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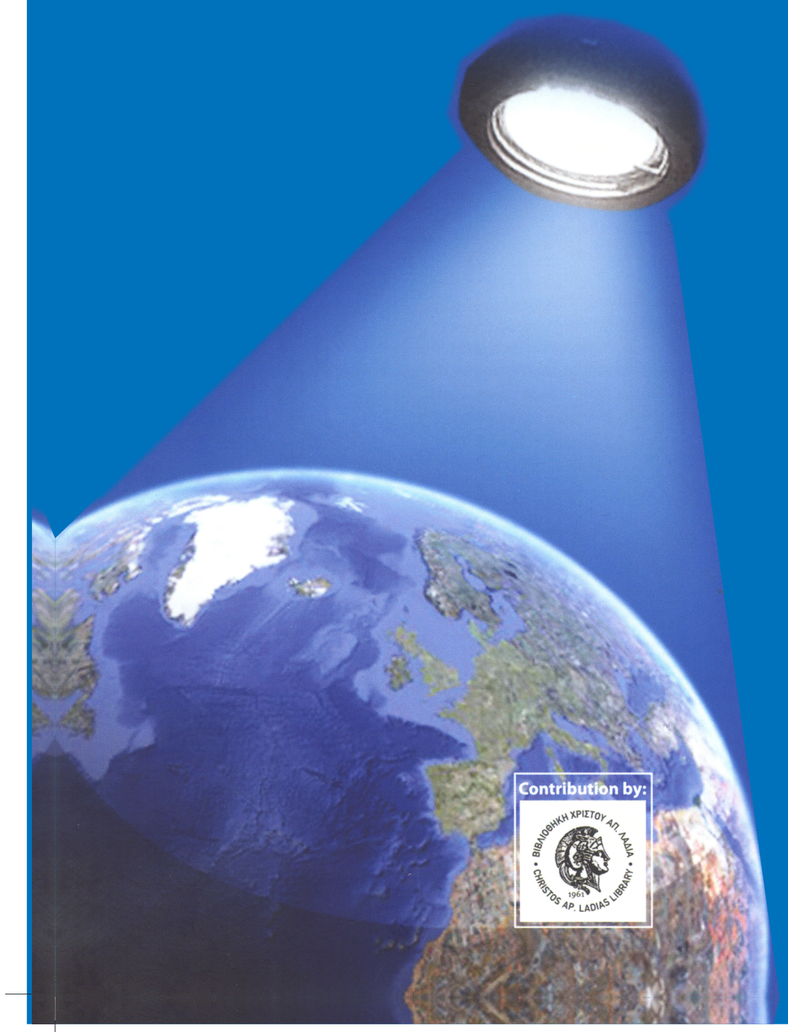

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RSI Journal, Volume V, Issue 2 – Editorial

Under the most recent decision on EU's 2014-2020 budget, Cohesion Policy will invest €325 billion in Europe's Member States, their regions and cities to deliver the EU-wide goals of growth and jobs, as well as tackling climate change, energy dependence and social exclusion. Taking into account the national contribution of member states, and the leverage effect of financial instruments, the overall impact is likely to be more than €500 billion. The reform of Cohesion Policy will ensure maximum impact for these investments, adapted to the individual needs of regions and cities.

As described by *Johannes Hahn*, Member of the European Commission in charge of Regional Policy, in *No 47 PANORAMA Journal* of the European Commission, '*the new reformed EU regional policy will equip Europe even better to tackle the current challenges to long-term growth: unemployment, a lack of competitiveness, and climate change. The investments in the coming financial period aim to bring about structural reform. They support key areas for economic development, which are SME support, research and innovation, the digital agenda and the low carbon economy, as set out in the Europe 2020 Growth Agenda. These actions will mobilise the full potential of Europe's regions to rebuild their economies on competitive foundations….. The key to this strategy is smart specialisation whereby a region selects a limited number of economic priorities on the basis of its own strengths and competitive advantage in the global market. The smart specialisation route requires a clear idea of a region's strengths and weaknesses. All funding and efforts should be concentrated on these to ensure the highest lasting impact and best use of limited resources'*.

Within this framework and policy planning orientation, this issue examines different case-studies, focusing on important and modern scientific related issues, such as Economic Analysis of the Impact of Carbon Tax on the Economy, Location Conditions of Energy-Intensive Enterprises, The Cases of Greek Regions Crossed by the Egnatia Road', The Relation Between Industrial And Socio-Economic Fundamentals Districts, Strategic Planning in Universities, Estimating FDI Motivations, The System of Contributions for Health Insurance Scheme, The Housing Loans Financing, geopolitical analysis of the activation of the Shiite geopolitical factor within the Syrian conflict geo-system, Interpreting Overall Inequality in China: The Roles of Physical Capital, Human Capital and Social Human, The Services of General Interest in Romania: Insights Into Legal And Institutional Issues At National And Territorial Level, and Local Actors and also Propensity for entrepreneurship among college undergraduates.

In this current issue

In this current issue, we have tried to select a group of papers which offer a wide variety of subjects and treatments, trying to integrate and approach the issues described above.

The first paper, by Yuzuru Miyata, Any Wahyuni and Hiroyuki Shibusawa, titled: *'Economic Analysis of the Impact of Carbon Tax on the Economy of Makassar City, Indonesia'* deals with Makassar, the capital of South Sulawesi and the largest metropolitan city in eastern Indonesia. This city is an established of economic development for eastern Indonesia, which is characterized by a high degree of industrial development. Therefore, the carbon dioxide(CO2) emissions generated in the city will increase. However, the government has attempted to maintain environmental quality to ensure a liveable and healthy city. Unfortunately, the government's budget to support the economic development is limited, despite the increased level of economic activity in the city. As a result of these conditions, the government has elected to economize resource use by improving the efficiency of resource allocations. To this end, the government imposed a carbon tax in the city. The purpose of this study is to analyze the impacts on the economy in Makassar resulting from the introduction of carbon taxes to reduce energy consumption in all sectors of the economy that generate CO2 emissions. The imposition of a carbon tax is expected to reduce CO2 emissions and to improve the city's economic potential. The study investigates the possibility of transferring

carbon tax revenue to transfer to household to generate increased household income. A computable general equilibrium (CGE) model was the primary analytical methodology employed to measure the impact of the imposition of a carbon tax across all sectors of the economy. The model examined the impact of the carbon tax based on the 2006 input-output (I-O) table for Makassar City and estimated of a social accounting matrix (SAM) table the same year. In CGE models, general equilibrium is achieved via the price mechanism. The model assumes a static economy with no time-related elements. A total of twenty eight industrial sectors and two production factors, labor and capital, are used in this study.

The second paper, by Rüdiger Hamm, titled: *'Location Conditions of Energy-Intensive Enterprises'*, asserts that there is an interdependent relationship between enterprises and the region in which they are located: On the one hand the conditions of this location influence turnover, costs, profits and thus the economic situation of the individual firm. On the other hand the economic situation of the regional firms is an important determinant of regional economic success and the welfare of the people living in that region. This happens directly because the firms stabilize regional income and employment; but there are also indirect effects running via income and input-output-linkages. Regional economic success and welfare in turn determine the regional tax receipts and the regions' possibilities for positively influencing the location conditions. These interdependencies give an explanation for the high interest firms, politicians and researchers normally have in regional location conditions and their quality. The better a region's information about these issues, the better its possibilities to promote its location advantages and the more efficiently it can use its scarce financial means to reduce the locational disadvantages. Regional marketing and improvements of the region's location conditions aim at the acquisition of new firms, at additional private investment in the region, at the creation and stabilization of employment and the population's welfare. In recent years the Niederrhein Institute for Regional- and Structural Research (NIERS) has surveyed firms to thoroughly analyze the location conditions of Middle Lower Rhine Area – a German region located in the western part of Northrhine-Westphalia. This research especially aimed at judging the location conditions' quality in Middle Lower Rhine Area. But as the firms had to evaluate not only the local quality but also the general importance of the location factors and as firms' participation in these surveys has been sufficiently high the results also give the opportunity to rank the location factors by its relevance and to differentiate this kind of analysis by industry. So, the aim of the proposed paper is twofold: It firstly describes which locational factors are – on the basis of the above mentioned surveys – most important from the firms' point of view. To find out whether energy-intensive industries have special location requirements it secondly compares these general results with those from energy-intensive industries.

The third paper, by Lamara Hadjou and Marie Noëlle Duquenne, titled: '*A Theoretical and Methodological Approach of «Fragile» Areas: The Cases of Greek Regions Crossed by the Egnatia Road*', deals with rural areas so-called 'fragile' which have rarely been object of theoretical and methodological approach, aiming at delimiting the concept of fragility and at specifying his components. As well as there is no theoretical approach to define these milieus, there is no either general agreement on the notion of fragile space. Numerous are the authors who use this notion without specifying contents, or defining its outlines. Arise then the question to know, what is really meant by this concept. This is the first task of this article which seeks to trace the history of the concept and its use by authors. If the concept of fragility seems to have obvious filiations with the concepts of periphery, marginal and underprivileged space, we propose to show that this concept refers to a more complex reality and in any case, a fact. Assuming that the fragility is not a state but indeed a process, the question is then, in on one hand, to specify-it through its multiple constituents and on the other hand to translate these last ones on a set of appropriate and quantifiable indicators. By taking as study area, the northern region of Greece which has recently benefited from a great highway infrastructure (*Via Egnatia*), we propose using the methods of multicriteria analysis, to highlight the types and degrees of fragility of the subregional areas of northern Greece. The use of factor analysis methods and classification confer us the possibility to make a typology

of these areas well beyond traditional approaches of disadvantaged areas, marginal or peripheral.

The fourth paper, by Anne Margarian, titled: '*The Relation Between Industrial And Socio-Economic Fundamentals In German Districts*' is a study for the impartial observer of German regions, for whom differences in regional industry structures and prosperity are quite obvious. On the one side, there are regions characterised by different industries, firm structures and labour qualification profiles. On the other side, some of these regions are prosperous, dynamic and growing in terms of inhabitants, labor force and income while others obviously suffer from high unemployment, low tax base and an unsatisfactory income situation. The analysis presented in this paper relates the regional industry structure to the socio-economic fundamentals that describe the regions' productivity, its income distribution and its population dynamics. The statistical model is based on the approach of moderated mediation. It is thereby able to show that the estimated relations are conditional on the degree of regions' centrality respectively remoteness. Moreover, the analysis distinguishes direct and indirect relations and therefore allows for an identification of the multiple dimensions of the potential effects of local industry structures in cultural, productivity and distributive terms.

The fifth paper, by Maria Isabel Barreiro Ribeiro, António José Gonçalves Fernandes, and Francisco José Lopes de Sousa Diniz, titled: *'Propensity for entrepreneurship among college undergraduates: the case of a public university in north-eastern Portugal'*, examines the entrepreneurial ability of the students of a public university in Bragança (Portugal) to identify differentiation factors of their entrepreneurial potential. A quantitative, transversal, and observational analysis was conducted involving 598 student participants. Data gathering took place between November and December 2012 and used the *Entrepreneurial Potential Indicator* questionnaire. The respondents were mostly female (61.0%), between 18 and 21 years old (53.8%), corresponding to an average of 22.6 years of age (±4.59), studied under an ordinary regime (82.6%), were from the northern region (83.9%), lived in an urban centre (53.8%) and attended the first study cycle (92.8%) of two scientific areas, namely Education Sciences (28.4%) and Technology and Management (28.4%). Over half of the respondents showed entrepreneurial skills (72.4%). Of all the human capital factors considered, the attendance regime was the only one which had no influence on the entrepreneurial potential. In fact, all the others, namely the course's scientific area and the study cycle have proven to be relevant for reinforcing or developing the students' entrepreneurial skills. None of the socio-demographic factors that were taken into consideration had any influence on entrepreneurial potential differentiation. Binary logistic regression (*logit* model) revealed a cause and effect relationship between all the characteristics and the entrepreneurial tendency.

The sixth paper, by Cristiano Cechella, titled: '*Estimating Brazilian FDI Motivations In Portugal By Structural Equations Model (SEM)*' examines, through a model based on structural equations (Structural Equations Model), the motivations of Brazilian companies to invest in this country compared with firms of other nationalities, which are represented by German companies, Italian, Spanish, American and Japanese. The structural equations allow to infer the safety test results and theoretical constructs. From a theoretical model (known as "structural") constructed from a measurement model (or measurement) is scanned a set of dependency relations, linking the constructs of the hypothesized model. The structural equation modeling is suggested by Hair Jr. et al. (2006) for three purposes: confirming models, evaluation of competing models and the development of new models. In this study, we opted for the development of models related to the first situation, namely the confirmation of a particular model from a theory of FDI. This article has the following structure: first, it will enter the Portuguese economy from the twentieth century. Soon after, it will analyze the internationalization of the Portuguese economy, particularly foreign investment in Portugal. Thirdly, it will put the analysis model, with its conclusions regarding the differences and similarities in the determinants of investments between Brazilian companies and other nationalities in the decision to settle in Portugal, for example, the influence of linguistic affinity and logistics, respectively.

The seventh paper, by Enkelejda Avdi, *titled:* '*The System of Contributions for Health Insurance Scheme in Albania - Performance and Main Challenges',* focuses on the system of contributions for health insurance scheme in Albania. The paper will argue the need for immediate measures regarding this issue. Based on the primary and secondary data, through an economic analysis is studying the trend of contributor's number for five years. Are identified the economic, social and political factors, that affect this process and whole health insurance scheme (HIS). In Albania, partly scheme function, an informal labor market, lack of incentives for participation in health scheme, weak administration capacity for contributions collecting and poor structure, regulatory and supervisor and all in all its funding challenges, are the main factors that accompanies for years the health care system and as the result the contributions system for health insurance. The main economic factor is a little economic growth and a problem with which Albania has already begun to face. As a result Albania faces a greater inequity in the ability to receive health care. In order to evasion of contributions expected path, immediate measures administrative, managerial, and financial monitoring are needed. Mechanisms for revenue collection should be strengthened. Health care reform has been and will remain one of the major challenges of politics in Albania. Full implementation of its efficiency requires a broad political consensus.

The eighth paper, by Iris Shahini and Orfea Dhuci, titled: *'The Crossroad of Housing Loans Financing - Case of Albania',* investigates factors affecting housing finance supply in Albania. Housing Finance is a major factor determining the quality and tenure of housing consumption, the overall financial portfolio of the public and the stability and effectiveness of the financial system (Diamond and Lea 1992a). Struyk and Turner (1986) and Stephens (2000 & 2002) argued that housing finance plays an important role in shaping each country's wider housing system and the housing system takes important social and economic consequences. Then, it follows that the development of a viable housing finance system is of utmost importance in the developed economies. For a typical house-owner, the house is a major asset in his portfolio and for many household, the purchase of a house represents the largest (and often only) life long investment and a store of wealth (Goodman 1989; Sheppard 1999; Malpezzi 1999; Bundick and Sellon Jr 2007; Dickerson 2009). In societies like Albania, where social housing is not on the priority list of government, the housing affordability would have to be looked at from the point of view of individual's ability to raise money needed to meet the cost or price of their housing needs. The first source of funding for individual is their income. This is often the cheapest source because there is no payment of extra cost in form of interest. The problem that arises in case of individuals in the emerging economies is that income levels are generally low. The low income means low disposal income which prohibits the individuals to qualify for housing loans.

The ninth paper, by Ioannis Th. Mazis and Michalis Sarlis, titled: *'A geopolitical analysis of the activation of the Shiite geopolitical factor within the Syrian conflict geo-system',* presents a systemic analysis of the Iran-Syria-Lebanon geopolitical sub-system within the frame of the Wider Middle East geo-complex and in light of the geopolitical factor of the Shiite Islamist movement. We consider that the Shiite Islamist movement, which is represented by Hezbollah in Lebanon and by proxy Shiite organizations in Iraq (Kataeb Hezbollah and Asa'ib Ahl al Haq), has been transformed, under Tehran's management and direction, into an important power redistribution factor in the region. Turkey's foreign policy is evaluated as unsuccessful and dangerous for the security of the state of Israel and the stability of the Middle Eastern geopolitical system, particularly in relation to Ankara's support of radical Islamist groups operating inside Syria. Ankara's policy is also considered as a trigger mechanism for the acceleration of secessionist and state-formation ambitions, such as in the case of the gradual autonomy of an ethnically Kurdish zone in the northeastern Syrian territory. In addition, the US - Russian initiative for the destruction of the chemical arsenal of the Assad regime is evaluated as beneficial for the regional stability. Equally, we evaluate the US - Iranian negotiation process as a strategically agile diplomatic maneuver from Washington's part.

The tenth paper, by Yuheng Li and Hans Westlund, titled: '*Interpreting Overall Inequality in China: The Roles of Physical Capital, Human Capital and Social Capital*, investigates the relationship between overall inequality in China and the contributions of physical capital, human capital and social capital. The investment in physical capital tends to enlarge overall inequality while human capital helps to reduce the inequality. Human capital appears to be more influential than physical capital in overall inequality reduction in the research period. Social capital (people's social networks) however, does not seem to exert any impact on overall inequality in the post-reform era. Possible policy implications of these results are that measures should be taken to pursue more even distributed investment of physical capital and to increase people's education in order to reduce overall inequality in China.

The eleventh paper, by Daniela-Luminița Constantin, Alina Elena Iosif, Alina Georgiana Profiroiu and Raluca Mariana Grosu, titled: *'The Services of General Interest in Romania: Insights Into Legal And Institutional Issues At National And Territorial Level'*, addresses the legal and institutional issues generated by the organising and the provision of services of general interest (SGI) in Romania, with a special emphasis on the territorial distribution of competences and the derived responsibilities. It takes into consideration the classification of competences associated to local authorities as a result of the decentralisation process, which are divided into exclusive, shared and delegated ones. A series of drawbacks, inconsistencies are revealed followed by reflections on the solutions adopted by the authorities in favour of economic liberalisation and sustainable development of the local communities. The cooperation between the public authorities and the business sector is particularly addressed in this respect. In methodological terms, several interviews were conducted both among the general informants, namely academic representatives, policy makers, etc. and the representatives of the services providers, such as practitioners or public-administrators involved in delivering SGI. The former category of interview respondents has generated ideas of a national coverage area, while the latter type of interviewees has presented their perspective on certain localities in Romania, but with wide applicability to other similar areas. The interviewees' opinions have been mainly focused on the state and the future challenges on SGI in Romania.

The twelfth paper by Bernard De Myttenaere, titled: '*Local Actors And Leadership In Rural Destinations: Exploring The Role Of Gastronomic Confraternities'* focuses on the three rural destinations in Wallonia (Chimay, Orval and Rochefort), putting forward reflections on the role and influence of gastronomic confraternities, both as actors in local economic and tourist development and in terms of their leadership capacity. By means of this exploratory research, this paper is not seeking to analyse the effectiveness or economic performance generated by the activities of the gastronomic confraternities, but rather to show the opportunities they offer for local actors to form and gain access to such networks. After having identified the many reasons and advantages to local actors of joining a gastronomic confraternity, this paper tries to understand why some of them do not seem to be interested in local actors, whereas others draw attract members of the local economic, political and social elites.

With our thanks and gratitude to the issue authors and the members of the editorial board, for preparing this issue, we strongly wish that this issue will act as a staring point for further theoretical and empirical research on the issues raised, providing a pathway for further academic and scientific dialogue.

On behalf of the Editorial Board,

Dr. Dr. Aikaterini Kokkinou and Dr. Stylianos Alexiadis

Articles

ECONOMIC ANALYSIS OF THE IMPACT OF CARBON TAX ON THE ECONOMY OF MAKASSAR CITY, INDONESIA

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Abstract

Makassar is the capital of South Sulawesi and the largest metropolitan city in eastern Indonesia. This city is an established of economic development for eastern Indonesia, which is characterized by a high degree of industrial development. Therefore, the carbon dioxide (CO_2) emissions generated in the city will increase. However, the government has attempted to maintain environmental quality to ensure a livable and healthy city. Unfortunately, the government's budget to support the economic development is limited, despite the increased level of economic activity in the city. As a result of these conditions, the government has elected to economize resource use by improving the efficiency of resource allocations. To this end, the government imposed a carbon tax in the city.

The purpose of this study is to analyze the impacts on the economy in Makassar resulting from the introduction of carbon taxes to reduce energy consumption in all sectors of the economy that generate CO_2 emissions. The imposition of a carbon tax is expected to reduce CO_2 emissions and to improve the city's economic potential. The study investigates the possibility of transferring carbon tax revenue to transfer to household to generate increased household income. A computable general equilibrium (CGE) model was the primary analytical methodology employed to measure the impact of the imposition of a carbon tax across all sectors of the economy. The model examined the impact of the carbon tax based on the 2006 input-output (I-O) table for Makassar City and estimated of a social accounting matrix (SAM) table the same year. In CGE models, general equilibrium is achieved via the price mechanism. The model assumes a static economy with no time-related elements. A total of twenty eight industrial sectors and two production factors, labor and capital, are used in this study. The model economy contains a single representative household that sets its consumption to maximize its utility subject to its budget constraint. The utility function used is the constant elasticity of substitution (CES) type, where the household maximizes utility subject to a budget constraint. Every industry uses an intermediate input to produce one commodity for each sector without commodity by-product. The firms are assumed to maximize their profits by managing inputs and outputs subject to their production technology. Firms are assumed to be perfectly competitive and to achieve equilibrium in 2006 through flexible price adjustments.

The carbon tax policy is assessed in two simulations. In the first simulation, a carbon tax is imposed on all industries without household transfer, and in the second simulation, the tax revenue is transferred to households. The government transfers funds to household in amount equal to the carbon tax revenue. In theory, the implementation of a carbon tax will reduce CO_2 emissions and increase government revenues. Furthermore, household welfare will also increase, output prices will increase, and the household will reduce its consumption.

The results of all simulations of the CGE model indicated that a carbon tax can reduce the volume of CO_2 emissions by 8 %. In general, output prices and production volumes decline. The demand for capital tendeds to be fixed, and labor demand declined after tax revenues were transferred to the representative household. Household consumption declined following the imposition of carbon taxes but increased in response to the transfer of carbon tax revenues. Therefore, household welfare increased after receiving transfers from the government.

It is crucial to effectively manage efforts to reduce CO_2 emissions. The such management involves not only production-side efforts concerning environmental-friendly technology; but prevention of a decline in commodity consumption preferences.

Keywords: *Carbon tax, CGE approach, CO_2 emissions, economy analysis*
JEL classification: H21, H32, H71

I Introduction

A carbon tax is one policy instrument that can be applied to address greenhouse gas emissions. Indonesia's policy goals in this respect can be found in the Ministry of Finance Indonesia's Green Paper on Climate Change Commitment of the President of the Republic of Indonesia, presented at a G-20 conference (2010). The country's target is to reduce CO_2 emissions in 2020 to the equivalent of 6 % to 24 % below 2005 levels. The tax will be introduced at a rate estimated to reduce emissions to meet long-term goal.

The degree of abatement achieved is measured based on the estimated emissions level in 2006, which is considered the business-as-usual (BAU) scenario. In principle, of abatement applies to all CO_2 emissions generated a results of economic activity in the city. The use of fossil fuel accounts for 68.7 % of total emissions in Indonesia (2010).

Under the BAU scenario, the CO_2 emissions generated by energy sector in Makassar City are estimated at 2.57 million tons for 2006. To achieve the target in the Green Paper, it will be necessary to reduce emissions by 154,000 to 616,000 tons relative to the BAU scenario. Under the scenarios considered in this study, a carbon tax is introduced at a rate that is sufficient to reduce CO_2 emissions by 7 % to 8 % relative to 2006 levels. The tax applies to all commodities consume the city. However, to avoid double taxation, tax does not apply to the export or and distribution sectors.

The study provides a detailed evaluation of the impacts of the carbon tax on production, consumption and urban economic performance. This research uses a computable general equilibrium (CGE) model, which is a quantitative method to estimates the impact of economic and policy shocks, particularly those affecting the entire economy. The model realistically reproduces the structure of the overall economy and therefore the nature of all existing economic transactions among diverse economic agents (productive sectors, household, the government, and external sectors). The results of the CGE model are expected to reveal that the carbon tax will have significant impacts throughout the economy.

The carbon tax will initially be set at rate of Rp. 10,000/t-CO_2, wich is equivalent to US $1/t-$CO_2$. The model employs the carbon tax rate applied in India, under the assumption that Makassar city exhibits an economic structure that is sufficiently similar to that of India. The results presented below estimate the effects on the city's economic activity.

II The Model

2.1 Framework of the Model

The results of the simulations produced using the CGE comparative-static model were reported as deviations from a baseline scenario (BAU). Rather than presenting changes over time, the model reports differences with respect to the baseline scenario at a given point in 2006. Such results are generally considered to represent economic responses over a period of approximately two years (McDouugall, 1993). The model is consistent with price levels and real economic activity. The price is determined exogenously and acts as the numeraire in the model.

An example of a comparative static model is illustrated in Figure 1. The figure depicts the equilibrium relationships between demand and supply before and after the imposition of a carbon tax. This study assumed that the city's industries produced products and CO_2 emissions as a by-product. In the figure, x is a commodity, p is the price of the commodity, t

is the tax per unit of the commodity, and the commodity supply function will shift upward by t.

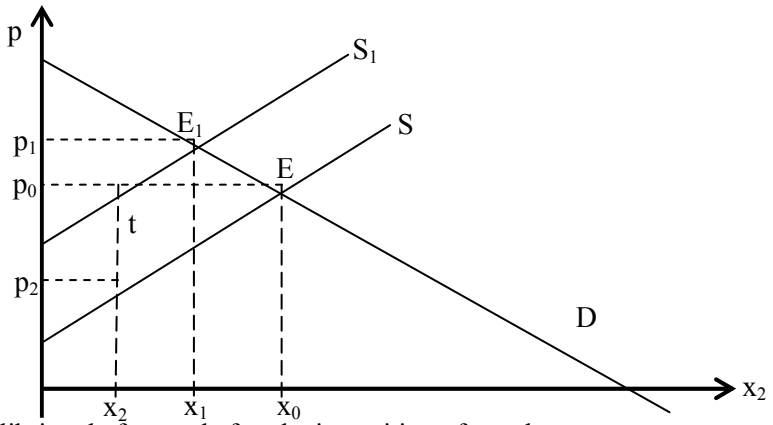

Figure 1: Equilibrium before and after the imposition of a carbon tax

This figure indicates that the price of the commodity before the imposition of the tax (x_2) is p_2 and that the price of the commodity after the imposition of the tax (x_2) becomes $p_2 + t$. Equilibrium is achieved when the demand function (D) and the supply function (S) intersect at point E (x_0,p_0). After the tax is introduced, equilibrium occurs at the point E_1 (x_1, p_1), which is the intersection of the demand function (D) and the supply function (S_1) after the tax has been imposed.

The model simulations indicate that the tax will result in percentage changes in industrial output of 100*(X1-X0)/X0 and demonstrate how the policy could affect industrial output and economic performance.

2.2 Setup of the Economy

In the model, production requires the use of two production factors: one unit of labor and one unit of capital. In the model economy, there are twenty-eight industry representative firms, that produce twenty-eight commodities. There is a single representative household that consumes all commodities in the economy in a way that maximizes its utility. The household supplies the firms with two production factors in return for income. The supply and demand for these commodities and production factors are in perfectly competitive equilibrium in 2006.

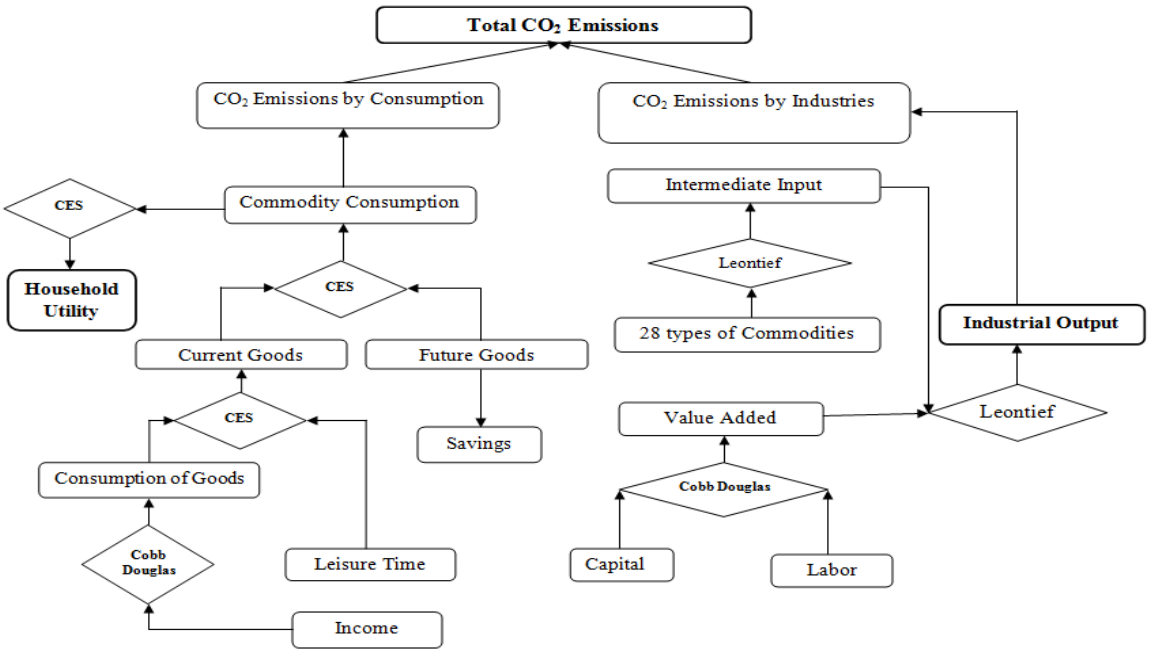

Figure 2: Hierarchical structure of the model

2.3 Behavior of Economic Agents

2.3.1 Industries

The industries use intermediate inputs, labor and capital to produce goods. Industries combine the intermediate, labor and capital inputs using the Leontief production function and apply the Cobb-Douglas production function for the value-added inputs (see Figure 3). The firm's cost minimization problem can be written as follows:

$$\min \sum_{i=1}^{28} p_i x_{ij} + (1+tp_j)(wL_j + rK_j) \qquad (j = 1,....28) \quad (1)$$

with respect to x_{ij}, L_j and K_j

subject to

$$X_j = min\left[\frac{1}{a_{0j}} f_j(L_j, K_j), \frac{x_{1j}}{a_{1j}}, ..., \frac{x_{ij}}{a_{1j}}, ..., \frac{x_{28j}}{a_{28j}}\right] \quad (2)$$

$$f_j(L_j, K_j) \equiv A_{1j} L_j^{a_j} K_j^{(1-a_j)} \quad (3)$$

where
p_i: price of commodity i
x_{ij}: intermediate input of industry i's product in industry j
tp_j: net indirect tax rate imposed on industry j's product (indirect tax rate-subsidy rate)
w: wage rate
r: capital return rate
L_j: labor input in industry j
K_j: capital input in industry j
X_j: output in industry j
a_{0j}: value added rate in industry j
a_{ij}: input coefficient
A_{ij}, α_{ij}: technological parameters in industry j

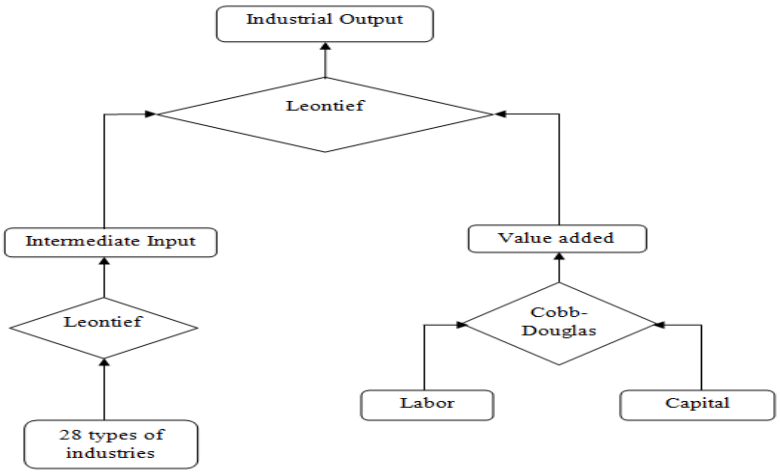

Figure 3: Hierarchical structure of industries

The conditional demands for intermediate goods, labor and capital in the production process are as follows:

$$x_{ij} = a_{ij} X_j \quad (4)$$

$$LD_j = \left[\frac{(1-\alpha_j)r}{\alpha_j w}\right]^{\alpha_j} \frac{a_{0j} X_j}{A_j} \quad (5)$$

$$KD_j = \left[\frac{a_j w}{(1-a_j)r}\right]^{(1-a_j)} \frac{a_{0j} X_j}{A_j} \quad (6)$$

where
LD_j: conditional demand for labor in industry j
KD_j: conditional capital demand in industry j

The industries conform to the zero profit condition under perfect competition.

$$profit = p_j X_j - \sum_{i=1}^{28} p_i x_{ij} - (1+tp_j)[w \cdot LD_j + r \cdot KD_j] = 0 \quad (7)$$

2.3.2 Households

A fixed number of households in Makassar City are assumed to be homogeneous. Thus one can assume that the households share a common aggregate utility function. The households share a *CES* utility function with respect to the consumption of current and future goods. In this model, the current good is defined as a *CES* composite of current consumption goods and leisure time and the future good is derived from savings. The household utility function illustrated in Figure 4:

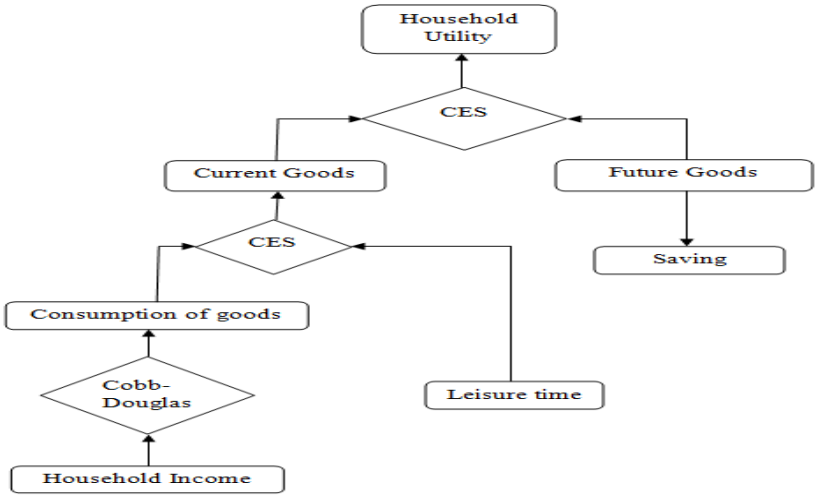

Figure 4: Hierarchical structure of households

Households select a bundle of current and future goods to maximize their utility function subject to a budget constraint. The current good is then divided into a composite consumption good and leisure time (labor supply).

Household income consists of full wage income, which is obtained when households supply their entitre labor endowment, capital income after capital depreciation, current transfers from the government, labor income, property income and other current transfers from the external sector. A share of household wage and capital income is transferred to the external sector.

A direct tax is imposed on households income after receive transfers. Households are then assumed to allocate their after direct tax income to current and future good. Here, the direct tax is assumed to include all current transfers from households to the government for simplicity.

To explain the household behavior, future goods consumption is derived here. The future good indicates future household consumption derived from household saving; however, household saving also forms the basis for capital investment. Therefore, the capital good can be interpreted as a saving good. Investment is made using produced goods, and their shares in total investment are denoted by b_i. When the price of the investment good is denoted by p_I,

$p_I I = \sum_{i=1}^{28} p_i I_i$ is realized. The price of the investment good is then expressed as $p_I = \sum_{i=1}^{28} b_i p_i$. This price can be regarded as the price of the saving good p_s.

Because the returns to capital net of the direct tax on a unit of capital investment is expressed by $(1\text{-}ty)(1\text{-}k_o)(1\text{-}k_r)\, r\delta$, the expected return rate on the price of saving good p_s, that is, the expected net return rate of household saving r_S is written as follows:

$$r_S = (1-ty)(1-k_O)(1-k_r) r\delta / p_s \quad (8)$$

where
ty: direct tax rate imposed on households
k_o: rate of transfer of property income to the external sector
k_r: capital depreciation rate
δ: ratio of capital stock in units of a physical commodity to that in units of capital service.

Here, the assumption is that the expected returns to saving finance future consumption. Interpreting the price of the future good as the price of the current consumption good under myopic expectations, and denoting real household saving S, we observe that the following equation holds.

$$p \cdot H = (1-ty)(1-k_O)(1-k_r) r\delta \cdot S \quad (9)$$

This equation yields $[p_s\, p/(1\text{-}ty)(1\text{-}k_o)(1\text{-}k_r)r\delta]H = p_s S$, and setting the price of the future good p_H associated with real saving S yields the following:

$$p_H = p_S\, p/(1-ty)(1-k_O)(1-k_r) r\delta \quad (10)$$

Then $p_s S = p_H H$ is realized.

Employing the above-mentioned future good and its price, the household utility maximization problem is now specified as follows. The maximization of household utility with respect to current good consumption will be described in a subsequent section.

$$\max_{G,H} u(G,H) \equiv \{\alpha^{1/v_1} G^{(v_1-1)/v_1} + (1-\alpha)^{1/v_1} H^{(v_1-1)/v_1}\}^{v_1/(v_1-1)} \quad (11)$$

subject to

$$p_G \cdot G + p_H \cdot H = (1-ty)\, FI - TrHO \quad (12)$$

$$FI \equiv (1-l_O) w \cdot E + LI + (1-k_O)(1-k_r) r \cdot KS + KI + TrGH + TrOH \quad (13)$$

where
α: share parameter
v_1: elasticity of substitution between the current good and future good
G: current household consumption
H: future household consumption
p_G: price of the current good
p_H: price of the future good
FI: household full income
$TrHO$: current transfers from households to the external sector
l_o: the rate at which labor income is transferred to the external sector

E: initial household labor endowment, which is specified as twice the actual working time based on actual working and leisure time in Makassar City.
LI: labor income transferred from the external sector to households (exogenous variable)
KS: initial household endowment of capital stock
KI: property income transferred from the external sector to households (exogenous variable)
TrGH: current transfers from the government to households
TrOH : current transfers from the external sector to households

By solving this utility maximization problem, we obtain the demand functions for current and future goods, yielding a household saving function.

$$G = \frac{\alpha[(1-ty)FI - TrHO]}{p_G^{v_1} \cdot \Delta} \quad (14)$$

$$H = \frac{(1-\alpha)[(1-ty)FI - TrHO]}{p_H^{v_1} \cdot \Delta} \quad (15)$$

$$S = p_H H / p_S \quad (16)$$

$$\Delta \equiv \alpha p_G^{1-v_1} + (1-\alpha) p_H^{1-v_1} \quad (17)$$

We then describe the derivation of demands for composite consumption and leisure time from the current good *G*. The current good *G* is a composite of consumption and leisure time, and *G* is obtained from the following optimization problem.

$$\max_{C,F} G \equiv \{\beta^{1/v_2} C^{(v_2-1)/v_2} + (1-\beta)^{1/v_2} F^{(v_2-1)/v_2}\}^{v_2/(v_2-1)} \quad (18)$$

subject to

$$p \cdot C + (1-ty)(1-l_O) w \cdot F = (1-ty)FI - TrHO - SH \quad (19)$$

where
β: share parameter
v_2: elasticity of substitution between composite consumption and leisure time
C: composite consumption
F: leisure time
p: price of the composite consumption good
SH: household nominal saving ($=P_S \cdot S$)

Solving this utility maximization problem yields the demand functions for composite consumption, leisure time, and labor supply.

$$C = \frac{\beta[(1-ty)FI - TrHO - SH]}{p^{v_2} \cdot \Omega} \quad (20)$$

$$F = \frac{(1-\beta)[(1-ty)FI - TrHO - SH]}{[(1-ty)(1-l_O)w]^{v_2} \cdot \Omega} \quad (21)$$

$$LS = E - F \quad (22)$$

$$\Omega = \beta p^{(1-v_2)} + (1-\beta)[(1-ty)(1-l_o)w]^{(1-v_2)} \quad (23)$$

where *LS* reflects the household labor supply

Substituting composite consumption (20) and leisure time (21) into (18), we derive the price index of the current good as follows:

$$p_G = \{\beta p^{1-v_2} + (1-\beta)[(1-ty)(1-l_o)w]^{1-v_2}\}^{1/(v_2-1)} \quad (24)$$

Moreover, the composite consumption good is disaggregated into produced goods by maximizing a Cobb-Douglas sub-sub utility function given household income and leisure time.

$$max \quad C \equiv \prod_{i=1}^{28} C_i^{\gamma_i} \qquad (\sum_{i=1}^{28} \gamma_i = 1) \quad (25)$$

subject to

$$\sum_{i=1}^{28} p_i \cdot C_i = (1-ty)Y - TrHO - SH \quad (26)$$

where

C_i: household consumption good produced by industry *i*

p_i: the price of good *i*

Y: household income ($=(1-l_o)w \cdot LS + LI + (1-k_o)(1-k_r)r \cdot KS + KI + TrGH + TrOH$)

From this optimization problem, consumption good *i* is derived.

$$C_i = \frac{\gamma_i}{p_i}[(1-ty)Y - TrHO - SH] \qquad (i = 1, \cdots, 28) \quad (27)$$

The price of composite consumption is calculated as follows:

$$p = \prod_{i=1}^{28}\left[\frac{p_i}{\gamma_i}\right]^{\gamma_i} \quad (28)$$

2.3.3 The Government

The government sector in this study consists of the activies of the national and local governments in Makassar City. Thus, the concept of government that we employ corresponds to the definition used in the SAM framework. The government obtains its income from direct and net indirect taxes collected Makassar City and current transfers from the external sector. The government then spends this income on government consumption, current transfers to households and current transfers to the external sector. The government saves the difference between income and expenditures. Nominal consumption expenditures on commodities/services are assumed to be proportional to the government revenue with a constant sectorial share. These expenditures are denoted by the following balance of payments.

$$\sum_{i=1}^{28} p_i \cdot CG_i + TrGH + TrGO + SG = ty \cdot Y + \sum_{i=1}^{28} tp_i (w \cdot LD_i + r \cdot KD_i) + TrOG \quad (29)$$

where

CG_i: government consumption expenditures on commodity *I*

TrGH: current transfers to households
TrGO: current transfers to the external sector
SG: government savings
TrOG: current transfers from the external sector

2.3.4 The External Sector

The external sector gains its income from Makassar City's imports, current transfers from the government, labor income transfers and property income transfers. The sector then spends this income to finance Makassar City's exports and imports, current transfers to households and the government, labor (employees in Makassar City) and property income transfers. These expenditures are also expressed by the following balance of payments.

$$\sum_{i=1}^{28} p_i \cdot EX_i + TrOH + TrOG + KI + LI + SO = \sum_{i=1}^{28} p_i \cdot EM_i + TrHO + TrGO + KIO + LIO \quad (30)$$

where
EX_i: export of commodity *I*
EM_i: import of commodity *I*
SO: savings of the external sector (= national current surplus)
LIO: labor income transfers to the external sector (= $l_o \cdot w \cdot LS$)
KIO: property income transfers to the external sector (= $k_0 \cdot r \cdot KS$)

2.3.5 Balance of Investment and Savings

Savings accumulated by the representative household, the government, the local department and total capital depreciation determine the total investment.

$$\sum_{i=1}^{28} p_i \cdot I_i = SH + SG + SO + \sum_{i=1}^{28} DR_i \quad (31)$$

where
I_i: demand for commodity *i* by other investments,
DR_i: amount of fixed capital consumption in industry *i*

2.3.6 Commodity Prices

Given the zero profit condition imposed on industry, we can determine commodity prices from the following equation:

$$p_j X_j = \sum_{i=1}^{28} p_i x_{ij} + (1+tp_j)[w \cdot LD_j + r \cdot KD_j] \quad (32)$$

Given a wage and a capital return rate, we can calculate the commodity prices as follows:

$$P = (I - A')^{-1}[(1 + tp_j)(w.ld_j + r \cdot kd_j)] \quad (33)$$

where
P: vector of commodity prices
A': transposed matrix of industries' input coefficients
[•]: a column vector whose elements are presented in parentheses: $ld_j \equiv LD_j / X_j$ and $kd_j \equiv KD_j / X_j$

2.3.7 Derivation of Equilibrium

The equilibrium conditions in the model can be summarized as follows:

Commodity Market

$$\begin{bmatrix} X_1 \\ \vdots \\ X_{28} \end{bmatrix} = \begin{bmatrix} a_{11} \cdots a_{1,28} \\ \vdots \ddots \vdots \\ a_{28,1} \cdots a_{28,28} \end{bmatrix} \begin{bmatrix} X_1 \\ \vdots \\ X_{28} \end{bmatrix} + \begin{bmatrix} C_1 \\ \vdots \\ C_{28} \end{bmatrix} + \begin{bmatrix} CG_1 \\ \vdots \\ CG_{28} \end{bmatrix} + \begin{bmatrix} I_1 \\ \vdots \\ I_{28} \end{bmatrix} + \begin{bmatrix} EX_1 \\ \vdots \\ EX_{28} \end{bmatrix} - \begin{bmatrix} EM_1 \\ \vdots \\ EM_{28} \end{bmatrix} \quad (34)$$

Labor Market

$$LS = \sum_{j=1}^{28} LD_j \quad (35)$$

Capital Market

$$KS = \sum_{j=1}^{28} KD_j \quad (36)$$

III Construction Data

The database used in this study is based on a 2006 I-O table for Makassar City that includes twenty-eight industries listed in Table 1. The database developed from the I-O table consists of a matrix of industry inputs, outputs and taxes. All data in the I-O table are presented in Indonesian rupiah.

Table 1: The twenty-eight sectors in the 2006 I-O table for Makassar City

No	Industries	Denoted
001	Food Crops	Sector 1
002	Plantation Crops	Sector 2
003	Livestock	Sector 3
004	Forestry	Sector 4
005	Fishery	Sector 5
006	Mining of oil and gas and non-oil and gas	Sector 6
007	Manufacture of food, beverages and tobacco	Sector 7
008	Manufacture of textiles, clothing and leather	Sector 8
009	Manufacture of wood, bamboo and furniture	Sector 9
010	Manufacture of paper and paper products, printing and publishing	Sector 10
011	Manufacture of chemicals, petroleum, coal, rubber and plastic products	Sector 11
012	Manufacture of cement and non-metallic minerals	Sector 12
013	Manufacture of basic metals	Sector 13
014	Manufacture of fabricated metal	Sector 14
015	Other manufactures	Sector 15
016	Electricity, gas and water supply	Sector 16
017	Construction/building	Sector 17
018	Trade	Sector 18
019	Hotels	Sector 19
020	Restaurants	Sector 20
021	Highway transportation	Sector 21
022	Other transportation	Sector 22
023	Communications	Sector 23
024	Banks and other financial institutions	Sector 24

025	Leasing, real estate and business services	Sector 25
026	Education	Sector 26
027	Health	Sector 27
028	Social services and other services	Sector 28

Source: Makassar City Statistical Bureau, 2008

Instead of the I-O table, the model developed in this paper considers the SAM table. Therefore, this study estimated the SAM table for Makassar City based on the 2006 I-O table for Makassar City, the 2005 SAM table for Indonesia and related data which are as presented in Table 2.

