therefore, the field of migrant entrepreneurship calls for more research and insight into the main motives to become self-employed and the success factors for the survival of the migrant enterprises.

In Europe, the main reason for migration has usually been employment-seeking in established industries in host countries. However, because of the present adverse economic conditions, high unemployment, restrictions and limited opportunities, many immigrants have chosen to become entrepreneurs. The main perspective from which migrant entrepreneurship has been studied in the past decades is the sociological perspective, which revolves around the ethno-cultural characteristics of the ethnic populations.

Currently, in many European countries, the number of immigrants starting their own businesses surpasses that of the self-employed native population. The European Commission attests to the fact that ethnic minorities exhibit a great entrepreneurial capacity and potential (European Commission, 2011). The European immigrants have freedom of establishment within the EU, and, moreover, their qualifications are more easily recognized, whereas the non-EU immigrants have to face a complex set of barriers when setting up a business (institutional and legal barriers, acknowledgement of qualifications). Immigrants to Europe are often characterized by lower educational attainment, and this disadvantage coupled with limited access to labour market, pushes them into self-employment in marginal positions. The immigrant businesses are thus concentrated in less attractive and more labour-intensive sectors such as retail, hospitality, catering, etc. Hermes and Leicht (2010) argue that the more advanced a country's economy, the higher is the self-employment rate of immigrants in traditional sectors. While members of the majority population or host society are self-employed in modern employment sectors and serve the mainstream market with a mainstream product, ethnic entrepreneurs are entrenched in ethnic enclaves. On the supply side, the immigrants can benefit from their ethnic resources: social networks, ethnic labour force, and ethnic products. On the demand side, ethnic entrepreneurs serve a predominantly ethnic clientele. However, the opportunity structures for immigrants also develop outside their own ethnic enclaves: and some manage to 'break out' in the mainstream market which satisfies the needs of the majority of the population.

One of the countries that has witnessed a large influx of migrant entrepreneurs is the Netherlands. In that country, most of the immigrants originate from non-EU countries. These people belong to the first-generation migrants if born outside the Netherlands, and to second-generation migrants if at least one of their parents is of foreign descent. Furthermore, a distinction is often made between Western (European countries, North America, Oceania, Japan and Indonesia – including the former Dutch East Indies) and non-Western immigrants (Turkey and all

countries in Africa, Latin America, and Asia – excluding Japan and Indonesia (CBS, 2001). We will now first provide some descriptive statistical information on immigration in the Netherlands.

Table 1: Share of non-Western and Western entrepreneurs in the population, according to generation of ethnic entrepreneurs, 2000-2007

	Non-western		Western	
Year	1st generation	2nd generation	1st generation	2nd generation
2000	30%	4%	24%	43%
2001	31%	5%	23%	41%
2002	32%	5%	23%	40%
2003	33%	5%	22%	40%
2004	33%	6%	22%	39%
2005	33%	6%	22%	39%
2006	33%	7%	23%	38%
2007	33%	7%	23%	36%

Source: Bleeker et al., 2011.

Table 1 provides the share of Western and non-Western ethnic entrepreneurs in the total population of ethnic entrepreneurs. We can see that the second-generation Western entrepreneurs (36 per cent) and the first-generation non-Western entrepreneurs (33 per cent) in 2007 have the largest share in the population of ethnic entrepreneurs. The proportion of non-Western ethnic entrepreneurs has increased from 34 per cent in 2000 to over 40 per cent in 2007 (Bleeker et al., 2011).

The biggest non-Western groups in the Netherlands are the Turks, Moroccans, Surinamers and Antilleans. Table 2 shows the entrepreneurial rates of the four major ethnic groups in the Netherlands. For three of the four groups the ratio in 2005 is lower than that of the natives. Only the Turkish entrepreneurs in the Netherlands are relatively more entrepreneurial than the native population. According to Van den Tillaart (2007), the rate of the four large entrepreneurial ethnic groups grew quite fast.

Table 2: Entrepreneurship rate* of the four major ethnic groups

	1998 (1st generation)	2000 (1st generation)	2004 (1st generation)	2004 (1st and 2nd generation)	2005 (1st and 2nd generation)
Turkish	7.6%	9.0%	9.7%	11.5%	13.5%
Moroccan	3.4%	5.1%	5.4%	6.3%	7.3%
Surinamese	3.9%	4.4%	4.4%	5.6%	6.4%
Antillean/Aruban	3.4%	3.5%	3.7%	4.2%	4.7%

Source: Chambers of Commerce and CBS, processing and analysis: ITS, Van den Tillaart, 2007.
* Self-employed as a percentage of the total workforce.

Of all these groups, the Turks are the most entrepreneurial, and their rate of self-employment approaches that of the native population. This can be explained by the existence of ethnic enclaves of immigrants of the same ethnicity in areas with a high concentration of Turkish immigrants. The factors that favour the formation of these ethnic enclaves are, in the first place, the common language, religion, and culture of the immigrants. Furthermore, most of the Turkish immigrants come from families with an entrepreneurial background, which explains the high degree of entrepreneurship for this ethnic group in the Netherlands.

The entrepreneurship rate of immigrants from Morocco, Suriname, and the Antilles is less than half compared with that of Dutch entrepreneurs. Moroccans are very similar to Turks in terms of demographic composition, and they often share the same religion, but are less well-educated. On the other hand, the Surinamese immigrants are very similar to the Antillean immigrants, but they are usually better educated than the other two groups, and are more familiar with the Dutch language and culture. Another common characteristic of all these immigrant groups is that they are relatively young compared with the native population. Clearly, an

important question is whether such background factors matter for their business performance. One of the goals of the present study is to trace such factors.

4. The Urban Seedbed of Migrant Entrepreneurs

In an open and global world characterized by rising urbanization, modern cities function as the habitat of international migrants and magnets of economic growth, in which small and medium-sized enterprises (SMEs) are a source of new jobs, business dynamism, and innovation. Migrant entrepreneurs form a significant part of the SME sector in our cities, and may hence be important vehicles for urban vitality. Usually, these migrant entrepreneurs have to work in an unfamiliar and risky business environment. Consequently, they may be less entrepreneurially-oriented in terms of risk attitudes concerning undertaking innovative business activities, and they usually concentrate on their own socio-cultural group.

The Netherlands is a good illustration of the above megatrends. The steady influx of immigrants since the 1960s has led to a diverse ethnic composition in the Netherlands, mainly in major cities. Cities like Amsterdam, The Hague, Rotterdam and Utrecht are the breeding grounds of multicultural activity (Van den Tillaart, 2007). This ethnic diversity in the city tends to lead to an enrichment of social and economic opportunities, and a higher variation in the range of talents in employment, which thus improves creativity. Ethnic (or, perhaps better, migrant) entrepreneurship is a visible manifestation of ethnic and cultural diversity, where work is provided for precisely those groups where unemployment is relatively high, because immigrants are often low-skilled. This can also lead to a further integration of immigrants into the official labour market and social cohesion, and, at the same time, it also contributes to the strengthening of the urban economy. Immigrant entrepreneurship not only provides employment and economic growth but also makes the city more vibrant and more colourful.

Entrepreneurship among immigrants is of great importance to cities for economic, political, and social reasons. The contribution of immigrants to employment creation is not limited to ethnic and niche markets, but is increasingly expanding into new sectors (‘break-out strategies'), for example, the creative industries. Moreover, their behaviour has significantly contributed to urban economic growth in recent years. Urban diversity is thus important, for both business facilities, and knowledge-sharing. Diversity will therefore lead to new and innovative combinations, which in turn will attract new businesses and talent. Because of their diversity, immigrant entrepreneurs tend to develop a differentiated urban economy, and thus contribute to stimulating its further growth (see Sahin et al., 2007). More and more districts in the Netherlands are coming to have a multicultural character. The presence of ethnic shops and restaurants brings vibrancy and diversity and can also enrich the neighbourhoods. In these ethnically colourful neighbourhoods, migrants can experience their own identity, express themselves and maintain their culture. They will find the necessary informal support, security and solidarity in social networks to pursue economic activities and to take some risks (Snel and Burgers, 2000). These areas therefore offer unique opportunities for immigrants to start their own business. Enterprising immigrants are of great importance for the economic potential of the city, and, in their own way, contribute to the diversity of the neighbourhood, and strengthen the local economy. Thanks to the positive development of immigrant entrepreneurship, these neighbourhoods are often now the scene of thriving enterprise and a good quality of life, enabling more customers (both locals and foreigners) to find and visit specific stores in a particular neighbourhood setting. In short, the economic potential in these areas, which is reflected in a growing immigrant entrepreneurship, is a source of creative possibilities for multicultural neighbourhoods.

Reliance on social networks of their own socio-cultural group may guarantee a certain market share, but may at the same time hamper an outreach strategy towards new and innovative markets (e.g., high-tech/ICT). Woolcock (1998) claimed that reliance on one’s own migrant group and its related network is both developmental and destructive. However, according to Menzies et al. (2003), an orientation on one’s own group can actually be a benefit to migrant entrepreneurs. And Portes and Jensen (1998) referred to the effects of some degree of monopolistic power in migrant entrepreneurship regarding better access to a relatively protected market. Nevertheless, Lyer and Shapiro (1999) have suggested that competition amongst migrant

entrepreneurs serving the same limited market niche may also increase business failure, especially if the market size is relatively small. Thus, the empirical findings are not unambiguous, and call for more fundamental research. Our study will address in particular the external backgrounds (e.g., social networks) and internal drives (e.g., motivation) with a view to the identification of Critical Success Factors (CSFs) for business performance and entry into new business markets by migrant entrepreneurs of different ethnic origin in Dutch cities. To that end, a micro-based survey among various categories of migrant entrepreneurs has been organized. This database as well as the methodological framework employed – based on the so-called GALAXY model (see Sahin, 2012) – will be presented in Section 5, followed by some general statistical findings from our survey. Then, Section 6 will present some specific statistical results from our survey among migrant entrepreneurs in Dutch cities, while the paper will be concluded with some retrospective and prospective remarks.

5. Database and Methodology

5.1. General description

Our study analyses the main factors that impact on the economic performance of second-generation migrant entrepreneurs in the high-tech sector in four large cities in the Netherlands: Amsterdam, Rotterdam, Utrecht, and The Hague. The sample in our study consists of a total of 212 entrepreneurs, who are predominantly of Turkish origin, and also a few of Moroccan, Surinamese, and Antillean origin, who are active in the high-tech sector (e.g. ICT), and non-traditional sectors (e.g. FIRE (Finance, Insurance and Real Estate) and tourism services) that all require highly-educated and skilled labour. The empirical data of our research was gathered from a self-administered on-line survey conducted in the fall of 2010.

The response rate was rather low, only 10 percent of the targeted entrepreneurs have submitted complete answers to our questionnaire. In order to determine a sufficient sample size needed we had to take into consideration several factors, such as how representative the sample size is expected to be and the methods expected to be used for the data analysis. A sample size of 212 entrepreneurs was used in this study. The distribution of the sample across the four biggest cities in Netherlands is shown in Table 3.

Table 3: Distribution of sample

Origin		Cities				
	Amsterdam	Rotterdam	The Hague	Utrecht	Other	Total
Turks	14	15	18	1	26	74
Dutch	7	7	8	14	7	43
Moroccans	7	8	6	9	9	39
Suriname/Antilles	2	10	9	5	12	39
Other	3	1	7		6	17
Total	33	42	48	29	60	212

Our strategy for the design of the survey questionnaire was to keep it focused and short, targeting completion within 5 to 10 minutes. Our survey comprises a total of 36 questions, and most of them are questions with multiple response possibilities. Multiple Response Questions (MRQ) will always be a useful feature for descriptive surveys. These type of questions are unique in that they require a different mode of data entry utilizing dichotomous variables and dummy coding. When properly handled, MRQ variables can be related to other numerical variables through regression and correlation, and can also be used as predictor variables in multiple regression analysis.

The survey asked for the respondents' key characteristics, home country, educational background, gender and firm size etc. To help maximize response rates, we attended network events, and asked two assistants to help approach entrepreneurs and complete questionnaires.

The questionnaire was designed in accordance with the GALAXY model, a theoretical model that takes into consideration multiple factors that are presumed to affect the business performance of migrant entrepreneurs (see for details Sahin, 2012). Therefore, in order to empirically test this model we have connected the questions in the questionnaire with the key factors in the model. When constructing the questionnaire, we wanted to capture all the dimensions of our GALAXY model in order to be able, at a later stage to determine the level of influence of each factor on the business performance of the migrant entrepreneurs. The questionnaire used has 3 parts. The first part covers the general information about the enterprise, including information about age, gender, ethnicity, education of the entrepreneur, as well as the sector and type of the organization etc. The second part comprises questions relating to the main factors in the GALAXY: motivational factors, business environment, socio-economic contextual factors and policy factors. The final part comprises questions that will help us assess the business performance of the enterprises. The questionnaire was initially written in English. Afterwards, as suggested by Saunders et al. (2006), a pilot study of the questionnaire was carried out on a sample of 20 people among which entrepreneurs of different nationalities and fellow colleagues. It helped us determine whether all the questions were interpreted properly, but, it also helped us to test the reliability and validity of each question in capturing the desired information. Therefore, the feedback from the test prompted us to make the final adjustments to the questionnaire before sending it out to the targeted groups. We also removed a few questions that were not relevant enough for our study, especially some of the open-ended questions, as recommended by the test respondents. Furthermore, the pilot study has helped us determine the time required to complete the questionnaire. After all the improvements were made, the questionnaire was translated from English to Dutch and sent out to our target group.

5.2 Database

The database contains extensive information on age and gender composition of the ethnic entrepreneurs under consideration (see Table 4). Most of these entrepreneurs belong to the younger age cohorts and are predominantly male.

Table 4: Age and gender distribution of the entrepreneurs

Age	**N**	**%**
21-30	38	17.9
31-40	63	29.7
41-50	69	32.55
>50	42	19.8
Total	212	100
Gender		
Male	165	77.8
Female	47	22.2
Total	212	100

In regard to education, our data shows that the largest group of self-employed migrants have a higher vocational training (43.4), followed by those with a University degree (see Table 5). The entrepreneurs with pre-vocational education are the least represented group in our sample.

Table 5: Education level of the entrepreneurs

Education	**N**	**%**
University level or higher	64	30.2
Higher vocational training (HBO)	92	43.4
Middle vocational training (MBO)	39	18.4
Prevocational education	1	0.5
Secondary education	16	7.5
Total	212	100

The composition of our sample in regard to place of birth of the entrepreneur and his/her parents is illustrated in Table 6 We see that the biggest group is Dutch-born. However, if we look at the origins of their parents, we can note that Turkish are the predominant group in our sample, followed by the Dutch and Moroccans, respectively.

Table 6: Birthplace of the entrepreneurs

Birthplace	**Entrepreneur**		**Father**		**Mother**	
	N	**%**	**N**	**%**	**N**	**%**
Netherlands	111	52.4	42	19.8	44	20.8
Turkey	45	21.2	73	34.4	74	34.9
Morocco	18	8.5	36	17.0	37	17.5
Suriname	14	6.6	31	14.6	26	12.3
Dutch Antilles	10	4.7	9	4.2	8	3.8
Other	14	6.6	21	9.9	23	10.9
Total	212	100.0	212	100.0	212	100.0

As regards the generational distribution of our sample, it can be seen that second-generation entrepreneurs are overrepresented in our sample, with a share of 57,5% (see Table 7). We have also included here the native population, which participated in our survey. However, we were not able to make any generation distribution for this group.

Table 7: Generation distribution of the entrepreneurs

Generation	**N**	**%**
First-generation	51	24.1
Second-generation	122	57.5
Native Dutch	39	18.4
Total	212	100.0

We have also looked into the occupation of the entrepreneurs in our sample prior to their self-employment in the current company. The data shows that the biggest share of the entrepreneurs, 57.1%, was previously full-time or part-time employees, whereas the smallest share is attributed to those entrepreneurs that were formerly unemployed (see Table 8).

Table 8: Prior occupation

Prior occupation	**N**	**%**
Entrepreneur same sector	20	9.4
Entrepreneur different sector	37	17.5
Full-time/part-time employee	121	57.1
Training/study	26	12.3
Unemployed	3	1.4
Other	5	2.4
Total	212	100.0

Our data shows that most of the enterprises were started in the period from 2005 to 2010 (53.8%). Furthermore, they were in the inception phase predominantly home-based (51.4%), while their current business location is predominantly in own office or own office building (see Table 9).

Table 9: Start date and location of the entrepreneur

Start date	N	%	Start location	N	%	Current location	N	%
2005-2010	114	53.8	Home	109	51.4	Home	56	26.4
2000-2004	50	23.6	Incubator	5	2.4	Incubator	4	1.9
1995-1999	23	10.8	Enterprise	53	25.0	Enterprise	74	34.9
< 1995	25	11.8	Own office	39	18.4	Own office	70	33.0
Total	212	100	Other	6	2.8	Other	8	3.8
			Total	212	100.0	Total	212	100

In regard to the innovative activities, our results show that the biggest share of the companies in our sample have in the preceding year introduced a new service on the market (37.5%), followed by those that introduced a service process (23.3%). Furthermore, in the previous year few companies have launched new products (15.83%), have entered new markets (15%) and/or have introduced a new production process (10%) (see Table 10).