Table 2: The 2006 SAM table for Makassar City

Economic Sectors (in million rupiah)		Production Activities	Institution		Production Factors		Capital	External Sector	Total
		28 Industries	Government	Households	Capital	Labor	Accumulation		
Production Activities	28 Industries	450,059	181,321	1,305,500	0	0	438,340	-1,060,325	1,314,895
Institution	Government	20,171	0	46,925	0	0	0	434,623	501,719
	Households	0	180,499	0	476,730	301,787	0	523,448	1,482,464
Production Factors	Capital	476,730	0	0	0	0	0	0	476,730
	Labor	301,787	0	0	0	0	0	0	301,787
Capital Finance		66,148	139,899	130,039	0	0	0	102,254	438,340
External Sector		0	0	0	0	0	0	0	0
Total		1,314,895	501,719	1,482,464	476,730	301,787	438,340	0	

Source: Authors' calculations

Table 3: Emission Intensities and Carbon Dioxide Emissions for Each Sector in 2006

No	Sectors	Intensity of CO_2 Emissions MRp/t-CO_2	CO_2 Emissions MRp/t-CO_2
001	Food Crops	0.319	56,988.308
002	Plantation Crops	0.495	22,219.434
003	Livestock	0.251	6,807.967
004	Forestry	0.525	91.387
005	Fishery	1.386	294,518.322
006	Mining of oil and gas and non-oil and gas	0.495	3,130.547
007	Manufacture of food, beverages and tobacco	3.341	620,137.117
008	Manufacture of textiles, clothing and leather	1.071	4,448.002
009	Manufacture of wood, bamboo and furniture	0.126	2,826.503
010	Manufacture of paper and paper products, printing and publishing	1.782	9,232.334
011	Manufacture of chemicals, petroleum, coal, rubber and plastic products	20.364	87,726.732
012	Manufacture of cement non-metallic minerals	24.691	819,867.193
013	Manufacture of basic metals	7.173	22,680.110
014	Manufacture of fabricated metal	0.139	659.182
015	Other manufacturing	0.035	4.748
016	Electricity, gas and water supply	10.305	157,096.064
017	Construction/building	0.249	25,868.746
018	Trade	0.036	2,866.157
019	Hotels	0.044	0.972
020	Restaurants	0.168	3,122.555
021	Highway transportation	2.870	88,892.113
022	Other transportation	5.184	9,648.165
023	Communications	0.077	969.255

024	Banks and other financial institutions	0.008	639.886
025	Leasing, real estate and business services	0.037	1,955.915
026	Education	0.712	2,936.175
027	Health	0.246	131.187
028	Social services and other services	1.288	238,198.137
	Total of intermediate sectors	83.416	2,483,663.210
	Household consumption expenditures	0.065	85,264.657
	Total	83.481	2,568,927.867

Source: Authors' calculations

An additional database was compiled from data collected by Nansai et al. (2002), and the national greenhouse gas inventory guidelines published by the Ministry of Environment of Indonesia (2012) were used as a reference and to adjust the results regarding embodied energy and emissions intensity in each sector. In this database, CO_2 emissions were calculated by multiplying the energy consumption value obtained for each fuel type by its corresponding carbon dioxide emission factor. Furthermore, CO_2 emissions emanating from limestone were considered, in addition to fossil fuel emissions. The direct emissions and CO_2 emission intensity of each sector were aggregated for each sector in the I-O table.

Using data from Miyata et al. (2009), we then used I-O analysis to calculate emissions intensities for consumption expenditures in the household sector. Table 3 presents emission intensities and CO_2 emissions based on the I-O table for Makassar City.

IV Simulation Scenarios and Results

4.1 Simulation Scenarios

This article considers two representative CO_2 restriction policies, a carbon tax without transfers and a carbon tax in which all revenues are transferred to households. The impacts of these policies are compared with the BAU scenario. This study considers three scenarios:

(1) Baseline scenario (BAU): this scenario was simulated to reproduce the baseline SAM of Makassar City, Indonesia
(2) Scenario 1: a carbon tax of 0.01 MRp/t-CO_2 is imposed on all industries emitting CO_2
(3) Scenario 2: a carbon tax of 0.01 MRp/t-CO_2 is imposed on all industries, and the revenues of which are transferred to households.

4.2 Simulation Results

The effects of the simulated scenarios were analyzed in term of their impacts on economic variables.

This section presents the simulation results with respect to important economic variables which are explained below.

4.2.1 CO_2 Emissions

The manufacture of cement and non-metallic minerals and the manufacture of food, beverages and tobacco generated the greatest CO_2 emissions in the baseline scenario: 819,867.19 tCO_2 and 620,137.12 t-CO_2, respectively. The carbon tax reduced overall CO_2 emissions by 8.04 % (scenario 1) and 8.25 % (scenario 2). Households responses to the carbon tax policies resulted in increased CO_2 emissions of 7.78 % in scenario 1 and 7.94 % in scenario 2.

CO_2 emissions declined in thirteen sectors in scenario 1 and fourteen sectors in scenario 2. The decline ranged from 0.17 % to 19.81 %. The largest changes occurred in the manufacture of cement and non-metallic minerals (19.81 % in scenario 1 and 19.77 % in scenario 2) and in the manufacture of chemicals, petroleum, coal, rubber and tobacco (17.71 % in scenario 1 and 17.39 % in scenario 2).

However, CO_2 emissions increased in fifteen sectors in scenario 1 and in fourteen sectors in scenario 2. The increase from 0.002 % to 656.86 % and the largest changes were observed in other manufactures (335.42 % in scenario 1 and 656.86 % in scenario 2) and forestry (101.98 % in scenario 1 and 125.65 % in scenario 2). Figures 5 and 6 depict the changes in each sector.

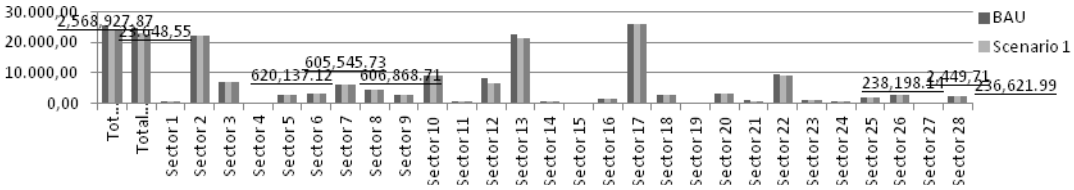

Figure 5: CO_2 Emissions

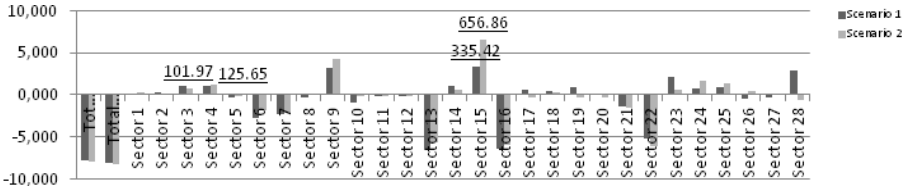

Figure 6: Changes in CO_2 Emissions

4.2.2 Industrial Outputs

The baseline scenario indicates that the largest sectors in terms of output were fishery; the manufacture of food, beverages and tobacco; and social services and other services. Convesely, the hotels, other manufactures and forestry sectors produced output slightly. The imposition of the carbon tax resulted in changes to output. The changes in industrial outputs are depicted in Figures 7 and 8. Total industrial outputs of industry declined in each scenario by: 0.38 % in scenario 1 and 0.74 % in scenario 2.

Nearly identical numbers of sectors experienced changes in output (both positive and negative) in the scenario 1 and scenario 2. The following sectors exhibited increased output: food crops; plantation crops; livestock; forestry; the manufacture of fabricated metal; other manufactures; constructions/buildings; trade; hotels; restaurants; communications; banks and other financial institutions; leasing, real estate and business services; and social services and other services. The other manufactures (335.42 %) and forestry (101.98 %) sectors exhibited the greatest increases in output in scenario 1. Small increases were observed in other sector. These increases indicates that these sectors benefited from the imposition of the tax. In contrast, the manufacture of cement and non-metallic minerals (19.81 %) and the manufacture of chemicals, paper products, printing and publishing (17.71 %) were harmed by policy, as these sectors exhibited the greatest declines in outputs. The declines observed in other sectors were relatively small.

The simulation results for scenario 2 exhibited relatively small differences from the values observed for scenario 1. Similar to scenario 1, increases in outputs occurred in food crops; plantation crops; livestock; forestry; the manufacture of fabricated metal; other manufactures; trade; communications; banks and other financial institutions; leasing, real estate and business services; education; and health. The other manufactures and forestry sectors presented the largest increases in output in response to the city's policy: 656.86 % and 125.65 %, respectively. Conversely, the largest declines were observed in the manufacture of cement and non-metallic minerals (19.77 %) and in the manufacture of chemicals, paper products, printing and publishing (17.39 %).

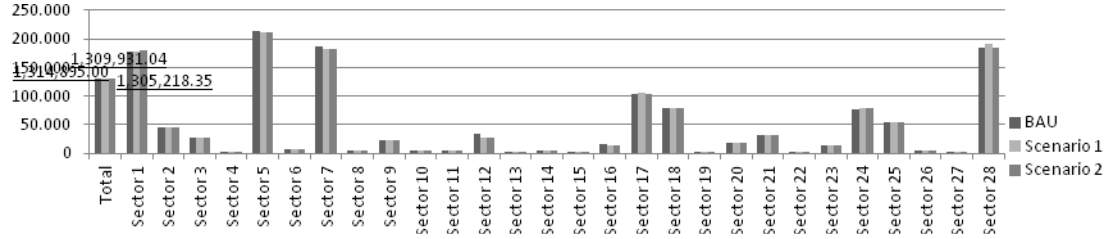

Figure 7: Industrial Output

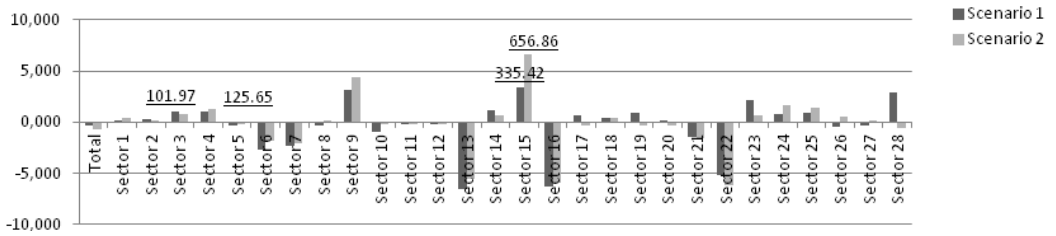

Figure 8: Changes in Industrial Output

4.2.3 Municipal GDP

The largest contributions to the municipal GDP under the BAU scenario were made by following sectors: fishery; manufacture of food, beverages and tobacco; and social services and other services. The impacts of the carbon tax policy are presented in Figure 9 and 10. Overall, the GDP has declined by more than 19 % for each scenario. In scenario 1, thirteen sectors contributed to the decline in GDP, compared with fourteen sectors in scenario 1. Sectorial declines ranged from approximately 0.17 % to 19.80 %. The manufacture of cement and non-metallic minerals and the manufacture of chemicals, petroleum, coal, rubber and plastic products exhibited the larges declines in each scenario.

However, these declines were accompanied by increases in other sectors. Contributions to increased GDP were observed fifteen sectors in scenario 1 and fourteen sectors in scenario 2, ranging from approximately 0.004 % to 656.88 %. The largest changes occurred in other manufactures (335.44 % in scenario 1 and 656.88 % in scenario 2) and forestry (101.98 % for scenario 1 and 125.66 % in scenario 2).

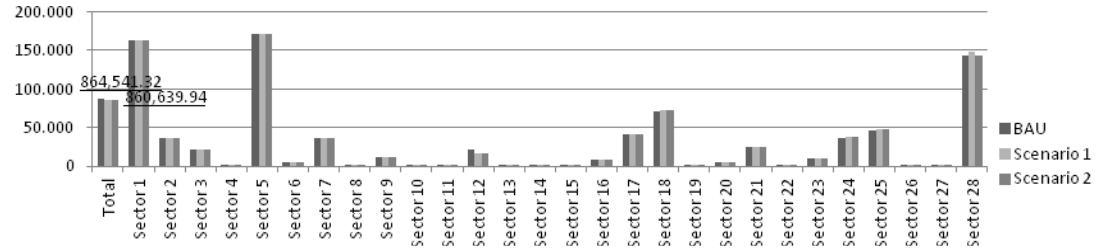

Figure 9: Municipal GDP

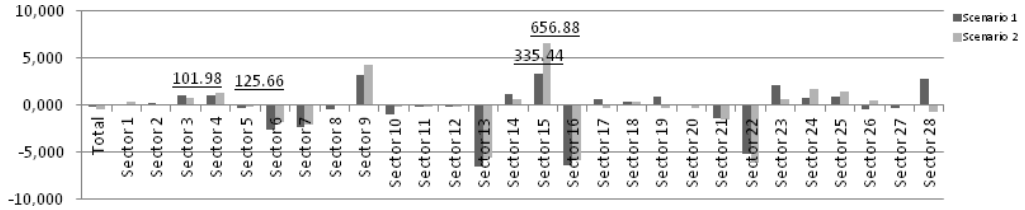

Figure 10: Changes in Municipal GDP

4.2.4 Labor Demand

Figures 11 and 12 indicate that labor demand generally responded negatively to the carbon tax policies in the sectors considered. Overall, labor demand declined by approximately 0.01 % to 1.20 %. Labor demand declined in twenty-two sectors in scenario 1 and twenty-one sectors in scenario 2. The greatest changes occurred in the manufacture of cement and non-metallic minerals (20.90 % in scenario 1 and 20.54 % in scenario 2) and the manufacture of chemicals, petroleum, coal, rubber and tobacco (18.70 % in scenario 1 and 18.09 % in scenario 2).

Certain sectors responded positively to the carbon tax policies in terms of labor demand. Specially, six sectors in scenario 1 and seven sectors in scenario 2 exhibited increased labor demand, ranging from 0.1 % to 650.73 %. The other manufactures (98.80 % in scenario 1 and 123.15 % in scenario 2) and forestry sectors (330.41 % in scenario 1 and 650.73 % in scenario 2) exhibited the greatest increases in labor demand.

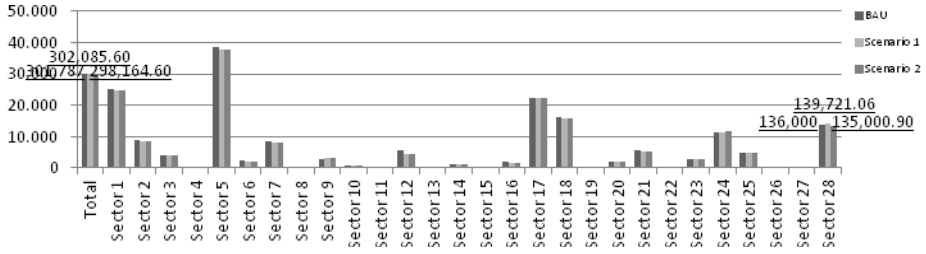

Figure 11: Labor Demand

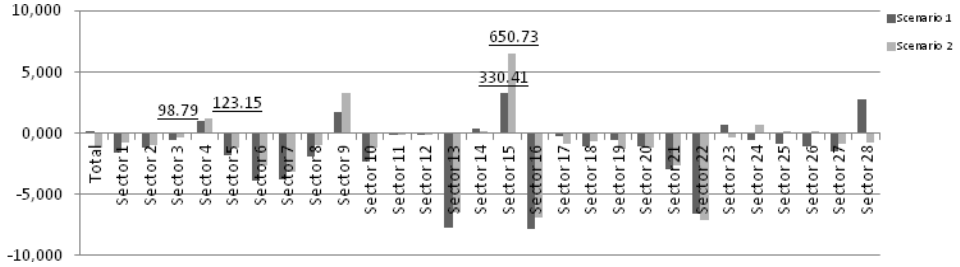

Figure 12: Changes in Labor Demand

4.4.5 Capital Demand

Regarding the changes in the demand for capital by industry despicted in Figures 13 and 14, the pattern of changes differs substantially from that observed for labor demand. Increased demand for capital is observed in nineteen sectors in scenario 1 and in twenty sectors in scenario 2. The demand for capital responded positively to the carbon tax programs. The largest positive responses were observed in the other manufactures (339.007 % in scenario 1 and 661.23 % in scenario 2) and forestry (102.77 % in scenario 1 and 126.27 % in scenario 2) sectors.

Declines in the demand for capital were observed in nine sectors in scenario 1 and in eight sectors in scenario 2, ranging from 0.44 % to 19.43 %. The manufacture of cement and non-metallic minerals (19.32 % in scenario 1 and 19.43 % in scenario 2) and the manufacture of chemicals, petroleum, coal, rubber and tobacco (17.07 % in scenario 1 and 16.94 % in scenario 2) reported the largest declines.

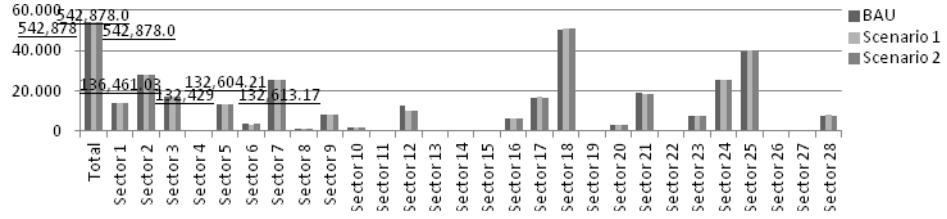

Figure 13: Capital Demand

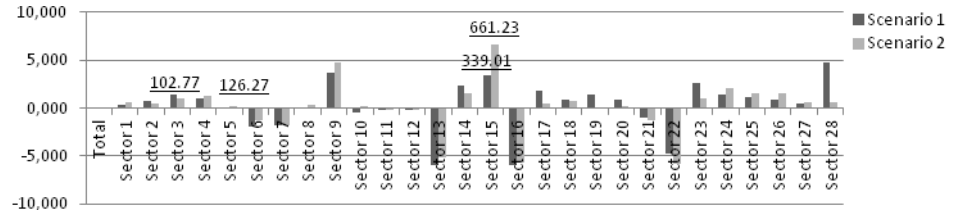

Figure 14: Changes in Capital Demand

4.2.6 Commodity Prices

The price changes in all sectors are depicted in Figure 15. The carbon tax increased output prices by an average 2.32 % in scenario 1 and 2.61 % in scenario 2, and these changes were especially pronounced in sectors characterized by the heavy use of energy-intensive commodities. The differences between scenarios 1 and 2 with respect to these changes are not large.

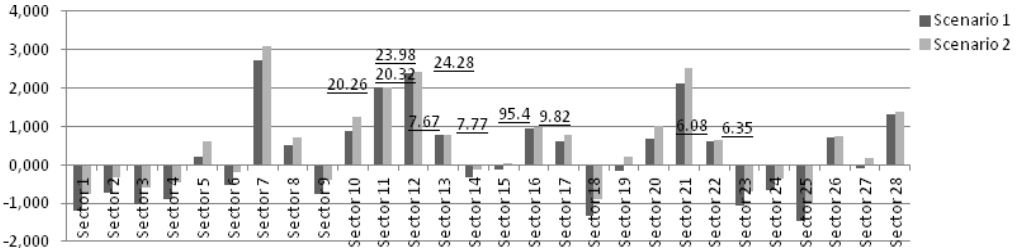

Figure 15: Commodity Prices

4.2.7 Other Variables

As despicted in Figures 16 and 17, household income did not change significantly, exhibiting an increase of 0.12 % in scenario 1. However, as the price of the composite consumption good increased by 0.34 %, household consumption declined by 0.17 %. Thus, leisure time increased 0.01 %, and household savings declined by 0.42 %. As result, equivalent variation reveals a welfare gain loss of 0.5 billion rupiah.

Regarding the government sector, in scenario 1, the imposition of a carbon tax reduced revenue from net indirect taxation by 4.3 %. However, total government revenue increased by 4.79 %, increasing government consumption and current transfers to households and the external sector except while reducing government savings.

In scenario 2, household income increased by 1.3 %, including the effect of the direct tax on households. Household income net of the direct tax increased by 1.28 % relative to the baseline scenario. Following the increase in household income, household composite consumption increased by 0.86 %, leisure time increased by 1.14 % and household savings increased by 0.82 %. As result, equivalent variation indicates a welfare gain of 1.33 billion rupiah.

Regarding the government sector, revenue from the net indirect tax declined by 3.82 %. The government revenues from households decreased by 0.26 %, whereas the total government revenue increased by 0.61 %. Because of this increase, government expenditures, current transfers to households and the external sector, and government savings increased.

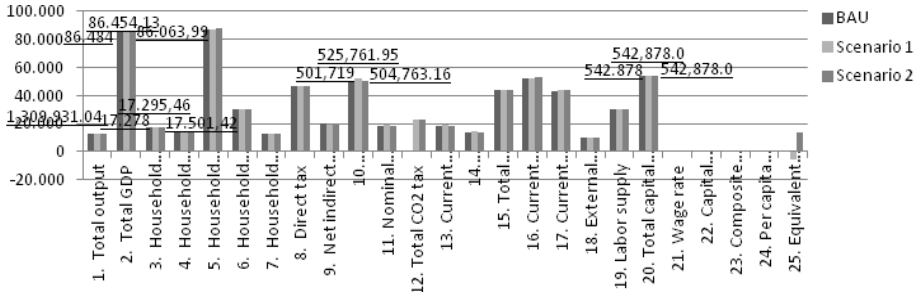

Figure 16: Other Variables

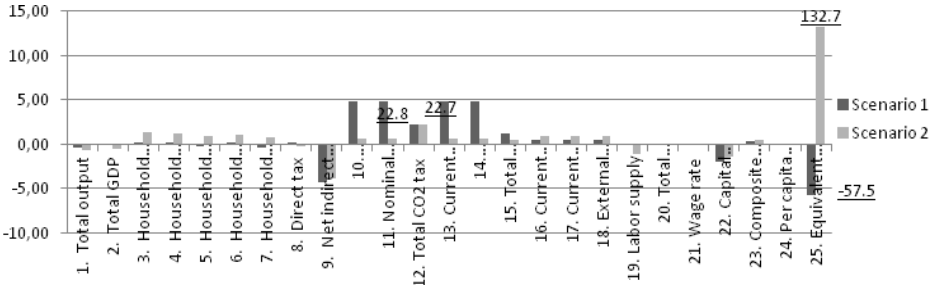

Figure 17: Changes in Other Variables

Note:

1) industrial output, 2) GDP, 3) full income, 4) household income, 5) composite consumption, 6) leisure time, 7) household saving, 8) Direct tax, 9) net indirect tax, 10) government revenue, 11) government consumption, 12) total CO_2 tax, 13) current transfers from the government to households, 14) government saving, 15) total investment, 16) current transfers from the external sectors to households, 17) current transfers from the external sector to the government, 18) external sector's saving, 19) labor supply, 20) total capital stock, 21) wage

rate, 22) capital return rate, 23) composite price, 24) per capita equivalent variation and 25) equivalent variation.

V Conclusions

There is an urban economic change affecting the welfare household changes, which are characterized by value of equivalent variation. As a result, the implementation of carbon tax policies generally had negative impacts on the economy of Makassar City in scenario 1 and positive impacts in scenario 2, despite the fact that the total municipal GDP declined in all simulation scenarios. Because of the effects of government tranfers to households, household consumption declined in scenario 1 but it increased slightly in scenario 2. As results, the savings in the external sector increased.

Government revenue increased in all scenarios. The costs of production increased following the declines in output prices. Declines in sectorial outputs resulted in a negative impact on household utility in scenario 1.

Therefore the imposition of a carbon tax had positive environmental impacts, and the municipal GDP will increase if the government institutes a carbon permit trading schemes.

VI References

[1] Hosoe, Nobuhiro., Gasawa, Kenji., and Hashimoto, Hideo. Textbook of Computable General Equilibrium Modelling. Programmming and Simulations. Palgrave Macmillan, UK., 2010

[2] Miyata, Yuzuru., Hirobata, Yasuhiro., Shibusawa, Hiroyuki. And Nakanishi, Hitomi. Economy-transport-environment interactive analysis: a spatial Modeling approach, *Studies in Regional Science* , 39 (1)., 2009, (pp) 109-130.

[3] Miyata, Yuzuru.. A General Equilibrium Analysis of the Waste-Economic System - A CGE Modeling Approach, *Infrastructure Planning Review*, 12., 1995, (pp) 259- 270.

[4] Miyata, Yuzuru. An Intertemporal General Equilibrium Analysis of the Waste - Economic System., *Infrastructure Planning Review*, 14., 1997, (pp) 421-432.

[5] Ministry of Environmental of Indonesia. Guidelines for National Greenhouse Gas Inventory, Book II Vol 1: Methodology of Energy Procurement and Use. Jakarta., 2012.

[6] Nansai, Keisuke., Morigichi, Yuichi. and Tohno, Susumu. Embodied of Energy and Emissions Intensity Data for Japan Using Input-Output Tables, National Institute for Environmental Studies, Japan., 2002.

[7] Oktaviani, Rina. Economic Model of General Equilibrium. Theory and Application in Indonesia. IPB Press, Bogor., 2011.

[8] Statistic of Makassar. The 2006 Input Output Table for Makassar 2006. Makassar., 2008.

[9] Statistic of Indonesia. The 2005 Social Accounting Matrix for Indonesia. Jakarta., 2008.

LOCATION CONDITIONS OF ENERGY-INTENSIVE ENTERPRISES

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Abstract

There is an interdependent relationship between enterprises and the region in which they are located: On the one hand the conditions of this location influence turnover, costs, profits and thus the economic situation of the individual firm. On the other hand the economic situation of the regional firms is an important determinant of regional economic success and the welfare of the people living in that region. This happens directly because the firms stabilize regional income and employment; but there are also indirect effects running via income and input-output-linkages. Regional economic success and welfare in turn determine the regional tax receipts and the regions' possibilities for positively influencing the location conditions. These interdependencies give an explanation for the high interest firms, politicians and researchers normally have in regional location conditions and their quality. The better a region's information about these issues, the better its possibilities to promote its location advantages and the more efficiently it can use its scarce financial means to reduce the locational disadvantages. Regional marketing and improvements of the region's location conditions aim at the acquisition of new firms, at additional private investment in the region, at the creation and stabilization of employment and the population's welfare.

In recent years the Niederrhein Institute for Regional- and Structural Research (NIERS) has surveyed firms to thoroughly analyze the location conditions of Middle Lower Rhine Area – a German region located in the western part of Northrhine-Westphalia. This research especially aimed at judging the location conditions' quality in Middle Lower Rhine Area. But as the firms had to evaluate not only the local quality but also the general importance of the location factors and as firms' participation in these surveys has been sufficiently high the results also give the opportunity to rank the location factors by its relevance and to differentiate this kind of analysis by industry. So, the aim of the proposed paper is twofold: It firstly describes which locational factors are – on the basis of the above mentioned surveys – most important from the firms' point of view. To find out whether energy-intensive industries have special location requirements it secondly compares these general results with those from energy-intensive industries.

Keywords: Location, location conditions, energy-intensive industries
JEL classification: R12

0. Introduction

There is an interdependent relationship between enterprises and the region in which they are located: On the one hand the conditions of this location influence turnover, costs, profits and thus the economic situation of the individual firm. On the other hand the economic situation of the regional firms is an important determinant of regional economic success and the welfare of the people living in that region. This happens directly because the firms stabilize regional income and employment; but there are also indirect effects running via income and input-output-linkages. Regional economic success and welfare in turn determine the regional tax receipts and the regions' possibilities for positively influencing the location conditions.

The above briefly described interdependent causal structures give an explanation for the high interest firms, politicians and researchers normally have in regional location conditions and their quality. The better a municipality's information about these issues, the better its possi-

bilities to promote its location advantages and the more efficiently it can use its scarce financial means to reduce the locational disadvantages. Regional marketing and improvements of the region's location conditions aim at the acquisition of new firms, at additional private investment in the region, at the creation and stabilization of employment and the population's welfare.

In recent years the Niederrhein Institute for Regional- and Structural Research (NIERS) at the Niederrhein University of Applied Sciences has surveyed firms[1] to thoroughly analyze the location conditions of Middle Lower Rhine Area – a German region located in the western part of Northrhine-Westphalia between the river Rhine and the Dutch-German Border[2]. This research especially aimed at judging the location conditions' quality in Middle Lower Rhine Area and at deriving proposals on how to improve them. But as the firms had to evaluate not only the local quality but also the general importance of the location factors and as firms' participation in these surveys has been sufficiently high the results also give the opportunity to rank the location factors by its relevance and to differentiate this kind of analysis by industry. So, after some introductory theoretical remarks (chapter 1) the aim of the following paper is twofold: It firstly describes which locational factors are – on the basis of the above mentioned survey – most important from the firms' point of view (chapter 2) and it secondly compares these general results with those from energy-intensive industries (chapter 3). The paper ends with a summary.

1. Theoretical Considerations – an Overview

Beside firm-internal aspects economic, social, political and natural framework conditions determine entrepreneurial success. A great deal of these conditions depends on the location; location conditions are all factors which meet the two following requirements (MAIER/TÖDTLING, 2006, p. 20).:

- The factor is relevant for the firm's costs or sales revenue, whereas nonmonetary costs (e.g. expenditure of time) and long run effects (e.g. on innovativeness) have to be regarded as well.
- The factor must show spatial differences concerning availability, quality and/or price.

Starting from this definition the factors determining the firm's location decision can be systemized following Berlemann und Tilgner (BERLEMANN/TILGNER, 2006, p. 17); in general they differentiate between …

- … determinants of production conditions (input),
- … determinants of market conditions (output) and
- … political and legal framework conditions.

In addition to that it might be helpful to discuss agglomerative factors as a further group of location conditions.

Determinants of production conditions

Talking about determinants of production conditions means talking about regional factor endowments – i.e. workforce, private and public capital and real estate. In each case quantitative and qualitative aspects must be distinguished and in addition to that of course prices do matter. Using workforce as an example this means: At first it is important whether there is a sufficient amount of labor available in a region. Nowadays the quantitative availability of workforce usually is not a bottleneck of economic development in German regions. Although unemployment rates are quite high in many German regions there often are deficits in qualified workforce because the increase in qualification requirements of firms has caused a shift from

[1] These surveys have been part of two projects finished in 2003 and 2009 by NIERS and financed by the Chamber of Industry and Commerce Mittlerer Niederrhein. (GOEBEL/HAMM/WENKE, 2009; HAMM/WENKE, 2003).

[2] It consists of the two cities of Mönchengladbach and Krefeld, and the counties Rhein-Kreis Neuss and Viersen.

quantitative to qualitative aspects. Prices mean in this example wages and salaries. Similar considerations apply to real estate; again availability, quality and prices (rents) are relevant.

Concerning capital private and public capital must be distinguished. Availability and prices of real capital highly depends on the availability of financial capital; but as financial capital is mobile, it can be expected that there are hardly any regional differences in availability and prices; so financial capital does not fulfill the requirements for a regional location condition.

Public capital means infrastructure, which can be divided into production and household oriented components. While production infrastructure is directly used by private firms, the household oriented infrastructure influences firms‘ location decisions only indirectly: It improves a location's living standards and quality of life thus making the location more attractive to high qualified workforce, which in turn makes the location more interesting for firms. Important examples of production oriented infrastructure are traffic connections (by road, railroad, water roads and airplanes), information and communication infrastructure, energy infrastructure and facilities for education on all levels as well as research institutions. On the contrary hospitals, homes for elder people or Kindergartens (social infrastructure) are part of household infrastructure; in addition cultural, recreational and leisure facilities could be mentioned in this context.

Determinants of market conditions

One of the main motives of entrepreneurial location decisions is the opening up of markets. In this context the magnitude, the distance and the accessibility of markets internal and external to the region are relevant factors. So transport costs to providers and clients as well as transport connections and the location in economic-geographical space gain special attention. The extent to which a region succeeds in attracting demand external to the region depends on the region's structures by industry, because the industries' export opportunities differ. Whether the regional export-base actually can sell its products to other regions or not is determined by the entrepreneurial competitiveness which again is influenced by costs of inputs, productivity and technology.

Political, legal and social framework conditions

On the macro-level (i.e. nationwide) aspects like political stability, legal stability, system of property ownership and tax burden surely play an important role for firms' location decisions. Framework conditions differing from region to region for instance are the business climate, the duration of permit procedures and the special local fees and taxes.

Agglomerative factors

The fourth group of location conditions considered here is the regional agglomerative potential that cannot be clearly distinguished from the already discussed groups (MAIER/TÖDTLING, 2006, p. 101ff; STAUDACHER, 2005, p. 115). The spatial distribution of already existing eco-nomic activity directly and indirectly influences the location decisions of new and additional activities. These interdependencies between existing and new activities are called agglomera-tive effects. Agglomerative effects can be positive or negative; they can be internal or external to the firm. Economies of scale are positive effects internal to the firm. External Effects influ-ence the economic success of one actor but are controlled by other actors. External agglom-eration effects can be divided into two groups:

- Effects of localization [3] (or rather effects of specialization) appear between firms of one industry and are the higher, the higher the regional concentration of this industry is. Regional concentration can result in certain advantages because (for instance) all firms need the same resources, have similar requirements in infrastructure, have related forward and backward linkages, look for research facilities and possibilities for technology transfer or access a common pool of workforce with similar qualifications.

[3] Sometimes called MAR-Externalities following MARSHALL (1890), ARROW (1962) and ROMER (1986).

• Effects of urbanization [4] in contrast arise between enterprises of different industries. They are in most cases the result of a certain magnitude combined with urban attractiveness, of a variety of offerings stemming from different fields that can be used by firms of all industries. Examples are urban lifestyle, the broad supply of high-quality firm-oriented services, and the variety of worker's qualification or facilities that increase a region's attractiveness executives.

Beside this more traditional systemization of location conditions another classification gained importance in the last decades, namely between hard and soft location factors. Soft location factors are all aspects that might determine a location decision but that can hardly or not at all be expressed in figures or monetary terms – e.g. image, living conditions, leisure or cultural facilities and their quality. Soft and hard location factors are complementary and form in total the relevant determinants of location decisions (GRABOW, 2005, p. 38). Soft location factors can have direct effects – in most cases difficult to measure – or they can be relevant for employees and/or employers. DILLER (1991, p. 29f. and for a similar systematization GRABOW, 1994, p. 148ff) distinguishes firm- and employment-oriented factors as well as personal pref-erences, while GRABOW (2005, p. 38f.) denotes the first group as firm-oriented the two other groups as personal-oriented factors. Furthermore some authors argue that a location's image depends on the one hand on the occurrence of some other already mentioned aspects but on the other hand can be seen as a factor of its own, too.

The outline of location conditions shows that entrepreneurial location decisions are determined by a broad variety of aspects. Nevertheless it should be stressed that …

• … the relevance of these factors can be very different – some of them are of higher others of less importance. The first aim of the present paper is to work out these differences us-ing empirical methods.

• … the relevance of these factors differs by industry. The second aim is to analyze the spe-cial requirements of energy-intensive industries.

2. The Role of Location Conditions

2.1. General Requirements

The following empirical results are based on a firm survey. In spring 2008 the member firms of the Chamber of Industry and Commerce in Middle Lower Rhine Area have been asked (GOEBEL/HAMM/WENKE, 2009) to judge the importance and the specific quality in Nieder-rhein Area for 59 different location factors. More than 1500 (from 6000 asked) enterprises participated in the survey. The research project tried to account for a large number of location relevant factors which all are related to the theoretical considerations of the last chapter. The firms had to judge each single location factor on a scale reaching from 1 to 4 [5].

Table 1 summarizes the firms' answers concerning the relevance of location factors ranked by average marks. The results show, that cost aspects are ranked most important by the firms: Energy costs, costs of waste removal as well as water and waste water fees are the three most important location factors. In addition the municipal fiscal burden seems to be of special importance for the firms; public fees and local taxes on entrepreneurial capital and on land also belong to the ten most important location conditions. Furthermore there are some „traditional" location factors like highways, availability and qualification of workforce amongst the ten factors ranked most important. Finally a business-friendly climate of the local authorities is the last of the ten most relevant location determinants.

Tab. 1: The Role of Location Conditions

[4] Sometimes called Jacobs-Externalities following JACOBS (1969).

[5] With 1 = very important, 2 = important, 3 = less important, 4 = unimportant. The average possible mark therefore was 2,5.

Tabelle 1: The Role of Location Conditions

Location factor	Ranking	all branches
Energy costs	1	1,58
Costs of waste disposal	2	1,72
Water and wastewater taxes	3	1,72
Road and highway access	4	1,73
Local business tax	5	1,75
Qualification of workforce	6	1,82
Public charges	7	1,84
Pro-business local administration	8	1,86
Availability of workforce	9	1,91
Local property tax	10	1,95
Smooth cooperation of local authorities	11	1,97
Adminstrative response time	12	1,99
Information and communication infrastructure	13	2,05
Safety in inner city	14	2,05
Cityscape (cleanliness)	15	2,06
Level of adminstrative regulations	16	2,13
Rents	17	2,17
Portfolio management for local enterprises	18	2,17
Proximity to important customers	19	2,19
Satisfaction with municipal business development	20	2,20
Parking	21	2,21
Duration of permit procedure	22	2,21
Offerings for further ecucation	23	2,21
Vocational training schools	24	2,23
Image and awareness of location	25	2,24
Shopping facilities	26	2,25
Comprehensive schools	27	2,25
Accessabilit/Opening hours of local administration	28	2,26
Cooperation enterprises - schools	29	2,32
Consulting on governmental funding	30	2,32
innercity traffic conditions	31	2,34
Cityscape (architecture)	32	2,35
Supply with firm-oriented services	33	2,35
Availability of R&D facilities	34	2,38
Financing advice	35	2,43
Regional location marketing	36	2,48
Parking fees	37	2,51
University of Applied Sciences (Education)	38	2,51
Supply of household-oriented services	39	2,53
Environmental consulting	40	2,55
Recreation and leisure facilities	41	2,57
Citymarketing	42	2,57
Proximity to important providers	43	2,59
Land price	44	2,61
Cultural offerings	45	2,62
Local public transport	46	2,68
Housing	47	2,71
Consulting in corporate descent	48	2,73
Start-up consulting	49	2,73
Technology consulting	50	2,73
Privatization of municipal responses	51	2,74
University of Applied Sciences (Research)	52	2,76
Sopport in searching real estates	53	2,77
Airport	54	2,97
Event premises	55	3,00
Availablity of industrial real estate	56	3,04
Supply of commercial property	57	3,13
Railway connection	58	3,26
Average		***2,34***
Own calculations		

Conversely railway connections have been the location factor with the lowest relevance. This is plausible bearing in mind that railroad connections only are important for a small number of industrial firms but not for a great number of retail trade and service firms. At first glance does not seem to be plausible, that the availability of real estate and the supply of commercial properties are of minor importance. But these results might stem from a weakness of the underlying research method: The judgment of the relevance of location conditions are based on the answers of already established enterprises; for these firms bottlenecks stemming from the availability of real estate or commercial property seldom exist. Therefore surveying firms that actually want to relocate or just have relocated might be a better approach. The result can be distorted by another disadvantage of our method: If the quality of a location factor is quite good in a certain region firms will hardly see a bottleneck; in this case the factor might lose relevance in the judgment of importance, because the firms do not longer clearly distinguish between importance and quality – a methodological disadvantage which cannot be completely avoided. It cannot be accurately answered whether this argument applies to real estate and commercial properties, but it apparently plays a role in the judgment of airport connections: Theoretical considerations suggest that in the process of globalization airports gained increasing importance as a location factor. This cannot really be seen in the firms' answers to the questionnaire. But with Düsseldorf International Airport and some other not so far away airports (Weeze, Köln, Maastricht, Eindhoven) the airway connections of Middle Lower Rhine are quite good; so that a distortion between „quality" and „importance" might explain this result here.

It is surprising, too, that the availability of technological consulting and the regional university as partner for research and development is less important than most other location conditions. The explanation might be similar to the case of railway connections: A high orientation to new technologies and innovation might not be relevant for many of the interviewed firms.

2.2. Requirements of Energy-Intensive Enterprises

For working out whether the requirements of energy-intensive firms significantly differ from the average, these firms had to be identified in the survey. As the classification numbers (WZ 2003) of all firms participating in the survey were known it was necessary to have a clear definition of "energy-intensiveness" based on this classification. The problem of definition is discussed in some more detail in a study by Eickmeier et.al. (EICKMEIER/GABRIEL/ PFAFFEN-BERGER, 2005, p. 2-1ff). They argue that there is no generally accepted definition and that the chosen relationship to measure energy-intensity or electricity-intensity often depends on po-litical motivation. Despite this critical comment their discussion was helpful for finding a pragmatic solution for the present analysis: First of all, the definition to be used should allow for a clear decision which industry is energy-intensive and which is not. As the paper does not only focus on electricity but also on energy in total, the amount of or the costs of energy in-puts are correct variables to be used in the denominator of an indicator. Costs of energy inputs are preferred here not only because of data availability but also because the possible nomina-tors of the indicator are also monetary variables. With regard to the indicator's nominator data availability is the most important aspect because data at the four digit level of the German Classification of Economic Activities [6] is required. The German Federal Statistical Office pub-lishes gross value added as well as gross value of production [7] at this level of disaggregation. Hence one had to choose between these two variables. As gross production value encloses the costs of all intermediate inputs gross value

[6] See Statistisches Bundesamt (Ed.), Klassifikation der Wirtschaftszweige, Ausgabe 2003 (WZ 2003), Wiesbaden. The Classification WZ 2003 had to be used here because the firms that participated in the survey are classified by this version of the WZ so that this was the only possibility to identify energy-intensive firms in the survey via its WZ-code.

[7] See Statistisches Bundesamt (Ed.), Fachserie 4, Reihe 4.3. The latest data for the WZ 2003 are available for 2007; so these data are used in the present paper.

added is the preferred indicator to avoid distortions that depend on the industries' share of intermediate inputs.

Table 2: Energy-Intensive Branches 2007

WZ	No. of firms in sample		Gross Value of Production (GVP)	Gross Value Added (GVA)	Energy Consumption	Energy Consumption Share in GVA in %	Enery Consumption Share in GVP in %
DA1597		Manufacture of malt	322.635	36.158	30.960	85,63	9,60
DI2653		Manufacture of plaster	176.205	54.445	34.311	63,02	19,47
DI2652		Manufacture of lime	649.674	245.762	153.126	62,31	23,57
CA10		Mining of coal and lignite; extraction of peat	4.279.279	419.160	253.984	60,59	5,94
DI2651	1	Manufacture of cement	2.520.286	868.877	431.267	49,63	17,11
DE2112	3	Manufacture of paper and paperboard	16.252.688	3.718.550	1.761.694	47,38	10,84
DG2413		Manufacture of other inorganic basis chemicals	5.124.057	1.141.518	533.379	46,73	10,41
DI2640	1	Manufacture of bricks, tiles and construction produrcts in baked clay	1.474.913	548.071	243.286	44,39	16,49
DJ2742	1	Aluminium production	14.237.921	2.063.684	736.403	35,68	5,17
DJ2710		Manufacture of basic iron and steel and of ferro-alloys	41.523.840	10.577.925	3.663.448	34,63	8,82
CB141		Quarrying of stone	1.061.682	380.181	128.473	33,79	12,10
DG2470		Manufacture of man-made fibres	4.242.699	917.318	307.666	33,54	7,25
DA1562	1	Manufacture of starches and starch products	1.669.497	342.942	111.943	32,64	6,71
DI2630		Manufacture of ceramic tiles and flags	789.492	261.675	84.509	32,30	10,70
DI2611		Manufacture of flat glass	1.363.565	463.844	143.376	30,91	10,51
DI2613		Manufacture of hollow glas	2.570.075	1.013.622	307.145	30,30	11,95
DI2662		Manufacture of plaster products for construction purposes	1.398.966	370.693	109.218	29,46	7,81
CB1422	1	Mining of clays and koalin	349.530	146.467	40.791	27,85	11,67
DD2020		Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards	6.381.552	1.289.752	336.975	26,13	5,28
DG2414	1	Manufacture of other organic basic chemicals	24.365.531	5.334.872	1.333.165	24,99	5,47
DA1541		Manufacture of crude oil and fats	2.380.218	212.808	52.526	24,68	2,21
CB1421	5	Operation of gravel and sand pits	2.265.621	854.770	209.950	24,56	9,27
DG2415		Manufacture of fertilizers and nitrogen compounds	3.385.200	947.562	224.256	23,67	6,62
DB1723		Worsted-type weaving	176.174	45.958	10.719	23,32	6,08
DB1711		Preparation and spinning of cotton-type fibres	485.467	132.283	30.470	23,03	6,28
DI2614		Manufacture of glass fibres	1.029.432	363.896	83.280	22,89	8,09
DJ2745	1	Other non-ferrous metal production	2.174.413	154.085	33.582	21,79	1,54
DA1531		Porcessing and preserving of potatoes	1.487.343	356.006	74.991	21,06	5,04
DB1730	4	Finishing of textiles	976.591	372.896	78.271	20,99	8,01
DJ2751	3	Casting of iron	6.162.893	2.049.878	426.762	20,82	6,92
DG2412		Manufacture of dyes and pigments	3.100.923	958.044	198.026	20,67	6,39
DA1512		Production and preserving of poultrymeat	3.492.724	425.153	86.489	20,34	2,48
DA1583		Manufacture of sugar	2.871.076	829.579	165.181	19,91	5,75
DJ2743	1	Lead, zinc and tin production	2.716.015	507.316	100.906	19,89	3,72
DI2615	1	Manufacture and processing of other glass, including technical glassware	2.133.575	849.389	162.411	19,12	7,61
DN3720	4	Recycling of non-metal waste and scrap	1.715.704	472.377	90.165	19,09	5,26
DA1551		Operation of dairies and cheese making	26.101.322	2.417.618	454.504	18,80	1,74
CB1450		Other mining and quarrying n.e.c.	126.765	30.565	5.529	18,09	4,36
DJ2734	6	Wire drawing	1.822.391	336.298	60.153	17,89	3,30
DG2416	1	Manufacture of plastic in primary forms	44.742.060	10.670.274	1.885.798	17,67	4,21
DA1585		Manufacture of macaroni, noodles, couscous and similiär farinaceous products	581.715	118.636	20.943	17,65	3,60
DA1532		Manufacture of fruit and vegetable juice	2.965.693	345.499	59.495	17,22	2,01
DI2682		Manufacture of other non-metallic mineral products n.e.c.	4.315.568	1.133.190	192.103	16,95	4,45
DE2122		Manufacture of household and sanitary goods and of toilet requisites	4.716.415	1.281.247	216.625	16,91	4,59
DA1571	1	Manufacture of prepared feeds for farm animals	4.576.934	548.930	90.602	16,51	1,98
DJ2721		Manufacture of cast iron tubes	458.381	126.606	20.416	16,13	4,45
DE2111		Manufacture of pulp	746.659	225.453	35.174	15,60	4,71
DI2626	1	Manufacture of refractory ceramic products	1.669.310	522.650	78.554	15,03	4,71
Calculated on basis of German Ferderal Statistical Office							

The second question to be answered was the definition of a threshold value. For pragmatic purposes an industry is defined to be energy-intensive if the share of total energy costs in gross value added exceeded 15 % in 2007. Table 2 shows the industries whose energy-

intensiveness lies above this threshold. Most of these industries can be assigned to the following 2-digit-industries: Manufacture of food products (15), of pulp, paper and paper products (21), of chemicals (24), of non metallic mineral products (26) and of basic metals and metal products (27). The table also gives information about the number of energy-intensive firms that participated in the survey (37 in total) and their allocation by industry – energy-intensive firms are distributed among a relatively wide range of different fields of production. So number of the firms and their distribution in the sample suggest that the database is sufficient to analyze the special location requirements of energy-intensive firms.