Table 10: Innovation

Innovation	N	%
New product	19	15.83
New service	45	37.5
New production process	10	8.33
New service process	28	23.3
New market	18	15
Total	120	100

In respect to the future strategy of the company, the predominant part (56.4%) of our respondents have mentioned the plan to change the structure of the company (management style / organizational structure), while others are planning to eventually sell the company (23.1 %) or to reorient towards a different sector (20.5%) (see Table 11).

Table 11: Future strategy of the entrepreneur

Future strategy	N	%
Orienting to different sector	40	20.5
Change structure of company	110	56.4
Sell company	45	23.1
Total	195	100

Table 12 illustrates the sector distribution of the companies in our sample. As we notice, most of the companies are active in different sectors than the one listed in the table. Among these are: the marketing sector, event and project management, e-business etc.

Table 12: Sector distribution of the entrepreneur

Sector distribution	N	%
Banking	5	2.4
IT services	34	16.0
Holdings and management consultancies	20	9.4
Rentals and commercial real estate	8	3.8
Renting of movables	1	0.5
Legal Services / Administration	22	10.4
Insurance and pension funds	4	1.9
Recruitment / Employment	17	8.0
Travel agencies and tour operators	5	2.4
Accountancy/Consultancy	18	8.5
Development agency	6	2.8
Other, please specify…..	72	33.9
Total	212	100

6. Analysis of Multiple Response Questions

Multiple Response Questions (MRQ) are a useful toolkit for descriptive surveys. These types of questions are unique in that they require a different mode of data entry utilizing dichotomous variables and dummy coding (see Multiple Response in SPSS). When properly handled, MRQ variables can be related to other numeric variables through regression and correlation, and can also be used as predictor variables in multiple regression analysis.

If the objective is to rank the items individually according to their importance (frequency), then the next step is to analyze the responses such that when an item is checked, a module records the count and credits to the same item. The procedure posts the frequency count for each of the items separately without regard to combination responses. An obvious advantage of this approach is its simplicity, which makes is easy to further discuss and interpret the results. One objection to this procedure could be that the contributions of the combination items in measuring a particular dimension are always confounded with the single-item responses and therefore are often ignored.

Our survey comprises 36 questions in total. Some of them are questions with multiple response possibilities. The following questions were multiple response questions: 7b, 9b, 9c, 11a, and 11b, and will be given some more attention. First, we need to get the relative frequency counts of each item as a basis for deducing its importance as a confirmatory source for verifying the influence on business performance. These answers, each requiring a dichotomous (i.e., yes/no) answer and subsequent dummy coding (i.e. "yes" numerically coded as 1, "no" is 0), will now concisely be discussed.

Q7b refers to the start-up problems of the business. The objective of this question is to identify the most important start-up problems of the entrepreneur. The entrepreneur could provide more answers. 212 entrepreneurs indicated 575 times that they had the following problems: 1) administration, 2) financing, 3) competition, 4) access to market, 5) the economic situation, 6) business environment, 7) legislation, 8) access to business support, 9) availability of suitable staff, 10) debt fear, 11) development of management skills, 12) lack of business idea, and 13) bad experiences in the past. 102 out of the 575 (17.7%) indicated that they had problems with access to the market, while 80 out of 575 times (13.9%) indicated that they had problems with finance (see Table 13).

Table 13 : Results for multiple response questions

Start-up problem Frequencies			
		Responses	
		N	**%**
Start-up problems	Administration	59	10.3%
	Financing	80	13.9%
	Competition	80	13.9%
	Market access	102	17.7%
	General economic situation	58	10.1%
	Business environment	23	4.0%
	Legislation	39	6.8%
	Access to business support	14	2.4%
	Availability of suitable staff	43	7.5%
	Debt fear	28	4.9%
	Development of management skilss	36	6.3%
	Lack of a business idea	5	0.9%
	Bad experiences in the past	8	1.4%
Total		575	100.0%
a. Dichotomy group tabulated at value 1.			

Question 9b was intended to gather information about the organizations or the contacts that have been used by our respondents to get business support or advice for the startup of their

business. When we look at the multiple responses to this question, 212 entrepreneurs indicated at least 2631 times that they have consulted other people and authorities during the startup of their business. 212 entrepreneurs indicated 2631 times that they consulted: 1) an accountant, 2) a consultant, 3) clients, 4) family, 5) franchise organizations, 6) network organizations, 7) Chamber of Commerce, 8) banks, 9) a coach, 10) suppliers, 11) friends, 12) branch organizations, and 13) municipality. 120 out of the 2631 times (4.6%) consulted the Chamber of Commerce for advice. 164 out of 2631 times (6.2%) consulted an accounted for advice (see Table 14).

Table 14: Results for multiple response questions

Advice in starting business Frequencies			
		Responses	
		N	**%**
Advice in starting business	Accountant	164	6.2%
	Consultant	194	7.4%
	Customers	178	6.8%
	Family	125	4.8%
	Franchise organisation	210	8.0%
	Network organisation	163	6.2%
	Chamber of Commerce	120	4.6%
	Business Angel	207	7.9%
	Bank	166	6.3%
	Own coach	197	7.5%
	Suppliers	200	7.6%
	Friends	102	3.9%
	Trade Association	196	7.4%
	Retailers Association	212	8.1%
	Municipality or district	197	7.5%
Total		2631	100.0%
a. Dichotomy group tabulated at value 1.			

Question 9c aims to get an overview of which organizations or contacts have the respondents used for business support or advice in their current situation; 212 entrepreneurs indicated at least 2617 times that they consulted other people and authorities for advice in the current situation; 169 out of 2617 times (3.0%) consulted an accountant in the present situation. Consulting a network organization is indicated 144 out of the 2617 (5.5%) as a source of advice (see Table 15).

Table 15 : Results for multiple response questions

Advice in current situation for business Frequencies			
		Responses	
		N	**%**
Advice in current situation	Accountant	79	3.0%
	Consultant	169	6.5%
	Customers	173	6.6%
	Family	156	6.0%
	Franchise organisation	207	7.9%
	Network organisation	144	5.5%
	Chamber of Commerce	191	7.3%
	Business Angel	210	8.0%
	Bank	184	7.0%
	Own coach	193	7.4%
	Suppliers	200	7.6%
	Friends	105	4.0%
	Trade Association	191	7.3%
	Retailers Association	211	8.1%
	Municipality or district	204	7.8%
Total		2617	100.0%
a. Dichotomy group tabulated at value 1.			

Next, question 11a looks at the level of innovation within the enterprises with respect to any of the following categories: product, process, organization, marketing innovation, and tapping into a new market. 212 entrepreneurs indicated at least 919 times one of the four options mentioned above. There were 919 responses divided between: 1) a new good or service introduced to the market (product innovation), 2) a new production process or method (process innovation), 3) a new organization of management (organizational innovation), 4) a new way of selling your goods or services (marketing innovation), and 5) tapping into a new market. 173 times entrepreneurs (18.8%) indicated option 5: tapping into a new market. 202 of 919 (22.0%) indicated a new production process or method (process innovation) (see Table 16).

Table 16: Results for multiple response questions

Innovation Frequencies			
		Responses	
		N	**%**
Innovation	New product on the market	193	21.0%
	New service on the market	167	18.2%
	New production process on the market	202	22.0%
	New service process on the market	184	20.0%
	Entered a new market	173	18.8%
Total		919	100.0%
a. Dichotomy group tabulated at value 1.			

Finally, question 11b refers to the key factors behind the success of the entrepreneur. The objective of this question is to identify the most important success factors of the entrepreneur. The entrepreneur could indicate multiple answers. We recoded again the question in a dichotomous (i.e., yes/no) answer and subsequent dummy coding (i.e. "yes" numerically coded as 1, "no" is 0). Again using Multiple Response in SPSS, we defined de factors in one group and obtained the following results (see Table 17).

Table 17: Results for multiple response questions

Success factors Frequencies			
		Responses	
		N	%
Success Factors	Access to market and clients	112	17.2%
	Access to finance	18	2.8%
	Access to suppliers	22	3.4%
	Motivation and dedication	99	15.2%
	Reliability	136	20.9%
	Availability of suitable personnel	52	8.0%
	Location of enterprise	43	6.6%
	Innovation	53	8.1%
	Quality	116	17.8%
Total		651	100.0%
a. Dichotomy group tabulated at value 1.			