Table 3: Location Requirements of Energy-intensive Branches

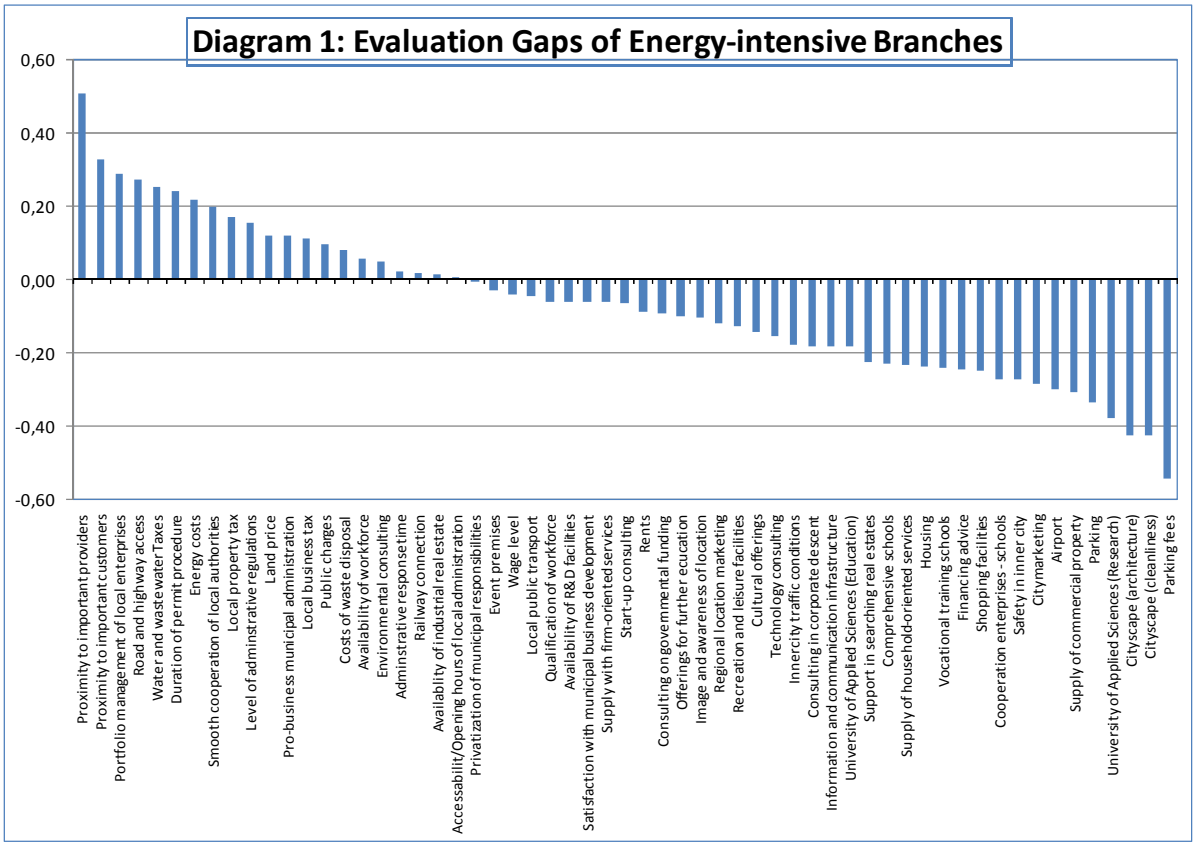
Table 3: The Role of Location Conditions

Ranking	Location factor	evaluation		Ranking Gap	Evaluation Gap
		energy-intensive branches	all branches		
1	Energy costs	1,36	1,58	0	0,22
2	Road and highway access	1,46	1,73	2	0,27
3	Water and wastewater taxes	1,47	1,72	0	0,25
4	Costs of waste disposal	1,64	1,72	-2	0,08
5	Local business tax	1,64	1,75	0	0,11
6	Public charges	1,74	1,84	1	0,10
7	Pro-business local administration	1,74	1,86	1	0,12
8	Smooth cooperation of local authorities	1,77	1,97	4	0,20
9	Local property tax	1,78	1,95	2	0,17
10	Availability of workforce	1,85	1,91	0	0,06
11	Proximity to important customers	1,86	2,19	9	0,33
12	Qualification of workforce	1,88	1,82	-6	-0,06
13	Portfolio management for local enterprises	1,89	2,17	6	0,29
14	Wage level	1,94	1,90	-5	-0,04
15	Adminstrative response time	1,97	1,99	-2	0,02
16	Level of adminstrative regulations	1,97	2,13	1	0,16
17	Duration of permit procedure	1,97	2,21	6	0,24
18	Proximity to important providers	2,08	2,59	26	0,51
19	Information and communication infrastructure	2,23	2,05	-5	-0,18
20	Rents	2,26	2,17	-2	-0,09
21	Accessability/Opening hours of local administration	2,26	2,26	8	0,01
22	Satisfaction with municipal business development	2,26	2,20	-1	-0,06
23	Offerings for further ecucation	2,31	2,21	1	-0,10
24	Safety in inner city	2,32	2,05	-9	-0,27
25	Image and awareness of location	2,34	2,24	1	-0,10
26	Consulting on governmantal funding	2,41	2,32	5	-0,09
27	Supply with firm-oriented services	2,42	2,35	7	-0,06
28	Availability of R&D facilities	2,44	2,38	7	-0,06
29	Vocational training schools	2,47	2,23	-4	-0,24
30	Comprehensive schools	2,48	2,25	-2	-0,23
31	Cityscape (cleanliness)	2,49	2,06	-15	-0,43
32	Land price	2,49	2,61	13	0,12
33	Shopping facilities	2,50	2,25	-6	-0,25
34	Environmental consulting	2,50	2,55	7	0,05
35	innercity traffic conditions	2,51	2,34	-3	-0,18
36	Parking	2,54	2,21	-14	-0,33
37	Cooperation enterprises - schools	2,59	2,32	-7	-0,27
38	Regional location marketing	2,60	2,48	-1	-0,12
39	Financing advice	2,68	2,43	-3	-0,25
40	University of Applied Sciences (Education)	2,70	2,51	-1	-0,18
41	Recreation and leisure facilities	2,70	2,57	1	-0,13
42	Local public transport	2,72	2,68	5	-0,05
43	Privitazation of municipal responsibilities	2,74	2,74	9	-0,01
44	Cultural offerings	2,76	2,62	2	-0,14
45	Supply of household-oriented services	2,76	2,53	-5	-0,23
46	Cityscape (architecture)	2,77	2,35	-13	-0,42
47	Start-up consulting	2,79	2,73	3	-0,06
48	Citymarketing	2,85	2,57	-5	-0,28
49	Technology consulting	2,89	2,73	2	-0,16
50	Consulting in corporate descent	2,91	2,73	-1	-0,18
51	Housing	2,94	2,71	-3	-0,24
52	Sopport in searching real estates	3,00	2,77	2	-0,23
53	Acvailablity of industrial real estate	3,03	3,04	4	0,02
54	Event premises	3,03	3,00	2	-0,03
55	Parking fees	3,06	2,51	-17	-0,55
56	University of Applied Sciences (Research)	3,14	2,76	-3	-0,38
57	Railway connection	3,24	3,26	2	0,02
58	Airport	3,27	2,97	-3	-0,30
59	Supply of commercial property	3,44	3,13	-1	-0,31
Own calculations					

Table 3 summarizes the returns of these 37 firms using again average marks. In order to compare the ranking of location factors based on the answers of all firms with that of energy-intensive firms in detail, table 3 also shows the differences between the positions of all single location factors in both rankings and the analogous deviations concerning the average marks; for further illustration diagram 1 depicts the latter deviations, too.

Starting with the ranking position, it can be seen that some location factors noticeably changed their positions. Especially proximity to important providers seems to be much more important to energy-intensive firms. The same applies for proximity to important customers, land prices and privatization of municipal responsibilities. While these factors are ranked higher by the energy-intensive firms, there are other factors that seem to be of less importance to these firms: Parking fees, sufficient parking, cityscape seen from its cleanliness as well as from its architecture and safety in the inner cities must be mentioned in that context. The first generalization of these results is hardly surprising at all: Apparently soft factors of location are of minor relevance for energy-intensive industries which belong to the industrial nucleus of an economy while spatial contiguity is still a crucial factor for them.

Diagram 1: Evaluation Gaps of Energy-intensive Branches



The differences in the ranking give a first idea of the special location requirements of energy-intensive industries; the evaluation gaps allow some further concretization. Diagram 1 shows that there are especially three groups of location factors that are more relevant to energy-intensive industries than to others (evaluation gaps in brackets):

- **Proximity:** Proximity to important providers (0,51) and to important customers (0,33) show the highest positive evaluation gaps of all location factors. That underlines the high relevance of spatial proximity for energy-intensive firms.
- **Cost aspects:** In addition location factors closely connected with costs are more important to energy-intensive industries than to the rest. This of course holds for energy costs: With the average mark 1,58 energy costs are by far the most important factor of location in the total survey. But the energy-intensive firms judge the energy costs even more important (0,22); for two third of them this is a "very important" location factor. Besides water and

wastewater taxes (0,25), local property and business taxes (0,17 respectively 0,11), land prices (0,12), public charges (0,10) and costs of waste disposal (0,08) are cost inducing location factors which are more relevant for energy-intensive firms. An explanation why cost components are of special relevance for these firms might be the relatively high de-gree of global (price-) competition in these energy-intensive industries. So for them fac-tors that increase cost pressure are of special importance.

- **Governmental behavior:** The third group encompasses factors which are combined with governmental behavior: Portfolio management of local enterprises (0,29), duration of permit procedures (0,24), the quality of cooperation with local authorities and administra-tion (0,20), the level of administrative regulations (0,16) and a pro-business municipal administration (0,12) are all aspects underlining that the level of governmental regulation and intervention might be more important than average for these firms.
- The only other location factor not belonging to the three groups above which is evaluated higher by energy-intensive firms is road and highway access (0,27).

While on the one hand spatial proximity, cost aspects and governmental behavior apparently are more important location factors for the energy-intensive branches, there are on the other hand location conditions that seem to be of less relevance to them; these aspects can be grouped as follows (negative evaluation gaps in brackets):

- **Inner city conditions:** It is hardly surprising that all location conditions related to inner city conditions are unimportant for firms being part of a highly industrialized branch. So parking fees (0,55), cityscape as to cleanliness (0,43) and architecture (0,42), parking fa-cilities (0,33), city marketing (0,28), safety in inner city (0,27), shopping facilities (0,25) and inner city traffic conditions (0,18) are remarkably less relevant for energy-intensive firms than they are for all firms. The way by which these factors affect industrial location decisions is an indirect one: If firms have a high demand for skilled workforce they will be to certain extend interested in attractive living conditions for these workers. But a qualified workforce does not seem to be more important for energy-intensive industries than for all others; so consequently the inner city conditions are of minor importance. These factors should, of course, be of much higher relevance for retailers and household-oriented services.
- **Other soft location factors**: All location factors just mentioned can be seen as part of the soft location factors and their special attribute is related to the inner city. Other soft loca-tion factors are image of the location (0,10), recreation and leisure facilities (0,13), cul-tural offerings (0,14), supply of household-oriented services (0,23) and housing (0,24). These factors are also of minor importance for the energy intensive industries.
- **Consulting services:** A third group of location factors that tend to be less relevant for energy-intensive firms are consulting services like start-up consulting (0,06), consulting on governmental funding (0,09), technology consulting (0,16), consulting in corporate de-scent (0,18) or financial advice (0,25). A possible explanation might be that consulting services are of special importance for young enterprises and it can be supposed that there are more established enterprises amongst the energy-intensive firms.
- **Education:** At first sight it is a little bit surprising that aspects concerning schooling and education – i.e. offerings for further education (0,10), University education (0,18), com-prehensive schools (0,23), vocational training schools (0,24) and cooperation between en-terprises and schools (0,27) – are less important to the energy-intensive industries. If de-mand of qualification would be high these factors should be of special interest to the firms; as the latter does not seem to hold true one might conclude on a less than average demand of qualification by energy-intensive firms.
- There are not many location factors of minor importance to energy-intensive firms that have not been mentioned yet; airport connections (0,30) and factors related to commercial properties (0,31) and their rents (0,09) should be mentioned in this context.

3. Summary

The aim of the present paper was to discuss the role of different location factors for energy-intensive enterprises. Using the results of a broadly based firm survey run in Middle Lower Rhine Area in 2008 it was possible to rank nearly 60 different location factors by importance.

After the identification of energy-intensive industries a ranking based on the answers of all participating firms could be compared with a special ranking calculated only for the energy-intensive firms.

The analysis shows that cost aspects and local fiscal burdens are the most important location factors to all firms followed by some „traditional" factors like highways and availability and qualification of workforce. Above all, a business-friendly climate of the local authorities seems to be another relevant location determinant.

As could be expected the results for energy-intensive industries remarkably differ from that, though these differences are hardly surprising. They can be summarized in the following way: On the one hand spatial proximity to customers and suppliers, cost aspects – especially energy costs – and the degree of governmental regulation and institutional constraints are factors of special relevance for energy-intensive firms. On the other hand soft factors of location – especially those related to inner city conditions – consulting services and some aspects of schooling and education are of lesser importance to energy-intensive firms than to the rest of the economy.

List of References

ARROW, K. (1962): Economic welfare and the allocation of resources for invention. In: The Rate and Direction of Inventive Activity, pp. 609-626. Princeton.

BERLEMANN, M. UND J. TILGNER (2006): Determinanten der Standortwahl von Unternehmen – ein Literaturüberblick. In: „ifo Dresden berichtet", 6/2006, S. 17.

DILLER, CH. (1991): Weiche Standortfaktoren. Zur Entwicklung eines kommunalen Handlungsfeldes. Das Beispiel Nürnberg. Arbeitshefte des Instituts für Stadt- und Regionalplanung der Technischen Universität Berlin, Heft 43. Berlin.

EICKMEIER, E., GABRIEL, J. AND PFAFFENBERGER, W. (2005): Perspektiven für die energieintensive Industrie im europäischen Strommarkt unter Berücksichtigung der Regulierung der Netzentgelte. Gutachten im Auftrag der RWE AG, Bremen 2005.
GOEBEL, CH., R. HAMM, UND M. WENKE (2009): Region Mittlerer Niederrhein: Wirtschaftsstruktur und Standortqualität. IHK Schriftenreihe – Ausgabe, Nr. 118/2009, Krefeld 2009.

GRABOW, B. (1994): "Weiche" Standortfaktoren. In: J. Dieckmann und E.A. König, Kommunale Wirtschaftsförderung - Handbuch der Standortsicherung und -entwicklung in Stadt, Gemeinde und Kreis. Stuttgart, S. 147-163.

GRABOW, B. (2005): Weiche Standortfaktoren in Theorie und Empirie – Ein Überblick. In: F. Thießen u.a. (Hrsg.), Weiche Standortfaktoren – Erfolgsfaktoren regionaler Wirtschaftsentwicklung. Interdisziplinäre Beiträge zur regionalen Wirtschaftsforschung. Berlin, S. 37-52.

HAMM, R. UND M. WENKE (2003): Standortanalyse Mittlerer Niederrhein. Gutachten im Auftrag der Industrie- und Handelskammer Mittlerer Niederrhein, Teil II. Ergebnisse einer Unternehmensbefragung zu den Standortbedingungen am Mittleren Niederrhein. Mönchengladbach 2003.

JACOBS, J. (1969): The Economy of Cities. New York.

MAIER, G. UND F. TÖDTLING (2006): Regional- und Stadtökonomik I, Standorttheorie und Raumstruktur. 4. aktualisierte und erweiterte Auflage, Wien, New York 2006, S. 20.

MARSHALL, A. (1890): Principles of Economics. London.

ROMER, P. M. (1986): Increasing returns and long-run growth. Journal of Political Economy, vol. 94, 1002-1037.

STAUDACHER, CH. (2005): Wirtschaftsgeographie regionaler Systeme. Wien.

A THEORETICAL AND METHODOLOGICAL APPROACH OF «FRAGILE» AREAS: THE CASES OF GREEK REGIONS CROSSED BY THE EGNATIA ROAD

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Abstract
Rural areas so-called 'fragile' have rarely been object of theoretical and methodological approach, aiming at delimiting the concept of fragility and at specifying his components. As well as there is no theoretical approach to define these milieus, there is no either general agreement on the notion of fragile space. Numerous are the authors who use this notion without specifying contents, or defining its outlines. Arise then the question to know, what is really meant by this concept. This is the first task of this article which seeks to trace the history of the concept and its use by authors. If the concept of fragility seems to have obvious filiations with the concepts of periphery, marginal and underprivileged space, we propose to show that this concept refers to a more complex reality and in any case, a fact.
Assuming that the fragility is not a state but indeed a process, the question is then, in on one hand, to specify-it through its multiple constituents and on the other hand to translate these last ones on a set of appropriate and quantifiable indicators.
By taking as study area, the northern region of Greece which has recently benefited from a great highway infrastructure (*Via Egnatia*), we propose using the methods of multicriteria analysis, to highlight the types and degrees of fragility of the subregional areas of northern Greece. The use of factor analysis methods and classification confer us the possibility to make a typology of these areas well beyond traditional approaches of disadvantaged areas, marginal or peripheral.

Keywords: Fragility, typology of spaces, multi-criteria analysis, Greece
JEL classification: O18, O21, P25

Résumé
Les milieux ruraux fragiles ont rarement fait l'objet d'une approche conceptuelle et méthodologique, visant à délimiter le concept de fragilité et en préciser ses composantes. De même qu'il n'existe pas d'approche théorique propre à définir ces milieux, il n'existe pas non plus de consensus sur la notion d'espace fragile. Nombreux sont les auteurs qui emploient cette notion sans en préciser le contenu, ni définir ses contours. Se pose dés lors la question de savoir ce qui est réellement entendu par ce concept. C'est la première tache de cet article qui s'attache à retracer l'historique du concept et son utilisation par les auteurs. Si le concept de fragilité semble avoir des filiations évidentes avec les concepts de périphérie, d'espace marginal et défavorisé, nous nous proposons de montrer que ce concept renvoie à une réalité plus complexe et en aucun cas, à un état de fait.
Partant de l'hypothèse que la fragilité n'est pas un état mais bien un processus, il s'agit alors d'une part, de le spécifier au travers de ses multiples composantes et d'autre part de traduire ces dernières en un ensemble d'indicateurs appropriés et quantifiables.
En prenant pour terrain d'étude, la région Nord de la Grèce qui a récemment profité d'une grande infrastructure autoroutière (*Via Egnatia*), nous nous proposons à l'aide des méthodes d'analyse des données multicritères, de mettre en exergue les types et degrés de fragilité des

espaces infrarégionaux du Nord de la Grèce. Le recours aux méthodes d'analyse factorielle et de classification permet en effet de procéder à une typologie de ces espaces qui dépasse largement les approches traditionnelles d'espaces défavorisés, marginaux ou périphériques.

Mots clés : Fragilité, typologie des espaces, analyse multicritère, Grèce

1. Introduction

The objective of this research is to contribute both conceptually and methodologically to a better understanding of the space called 'fragile'. This notion of fragile space has emerged in the 1980s to define rural areas neglected by the 'productivist model', suffers from, many ambiguities that it is necessary to overcome.
In a first phase, we trace the origin of the concept of fragile space. Emphasis is given to the willingness of researchers who worked on this concept, to go beyond the traditional approaches in terms of peripheral spaces, marginal and disadvantaged spaces. In a second phase we try to show that the approaches that have attempted to apprehend the fragility do not allow us to clearly define and delimit this concept. For this reason, we propose to adopt a territorial approach, putting in the center of the definition, the difficulties of coordination of actors, evaluated in terms of internal and external proximity relationships, the low level of valorization of resource, and finally, the objective disabilities. It is thus a quite different approach that in terms of methodology, requires the construction of new original indicators.
Our method for assessing the fragility of rural areas is therefore based on a range of fifteen indicators in total. The extent of the information is synthesized by applying a factor analysis and then a classification method, which allows us to propose a typology of rural areas according to their degree of fragility.
Our study area concerns all the municipalities of the eleven provinces crossed by the new highway *Via Egnatia*. By characterizing the nature of the economic dynamics observed in these territories, it will be thus possible in the future to assess the contribution of the *Via Egnatia* to the development of the region north of Greece.

2. Origin of the concept of fragile space

The concept of fragile space is difficult to define and quantify. It is often employed by researchers without giving a precise definition. Specifically, the concept of fragility has been used by "many European authors" (Simard, 2003), as P. Houée, H. Gumuchian, F. Bret, Ch.Mignon and many researchers of CERAMAC (P. Estienne, A. Fel, J.P. Diry, L. Rieutort,...) worked for a long time on this notion. The emergence of the concept of fragility in the writings of geographers and the studies of the planning organizations (formerly DATAR, SEGESA and SEDES) dates back to the 1980s. The concept of fragile space takes over notions of peripheral space, marginal space and then underprivileged spaces, which were already used to qualify the "regions that do not go well" (Rieutort, 2006) or those distant clusters growth.

Very early in fact, economists interested by space issues have stipulated that the organization of space is based on a dualistic model center - periphery. The theory of center / periphery is indeed one of the first theories of spatial analysis (Hypergeo, 2004). It begins with an empirical observation that the space is not homogeneous; it is the place where many multiscale spatial differentiations are produced, attributed to various forces. The Marxist model center-periphery appears first in the writings of the German economist and sociologist Werner Sombart in 1902 (modern capitalism), before being retaken by the theorists of imperialism (Luxemburg, Bukharin), then by development economists such as Prebisch (1950), Emmanuel (1969) and Samir Amin (1973) and finally authors that propose to relativize the model, to go beyond (the economy of archipelagos P . Veltz) focusing on the balance of centripetal and centrifugal forces (new economic geography of Krugman). The eminent French historian F. Braudel in his book " Material civilization and capitalism, fifteenth-eighteenth century" (1979), also had recourse to the notion of periphery or marginal

space to qualify the structure of world economy, composed by nested or juxtaposed space but interconnected, the heart, the center and periphery.

The model Center/Periphery describes the later as the result of unequal exchange relations between the center and the periphery. Underdevelopment, we should say today the low dynamics of a space is attributed to the nature of its relations with the central poles. Between the center and periphery the exchanges relations are asymmetrical and of various natures: people, goods, capital, information, etc. The center that benefits more from these relationships dominates the periphery which is then down in the spatial hierarchy.

This approach in terms of center and periphery is very limited and places the peripheral areas always in a situation of dominance by the center. It's certainly useful to explain in part the causes of this structuring of space. It is however not sufficient to apprehends all the complexity of the spatial system at different scales. It is necessary to relativize this model and this was done by number of authors (Cattan, 2006, Grataloup, 2009), highlighting other structured components of space (archipelagos economy) and other forces in effect (economies of agglomeration and dispersion, integration into networks, information ...). The center periphery model needs to evolve to be able to explain the different forces that cross the spaces.

The concept of marginality (*espace marginal*) is associated with the notion of periphery "as a limit or boundary, as a march or area, the marginal is always at a certain distance from the center" (Roux, 1992). However, even if the concept of marginal is often associated with the couple Center / Periphery, the meaning attributed to it is different. Marginality is primarily considered in terms of space, distance and isolation from the center. For Bailly (1986), "The marginal is a state of isolation in a relationship (whether wanted or not) that generates a specific spatial practice which contributes in turn to exclude interaction process. This is not only the unequal relations which are a problem but the remoteness, isolation and specifically the lack of these relationships that explain the marginality. This recent years have seen the emergence of new approaches inspired by the sociology and psychology to explain the marginality not only from the spatial point of view but also from the social and cultural one. Authors like E. Durkheim consider the marginality as a need for change and the evolution of society (Roux, 1992).

The approach in terms of marginal space suffers like the model center/periphery from several limits. To reduce the concept of marginality to a question of distance or remoteness from the centers is an unsatisfactory approach of spatial dynamics. There are many other factors involved in the marginality of spaces. We must therefore go beyond this approach in terms of distance, especially today, with the improving of accessibility and mobility which reflects the relativity of the notion of distance. There are many other approaches of marginality that take into account various causes. However, they suffer from the absence of a precise definition (Dugas, 1988).

The notion of underprivileged space appears in the years 1975 (Rieutort, 2006) with the beginning of the European CAP for underprivileged areas in which the mountain areas occupy a great place (Directive 75/268 of European Union). This recognition is based on a definition of an underprivileged space taking into account its intrinsic characteristics. It is therefore regions with a range of disabilities "imposed from the beginning by the nature (climate, slope, poor soil ...), making them fragile and uncompetitive in a global environment increasingly competitor. Contrary to the notions of periphery defined by the nature of its relationship with its environment and marginality defined by the absence of structural relationship with the poles, the notion of underprivileged space is defined relatively to its internal characteristics. Space is classified as underprivileged when it is less well endowed with factors propitious to development.

It is finally through geomorphologic disability (relief, slope) that disadvantaged areas are

defined at European level. These objectives handicaps are supposed have a direct influence on the agricultural economy (low productivity) of these areas. A weakness in agricultural activity generates the population decline (low density) and difficulty in preservation of environment. This approach is restrictive as it mainly underlines the "agro-economic approach of the rural spaces" (Duquenne, 2009). The association “agricultural and rural” is more and more outdated with the emergence of new functions (consumption spaces) and new activities in these areas (tourism, residence ...). Moreover, the approach based on physical disabilities tends to limit the concept of disadvantaged space to the rural areas (Goussos, Duquenne, 2006) while disadvantaged spaces are also present in urban areas.

After 1985, the concept of fragile space is more and more bring up, especially in France where different studies, implemented by institutions as DATAR, SEGESA and SEDES, try to detect the contours and the contents of this type of space and defined it as a predominantly agricultural area, where farms have been less modernized and diversified, and the other sectors of activity underdeveloped (Simard, 2003). For the Ceramac[1], the comprehension of fragile space requires to identify all its contours that overstep the agricultural components and include demographic structure as well as tourism, industry, transports, policies. The definition of the fragile space is nevertheless vague and according to J.P. Diry, refer to "rural areas of developed countries, confronted to integration problems into a modern economy, which results in demographic (in particular the decrease of population), economic and sociological original characteristics”. These areas classified as fragile or sensitive "often occur in the uplands. But the rule is not absolute: some mid-European mountains have known for decade’s sustained development while the plains and uplands suffer economic and social lethargy and are therefore stored in fragile areas”. The complexity of the phenomenon justifies precisely, as mentioned by the researchers of Ceramac, the necessity "to develop appropriate methods for an appropriate approach" of the fragile space.

3. Conceptual approaches of fragility: Towards a territorial approach

In the 1990s, rebelling against the overly optimistic visions of rural renewal (Kayser, Chapuis, Datar ...) F. Bret (1991) proposes to review the concept of fragility. He defined the latter as "a complex system that cannot be summarized through the analysis of population trend ... the fragility is expressed through three components: the human, the economic and the spatial one ... this leads to think about indicators to be used (analytical approach), required information and assessment of degrees of fragility (synthetic approach)". He proposes a geographical approach, which from his point of view is the most comprehensive and facilitate the identification of all the facets of fragility. In order to avoid the duplication of the various analysis of fragility phenomenon, F. Bret offers a new vision based on the three components of fragility and takes care to eliminate false tendentious indicators. He suggests new parameters taking into account the true mechanisms of fragility as well as a transversal lecture of the problems in order to eliminate partial approach, and finally a systematic retrospective applied for indicators. The author argues that it is necessary to take into account the basic principles of geography to understand the fragility. These principles are five: the notion of limit (which geographical limits to the fragility), the concept of degree (extent of fragility), the concept of mutation and disruption (evolution of fragility), the concept of recurrence (is it a cyclical or long-term phenomenon) and finally the concept of relativity (the fragility is relative). It is also necessary in the definition of the fragility to distinguish the difference between the result, the process and the problem of fragility (Piveteau, 1995).

It is therefore a **geographical approach of fragility** that is proposed by F. Bret but this approach has its own limits due to the fact that it is difficult to apply this method at a large scale as region or province. This approach is very interesting for the study of small rural or urban areas by attempting to identify and understand how society is evolving over time

[1] Ceramac = Centre d’Etudes et de Recherches Appliquées au Massif Central, à la moyenne montagne et aux espaces fragiles

toward a state of fragility. The rigor of such an approach makes it difficult indeed to go beyond the municipal level, or sub-communal. Moreover, this approach neglects the role of actors and capacity of local actors to impulse actions. F Bret does not refer to the problems of coordination and valorization of resources. Beyond the objective handicaps that may limit the development of a territory or increase its fragility, the failures of actors coordination, their inability to build close relationships and latent resources or participate in the specification of the latter, are all criteria necessary for understand the fragility.

Despite the numerous work and publications on fragile rural areas, some difficulties still remain in terms of theoretical but also empirical views. Theoretically, there is no specific conceptual approach to define fragile space (Rieutort, 2006, Couturier, 2005). That is why Couturier proposes two approaches:

A **systemic approach of fragility** which consider fragile areas as a systems that ' components and relationships between these components are marked by a low stability in the short or medium term "and strongly" dependent on external factors themselves labile and are not likely be influenced by the local systems'. This approach is like the model Centre / periphery that consider the dependency relations as fundamental to explain the phenomena of peripherality.

A **dynamic – action approach of fragility** "to which the initiatives of local actors are deployed in an environment unfavorable to their success and their synergy." So it is the environment in which the actions of local actors are deploying which is in question. This approach is considered as deterministic (Rieutort, 2006).

Nowadays, there is a "limit" to these theoretical approaches, as new dynamics in the fragile regions are ongoing, they result in part from mutations in the world context with globalization, and in the local context with the emergence of local (Guigou, 1997, Pecqueur, 2006). Moreover, in the last two above mentioned approaches, the very important temporal dimension is absent. Indeed it helps to understand how the process of fragility settled and how it is possible to be transformed from the state of fragile to the state of emergence or dynamism.

Wanting to go beyond the limits of both approaches in terms of peripheral, marginal and underprivileged space on the one hand, and the three approaches of fragility in terms of geographical, systemic and action perspective in the other hand, we propose a territorial issue putting in the center of this phenomenon the question of coordination between actors and construction of resources. Such an approach supposes to take into account the temporal dimension. Thus, if fragile areas exist today, this has not always been the case. The example of the highlands is significant. While some plains overvalued today were synonymous in the past of swampy areas infected by epidemics of all genres and mountain inhabited by high densities of population, and a remarkable flourishing economic activity, nowadays, the relationship was reversed (Sivignon, 1999). This transformation process takes years to settle, as the fragility or the dynamics of a space.

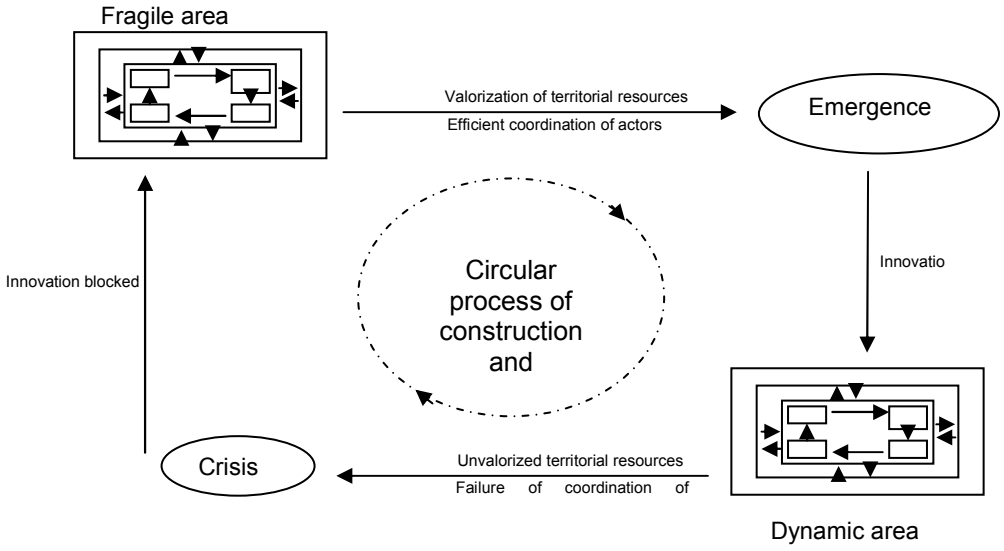
Thus our conception of fragile space attempts to introduce a dynamic dimension. The fragility of a space is not conceptualized as a state, as is the case of disadvantaged areas, or as the result of a set of relations of subordination to a dominant space. We define it as a complex process, a movement in time that has transformed space formerly well-integrated, to space today devitalized. This temporal dimension is important, because it removes all forms of determinism to this definition. In other words, if there is fragility, it is due to unfavorable conditions inside and outside the territory. This conception means as well, that a fragile space or become fragile can be transformed into a dynamic space, if the internal and/or external conditions are transformed and become favorable.

Fragility is for us a complex process of failure of internal and/or external coordination and

deconstruction of resources. By coordination internal/external we mean really the type of relationship between actors within and outside the territory. Reformulated otherwise, the fragility is the result of a non irreversible process of deconstruction of resources and relationships between the different actors, due to mutations in the internal as well as external environment. Even if objective handicaps are important to detect the unfavorable conditions (state of fragility), the two dimensions of internal and external coordination are determinant for the better understanding of the process in itself and its different degrees (Duquenne M.-N, 2009). Moreover, coordination requires proximity between actors and local societies which is not exclusively a geographic one. Consequently, it is necessary to take into account the level of proximity internally within the territory and then externally with the environment and therefore, propose appropriate indicators to identify these two facets of proximity. In definitive, to the objectives handicaps, our approach includes two others dimensions of fragility: the coordination between actors and the construction of resources.

Fragile areas are not condemned because the same process that affects them can be transformed to reconstruct both new resources and new forms of coordination. In this case, we must speak of innovation and innovative environments. The transition from a fragile state to a state of less fragility or dynamic is related to the action of actors - at various spatial scales -, especially as regards their ability to construct endogenous or exogenous resources and promote innovation. So it is a territorial approach that is underlying our definition based on the resources, coordination of actors and innovation. We can represent this by two design patterns, one reflecting the internal and external relations of the fragile space, the other circular, a loop of actions that can be positive or negative.

Fig1. Territorial approach to the concept of fragile space



The relevance of this loop (Fig1.) passing the territories from a state of fragility to a state of emergence or at least of new dynamic is illustrated through numerous studies (Kayser, 1993) and INSEE data on the new realities of fragile areas. From the fragile mountainous areas in the Massif Central to the small isolated rural area, Ryedale in North Yorkshire in the UK, new positive trends are evident everywhere in Europe. Globalization seems to challenge the dominant development model based on intensive agriculture, which is especially in disadvantaged areas. Farming is changing, new requirements appear, and they are benefit to fragile areas that have seized this opportunity. New offerings in terms of products of quality, and guaranteed quality label participate in the rehabilitation of agriculture in fragile areas. The global society propagates new values, new concerns (environment) as well as a new positive perception of the fragile rural areas. The low density, natural landscapes, rural amenities, lifestyle and even the isolation of fragile areas, especially mountainous strengths and become even resources that urban society wishes to consume. The service sector with tourism, small industries and handicrafts offer new opportunities and adapt to globalization. The low level of population in fragile areas seems to reverse at least in some territories. Also, there is "new

uses of space, combined with new socio-spatial practices (mobility, multi-residence), demonstrating a 'natural need' from urban populations" (Rieutort, 1997). It is clear that, those mutations transform certain fragile areas in emerging territories. These changes confirm our approach of fragility as a process not irreversible, but in constant mutation and the importance of both resources and coordination of actors that turn opportunities into new applications and projects.

The emerging new forms of rurality are very different from each other. The type of resources used and the nature of the coordination lead generally to varied models of rural societies (Houée, 1990). The fragility of these spaces is also changing, since according to the development model adopted, rural societies suffer more or less the constraints inherent in these models. Also to demonstrate the relevance of the loop action / feedback fragile rural areas, remember that 30-40 years old, fragile rural areas have experienced major changes, breakups, crisis and rebirth (Kayser, 1993). The demographic crisis has reduced the population of the French countryside from 40% of the total population in 1950 to 20% in 1994 (John, 1995). Perceived as structural (Beteille, 1981) this demographic crisis is fading, however, in the 1980s and 1990s and 2000s have witnessed a turnaround since the campaigns are gaining new residents (Diry, 1995), including campaigns fragile. The farm crisis then, which had influence greatly farmers is considered by Hervieu (1993) as a crisis of society and of civilization. Farm households that represent 48% of total households in 1950 are only 20% of the total (John, 1995). This agricultural crisis let however for the development of an industry "by specialized labor pool: the wood industry (Jura, Alps, Vosges), textiles and clothing *(Bas-Dauphiné, Vosges, Aube, Choletais, Vendée, Roanne, Sud Ardèche, Nîmes, Castres, Céret),* furniture, mechanical, food, stationery (Charente Valley), leather, footwear (Rochechouart Notron) etc.." (John, 1995, p. 20), industry which in turn enters into crisis in the 1980s. Finally, a third transformation in the countryside is the way to live and work. There is a separation between place of residence and work that generates part of demographic and economic renewal of rural areas from new residents. The rural fragile areas are transformed from territories of especially agricultural production to territories based on residential economy. The income received by the campaigns from their new permanent residents (commuters, retirees, new residents ...) and temporary (Tourists) dominate their new economic structures (Davezies, 2005, Talandier, 2007).

An approach that is complementary to what we propose is that of Laurent Rieutort (2006), which depend the fragility of «representations of each other,". This conception is joined by B. Prost (2004) "About the territorial margins, which are" a transitional element in the perception and organization attributed by men to the territory they represent, and P. Couturier (2005) for whom "the marginal areas are not subject to collective practices or representations, that may be embedded in processes of construction of their identity. "Now these imaginary are also put forward by local actors steeped in pejorative perceptions and wish to underline the fragility of their situation, or express a feeling of abandonment." This approach is quite complementary to our territorial approach of the notion of fragile space that, in the process of construction or deconstruction, the nature of the representations that are conveyed in the territory are crucial. They allow the awareness of disabilities but also the potential that may generate a new dynamic.

4. The evaluation of fragility: methodology and tools

From the methodological point of view, it is first necessary to highlight the lack of work about the concept of rural fragility. When they exist, they are limited and varied. Several authors also employ the term of fragility without giving a precise definition. The physicals criteria (topography, slope ...) are often most used with demographics variable. Both are supposed to have direct effects on employment and incomes of rural areas. The analysis often focuses on the agricultural sector since it dominates the countryside until the last decade. The proposed method aims to overcome these limitations by taking into account two fundamental characteristics of fragility as defined above: the complexity and temporality. They are

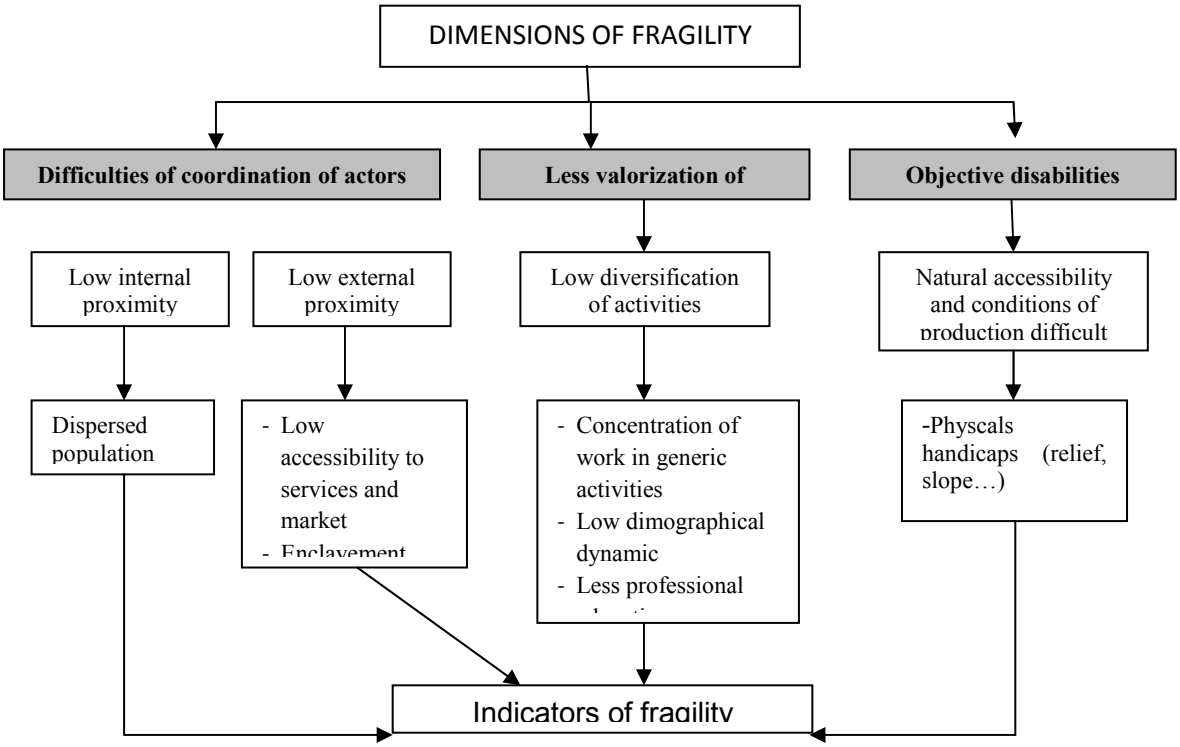
nevertheless interesting approach to define the fragile rural by authors like Gumuchian (1990), Bret (1991) and Simard (2003). These approaches are all trying to construct a summary measure of fragility.

This work is an effort in modeling and understanding the multiple facets of fragility by constructing a definition essentially operational. The method we propose is far from canalizing all the complexity of the phenomenon of the fragility of rural areas in some indicators. They suffer from two major constraints: lack of data on some phenomena at the local level, and the difficulty to transcribe some qualitative variables into quantitative data (perceptions). It is useful to propose new tools to better understanding the complexity of the rural fragility. We use original indicators built specifically to identify the phenomenon. However, the proposed indicators must be regarded as indirect measures of the three dimensions of fragility taking in account in this article. The use of sophisticated methods of factor analysis and k-means classification will allow us to achieve a typology that goes beyond traditional approaches in terms of underprivileged areas, marginal or peripheral.

The approach presented below is a macroscopic approach, applied to Greece. It is therefore based on geographical and socio-economic data at relatively disaggregated territorial units, namely the Greek demes. The demes are the primary components of administrative regions (LAU1 the European classification). In fact, at this scale can be collected in a systematic way, many data while the analysis at the second level of administrative units (Dimotiko diamerisma, LAU2) reduces substantially the field of study, because of lack of data. Most of the data are related to the last population census of Greece (2001). Moreover, the macroscopic approach requires that the chosen indicators are "clear", thus directly or indirectly quantifiable, easily interpretable and allowing to transcribe the various components of the phenomenon in space and in time.

In order to evaluate the three dimensions of rural fragility: objective handicaps, difficulties of coordination and degree of diversification of resources (see fig. 2), we have selected 15 indicators that can be considered at least as approximated measures that reflect the components of fragile areas.

Fig2. Methodological approach of fragile rural areas



a. The **objectives disability** referring to the mountainous terrain and physical disabilities that impede mobility and proximity. To evaluate these handicaps, we selected four (**4**) indicators:

- **Id1:** The average height of DD forming each deme, weighted by their respective population;
- **Id2:** the average height of the same DD weighted by their respective area;
- **Id3:** the part of population of deme living in a mountainous DD, as defined by the National Office of Statistics;
- **Id4:** the part of the area of the deme classified as mountain area by Esey.

b. The **coordination problems** although difficult to assess, the weakness of coordination can be approached by using indirect indicators. Coordination is evaluated in its internal and external dimension. The **internal proximity** or face to face, even if it is not sufficient to encourage people to cooperate, is a permissive condition for Coordination (Rallet, 1995). If the capacity of cooperation and coordination cannot be evaluated directly, we suggest using indirect measures reflecting the permissive condition. Two (**2**) indicators can reflect more or less the internal proximity:

- **Id5:** population density (inhabitants per km2), this indicator is generally very used in the analysis of the rural fragility;
- **Id6:** the part of population living in DD characterized by the National Office of Statistics, as urban. These are districts whose main town has a permanent population of more than 2,000 inhabitants.

The **External proximity** captures the degree of integration or marginalization of rural areas. It refers to accessibility to services that are largely concentrated in the center of the department and local employment areas. It is here approached through four (**4**) indicators are:

- **Id7:** the degree of contiguity of order k at the administrative center of the department. This level corresponds to the number of borders (k) to cross to go from one deme to the main town in the department;
- **Id8:** intensity of road infrastructure, measured by the number of km of roads to 10 km2. This ratio refers directly to the notion of accessibility;
- **Id9:** the intensity of alternant migrations between home and work. This indicator measures for each deme, the weight of alternate migrations compared to total assets residing in the same deme. Although this kind of mobility occurs mainly in and around urban areas, it was shown that it also presents in the rural areas, a high variability, reflecting a differential of spatial proximity that is not negligible (Duquenne, Kaklamanis, 2009);
- **Id10:** the autonomy of the labor market measures the ability of the deme to use its own assets. This indicator gives us the number of jobs of the deme provided by the active non-mobile for 100 reels jobs within the deme (jobs covered by the non-mobile assets and mobile assets whose place of residence is in another deme). It is between 0 and 100. A strong autonomy tends to be a failure in integrating the deme in regional economic activity, often coupled with a lack of attractiveness.

c. The **degree of diversification of economic and human resources**. Five (**5**) indicators have been selected to consider the capacity of valorization of local resources:

- **Id11:** the population change, measured between the two last population censuses (1991-2001). A net loss of population reflects the lack of attractiveness of the deme and therefore its difficulties to maintain the local workforce and the economic activities;
- **Id12:** the standard index of employment concentration (entropy). Calculated from the distribution of employment in the branches of economic activity, it evaluates the degree of diversification of the economy. Because this indicator has been normalized,

it is between 0 (absolute concentration) and 1 (equal distribution of assess between branches);

- **Id13:** The indicator of aging, ratio giving the number of persons aged 65 years and over per 100 inhabitants of the deme.
- **Id14:** The indicator of youth ratio giving the number of persons under 15 years per 100 inhabitants of the deme. This indicator permit to discuss about the issue of keeping young families in the deme, so that coupled with the previous indicator, it may reflect a permissive condition for future dynamics.
- **Id15:** The degree of higher education of the population at age of working. This indicator gives the number of persons who have acquired a higher education per 100 inhabitants aged 20 years and older. It can allow - at least indirectly – evaluating the ability of local population to valorizes its resources and know-how.

From all this indicators, we propose to conduct a principal components factor analysis. This gives us the possibility to synthesize voluminous and complex information by producing composite indicators of fragility (factor axes). From these new composite variables, it is possible to realize a classification of all demes studied according to their more or less pronounced fragility.

The approach presented below is a macroscopic issue, applied to Greece. It is therefore based on data collected at relatively disaggregated territorial units, namely the Greek demes. The demes are the primary components of administrative regions (LAU1 in the European classification). In fact, at this scale can be collected in a systematic way, many data while the analysis at the second level of administrative units (Dimotiko diamerisma, LAU2) reduces substantially the field of study, because of lack of data. Moreover, the macroscopic approach requires that the chosen indicators are "clear", thus directly or indirectly quantifiable, easily interpretable and allowing to transcribe the various components of the phenomenon in space and in time.

5. Implementation of the proposed methodology: the case of the provinces crossed by the new highway Via Egnatia in the Northern of Greece

Factor analysis and especially Principal Component Analysis has been implemented in order to detect the structure in the relationships between the selected 15 above indexes and to reduce the number of initial dimensions. The analysis concern the 200 local administrative units (LAU1), located in the North of Greece around the new Egnatia Road (see Fig. 3).

Using the Kaiser criterion (1960) which is the one most widely used, four (4) factors - with eigenvalues greater than one - have been retained. With a percentage of total variance accounted for by these 4 extracted components around 76%, the complexity of the initial dataset has been considerably reduced. The solution obtained can be considered as a satisfactory one: from 15 correlated dimensions, the dataset has been reduced to 4 uncorrelated dimensions. Moreover, the sampling adequacy measured by the Kaiser-Meyer-Olkin index is verified (KMO = 0,743) while extraction communalities that estimate the variance of each variable taking into account in the final solution, are all pertinent (more than 60% of the variance for 13 variables while the two other are higher than 46%).

Consequently, the degree of fragility relative to the 200 examined municipalities can be explained by the following uncorrelated components:

- The first one, which by itself explained over 43% of the total variance in the 15 variables, had high correlation with the 4 variables related to objective handicaps and can be interpreted has a measure of marginality due to **geomorphologic disability** and mountainous character.
- The second one, corresponding to 15% of the total variance, had high correlation 5 variables related with the capacity to diversify economic activities and valorize the local resources and consequently to offer to local population, perspectives of employment

(propensity for a municipality to employ its own labor force). Considering also the high correlation with labor mobility, this component can be interpreted as a **degree of economic diversification and integration** in the regional economy. In fact, developed home-to-work commuting from and to the municipality (Out and in flows) reflects the strength of functional linkages between this municipality and its regional environment.

- The third one, which explained 10% of the total variance, is correlated with 3 variables related to the demographic structure and the degree of urbanization of the municipalities and communes. There is an especially high correlation with the ageing index and the percent of young population less than 15 years old. This component can be interpreted as a **measure of human resources and demographic dynamics**.
- The last one, which explained around 8% of the total variance, is highly correlated with population density and density of road network and to some extent, with contiguity level of municipalities and communes with the main urban center of the province. This component can be interpreted as a **measure of proximity and permissive condition for coordination** between actors.

On the basis of these four new composite variables, we proposed to classify the 200 municipalities and communes, using the k-means cluster analysis method in order to detect different groups of municipalities and communes as regards their fragility's situation. The goal of this method is to obtain an appropriate partition of the 200 municipalities so that the local territorial units within a group have to be similar to one another but different from the territorial units included in other groups.

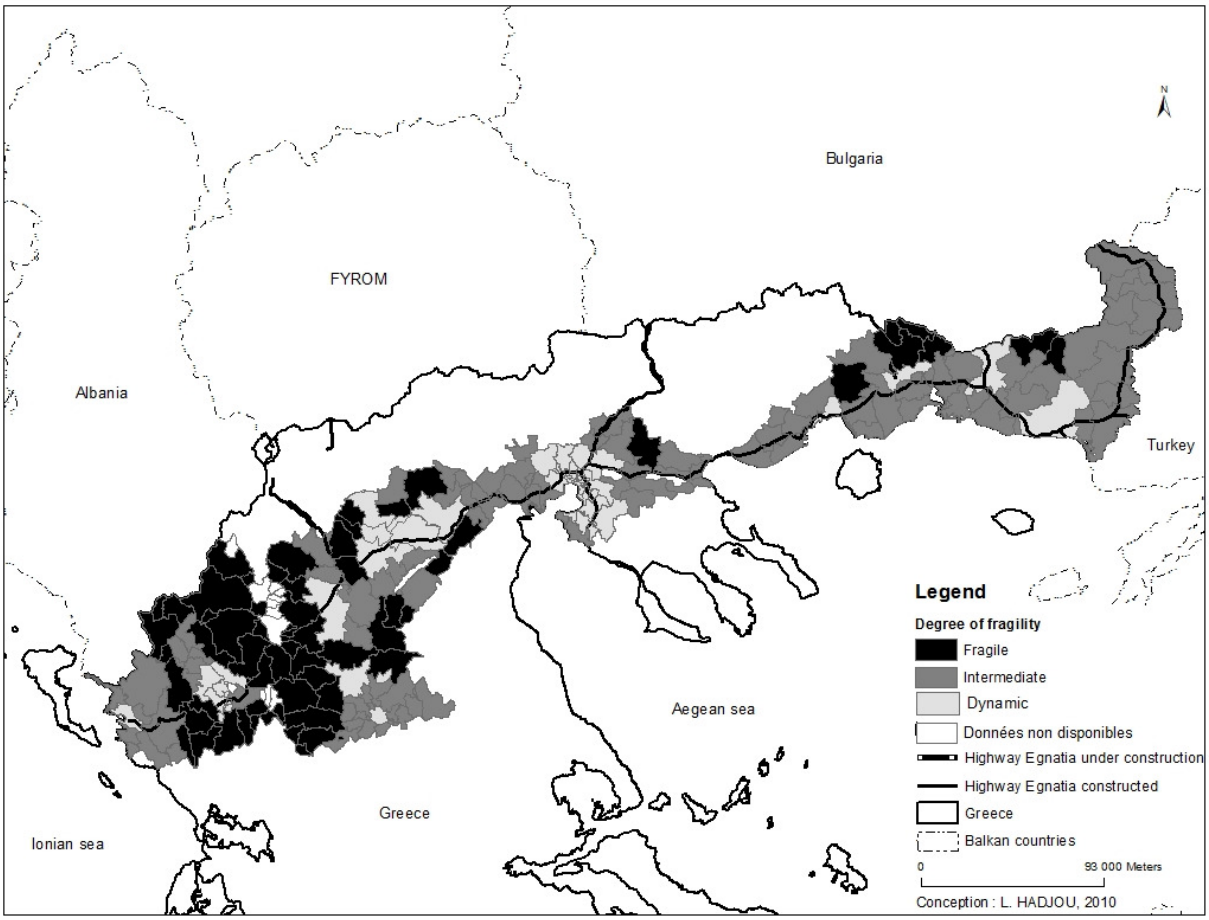
The implementation of this method allows us to detect three meaningful groups with final centroids clearly distinct.

- The first group incorporates 45 **dynamic urban or peri urban municipalities** (Fig 3) with an important demographic growth in between the two last censuses, around 35% on average. The majority of them are located at proximity of Thessaloniki, the most important urban center of Northern Greece. Moreover, all the administrative centers of the provinces cross by the new highway Via Egnatia are included in this dynamic group. These urban municipalities without objective handicaps, present high proximity indexes (internal and external) with a diversify production system and qualify labor force. As it was expected, they are also characterized by intense home-to-work commuting (table 1), especially in terms of incoming mobility, confirming their important attractiveness.

- The second group of municipalities is an **intermediate** one, presenting some aspects of fragile areas but not necessary in a very intense way. This group concerns nearly half of the examined municipalities and communes (95). With only 22% of the population living in urban areas[2], these municipalities are mainly rural. If they maintain their population, they nevertheless present a relatively high ageing ratio: the percentage of elderly people stood at 22% compared with only 13% for the dynamic municipalities.
  A large part of these intermediate territorial units are located in the region of Thraki, at the borders with Bulgaria and Turkey (North-East of Greece). Their relative fragility is a direct consequence of the geographical situation and remoteness from decision centers. The other municipalities included in this 2nd group are located in semi-mountainous areas of Ipiros, Central and Western Macedonia. If they are partly confronted to objective handicaps, they generally gain from relative proximity to urban centers (convenient accessibility) so that, they are still at least partially integrated in the regional economy.
  Finally, if the territorial units of the 2nd group are not in the present devitalized, they are confronted to some unfavorable conditions that they have to transcend, if they want to stop the process and develop new perspectives.

[2] As defined by the National Service of Statistics, a local territorial unit (LAU2: Dimotiko Diamerisma) is defined as urban if at least 2000 inhabitants live in its main commune.

Fig3. Degree of fragility of northern Greek municipalities (Δήμοι)



- The third group is composed of 60 municipalities and communes mainly located in the mountain of Ipiros. With only 11% of population living in urban areas as previously defined, these municipalities are mainly rural and present an **intense degree of fragility**. The population density is especially low (14 inhabitants by km^2) and at least three time less than the second group.
  The geomorphologic and demographic handicaps are strongly marked, comparatively to the previous group of territorial units. Most of these municipalities have a weighted altitude more than 700m. As we can observe, they are not anymore able to maintain their population and are confronted to a decrease in between the last two censuses about 10% by average. The ageing process is especially intense with a percent of ageing population greater than 30% while in some cases, it can reach 40%. Moreover, the median age is nearly 67 years old against 42 and 58 respectively for the 1st and 2nd groups.

Table 1: Main characteristics of the municipalities cross by the new Via Egnatia

	Groups of municipalities		
	Dynamic	Intermediate	Fragile
Number of municipalities	45	95	60
Population variation	34,5	-,4	-9,4
Average weighted altitude	220	183	777
Percent of population living in mountainous areas	3,7	7,3	91,2
Percent of mountainous surface	15,0	14,4	92,4
Population density	3339	50	14
Percent of urban population	79,5	22,5	11,1
Median age	36,3	44,2	50,1

Ageing ratio	13,5	22,5	30,2
Youngness ratio	17,1	13,9	11,6
Percent of High education level in population more than 20 years old	15,9	5,1	4,6
Contiguity index	,66	1,76	2,38
Road network density (km for 10 km^2)	36,7	3,9	2,7
Outgoing mobility	87,2	27,4	24,8
Ingoing mobility	58,3	9,6	8,2
Index of home-to-work commuting	,68	,25	,18
Index of entropy	,910	,725	,692

It is undeniable that all these fragile municipalities suffer from a lake of internal and external proximity. It is not only a question of lake of contiguity with the provincial administrative center (order of contiguity greater than 2) but also a question of low density of road network which brakes the home-to-work commuting and finally reinforces their objective handicaps. Contrary to the 2nd group, we can admit that the third group of municipalities is in an advanced stage of fragility with a deficient diversification of economic activities and services. This situation combined with the distance, explains that migration to urban centers is still continuing. For these municipalities, one of the new challenges is effectively how they could benefit of and valorize the recent highway Via Egnatia in order to reverse the actual tendency.

5. Conclusion

The territorial approach developed in this article, based on the three dimensions of Fragility, specifically the lack of coordination of actors, the low level of valorization of resource and the objective disabilities, proves its effectiveness in discriminating between the dynamic and fragile areas. This more clear approach allows us to go beyond the traditional approaches of fragile areas, since in addition to the factors of distance and objective disabilities, other indicators reflecting the organization of local territories are taken into account.

The implementation of this approach to the Greek municipalities crossed by the *Via Egnatia* highlight three groups with a degree of fragility more or less intense. It is important to underline the fact that some municipalities, even if they are characterized by high rates of disability in terms of objective handicaps and distance, are not classified automatically in the most fragile group.

Urban areas having a high degree of coordination of actors, a more diversification of resources and low disabilities are thus, classified as the least fragile of the region. The peri-urban areas, municipalities suffering from low degree of proximity to urban centers are classified as intermediate degree of fragility. The last group of municipalities that are heavily concentrated in Epirus combines, at the same time, objective disabilities, low internal and external proximity and a low degree of diversification.

Our methodological approach built on an original set of indicators and methods of factor analysis and classification permit to capture interesting dimensions of fragile rural areas that are generally neglected, specifically the permissive conditions of coordination betwen actors and the capacity to valorize local resources. This methodology of classification of spaces according to their more or less degree of fragility is of course very open and could be improved.

BIBLIOGRAPHY

Anthopoulou T., Duquenne M-N., Goussios D., 2000. Les espaces ruraux, l'agriculture et le développement de la Grèce, *in RAFAC., 2000. Agricultures familiales et développement rural en Méditerranée, Ed. Karthala et CIHEAM, 2000.*

Benoit M., Deffontaines J-P., Lardon S., 2006. Acteurs et territoires locaux, vers une géoagronomie de l'aménagement, Cemagref, Cirad, Ifremer, Inra, 2006.

Béteille R., Montagné-Villette S., 1995. Le « rural profond » français, receuillement de textes, SEDES.

Camagni R., Maillat D., Matteaccioli A., 2004. Ressources naturelles et culturelles, milieux et développement local, Neuchâtel, institut de recherches économiques et régionales, éditions EDES.

Ceramac., 2010. Développement durable des territoires : de la mobilisation des acteurs aux démarches participatives, sixième colloque franco-polonais, sous la direction de Ricard D.

Colletis-Wahl, Corpataux K., Crevoisier J., O, Kebir, L., Pequeur, B. et Peyrache-Gadeau, V., 2006. L'économie territoriale *Une approche générale pour mieux comprendre et faire face à la globalisation,* GRET.

Couturier P., 2007. Espaces ruraux marginaux ou fragiles : les catégories analytiques à l'épreuve des pratiques socio-spatiales dans le Haut-Forez, *in Norois., 2007. Recomposition des espaces ruraux, numéro 202.*

Diry J-P., 2004. Les espaces ruraux, Ed. Armand Colin, 2ème édition, Paris, 2004.

Glon E., 2007. Les ressources territoriales, une notion clé pour une meilleure re-connaissance des territoires dans le global, *in Les dynamiques territoriales débats et enjeux entre les différentes approches pluridisciplinaire, XLIIIè colloque de l'ASRDLF, Grenoble-Chambéry, 11, 12, 13 juillet 2007.*

Gumuchian H., Pecqueur B., 2007. La ressource territoriale, Ed. Economica.

Hadjou L., 2009. Les deux piliers de la construction territoriale : coordination des acteurs et ressources territoriales**,** Revue développement durable, Avril 2009, France.

Jean Y., 1995. Espaces ruraux : vers la marginalisation ou vers une identité nouvelle ?, in le « rural profond » français, textes rassemblées par Béteille R., Montagné-Villette S., 1995. SEDES.

Norois., 2007. Recomposition des espaces ruraux, numéro 202.

Norois., 1997. Crises et mutations agricoles et rurales, N°173, 44^{e} année.

Pecqueur, B., et Zimmermann, J.-B., 2004. Economie de proximités, Hermès.

Pecqueur B., Colletis G., 2004. Révélation de ressources spécifiques et coordination située, *in Colloque international sur " l'économie de proximité ", Marseille, 8-9 juin 2004,* Revue Economie et Institution.

Rieutort L., 1997. Les moyennes montagnes d'Europe occidentale : affaiblissement ou réadaptation des campagnes ?, *in Norois., 1997. Crises et mutations agricoles et rurales, N°173, 44^{e} année.*

Sivignon M., Auriac F., Deslondes O., Maloutas T., 2003. Atlas de la Grèce, Collection Dynamiques du territoire, Reclus, CNRS-Libergéo- La Documentation Française, 2003.

THE RELATION BETWEEN INDUSTRIAL AND SOCIO-ECONOMIC FUNDAMETALS IN GERMAN DISTRICTS

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Abstract
For the impartial observer of German regions, differences in regional industry structures and prosperity are quite obvious. On the one side, there are regions characterised by different industries, firm structures and labour qualification profiles. On the other side, some of these regions are prosperous, dynamic and growing in terms of inhabitants, labor force and income while others obviously suffer from high unemployment, low tax base and an unsatisfactory income situation. The analysis presented in this paper relates the regional industry structure to the socio-economic fundamentals that describe the regions' productivity, its income distribution and its population dynamics. The statistical model is based on the approach of moderated mediation. It is thereby able to show that the estimated relations are conditional on the degree of regions' centrality respectively remoteness. Moreover, the analysis distinguishes direct and indirect relations and therefore allows for an identification of the multiple dimensions of the potential effects of local industry structures in cultural, productivity and distributive terms.

Keywords
Rural development, socio-economic development, agglomeration, localisation, industry structure, labour qualification, moderated mediation

JEL Classification: R11, R12, O18, P25

1 Introduction

For the impartial observer of German regions differences in regional industry structures and prosperity are quite obvious. On the one side, there are regions characterised by heavy industries, or by primary production based on agriculture, fishery and/or forestry, or by a multitude of firms from manufacturing, or by hospitality industry, or by services in the finance and insurance industry, or by knowledge intensive production and services or by big industry. On the other side, some of these regions are prosperous, dynamic and growing in terms of inhabitants, labor force and income while others obviously suffer from high unemployment, low tax base and an unsatisfactory income situation. The analysis presented in this paper relates the regional industry structure to the socio-economic fundamentals that describe the regions' productivity, its income distribution and its population dynamics. The analysis differentiates between direct and indirect relationships between industry-structure and the socio-economic situation. In the estimation model, relations are conditional on districts' centrality, respectively remoteness.

Such an analysis might be judged as naive and simplistic for two reasons. From a methodological perspective, one cannot expect to identify causal effects of industry structures upon the economic development in such a cross-sectional analysis. The identification of these causal effects is not the purpose of the present analysis. It is content with a description of the observed relation between a multitude of different indicators that picture the local industry on one side and the socio-economic situation on the other. From a theoretical perspective, many might expect more subtle relations between local production and the socio-economic situation. According to standard economic theory, productivity differences should not be explained in terms of industry characteristics but rather in terms of firm- and region specific characteristics. At the same time, productivity differences should be the main reason for other differences in socio-economic aspects.

According to standard economic theories, there should be no difference in the income generating capability of different industries. According to respective models, the economy is in equilibrium as long as no exogenous disturbances occur. In this equilibrium, the marginal productivity of all factors of all activities are identical (Paci and Pigliaru, 1997). Accordingly, differences in income and income distribution should not depend on industry characteristics but rather on exogenous, fundamental site related factors. The evolutionary paradigm, in contrast, takes into account the possibility of endogenous dynamics. The course and the direction of endogenous dynamics depend upon decisions of economic actors themselves. In alternative economic models, the assumption of endogenous differences often relies on the argument of positive external effects of production. These general, not industry specific effects are usually referred to as urbanization effects. They are most famously introduced by Marshall (1890) and have been formalised based on specific assumptions and monopolistic competition by Krugman (1998). Thereby he founded the "New Economic Geography". In recent decades, most famously represented by Porter (1998), industry specific external effects of production, the localisation effects, have also been taken into account, in order to explain an uneven distribution of industries in space. Nevertheless, in these cases, differences in regional productivity have usually not been attributed to the prevalence of specific industries but rather to the clustering of these industries in space.

Industries' potential differences in economic productivity are mainly acknowledged by theories of a Schumpeterian origin. In respective models, profits and thereby growth are determined by innovative activities. Due to pioneering rents the most innovative firms and industries show the highest economic productivity and create the highest income. While these rents are of a temporary character principally due to the adoption of innovations by followers and their replacement in the course of creative destruction, it has frequently been observed that different industries differ in their propensity for innovation. Accordingly, "countries specialised in technological areas with opportunities for higher rates of productivity growth might be in a better position to achieve fast overall growth" (Jungmittag, 2004:248). Jungmittag (2007) analyses the relation between total productivity growth and employment shares in different sectors which are divided according to their knowledge intensity. He finds a significant correlation between shares in high- and medium technology production and knowledge intensive services on the one side and productivity growth on the other side. Pavitt (1984) provides a taxonomy of patterns of innovation which is based on industry-specific characteristics (Castellacci, 2006). He differentiates manufacturing industries into science based, scale intensive and supplier dominated sectors and specialised suppliers.

In the innovation based "evolutionary view, the impact of innovation on the international competitiveness of industries must therefore be analysed within a complex framework comprising both, the broader systemic context shaping innovative activities, and the sectoral specificities that characterize the creation and diffusion of knowledge" (Castellacci, 2008). Due to long-term endogenous differences between regions and given exogenous differences in site-specific factors, absolute convergence will not be reached with industry specific differences in productivity if different industries have different requirements with respect to their location. Especially, different industries might take differing advantages of urbanisation and localisation effects. Specifically, evidence and theory imply that it is mainly knowledge intensive industries with high propensity for innovation that profit from agglomeration effects. Therefore, peripheral regions might be disadvantaged because their industry mix is less knowledge based and those firms in peripheral regions that belong to knowledge based industries might be less productive due to the lack of positive external effects of production. Nevertheless, these negative effects might differ across industries. Accordingly, preferable industry compositions might differ for agglomerated and for peripheral regions.

Once the rigid assumptions of standard economic theory is dropped, it becomes evident that not only total productivity and prosperity of regions might be linked to the local industry mix but income distribution as well. As Sener (2001:121) writes, standard models ignore "dynamic linkages between trade, technological change, and labor markets". Nevertheless, alternative Schumpeterian models of economic growth have been developed (Dinopoulos and Segerstrom, 1999; Sener, 2001), which show that if higher degree of innovative activity causes a higher relative demand for skilled labour it may go along with a rise in the relative

wage of skilled workers and a rise in the unemployment rate of less-skilled workers. The regional industry mix might therefore have significant implications for the local income distribution. Depending on the mobility of different kinds of labour it will thereby also affect regional development in terms of population dynamics.

Important political consequences result. Under the standard economic assumptions there is no necessity to support a change in industry structure in order to support regional convergence. Instead, efficiency and the amelioration of productivity would have to be supported irrespective of regional industry mix. If the relation between industry mix and productivity that is implied by innovation based approaches would be confirmed, in contrast, addressing the productivity of existing industries might not suffice in order to support regional convergence. Instead, the local reallocation of resources between industries would have to be supported (Fagerberg, 2000).

Based on these insights we postulate that a region's wealth and income distribution should at least partly be explained by its industry structure, i.e. by its industry composition, the size of its firms and the qualification of its labour. This analysis is a modest first attempt to get an idea of the observable relation between local industry structures in agglomerated and peripheral regions on the one side and regional wealth and income distribution on the other.

2 Indicators and measurement issues

In this study, economic fundamentals of districts are related statistically to the local industry structure and the districts' remoteness. The economic fundamentals to be explained are the district's GDP per inhabitant, its unemployment rate, mean wages paid in the district, mean household income, the district's tax receipts and its population development (Table 1). Industry structure is defined by the qualification of the work force, the size distribution of firms (Table 1) and by the industry mix. The local industry structure is characterised by the firm size distribution and the qualification of employees (Table 1) and by the share of employees in different industry on the two-digit level of the NACE classification.[1] Some industries were omitted from the analysis due to problems with missing values due to disclosure rules.[2] Remoteness is measured with three indicators, the distance to the next regional metropolis, the distance to the next highway and the district's population potential (Table 1).

[1] Due to space restrictions, statistics on the 63 variables from manufacturing and non-manufacturing industries are not presented here. The complete presentation of data, methodology and results can be found in a technical report (Margarian, 2013).

[2] There were too many missing values in all activities related to mining (NACE section B, two-digit classification industries 5 to 9). The same applies to manufacturing of tobacco products (12), manufacture of coke and refined petroleum products (19), water transport (50), air transport (51), programming and broadcasting activities (60) and creative, arts and entertainment activities (90).
We deliberately did not take into account those "industries" that represent ubiquitous public services and therefore have little potential for industry differentiation, specifically water collection, treatment and supply (36), sewerage (37), remediation activities and other waste management services (39), public administration and defense, compulsory social security (84), Education (85), residential care activities (87), social work activities without accommodation (88) and libraries, archives, museums and other cultural activities (91). Also not included were all industries starting from section S or industry 94 upward.

Table 1: Size of firms, qualification of labour and socio-economic fundamentals in the districts

Variable	Label	N	Mean	Std Dev	Min	Max
Share of employees 2007: (data from Federal Labour Office)						
ShareLargeFirms	Share of firms with 250 and more employees	372	0.42	0.17	0.00	0.96
ShareSmallFirms	Share of firms with one to nine employees	372	0.08	0.04	0.00	0.31
ShareMedFirms	Share of firms with 100 to 249 employees	372	0.19	0.07	0.00	0.46
ShareHighqual	Share of employees with university degree	372	0.04	0.03	0.01	0.26
ShareAddqual	Share of employees with university entrance and occupational qualification or with polytechnic degree	372	0.08	0.03	0.02	0.23
ShareNoqual	Share of employees without occupational or university entrance qualification	372	0.18	0.06	0.05	0.37
DominantFirm	Share of "lost" employees due to disclosure rules as indicator for the dominance of one to three large firms within specific industries	371	0.07	0.08	0.00	0.60
Other indicators for socio-economic situation: (Data from INKAR)						
PopPotential	Weighted population within a radius of 100 km (in 1000), 2008	371	432.88	392.33	50.60	2,308.60
DistCity	Journey time to the next regional metropolis (minutes), 2010	371	28.77	18.11	0.00	79.60
DistHighway	Journey time to the next highway (minutes), 2010	371	14.49	9.60	0.40	63.30
Income	Household income, 2007 (Euro/inhabitant)	371	1,506.53	196.96	1,117.10	2,397.00
Unempl	Unemployment, 2008 (in percent)	371	8.31	4.25	1.90	21.50
Wages	Wages, 2007 (Euro/employee/month)	371	2,648.42	355.04	1,880.50	4,124.30
GDP	Gross domestic product (GDP), 2007 (1000 Euro/inhabitant)	371	27.40	10.02	15.10	83.50
Tax	Tax receipts, 2008 (Euro/inhabitant)	369	644.35	215.11	238.90	1,912.20
PopDev	Population development, 2003-2008 (in percent)	371	-1.27	2.83	-9.00	6.50

Source: Own calculation based on data from sources named in the Table

2.1 Factor analysis

In order to handle the large number of indicators that characterise industry structure and remoteness on the right hand side of the regression equation, two separate factor analyses were conducted for the measurement of remoteness and industry structure. Factor analyses allow to capture the larger part of the information contained in a number of indicators within a smaller number of artificially constructed indicators, the factors. Therein, the covariance between factors is minimised and the common variance of indicators within factors is maximised. Depending on the common variance of the indicators, their contribution to each factor is weighted by the so called factor loading. A high factor loading shows that an indicator contributes a high share to the common variance of all indicators combined within a factor.

In the present analysis we rely on principal component analysis, a specific type of factor analysis that aims at the reproduction of the structure of data by a minimised number of factors (Backhaus et al., 2003). Each factor, or principal component, explains a specific share of the variance of all indicators, which is expressed by the factor's eigenvalue. Technically spoken, the principal component analysis aims at a reproduction of the correlation matrix that forms the starting point of the factor analysis. The communality, i.e., the share of the variance to be reproduced, is always assumed to be one in the principal component analysis as in contrast to the explanatory factor analysis. The variance of all indicators is distributed such that the variance of all indicators can be captured by a minimised number of factors. Finally, those coefficients, or factor loadings are calculated, which describe the quantitative relation of

the single indicators to the common factors. The squared factor loading equals the share of the variance of an indicator that is explained by the factor. All squared factor loadings of a variable sum up to its communality, i.e., to the share of the indicator's variance that is captured by the factors. The eigenvalue of a factor, on the contrary, describes the share of the variance of all indicators that is ascribed to the factor. Usually, only those factors with a relatively high share in the reproduction of the variance of all indicators are extracted. Geometrically, these factors can be seen as axes of a coordinate system. A rotation of theses axes often enables a more unambiguous attribution of indicators to specific factors and therefore facilitates interpretation without damaging the analysis' validity (Backhaus et al., 2003).

With respect to the measurement of remoteness, one single factor was created in a principal component analysis based on the three indicators (see Table 1). With a scree-test we test the adequateness of the selection of a single factor. The scree-test is based on a graphic representation of the share of total variance that can be explained by each additional factor. If the resulting curve kinks downward at one place, the optimal number of factors is determined by the last factor previous to the kink. With respect to remoteness, the scree-test clearly confirms the selection of one single factor. Moreover, only the first factor has a eigenvalue larger one. With a eigenvalue of 1.44 it explains significantly more from the overall variance than its own variance and therefore complies to the Kaiser-criterion for the determination of the number of factors. The Kaiser-Meyer-Olkin criterium tests for undesired endogenity of indicators. Its value of 0.67 is sufficiently high in order to justify the factor analysis with our three indicators. The unexplained variance aside the main diagonal is 0.057 in the mean, which indicates that the deviation of the reproduced matrix from the original matrix is sufficiently low. Factor loadings of the factor that describes remoteness are presented in Table 2.

Table 2: Loadings of variables on the remoteness factor

	Loadings factor "remoteness"
PopPotential	-0.60
DistCity	0.75
DistHighway	0.71

Source: Own calculation based on data from Table 1

2.2 Measurement of industry mix

Obviously, the number of variables would get far too large for an estimation if all industry shares were included separately. Therefore, as in the case of the measurement of remoteness, factors were created in order to capture the relevance of groups of industries that are commonly located close to each other in the different districts. As in the measurement of remoteness we rely on principal component analysis (see above). Eight factors were selected (Table 3).

Table 3: Industry factors and loadings of 0.2 and higher of the underlying variables

		Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Factor8
Ind69	Legal and accounting activities	0.76	.	.	.	.	.	.	0.25
Ind66	Activities auxiliary to financial services and insuranc	0.73	.	.	.	.	.	.	.
Ind64	Financial service activities, except insurance and pen	0.73	.	.	.	.	.	.	.
Ind73	Advertising and market research	0.68	.	.	.	.	.	.	.
Ind65	Insurance, reinsurance and pension funding, except c	0.58	.	.	.	.	.	.	.
Ind70	Activities of head offices; management consultancy a	0.58	.	.	.	.	.	.	.
Ind79	Travel agency, tour operator reservation service and	0.51	.	.	.	.	.	.	.
Ind58	Publishing activities	0.46	.	.	.	.	.	0.23	.
Ind63	Information service activities	0.38	0.21	.	.	.	.	.	.
Ind74	Other professional, scientific and technical activities	0.38	.	.	0.20	.	.	.	.
Ind61	Telecommunications	0.34	.	.	.	.	.	.	.
Ind92	Gambling and betting activities	0.27	.	.	.	.	.	-0.20	.
Ind59	Motion picture, video, and television programme pro	0.26	.	.	.	.	.	0.21	.
Ind71	Architectural and engineering activities; technical tes	.	.	.	.	.	.	.	.
Ind68	Real estate activities	0.29	0.60	.	.	-0.24	.	.	.
Ind49	Land transport and transport via pipelines	.	0.57	.	-0.22	.	.	.	.
Ind38	Waste collection, treatment and disposal activities; m	-0.25	0.56	.	.	.	.	.	.
Ind81	Services to buildings and landscape activities	.	0.54	.	.	.	.	.	.
Ind80	Security and investigation activities	0.25	0.47	.	.	.	.	.	.
Ind82	Office administrative, office support and other busin	.	0.43	.	.	-0.25	.	.	.
Ind78	Employment activities	.	0.38	.	.	.	-0.26	.	.
Ind53	Postal and courier activities	.	0.31	.	.	.	.	.	.
Ind35	Electricity, gas, steam and air conditioning supply	.	0.30	.	0.24	.	.	.	.
Ind33	Repair and installation of machinery and equipment	.	0.20	.	.	.	.	.	.
Ind15	Leather and related products	.	.	.	.	.	.	.	.
Ind18	Printing and reproduction of recorded media	.	-0.26	.	.	.	.	.	.
Ind14	Wearing apparel	.	-0.26	.	.	.	.	.	.
Ind31	Furniture	.	-0.29	0.28	.	.	.	.	.
Ind32	Other manufacturing	.	-0.31	.	.	.	.	.	.
Ind22	Rubber and plastic products	.	-0.33	0.26	.	.	.	.	.
Ind27	Electrical equipment	.	-0.43	.	.	-0.31	.	.	.
Ind25	Fabricated metal products except machinery and equ	-0.22	-0.46	.	-0.32	-0.37	.	-0.29	.
Ind28	Machinery and equipment	.	-0.54	.	.	.	.	.	.
	ShareNoqual	.	-0.66	.	.	.	.	-0.30	.
Ind16	Wood and products of wood and cork except furnitu	.	-0.32	0.63	.	.	.	.	.
	Share of workforce in Agriculture	.	.	0.62	.	0.39	.	.	.
Ind41	Construction of buildings	.	.	0.59	.	.	.	.	.
Ind02	Forestry and logging	.	.	0.56	.	.	.	.	.
Ind43	Specialised construction activities	-0.26	.	0.44	.	0.31	.	.	.
Ind23	Other non-metallic mineral products	.	.	0.39	.	.	.	.	.
Ind42	Civil engineering	.	0.26	0.31	.	.	.	.	.
	DominantFirm	.	.	.	0.83	.	.	.	.
Ind29	Motor vehicles, trailers and semi-trailers	.	.	.	0.69	.	.	.	.
	ShareLargeFirms	.	.	-0.31	0.66	.	.	.	.
Ind30	Other transport equipment	.	.	.	0.42	.	.	.	.
Ind11	Beverages	.	.	0.20	0.30	.	.	.	.
Ind21	Basic pharmaceutical products and pharmaceutical p	.	.	-0.24	0.24	.	.	0.24	.
Ind17	Paper and paper products	.	.	.	0.21	.	.	.	.
Ind20	Chemicals and chemical products	.	.	.	.	.	.	.	.
	ShareMedFirms	.	.	0.25	-0.51	.	-0.20	.	0.22
Ind75	Veterinary activities	.	.	.	.	0.58	.	.	.
Ind47	Retail trade except of motor vehicles and motorcycle	.	.	-0.27	.	0.58	.	.	.
Ind45	Wholesale and retail trade and repair of motor vehicl	.	.	.	.	0.47	.	.	.
Ind10	Food products	.	.	0.24	.	0.45	.	.	.
Ind46	Wholesale trade except of motor vehicles and motorc	.	-0.28	-0.27	-0.27	0.36	.	.	-0.34
Ind55	Accomodation	.	.	.	.	.	0.88	.	.
Ind03	Fishing and aquaculture	.	.	.	.	.	0.72	.	.
Ind56	Food and beverage service activities	.	.	.	.	.	0.71	.	.
	ShareSmallFirms	.	.	.	-0.37	.	0.48	.	.
Ind93	Sports activities and amusement and recreation activi	.	0.21	.	.	.	0.25	.	.
Ind13	Textiles	.	.	.	.	.	.	.	.
	ShareHighqual	.	.	-0.22	.	.	.	0.61	.
	ShareAddqual	.	.	-0.41	.	.	.	0.54	.
Ind72	Scientific research and development	.	.	.	.	.	.	0.47	.
Ind26	Computer, electronic and optical products	.	-0.41	.	.	-0.24	.	0.45	.
Ind62	Computer programming, consultancy and related acti	0.30	.	-0.21	.	.	.	0.41	.
Ind24	Basic metals	.	.	-0.33	.	-0.24	.	-0.41	.
Ind86	Human health activities	.	.	.	.	.	.	.	0.72
Ind77	Renting and leasing activities	0.24	.	.	.	.	.	.	-0.39
Ind52	Warehousing and support activities for transportatior	.	0.24	.	.	0.21	.	.	-0.43

Note: Values < 0.2 not printed

Source: Own calculation based on data on employment shares calculated from data from Federal Labour Office

The scree-test in this case did not provide unambiguous guidance. The eighth factor is the last factor to have an eigenvalue larger one. The selection of eight factors therefore complies to the Kaiser-criterion. The Kaiser-Meyer-Olkin criterium shows a value of 0.78 and therefore confirms the adequateness of a factor analysis based on our indicators for local industry structure. The unexplained variance aside the main diagonal is 0.037 in the mean, which indicates that the deviation of the reproduced matrix from the original matrix is sufficiently low. The rotated factors are well interpretable. Factor 1 is mainly constructed by services related to financial, legal and market services. They might be summarised as business or professional services (Table 4).

Table 4: Characterisation of factors by industry and innovation type

Factors		Production		Service
	Type	Type	Innovation type	Type
Factor1	Service			Professional
Factor2	Production	Simple	Specialized supplier	
Factor3	Production	Primary and related	Supplier-dominated	
Factor4	Production	Large scale/motor vehicles	Scale intensive	
Factor5	Service	Food related		Trade
Factor6	Service			Recreation
Factor7	Production	Knowledge intensive	Science-based	
Factor8	Service			Health

Source: Own figure

Factor 2 shows that there is a polarisation between regions that are characterised by low level professional services and regions that are characterised by production activities and a high share of unqualified labour. We decided to define the factor via the latter pole. Therefore, the signs of the factor's loadings are reversed, and a high value of factor 2 accordingly implies the prevalence of a high share of simple production activities (Table 4), specifically of metal production including machinery and equipment. Respective firms are often organised as "specialised suppliers". Therefore this factor corresponds to the respective innovation pattern in Pavitt's (1984) classification (Table 4; see chapter 1). Factor 3 has high loadings on activities related to construction or primary production. Especially primary production is characterised by rapid technical progress, but this technical progress is imported from upstream sectors. The factor therefore is related to the supplier-dominated innovation pattern as it is described in Pavitt's taxonomy. Factor 4 has high loadings on the indicator for dominant firms and on the share of large firms as well as on the production of motor vehicles and other transport equipment. The factor therefore reflects industries that belong to the scale intensive innovation pattern in Pavitt's taxonomy. Factors 5 and 6 are created based on services related to trade and recreation respectively. Factor 7 has high loadings on activities related to research and development and on highly qualified employees, which support knowledge intensive types of production. It therefore relates to the science-based innovation pattern in Pavitt's taxonomy. Factor 8 is defined by its high loading on health related services.

3 Estimation

The economic fundamentals described in the last chapter are not independent from each other. Accordingly, if one wishes to comprehensively address the relation between industry structure and the local socio-economic situation as it is depicted by the six indicators, a simultaneous estimation approach needs to be applied that accounts for the indicators' partial endogeneity. Here, the model is formulated in a mediation approach, which allows testing direct impacts of variables upon each other as well as indirect effects, i.e., effects that are mediated by another additional variable. The construction of the model to be estimated is guided by a simple logic of causation: It is assumed that the local economic productivity (GDP) is the most

fundamental indicator that is determined by industry structure. GDP per inhabitant in turn partly determines unemployment, both are influential upon wages. BIP, unemployment and wages partly determine household income, all of them influence local tax revenues, and finally, regional demographic development depends upon all the other variables. Additionally, each one of the socio-economic indicators is assumed to be directly affected by industry structure. Accordingly, each of the indicators besides GDP is additionally indirectly influenced by industry structure via their dependence on the other variables in the chain. Finally, each of these effects is allowed to differ between agglomerated and peripheral regions (remoteness). In all regressions a west-east dummy is included in order to control for the historically caused fundamental differences in industry, employment and demographic structures between regions in the former West and East Germanys.

The mediation approach allows testing direct impacts of variables upon each other as well as indirect effects, i.e., effects that are mediated by another additional variable. The idea of mediation is conceptually a challenge while it is rather easy to implement technically. Mediation models simply consist of a series of regressions with a subsequent inclusion of mediation variables (Hayes, 2012). In the following explanation, we relinquish from the inclusion of the interaction terms and thereby simplify our moderated mediation approach to a simple mediation approach in order to facilitate understanding. Remoteness is therefore treated as if it were an exogenous control variable in the principal explanation. In order to identify the indirect effects of the exogenous variable on the endogenous variable via the *m* mediators, *m+1* models are estimated in an overarching logical model with a hierarchical causal structure. The first model explains the first mediator (*GDP*) in terms of the exogenous variables (*West* and *Remote*) and the *n* covariates (the industry factors, $Industry_i$):

$$GDP = \beta_{10} + \beta_{11} West + \beta_{12}\,\mathrm{Re}\,mote + \sum_{1}^{i}\left[\beta_{1;i+2} Industry_i\right] + e_1 \quad (5)$$

The second model explains the second mediator (*Jobless*) in terms of the exogenous variables, the covariates and the first mediator:

$$Jobless = \beta_{20} + \beta_{21} West + \beta_{22}\,\mathrm{Re}\,mote + \beta_{23} GDP + \sum_{1}^{i}\left[\beta_{2;i+3} Industry_i\right] + e_2 \quad (6)$$

The third (*m*th) model explains the third mediator ($Mediator_m$) in terms of the exogenous variable and the first and second (*n*th) mediator ($Mediator_n$) and so on:

$$Mediator_m = \beta_{m0} + \beta_{m1} West + \beta_{m2}\,\mathrm{Re}\,mote + \sum_{1}^{m-1}\beta_{m;n+2} Mediator_n + \sum_{1}^{i}\left[\beta_{m;i+m+2} Industry_i\right] + e_m \quad (7)$$

$\beta_{m;n+2}$ determines the direct effects of the mediators and $\beta_{m;i+m+2}$ determines the direct effects of the covariates upon the mediator on the left hand side of equation (7). The indirect effects of the covariates upon the different endogenous variables via selected mediators is calculated by the multiplication

- of the estimated effect of the covariate under interest upon the first mediator upon interest
- with the estimated effect of this first mediator upon the following mediators under interest in the causal chain
- with the estimated effect of the last mediator under interest in the causal chain upon the endogenous variable under interest.

A summation of all direct and indirect effects gives the total effect of a covariate upon any of the endogenous variables ($SocioEconomic_n$). The total effect could also be estimated as

$$SocioEconomic_n = \beta_{n0} + \beta_{n1} West + \beta_{n2}\,\mathrm{Re}\,mote + \sum_{1}^{i}\left[\beta_{n;i+3} Industry_i\right] + e_n \quad . \quad (8)$$

The total effect may be insignificant despite significant direct and indirect effects if the signs of single effects are oppositional. The assessment of the significance of indirect effects necessitates some further calculations. As we not only deal with mediation but simultaneously introduce moderator variables, i.e. multiplicative interactions among explanatory variables, matters get further complicated (see Margarian, 2013, Figure 1). The different regressions to be estimated in this case have the following structure with interaction effects:

$$Mediator_m = \beta_{m0} + \beta_{m1} West + \beta_{m2} \,\mathrm{Re}\, mote + \sum_{1}^{m-1} \beta_{m;n+2} Mediator_n + \sum_{1}^{i} \left[\beta_{m;i+m+2} Industry_i\right] + \sum_{1}^{i}\sum_{1}^{j} \left[\beta_{m;2(i+m)+2} Industry_i Industry_j\right] + \sum_{1}^{m-1} \beta_{m;3(i+m)+2} Mediator_n \,\mathrm{Re}\, mote + \sum_{1}^{i} \left[\beta_{m;4(i+m)+2} Industry_i \,\mathrm{Re}\, mote\right] + \sum_{1}^{i}\sum_{1}^{j} \left[\beta_{m;5(i+m)+2} Industry_i Industry_j \,\mathrm{Re}\, mote\right] + e_m \quad (9)$$

This implies that we expect to find a relation between the prevalence of specific industries and different indicators of a district's socio-economic situation. This relation is assumed to be conditional upon, or moderated by, the prevalence of a second important industry as indicated by the interaction between industry factor *i* and industry factor *j*. This moderated effect is assumed to be partially mediated by the relation between industry structure and other socio-economic indicators. This mediation is accounted for by the sequential regression of hierarchically models that build upon each other by the sequential introduction of mediating variables. The mediated effect is calculated by the subsequent multiplication of coefficients as explained above. Nevertheless, in order to complicate matters further, equation (9) shows that the direct industry effect as well as the mediated industry effect are assumed to be conditional upon, or moderated by, the remoteness factor. This is indicated again by the three last interaction terms in equation (9). Thereby the direct relation of the prevalence of a specific industry type as well as its indirect relation to one of the socio-economic dimensions via other socio-economic dimensions are allowed to differ, depending on districts' remoteness.

Even in this case, the calculation of conditional indirect effects via the product of coefficients method (Preacher et al., 2007) as described above is rather unproblematic. Nevertheless, working with interaction effects introduces some specific difficulties in the interpretation of coefficients as the different coefficients need to be combined, and the effect often depends on the level of the intervening variable itself. Standard errors, too, need to be corrected taking into account the correlation of variables with the interacted terms. In the calculation of the significance of estimated overall effects the covariance between distinct estimators needs to be taken into account (Aiken and West, 1991).[3] We present marginal overall-effects whose combined significance is evaluated separately for each observation in the final model to be presented below. Preacher et al. propose a bootstrapping approach to the calculation of standard errors and confidence intervals. This is the preferred method as the alternative normal theory based approach's assumptions concerning the normal distribution of effects does often not apply for conditional indirect effects, i.e., for moderated mediated effects.[4] Despite this problem, the analysis in this paper relies on the normal theory based approach, which has also been described by Preacher et al. (2007). The reason for this choice is simple: Due to the various mediators, moderators and the large number of relevant covariates the bootstrapping approach is too computational intensive to be practicable for us. We implement the normal theory based approach as it is described by Preacher et al. (2007) in STATA.[5] The

[3] For a more detailed treatment see the technical report (Margarian, 2013). See also Aiken and West (1991) and https://files.nyu.edu/mrg217/public/interaction.html#code

[4] For an assessment of different test of the significance of mediated effects refer also to MacKinnon et al. (2002).

[5] There is a very good description of the possibility to implement moderated mediation in STATA on http://www.ats.ucla.edu/stat/stata/faq/modmed.htm. The most flexible and easily accessible approach in

"nlcom" (non-linear combination) command we use in STATA in order to calculate mediated effects and their standard errors from the original separate regressions computes the standard errors using the delta method which assumes that the estimates of the indirect effect are normally distributed (UCLA, 2013).

The results show the kind of relation between industries and socio-economic fundamentals, they help to distinguish between direct and indirect (mediated) effects and they allow assessing, whether relations are significant in central, medium and remote locations. The resulting moderated and mediated effects for different combinations in the levels of the mediating and moderating variables with their point-specific significances are discussed in the following chapter.

4 Selected results

The results of the initial seemingly unrelated regression (SUR) on which the calculation of marginal effects is based (Table 5) give a first impression of the relations between endogenous and exogenous variables and the industry covariates (f1 to f8) and their interactions (fxfv). The Table has been abbreviated in that not all interaction coefficients are presented. With concern to them, only the marginal effects and their significance is informative. The Table gives a condensed overview that allows for an intuitive understanding of the estimation: In the first two columns only the covariates explain the first mediator variable (*GDP*). The first column shows the estimated effects for central regions, the second column shows the change in respective coefficients for remote regions. Professional services (f1) for example, relate accordingly to the initial SUR, positively to GDP in central regions (coefficient 1.72) and only slightly less positively (-0.20, insignificant difference) in remote regions. The R-squares reported in Table 5 show the relatively high explanatory power of the models as they reach values around 0.9.