All entrepreneurs together indicated at least 651 times a success factor; 116 (17.8%) indicated quality as a success factor. In the table we can see that there is a total of 651, which refers to the total of at least one indication of a success factor. Access to markets and clients appears to be 112 of the 651 (17.2%) indications of a success factor (see Table 17).

7. Migrant Entrepreneurship in Perpective

It is noteworthy that the past decades have shown a remarkable growth in entrepreneurship among migrants. Recent studies on ethnic entrepreneurship have observed an increasing share of migrants in urban small- and medium-sized entrepreneurial businesses. The phenomenon of migrant entrepreneurship deserves more in-depth scientific investigation, on the basis of, inter alia, comparative studies in terms of incubator conditions and critical success factors (CSFs) for a promising and efficient business performance. Given the growing importance of entrepreneurship, there is practical value in being able to identify these CSFs. Due insight into entrepreneurial behaviour and the relative performance of migrants is needed to develop an effective business policy, in which migrants are seen as a source of new socio-economic opportunities, for both the migrant groups and the city concerned. Strategic information will also be necessary for the development of fine-tuned policy strategies to enhance the participation of traditionally less-privileged groups and to improve their business performance potential.

The Netherlands is a great example of an ethnically colourful country with strong multiculturalism, where migrant enterprises enrich the economy. The rise of migrant entrepreneurship, in general, appears to have had a favourable effect on the economy of the Netherlands. During the economic decline of recent years, the presence of migrant entrepreneurs has been one of the factors which have kept the urban economy running. Migrant entrepreneurship reflects different cultures and open-ended capacities for the creation of economic growth in cities, and contributes to economic diversity. Different migrant groups and different cultures can show different characteristics in terms of driving forces, motivation, performance, and conditions for success. Moreover, besides the most obvious cultural differences that exist between peoples, such as language, attire, and traditions, there are also significant variations in how societies organize themselves, in their shared perception of morality, and in the ways they interact with their environment. It is debatable whether these differences are merely incidental artifacts arising from patterns of human migration, or whether they represent an evolutionary trait that is key to our success as a species.

In order to evaluate migrant entrepreneurship, we have in our empirical study addressed different groups of migrant entrepreneurs in the Netherlands by comparing their socio-economic and cultural differences. We focused mainly on four active and dominant migrant groups, viz. Turks, Moroccans, Surinamese, and Antilleans in the Netherlands, and we compared these groups in terms of their entrepreneurial behaviour and performance. In the Netherlands, the migrant

populations from Turkey and Morocco are rather similar regarding their demographic composition. They are, on average, less well-educated, and most likely to be married, and most migrants from these countries consider themselves to be Muslim. The migrants from Surinam and Antilles are better educated, more familiar with the Dutch culture and language, and more often single or single parents. Migrants from Surinam and the Antilles also have similar demographic characteristics. Regarding the labour force participation rate of women and the share of married couples in the total number of households, the Surinamese and Antilleans have much in common with the native Dutch population. The educational level is lowest for migrant groups from Turkey and Morocco. Migrants from Surinam and the Antilles have, on average, higher educational levels, yet not as high as those of the native population. First-generation migrants are far more entrepreneurial than the second-generation migrants. Among the Turkish and Moroccan migrant groups, it can be seen that men are relatively more entrepreneurial. The other two major groups of migrants from Suriname and the Dutch Antilles show that entrepreneurship is more or less evenly distributed among males and females.

Our study was instigated by the conviction that migrant entrepreneurs deserve more attention. Migrant minorities are usually a highly motivated and qualified entrepreneurial group. Migrant entrepreneurs are seen as the future entrepreneurs of the Netherlands. The country's welfare is increasingly dependent on the success of this group of entrepreneurs. The ambition and desire of migrant entrepreneurs to start their own businesses is much higher compared with the motivation of the native population of the Netherlands. In addition, migrants are becoming more professional and often have sky-high ambitions. Migrant minority businesses mostly fall into the category of Small and Medium-sized Enterprises (SMEs). Such SMEs play a significant role in the domestic economies of most countries. Each and every successful self-employed migrant or minority business contributes to improved social and economic integration. A growing migrant economy creates a virtuous circle: business success gives rise to a distinctive motivational structure, breeding a community-wide orientation towards entrepreneurship.

Differences among migrant entrepreneurs may be caused by differences in their entrepreneurial behaviour and context. Besides the migrant network and support, the success of migrant entrepreneurs depends on their personality and work discipline; and on their inclination to be ambitious, patient, obstinate, and self-confident. Other reasons for success could be to work hard and conscientiously, and have good relationships with clients. To like the job and to do a good job, and to be supported by spouse and family members are also explanations for the success of migrant entrepreneurs (Baycan-Levent et al., 2003). Within a multicultural society it is plausible that differences in basic cultural values, attitudes and behaviour of the various ethnic communities influence their attitude towards entrepreneurship.

A growing number of the second-generation migrant entrepreneurs and an orientation to non-traditional sectors have become the new trends in migrant entrepreneurship in recent years. Although traditional sectors are still most popular among the first-generation migrant entrepreneurs, due to the increasing pressure and high competitiveness in traditional areas, new niches are developing. While the first-generation has more often become active in the traditional sector areas, the second-generation has been more active in advanced producer services, such as finance, insurance, real estate and business-related professional services (FIRE), and has also contributed to the emergence of new areas of immigrant business activity, such as ICT and the creative industries. Similar trends are also observed in the Netherlands. A general evaluation of immigrant entrepreneurship in the Netherlands highlights a sectoral change towards producer services, characterized by an increasing number of second-generation immigrant entrepreneurs.

This paper has then addressed in particular ethnic entrepreneurship as a major force field in the SME sector in many contemporary urban areas. Research studies on motivation and critical success conditions for ethnic entrepreneurs demonstrate that performance conditions vary across ethnic groups. The studies that consider differences by race and ethnicity find that human capital, access to finance, and industry structures may produce systematic differences (Bates, 1993; Fairlie, 1999, Butler and Greene, 1997).

Migrant businesses tend to lag behind non-migrant businesses in terms of sales, profits, survivability, and employment: coming up against greater obstacles in obtaining financing for their business implies that an already difficult situation is growing worse. According to Holguin

et al. (2006), there are several significant barriers that are specifically faced by some groups of ethnic entrepreneurs in the US. Access to financial capital, access to mentors and networks, access to labour market, and barriers to the marketplace are highly important when starting a business and these factors can discourage the development of the business. Studies of migrant and ethnic communities, in particular, show that minority businesses that are better embedded in the local community, serve a large share of residents in the neighbourhood, and help their community as a whole to do better than they might have otherwise.

Our findings brought to light new patterns in business performance of ethnic entrepreneurs. It turns out that the business profile of migrant entrepreneurship is changing from the first generation to the second. This 'break-out' strategy positions migrant entrepreneurs in a mature competitive context, and herealds essentially a socio-economic emancipation of this class of entrepreneurs. Our study has identified the success conditions for business performance of this new class of migrant entrepreneurs.

The results of our investigation suggest that a new orientation to the non-traditional sector, or, in other words, an external orientation with a combination of personal characteristics, skills and experience, may produce a very high economic performance and success level of the second-generation Turkish entrepreneurs. Therefore, this new orientation may also help them to escape from the ethnic enclave and breake out from their ethnic dependency. Moreover, this external orientation may also help them to expand their market. The results of our study show that the motivation and driving forces of the second-generation Turkish entrepreneurs stem from both their personal characteristics shaped by their higher educational level and their previous working experience as an employee or entrepreneur in the same sector. The demand for and the growing and promising structure of the sector play also an important role in pulling the second-generation Turkish immigrants to become entrepreneurs in these new sectors.

In the Netherlands, in the last two decades the rate of migrant entrepreneurship has grown at a faster pace than that of the native Dutch population. In the Netherlands, policy measures may have to be directed towards improving the educational levels of immigrants and towards encouraging the general integration of the immigrants in Dutch society. In addition, policy measures should facilitate the access of migrants to financial support and other support measures. Furthermore, aside from the general policy measures to stimulate ethnic entrepreneurship, attention should be focused on specific minority groups which have dissimilar entrepreneurial behaviour. For instance, the Turkish group is characterized by a high tendency to become self-employed, and thus their rate of entrepreneurship is expected to grow even without additional policy measures. On the other hand, Moroccans usually have a more closed nature, and thus are less likely to be inclined to become self-employed and are reluctant to communicate with official institutions (Jansen et al, 2003). Therefore, in this case, the policy measures might stimulate the general integration of this group in Dutch society, and provide incentives for them to pursue entrepreneurial activities.