Table 5: Estimation results from the seemingly unrelated regressions

	GDP	Remote	Jobless	Remote	Wage	Remote	Income	Remote	Tax	Remote	Population	Remote
Inter-cept	20.87 ***	0.95	11.29 ***	0.33	2410.0 ***	5.6	1464.2 ***	-34.2 *	623.9 ***	-6.7	-1.377 *	0.094
	(1.44)	(0.71)	(0.63)	(0.31)	(35.5)	(17.0)	(35.6)	(15.8)	(26.9)	(11.6)	(0.609)	(0.261)
tax											0.000	0.005 *
											(0.001)	(0.002)
income									0.1 **	0.0	-0.001	0.000
									(0.0)	(0.1)	(0.001)	(0.001)
wage							0.0	0.1	0.2 ***	0.0	0.001	0.001
							(0.1)	(0.1)	(0.0)	(0.0)	(0.001)	(0.001)
jobless					-4.5	0.3	-12.8 ***	4.8	-10.8 ***	-2.1	-0.449 ***	0.008
					(3.2)	(3.2)	(2.9)	(3.0)	(2.2)	(2.3)	(0.052)	(0.059)
GDP			-0.13 ***	-0.01	13.8 ***	6.4 ***	3.9 *	-1.1	8.4 ***	0.3	0.016	-0.081 *
			(0.03)	(0.03)	(1.6)	(1.9)	(1.7)	(2.0)	(1.2)	(1.5)	(0.031)	(0.037)
f1	1.72 *	-0.20	0.38	0.22	33.6 *	-73.3 **	45.0 **	14.1	30.2 *	-33.0 °	0.668 *	0.102
	(0.73)	(0.99)	(0.31)	(0.42)	(17.1)	(23.0)	(15.9)	(23.1)	(11.9)	(17.5)	(0.273)	(0.398)
f2	0.78	-0.48	-2.15 ***	0.22	37.9 *	24.1	51.3 ***	16.3	0.4	3.8	-0.689 **	-0.537 °
	(0.58)	(0.65)	(0.25)	(0.28)	(15.1)	(19.6)	(14.1)	(18.3)	(10.7)	(13.7)	(0.241)	(0.312)
f3	-1.50 *	0.55	-0.53 *	1.29 ***	-41.2 **	-34.9 *	-14.2	36.8 *	3.3	-17.3	-0.823 ***	0.277
	(0.63)	(0.66)	(0.27)	(0.28)	(14.6)	(15.9)	(13.8)	(15.6)	(10.5)	(11.6)	(0.239)	(0.262)
f4	0.28	0.46	0.41 *	0.60 *	44.3 ***	34.2 *	-26.2 *	6.5	-21.8 **	-4.7	-0.307 °	0.077
	(0.49)	(0.68)	(0.21)	(0.29)	(11.2)	(15.7)	(10.6)	(15.3)	(7.9)	(11.3)	(0.183)	(0.257)
f5	-3.01 ***	1.38 °	-0.76 ***	-0.37	-79.1 ***	5.4	5.1	-13.4	11.2	-5.6	0.705 ***	0.000
	(0.52)	(0.77)	(0.23)	(0.33)	(12.7)	(18.6)	(12.6)	(17.3)	(9.4)	(12.6)	(0.212)	(0.286)
f6	-1.62 *	2.01 *	-0.97 **	0.88 *	-57.9 ***	79.6 ***	23.0	-11.3	-11.0	14.9	0.470 °	0.741 *
	(0.72)	(0.94)	(0.31)	(0.40)	(17.0)	(22.2)	(16.0)	(21.2)	(11.8)	(15.6)	(0.266)	(0.352)
f7	1.55 **	2.18 *	-0.51 *	0.13	64.6 ***	21.9	25.0 *	10.1	28.0 **	21.3	0.334	-0.220
	(0.55)	(1.08)	(0.23)	(0.46)	(12.8)	(24.9)	(12.4)	(23.1)	(9.3)	(16.8)	(0.213)	(0.382)
f8	0.45	-1.07	0.79 ***	0.14	-19.8 °	27.0	-25.8 *	5.7	-14.3 °	12.8	-0.444 *	-0.413
	(0.50)	(0.75)	(0.21)	(0.32)	(11.9)	(17.4)	(11.0)	(16.0)	(8.1)	(11.7)	(0.183)	(0.267)
f2f1	-0.63	1.30	0.14	0.20	60.1 ***	44.4 *	29.6 °	23.2	29.0 *	29.5 *	-0.314	0.170
	(0.74)	(0.81)	(0.31)	(0.34)	(17.0)	(18.7)	(16.0)	(17.3)	(11.7)	(12.8)	(0.270)	(0.293)
fxf1	…	…	…	…	…	…	…	…	…	…	…	…
fxfy	…	…	…	…	…	…	…	…	…	…	…	…
West	4.63 **		-4.63 ***		298.2 ***		69.7 °		11.9		0.062	
	1.61		0.69		40.2		41.1		31.4		0.710	
r2	0.86		0.86		0.94		0.84		0.93		0.79	
p	0.000		0.000		0.000		0.000		0.000		0.000	

Source: Own calculation; interactions among industry factors (fxfy) are left out due to space limitations

While the initial estimates give a comprehensive impression of the relationships, only marginal effects and their significances show the kind of relation between industries and socio-economic fundamentals, help to distinguish between direct and indirect (mediated)

technical terms is via a combination of the sureg command and the nlcom command in STATA.

effects and allow assessing, whether relations are significant in central, medium and remote locations. The estimation of the moderated mediation model produces a large number of different marginal effects and a highly differentiated pattern of coefficients. All systematically calculated marginal effects for all combinations of industries and degrees of remoteness are presented in the technical report (Margarian, 2013). This section provides selected results from the large number of resulting moderated and mediated marginal effects for different combinations in the levels of the mediating and moderating variables with their point-specific significances. Specifically, the presentation concentrates on the estimated relations between the professional service industry factor respectively the recreation service factor and the districts' socio-economic conditions.

4.1 Relation between professional services and socio-economic fundamentals

Professional services is the first factor and accounts for the highest share in the variance in the variables related to industry structure. Professional services are generally believed to be of fundamental importance for economic development in the knowledge society but little is known about their relevance in remote regions. It has highly significant marginal relations to the economic fundamentals that are shown to depend on remoteness and on other accompanying industries (Table 6).

Table 6: Selected marginal relations between factor "Professional services" and economic fundamentals with point specific significances conditional on other industry factors in central and remote locations

		GDP		Wage		Tax	Population
Interaction with	Level	direct		direct		direct	via taxes
		Central	Remote	Central	Remote	Remote	Remote
None		2.356	1.337	174.993 ***	-99.887 **	-25.227	-0.220
		(1.688)	(1.597)	(38.871)	(37.075)	(27.059)	(0.250)
Simple production	low	4.948 ***	0.094	180.999 ***	-218.496 ***	-100.294 **	-0.874 *
		(1.428)	(1.997)	(34.512)	(46.109)	(32.713)	(0.437)
	high	-0.236	2.579	168.986 **	18.723	49.840	0.434
		(2.444)	(2.406)	(55.569)	(55.337)	(39.092)	(0.378)
Primary and related production	low	5.628 ***	0.181	120.755 ***	-79.516	-21.656	-0.189
		(1.260)	(2.080)	(31.606)	(48.949)	(33.734)	(0.303)
	high	-0.916	2.493	229.230 ***	-120.257 **	-28.799	-0.251
		(2.319)	(2.037)	(52.815)	(46.538)	(33.870)	(0.310)
Large scale production	low	0.296	3.945 °	172.100 ***	-76.776	29.454	0.257
		(1.736)	(2.285)	(39.918)	(54.174)	(38.801)	(0.352)
	high	4.416 *	-1.272	177.885 ***	-122.997 *	-79.908 *	-0.696 °
		(1.979)	(2.260)	(45.765)	(51.851)	(35.408)	(0.406)
Trade services	low	1.404	3.347 °	162.039 ***	-71.605	-31.841	-0.277
		(1.863)	(2.000)	(42.780)	(46.221)	(32.447)	(0.302)
	high	3.307	-0.673	187.946 ***	-128.169 **	-18.614	-0.162
		(2.040)	(2.143)	(46.957)	(49.419)	(35.097)	(0.312)
Recreation service	low	2.684	2.306	148.908 ***	-109.646 °	-26.100	-0.227
		(1.799)	(2.517)	(41.077)	(57.382)	(41.067)	(0.368)
	high	2.028	0.367	201.077 **	-90.128	-24.354	-0.212
		(2.894)	(2.496)	(66.511)	(57.940)	(39.222)	(0.351)
Knowledge intensive production	low	4.536 *	-4.826 *	131.770 **	-68.814	-63.513 °	-0.553
		(1.891)	(2.283)	(43.983)	(53.312)	(36.112)	(0.378)
	high	0.176	7.499 **	218.215 ***	-130.960 *	13.059	0.114
		(1.739)	(2.366)	(39.767)	(54.749)	(39.695)	(0.349)
Health service	low	1.319	-2.490	132.267 **	-71.980	-59.605 °	-0.519
		(1.811)	(2.028)	(41.804)	(47.100)	(32.668)	(0.346)
	high	3.393 °	5.163 *	217.718 ***	-127.793 *	9.150	0.080
		(1.881)	(2.241)	(43.258)	(51.693)	(36.720)	(0.321)

Note: Standard errors in parentheses below coefficients. Significance levels in percent: °<10; *<5; **<1; ***<0.1.

Source: Own calculation

The selected marginal effects with their point specific significances presented in Table 6 show that a high share of employees in professional services go along with a relatively high regional productivity in terms of GDP per inhabitant in central districts if there is a low share

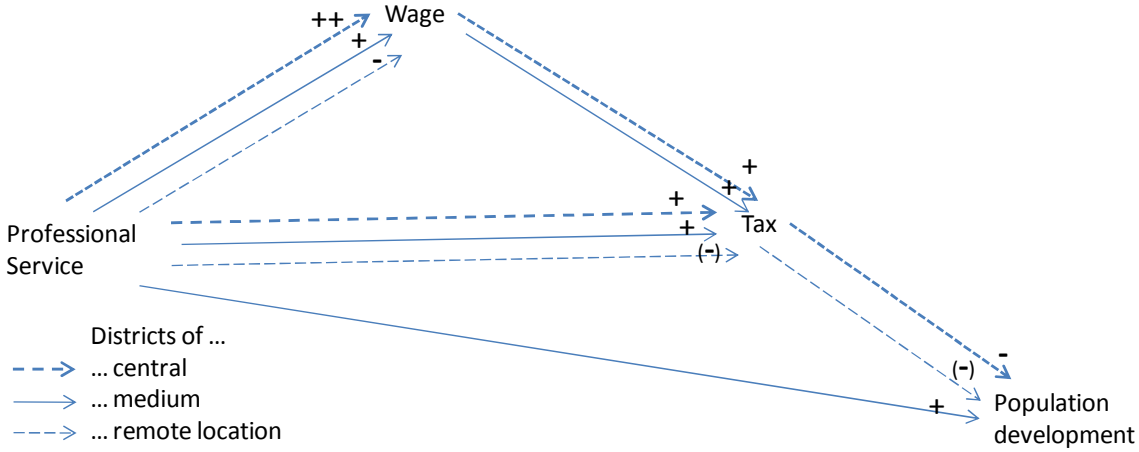
of simple, primary and related and knowledge intensive production activity in the same district. Accordingly, in central regions with a high density of economic activity, a relative specialisation in services, specifically in professional services, seems to produce positive localisation effects that are favourable for central regions' productivity. In remote districts with sparse economic activity, on the other side, professional services' complementarity to specific other activities, rather than regional specialisation, seems to support the industry's productivity. According to the second column in Table 6, professional services contribute to regional productivity if they complement knowledge intensive production or health service.

Wages are positively related to a high prevalence of professional service activities in central regions and negatively in remote regions. The observation that there is no positive relation between wages and professional service activities in remote districts independent of the accompanying industries supports the notion of a lack of specialisation in the most profitable activities due to missing urbanisation effects. In conclusion, there seems to be a fundamental heterogeneity in professional service character between central and peripheral regions.

Figure 1 is an alternative representation of selected estimated direct and indirect relations. It shows that professional services' positive relation to wages in central and medium districts translates into an indirect positive relation to local tax revenues as well. This indirect effect is paralleled by a direct effect. The direct tax effect is positive for central and medium districts but it is negative for remote districts under specific conditions. These conditions are identified in Table 6. According to the fifth column professional services relate directly negative to tax revenues in remote districts if they are accompanied by a low share of simple production or a high share of large scale production. Specifically the dependence on simple production underlines the complementarity between the two types of activity.

Figure 1 also illustrates the opposed direct and indirect relation between professional services and population development. The differentiated relations highlight the complex conditional effects that can be revealed by the moderated mediation model. On the one side, the positive relation between professional services and taxes in central districts translates into an indirect negative relation to population development due to a negative relation between tax revenues and population development in central districts (see last column in Table 5)[6]. This negative effect of taxes is explainable if one interprets tax revenues as an indicator of the general income level and the related cost of living.

Figure 1: Relation between professional services, wage level, tax revenues and population development in different types of regions



Source: Own calculation

Nevertheless, in remote districts there is a positive relation between tax revenues and population development. Apparently in remote districts, not the cost of living aspect but

[6] Recall that the marginal effect with *Remote = -1* for central regions and the coefficients from Table 5 is *δPopulation / δTax =0.000 + 0.005*(-1)=-0.005*

rather the district's relative (public) prosperity is relevant for population dynamics. Due to this reversed relation between tax and population development, the likewise negative relation between professional services and taxes in remote districts translates into an indirect negative effect on population development as in central regions. The important insight is that the observed seemingly consistent estimated gross relations are due to opposed underlying relations. The indirect negative relation between professional services and population development is conditional upon the accompanying industries, just like the direct negative relation to tax revenues that mediated the effect (Table 6).

Figure 1 finally shows that there also exists a direct positive relation between professional services and population development in districts of medium location. This direct effect is not mediated via regional productivity, joblessness, wages, household income or tax revenues. It therefore hints at the relevance of unmeasured social or cultural traits that are related to the industry and to positive population developments. One possible explanation in the case of professional service abundance in medium districts is that these services might go along with alternative income sources and occupational alternatives that attract new citizens or allows old citizens to create their own work place and stay.

4.2 Relation between recreation services and socio-economic fundamentals

Recreation services indicate a strong tourism industry. Tourism is often propagated as a way for remote regions to make the most economically out of their specific advantages especially concerning natural amenities. Recreation services are labour intensive and provide income opportunities for unqualified labour as well as for small and micro-enterprises. Nevertheless, tourism does not support innovative activity and represents a sector under high competitive pressure. Accordingly, there is little established knowledge concerning the actual relevance of tourism and recreation for remote regions.

In central regions, a high relevance of recreation services is negatively related to regional productivity in terms of GDP per inhabitant (not shown) and to wages (Table 7). The lower wages in central regions with a relatively high share of recreation services translate into lower taxes in central regions (column 7 in Table 7). Nevertheless, recreation services are positively related to wages in remote regions, specifically if accompanied by a relatively high share in simple or large scale production, respectively by a relatively low share of primary production and related activities. This can be interpreted as positive synergies between production activities and recreation services which contribute to a higher marginal productivity of labour in recreation services than in regions without strong production activities.

While wages relate negatively to tourism and recreation activities in central regions, joblessness relates negatively to recreation services in central regions as well, indicating a positive socio-economic impact of this sector. It is important to note that this is a direct employment effect that is not mediated by the lower wage level. Accordingly, tourism probably offers low-wage jobs to employees with low qualification which remain unemployed in the knowledge-centered economy of central regions without activities in recreation services. This lower unemployment translates into relatively higher household incomes (column 5 in Table 7) and into more positive population developments (column 11 in Table 7). These employment-related positive socio-economic effects cannot be observed in remote regions. There, other than in central regions, a strong focus in recreation services often implies a lack of occupational alternatives. In many cases, there are low-wage jobs in remote regions, while opportunities for better qualified employees are missing.

Nevertheless, there is a positive direct relation between tourism and recreation services and population development in regions of remote location (column 10 in Table 7). This positive direct relation may be interpreted as a hint on the relevance of natural amenities and other factors positively related to quality of life as well as to tourism for population development specifically in peripheral regions. These “soft factors” attract people especially to regions that offer also qualified and potentially well-paid jobs in large scale and knowledge intensive production (column 10 in Table 7). Accordingly, we observe a positive relation between recreation services and population development in central and remote regions but the underlying causes for this observation are quite different. All in all, tourism and its promoting

factors contribute to remote regions' positive socio-economic development, specifically to higher wages and more positive population development, if alternative economic activities, specifically in manufacturing industries are in place. On its own, tourism is not a panacea against remote regions' structural decline.

Table 7: Marginal relations between factor "Recreation services" and selected fundamentals conditional on remoteness and other industry factors with point specific significances

Interaction with	Level	Wage		Joblessness		Household income		Tax		Population development		Population development		
		direct		direct		via joblessness		via wages		direct		via joblessness		
		Central	Remote	Central	Remote	Central	Remote	Central	Remote	Central	Remote	Central	Remote	
None		-190.768 ***	78.579 *	-2.468 ***	0.523	53.783 **	-1.776	-40.073 **	10.567	-0.776	1.715 ***	1.140 **	-0.228	
		(40.028)	(32.723)	(0.726)	(0.605)	(20.606)	(3.336)	(15.334)	(8.240)	(0.624)	(0.508)	(0.414)	(0.269)	(0.269)
Professional service	low	-217.042 ***	68.750	-2.309 *	0.750	50.314 *	-2.550	-45.593 *	9.245	-0.661	2.483 ***	1.067 *	-0.327	
		(55.375)	(46.607)	(1.011)	(0.856)	(25.261)	(4.764)	(18.659)	(8.743)	(0.868)	(0.714)	(0.519)	(0.381)	(0.381)
	high	-164.494 **	88.409	-2.627 *	0.295	57.253 *	-1.003	-34.554 *	11.888	-0.891	0.948	1.214 *	-0.129	
		(57.204)	(62.665)	(1.052)	(1.163)	(26.898)	(4.223)	(16.330)	(11.509)	(0.878)	(0.978)	(0.550)	(0.508)	(0.508)
Simple production	low	-132.862 ***	33.604	-1.951 **	0.648	42.509 *	-2.204	-27.909 *	4.519	0.136	1.426 **	0.901 *	-0.283	
		(38.571)	(30.798)	(0.701)	(0.568)	(18.495)	(3.789)	(12.059)	(5.102)	(0.592)	(0.490)	(0.376)	(0.256)	(0.256)
	high	-248.674 ***	123.555 **	-2.985 **	0.397	65.058 *	-1.348	-52.238 *	16.614	-1.688 °	2.005 **	1.379 *	-0.173	
		(61.636)	(47.162)	(1.131)	(0.874)	(29.370)	(3.578)	(21.144)	(12.658)	(0.949)	(0.717)	(0.599)	(0.383)	(0.383)
Primary and related production	low	-249.764 ***	117.303 *	-2.815 **	1.082	61.353 *	-3.676	-52.466 **	15.774	-0.797	2.360 **	1.301 **	-0.471	
		(51.141)	(47.496)	(0.896)	(0.871)	(24.671)	(6.193)	(19.932)	(12.205)	(0.815)	(0.739)	(0.498)	(0.395)	(0.395)
	high	-131.772 *	39.856	-2.121 °	-0.037	46.214 °	0.124	-27.681 °	5.359	-0.754	1.070 *	0.980 °	0.016	0.016
		(61.139)	(31.821)	(1.127)	(0.591)	(27.047)	(2.016)	(15.601)	(5.549)	(0.925)	(0.486)	(0.561)	(0.257)	(0.257)
Large scale production	low	-33.491	43.694	-2.036 *	-0.352	44.363 *	1.197	-7.035	5.876	0.259	0.534	0.941 *	0.153	0.153
		(47.648)	(44.627)	(0.877)	(0.825)	(22.001)	(3.317)	(10.259)	(7.143)	(0.726)	(0.686)	(0.452)	(0.361)	(0.361)
	high	-348.045 ***	113.464 *	-2.900 **	1.397 °	63.204 *	-4.749	-73.112 **	15.257	-1.811 °	2.896 ***	1.340 *	-0.609	
		(58.860)	(46.447)	(1.056)	(0.840)	(27.757)	(7.584)	(26.462)	(11.841)	(0.937)	(0.722)	(0.565)	(0.392)	(0.392)
Trade services and food	low	-158.590 **	65.968	-2.894 **	0.815	63.064 *	-2.769	-33.314 *	8.871	-0.579	1.796 *	1.337 *	-0.355	
		(51.225)	(45.452)	(0.939)	(0.843)	(25.663)	(4.999)	(15.147)	(8.460)	(0.783)	(0.700)	(0.519)	(0.376)	(0.376)
	high	-222.946 ***	91.191 *	-2.042 *	0.231	44.503 °	-0.784	-46.833 *	12.262	-0.973	1.634 *	0.944 °	-0.100	
		(52.479)	(42.692)	(0.953)	(0.785)	(23.461)	(2.909)	(18.604)	(9.916)	(0.809)	(0.650)	(0.484)	(0.343)	(0.343)
Knowledge intensive production	low	-166.911 ***	83.764 *	-2.138 *	0.347	46.585 *	-1.180	-35.062 *	11.264	0.121	0.874	0.988 *	-0.151	
		(48.647)	(41.879)	(0.887)	(0.774)	(22.465)	(3.159)	(15.176)	(9.320)	(0.752)	(0.643)	(0.461)	(0.339)	(0.339)
	high	-214.625 ***	73.395	-2.798 *	0.698	60.982 *	-2.372	-45.085 *	9.869	-1.673 °	2.556 **	1.293 *	-0.304	
		(59.961)	(54.866)	(1.102)	(1.017)	(28.302)	(4.927)	(19.152)	(9.838)	(0.931)	(0.836)	(0.579)	(0.449)	(0.449)
Health service	low	-175.737 ***	81.908 *	-1.933 *	0.291	42.130 °	-0.990	-36.916 *	11.014	-0.705	1.594 **	0.893 °	-0.127	
		(52.339)	(40.024)	(0.963)	(0.742)	(23.403)	(2.918)	(16.138)	(9.039)	(0.800)	(0.614)	(0.484)	(0.325)	(0.325)
	high	-205.799 ***	75.251 *	-3.003 ***	0.754	65.436 **	-2.562	-43.231 **	10.119	-0.846	1.837 ***	1.387 **	-0.329	
		(44.472)	(31.559)	(0.803)	(0.579)	(23.762)	(4.271)	(16.692)	(7.907)	(0.702)	(0.495)	(0.474)	(0.263)	(0.263)

Note: Standard errors in parentheses below coefficients. Significance levels in percent: °<10; *<5; **<1; ***<0.1.

Source: Own calculation

5 Conclusion

The analysis generates conceptual / methodological and factual insights. On the factual level it becomes apparent that the relation between local industry-types and socio-economic fundamentals is conditional on regions' remoteness, respectively centrality, and on the specification of accompanying industries. Accordingly, the type of activities or the productivity of activities within specific industry factors differs depending on the density and diversity of local economic activity. Specifically, the complementarity between different industrial activities and thereby the local industry composition seem to gain importance in remote districts' sparse markets. In agglomerated districts, on the contrary, specialisation in professional services contributes to regional productivity due to positive localisation effects.

Not only are the relations conditional on (respectively moderated by) remoteness and industry composition, the results also show the differentiated direct and indirect (respectively mediated) relations to different socio-economic indicators. The importance of distributional effects is underlined by professional services' relation to wages in remote districts. While professional services here relate positively to GDP per inhabitant if accompanied by knowledge intensive production, they relate negatively to wages under the same conditions. Apparently, under these conditions the majority of jobs is positioned in the low wage segment. Accordingly, while professional services are rather positive for regional productivity in terms of GDP per inhabitant specifically in central regions, they might be judged negatively in terms of income distribution and further socio-economic consequences on tax revenues and population development in remote areas. Quite the contrary holds true for the effect of recreation services in central regions. While recreation services relate negatively to economic fundamentals like GDP and wages in central regions, they relate positively to distributional and social indicators like employment and population development.

On the conceptual level, the results provide different insights as well. Firstly, the different direct relations between tax revenues and population development show that the same

variable indicates different phenomena under different conditions. In this case, high tax revenues indicate high public wealth in remote districts and high costs of living in central regions. Secondly, the relation between professional services and population development in remote and central districts show that seemingly consistent gross relations may be caused by fundamentally different underlying mechanisms and relations: The negative gross relation in central districts is due to a positive tax effect of professional services and a negative population development effect of tax revenues, while the negative gross relation in remote areas is due to a (conditional) negative tax effect of professional services and a positive population development effect of tax revenues. Similarly with recreation services: They show a positive relation to population development in central regions due to (mediated by) their positive employment effect; in remote regions, recreation services relate directly to more positive population developments, indicating that the cause is in some common underlying factors like favourable natural amenities. Thirdly, direct and indirect effects are sometimes opposite in direction as for example in the case of the direct and the indirect relation via joblessness between population development and recreation services in central regions. In this case, they would cancel out if only the gross effect was estimated, resulting in insignificant estimators. Nevertheless, the existence of two significant net effects is obviously an important information for example for the design of rational policies.

The important insight that should be gained for future inquiry is that industry structure matters, that it matters in multiple dimensions and that the effects are conditional upon location and multiple dimensions of industry structure. This implies that not only the strategies of empirical inquiry will need to be reconsidered but the theoretical foundation of these inquiries as well. Specifically, the acknowledgement of the different social, economic and cultural dimensions of industry structure and the relevance of distributional effects require careful further developments of theories within the evolutionary economic paradigm.

References

Aiken L. and S. West (1991): Multiple Regression: Testing and Interpreting Interactions. Sage Publications, London.

Backhaus, K., B. Erichson, W. Plinke and R. Weiber (2003): Multivariate Analysemethoden. Eine anwendungsorientierte Einführung. Springer-Verlag, Berlin.

Castellacci, F. (2006): The interactions between national systems and sectoral patterns of innovation. A cross-country analysis of Pavitt's taxonomy. DIME Working Paper 2006.01, Oslo.

Castellacci, F. (2008): Innovation and the Competitiveness of Industries: Comparing the Mainstream and the Evolutionary Approaches. In: Technological Forecasting & Social Change 75: 984-1006.

Dinopoulos, E. and P. Segerstrom (1999): A Schumpeterian model of protection and real wages. In: American Economic Review 89 (3), 450–472.

Dinopoulos, E. (2009): Growth in Open Economies, Schumpeterian Models. In: Reinert K. and R. Rajan (eds): Princeton Encyclopedia of the World Economy, Princeton University Press.

Fagerberg, J. (2000): Technological progress, structural change and productivity growth: a comparative study. In: Structural Change and Economic Dynamics 11: 393 – 411.

Hayes, A.F. (2012): An Analytical Primer and Computational Tool for Observed Variable Moderation, Mediation, and Condition Process Modeling. Working paper, School of Communication, Ohio State University.

Jungmittag, A. (2004): Innovations, technological specialisation and economic growth in the EU. In: International Economics and Economic Policy 1: 247-273.

Jungmittag, A. (2007): Innovationen, Beschäftigungsstruktur und Wachstum der totalen Faktorproduktivität. Eine Data Envelopment und Korrelationsanalyse für die deutschen Bundesländer. In: Jahrbuch für Regionalwissenschaft 27: 143-170.

Krugman, P. (1991): Increasing Returns and Economic Geography. In: The Journal of Political Economy 99 (3): 483-499.

MacKinnon, D.P., C.M. Lockwood, J.M. Hoffman, S.G. West and V. Sheets (2002): A comparison of methods to test mediation and other intervening variable effects. In: Psychological Methods 7 (1): 83-104.

Margarian, A. (2013): Regional industrial structure, productivity, wealth and income distribution in German regions. Thünen Working Paper 1, Thünen-Institute of Rural Studies, Braunschweig.

Marshall, A. (1890): Principles of Economics. Vol. I. London: Macmillan and Co.

Paci, R. and F. Pigliaru (1997): European Regional Growth: Do Sectors Matter? CRENoS Working Paper 199703, Centre for North South Economic Research, University of Cagliari and Sassari, Sardinia.

Pavitt, K. (1984): Sectoral patterns of technical change: towards a taxonomy and a theory. In: Research Policy 13: 343-373.

Porter, M.E. (1998): Clusters and the New Economics of Competition. In: Harvard Business Review 76 (6): 77-90.

Preacher, K.J., D.D. Rucker and A.F. Hayes (2007): Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. In: Multivariate Behavioral Research 42(1): 185-227.

Şener, F. (2001): Schumpeterian unemployment, trade and wages. In: Journal of International Economics 54(1): 119–148.

UCLA: Statistical Consulting Group (2013): How can I analyze multiple mediators in Stata? HTML: http://www.ats.ucla.edu/stat/stata/faq/mulmediation.htm. Last access: 02/20/2013

PROPENSITY FOR ENTREPRENEURSHIP AMONG COLLEGE UNDERGRADUATES: THE CASE OF A PUBLIC UNIVERSITY IN NORTH-EASTERN PORTUGAL

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Abstract

This study looked into the entrepreneurial ability of the students of a public university in Bragança (Portugal) to identify differentiation factors of their entrepreneurial potential. A quantitative, transversal, and observational analysis was conducted involving 598 student participants. Data gathering took place between November and December 2012 and used the *Entrepreneurial Potential Indicator* questionnaire. The respondents were mostly female (61.0%), between 18 and 21 years old (53.8%), corresponding to an average of 22.6 years of age (±4.59), studied under an ordinary regime (82.6%), were from the northern region (83.9%), lived in an urban centre (53.8%) and attended the first study cycle (92.8%) of two scientific areas, namely Education Sciences (28.4%) and Technology and Management (28.4%). Over half of the respondents showed entrepreneurial skills (72.4%). Of all the human capital factors considered, the attendance regime was the only one which had no influence on the entrepreneurial potential. In fact, all the others, namely the course's scientific area and the study cycle have proven to be relevant for reinforcing or developing the students' entrepreneurial skills. None of the socio-demographic factors that were taken into consideration had any influence on entrepreneurial potential differentiation. Binary logistic regression (*logit* model) revealed a cause and effect relationship between all the characteristics and the entrepreneurial tendency.

Key-words: Higher Education; Entrepreneurial potential; Trás-os-Montes; Portugal
JEL Classification: D21, D24

Introduction

According to Bronosky [1], Higher Education Institutions have been feeling the need to motivate their students and give them the necessary skills to take entrepreneurial initiatives capable of generating employment and economic development. In Hull's *et al* [2] view identifying and subsequently using their entrepreneurial potential will, no doubt, be beneficial for society. Socio-demographic variables (such as gender, age, residing area, among others) and human capital variables (like the course) are pinpointed by Teixeira and Davey [3], as differentiating factors of the entrepreneurial potential.

The main goals of this study involved analysing the students' entrepreneurial skills in a public Higher Education institution in north-eastern Portugal and trying to ascertain whether there are significant differences in the students' entrepreneurial potential, taking into consideration socio-demographic as well as human capital factors. 598 students participated in the study which was quantitative, transversal, analytical and observational. Data were collected between November and December 2012 through the application of the *Entrepreneurial Potential Indicator* questionnaire validated for Portugal by Ferreira *et al.* [4].

This paper is structured into five sections: introduction, literature review, methodology, results and discussion and final remarks. The present section provides an explanation of the subject in question and presents both the aims and the structure of the paper. Section two does a literature review in order to give a theoretical Framework of the subject under study. The third section consists of the description of the methodology that was used to conduct this research, depicting the participants, the materials and procedures. In the fourth section, results of the statistical analysis are presented. Finally, in the last section, results are discussed and final considerations offered.

Literature Review

In Koh's [5] opinion, there is little consensus as to what entrepreneurship means or an entrepreneur does.

Cunningham and Lischeron [6] have identified six currents of thought on the subject and provide a different view of what it is to be an entrepreneur. The *Great Person School* defines the entrepreneur as someone who is born with intuition, stamina, vigor, persistence and self-esteem; on the other hand, the *Classical School* recognises the entrepreneur's innovative and discovery skills and creativity; for the *Management School*, the entrepreneur organizes, manages and takes risks; whereas the *Leadership School* sees him/her as the person who motivates, advises and leads; the *Intrapreneurship School* conceives the entrepreneur as the skillful manager of big organisations; and finally, the *Psychological Characteristics School* associates the entrepreneur with both unique values and attitudes and distinct needs.

Deo [7] claims the entrepreneur can be seen both from the economist's and the psychologist's perspective. According to Rwigema and Venter [8], the economist considers the entrepreneur as someone who is prone to innovate, to become an agent of change, to create wealth and add value to resources and other assets while introducing changes to the economy. In this context, Acs *et al*. [9] refer they generate employment and innovation and strength competitiveness. Filion [10] posits the entrepreneur is often someone who is able to identify business opportunities, market niches and therefore bring about progress.

On the other hand, Deo [7] thinks that from the psychologist's viewpoint, an entrepreneur is driven by the need to obtain or achieve something, to try and accomplish new things. Alves and Bornia [11] for instance defend that an entrepreneur has some characteristics and displays personality traits that are distinct compared to the rest of the population and that is the key to a successful entrepreneurship. As for Brockhaus and Horwitz [12], they consider that one of the basic prerequisites to entrepreneurial potential is the intention to do things and survive. Despite intensive research, it is still very difficult and challenging to define entrepreneurship, according to Mitton [13]. Departing from the *Psychological Characteristics School* and based on all the characteristics likely to potentiate entrepreneurship reported in the literature, several models have been developed and tested in order to identify entrepreneurial potential; all of them pinpoint such characteristics as the need for achievement, self-control, risk-taking propensity, ambiguity tolerance, self-confidence and

innovativeness. Therefore, these are also the characteristics addressed in the present research, seeing as Mitton [13], Markman and Baron [14] and Curral *et al.* [15] claim, that individuals who display them are more likely to become entrepreneurs in the future.

Methodology

In order to conduct this study, the authors adopted a quantitative, analytical, transversal and observational methodology. The study focused on analysing the entrepreneurial potential in a sample of students from a Higher Education Institution located in Trás-os-Montes in northeastern Portugal. The aim was to identify the students' entrepreneurial potential and decide which of the socio-demographic and human capital factors considered were likely to differentiate entrepreneurial potential.

A representative sample of the universe under study was randomly collected, consisting of 598 students. The collection of data occurred in the period between November and December 2012, using the *Entrepreneurial Potential Indicator* validated for Portugal by Ferreira *et al.* [4]. The questionnaire was created on *Google Docs* and directly administered by the students online. The questionnaire in question focus on six entrepreneurial features (Table 1) referred by Ferreira *et al.* [4] and Koh [5] and result from a set of 15 attitudes assessed with recourse to a 1 to 5 *Likert* scale discriminated as follows:

1- totally disagree;
2 - disagree;
3 – neither agree nor disagree;
4 - agree; and,
5 – totally agree.

The features to be assessed are in Table 1 and, according to Ferreira *et al.* [4] and Koh [5], may be described as follows:

- The need for achievement can be found in individuals with a strong desire to succeed who are consequently more prone to entrepreneurial attitudes.
- Self-control is linked to the individuals' ability to conduct their own lives. Therefore, individuals who have self-control believe they are capable of controlling their own lives, unlike those who do not display such characteristic who believe that what happens in their lives like luck or misfortune, are always the result of external factors.
- Risk-taking propensity is typical of individuals whose attitudes are oriented towards making decisions in an uncertainty context. It should be noted that the risk involved is controlled.
- Ambiguity tolerance is at the basis of ambiguous situations for which there is not enough information. Individuals capable of understanding such situations and of organizing the available information prior to acting usually have this characteristic.
- Self-confidence is related to the individual's positive and confident perception about him/herself and his/her skills and abilities.
- Innovativeness has to do with seeking and developing new activities or ways of developing them.

Table 1 – Entrepreneurial features and attitudes

Features	Attitudes
Risk-taking propensity	I could describe myself as a gambler
	I believe I take higher risks than most people
	I do not engage in anything without coming up with an action plan first
	I always keep an eye on my money
	I always make rational decisions
Need for achievement	I have a strong need to do independent work
	I succeed at facing challenges and getting over problems

	Once I start a project I see it through until the end
	I believe failures are but learning opportunities
Self-control	I have a strong need to do independent work
	I clearly separate work from leisure
	I believe we make our own luck
Self-confidence	I have a strong need to do independent work
	I often follow my intuition
	I succeed at facing challenges and getting over problems
	I believe failures are but learning opportunities
Innovativeness	I'm a person of new and different ideas and solutions
Tolerance to uncertainty	I give up easily when things do not work out my way
	I do not engage in anything without coming up with an action plan first
	I'm good at dealing with ambiguous situations
	I always make rational decisions

The data collected were treated using SPSS 20.0 (*Statistical Package for Social Sciences*). Their statistical treatment was descriptive so as to characterise the sample. Thus, according to Maroco [16] and Pestana and Gageiro [17] absolute and relative frequencies were calculated whenever variables were nominal; similarly, the mean (measures of central tendency) and the standard deviation (measures of dispersion) were also calculated whenever variables were ordinal or superior. Because this was an analytical study, several statistical tests were applied, such as: localisation tests to determine whether there were significant statistical differences between the samples; association tests to find out how the entrepreneurial potential correlated with the entrepreneurial features considered; and multivariate analysis to estimate a binary logistic regression model that could identify which characteristics go hand in hand with the students' entrepreneurial skills, while understanding their explanatory power.

Following the methodology suggested by Maroco [16] and Pestana and Gageiro [17], non-parametric tests were applied to compare the entrepreneurial potential, since the necessary conditions for using parametric tests were not fulfilled. As a matter-of-fact, when data normality was tested using the *Kolmogorov-Smirnov* test with the *Lilliefors* correction ($N \geq 30$) or *Shapiro-Wilk* test ($N < 30$), it stood out that at least one of the conditions was violated; the same occurred regarding the homogeneity of variance when the *Levene* test was applied. In view of the reasons that have already been mentioned, the *Mann-Whitney-Wilcoxon* test was used alternatively to *T-Student* for independent samples whenever comparisons involved only two samples (gender, age, residing area, attendance regime). The *Mann-Whitney-Wilcoxon* test allows us to test whether the null hypothesis of the medians is equal ($H_0: \eta_1 = \eta_2$) against the alternative one of their being different ($H_1: \eta_1 \neq \eta_2$), where η is the median.

Still according to the methodology suggested by Maroco [16] and Pestana and Gageiro [17], the *Kruskal-Wallis* was used as an alternative to *ANOVA One Way* whenever the comparison involved more than two (k) independent samples (area of origin, study cycle attended and course's scientific area). The *Kruskal-Wallis* test allows us to test the null hypothesis of the equality of medians ($H_0: \eta_1 = \eta_2 = \ldots = \eta_k$) against the alternative one that they are not all equal ($H_1: \exists i, j: \eta_i \neq \eta_j$).

Similarly, in order to study how entrepreneurial potential correlates to entrepreneurship- related features the *r – Pearson* test was discarded, since the condition for the application of such a test (data normality) was not fulfilled. Instead, the *Spearman* ordinal correlation test was used to measure the intensity of the relation between ordinal variables. It uses, instead of the observed values, the observations order. Thus, this coefficient is not sensitive neither to asymmetries in distribution nor to the presence of *outliers*, which means

that data do not have to be originating from Normal populations. It tests the null hypothesis (*H_0: Variables are not* correlated) against the alternative one (*H_1: Variables are correlated*).

Regression analysis is an econometric technique used to shape and analyse the cause and effect relationship between variables. Therefore, it is particularly useful in studying the relationship between entrepreneurial potential and the students' entrepreneurial characteristics so as to establish whether those characteristics have any influence or not on their tendency toward entrepreneurship. Since the dependant variable (entrepreneurial potential) was transformed into a *dummy* one (yes = 1/no = 0), regression must be based on a linear probability model which uses non-linear functions that delimits the estimation scale. In this study, the estimation scale was delimited with recourse to one of the most frequently used distribution functions: the logistic function or *logit* model (Figure 1), as suggested by Cramer [18]. The logit function is an approximation where $E(Y_i)$ tends to 0 when X_i tends to - ∞ and $E(Y_i)$ tends to1 when X_i tends to + ∞. The function values vary between 0 and 1 and are interpreted as the possibility that the phenomenon that is being studied may occur. In fact, as it can be seen in Figure 1, M_i is the element's probability of belonging to group 1, that is, the probability that the phenomenon that is being studied (being entrepreneurial) may occur and $(1-M_i)$ the probability that the element belongs to group 0 (not being entrepreneurial).

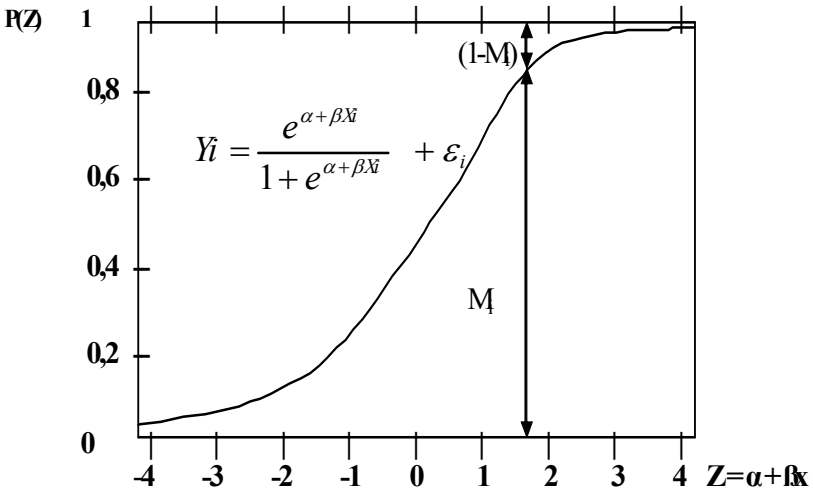

Figure 1 – Logit function configuration.
Source: Cramer [18].

Variables were chosen using the *stepwise method*, a process which is frequently used in situations in which the relationships or associations between the explanatory variables and the dependent variable are not known. Of the variants within the *stepwise method*, the *forward stepwise* was chosen because it departs from an original model without any explanatory variable, only the constant term, to which the most significant variables are then continuingly added until the "best model" is obtained. According to Pestana and Gageiro [17], this method has the advantage of eliminating any likely multicollinearity-related problems which usually question the significance of the estimated coefficients.

One of the commonest methods to assess the model's overall quality is the "likelihood ratio" which allows us to test the null hypothesis of the coefficients being null ($H_0: \beta_1 = \beta_2 = ... = \beta_k = 0$) against the alternative one of there being at least one that is unequal to zero ($H_1: \exists\, i,j: \beta_i \neq \beta_j$). The critical approximate value is obtained in the chi-square distribution tables with a number of degrees of freedom which equals the number of restrictions considered in the null-hypothesis Cramer [18].

According to Pestana and Gageiro [17], the test to the model's overall quality allows us only to conclude that is explanatory power is greater than that of the model with only one independent term, in which case it is not possible to draw any conclusions as to the individual significance of each of the estimated coefficients. To do so, the *Wald* test should be used for it tests the null hypothesis $H_0: \beta_j = 0$ against the alternative $H_1: \beta_j \neq 0$. Once the model's validity as regards each estimator and the whole set of estimators is tested, the adjustment quality should also be tested. Pestana and Gageiro [17] suggest the use of *Nagelkerke* R^2.

As it can be seen in Table 2, most participants were female (61.0%); between 18 and 21 years old (53.8%) corresponding to an average of 22.6 years of age (±4.59); studied under an ordinary regime (82.6%); were from Portugal northern region (83.9%), lived in an urban centre (53.8%); attended the first study cycle (92.8%); and had chosen either technological and managerial courses or science education ones, each with 28.4%.

Table 2 – Characteristics of the Participants

Variable	**Categories**	**Frequencies**	
		%	**N**
Gender (N = 597)	Male	39.0	233
	Female	**61.0**	364
Age group (N = 598)	18 to 21years old	**53.8**	322
	≥ 22 years of age	46.2	276
Attendance Regime (N = 598)	Ordinary	**82.6**	494
	Student worker	17.4	104
Region of origin (N = 598)	North	**83.9**	502
	Centre	11.4	68
	South	1.8	11
	Madeira and Azores	1.6	10
	Other	1.2	7
Residing area (N = 598)	Rural	46.2	276
	Urban	**53.8**	322
Study cycle (N = 596)	Technological Specialization Courses	1.5	9
	Licentiate	**92.8**	553
	Post graduation/Master's	5.7	34
Scientific area (N = 598)	Agrarian Sciences	9.4	56
	Education Sciences	**28.4**	170
	Health Sciences	20.1	120
	Technology and Management	**28.4**	170
	Administration and Tourism	13.7	82

Results

As seen in Figure 2, more than half of the respondents showed entrepreneurial skills (72.4%). Risk-taking propensity stands out positively (90.8%). It is possible to conclude, then, that these students are capable of making risky decisions but based on well-founded, previously conceived action plans. Contrarily, innovativeness proved to be a weak point (39.7%) that can be solved, though, with proper training in creativity techniques in the workplace. As for the other features, namely self-control, self-confidence, ambiguity tolerance and especially the need for achievement there is, obviously, room for improvement.

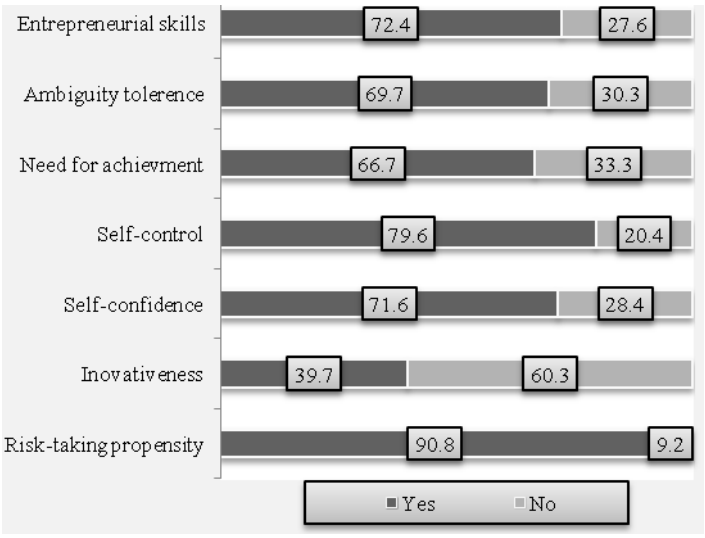

Figure 2 – Students' characteristics and entrepreneurial skills (%)

The averages registered for risk-taking propensity, innovativeness, self-confidence, self-control, need for achievement and ambiguity tolerance hover around a value of 3, which is considered satisfactory (Table 3). Furthermore, the *Spearman* test allowed us to observe that at the 1% significance level, the entrepreneurial features that contributed most to developing entrepreneurial potential were, by order of importance, self-confidence (ρ = 0.757), need for achievement (ρ = 0.750), Innovativeness (ρ = 0.699), Risk-taking propensity (ρ = 0.678), self-control (ρ = 0.668) and ambiguity tolerance (ρ = 0.627).

Table 3 - Correlation of features with entrepreneurial skills

Features	ρ	**Mean**	**Standard deviation**
Risk-taking propensity	0.678*	3.12	0.615
Innovativeness	0.699*	3.27	0.932
Self-confidence	0.757*	3.22	0.738
Self-control	0.668*	3.26	0.849
Need for achievement	0.750*	3.19	0.779
Ambiguity tolerance	0.627*	3.22	0.632

* Meaningful correlations at 0.01significance level.

The *Kruskal-Wallis* test allowed us to verify with 99% confidence level that there are significant differences in the entrepreneurial potential (*p-value* = 0.000) as regards the study cycle where the first cycle (licentiate) stands out as having the largest potential (*Mean rank* = 309.04) (see Table 4). Similarly, through the *Kruskal-Wallis* test it was possible to identify significant differences in the entrepreneurial potential (*p-value* = 0.002) bearing in mind the course's scientific area. Science Education students are potentially more entrepreneurial (*Mean rank* = 334.55).

Table 4 presents the results obtained after the *Mann-Whitney-Wilcoxon* test had been applied which showed the entrepreneurial potential does not vary according to the attendance regime (*p-value* = 0.757).

Table 4 – Entrepreneurial Potential according to some human capital factors

Factor	**Categories**	**N**	***Mean rank***	***p-value***
Attendance regime (N = 598)	Ordinary	494	300.47	0.757
	Student worker	104	294.88	
Study Cycle (N = 596)	Technological Specialization Courses	9	227.17	0.000*
	Licentiate	553	**309.04**	
	Post graduation/master's	34	145.99	
Scientific area (N = 598)	Agrarian Sciences	56	258.95	0.002*
	Education Sciences	170	**334.55**	
	Health Sciences	120	265.74	
	Technology and Management	170	293.83	
	Administration and Tourism	82	315.70	

* Significant differences at 0.01significance level.

The *Mann-Whitney-Wilcoxon* test allowed us to establish that no significant differences were observed when socio-demographic factors, such as gender (*p-value* = 0.052) and age (*p-value* = 0.476), were taken into consideration. Likewise, the *Kruskal-Wallis* test showed that the region where the students came from (*p-value* = 0.191) and their residing area (*p-value* = 0.696) do not differentiate the students' entrepreneurial potential (Table 5).

Table 5 – Entrepreneurial potential according to some socio-demographic factors

Factor	**Categories**	**N**	***Mean rank***	***p-value***
Gender (N = 597)	Male	233	315.62	0.052
	Female	264	288.36	
Age group (N = 598)	18 to 21 years old	322	304.02	0.476
	≥ 22 years of age	276	294.23	
Region of origin (N = 598)	North	502	293.72	0.191
	Centre	68	315.20	
	South	11	380.41	
	Madeira and Azores	10	330.00	
	Other	7	389.21	
Residing Area (N = 598)	Rural	276	296.61	0.696
	Urban	322	301.98	

The *Nagelkerke* R^2 registered an 89.5% value (see Table 6). Therefore it is possible to say that proneness to entrepreneurship is 89.5% accounted for by independent variables, that is to say, by the students' entrepreneurial characteristics. On the other hand, the analysis of logistic regression results reveals a well adjusted model, since *p-value* = 0.000.

The binary logistic regression proved there is a cause and effect relationship between all the entrepreneurial features but the ambiguity tolerance and the entrepreneurial potential, with a 99% confidence level. The confidence level for the ambiguity tolerance was only 95%.

Coefficients' positive signs indicate that those who are more prone to being entrepreneurial are also more innovative, more ambiguity tolerant, more willing to take risks, more self-controlled and self-confident and have a greater need for achievement.

Table 6 – Binary logistic regression model

Independent variables	Proneness to entrepreneurship		
	β	**Standard deviation**	***p-value***
Self-confidence	0.693	0,145	0.004*
Risk-taking propensity	0.551	0.135	0.000*
Self-control	0.691	0.240	0.000*
Innovativeness	1.512	0.169	0.000*
Need for achievement	0.849	0.238	0.000*
Ambiguity tolerance	0.340	0.359	0.012**
Constant	-39.846	5.180	0.000*
N = 598 R^2 Nagelkerke = 0.895 χ^2 = LR = 577.77; GL= 6 *p-value* to reject H_0: 0.000			

* Significant parameters at 0.01significance level.
** Significant parameters at 0.05 significance level.

Discussion and final remarks

This study allowed its authors to conclude that most of the students who were interviewed had entrepreneurial skills. Self-confidence, need for achievement and innovativeness were identified as the features which contribute the most to the students' entrepreneurial potential. As to ambiguity tolerance, it was referred as the feature which contributes least for entrepreneurial potential. This situation may be improved through training seminars which will help students develop skills at the level of planning and decision-making. Thus, they will be able to draw up action plans and make rational decisions while acquiring the necessary skills to handle ambiguous situations and the setbacks that are always part of any entrepreneurial process. Kyro [19] posits that some entrepreneurial skills may be innate, whereas others are acquired, developed or potentiated through education and training. According to Minuzzi *et al.* [20], the development of entrepreneurship has been the concern of several institutions, namely Higher Education institutions, which deem the spreading of culture important for the progress of a nation. In Keogh's and Galloway's [21] view, education in general and Higher Education in particular have been playing an essential role in transmitting and adapting teaching methodologies in the field of entrepreneurship to the students' needs and circumstances and to the demands of future jobs in the context of the present economy. Academic entrepreneurship is currently considered to be a fundamental means of creating new businesses and generating wealth. Therefore, according to Filion [10], Higher Education institutions must focus on developing the concept and achieving *know-how* and not only on simply spreading knowledge.

The results of this research have shown that human capital factors, such as the course's scientific area (Education Sciences) and the study cycle (licentiate) differentiate the entrepreneurial potential. As regards human capital factors, only when the attendance regime was taken into consideration were there no significant differences between the two regimes studied.

Also, none of the socio-demographic factors proved to be differentiating in terms of the entrepreneurial potential. In fact, such factors as gender, age, region of origin and residing area have no influence on the students' entrepreneurial potential. Moreover, the results obtained in the course of this research for gender and age are consistent with Koh's [5].

Finally, the estimated binary logistic regression showed that features, such as innovativeness capacity, ambiguity tolerance, risk-taking propensity, need for achievement, self-control and self-confidence were determinant for proneness to entrepreneurship. These results are well in accordance with the *Psychological Characteristics School* which ascribes

unique values and attitudes and distinct needs to entrepreneurship. The results of the *logit* model are also concurrent with those obtained by Koh [5] and Gartner [22].

Bibliography

[1] Bronosky, M., A intenção empreendedora no ambiente universitário: caso unicentro, *Revista Capital Científico*, Vol. 6, nº. 1, 2008, pp. 245-260.

[2] Hull, D., Bosley, J. and Udell, G., Renewing the hunt for the heffalump: identifying potential entrepreneurs by personality characteristics, *Journal of Small Business Management*, Vol. 18, nº. 1, 1980, pp.:11-18.

[3] Teixeira, A. and Davey, T., Attitudes of Higher Education students to new venture creation: a preliminary approach to the Portuguese case, *Industry and Higher Education*, Vol. 24, nº. 5, 2010, pp. 323-341.

[4] Ferreira, A., Fonseca, L. and Santos, L. "Serão os 'estudantes empreendedores' os empreendedores do futuro? O contributo das empresas juniores para o empreendedorismo", Faculdade de Economia do Porto Working Paper*s*, 2009, nº. 333.

[5] Koh, H.,Testing hypotheses of entrepreneurial characteristics: A study of Hong Kong MBA students, Journal of Managerial Psychology, Vol. 11, nº, 3, 1996, pp. 12-25.

[6] Cunningham, J. and Lischeron, J., Defining entrepreneurship, *Journal of Small Business Management*, Vol. 29, 1991, pp. 45-61.

[7] Deo, S., "Challenges for small business entrepreneurs: A study in the Walka Region of New Zealand", Small Business Advancement National Centre, University of Arkansas, 2005.

[8] Rwigema, H. and Venter, R., *Advanced entrepreneurship*, Cape Town: Oxford University Press, 2004.

[9] Acs, Z., Desai, S. and Klapper, L., What does Entrepreneurship data really show? A comparison of the global entrepreneurship monitor and the Work Bank Group Datasets, World Bank, *Policy Research Working paper Series* 4467, 2008.

[10] Filion, J., Empreendedorismo e gerenciamento: processos distintos, porém complementares, *Revista de Administração de Empresas Light*, Vol. 7, nº. 3, 2000, pp. 2-7.

[11] Alves, L. and Bornia, A., Desenvolvimento de uma escala para medir o potencial empreendedor utilizando a Teoria da Resposta ao Item (TRI), *Gestão & Produção*, Vol. 18, nº.4, 2011, pp. 775-790 .

[12] Brockhaus, R. and Horwitz, P., "The psychology of the entrepreneur", In Sexton, D. and Smilor, R. (Eds), The Art and Science of Entrepreneurship, Ballinger, Cambridge, MA, 1986, pp. 25-48.

[13] Mitton, D., The complete entrepreneur, *Entrepreneurship: Theory and Practice*, Vol. 13, 1989, pp. 9-19.

[14] Markham, G. and Baron, R., Person-entrepreneurship fit: Why some people are more successful as entrepreneurs than others, *Human Resource Management Review,* Vol. 13, nº. 2, 2004, pp. 281-301.

[15] Curral, L., Caetano, A. and Santos, S., Atitude dos estudantes universitários face ao empreendedorismo. Como identificar o potencial empreendedor? *Revista Portuguesa e Brasileira de Gestão*, Vol. 9, nº. 4, 2010, pp. 2-14.

[16] Maroco, J., *Análise Estatística com utilização do SPSS*, Lisboa: Edições Sílabo, 2003.

[17] Pestana, M. and Gageiro, J., *Análise de Dados para Ciências Sociais: A complementaridade do SPSS*, Lisboa: Edições Sílabo, 2002.

[18] Cramer, J., *The Origins and Development of the Logit Model*, Cambridge: Cambridge Publishers, 2003.

[19] Kyro, P., "Entrepreneurship Education and Finnish Society", *Working Papers in Economics*, 2006, nº. 21.

[20] Minuzzi, J., Santos, P., Lezana, A. and Filho, N., Intenção empreendedora em alunos de Engenharia de Produção: Uma análise com uso de regressão logística *In Actas do XXVII ENEGEP*, 2007.

[21] Keogh, W. and Galloway, L., Teaching enterprise in vocational disciplines: reflecting on positive experience, *Management Decision*, Viol. 42, nº. 3/4 , 2004, pp. 531-541.

[22] Gartner, W., Some suggestions for research on entrepreneurial traits and characteristics, *Entrepreneurship: Theory and Practice*, Vol. 14, 1989, pp. 27-37.

ESTIMATING BRAZILIAN FDI MOTIVATIONS IN PORTUGAL BY STRUCTURAL EQUATIONS MODEL (SEM)

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Abstract:
Portugal is a strategic regional location for multinational companies (MNEs) from various countries. This article, through a model based on structural equations (Structural Equations Model), will address the motivations of Brazilian companies to invest in this country compared with firms of other nationalities, which are represented by German companies, Italian, Spanish, American and Japanese. The structural equations allow to infer the safety test results and theoretical constructs. From a theoretical model (known as "structural") constructed from a measurement model (or measurement) is scanned a set of dependency relations, linking the constructs of the hypothesized model. The structural equation modeling is suggested by Hair Jr. et al. (2006) for three purposes: confirming models, evaluation of competing models and the development of new models. In this study, we opted for the development of models related to the first situation, namely the confirmation of a particular model from a theory of FDI. This article has the following structure: first, it will enter the Portuguese economy from the twentieth century. Soon after, it will analyze the internationalization of the Portuguese economy, particularly foreign investment in Portugal. Thirdly, it will put the analysis model, with its conclusions regarding the differences and similarities in the determinants of investments between Brazilian companies and other nationalities in the decision to settle in Portugal, for example, the influence of linguistic affinity and logistics, respectively.

KEY WORDS: Structural Equations Model, Portuguese economy, investments, Brazilian companies, nationalities.
JEL classification: E22, F21, H54

1. AN EARLY EVOLUTION OF PORTUGUESE

Over the past century, Portugal was an underdeveloped economy and, progressively, turned to a developed country. From a per capita income of 1068 euros in 1910, rose to 13,383 euros in 2010. In order to contextualize the foreign direct investment in Portugal, we start with a brief evolution of the Portuguese economy since 1910 until now, trying to integrate the development of the country in the European Union. To achieve this objective, we use the classification of Mateus (2006), which divided the Portuguese in four growth stages, and it was after 1950 that growth accelerated significantly. Among the EU countries (12), Portugal was the one that has the highest growth rate in the last 55 years, with about 3.7% a year, though this growth has virtually stagnated in the 2000s.

According to the author, during the First Republic (1910-1926) the country was dominated by political instability and social participation in the First World War, leading to macroeconomic imbalances and inflation. Since 1930 there have been two decades of slow growth, but that would create the conditions for sustained growth of the country. Portugal's position as a neutral country during World War II helped to improve their reasons for exchanging and accumulating foreign exchange and gold reserves. Portugal was an important supplier of food and raw materials to belligerents, increasing savings and investment. The illiteracy rate dropped from 65% to about 50% during that period, and investment rose from about 8% to about 20% compared to the total GDP of the country in the early 50s. From this period until 1973, was the golden age of Portuguese economic growth, with an annual growth rate of GDP per capita of 5.7% between 1953 and 1973. Contributed to this development the three Growth Plans, the European integration started in 1960 (entry into EFTA), the accession to GATT in 1962, the Marshall Plan aid (albeit rather limited on the amounts), the relative liberalization of economy and the developmental orientation of the period. At this stage, the countries of

southern Europe grew at rates higher than those of Western Europe, is rejoining the international trade flows (which had been broken between the wars), obtaining technology transfer, investment and explosion of tourism and remittances (restoring the balance of payments). The investment rate reaches 36% in 1973, one of the highest in the world (not lowering the average of 23.6% since 1953). The revolution of April 25, 1974 ended the dictatorship and began a process of independence of colonies. The social and political unrest, profound change in ownership, the socialization of the economy and the two great oil shocks led to a period of successive crises in the balance of payments (depletion of foreign reserves of the country agreements with the IMF in 1978 and 1983 and the consequent divergence in living standards compared to Europe, with average growth of 1.8% from 1974 to 1984) was a main facts of this time.

The application of Portugal's accession to the CEE in 1977 and its integration in 1986, were key considerations for increasing economic welfare, as it allowed free movement within the CEE, the transfer of structural funds, the introduction of IVA and the harmonization of economic and commercial law. The integration since 1986 compounded by the rapid economic growth, providing consumers with a greater variety and quality of products, technology transfer, higher productivity of portuguese industry and restoring the balance of payments. EU transfers accounted on average between 1986 and 1992, 1.4% of GDP in net terms. The average number of years of schooling of the population rose from 2.2 years in 1973 to seven years in the mid-1990s. Portugal back to converge to European income levels in 1993 and exceeds the threshold of per capita GDP for developed countries usually considered. As a member of the EU, benefiting from European funds and having to meet the standards required for entry into monetary union. The stabilization policy has produced results in mid-1990, correcting the serious macroeconomic imbalances of the previous two decades. In 2010, the country reached U.S. $ 21235 per capita, with profound changes in terms of infrastructure, industrial park and full integration within Europe.

It is also important to relate the growth of Portugal compared to the world. Maddison (1995) identifies five stages of such growth. The third phase (1913-50) was a very troubled period marked by two world wars, hyperinflation, the Great Depression, protectionism and the collapse of global financial system. The fourth phase (1950-73) known by European historians (Crafs and Toniolo, 1996) as the golden age of growth, with growth rates of technical progress and never seen before, the liberalization of trade and the Bretton Woods system. The last phase, from 1973, notes the slowdown in growth, by the two oil crises, the debt crisis of developing countries and the fall of socialism in Eastern Europe. In the new millennium saw the revolution of information technology, the emergence of global terrorism and the growth of Asian-Pacific region in world GDP, in particular China, a major player in the world of high-growth emerging markets in recent years. At the pace from 1985 to 1995 Portugal needed 12 years to reach the EU average. However, the pace of 1995 to 2009 would take about 50 years. Thus, there was a clear slowdown in convergence in the last decade.

Economic policies geared to boosting private consumption and public debt induces the rise of the public debt in the economy, which was not accompanied by increased total factor productivity, the pace of convergence became untenable. To improve this scenario the structural reforms are vital.

2 THE INTERNATIONALIZATION OF PORTUGUESE AND FDI IN PORTUGAL

The high-tech exports in 1967 represented about 2% of total exports in 2009 reached 13,2%. In the reverse way, the low-tech goods, which encompassed 77% in 1967 and in 2009 dropped to less than half that 1967 amount, 33%. Products like textiles, clothing and footwear, although positioned as low-tech, can invest in quality and design, increasing its value. Vehicles, machinery and mechanical and electrical appliances, such as molds for the plastic industry, electrical wires and cables, transformers and micro electronic form another important group of exports. Modern enterprises with advanced technologies, as Auto-Europe, is important too. Although this process needs to be strengthened, as the example of Quimonda.

This trend continued as Portugal continues to make the reforms necessary to increase the competitiveness of its economy, increasing their attractiveness and thereby participate more in trade flows and investment worldwide. The degree of internationalization of the Portuguese

economy, measured by total exports of goods and services / GDP is still relatively low. In a comparative context, in 1990 and 2010, Portugal did not increase their degree of internationalization in the period, with exports of goods and services / GDP accounting for about 30%. Spain, however, increased from 16.1% to 26.3% and Ireland, from 56.6% to 81.3%, respectively, the degree of internationalization, indicating a faster pace of internationalization[1].

Complementing this analysis, we identified the geographic destination for Portuguese exports. With a small downward trend, we see the huge representation of the EU-15 in total exports from Portugal (about 75% in 2010), in particular the increase of Spain (from 14.8% in 1995 to 28.2% 2008). Currently there are movements, including the support of government agencies that has the objective to diversify its export basket in terms of geography and products, particularly to Asian countries like China (0.1% in 1995 to 0.5% in 2008) and India, Africa (1.7% in 1995 to 4.8 in 2008) and Latin America, including Mexico and Brazil, stable, with about 0.8% and 0.3% of total Portuguese exports, respectively.

- PORTUGAL COUNTRY AS HOST AND INVESTOR OF FDI

FDI has undergone major transformations in the two decades after the Portugal accession to the European Community. In this section, we discuss foreign direct investment in Portugal, and briefly on the Portuguese investments abroad, a new and important reality for the Portuguese economy.

Throughout the nineteenth century, and until now, there are three main stages of FDI in Portugal. The first phase includes the 2nd half of the nineteenth century until the mid twentieth century, predominantly the english capital placed in the industry, the financial sector and the external trade. The second phase begins with the membership of EFTA in 1960 until 1973, within the context of global liberalization and the exhaustion of the current model of development, and the need for public spending cuts stemming from the colonial war. Foreign capital was directed to manufacturing such as textiles and clothing, pulp, electronics to harness natural resources and lower cost of portuguese manpower. The years immediately following April 25 were with political instability.

Since then, the country slowly makes some structural reforms in the economy to regain credibility and begins with the integration of Portugal into de CEE in 1986, the third phase of IDE. Notes the entry of a high capital directed to the financial sector and industry, particularly targeting foreign markets and supermarkets. In 1987 came the first big jump, when FDI almost doubled compared to 1986 (72.9 versus 38.0 billion of escudos). The second time happened to peak around 1990s, corresponding to the privatization process.

Considering the period from the late 1980s, which FDI became the principal route of global integration, the portuguese economy was relatively unattractive, except in a few years. Since 2000, the year large flow of FDI worldwide, there were over 3 years of substantial FDI inflows into Portugal. In 2002 was created the Portuguese Investment Agency (API), currently AICEP in order to develop mechanisms that would facilitate foreign investment in Portugal.

Even with the advancement of FDI in Portugal from the year 2000, there is not a continuing evolution, reflecting an environment more punctual than enduring characteristics of business environment, which is grounded by the country's weak economic growth and other internal vulnerabilities.

Regarding the origin of foreign capital (accumulated net balance between 1996 and 2007 of 40.6 billion euros), we evidence the dominance of the Euro Area countries, with a balance of 67.5%, in particular Spain (35%) and France (8%). Following is the importance of other countries in the Euro Area (24%) and UK (13%), according Bank of Portugal. Germany has negligible positive balance, and Brazil is negative. Here we see the importance of research as case studies because these two countries have, however, many companies in Portugal, with

[1] The actual economic crises show that this is an important factor to economic development, but other elements are important too.

investments in diverse economic sectors. This is evidenced in the next section by a comparative study of some countries investors in Portugal, including Germany and Brazil.
If we show the FDI in Portugal by sectors, is concentrated in the activities of securities business services (60.4%) and financial (12.6%).

3 COMPARATIVE STUDY OF FOREIGN INVESTMENT IN PORTUGAL

This section will be based on empirical research through a questionnaire conducted with MNEs of six nationalities installed in Portugal, about the determinants of FDI identified in eclectic paradigm (Dunning, 2008). We compare the determinants of FDI in Portugal of Brazilian companies in relation to the Italian, American, Japanese, Spanish and German. For this, it will identify a general model, based on the methodology of structural equations (using software SPSS AMOS 6.0), after that measuring the extent to which the motivations of companies vary.

3.1 - Methodology and theoretical aspects of Structural Equations Modeling (SEM)

The methodology used is the data modeling technique of structural equations, which corresponds to the symbol adopted in English Structural Equations Modeling (SEM). This allows the researcher to test hypotheses of relationships among latent variables and observables, being an important resource for evaluating theories and causal relationships (Schuler, 1995, McQuitty, 1999).
Or endogenous latent variables are those that represent the effect of other variables (constructs), similar to the dependent variables in experimental studies (Kline, 1998, p. 16). According to Hair Jr. et al. (2006), are considered manifest variables (also called observable, exogenous or indicators) as observable values for a specific item or issue.
The structural equation models allow to infer safety test results and theoretical constructs. From a theoretical model (known as "structural") constructed from a measurement model, is checked the set of dependency relations, linking the constructs of the hypothesized model.
The measurement model analyzes the structural model from a set of variables examined and related to each latent variable (Hair Jr. et al. 2006; Ullman, 2000).
The structural equation modeling is suggested by Hair Jr. et al. (2006) for three purposes: confirming models, evaluation of competing models and the development of new models. In the first situation, we try to check the adjustment of the statistical model proposed from the theory in order to prove his confirmation or rejection (test the level of adjustment between the model and sample data). In the evaluation of competing models, different theoretical models are compared using formats developed based on theories contrary to or inconsistent with the purposes of identifying the one that best fits the data. The third use concerns the development of models, when it aims to evaluate and improve theoretical models pre-designed, however, require improvements in their statistical adjustment using modifications based on arguments based on theory (MacCallum, 1995). In this study, we opted for the development of models related to the first situation, namely the confirmation of a particular model from a theory of FDI.
For implementation of this strategy were followed steps suggested in the literature on the structural equation modeling (Anderson and Gerbing, 1988; MacCallum, 1995; Hair Jr. et al. 2006; Kline, 1998, Garver and Mentzer, 1999; Ullman, 2000), as well as empirical studies that have employed the technique (Santos, 2001). Initially, models developed measures and structures; thereafter, the data matrix, the technique for estimating and adjustment criteria were defined and, lastly, the constructs in the model measures and the integrated model were evaluated. As a technique for estimating the proposed model, the suggestions were accepted Garver & Mentzer (1999) using the two-step approach (two-step approach), which is characterized by evaluating the measurement model by employing factor analysis that confirms that each individually construct the model (Reise, Widaman, and Pugh, 1993, Garver and Mentzer, 1999).
Demonstrated the appropriateness of the measure are checked hypothesized structural relationships among the latent variables from the estimation of the adjustment measures in the integrated model (Garver & Mentzer, 1999; Ullmann, 2000).
The steps of the process of structural equation modeling are detailed in the following items:

a) Development of Measurement and Structural Models

Before you even deal with the construction of structural models and measurement, the researcher develop a theoretical model to be empirically proven throughout the study. From the proposition of a theoretical model and the definition of relations between constructs, is constituted the path diagram, which consists of graphical and schematic representation of the causal relationships between constructs. In this diagram, the researcher can provide not only the predictive relationships between the constructs (relations between dependent and independent variables), but also the relations of association (correlation) between constructs and indicators (Hair Jr. et al., 2006). With its establishment, it is possible to perform a model specification with the definition of structural equations, their connections between the constructs and measurement model adopted to measure the constructs.

The study model is developed from a theoretical model of definitions and operationalization of variables. It should be noted that the models set out the notation used is as follows:

• "e" corresponds to the measurement errors.
• "rectangles" indicate the manifest variables (observable) of the study.
• "ellipses" correspond to the latent variables or constructs.

b) Selection Matrix Input Method, Estimation and Adjustment Indices

The data matrix used in structural equation modeling is automatically generated from a correlation matrix or a covariance matrix between variables of the model.

The next step to take is to establish how the model will be estimated. Among the existing techniques for estimating parameters, we highlight the Maximum Likelihood (ML) and Standard Generalized Theory Least Squares (GLS), which require the use of metric variables and the normality of their distribution. According to Hair Jr. et al. (2006), the first approach has the advantage of increased efficiency when the assumption of multivariate normality is considered, and is widely used in most software for the structural equation modeling. One limitation of such estimation lies in its susceptibility to the size of the survey sample, since the greater the number of cases under review (over 400 cases), the more sensitive technique to detect differences between data. In this study, we chose to use the Maximum Likelihood.

In assessing the adequacy of the proposed model to the data, adjustment measures were used to verify that enabled the degree which the model predicts the covariance matrix or correlation (absolute measurements) and the comparison of the proposed model with a null model - incremental steps - (Hair Jr. et al., 2006). For purposes of this study, two groups were considered the index below.

- *Index of General Adjustment*

. Chi-square over degrees of freedom: it is an absolute fit index that shows the differences between the observed and estimated matrices, indicating that the greater the magnitude of chi-square relative to degrees of freedom, greater is the differences between the two arrays. Acceptable values for this ratio are less than five (5). Importantly, is an extremely sensitive indicator of sample size for research should not be interpreted in isolation (Anderson and Gerbing, 1988; Hair Jr. et al., 2006).

. Goodness-of-fit (GFI): As no absolute standard that varies from 0 (poor fit) to 1 (optimal setting), based on the comparison of waste arising from the two arrays of data (observed and estimated), with the acceptable values greater than or equal to 0.8.

. Root Mean Square Error of Approximation (RMSEA) index used to correct the trend of the chi-square test to reject specified models from large samples. Is to assess the discrepancy between the degree of freedom of the root mean square of model residues observed and expected squared, with the acceptance ranges between 0.04 and 0.08 (Hair Jr.et al., 2006)

- *Comparative Fit Index*

. Comparative Fit Index (CFI), incremental measure that compares, in aggregate terms, the estimated models and zero or independent. Its range is 0 to 1, with values near 1 indicate satisfactory fit. According to Hair Jr. et al. (2006), is the most appropriate measure for studies that seek to develop models.

- *Indices of parsimony*

Are relative indexes that include a penalty due to the complexity of the model by including more free parameters to improve the adjustment (fewer degrees of freedom). They are represented by indices such as the PCFI PGFI and with acceptable values between 0.6 and 0.8; bad if the values are smaller than this range, and very good if more than these values.

-The evaluation indices of adjustment means allows the researcher to judge the need for potential changes in the proposed model, thereby seeking greater consistency of the constructs and the general model. The reespecification a model should be performed with the theoretical contribution in order to maintain the conceptual logic. Hair Jr et al. (2006) recommend that the model is adjusted from the initial examination of waste, excluding variables that are undermining the covariance model with T-value (or adjusted residue) greater than 2.58. This technique is referred to often by trimming model which is to remove non-significant parameters in the model, while it increases the degrees of freedom associated. Another technique is the analysis of the modification indices (MI) data from one analysis to the values of chi-square test, and that the technique requires the establishment of relationships whose value exceeds 3.84. This approach, like the previous one, is step by step, where the highest values of MI will be those who enter the establishment of new relationships. Finally, the model fitting the data will always support theory as the guideline, and the establishment of new relations from the MI and exclusion of variables and/or meaningless parameters will be considered only if there is a theoretical sense to do so.

The measures outlined above were used in the evaluation of the measurement model or measure, from the detailed individual assessment of each construct that makes up the theoretical model. For purposes of analysis, we considered a set of indicators of adjustment, namely, chi-square and its probability level, the CFI, PCFI, GFI, RMSEA, and the PGFI.

c) Assessment of measurement model

As for the evaluation of the measurement model, Garver & Mentzer (1999) state that the use of confirmatory factor analysis is a technique to verify the proper analysis of each construct or latent variable that forms the proposed model. This technique differs from exploratory factor analysis by allowing researchers to identify the relationship between latent and manifest variables with the greatest degree of control by assigning the indicators of positive charges in his alleged factors and loads restricted to zero in other factors (Hair Jr.et al., 2006). It is usually used as a tool for verifying the validity of constructs and evaluation of measurement scales (Anderson & Gerbing, 1988; Hair Jr. et al., 2006).

In evaluating the properties of a construct, the first point to be diagnosed is to verify the identification of the model. According to Hair Jr. et al. (2006, p.608), the identification problems are characterized by the inability of the model estimates to generate meaningful and logical. One way to generate a greater identification of the model is to fix the value of the variance in the constructs "1", which allows the calculation of load factors of the construct.

The second property to be analyzed is the unidimensionality of the constructs. It is the degree to which the indicators represent a single latent variable or construct (Garver & Mentzer, 1999). A basic condition for the reliability assessment of a construct, represented as indicators of a construct trainers have an acceptable fit for a model with a single factor or dimension (Hair Jr. et al., 2006). In this study, unidimensionality was assessed from the residual analysis for the construct. Unidimensionality is confirmed when the standardized residuals are low (less than 2.58) and a significance level of 5%.

The verification of the validity indicates whether the measurement instrument captures precisely what you want to measure. Among the major forms of validity checked by researchers (Hair Jr. et al., 2006, Churchill, 1999) are: the predictive validity, linked to the prediction accuracy of an external form of behavior as the instrument itself, the content validity, linked to the correspondence between the manifest variables used in the instrument and the theoretical definitions of the construct assessed, the construct validity, which seeks to identify if this indeed is being measured and what are the empirical indicators that relate to their theoretical constructs and is considered both the convergent validity (measures related to the same construct that are correlated) and discriminant validity (divergence measures related

to different constructs) and, finally, the validity, linked to the correspondence of results obtained with formed the theoretical basis.

d) Evaluation of the structural model

The evaluation of structural relationships between hypothesized constructs was performed to evaluate the proposed integrated model. Hereby, we assessed the indicators of adjustment model and the significance and magnitude of the estimated regression coefficients for each structural equation (Hair Jr.et al., 2006, Garver and Mentzer, 1999; Ullman, 2000).

Possessing significant coefficients, there is empirical evidence of the relationship established between the constructs in the model (Hair Jr. et al., 2006). Regarding the use of adjustment measures for model evaluation, Garver and Mentzer (1999) state that with a satisfactory evaluation of these indices within the ranges of acceptability, the model has predictive validity.

Finally, as the findings of the evaluation process of the model, reespecification model can be claimed. This process occurs from the addition or reduction in the number of parameters estimated in the original model, since there is theoretical justification for its achievement (Hair Jr. et al., 2006). Another recommended process improvement model is the comparison of the original model to rival models. From this evaluation, attempts to identify the model that fits better into the survey data, with the premise that, just as the reespecification models require, they have a strong theoretical foundation. Anyway, for the study that was conducted was used to follow the path that presents itself, in line with the theoretical aspects of SEM.

3.2 - The Model Analysis

The model that you want to confirm is based on a questionnaire answered by the Brazilian, Japanese, Italian, German, Spanish and American present in Portugal, through contacts on the spot, mail or telephone, they were 219 validated responses from a total of 250. By country, we are Brazil (50), USA (38), Spain (41), Germany (37), Italy (35) and Japan (18), of various sectors and sizes.

These questions refer to Eclectic Paradigm Approach (factors related to the assets, factors of internalizing and location factors) and Scandinavian school (cultural affinity influence). These questions were answered in Likert scale.

Based on this conceptual model theory, given the large number of manifest variables from the questionnaire, we opted to do a factor analysis to help identify the most relevant for the model. According to the theory of FDI, we thought of the determinants are all interrelated, it was to construct a whole and for the two groups.

After the factor analysis and with the addition and subtraction of other variables contained in the questionnaire, we find three models: model with all countries, with other countries and another with Brazil in order to verify the similarities and the differences between this country and others evaluated in this study regarding the determinants of foreign direct investment in Portugal. Such models are in anexesd below:

Figure 3.1 - General Model with all countries

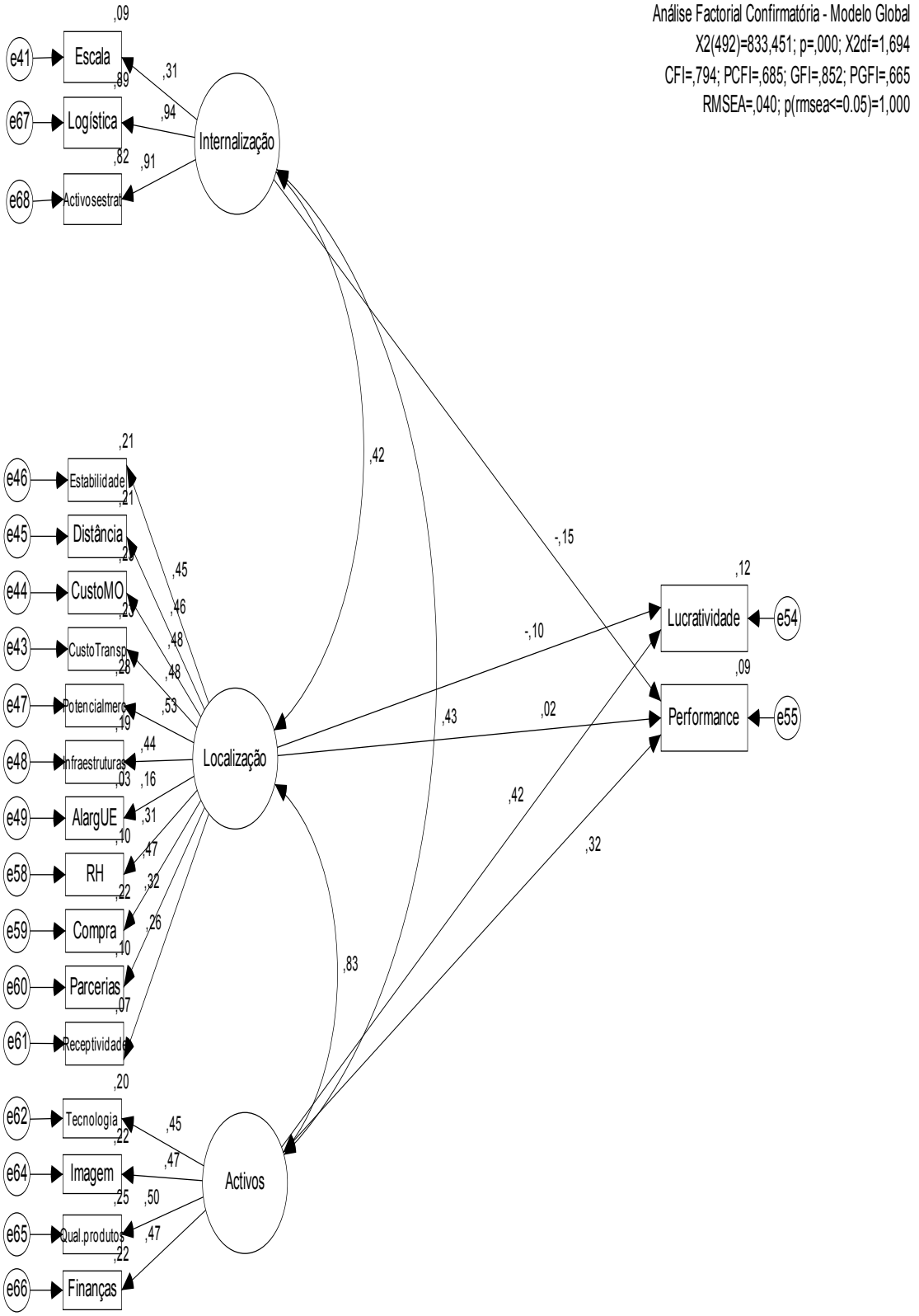


Figure 3.2 – Model with other countries without Brazil

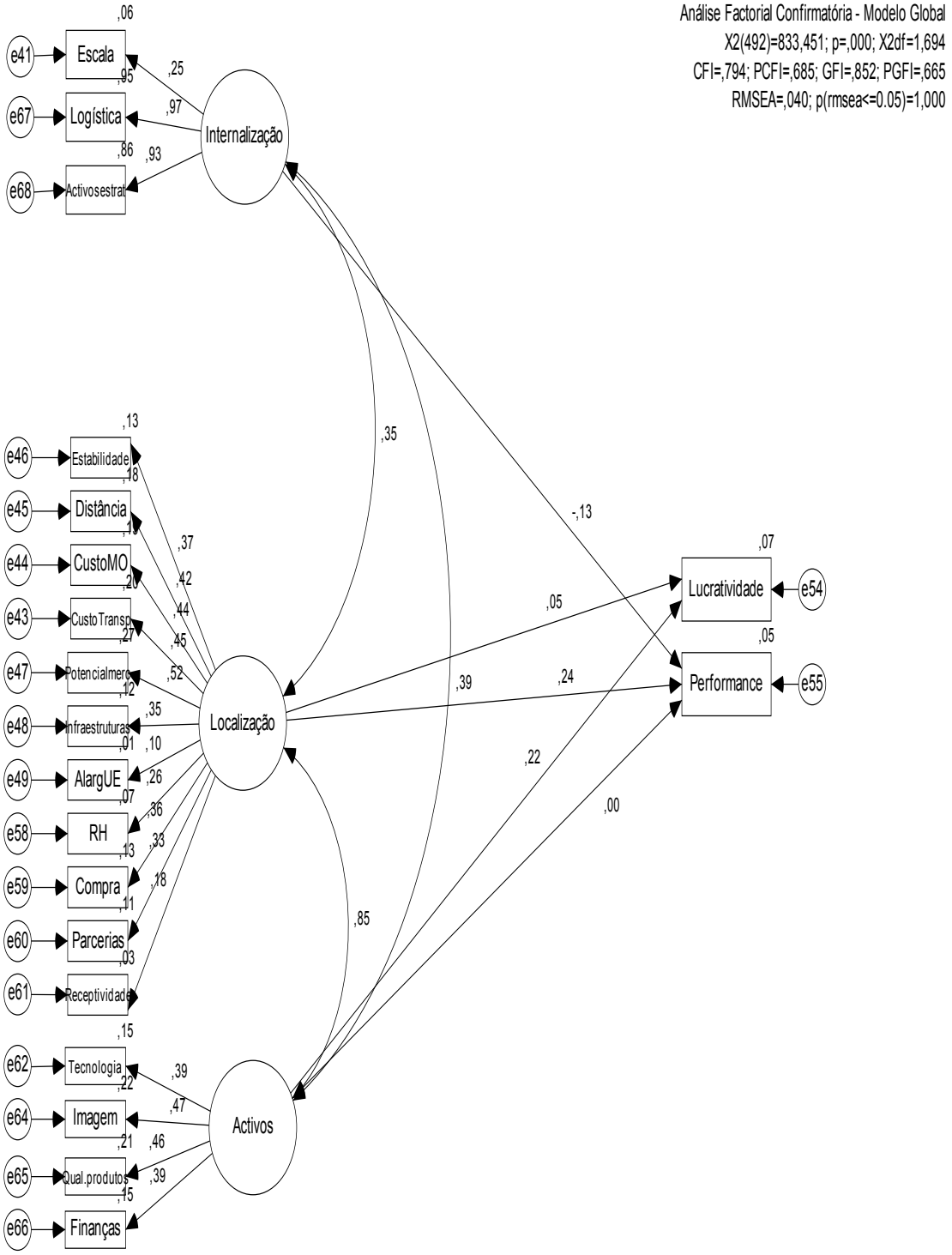
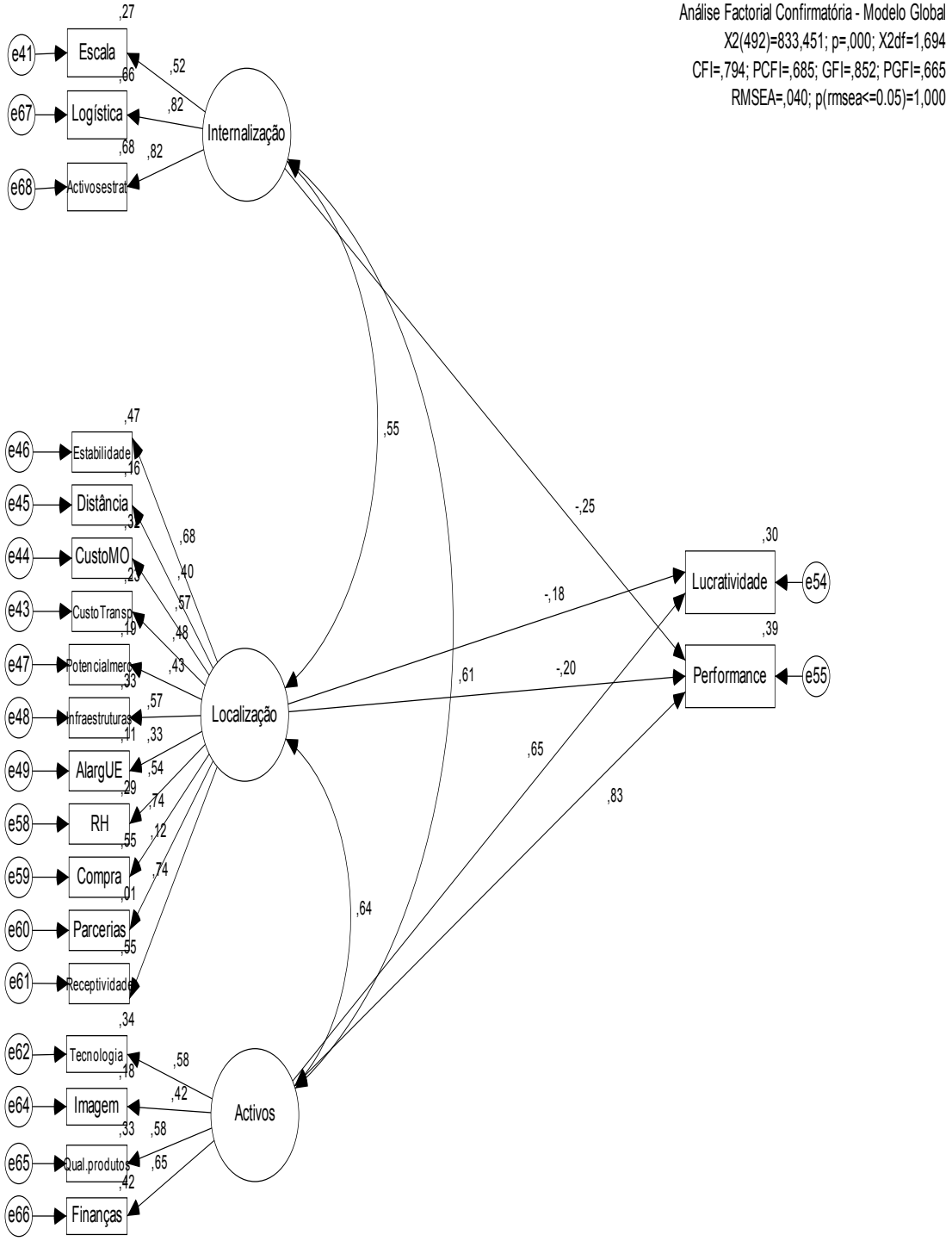


Figure 3.3 – Brazil model



From the model, the sample was divided between Brazil and other countries in order to check whether the model is equivalent between the two groups for analysis. Such models are shown in figures 3.1, 3.2 and 3.3. There has, thus, the comparative analysis between Brazil and other countries (Table 3.1), and tried to respond even if the model fits equally well to the determinants of FDI in Portugal from Brazil and other countries.

. *Model results*

As for the adjustment measures, have the following results:

. X2/df = 1.694 - Very good . P-value = 0.000 - Very good

. CFI = 0.794 - Almost acceptable . PCFI = 0.685 – Acceptable

. GFI = 0.852 – Acceptable . PGFI = 0.665 – Acceptable

. RMSEA = 0.04 – Acceptable

As we can see, the general model and therefore the models for Brazil and other countries have acceptable rates of adjustment, and the overall pattern, therefore, valid also with respect to the results for subgroups other countries and Brazil. Manifest variables and relationships that, in principle, would not explain the investment of foreign companies in Portugal, are important for building the model generally and are essential to determine the model as a whole.

Table 3.1 - Comparative analysis of three models

Variabel	General Model	Other countries	Brazil
Internalization			
Scale	0,31	0,25	0,**52**
Logistic	**0,94**	**0,97**	**0,82**
Strategic Assets	**0,91**	**0,93**	**0,82**
Location			
Estability Portugal	**0,45**	0,37	**0,68**
Geographical distance	**0,46**	**0,42**	**0,40**
Labor costs	**0,48**	**0,44**	**0,57**
Transport costs	**0,48**	**0,45**	**0,48**
Portuguese market potential	**0,53**	**0,52**	**0,49**
Portuguese infrastructures	**0,44**	0,35	**0,57**
European Union enlargement	0,16	0,10	0,33
Human resources disponibility	0,31	0,26	**0,54**
Buy other companies	**0,47**	0,36	**0,74**
Joint ventures	0,32	0,33	0,12
Portugal receptivity	0,26	0,18	**0,74**
Assets			
Tecnology	**0,45**	**0,39**	**0,58**
Image and brand	**0,47**	**0,47**	**0,42**
Product quality	**0,50**	**0,46**	**0,58**
Financial stability	**0,47**	**0,39**	**0,65**
Lucrativity	0,12	0,07	0,30
Performance	0,09	0,05	0,39

We found a high correlation between the location factors and assets (0.83), and this is what best explains the profitability and performance.
In the model of other countries, the correlation between location factors and assets was high (0.85). However, the location seems to be the factor that explains a little more profitability and performance.
Finally, the model related to Brazil, we have a good level of correlation among the three latent variables: location and internalization (0.55), location and assets (0.64), and assets and internalization (0.61), and factors related to the assets which best explain the profit and the practical result. This higher level of correlation between the three latent variables may provide the greatest explanatory power of this model for the dependent variables: profitability and performance, perhaps because the sample is more homogeneous.
It is noteworthy also in relationship to the theoretical aspects, the variable cultural affinity, linked school in Uppsala, was not significant in this model, probably by membership of the sample countries in which this item is irrelevant.

4 – FINAL REMARKS

This paper examined the determinants of investment by multinational companies in Portugal, using the model of structural equations.
We tried, in summary form, describing the evolution of the Portuguese economy since the early decades of last century. It is also showed Portugal as a host of international investment, with an accelerated regional integration of economies and globalization.

In order to see the main motivations of MNEs to invest in Portugal and verify the extent to which the motivations of brazilian companies invest in portuguese market vary ranging from enterprises from Italy, Spain, German, Japan and United States of America, built up a still model based on structural equations. We identified a type invariant for these two groups, with variations in intensity correlations in the motivations for investing in Portugal. Although with the same set of explanatory variables, which is desirable for this type of models, their importance varies according to the motivations of each model.

Bibliography

ANDERSON, J. C. e GERBING, D. W. (1988), "Structural Equation Modeling in Practice: a review and recommended two-step approach". *Psychological Bulletin*, Vol. 103, nº 3.

CHURCHILL, G. A. (1999), *Marketing Research: Methodological Foundations*. The Dryden Press, Orlando.

CRAFS, N. e TONIOLO, G., Eds (1996), *Economic Growth in Europe since 1945*, Cambridge University Press.

DUNNING, J. H. e LUNDAN, S. M. (2008), *Multinational Enterprises and the Global Economy*, Edgar Elgar, UK.

GARVER, M. S. e MENTZER, J. T. (1999), "Logistics Research Methods: employing structural equation modeling to test for construct validity". *Journal of Business Logistics*, Vol. 20, nº 1, pp. 33-57.

HAIR, J.; BLACK, B.; BABIN, R.; ANDERSON, R. e TATHAM, M. (2006), *Multivariate Data Analysis*, Pearson Education Inc. (Prentice Hall), New Jersey.

KLINE, R. B. (1998), *Principles and practice of structural equation modeling*, The Guilford Press, New York.

MAC CALLUM, R. C. (1995), Model Specification: procedures, strategies and related issues, in: HOYLE, R. H. (ed). *Structural Equations Modeling: concepts, issues and applications*, SAGE, London.

MADISON, A. (1995). *Monitoring the World Economy*, OCDE, Paris.

MATEUS, A. (2006). *Economia Portuguesa*. Ed. Verbo, Lisboa.

REISE, S. P., WIDAMAN, K. F., e FÚGH, R. H. (1993), "Confirmatory Factor Analysis and Item Response Theory: two approaches for exploring measurement invariance. *Psychological Bulletin,* 114, pp. 552-566.

SANTOS, C. P. (2001), Impacto do gerenciamento de reclamações na confiança e lealdade do consumidor, no contexto de trocas relacionais de serviços: construção e teste de um modelo teórico. Tese de doutoramento em Administração, UFRGS, Porto Alegre.

ULLMAN, J. M. (2000), Structural Equation Modeling, In: TABACHNICK, B. G and FIDEL, L. S. (eds), *Using Multivariate Statistics*, Boston: Allyn & Bacon.