One way to improve possibilities for migrant entrepreneurs in the Netherlands is for them to go beyond their own ethnic frontiers and expand their activities into broader and other market segments and business lines, competing or associating with the native Dutch entrepreneurs in their own markets. This new strategy may require the migrants to improve their skills and knowledge of the Dutch language. Here established associations can play a role in order to improve the relationship between migrant entrepreneurs and private and public institutions in the Netherlands.

The main objective of our study was to examine the most important determinants and success factors behind the success of migrant entrepreneurs in a broader study (see Sahin, 2012).We have looked at the motivation factors of individuals to become self-employed. Due attention was given to the migrants' specific motivation factors which drive them to pursue entrepreneurial activity to a greater extent compared with the natives. Besides the entrepreneurial animal spirit and the bounded rationality shared by both the native and migrant entrepreneurs, social networks appeared to be a crucial determinant to become self-employed in the case of the migrants. Next, it is evident that the business environment can have a great impact on the performance of migrant-owned companies. It is plausible that location conditions, business markets, and the business network have an effect on the trajectory of migrant businesses. Clearly,

also socio-economic contextual factors play an important role in the process of setting-up and further developing the business, especially the business culture, operational characteristics and access to new markets (widely referred to as 'break-out' strategy), in order to avoid being trapped in ethnic enclaves. Lastly, policy factors may significantly impact on ethnic enterprise formation and its consequent growth. Therefore, support measures and policy initiatives are crucial in helping migrants to overcome those barriers that prevent them from starting their own businesses.

In conclusion, the migrant entrepreneur is often considered to be an 'entrepreneurial hero'. Clearly, migrant entrepreneurs make up a significant share of the urban business economy and they contribute considerably to urban vitality. Our analysis also shows, however, that – despite the 'signs of hope' offered by migrant entrepreneurship for urban vitality – they do not create an entirely innovative business climate in the urban economy. They are a solid and, in the meantime, established part of the normal urban-economic business sector – and as such are indispensable – but it remains to be seen whether they deserve to be called 'entrepreneurial heroes'. They offer many job opportunities in a modern city, but the 'jump' towards a high-tech sector is still modest. This holds for both first- and second-generation entrepreneurs, although the second generation clearly demonstrates a more knowledge-oriented business attitude. A converging pathway from specific, often ethnic-oriented, market niches to mainstream economic branches is a plausible consequence of the gradual transition of first-generation to second-generation migrant entrepreneurs. Clearly, this converging transition may take several decades. Nevertheless, it is likely not too speculative to argue that the distinct nature of migrant entrepreneurship – as a special modern business activity sui generis – will vanish in the future, to begin with large metropolitan areas.

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PARTICIPATION OF BUDAPEST AS EU CAPITAL, 2004-2010: PROBLEMS AND PERSPECTIVES

Bános Katalin and Somogyi Andrea

Hungary had been in a very special and particular situation when joining the EU in 2004. At that time, the 7-year financial and planning period had already been in process, which had been worked out on the basis of strategy made before the enlargement of the EU. At the same time we have determined the following objective: the cities – due to their importance – must be given an appropriate role and support within the EU in the future.

Double burden, double system of objectives

Meanwhile, the leadership of the Municipality of Budapest had been concentrating on two significant areas: urban rehabilitation – primarily on opportunities for supporting the renovation of urban housing estate –, and the financial assistance to develop the urban transport. The reasons, why these objectives had been focused on, are the following:

Because the cities in the new member states had to undertake a double burden. Any urban based concept were prevailed in the EU, while the cities of the new member states were afflicted by basic infrastructural deficiencies due to the decades of financial resource gaps after socialism and change of regime. This is also true for cities, which reaches the level of EU-average on the basis of GDP per capita (for example: Budapest).

Because the main urban problems of the new member states are: the public transport, the degraded internal areas and the living estates built after the II World War. In addition to the densely built city centers, about 40% of the urban population live in suburban block of flats, while this rate is only 3-7% in cities of the EU-15. Because of their condition – without rapid intervention – they may become a kind of social ghettos.

Because there was no fund for the renovation of 100-150-year-old block of flats in the mentioned cities (there are about 100 000 buildings in Budapest with a need of urgent renovation, in Gdansk there are 2000 families living in buildings that should have been demolished according to the law). The situation was complicated by the forced privatization most of these houses, it means that people – living in them – can buy their home preferential, however for renovation was neither own nor public money. Many of these degraded buildings were left, so the process of ghettoisation had started.

Because large European cities are not able to handle environmental damage of car and cargo traffic. The private transport is the 75 % of the total road traffic, which will increase by 40% – according to the forecasts – until 2030.

Measures for mitigating this double burden – integrate public transport and estate renovation support to EU Policy – have been managed to obtain only in 2004-2005, with the leading-initiator role of Budapest. The fact, that urban public transport became a part of the eligible areas, has been considered as a historical success, however the EU still does not support the renovation of transport infrastructure. The other field – the support of renovating apartments – has never belonged to those areas, which can be subsidized by the EU from the Structural Funds. Although the integrated urban development was the part of the Urban Program between 2000-2006, but not included the housing, moreover this topic had not been added to the scope of the Structural Funds for the planning period of 2007-2013 as well – despite of the collective cooperation of the new member states. At the beginning, the older member states had kept aloof from this, because they thought only the social flats are entitled by supporting and the other (new) proposal would have helped the owners, namely the private sector, by EU budget. At the same time they were afraid of the "Germany's Syndrome": the blocks of flats were renovated there, but the residents left their home because of the lack of local employment, and the empty buildings had to be demolished. The EU Summit in December 2005 leaded to success: the rules for Structural Funds contain the opportunities for supporting housing investment, thanks to the favorable political decision. In exchange the new member states had to accept that the EU will provide less money for the

Cohesion Policy. In spite of the favorable decision the volume of housing renovation programs was not increased significantly in Hungary. There are several reasons for it: one of them is that County Towns must indicate at least one project for urban rehabilitation – containing housing element – in the Operational Program. Currently there are only a few of these projects in the country – for example Budapest has only the Magdolna Quarter Program.

The other reason is that the amount of funds has been constantly decreasing in the period of 2007-2013, the framework of the ERDF available for housing elements had originally been limited as well, and now these amounts are bound for use.

Institutional foundation

The solution of problems was hindered by other reasons as well. Directly after joining – between 2004 and 2006 – Hungary obtained funds, but Budapest received money only for large investments, like waste water treatment plant in Csepel, or the Metro4. However the situation changed from 2007: in the new planning period Hungary, the Central Hungarian Region including Budapest become able to apply for central and regional fund (ERDF) as well. Considering that we had enough time to prepare for the planning period of 2007-2013, the Office of European Union Affairs has been created in the structure of the Municipality of Budapest for coordinating European issues and projects, as well as keeping contacts with other European capitals, representing Budapest in international and European institutions mainly in Brussels, additionally harmonizing the projects – co-financed by European funds. Because of its particularly special role, the Office is located in the middle of the pyramidal structure of the Municipality, between specialized departments and the leadership.

In the year of 2007 the EU Office collected all the project ideas within the scope of the Municipality, which has resulted 42 promising project initiations. Theoretically, each project was suited to benefit from funds within the framework of the government action plan for 2008-2009, but the required own contribution needed to be assigned by the Municipality. Aware of this, the General Assembly of Budapest had accepted the list of projects. The approved package had been judged by the Development Council of the Central Hungarian Region at first, and then it had been transferred to the National Development Agency, which made recommendations to the Government, which shall be added to the Action Plan. Following this, the Municipality had 6 months to work out the complete project, the so-called detailed project documentations. The Subsidy Contracts of priority projects – submitted in 2007 – were signed in 2009, it means there were two years passed from application to signing the contract. About 65%-70% of the priority projects – submitted by the Municipality – were successful.

The contradictions of Hungarian regionalization

As part of the Central Hungarian Region Budapest is not self-contained in the programming of the Structural Funds, it is the same applicant as Vác or Esztergom, or for example Szeged within its own operational program. The Central Hungarian Region is the only region in Hungary, which does not belong to the convergence regions receiving the highest EU development rate (regions with a GDP under 75% of the EU average), and which is belonging to the phasing-in regions within Competitiveness and Employment Objective. In developing the framework of the current planning period it was achieved by successful governmental and municipal lobbying, that we can get funds from the framework of regional operative program for developing priorities convenient to convergence objective. The dual role of Budapest (applicant city/capital) has lead to several anomalies. The decision makers did not take into consideration that Budapest is not just a city, not the same city, like the cities mentioned above, but there are differences in population, area, and other quantity based indicators as well. Budapest is the Capital of Hungary, it means other – additional – functions in terms of quality. Besides the decision makers did not take into account the particular geopolitical status of Budapest either. This is where the entire road network of the country, the public administration and the nodes of the railway lines concentrates. Hungary is really strongly ‘Budapest-centralized’. From the western counties to the eastern counties you can get only through Budapest, so the bridges (Margaret Bridge, Liberty Bridge, or Árpád Bridge) serve not only the interests of people living in Budapest or in the Central Hungarian Region, but the interest of people living all over Hungary. So Budapest should be entitled more funds, because it is not only the capital city, but also has a geopolitical role. However this is a political question, which cannot be solved at the level of public administration.