THE SYSTEM OF CONTRIBUTIONS FOR HEALTH INSURANCE SCHEME IN ALBANIA - PERFORMANCE AND MAIN CHALLENGES

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Abstract
Albanian health care system is undergoing comprehensive changes. The paper focuses on the system of contributions for health insurance scheme. The paper will argue the need for immediate measures regarding this issue. Based on the primary and secondary data, through an economic analysis is studying the trend of contributor's number for five years. Are identified the economic, social and political factors, that affect this process and whole health insurance scheme (HIS). In Albania, partly scheme function, an informal labor market, lack of incentives for participation in health scheme, weak administration capacity for contributions collecting and poor structure, regulatory and supervisor and all in all its funding challenges, are the main factors that accompanies for years the health care system and as the result the contributions system for health insurance. The main economic factor is a little economic growth and a problem with which Albania has already begun to face. As a result Albania faces a greater inequity in the ability to receive health care. In order to evasion of contributions expected path, immediate measures administrative, managerial, and financial monitoring are needed. Mechanisms for revenue collection should be strengthened. Health care reform has been and will remain one of the major challenges of politics in Albania. Full implementation of its efficiency requires a broad political consensus.

Keywords: health scheme, contribution, health care reform, Albania.
JEL Classification: I1, I13, I18, H51.

1. Introduction

The Albanian health insurance system is a Bismarck model of HIS. Health services are provided by a mix of public and private health service providers. Recourses of public financing of the health sector are: State budget, contributions of compulsory health insurance (collected by GTD-SII)[1], direct payments /co-payment and foreign finances. Public expenditures for health in 2013 are planed 2.56% of GDP. The State remains the major source of health care financing in Albania[2]. Compulsory health insurance schemecoveres all the citizens in Republic of Albania (RA) with a permanent residence and also foreigners employed and insured in Albania. HII administers the health care scheme, provides and manages the compulsory health insurances in the RA. HII is the main purchaser of health services and also the main actor of the health care reforms. Participation in the scheme is based on the payment of contributions by; (i) **economically active persons** (employees, employers, self-employed, unpaid family employees, persons who receive revenues from their property on regular basis), (ii) **State,** which pays for economically non-active persons, (children, students, pensioners, unemployed, mothers on maternity leave, disabled people, persons living on assistence and economic aid, based on the consumption per capita of the healthcare during the successive year) and (iii) **voluntary insured persons**. Social health insurance contribution rate in Albania for salaried workers is 3.4%. Contributions for the

[1]From 1995 up to 2003 the data for the number of contributors and contribution's revenue is taken from the Social Insurance Institute (SII) and from this year onwards from the General Directorate of Taxation (GDT).

[2]Other regional countries have a different composition (social insurance to tax funding), for example Czech Republic 90:10, Poland 84:16, Hungary 90:10 and Slovenia 93:7 (WHO Statistics, 2008).

employees are paid by employer and employee at (50:50). To the self-employed workers and voluntarily insured is 3% up to 7% of statutory minimum wage.
In Albania the contribution rate is at the lowest levels amongst the economies in transitionin CEE region (Table 1). Healthcare systems in the regional countries is mostly financed through health insurance contributions, based on the Bismarck model – a mandatory health insurance system in which health insurance payments are deducted from incomes, with pooling of contributions and thus risks. Although in all countries of the region, mandatory payroll-based insurance has been established, the contribution rates differ widely.

Table 1 Social health insurance contribution rate in regional countries

Country	**Contribution Rate for Salaried Workers** *(percent of payroll)*	**Employer: Employee shares**
Albania	3.4	50:50
Czech Republic	13	66:33
Hungary	**14**	79:21
Romania	14	50:50
Macedonia	9.2	100:0
Montenegro	15	50:50
Serbia	15.9	50:50
Bulgaria	6	75:25
Slovakia	13 1/4	50:50
Slovenia	13 1/4	53:47
Bosnia - Herzegovina	17	24:76

Sources: Bredenkamp and Gragnolati (2007); Dixon et al. (2004); Preker et al. (2002).

The basic contribution rates for mandatory health insurance vary widely, from around 3-6% in Albania and Bulgaria, to 17% in Bosnia - Herzegovina.
Health services covered by HIS are; health services of the primary health care, hospital health care services and pharmaceuticals of the opened pharmaceutical network. The health services of HIS are funded through a mix of taxation and contributions of health insurances. HII manages a total budget of approximately 200 million Euros. This budget in 2013 is planed approximately 2% of GDP, while for three years, 2010-2012 the rate of 2.1% has not change. The scheme revenues in 2011 and 2012 came approximately 23% from health contributions and approximately 77% from State budget/tax funding (Figure 1). The State budget revenues remain the main sources not only for all health sectors, but also for the HIS. This misbalanced situation continuous since the HIS establishment in 1995.

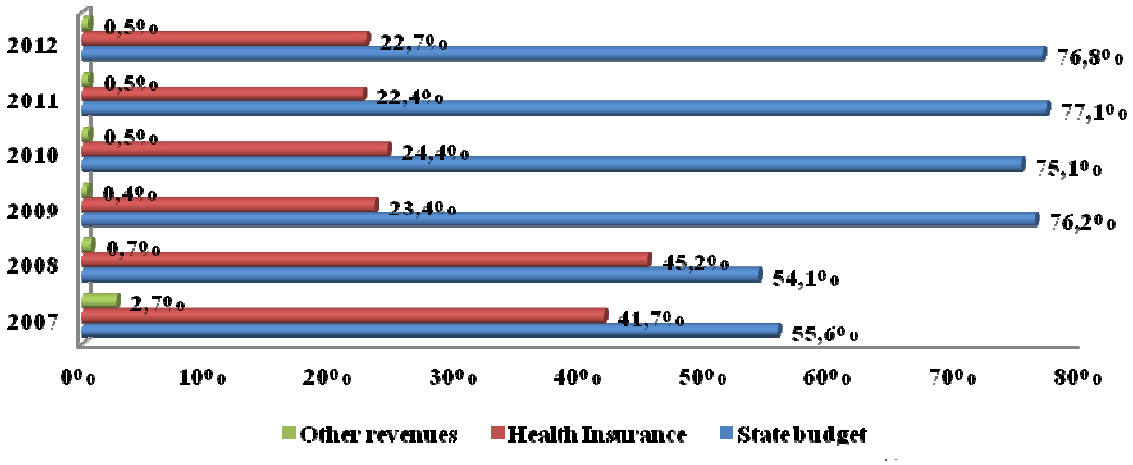

Figure 1 HIS Revenues, 2007 – 2011
Source: HII data, author's calculations

The review above makes Albania one of the few countries in region, together with Bulgaria, where health insurance contributions are not the main source of health care financing (WHO, 2006).

2. Health insurance contributions in Albania – An economic analysis of the trend of contributor's number from 2007 – 2011.

The key problems, clearly evident, of HIS in Albania, are the small contributor's number for health insurance and some difficulties in collecting payroll taxes. The revenues are collected based of six contributors' categories: budget workers, non-budget workers, private firms, self - employed, agricultural private sector and voluntary contributors.

In order to analyze the problematic situation in the system of contributions for health insurance, I made an economic analysis of the number of contributors in 5 years, from 2007 to 2011, based on the average number of contributors, declared by SII to HII (Appendix, Table 2).
First I compared the number of contributors, according to six categories by finding the difference with the previous year in percentage (Table 3).
Second I calculated the indixes of change of contributors by category (Table 4).
Third I calculated the coefficient of the average annual growth in the number of contributors by categories.

2.1 The comparisons' results by health contributor's category

The comparisons show that despite of frequent fluctuations in the number of participants in the scheme, their level remains almost the same from year to year.

- Budget workers –compared to 2007, 2008 has the largest decreases, with about 9.4%. And compared to 2009, 2010 has the largest increase, with about 5.8%. For the entire period studied, from 2011 compared to 2007, this category is 1.7% decreased.
- Non-budget workers - the largest decrease is in 2008, compared to 2007, with about 37.1%. A small increase of 0.6% was only in 2011, compared to 2010. For the entire period from 2011 compared to 2007, this category has the greatest reduction (54%), of all categories.
- Private firms - is a category mainly resulting increased in 2011, compared to 2010 (9.3%). There is an increase of 19.3% in 2011 compared to 2007.
- Self-employed –The only reduction of the contributors' number in this category was in 2008 (8.5%), compared to 2007.The largest increase was in 2011, compared to

2010,with about 25%. For the entire period of five years, from 2011 compared to 2007, this category has an increase of 24.2%.

- Agricultural private sector – It is characterized by a non-stable situation. Only in these two years, 2009 and 2011, the contributors' number is increased. And for the period of five years this category has a decrease.
- Voluntary contributors - have the highest growth of all categories, with about 131.9% in five years. The only decrease is in 2011 compared to 2010.
- In total, for all categories, the number of contributors for five years, from 2007 to 2011 has a little increase of 2.6%. Only in 2008 result in a decrease of 10.5%, compared to 2007.

Table 3 Comparend numbers of contributors, according to six categories

Categories of Contributions	**I 2008/2007**	**I 2009/2008**	**I 2010/2009**	**I 2011/2010**	**I 2011/2007**
Budget workers	-9.4%	-1.5%	5.8%	4.1%	-1.7%
Non-budget workers	-37.1%	-13.5%	-15.9%	0.6%	-54.0%
Private firms	-4.2%	7.3%	6.3%	9.3%	19.3%
Self employed	-8.5%	6.2%	2.3%	25.0%	24.2%
Agricultural private sector	-10.6%	9.1%	-17.2%	13.7%	-8.2%
Voluntary contributors	14.1%	66.7%	30.0%	-6.2%	131.9%
TOTAL Categories	**-10.5%**	**3.2%**	**1.0%**	**10.0%**	**2.6%**

2.2 The average annual growth of contributors of HIS

From calculations of the contribution index categories, taking time basis in 2007, result:

Table 4 The indixes of change of contributors by category

Categories of Contributions	**I 2008/2007**	**I 2009/2008**	**I 2010/2009**	**I 2011/2010**	**I 2011/2007**
Budget workers	0.91	0.98	1.06	1.04	0.98
Non-budget workers	0.63	0.86	0.84	1.01	0.46
Private firms	0.96	1.07	1.06	1.09	1.19
Self-employed	0.91	1.06	1.02	1.25	1.24
Agricultural private sector	0.89	1.09	0.83	1.14	0.92
Voluntary contributors	1.14	1.67	1.30	0.94	2.32
TOTAL	0.89	1.03	1.01	1.10	1.03

The average annual growth rate coefficient of the number of contributions by category, is calculated with tow formulas:

$$\overline{K} = \sqrt[n-1]{I1 \times I2 \times I3 \times In-1} \qquad (1)$$

For example, $\overline{K}$ in "Budget Workers", where:

$I_1 = I_{2008/2007}$ $I_2 = I_{2009/2008}$ $I_3 = I_{2010/2009}$ $I_{5-1} = I_{2011/2010}$

$$\overline{K}_{\text{Budget workers}} = \sqrt[5-1]{0.91 \times 0.98 \times 1.06 \times 1.04} = \sqrt[4]{0.98} = 0.994 \text{ or } 99.49\%$$

$$\overline{K} = \sqrt[n-1]{\frac{qn}{q0}} \qquad (2)$$

$\overline{K}$- Average annual growth rate coefficient
n = 5, number of years to study
q_n = the number of contributors in 2011
q_0 = the number of contributors in 2007

For example, $\overline{K}$ in "Budget Workers" results:

$$\overline{K} = \sqrt[n-1]{\frac{qn}{q0}} = \sqrt[5-1]{\frac{138,645}{140,994}} = \sqrt[4]{0.98} = 0.994 \text{ or } 99.49\%$$

Both methods led to the similar results, reflected in **Table 5.**

Categories of Contributions	$\overline{K}$	$\overline{K}$ (%)
Budget workers	0.994	99.49%
Non-budget workers	0.823	82.35%
Private firms	1.044	104.44%
Self employed	1.055	105.52%
Agricultural private sector	0.979	97.93%
Voluntary contributors	1.240	123.41%

Even with a simple comparison, even of calculation of average annual growth rate coefficient for each contributor's categories, I came to the same conclusions:

The contributor's number in "Private firms" increased on average 4.44% each year during the period 2007-2011.
The contributor's number in "Self-employed" increased on average 5.52% each year during the period 2007-2011.
The contributor's number in "Voluntary contributors" increased on average 23.41% each year during the period 2007-2011.
There isn't the average annual growth in the other three categories ("Budget workers", "Non-budget workers" and "Agricultural private sector").

The lack of growth in the contributor's number in these categories, corresponding macroeconomic indicators, for the same period 2007-2011 (Bank of Albania, 2013). For examples, the employment rate of public sector in total employment for 2011 was 17.8%, against 18.1% in 2010 and 18.5% in 2009. Also the employment rate of agricultural private sector in total employment for 2011 was 54.6%, against 55.3% in 2010 and 55.2% in 2009.

The limited contributor's number in the health insurance scheme, reflected in the low level of contributions for health care in Albania and its performance.

3 The lack of political decision-making - Performance and main HIS challenges

HIS financing should respond its continuous expansion pace. Implementation of effective reforms in the three levels of health services: primary, secondary and tertiary, must be accompanied by increased contributions funding sources as well as from the State budget. But in fact, it turns out that there are not taken the necessary measures to increase the number of contributors in the scheme and as a result to increasethe revenues from them. There were ongoing discussions on the change of contributions' rate in Albania, from the World Bank in

2006 as well as from the HII's own proposals[3]. Even in the new law for health insurance in Albania, was left again the contribution rate of 3.4%, with some minor changes in the basis of calculating the contribution[4]. The changes aim to able the increasing of financing sources for the health scheme, as well as respect for its principles.

3.1 Problems in the collection of health contributions

The process of collecting contributions for health insurance by the tax authorities, not only hadn't reached the expectations (increase of the number of contributions and better administration of the process), but it has led to various anomalies, such as delays in data reporting and inaccuracies of the data. It was anticipated that these authorities (SII and GDT), would identify the on-line contributors and the incomes from health insurance contributions. In the first year of implementation of the Law (2003), contributions poured directly to the HII. With the intervention of the Ministry of Finance, the contributions are now collected by the tax authorities, together with social insurance contributions, and then they are transferred to a treasury account in the SII, which transfers in HII parts of the contributions collected, after the calculations based on different contributions categories. Delays in the pour of contributions for health insurance, by authorities that administrate them, errors in calculations, reporting of inaccurate data in the bank, and also the barriers to the treasury structures delivery, have limited the possibility to use even those few contributions that are collected.

3.2 The scheme lacked efficiency - Impact in the contributons' level in the HIS

Health insurance Schemes, on the Basis of Contributions, have about 18 years, that is applied in Albania. BUT the problem is that this scheme has never functioned with a full efficiency. Before the fall of the Communist regime, the health system in Albania was modelled on the Soviet Semashko system of universal health care coverage, with a virtually exclusive role for the state in financing and delivery. Albania introduced social health insurance in 1995, but the pace of reform of health financing has been slow (Nuri, 2002).
From 1995 to 2007 HIS covered mostly the expenditures of the pharmaceuticals drugs' list and salaries of general practitioners in primary services. Only in 2007, when has became the full involvement of the primary health care (PHC), it can be said that HIS began to function fully, at least at this level of services (based on current indicators until now, can say that the scheme is successful in PHC). Despite the problems that accompany the pharmaceutical sector HII contractual relations as service buyers with pharmaceutical service providers, are consolidated. Even though in 2009 the public hospital service legally passed under the administration of HIS, reform in this sector is failed. This mainly due to lack of political will, due to the strong social impact, that will accompany the full implementation of this reform. Malfunction with full efficiency of the financial reform in the health system and the lack of incentive mechanisms to increase the number of participants in the scheme, leads to an unfair treatment of insured persons, to those uninsured.[5] The same benefits for both categories, insured and not insured ones, do not stimulate the category of not insured to insure themselves. This is a pointed problem of the public hospital service, where even the costs of treatment are higher. For example an uninsured patient pay a minimal tariff, of € 21 in the hospital (less for a visit to GP), and this persons can profit even the operation for free. This situation adds costs for self-insurance persons and for the State budget.

[3]The proposal to increase the rate contribution from 3.4% to 7% was not taken into account.

[4]Basis for calculating contributions for economically inactive persons is: consumption per capita of the health care, indexed with the inflation rate, consumption per capita for health services.

[5]As health expenditures are similar to those insured and not insured persons, health insurance does not protect participant in the scheme by paying a personal significantly percentage of costs.

Incomplete reforms in the financing of the health system in Albania (mainly the reform of public hospitals), are a more reason for the not fully functioning of HIS. Only after several years of operation with full efficiency of the health scheme[6], we can say, if it is appropriate one for Albania, to continue or to change this scheme, based on the general taxation (Beveridge scheme is arguing today, as required by the Albanian opposition, even for pre-election effects)[7].

3.3 The economic factors tend to contribute negatively to a disable environment for the contribution of HIS in Albania.

- Informal sector employment causes: 1. difficult to administering mandate payroll tax on employers and /or employees, 2. difficult to locating employers and collecting premiums. Based to the official data of Bank of Albania, there is an increase of informal sector employees, because of the economic crises of these years. This situation influenced the reduction of contributors. In 2011 from a total labour force of approximately 1.1 million, just 478 thousand of them contribute to the health scheme (Appendix, Table 2 and Table 6).

- Following the widespread informal sector, the contribution evasion in private sector appears in two forms: less people declared themselves employed and lower wages are declared. Informal sector workers are facing two different elections: their contributions to of social and health insurance to be payee by employer, which will reduce furthermore the incomes, or not to pay insurance social and health contributions and thus they receive more cash. It is understandable that most of workers in the informal sector will choose the second option.

- Low wages and salaries: 1. increase economic burden of payroll tax and lack to finance broader benefit entitlements[8] and 2. decrease the opportunity to finance broader benefit entitlements.

- High poverty rate increase need subsidize membership of poor households.

- Inefficiently functioning provider networks: 1. aggravate access by members to providers, 2. reduce choice of providers and also the possibility of quality-based competition among providers.

- Little human resource capacities bring the disability to manage SHI and monitor and evaluate quality.

- Weak administrative support is less available for banking, accounting and legal support.

- The lack of government capacity to regulate is reflected to the capacity for regulating the quality and manages grievance procedures.

[6]Many of countries have established the principle of universal coverage via SHI. This process took 127 years to achieve in Germany, 118 in Belgium, 79 in Austria, 72 in Luxembourg, 48 in Costa Rica and 36 in Japan.

[7]Beveridge-system: state financed system – example: Great Britain, Bismarck-system: the system is financed by contributions to a social security or insurance system – example Germany, Semashko-system: completely state-controlled system and Market-oriented systems: example USA.

[8]The major of the contributors of HIS for 2011 are budget workers (29%) and workers in private firms (38%).

3.3.1 The macroeconomic indicators and Economic Challenges

According to the official data for 5 years[9], Albania has an annual real growth of GDP in 2011, but compared to 2007 there is a decrease of 2.8%. In 2011, per capita income was € 2,959; the official unemployment rate is 12.7% (almost the same level in these five years) and 18.5% of the population lives below poverty line. There is no increase of employment rate in the period of five years. The labor force report of employment: unemployment was (86:14). Just 15.4% of labor force works in public sector, or 17.8% of total employed. The employment of budget workers has a little reduction in 2011, compared to the other years. The employers in the agriculture private sector take the major part of the total employment in Albania, 54.6% in 2011 (INSTAT, 2011, 2013).

The financing of HII still remains a major challenge. A country's level of economic development and its economic structure influence how many people can be covered and how rapidly HIS can expand toward universal coverage.
Public expenditures for health in 2013 are planed only 2.56% of GDP, the lower figures, from 2008. In terms of an economic recession[10], the health sector will face difficulties in realization with efficiency in the health reforms undertaken. My country also faces the problem with high levels of unemployment, low wages and large informal sectors; the formal employment base for generating resources is extremely small in relation to need and provides considerable scope for the avoidance of payment. The health care contributions increase the cost of labor regardless of who pays them (this encourages employers to hire workers on temporary contracts, without registering them). If health insurance costs for employers were partly reduced and shifted to the government budget, labor costs would be proportionately reduced without reducing net wages, which would most likely encourage employers to create new jobs. Health insurance reform is thus closely related to the issues of labor market flexibility and opportunities for increased employment (Mihaljek, 2008). On the other hand, the contribution incentives mechanisms for the active labor force are overall weak, and the health scheme provides limited benefits (Avdi, 2011).

In Albanian economy the high level of the informal payments can create several negative effects on health system performance. Informal payment can have implications in governance of a health system and negatively affect access, equity, efficiency and utilization of health care services. World Bank[11] and INSTAT[12] have accounted the situation of informal payments in Albania.

Based on the results of official data there is the same situation even today. The most patients have to pay under the table for health care and that unofficial payments represent the most relevant share of individual health expenditure (approximetly 60% of the health expenditures). Regardless of the reasons behind, the fact is that household expenditures on health does not differ between insured and uninsured. This is a fact that the insurance status does not have measurable effect on out-of-pocket spendings. If people notice that contributing

[9] Appendix, Table 6

[10] Appendix, Table 6

[11] The effective coverage by HII is limited and only about one-third of the active work force makes contributions.

[12] Data in the Living Standards Measurement Survey (LSMS) conducted in Albania, by comparing 2005 - 2008 were analyzed the informal payment and the access to health care services, in order to find out how the situation had changed over this three-year period. At the macro level, analysis identified that in 2005 and 2008 the prevalence of patients making informal payments in various health settings varied between about 18% and 53%, the highest prevalence being in the hospital care setting. Household survey data show that about only 40% of the population is effectively covered by HII, mainly concentrated in urban areas and the upper income quintiles, with significant regional variations.

to health insurance does not prevent them from relevant health expenditures and that they have to pay practically the same amounts of money out of pocket as those citizens which are not affiliated to the HII, they will probably become more reluctant to affiliate to health insurance and insurance coverage might further decrease. Given the level of poverty in the country, one of the reasons for non-payment of contributions, is the lack of ability to pay out a portion of the population.

3.3.2 Political challenges

Health care reform has been and will remain one of the major challenges of politics in Albania. Given the strong social impact, which accompanies its full implementation, so far no government has "dared" to undertake it fully. Full implementation of its efficiency requires a broad political consensus. Each political party will come to governing after June elections, should start comprehensive reform of the HIS, in the first year of its mandate.

There are no plans to allocate general revenue to supplement health insurance, and the current 3.4% of wage contributions (half from employer and half from employee) from contributors is insufficient to cover costs. More than half of total health care costs are said to be out of pocket payments by patients.
The focus of the government isn't on increasing enrollment to close the financing gap, but there is no analysis which suggests this will be feasible or adequate to generate needed revenues.

Should increase accountability and collaboration of the institutions responsible for the process of administration and management of contributions for HIS in Albania. In this electoral year, in Albania is turned the debate about the funding model of the health insurance scheme, at the first view with a lot of problems, defects and malfunctions. Apparently, the continuing and the possible changes of the HIS are depended to the June elections.

However dictated by the situation, I think that by policy makers should be considered a potential increase in health contributions rate, accompanied by the relevant legal changes (even is delayed). In terms of extending the health scheme and full implementation of the reform of hospital services, better functioning system will stimulate contributions to the health system decentralization, internal competition, the creation of the concept of hospital-enterprise as a fundamental element for the development of hospital. In this way will stimulate not only public but also private sector, considering that part of the health system and creating the necessary space for competition and for the creation of advanced models of the health system. The reform of public hospital sector should be implemented as soon as possible. Although this reform has in fact begun in 2009, until now, the HII has done just the transfer of funds for salaries and hospital equipment.

Abnormalities are mainly related to the payment system and the provision of services for uninsured persons. Uninsured patients versus only a negligible fee, profit high-cost health services, such as all types of surgeries and hospital examinations. But this way of benefit, don't force them to pay.
The differences between the contributors and beneficiaries have caused premises for a considerable fiscal evasion, which influence in the raise of contributes from the general taxation. This should be considered the reason for stimulating in an indirect way the bribes and other corruptive elements in this sector. There is a lack of responsibility from the institutions which draft the budget and accomplish budgetary policies and the lack of political consensus (Avdi, 2012).

Over all, it is important that health and finance specialists, not politicians to assess realistically how much funding for health services can be raised through HIS contributions. This must take into account incomes, levels of other deductions and taxes, the labour market structure, the acceptability of paying contributions.

4 Conclusions and Recommendations

In Albania, partly scheme function, an informal labor market, lack of incentives for participation in health scheme, weak administration capacity for contributions collecting and poor structure, regulatory and supervisor and all in all its funding challenges, are the main factors that accompanies for years the health care system and as the result the contributions system for health insurance. The main economic factor is a little economic growth and a problem with which Albania has already begun to face. As a result Albania faces a greater inequity in the ability to receive health care.

Health insurance reform is thus closely related to the issues of labor market flexibility and opportunities for increased employment.

The successful introduction and extension of HIS is dependent on my country's institutional and organizational capacity. This relates to the three subfunctions of collection, pooling and purchasing, which are undertaken by different organizations and actors.

In order to evasion of contributions expected path, immediate measures administrative, managerial, and financial monitoring are needed. Mechanisms for revenue collection should be strengthened. Contributions for health and social insurance (27.9%), should be deposited separately, due to the different period of benefit of each scheme, or the inability to pay part of the social insurance contribution (the social contribution's rate is higher, 24.5%), or for lack of wish, to pay. This becomes an obstacle for the payment of contributions for health insurance. Revenue collection should be done by HII because of the management effect. Staff should be equipped to manage the collection of contributions and support the process of identifying entitlements.

Informal payments are partly a reaction to the health care system, particularly of the managers of health care, the lack of financial resources and patients' response to a system that is unable to provide adequate access to basic services. In this situation is necessary to: apply copayment differentiated according to the social categories with different incomes. To stimulate participation in the health scheme by strengthening protection mechanisms for groups with low income. In the circumstances of a wide spread informal economy another way to increase the number of contributors is to try to convince the non contributors to join the scheme. This implies the increase of the share of voluntary contributors. HII should play a key role to inform the population the benefits of the scheme about.

Governments should ensure that limited resources are more efficiently targeted to ensure access to basic services. Needed to strengthen administrative and technical capacity by HII as main buyers of the health services, both through the development of information systems that can distribute accurate time information from providers, and through the training of personnel. Many problems related to the HIS require a long-term strategy in the health sector reforms.

5 Appendix

Table 2 Contributor's number for study, in HIS in Albania 2007-2011

Categories of Contributions	**2007**	**2008**	**2009**	**2010**	**2011**
Budget workers	140,994	127,783	125,856	133,211	138,645
Non-budget workers	47,101	29,611	25,612	21,546	21,677
Private firms	152,580	146,139	156,743	166,612	182,057
Self employed	63,502	58,101	61,690	63,082	78,839
Agricultural private sector	61,495	55,000	60,000	49,664	56,453
Voluntary contributors	263	300	500	650	610
TOTAL Categories	**465,935**	**416,934**	**430,401**	**434,765**	**478,281**

Sources: HII, SII

Table 6 Macroeconomic indicators, 2007 - 2011

Years	Annual real growth of GDP at constant prices (%)	Per capita income EURO	Labor market	
			Employment rate (%)	Unemployment rate (%)
2007	5.9	2,470.5	44.7	13.2
2008	7.5	2,800.8	45.8	12.7
2009	3.3	2,746.5	41.9	13.8
2010	3.8	2,782.8	42.3	13.3
2011	3.1	2,959.7	42.1	12.7

Sources: INSTAT, Ministry of Finance, Bank of Albania

References

Avdi. E. (2011). Extension of Health Care Insurance Scheme and Risk Management: The Case of Health Insurance Institute. The Fourth International Scientific Conference of the Faculty of Economy on *"Economic & Social Challenges and Problems 2011 – at the Time of Global Crisis and Integration",* 9-10 December 2011, Tirana, Albania, pp. 209-215.

Avdi, E., (2012). Impact of Economic Crisis in Health Care System in Albania. The Fourth International Conference of Albania Center for Risk on *"Regional Economy and Society Facing Public Responsibility Risks"*, April 7-th, 2012 in Dubrovnik, Croatia, pp. 191-202.

Bank of Albania (2012). Monthly Statistical Report, 12/2012.http://www.bankofalbania.gov.al

Bredenkamp, C. and M. Gragnolati (2007). "Sustainability of Health Care Financing in the Western Balkans: An Overview of Progress and Challenges", World Bank Policy Research, Working Paper, No. 4374, October. www.worldbank.org

Dixon, A., J. Langenbrunner and E. Mossialos (2004). "Facing the Challenges of Health Care Financing", in J. Figueras, M. McKee, J. Cain and S. Lessof (eds.), *Health Systems inTransition: Learning from Experience*, Geneva, WHO. www.euro.who.int

Mihaljek, D. (2008):"Health Care Financing Reforms in Central and Eastern Europe: Common Problems and PossibleApproaches", Public Finance Workshop of Banca d'Italia.

Nuri, B. (2002): Heath care systems in transition: Albania. (Ed. E. Tragakes). Copenhagen,*European Observatory on Health Care Systems, 4(6).*

Preker, A.S., M. Jakab and M. Schneider (2002). "Health Financing Reforms in Central andEastern Europe and the Former Soviet Union", in E. Mossialos, A. Dixon, J. Figueras and J.Kutzin (eds.), *Funding Health Care: Options for Europe*, Buckingham, Open University Press. www.euro.who.int

WHO, Regional Committee for Europe (2006). "Approaching Health Financing Policy in the WHO European Region", paper prepared for the 56th session of the WHO Regional Committee for Europe, Copenhagen, 26 June. www.euro.who.int

WHO (2008), World Health Statistics 2008, Geneva. www.who.int

World Bank (2006): Albania Health Sector Note. Report No. 32612-AL.

Albanian Ministry of Finance (2011). Draft Programmed Budget Document Medium-Term 2012–2014. http://www.minfin.gov.al

Health Insurance Institute (HII) of Albania, http://www.isksh.com.al

Institute of Statistics (INSTAT) http://www.instat.gov.al

INSTAT (2005 and 2008): Living Standards Measurement Survey (LSMS), Albania.

Social Insurance Institute (SII) of Albania, http://www.issh.gov.al

THE CROSSROAD OF HOUSING LOANS FINANCING - CASE OF ALBANIA

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Abstract :
The current economic crisis has highlighted that a well-functioning financial system is significantly important for economic growth. This study investigated factors affecting housing finance supply in Albania.
Housing Finance is a major factor determining the quality and tenure of housing consumption, the overall financial portfolio of the public and the stability and effectiveness of the financial system (Diamond and Lea 1992a). Struyk and Turner (1986) and Stephens (2000 & 2002) argued that housing finance plays an important role in shaping each country's wider housing system and the housing system takes important social and economic consequences. Then, it follows that the development of a viable housing finance system is of utmost importance in the developed economies.
For a typical house-owner, the house is a major asset in his portfolio and for many household, the purchase of a house represents the largest (and often only) life long investment and a store of wealth (Goodman 1989; Sheppard 1999; Malpezzi 1999; Bundick and Sellon Jr 2007; Dickerson 2009). In societies like Albania, where social housing is not on the priority list of government, the housing affordability would have to be looked at from the point of view of individual's ability to raise money needed to meet the cost or price of their housing needs. The first source of funding for individual is their income. This is often the cheapest source because there is no payment of extra cost in form of interest. The problem that arises in case of individuals in the emerging economies is that income levels are generally low. The low income means low disposal income which prohibits the individuals to qualify for housing loans.

Keywords: *mortgage lending, house market, non performing loans, retail deposits*
JEL classification : G01,G21, E51,R31

1. Introduction

The considerably decrease in the purchase/selling transactions of real estates, as well as the decrease in credit supply of construction sector from the bank side, have not influenced in the decrease of home purchase price. In an official declaration of the chief Albanian Association of Banks, Mr.Seyhan PENCABLIGIL, it was emphasized that the real estate prices should be decreased as they are overestimated considering the financial crises of the whole economy, stimulating in such way the housing loan financing. In contrast of what happened in the other economies, especially in the United States where the housing prices decreased considerably, in Albania they stayed almost stable by having the effect that Albania is out of the reality of financial crisis. From the other side the difficulties in the collateral execution from the banks it's a barrier to put pressure in the market price of real estates. According to the Ministry of Finance actually the banks have over 20 milliard ALL frozen in the legal process of non-performing loans. In such a situation the housing loans financing is considerably decreased. As per Bank of Albania data, the outstanding of mortgage loans has decreased for 2012, especially in June and July. The most shrunken was the loan in euro currency, which at the end of 2012 decreased by 3% compared with the end of 2011. The loan in euro currency composes 66% of the mortgage loan portfolio in 2012 from 72% in 2009. The mortgage loan portfolio composes 1/5 of the total loan portfolio of the banking system in December 2012. Up to the year 2008, banks especially the Greek once, were much more aggressive in lending of housing loans mainly in foreign currency. The financial crisis lead to the deprecation of

Albanian currency towards EUR and Albanian banks started to orient the customers to have the loan in the same currency of their incomes in order to avoid the exchange rate risk. On 2009 the loan in euro composed 72% of the total loan portfolio. The decrease in loan finance is argued by the banks as a necessity towards the sharp increase in non-performing loans. As per Albanian Association of Banks the NPL ratio on December 2012 reached 22.5% from 18.8% on December 2011. In the first semester of 2012 the indicator of lost loans increased to 6.58% from 5.7% on December 2011. As per constructors, there are the banks that supply the economy with money and the decrease in selling property is a consequence of loan supply from banks side considering that the individuals that buy an apartment in cash are very few in number. From the other side they argue that it is impossible for them to decrease the selling price of houses as all the constructions of years 2004-2005 have an high construction cost not only due to high cost of raw materials but also due to the high percentage of m.sq pertaining to the plot owners (almost 40% in Tirana area). The decrease in house prices seems to be danger if we have in mind an Albanian construction industry of infinite debts. If the price of apartments will decrease, the constructors should be obliged to pay more to their suppliers of first materials towards whose they are debtors. Also banks from the other side lose from the lower collateral value securing the loans. The only decrease in housing price occurs when it is purchased in cash. The prices in Tirana area for apartments vary from 380 euro/m.s.q in the suburb to1,800 euro/s.q.m in the center. Still the real estate market is frozen and the only breath was the homeless loan subsidized from Albanian Government during the years 2011-2012.

2. Literature review

The Loanable funds theory of interest rate argued that economic agents have a certain amount of financial wealth and they can decide to hold the wealth in the form of either interest earning financial assets, or in cash which earns no interest, or a combination of the two (Pilbean 2005; Buckle & Thompson 2005 and Wickens 2008). The quantity of loanable funds available is the stock of interest earning financial assets and is determined by three factors:

1. The amount of savings – an individual's endowment may consist of securities plus human health and the present value of his earnings. If the individual's preferred inter-temporal consumption differs from his time-profile of earning, his consumption might be re-arranged. This is done by purchases of financial securities or early mortgage repayment (Benston and Smith Jr 1976)
2. Switches from money holdings into saving products – There might be switches by individuals and business from holding financial wealth in the form of money to saving products.
3. An increase in loans made by financial institution.

With respect to the supply function a review of the literature reveals that the variables, other that the price variables, most often used to model the supply of mortgage loans include cost of funds, net new savings and past loan commitments. On the supply side, a variety of credit channel models consider how changes in the financial positions of banks (bank lending channel) and borrowers (balance sheet channel) affect the availability of credit in an economy (see Hall, 2001, for a succinct overview). The role of bank's balance sheets in shaping the evolution of credit growth has been subject to debate during the 2008 recession. On one hand, there is evidence that exposition to "toxic" assets has affected some banks' ability to lend (Puri et al., 2011). In evaluating the impact of non-performing loans on the loan supply by banks, there are studies that suggest that credit creation is impacted by both macroeconomic variables that impact loan uptake as well as internal structures such as the composition of a bank's balance sheet and the demand for loans. Baum etal (2002) investigated empirically the link between bank lending and macroeconomic uncertainty using annual and quarterly U.S.bank level data. They concluded that in the presence of greater macroeconomic uncertainty, banks collectively become more conservative, and this concerted action will lead to a narrowing of the cross–sectional distribution of banks' loan–to–asset (LTA) ratios. Calza etal (2001) using the Johansen methodology, identified in their study one cointegrating relationship linking real loans, GDP and interest rates. This relationship implies that in the long-run real loans are positively related to real GDP and negatively to real short-term and long-term interest rates. The financial crisis in the 2007 has caused a slowdown in monetary

expansion. O'Brein and Browne (1992) sited that one factor that can contribute to the slowdown in monetary transaction is a reduction in bank lending. It is understood that a slowdown in loans reflects influences on both the demand and the supply side. On the demand side a slowdown in economic activity and the subsequent loss of purchasing power by many individuals has disqualified them from being able to qualify for access to loans. This has resulted in dramatic fall in loans demanded. According to O'Brein and Browne (1992), on the supply side, the decline in credit is exacerbated by two channels on the supply side i) a deterioration in asset quality and ii) stricter attitudes of regulators, especially through more stringent capital standard.

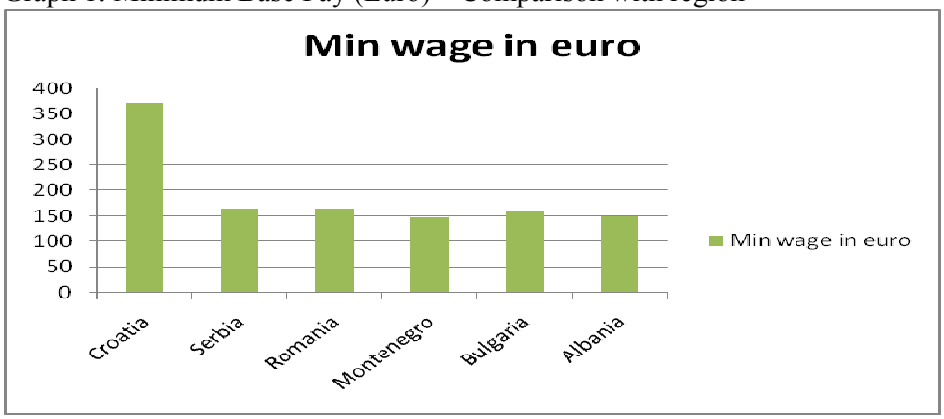
3.1 Factors affecting Housing Finance Supply in Emerging Economies.

With the magnitude of housing needs in most of the countries in the emerging economy, Buckley and Kalarickal (2004), Hassler (2005) and Merrill (2006) argued that there are requirements that emerging economies must embrace, if they are going to move forward in terms of delivering housing finance. The requirements include stable macroeconomic conditions, a legal framework for property rights, mortgage market infrastructure and funding sources to promote financial intermediation. In this paper we will discuss how the macroeconomic conditions influence in loan supply.

3.1.1 Macroeconomic conditions:

Macroeconomic policies are one of the main factors affecting the Housing Finance Supply in Albania. The macroeconomic policies might be adopted to affect (decrease/increase) the nominal interest rate, or volatility of inflation, which has affected the efficiency of housing finance. A macroeconomic policy framework is one that promotes growth by keeping inflation low, the budget deficit small and the current account sustainable (Fischer 2004 p.123; Hale 2007). Considering that approximately 66 % of the mortgage portfolio is in foreign currency and the incomes of the borrowers are manly in ALL, it is very crucial not to permit the depreciation of local currency. Therefore, the financial regulatory authorities (central banks) in most emerging market economies have used policies like the cash reserve requirement and liquidity ratio as instruments of monetary control. Cash reserve requirement is the percentage of the banks cash asset to be kept in an account with the central bank. In Albania CRR is 10 percent of the bank's total deposit liabilities. This policy is adopted to control volume of funds available for financial institutions to invest in granting loans. Therefore, any system that is supporting its housing development is contributing to the long-term growth and stability of the country as well as the welfare of its people. With the recent trends in real growth rate in Albania economy put at 5.9 % in 2007, 7.5 % in 2008, 3.3 % in 2009, 3.91 % in 2010, 2.72 % in 2011 and 1.62 % in 2012. The income earned by workers are generally low, with the minimum monthly wage at All 21,000 (EUR 150) and the average monthly income for the public sector ALL 46,665 (EUR 333) and private sector ALL 38,292.2 (EUR 274)

Graph 1: Minimum Base Pay (Euro) – Comparison with region



Source: Statistical institutions of each country

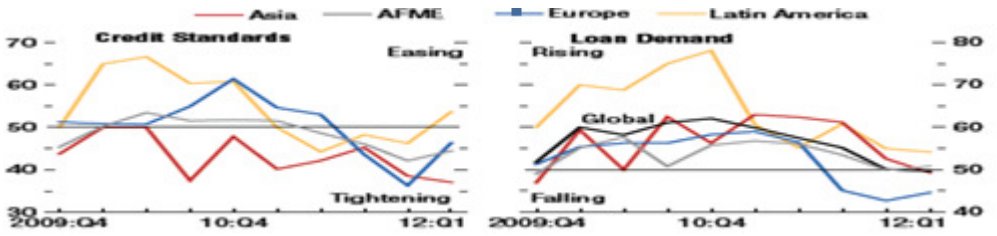
4. The overall trend for housing loans in our region and in the world

The tightening of credit standards has been applied usually by reducing the financing amount and asking for additional collateral. Albanian banks have reported that demand of customers has also decreased due to future uncertainty. The same trend has followed also during the year 2012. The demand for mortgage loans has been decreased due to the long run prediction of financial situation for the future from individuals. The decrease in mortgage loan portfolio for 2012 was 0.46 milliard all. The overall increase in retail portfolio was 0.7 milliard all during the year 2012, the lowest in the last ten years.

The same trend regarding the credit standards followed in the European countries (see graph 2, panel 1 and 2). Only after the first quarter of 2012 the banks started to easing the loan supply criteria.

Graph 2: Global trend of Credit Standards and Loan demand

Panel 1 Panel 2

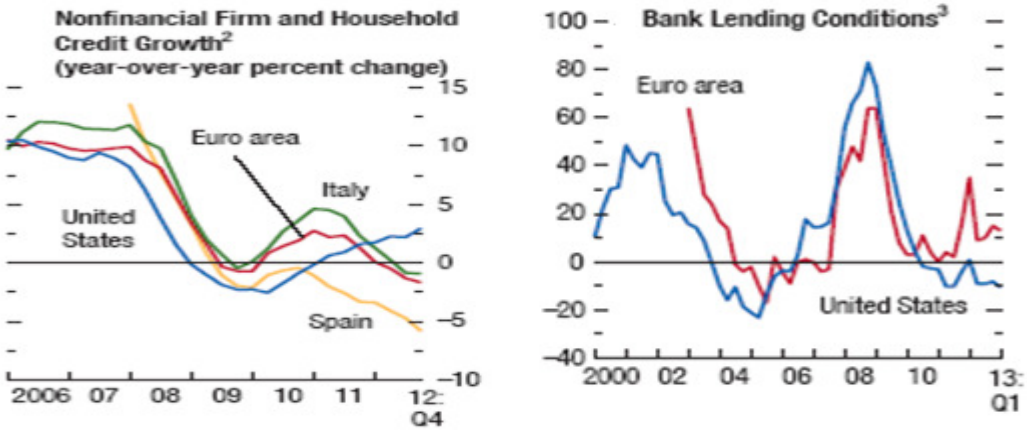


In the United States, the rate of credit growth has been picking up gradually, and bank lending conditions have been easing slowly from very tight levels (Graph 3,panels 1 and 2). Together with lower market risk spreads, this has noticeably eased financial conditions in the USA and Euro area (Graph 4). Financial conditions tightened sharply toward the end of 2011 as the economic outlook deteriorated and tensions rose in the euro area. More recently, market confidence has been bolstered by improved growth prospects and stronger policy actions. Risk spreads have narrowed as a result. Financial conditions are expected to continue easing as global growth continues to gain traction.

This process is supported by recovering house prices, higher household net worth, and stronger bank balance sheets and profitability. However, many middle-income households continue to face high debt burdens.

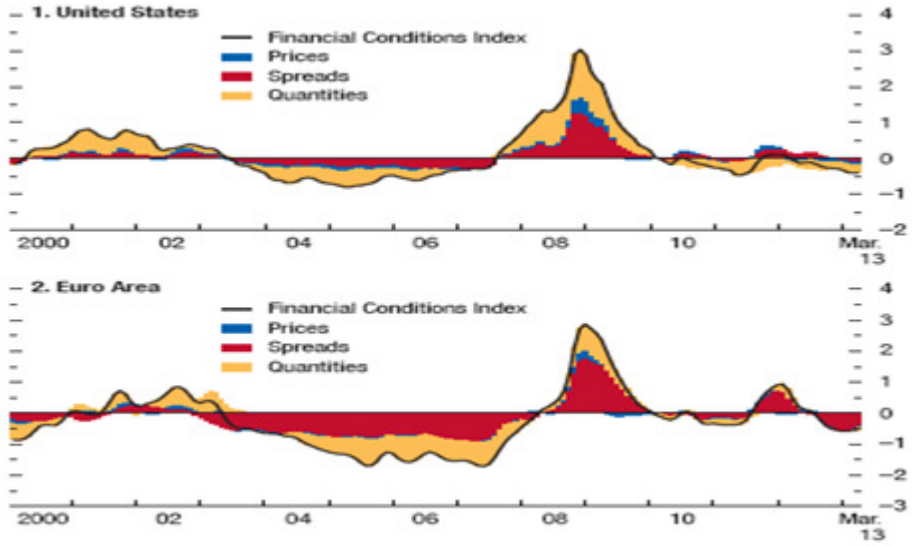
Graph 3: Monetary Conditions and Bank Lending

Panel 1 Panel 2



Source: World Economic outlook, April 2013

Graph 4: Financial Conditions Index



Source: World Economic outlook, April 2013

In the euro area, sustained, positive feedback between activity and credit still seems a distant prospect. Euro area credit continues to contract and lending conditions to tighten, reflecting mainly conditions in the periphery economies which includes Greece, Ireland, Italy, Portugal, and Spain, but also the poor macroeconomic outlook for the region as a whole. Companies in the core face an uncertain environment and low.

Emerging Europe

Emerging Europe experienced a sharp growth slowdown in 2012, reflecting spillovers from the euro area crisis and domestic policy tightening in the largest economies in response to new capacity constraints. The intensification of the euro area crisis took a toll on activity in emerging Europe in 2012. Exports decelerated, confidence suffered, and beleaguered western European banks decreased funding for their subsidiaries (Graph 5, panel 1,2 and 3). Compounding these effects were restrictive domestic policies—in Turkey to rein in the overheated economy and in Poland to address above-target inflation and a sizable fiscal deficit. As a result, growth in the region plunged from 5O percent in 2011 to 1½ percent in 2012. Several economies in southeastern Europe that had yet to fully emerge from the 2008–09 crisis fell back into recession. Emerging Europe is also burdened by such crisis legacies as high nonperforming loan ratios and incomplete repair of public finances.
Growth in Turkey is projected to accelerate to 3½ percent in 2013 and 3Y percent in 2014—helped by recovering external demand and capital flows. Poland's growth will slow further to 1O percent in 2013 before picking up to 2O percent in 2014, on account of lackluster private consumption, fragile export demand from key trading partners in core Europe, and a further decline in EU-funded public investment. Southeastern Europe will see the most tepid recovery, reflecting to various degrees entrenched structural impediments and competitiveness problems, a continued rise in nonperforming loans, and challenging public finances. Hungary faces a difficult outlook due to high public and external debt, along with unconventional policies that have eroded confidence and investment. Overall, annual average inflation is expected to remain moderate this year in most of emerging Europe. Elevated rates are projected only for Turkey (6½ percent) and Serbia (9½ percent), largely reflecting inflation inertia. The balance of risks to the outlook is tilted to the downside, though less than in the October 2012

Graph 5. Emerging Europe: A Gradual Recovery from 2012 Slowdown

Panel 1 Panel 2 Panel 3

5. Housing Market Price in Albania

The decline in market prices in Albania due to the crisis are lower than regional declines. The table below illustrates the decline in market prices for some of the regional countries following the house bubble in 2008. The cumulative decline for most of the regional countries (excluding Croatia) is higher than the 20% decline in market price reported for Albanian residential properties. The house bubbles have typically followed house booms caused not only by the widespread rise in house prices, but also by the accession in the European Union, which caused a massive flood of EU buyers in the acceding countries. While in Albania the house boom before the crisis was caused mainly by two factors:

– Remittances of the Albanian immigrants living abroad who invested a large portion of their savings in acquiring apartments in Tirana and other key areas

– The availability of housing loans and the non-restrictive risk policies of the banks, which coupled with rising rents and prices provided an excellent investment opportunity.