The key role of the coming period is to explore the advantages of geopolitical status of Budapest in the field of EU Strategy development. The Danube strategy can be an excellent opportunity for this. The city of Ulm has proposed at the Commission in Brussels the creation of a special region – called Danube Region, which will involve cities along the Danube River - by utilizing the Danube as a river and a route. The city of Ulm also supports that Budapest should be the center of the region.

The internal contradiction of a capital-region-country triangle has never arisen before in any new or old member states as sharp as in Budapest. If you are setting a parallel between Budapest and Warsaw, you can see that the Polish public administration and infrastructure are not as centralized as the Hungarian ones and besides Warsaw and its surroundings constitute an organic unit, so it means rather a region – called Warsaw region – than only a city. There is no such a symbiosis in the case of Central Hungarian Region, because there is a sharp contrast between Budapest and the County of Pest. Due to Budapest, Pest County considers that it will lose to receive from the opportunity of additional infrastructural funds – which would entitled for it based on the indicators – after 2011. Thus, the separation would be preferable for the County.

Poland has successfully established the "Great Warsaw" concept, integrated the agglomeration around the capital and allocated development funds proportionally since being EU member state. A carefully considered infrastructural network has been created and a significant industry has been settled within the area surrounding Warsaw. The agglomeration of Warsaw considers definitely as an advantage belonging to the capital, because it receives additional funds by this. Due to the lack of political cooperation this kind of uniformity could not be realized in the Central Hungarian Region.

Based on the european regional map, Hungary had to be divided up anyway, however the central role and the geopolitical status of the Capital cannot be doubted, furthermore its economic tension is statistically verifiable. There is a constant competition among the regional cities (like Debrecen, Miskolc, Nyíregyháza, Szeged, Pécs, Győr, Székesfehérvár, and Veszprém); but they do not want to compete with Budapest. It is also undeniable that the greatest potential of research, development and innovation is located within the administrative area of Budapest, because there are the universities, the large academic research- and other institutions, so it transferred to the other towns of the Central Hungarian Region very slightly. It slows the infrastructural development of these areas, but strengthens the intention of separating Pest County from Budapest, in order to stay continuously in the framework of the "first objective", that means it will remain convergence region in the future–keeping the same level of EU funds. It's a fact that the minor roads of Pest County are neglected, there are no appropriate road-width and roadsides, moreover there are places without canalization, and draining. Moving away from Budapest infrastructural differences become even more obvious between the capital and the surrounding settlements; therefore the demands for development funds of these municipalities are really acceptable.

Dynamics of Sources: Decreasing Tendencies

The European Commission determines a frame of funds for each member states, in each programming period. The National Development Agency further divides for the regions based on a two years action plan, which is divided into lines, and then The Agency determines the tasks that ERDF funds may be used for. (For the sake of completeness, it should be noted that many major transport and environmental project was realized from Cohesion Fund which was established for the implementation of European Cohesion policy.) Half of the funds were allocated to the city of Budapest at the Central Hungarian Region in 2007-2008, and the other half of the funds were allocated to the county of Pest. This amount was broken down for the priority projects and all binded during 2007-2008. The remaining funds that are not binded may be reallocated (from one budgetary row to the other) by the intermediate body or the National Development Agency, and may open a new tender.

The above mechanisms were dominating throughout the execution of the 2007-2008 Action Plans. According to the „phasing in status" the Central Hungarian Region (KMR) had only received half of the regional funds because of the decreasing funding during the 2009-2010 action plans. Compounded by problems the capital has no financial reserves to cover the 50 or 30

percent own contribution for these projects. There are two solutions that the capital can rely on: One is applying for long term credit at the EIB for covering the amount of or that the city does not apply for new tenders. It is a political question which solution should be chosen by Budapest. In 2011 and 2012 Budapest may not apply for infrastructural projects, only for sources of the European Social Fund and for the so called „soft" projects, which are not investment based, but are aimed at the transferring of information, such as the education of experts, trainings, etc. We have already launched these types of projects in 2008-2009, taking in account that considering infrastructure the EU is going to freeze these sources – so we knew that up to this point we had to learn how to manage soft projects whether it's about education, transport or economic development.

This means that by 2011 – we will have to know how to make Budapest a well organized great Budapest. The unconcealed intention is – that taking in consideration the successful examples of the European metropolises – we will not stop at our very strictly bounded administrative borders, but will be thinking, developing and building together side by side with the agglomeration. When the sources for the regional operation programs opened in 2007 we have been in a relatively comfortable situation, because all we had to do was to take out the plans prepared earlier from the drawer and transfer them into a project documentation. The institutions of Budapest had also taken very intensive participation in the project processes. Part of these projects were ceased due to lack of own contribution or partners, however a dozen of these promising initiatives remained in the competition, such as the projects of the Zoo and Botanic Garden of the Capital (there are 5 running projects connected to this institution). Besides the projects launched by Budapest there were some launched by the National Development Agency again in 2009 from sources remaining from 2007-2008. Based on the above initiatives has started the establishment of the community cycling system (based on the French model of bike-renting stands) or the development of the oncology center in the Hospital Uzsoki, which were supported with 1,3 billion HUF by the government.

The mechanism of soft projects is slightly different: They are directly controlled by Brussels, Budapest may join the project ideas as a partner, or initiate itself an idea and become a Lead Partner. The sources of these projects are provided from the funds for knowledge exchange of the EU within the framework of the URBACT, the INTERREG, the 7th Framework, the Culture Program, etc. Budapest has initiated the ROMA-NET thematic network, which is promoted the integration of the Roma population: the URBACT Monitoring Committee considered to be supported. It means that Budapest, as well as the other 8 cities – which joined – make a local action plan (supported by the EU), and begin to implement it in 2012 involving EU and other funds.

In another case Budapest was the joining partner: the city of Lyon has started an innovative project of clusters, which seems to be an excellent tool for increasing competitiveness in the field of research, development and innovation. Budapest has the task to take the local small and medium size enterprises into a „favorable position". For this purpose Budapest has a project for community transport; parking and that is why Budapest entered to the initiative of Vienna and Potsdam, which projects try to lighten the traffic problems of metropolises as well. Currently Budapest has four projects running, which require from the Municipality (at least) as much personal involvement as an infrastructural investment. Their expenses are much less than infrastructural projects, where the costs can be billions of HUF, so a soft project only requires ten-twenty, maximum one hundred million HUF, and during the implementation personal costs are eligible as own contribution.

The trigs of the Dual System of Local Government

The European Union demands all EU funded projects to be templated by its name and its logo. The message to be communicated for instance is not that „Margaret Bridge is reconstructed", but the fact that it is reconstructed from EU funds. This means that the presence of the European Union must be communicated in an indirect way making its image stronger. The communication is a binding element of the EU projects. However in 2007, the above mentioned Development Council of the Central Hungarian Region determined 50% support intensity instead of 85% for our projects, just the aspect of communication was left. The estimated cost of the reconstruction

of Margaret Bridge was 12 billion HUF, in addition there was another 1 billion HUF non eligible cost, and moreover the binding communication element of the Margaret Bridge reconstruction would have been close to 500 million HUF. But from the close to 14 billion HUF amount not the 85% was financed by the National Development Agency (from EU sources), only the 50%, 6 billion HUF, due to the result of the political deal within the Development Council of the Central Hungarian Region. This amount was hardly enough to complete even the physical renovation of the Bridge, while the fulfillment of all tasks is an obligation. All tasks above the 6 billion HUF as well. That is the problem of the Municipality of Budapest.

So happened that at the stage of financial planning the communication elements of the project had been completely omitted, which could be realized by the Municipality itself. The difficulties arising from this are not to be detailed in this document, however, the bottom line is that a new tender of public procurement for communication had to be launched along with the public procurement of an independent public procurement consultant, etc. The „Catch 22 game" of the public procurement takes away about a year from the actual work. This problem burdens the entire system of public administration, because the law of public procurement has not been adjusted to the absorption of EU funds.

In order to assure the standard image of the EU funded projects we provide standard communication, therefore we announce standard tender for public procurement which is a slow and difficult process. We frequently face the paradox situation that the project is almost completed while the communication has not even started. Citizens ask in vain why all the roads are under construction, why there are conjunctions, why they can't enter to several roads by car. There is no convincing answer to their questions.

In the aspect of co-financied EU projects, the dual level local government system is mighty disadvantageous. The EU provides: if the project is implemented on a location, which is not the property of the developer, but the property of another local government, private person or company, a proprietary contribution is needed. It is frequent, that a district asks the capital for another area in exchange, but these property exchanges generate complicated transactions. Often an investment of the City of Budapest – in order to harmonize works – has to wait for the accomplishment of a district project: „if you want to start your own project, you need to wait for me to finish my canal or resolve the drainage". All these delay the execution of projects of the City of Budapest. This happened to the bus corridor of Rákosmente - Örs Vezér Square, a priority project tendered by the City of Budapest, which runs through the property of two different local governments. The issuing of permission which is in the jurisdiction of the districts could cause difficulties. District II would have to launch the permit for the construction of the bicycle lane running off the Margaret Bridge, but first it was bound to a property exchange, than because of a political disagreement, District II denied the permit. The situation was resolved in the framework of long negotiations on an extremely high political level.

In the case of several projects we had to face the resistance of the districts even though to carry out these investments is an overall interest of Budapest. All inhabitants of a district use a bridge if they want to get easily to the other part of the city, so the bridge is not only the property of the district where it is located. Where the leadership of a district recognized that cooperating with the capital is an essential interest, there is a harmonic collaboration as in the case of "The Heart of Budapest project". In many cases the opposition of interests between the district and capital is severed or pulled across by the opposition between the civil sector and the capital.

Perspectives: Great Budapest, Gate City

Budapest has been a member of the EUROCITIES organization since 1996. The organization involves 140 European cities and its main goal is lobbying for its members in the EU and to raise urban policies to European level. Both the European Parliament and the European Commission acknowledge it and rely on its opinion.

Cities work together in different forums (economic development, mobility, social, knowledge society, environmental and cultural forum), which allow them to become familiar with the planned EU regulations in time related with these fields, to work out joint tenders and to exchange experiences. At first, Budapest take part at the East-West Commission and later at the Economic Development Forum (EDF), for 2 years as a vice-president, then, between 2007 and

2008 fulfilled its role as president. EDF, the largest forum of EUROCITIES contains the most innovative European cities, made its voice heard strongly at the time of shaping the framework of 2007-2013 cohesion policy. With experience exchanging among its member cities, EDF helps them to use the EU supports effectively.
In 2009, the General Assembly of EUROCITIES elected Budapest to be one of the 12 members of the organization's executive committee as a recognition of its efficient EDF presidency. The committee's main task is the annual work program, and to supervise the internal regulation and the budget. An outcome of Budapest's presence in the committee is that the development of suburban transport became also a question of urban transport problems. In June 2010, Budapest hosted as a significant event of the European year of combating poverty and social exclusion, a seminar focusing on area-based solutions to social exclusions, organized by EUROCITIES and the city itself.
The so-called Great Budapest, forming an organic unit with its agglomeration, could be the gate of the European Union towards the future member states in the Balkan. Furthermore, its geopolitical situation allows being the center of the forming Danube-strategy. Vienna is the most serious competitor of Budapest in Eastern-Europe, to win "The Gate of Balkan", or "The Capital of Danube" title, even to open roads toward eastern partner countries.
Consequently, Budapest could play an important role in the EU. This kind of role needs an outstanding representation in Brussels. Currently there is only a tiny office representing Budapest, while other capitals, such as Prague or Vienna have much more representative and larger space. The Office of European Union Affairs is supposed not only to work out and coordinate projects but to take part in preparation of Budapest Strategy and the EU presidency strategy. Overall, to make it possible someday, to represent the entire Great Budapest in Brussels.

Appendix: Outlook to the periods of 2007-2013 and 2014-2020

The overall budget of the Structural and Cohesion Funds is 347 billion €, which means 35.7% of the total EU budget and 0.38% of the EU's GDP. 81.5% of this amount is for the regions covered by the Convergence Objective. The population of these regions is 170 million people (35% of the entire population, the phasing out regions also included).
Countries gained the biggest share of grant:
Poland (67.3 bn €)
Spain (35.2 bn €)
Italy (28.8 bn €)
Czech Republic (26.7 bn €)
Germany (26.3 bn €)
Hungary (25.3 bn €)
Portugal (21.5 bn €)
Greece (20.4 bn €)

Anticipated results:
The investments of the Cohesion Policy will increase the Member States' GDP by 6% according to the estimation of macroeconomic models. (Obviously it can be modified by the economical crisis.)
The investments of the EU Cohesion Policy support the building or renovation of 25 000 km roads and 7700 km railway in the field of passenger and freight transport.
Frame budget of Hungary, 2007-2013
Community contribution:
Cohesion Fund: 8.65 bn €
European Regional Development Fund: 13.03 bn €
European Social Fund: 3.62 bn €
Total: 25.3 bn €

The aims of the Hungarian National Strategic Reference Framework (HNSRF) were set in six thematic and territorial priorities:
- economic development
- transport development

- social renewal
- environment and energy
- regional development
- government reform

The aims and priorities of the HNSRF are implemented through 15 Operational Programs (OP), from which 2 are financed by the ESF and 13 by the ERDF and CF. 7 of the 15 OPs are regional and the 8 remaining is for sectors. Furthermore Hungary participates in 4 cross-border cooperation programs, in 2 transnational cooperation programs and runs interregional cooperation programs with all member states.

Since there are typically large gaps in infrastructure in Hungary, cohesion investments are concentrated on improving transport infrastructure and the accessibility of key areas. 30 % of the entire cohesion policy budget of Hungary will be expended on transport infrastructure. (So the building or renovation of 518 railway sections is expected with the help of the Cohesion Fund.) The plan of sustainable urban development has a role in each 7 Regional OPs. The 25-30% of the entire budget of Regional OPs is separated for urban development. The amount affordable for urban development is 800 million €.

General priorities of the EU budget 2014- 2020

There is professional consensus about the next years' challenges of Europe: globalization (need of improving competitiveness), climate change, oil crisis, growing inequalities, aging process of the population, improving migration pressure, security threats. Different stakeholders naturally emphasize different challenges according to their interest. The "European added value" should have an important role in this process. Still European common values are the transnational infrastructure, the environmental protection, the food safety and well-balanced food supply, the improvement of European identity, well-balanced economical and social development.

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Announcements, Conferences, News

XXXIII Conference on "Supporting Sustainable Communities in times of Emergency – Participation, Empowerment and Democratic Innovations at Local Level"

Conference Overview[22]

The XXXIII Conference on "Supporting Sustainable Communities in times of Emergency – Participation, Empowerment and Democratic Innovations at Local Level" has been organized in Athens on Sept. 14-16, 2011 by the International Sociological Assosiation ISA Research Committee Sociotechnics, Sociological Practice RC26 in collaboration with the Sociology of Work Laboratory, Sociology Department, University of the Aegean, Mytilini, Greece, the Direction of Sociology of Work, Postgraduate Program, Department of Pedagogy, University of Athens, Greece and the University of Central Greece, Lamia, Greece.

The conference has been a forum whereby to discuss the diverse aspects of glocalization and the issues of empowering local communities, the role of social capital and the social economy in such processes. The choice of Athens has been indicative of the organisers' commitment to address current policy issues and dilemmas in one of the currently tried areas, whereby social science must respond to a challenging present. Within the conference framework, sociotechnics and sociological practice could produce credible answers to emergent problems of sustainability.

The agenda included the following main topics:

- The contemporary dynamics of social capital, the impact of globalization on local communities and common perceptions of world tendencies
- Social economy innovations and sustainable communities
- Inclusive recovery and local city employment governance
- Cellular Globalization in between Local and Global social dimensions
- Empowerment of citizens/workers/consumers/minorities/youth
- Innovative community social development and Education (NGO's, environment/culture/education), Social policies, entrepreneurship and social cohesion.

[22] **Conference overview by Dr. Aikaterini Kokkinou, University of Glasgow**

International Conference on Integrated Information, IC-ININFO

Conference Overview[23]

The International Conference on Integrated Information, IC-ININFO has been organised in Kos, Greece, in September 29 - October 3, 2011.

IC-ININFO conference brought together leading academics and practitioners in the emergent field of Integrated Information to discuss the state of the art but also future of the field in one forum. As an open conference, IC-ININFO has been looking to a diverse range of papers and panels for oral presentations, posters, or virtual presentations.

One of the primary objectives of the IC-ININFO has been the investigation of information-based managerial change in organizations. Driven by the fast-paced advances in the Information field, this change is characterized in terms of its impact on organizations that manage information in their everyday operations. Grouping emerging technologies in the Information field together in a close examination of practices, problems and trends, IC-ININFO and its emphases on integration and management presented the state of the art in the field. Addressed jointly to the academic and practitioner, it provided a forum for a number of perspectives based on either theoretical analyses or empirical case studies, fostering dialogue and exchange of ideas.

The agenda included the following main topics:

- Library Science, Digital Libraries, Archives Science, Museum Studies
- Information Science, Documentation, Electronic Archives
- Information Management, Records / Document Management
- Knowledge Management, Data Management
- Copyright, Electronic Publications
- Cultural Heritage Management, Conservation Management
- Management of Nonprofit Organizations
- History of Information, History of Collections

Health Information

[23] **Conference overview by Dr. Aikaterini Kokkinou, University of Glasgow**

Academic Profiles

Professor Ron Martin

Professor Ron Martin is Professor of Economic Geography and a Fellow of the Cambridge-MIT Institute. He is also a Research Associate of the Centre for Business Research attached to the Judge Business School. He holds a Professorial Fellowship at St Catharine's College. He will be a Leverhulme Major Research Fellow for 2007-2010.

At present, Professor Ron Martin teaches on two main undergraduate courses in the Geographical Tripos: Second Year: Understanding the Economy: Geographies of Contemporary Capitalism, Third Year: The Restructuring of Britain. In addition, he gives graduate lectures and seminars in the MPhil in Geographical Research, on:
Research Training Module on New Developments in Economic Geography.

Professor Ron Martin regularly provides research advice and consultancy to Government Departments (DTI, ODPM), and Regional Development Agencies, and has undertaken various studies for them. He also provides economic-geographic advice and consultancy to a number of private sector consultancies, including Local Futures (London), Cambridge Econometrics (Cambridge), and Trends Business Research (Newcastle).

His most recent publications include:

- 2011 The Persistence of Inequality? (with P. Arestis and P. Tyler) Cambridge Journal of Regions, Economy and Society, 4, pp. 3-11.
- 2011 Conceptualising Cluster Evolution: Beyond the Life Cycle Model? Forthcoming in Regional Studies (Special Issue on Cluster Evolution, Eds. R. Boschma and D. Fornahl).
- 2011 Regional Economic Resilience, Hysteresis and Recessionary Shocks, Forthcoming in Journal of Economic Geography.
- 2011 Recessionary Shocks and Regional Employment: Evidence on the Resilience of the UK Regions (with B. Fingleton and H. Garretsen), Forthcoming in Journal of Regional Science.

By Vilelmini G. Psarrianou, RSI Journal

Dr Georgios Karras

Professor of Economics

Dr. Georgios Karras is a Professor of Economics at the University of Illinois at Chicago, since 2001 until present.

His current research interests include:

- Monetary Integration and Dollarization The Macroeconomics of Private and Official Financial Flows Economic Growth
- Macroeconomics and Monetary Economics
- International Economics and Economic & Monetary Integration
- Econometrics and Time Series

His research has focused on both the business-cycle and long-run growth aspects of macroeconomics. In various articles, Dr. Georgios Karras has tested some of the predictions of different growth theories and their convergence implications. In a number of other articles, he has examined the sources of business-cycle fluctuations and the importance of fiscal and monetary policies, including the role of the economy's openness to international trade for the potency of monetary policy, and the consequences of monetary integration and dollarization.

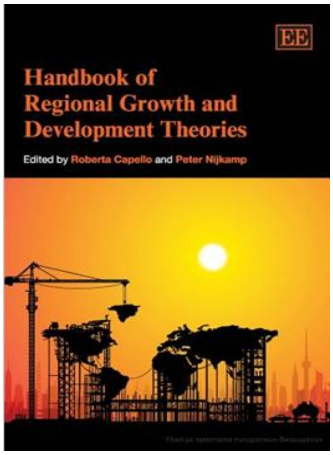
Dr. Karras is also a member of the editorial boards in journals such as: Applied Econometrics and International Development, Regional Science Inquiry, The Open Business Journal, The Open Economics Journal, and the International Economic Journal. He is also referee in international scientific journals, book series, member of academic services, as well as scientific associations.

His selected research publication include:

- Business-Cycle Synchronization in the EMU (with Davide Furceri), Applied Economics, Vol.40, No.12, June 2008, 1491-1501.
- How Homogenizing Are Monetary Unions? Evidence from the U.S. States. North American Journal of Economics and Finance, Vol.14, No.3, December 2003, 381-397.

By Dr. Aikaterini Kokkinou, University of Glasgow

Book Reviews



Handbook of Regional Growth and Development Theories

Professor Roberta Capello
Politecnico di Milano

and

Professor Peter Nijkamp
Dept. of Regional Economics, VU University Amsterdam

Edward Elgar Publishing, 2009.

The present statement thoroughly provides the theories concerning the regional growth and local development during the 21st century. It is divided into 5 Parts:

- **Part 1** examines the notions of space and growth. On the parallel, the authors analyze the aspects of a variety of issues such as: the agglomeration, the spatial distribution of regional growth as well as the trade in relation to regional growth.
- **Part 2** focuses on the empirical approach of the regional development theories and agglomeration. Additionally, it investigates the interaction between regional development – territorial capital and regional development – infrastructure.
- **Part 3** presents the notions of innovation, knowledge and space as key characteristics of the development theories.
- **Part 4** emphasizes on the discussion as far as the methods being utilized for the regional growth and development measurement is concerned.
- **Part 5** concentrates on the relevant policies, providing both the case of modern capitalistic economies and the case of less developed regions.

It is worth noting that this book, in which many experienced scientists and researchers have participated, contributes in the further investigation of regional science.

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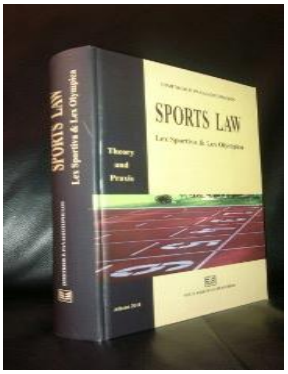


Sports Law Lex Sportiva & Lex Olympica

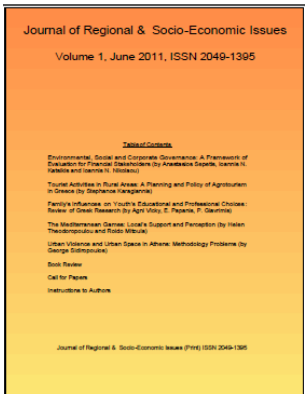
Dimitrios Panagiotopoulos

Ant. N. Sakkoulas Publishers, 2011

The book covers the historical development of sports law and addresses the fundamental issues of this field of law, whereas it analyses some of the most important contemporary legal issues of the field. The book includes 6 Parts.

Part I analyses sports law as a special branch of academic study and raises the question what sports law is, whereby the issues addressed are the principles of sports law, its origin, process, grounds, aetiology, legitimacy, meaning, nature, structure, substance, character and system. ***In Part II***, sports rules as rules of law are explored and law is placed in theoretical terms within the context of sports rules. In that way, the legal aspects of physical and sporting activity are examined. ***Part III*** addresses some important contemporary legal issues affecting the organisation and regulation of sport activities. ***Part IV*** covers the Law of the Olympic Games (Lex Olympica) including not only the historical development of the Games and its regulation starting from ancient Greece, but also the current regulations and legal status of the International Olympic Committee (IOC). ***Part V*** analyses the sporting jurisdictional order and its fundamental principles (fair trial), focusing on the international sporting jurisdictional system and the role of the Court of Arbitration for Sport (CAS). Finally, ***Part VI*** includes the basic elements of the Greek Sports Law.

By Vilelmini G. Psarrianou, RSI Journal



Journal of Regional &Socio-Economic Issues (Online) ISSN 2049-1409

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By Dr. Aikaterini Kokkinou, University of Glasgow

THE REGIONAL SCIENCE INQUIRY JOURNAL (RSIJ)
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3. The first page of the manuscripts should contain the article title, the name and the affiliation of the authors with sufficient contact details (the corresponding author should be properly identified here).
4. Articles should have a set of Keywords (up to 7) and an Abstract (under 250 words, without references), followed by the Introduction, Methodology and Data, Results, Discussion, Conclusions and References.
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7. All pages should be numbered consecutively.
8. Titles and subtitles should be short.
9. The text should be set in Times New Roman, size 11pt, normal, in a single column. Texts that do not comply with the specified formation will be returned to the authors for proper adjustment.
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