The touristic destinations and the capital are the two prevailing areas which have lower decline in prices as a result of the crisis in the regional countries. The key factor to the contained decline in the house prices in Albania relates to the "unwillingness" of the developers/constructors to lower offer prices, especially for apartments, despite the large available stock of apartments. This unwillingness relates to the lack of demand for apartments and real estate in general.

Table 2: Housing market price

Country	Decline on house market prices (real terms)	Prior increase in house market prices
Bulgaria	Cumulative for 2009 – 2011: 45.6%	Cumulative for 2000 – 2008: 300%
Croatia	Cumulative for 2009 – 2011: 16.6%. In 2012 it went down an additional 3.1%	Not available
Czech Republic	Cumulative for 2009 – 2011: 32.6%. In 2012 it is estimated to have declined by c. 4%	Cumulative for 1998 – 2003: 64%
Poland	Cumulative for 2009 – 2011 (on average): 24.3%. In 2012 it is estimated to have declined by c. 2.49%	Cumulative for 2005 – 2008 (in Warsaw): 109%
Romania	Cumulative for 2009 – 2011: 27.1%	Not available
Slovakia	Cumulative for 2008 - 2012: 28%	Cumulative 2006 – 2008: 28% - 70%

Source: AAB report on Factual Findings

Table 3: Rent to purchase price

Country, location	Average sales price (EUR/sq.m.)	Average rent (EUR)	Rent to sales price (%)	Mortgage to income ratio (country information)
Italy, Rome	5,305	2,334	44%	99.70
Greece, Crete	6,229	1,472	24%	91.57
Romania, Bucharest	2,526	1,400	55%	143.87
Czech Republic, Prague	3,763	1,430	38%	75.11
Poland, Warsaw	3,546	1,729	49%	111.76
Croatia, Zagreb	2,217	1,244	56%	120.95
Bulgaria, Sofia	1,759	732	42%	102.61
Hungary, Budapest	1,506	1,248	83%	107.54
Turkey, Istanbul	2,386	1,457	61%	81.79
Macedonia, Skopje	1,058	781	74%	199.78
Serbia, Beograd	2,354	1,048	45%	174.60
Albania, Tirana	1,474	411	28%	145.38

Source: Albania Association of Banks

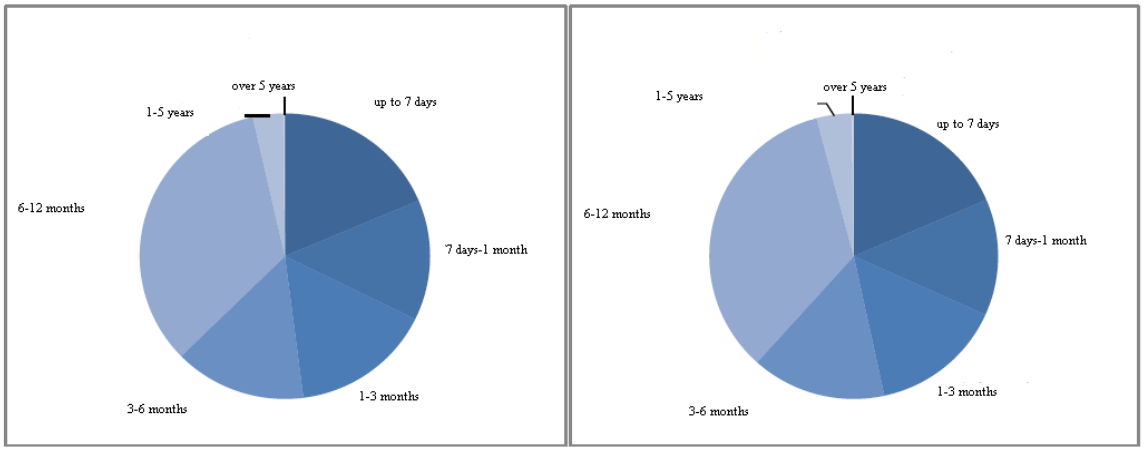
The regional comparison of rents and purchase prices for some of the regional countries, shows that apart from Crete (Greece) for all the other regional countries part of the comparison, the average rent levels are more than 30% of the average sale prices. With respect to Crete, given that it is primarily a touristic destination, the ratio of rent to sales prices can be justified by the fact that all properties are bought for rental purposes. Thus rents are kept at a certain level to attract tourists, but the number of properties is limited so sales prices are high. Albania has the lowest rent to sale price ratio

6. Funding of Mortgage Loans

If the funding of mortgage loans is left primarily to the deposit-taking institutions, they can only supply mortgage loans through deposit mobilized which are short-tenured. As a consequence of the high proportion of short-term liabilities in their deposits, they tend to lend short according to the commercial bank loan theory and the real bill doctrine. The theory stipulates that bank loans should be short-term and self-liquidating because commercial banks usually have short-term deposits. According to the theory, banks should not grant long-term loans such as housing / real estate loans or loans for financing purchase of plant and machinery because they are considered too illiquid (Elliot 1984; Ritter & Silber 1986 as cited by Soyibo 1996). A large percentage of financial institutions in the emerging economies are still adopting the business model used in the era of market-making (1970s-1980s) in the US relying on short-term deposits liabilities to fund long-term mortgages assets (USDHUD 2006; Cho 2007), which are contradictory to the tenets of the commercial bank loan theory. This model had a unique shortcoming under volatile interest rate environment where lenders are borrowing short-term and lending on long-term basis at high interest rates that results in dampened housing finance demand.

Graph 2: Deposits as per maturity

2011 2012



Source: BOA Monetary policy report 2012

A well-functioning primary mortgage market requires adequate funding sources and variety of lenders in the primary market to promote further development. This includes savings mobilization and simple mortgage-backed debt instruments to offer lenders funding alternatives (Roy 2007).

A well-functioning mortgage market is considered by Jaffee and Renaud (1977), Jaffee (2008) and Renaud (2008) to have large external benefits to the domiciled national economy. Quigley (2000), Oloyede (2007) and Warnock & Warnock (2008) are of the opinion that in the absence of a well-functioning housing finance system, there would be inadequacies of market-based provision of formal housing, and any attempt made to provide subsidised housing finance in form of public housing and subsidised interest would be a short-term solution. One of the first set of empirical studies carried out on housing finance in emerging economies was by Deng et al (2005). It is the first rigorous empirical analysis on the earlier performance of residential mortgage market in China. Another recent empirical studies carried out was a Lithuanian study using multiple criteria quantitative and conceptual analysis by Zavadskas et al (2004). Others include Djankov et al (2007) covering 129 countries in both developed and emerging economies using new data on legal creditor rights and private / public credit registries.

Warnock and Warnock (2008) used annual average data from 2001 to 2005 in many developed and emerging economies with emphasis that countries with stronger legal rights, deeper credit information system and a more stable macroeconomic environment have deeper housing finance systems.

7. Methodology and Data

The purpose of this paper is to descripe the relation between the mortgage loans supply from banks as a depended variable and the non-performing loans and the deposits of individuals as undepended variables. The period taken in consideration is 2007 up to 2012 corresponding with the beginin of the financial crisis. The data have been taken from different sources as Bank of Albania , Ministry of Finance, Albanian Associassion of banks etc. The time series of these data are on quarterly basis.There is a gap of empirical study of housing finance in emerging economies, which for I used Albania as a case study in this work. Both supply and demand side of survey were taken into context to generate response to the research questions in my PhD study, but in this paper I will analyse only the supply side of housing finance. The aim of this study centred on housing finance supply in Albania, therefore the methodological framework adopted for the supply side of housing finance is two-variable linear Regression. In the case of this study, various independent variables like individual deposits and non performing loans, are used to predict the value of the depending variable which is housing loans (supply of housing finance). EViews and Excel were used for data analysis. EViews is a standard statistical computer program very much suited for regression analysis with time-series data. The descriptive statistics are used to describe the basic features of the data in this study.

The Assessed Model

The conceptualization of a model is to assist in the analysis of the relationship between housing loans (housing finance supply), being the dependent variable, and other factors that may affect it. The methodology adopted need to capture all the variables. These variables include deposits of individuals and non-performing loans.

The supply of housing finance function is therefore expressed as:

$$Ys = f(X1 + X2)$$

Ys – is the depended variable which represents the mortgage loans supply in Albanian banking sector. This variable will be measured by the new mortgage loans disbursed on quarterly basis

X1- is the first independent variable which represents the individuals deposits in our banking g system. We expect to have positive relation between Ys and X1 considering that the increase of liquidity of the bank increases its willingness to lend

X2- is the second independent variable which represents the non-performing loans (90+ dpd). We expect in our study to have a negative relation between the Ys and X2 as the increase in non-performing loans makes banks more cautious in lending.

Using housing loans as the dependent variable, it could be deduced at a point, the effects of independent variables like the individual deposits and non- performing loans

The basic model is as shown below:

$$Ys = A + \beta 1(X1) + \beta 2(X2)$$

The assessed model is:

$$\mathbf{log(s) = -13.74 + 2.31*log(x1) - 0.81*log(x2)}$$

Dependet Variable:

log(s) - Mortgage loans supply

Independent Variable

log(x1) - individuals deposits

log(x2) - Totali i kredive me probleme

$\beta 1 = 2.31$ shows that when the deposits of individuals increases by 1 unit then the supply for mortgage loans will increase by 2.31 units by keeping stable the non performing loans

$\beta 2 = -0.81$, shows that when the total non performing loans increases by 1 unit then the supply for mortgage loans decreases by 0.81 units by having stable the deposits of individuals.

Table 4: Model Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.74619	5.220548	-2.633093	0.0181
LOG(X1)	2.318775	0.456265	5.082086	0.0001
LOG(X2)	-0.812577	0.095925	-8.470922	0.0000
R-squared	0.856699	Mean dependent var		8.552315
Adjusted R-squared	0.838786	S.D. dependent var		0.387776

Source: author calculations

Pearson Product-Moment Correlation (r)

The Pearson Product-Moment Correlation (r) is the most commonly applied correlation coefficient used in measuring a linear association and it is therefore adopted in this study to build the framework of the conceptual model. Pearson product-moment correlation coefficient (r) ranges from -1 to +1. The indication is that there could be a positive correlation or a negative correlation. A positive correlation exists when dependent and independent variables move in the same direction, that is, when one variable increases and other variable also increase. There is negative correlation when one variable increases and the other variable decreases. Without taken cognisance of the sign, the strength of the relationship could be observed when figures are taken in absolute term. If a correlation of zero is observed, there is no relationship between two variables. However, a perfect correlation of -1 or +1 indicates that the value of one variable can be determined by knowing the value of the other variable. In the regression context, r^2 is a more meaningful measure than r, for the former tells us the proportion of variation in the dependent variable explained by the explanatory variable(s) and therefore provides an overall measure of the extent to which the variation in one variable determines the variation in the other. The coefficient (r^2) ranges from 0 to +1. The r^2 value of

0.85 means approximately 85 percent of the variation in the Y(s) is explained by variation in the X1 and X2. Since r ² at most can be 1, we can say that the regression line fits our data extremely well;

HYPOTHESIS TESTING:

The theory of hypothesis testing is concerned with developing rules or procedures for deciding whether to reject or not reject the null hypothesis.The stated hypothesis is known as the null hypothesis and is denoted by the symbol H0. The null hypothesis is usually tested against an alternative hypothesis (also known as maintained hypothesis) denoted by Ha.

There are two mutually complementary approaches for devising such rules, namely, confidence interval and test of significance. Both these approaches predicate that the variable (statistic or estimator) under consideration has some probability distribution and that hypothesis testing involves making statements or assertions about the value(s) of the parameter(s) of such distribution.

In my study I will refer to the test of SIGNIFICANCE APPROACH in order to define if the finding is statistically significant. To test the significance of the model we will rise the hypothesis based in the Fisher index with the level of significance α=0.05 and (k-1), (n-k) df, it is often called the critical F value.

If $F_a > F_{cr}$ then the hypothesis (H_0) is rejected, and the assessed model is statistically significant

For our model we postulate that :

H_0: The assesed model is not statistically significant

H_a: The assesed model is statistically significant

Performing the calculations with E-Views we reach to the conclusion that actual value of Fisher (Fa) is 47.82 while the critic value of F_{cr} (1,18) is 4.4 concluding that the assessed model is statistically significant thus the Ho hypothesis is rejected. The model state that the supply for mortgage laons is depended from the non-performing loans and from the deposits of individuals with 95% significance interval.

Testing the Significance of Regression Coefficients: The *t* Test

The 95% confidence interval for *t*(17 df).

For β1we postulate that:

Ho : $\beta 1 = 0$ (The β1 coefficient is not significant)

Ha : $\beta 1 \neq 0$ (The β1 coefficient is significant)

$t_a = 5.08$

$t_{cr} = t(\alpha/2;n-2) = t_{0.05;17} = 2,1098$

$t_a > t_{cr}$ so that Ho is rejected. We reash to the conclusion that the β1 coefficient is significant.

For β2 we postulate that:

Ho : $\beta 2 = 0$ (The β2 coefficient is not significant)

Ha : $\beta 2 \neq 0$ (The β2 coefficient is significant)

$t_a = 8.4$

$t_{cr} = t(\alpha/2;n-2) = t_{0.05;17} = 2,1098$

$t_a > t_{cr}$ so that Ho is rejected. We reash to the conclusion that the β2 coefficient is significant.

Autocorrelation

The term autocorrelation may be defined as "correlation between members of series of observations ordered in time [as in time series data]. In the regression context, the classical linear regression model assumes that such autocorrelation does not exist in the disturbances *ui*. Put simply, the classical model assumes that the disturbance term relating to any observation is not influenced by the disturbance term relating to any other observation.

Economic phenomena on time are characterized from a kind of inertia change. They are likely to increase or decrease, thus it seems that the terms of the series of a previous period have lead to the increase of the series to a later period

.

Durbin–Watson *d* Test

The most celebrated test for detecting serial correlation is that developed by statisticians Durbin and Watson. It is popularly known as the Durbin–Watson d statistic, which is defined as

$$d = \frac{\sum_{t=2}^{t=n}(\hat{u}_t - \hat{u}_{t-1})^2}{\sum_{t=1}^{t=n}\hat{u}_t^2}$$

In our model the *d* value 1.87 is around 2, which would suggest that there is no autocorrelation in such model.

Heteroscedasticity Test

An important assumption of the classical linear regression model is that the disturbances term *ui* appearing in the population regression function are homoscedastic; that is, they all have the same variance.

This is the assumption of homoscedasticity, or *equal* (homo) *spread* (scedasticity), that is, *equal variance*. Symbolically,

$$E(u_i^2) = \sigma^2 \qquad i = 1, 2, \ldots, n$$

The heteroscedasticity may arise more often in time series dispersion than in those of dynamic series. In case the heteroscedasticity is present in the estimator econometric models than the estimators are linear, unbiased, are not best. For such a reason the significance intervals will be wider and the actual value of t will be smaller than in the absence of heteros. This will increase the possibility that the H0 hypothesis not to be rejected even though it is not true.

In our final model we will perform the test for heteroscedasticity based on White's heteroscedasticity Test.

For our model we postulate that

Ho: No presence of heteroscedasticity

Ha: Presence of heteroscedasticity

Based of the White's heteroscedasticity Test (Annex I) the estimated model is insignificant and also the coefficients of the model considering the respective probabilities higher than 0.05. We conclude that in our model the heteroscedasticity is not present.

Table 5: White test results

White Heteroscedasticity Test:				
F-statistic	0.083193	Probability		0.986249
Obs*R-squared	0.441132	Probability		0.978973
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.01466	83.35506	0.348085	0.7330
LOG(X1)	-4.442693	12.99781	-0.341803	0.7376
(LOG(X1))^2	0.166464	0.490668	0.339259	0.7394
LOG(X2)	0.122673	0.742580	0.165198	0.8711
(LOG(X2))^2	-0.005812	0.037255	-0.156020	0.8782
R-squared	0.023217	Mean dependent var		0.020414
Adjusted R-squared	-0.255863	S.D. dependent var		0.023085
S.E. of regression	0.025870	Akaike info criterion		-4.250525
Sum squared resid	0.009370	Schwarz criterion		-4.001988
Log likelihood	45.37998	F-statistic		0.083193
Durbin-Watson stat	2.509874	Prob(F-statistic)		0.986249

Source: author calculations

Jarque–Bera (JB) Test of Normality.

The JB test of normality is an *asymptotic,* or large-sample, test. It is also based on the OLS residuals.

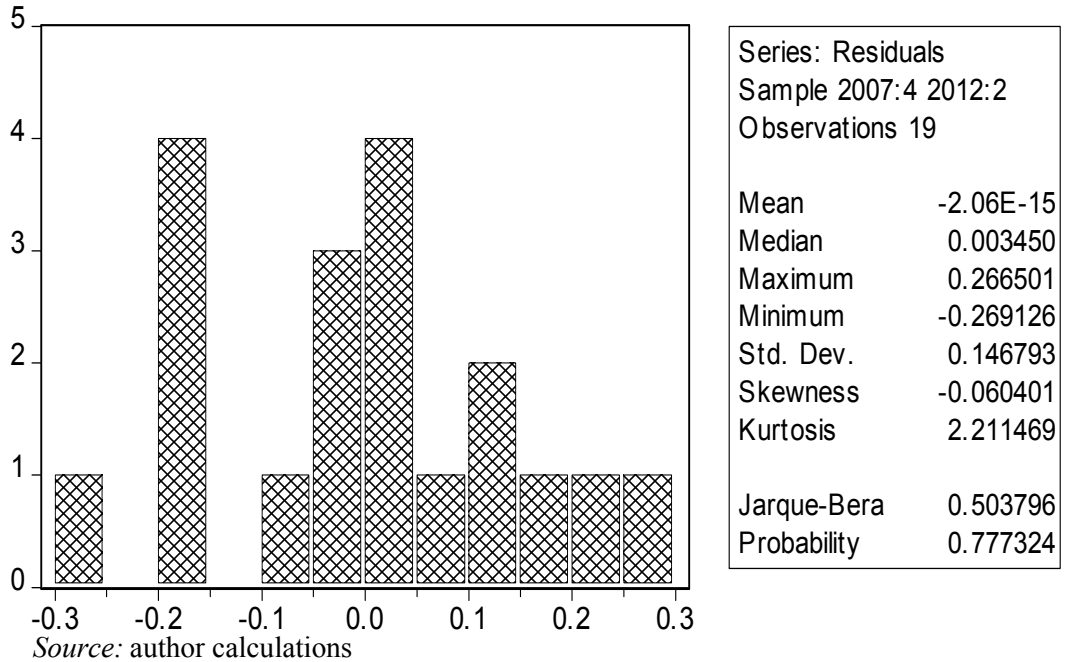
$$\text{JB} = n\left[\frac{S^2}{6} + \frac{(K-3)^2}{24}\right]$$

where *n* = sample size, *S* = skewness coefficient, and *K* = kurtosis coefficient. For a normally distributed variable, *S* = 0 and *K* = 3. Therefore, the JB test of normality is a test of the joint

hypothesis that *S* and *K* are 0 and 3, respectively. In that case the value of the JB statistic is expected to be 0. If the computed *p* value of the JB statistic in an application is sufficiently low, which will happen if the value of the statistic is very different from 0, one can reject the hypothesis that the residuals are normally distributed. But if the *p* value is reasonably high, which will happen if the value of the statistic is close to zero, we do not reject the normality assumption.

Application of the Jarque–Bera test shows that the JB statistic is about 0.50379, and the probability of obtaining such a statistic under the normality assumption is about 78 %. Therefore, we do not reject the hypothesis that the error terms are normally distributed.

Graph 2: Jarque–Bera (JB) Test of Normality



Source: author calculations

8. Conclusions

The purpose of this study is to analyze the housing loans financing in Albania. The analyze considers two factors influencing the loan supply, the non-performing loans and the individuals deposits.

Empirically assessing the model a linear regression model was used. For the considered period, years 2007-2012, corresponding with the financial crises, it was reached the conclusion that the supply for housing loan has a strong positive relation with the individual's deposits and a strong negative relation with the non performing loans.

In the last years, the supply for housing loans in Albania decreased in parallel with the increase in the non- performing loans so the banks suffered not only from the unpaid and/or delayed installments but also from the "opportunity cost" of interest from the missing new financing loans.

Macroeconomic policies are one of the main factors affecting the Housing Finance Supply in Albania. Considering that approximately 66 percent of the mortgage portfolio is in foreign currency and the incomes of the borrowers being manly in ALL, it is very crucial not to transmit the depreciation of local currency.

One of the constrains in mortgage lending is that Albanian market is characterized by a high rate of informal buildings which either lack the proper documentation and permits or obtained the proper documentation and permits but were built by infringing a number of rules imposed by the current legislation.

Furthermore based on regional data, Albania has the highest mortgage to- income ratio comparing to other countries in the region. This implies that in an environment of substantially lower funding that the one before the crisis, the demand results to be considerably lower than the pre-crisis period.

9. References

Bank of Albania,. Yearly report 2007-2012, http://www.bankofalbania.org

Albanian Association of Banks, Credit to the Economy by purpose statistical data 2007 -2012. http://www.aab.al

Berger, Allen N. & Humphry De Young, "Problem Loans and Commercial Banks", Journal of Banking and Finance, Vol. 21, 1997

US Housing Finance System: A Historical Survey and Lessons for Emerging Mortgage

Markets, Office of Policy Development and Research, US Department of Housing And Urban Development, April 2006.

Osmani. M. (2010) ,Econometry with applications, Vol1, pg .77-99

Albanian Association of Banks Report on Factual Findings Vol 1, pg 24, 2013

Instat statistics http://www.instat.gov.al

Bhutta, Neil. 2008. "Giving Credit where Credit is Due? The Community Reinvestment Act and Mortgage Lending in Lower-Income Neighborhoods." Board of Governors of the Federal Reserve Finance and Economics Discussion Paper 2008-61.

Ashcraft, Adam, 2003, "New Evidence on the Lending Channel," forthcoming at the *Journal of Money, Credit and Banking*.

Kashyap, Anil, Raghuram G. Rajan and Jeremy Stein, 2002, "Banks as Liquidity Providers: An Explanation for the Co-Existence of Lending and Deposit-Taking," *Journal of Finance* 57(1),33-73.

Paravisini, Daniel, 2004, "Constrained Banks, Constrained Borrowers: The Effects of Bank

Liquidity on the Availability of Credit," MIT mimeo, November.

Elena Loutskina, Philip E. Strahan 2007 "Securitization and the declining impact of bank finance on loan supply: evidence from mortgage acceptance rate

Ben S. Bernanke 2011, speech on Committee on Banking, Housing, and Urban Affairs

A GEOPOLITICAL ANALYSIS OF THE ACTIVATION OF THE SHIITE GEOPOLITICAL FACTOR WITHIN THE SYRIAN CONFLICT GEO-SYSTEM[1].

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Abstract

This paper presents a systemic analysis of the Iran-Syria-Lebanon geopolitical sub-system within the frame of the Wider Middle East geo-complex and in light of the geopolitical factor of the Shiite Islamist movement. We consider that the Shiite Islamist movement, which is represented by Hezbollah in Lebanon and by proxy Shiite organizations in Iraq (Kataeb Hezbollah and Asa'ib Ahl al Haq), has been transformed, under Tehran's management and direction, into an important power redistribution factor in the region. Turkey's foreign policy is evaluated as unsuccessful and dangerous for the security of the state of Israel and the stability of the Middle Eastern geopolitical system, particularly in relation to Ankara's support of radical Islamist groups operating inside Syria. Ankara's policy is also considered as a trigger mechanism for the acceleration of secessionist and state-formation ambitions, such as in the case of the gradual autonomy of an ethnically Kurdish zone in the northeastern Syrian territory. In addition, the US - Russian initiative for the destruction of the chemical arsenal of the Assad regime is evaluated as beneficial for the regional stability. Equally, we evaluate the US - Iranian negotiation process as a strategically agile diplomatic maneuver from Washington's part.

Keywords: *Systems, Sub-systems, Super-system, Shiite Islamist movement, Syria, Iran, Hezbollah, Israel, Syrian Kurds, Turkey, Saudi Arabia*
JEL-Classification: F50,F51,F52

Iran's and Hezbollah's strategy in Syria: a deepening regional crisis

A. The Geopolitical Factor

The *geopolitical factor* of the present analysis is the Shiite Islamist movement, which functions as a power redistribution factor within the examined geo-complex (that is analyzed in the Systems described below). The redistribution of power under consideration is examined within the Geographical Complex/System of the Wider Middle East.

B. Determination of the Systemic Grades

I. The System: Wider Middle East.

II. The Sub-systems: Iran/Syria/Lebanon, Turkey-Syria/Iran/Lebanon

1) The first sub-system: Iran/Syria/Lebanon, as the operator of the geopolitical factor of the Shiite Islamist movement.

2) The second sub-system: Turkey-Syria/Iran/Lebanon, as the typical conflictual sub-system.

III. The Acting Super-system:

The US, the UK, France, Russia and China. The EU, as a whole, is clearly influenced by the London - Washington 'special relationship', which appears as particularly fragile in the case of the Syrian crisis[2]. The UN, as a super-systemic factor, is functionally neutralized in the short-term.

C. From a Syrian crisis to a regional crisis

The system of the wider Middle East has, once again, entered a period of extreme violence and high volatility. Ten years after the Second War in Iraq (2003), it is now Syria that has become the focal point which is sending geopolitical vibrations throughout the region.

Since March 2011, when the first protests against the Assad regime started in southern Syria together with the almost immediate violent crackdown by the regime's forces, the Syrian crisis has been gradually acquiring additional dimensions. From one more string in the chain of the so called 'Arab Spring' revolts (Tunisia, Libya, Egypt and Yemen)[3], the Syrian crisis was initially transformed into an armed conflict between the regime forces and the insurgents. More specifically, it mutated into an escalating conflict with highly sectarian characteristics (the Sunni majority versus the ruling Alawite minority), while radical Islamist groups (Syrian and non-Syrian that were "imported" into Syria via Turkey) began to exert increased military and ideological influence among the anti-Assad fragmented camp.

By 2012, the escalating Syrian crisis had acquired a deepening regional dimension. Syria was becoming ever more –as Lebanon had in the 1970s and 1980s- the combat zone for the entire Middle East. Throughout the duration of the year 2012, the regional dimension of the Syrian crisis was growing very rapidly. With Syria as a focal point, two competing regional blocs had crystallized: The pro-Assad bloc, consisting of Iran, the Lebanese party *Hezbollah* and Iraq and the anti-Assad bloc, consisting of Turkey, Saudi Arabia, Qatar and the United Arab Emirates[4].

Meanwhile, by the middle of 2012 the international dimension of the crisis had also become intensely active: the US, Britain and France supported the opposition forces, while Russia and China backed the Assad regime. These regional and international actors started to provide arms, training and resources to their respective allies within Syria.

By the middle of 2013, the conflict's regional dimension had reached new heights. A US official made the following very accurate note in a recent *International Crisis Group* report: "*...the Syrian crisis had evolved and from a Syrian war with regional consequences is becoming a regional war with a Syrian focus"*[5].

D. The activation of the Shiite geopolitical factor: the opposition's military advances trigger the Iranian counterattack

The period from the second half of 2012 up to the first half of 2013 has been, until presently, the most critical period of the Syrian conflict. This is mainly due to two reasons: firstly, because it was during this period of approximately 8 to 10 months, that the Syrian war went through its highest point of combat volatility, when strategically vital territory was initially lost and then retaken by the Assad regime. Secondly, because this volatility and the threat that it posed to the survival of the Assad regime triggered the reaction of the Iranian regime and led to the escalation of the military involvement of Iran and *Hezbollah* (Shiite geopolitical factor) inside Syria.

In particular, in November 2012, the Sunni opposition forces opened new fronts in the north, centre and south of the country[6]. At the end of November, a series of events heightened the sense of the increasing fragility of the Assad regime:

1) A twin car bomb in a Damascus district (the mainly Christian and Druze populated Jaramana) and an attack against the Damascus International Airport[7].

2) In the middle of December, the opposition forces captured the military academy in al-Muslimiyah outside Aleppo[8] and engaged with regime forces in the suburb of Daraya, just outside Damascus[9].

3) In January 2013, the opposition forces were continuing to make serious military gains, both in the Syrian countryside and in various urban centres, such as in the northern city of Aleppo and in the suburbs around the capital Damascus.

4) By the middle of February, opposition forces were engaging with regime troops in various suburbs of Damascus, closing in on the Syrian capital.

5) On 13 February a Reuters journalist reported the following from Damascus: "*The war has not yet reached the heart of the capital, but it is shredding the suburbs. In the past week, government troops backed by air power unleashed fierce barrages on the east of the city in an attempt to flush out rebel groups. Most of central Damascus is controlled by Assad's forces, who have erected checkpoints to stop bomb attacks. The insurgents have so far failed to take territory in the center*"[10].

6) Three weeks later, on 4 March, the Assad regime lost the city of Raqqa, the sixth most populated urban centre in Syria and the first provincial capital to fall under opposition control[11].

7) In the middle of March, the opposition forces escalated their offensive against Damascus.

8) On 21 March, a car bomb exploded outside the Al-Iman Mosque in central Mazraa district, killing 42 people, among which the prominent Sunni cleric sheikh Mohamed Al Buti, a staunch supporter of the Assad regime[12].

9) Four days later, anti-regime units launched an extended mortar attack against central Damascus, hitting targets close to the central Baath offices and the TV centre in Umayyad Square[13].

Therefore, by the end of March 2013, the Assad regime appeared to be under extreme pressure from the opposition. It had lost critical territory around the northern city of Aleppo, the first provincial capital had been lost (Raqqa), as well as part of the strategic town of Qusair in the west close to the Lebanese border, and Damascus was under siege by opposition forces that were able to strike close to the capital centre, at the heart of the regime. ***(see Maps 1 & 2)***

A.1. The sub-systemic level: the Iran-Syria dipole and the activation of the sub-systemic Shiite "axis of resistance"

The abovementioned military gains and territorial advances that the Syrian opposition had achieved from November 2012 to March 2013 alarmed Iran (the leading Shiite geopolitical factor). The increasing fragility of the Assad regime, which could lead to its possible collapse, was perceived by Iran as a critical threat for its foreign policy in the wider Middle East. Syria

constitutes a vital part of the 30 year old sub-systemic Iran – Syria - *Hezbollah* geostrategic alliance. A triple alliance to which Tehran, Damascus and southern Beirut (where *Hezbollah*'s HQs are) have given the name "axis of resistance" against US, Israeli and the Gulf states' geostrategic interests in the Levant.

Firstly, Syria's strategic importance within this "axis of resistance" is absolutely central for Iran. Syria is the sole state that is a close ally of Iran in the region, a strategic partnership that started in 1979 and one which is based not on religious or ideological foundations[14] , but purely on geopolitical data and geostrategic interests. The Assad regime provides Iran with vital strategic depth, which gives Tehran crucial access to the geopolitical system of the Middle East and the Eastern Mediterranean.

This access offers multiple advantages to Iran. Firstly, it allows Tehran to transfer weapons and other logistical support to its close non-state ally, the Lebanese party of *Hezbollah*, which has a very powerful paramilitary force. Through *Hezbollah* in southern Lebanon Tehran has the capacity to exert pressure on Israel, thus extracting military and diplomatic leverage vis-à-vis Tel Aviv.

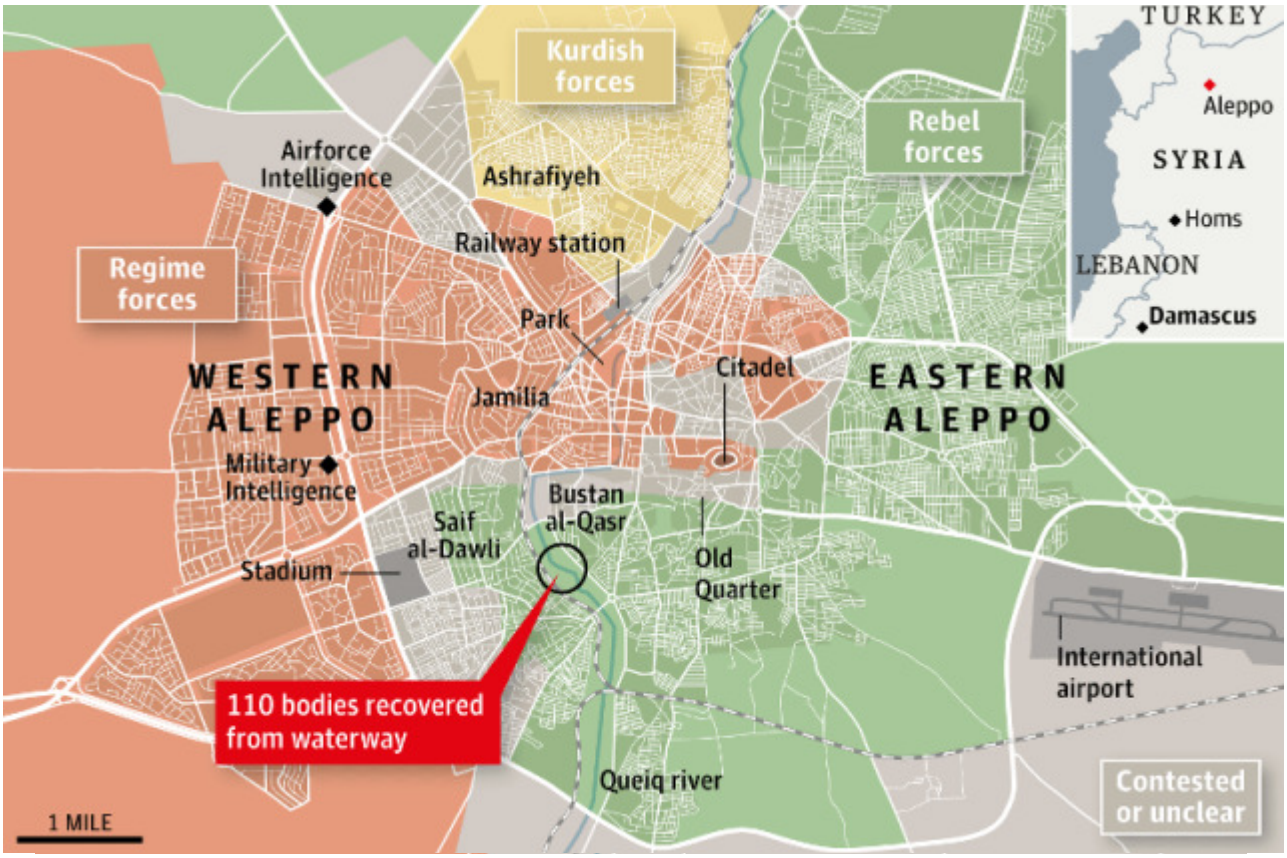
Secondly, Syria's geographical position in relation to Iraq (a 600km-long common border across western Iraq) provided Iran - during Saddam Hussein's Baathist rule in Iraq - with a critical pressure line against what at

Map 1. Damascus, the Syrian capital. During the first months of 2013, the opposition forces made military gains in several suburbs of the capital. (Source: BBC)

the time was Tehran's fiercest geopolitical competitor and enemy. Consequently, after the US intervention in 2003 and the disintegration of the Sunni regime of Saddam Hussein, Syria and Iran encircled the new Iraq and were able to check the US military operations in post-Saddam

Iraq and eventually to maintain a fragile Baghdad government under the de facto control of Tehran.

Finally, this relatively recent control that Tehran exerts on post-Saddam Iraq, has given Iran the unique opportunity to create its own geostrategic power nexus, a horizontal alignment from central Asia to the Mediterranean coast. This is a continuous and enhanced strategic alignment that has its starting point in Iran, crosses through Iraq and Syria and ends in southern Beirut and Lebanon.



Map 2. The northern city of Aleppo is the biggest urban centre in Syria with an official population of 2.1 million people. Aleppo has been fiercely contested between the regime forces and the opposition. In March 2013, 110 bodies were found on the banks of the Aleppo river. (Source: The Guardian)

Syria, with its unique geopolitical centrality within the Middle Eastern geo-systemic power nexus, is the connecting space of this Iranian-inspired horizontal geostrategic alignment. The Assad regime, at the geographic centre of this alignment, provides a double strategic depth, east to the Iraqi Shiite element (*Kazali Network* or *Asa'ib Ahl Al-Haq* and *Kataeb Hezbollah*[15]), west to the Lebanese Shiite element (*Hezbollah*).

The heightened threat, in March 2013, by the opposition forces against the viability of the Assad regime threatened simultaneously the above mentioned strategic regional architecture of the Iranian regime. The collapse of the Assad regime would automatically break the horizontal geostrategic power nexus that Tehran had gradually created, it would elevate Turkey's regional role in the north, and it would allow the Sunni Gulf states to use the Syrian territory in order to perform a double geopolitical pivot and project their power in both Lebanon and Iraq, enforcing the local Sunni elements against the Shiite ones. Therefore, Tehran decided that, in April 2013, it had to act rapidly and to intervene in Syria in a more drastic manner than it had up to that point.

A.1.1. The Shiite geopolitical factor's activation frame: Iran's counterattacking strategy in Syria

Due to Syria's important place within the abovementioned Iranian geostrategic power nexus, Tehran had supported, almost from the beginning of the insurgency, the Assad regime. It had sent to Damascus military advisors from its elite *Iranian Revolutionary Guards Corps* (IRGC) and it had provided the Syrian regime with new weapon systems, cheap oil and credit[16]. Furthermore, Iran's close ally in Lebanon, *Hezbollah*, conducted military operations along the porous Lebanon-Syria border east of the Bekaa Valley in order to prevent the transfer of fighters and weapons destined for the Syrian opposition from inside Lebanon.

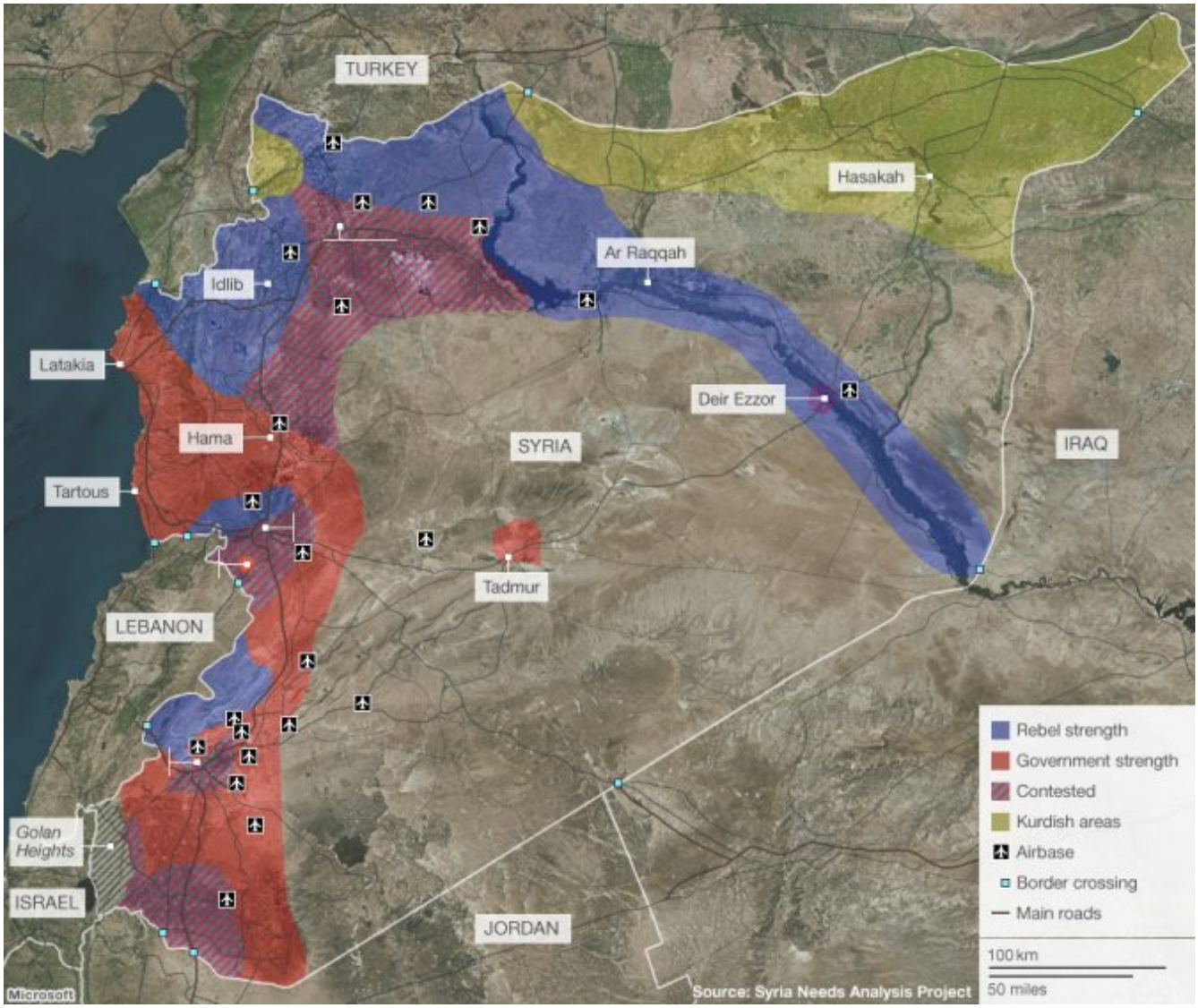
In April 2013 Tehran took the decision to intensify its direct involvement in the Syrian conflict in order to safeguard the continuity of the Assad regime and of course its geostrategic nexus. This elevated and more direct intervention was to be coordinated by the special unit of the *IRGS*, the *Al Quds force*, and spearheaded by the paramilitary forces of Lebanese *Hezbollah.*

The role of the *Al Quds force* in the Iranian intervention in Syria is fundamental. The *Al Quds force* is an elite, covert military unit which operates in the wider Middle East with the mission of promoting the geostrategic aims of the Islamic Republic of Iran. It has been characterized as the Iranian equivalent of a combined Special Forces and the CIA. General Qassem Suleimani is the commander of the *Al Quds force*. A veteran of the Iran-Iraq War (1980-1988), Suleimani is one of the most powerful men in Iran. As leader of the *Al Quds force* he is in charge of Iranian policy in Iraq and Syria, while according to a number of sources he is answerable only to the Supreme Leader of Iran Ali Khamenei[17].

After March 2013 and the military setbacks of the Assad regime, General Suleimani began coordinating the counterattack of the Syrian regime. He went to Damascus and set up a command centre in the Syrian capital. US journalist Dexter Filkins reported recently that, "*In Damascus he is said to work out of a heavily fortified command post in a nondescript building, where he has installed a multinational array of officers: the heads of the Syrian military, a Hezbollah commander and a coordinator of Iraqi Shiite militias, which Suleimani mobilized and brought to the fight"*[18].

The nature of Suleimani's strategy was both defensive and offensive at the same time. Its main objective was the retaining of the vital territory of central Syria, a large part of land that extends from the eastern Syria-Iraq border through Damascus to the east of the Lebanon-Syria border and then slightly north to the Syrian Mediterranean coast. This stretch of territory constitutes the heartland of Syria and it is where the vast majority of the Alawites (the sect that the Assad family belongs to), the Christians and the Druze live, that is the minorities that support the Assad regime against the Sunni opposition[19].

Furthermore, the retaining of this territory enables the defence of the capital Damascus, which is the heart and base of the regime, while it connects Damascus with the vital and predominantly Alawite coastal towns of Latakia and Tartous (where Russia, a strong supporter of the Assad regime, retains its only naval base in the Eastern Mediterranean). In other words, Suleimani's plan was to reinforce the periphery of Damascus, to cut-off Lebanon and Iraq for the Sunni opposition, but to keep them open for the Shiite paramilitary forces and the Syrian Alawite regime units. ***(See Map 3)***



Map 3. Contested areas of the Syrian conflict during the first months of 2013. (Source: Syria Needs Analysis Project)

A.1.2. The nucleus of the activation of the Shiite geopolitical factor: Hezbollah's central role in Iran's strategy

Suleimani's counterattacking strategy was based primarily on the upgrading of *Hezbollah*'s military operations inside Syria and secondary on the mobilization of the Iraqi Shiite paramilitary groups *Asa'ib Ahl Al Haq* and *Kataeb Hezbollah*. Both of these Shiite Iraqi groups were very active in numerous attacks against US and British forces in Iraq from 2004 onwards. Its fighters are trained in a number of locations in Iran and Lebanon by experienced *Al Quds* force and Lebanese *Hezbollah* commanders and then take part in military operations inside Syria, particularly in areas around Damascus[20].

But undoubtedly, it was the Lebanese *Hezbollah*'s decisive involvement that was to spearhead Iran's counterattack in Syria. According to a *Reuters* report, the leader of *Hezbollah*, Hassan Nasrallah, travelled covertly to Tehran in April 2013, where he met with the Supreme Leader of Iran, Ali Khamenei, and the commander of the *Al Quds* force, General Qassem Suleimani[21]. According to reports, it was at this meeting that it was agreed that *Hezbollah* was going to assume a much more direct and aggressive role in the Syrian crisis. Its primary – but not singular - aim was to counterattack and defend the eastern flank of the Syrian territory, which was considered vital for the defence and survival of the Assad regime. This eastern flank is composed of the Syrian-Lebanese borders, the territory east of the capital

Damascus and the Homs province which lies on the route of the supply line towards the Syrian Mediterranean coast.

In a televised speech, on 29 April 2013, given by Nasrallah in *Hezbollah*'s TV station *Al-Manar*, the leader of the Shiite party announced publicly that *Hezbollah* "*could become more deeply involved in the Syrian crisis*" and that "*Syria had real friends who would not allow it to fall into the hands of America, Israel and Islamic extremists*"[22]. It was an acknowledgment that *Hezbollah* was already operating in Lebanon, but also a threat that, if needed, the Shiite geostrategic axis, *Hezbollah* and Iran, were ready to defend the survival of the Syrian regime more actively. Then, in early May 2013 came a new speech by Nasrallah, this time an official confirmation of *Hezbollah*'s active and extensive military involvement in Syria, and at the same time a statement of intent and a clear message towards the powers that are opposing the Assad regime, naming in particular the US, Israel and the Sunni Islamists. During the same period, an unconfirmed number of *Hezbollah*'s elite fighters were taking part in military operations near and around the strategically located town of Qusair in Homs province, in coordination with units of the Syrian army.

But prior to the active military involvement of *Hezbollah* in the strategically vital battle of Qusair, its fighters were also involved in the organization of the defense of the Sayyida Zeynab shrine in southern Damascus. It is considered one of the most sacred sites for Shiite Muslims and it is named after Zeynab, the daughter of Imam Ali (and founding father of Shiite Islam), who is buried within the gold-domed shrine in the southern suburbs of Damascus. According to many sources, a few months ago, after two failed attempts by Sunni jihadists to destroy the shrine, *Hezbollah* sent a small detachment in order to protect the shrine, along with other Shiites from Iraq and Syria itself. The defense unit that now protects the Sayyida Zeynab shrine has been name *Abu al-Fadl al-Abbas* brigade, or *Kataeb al-Abbas*[23] after the son of Imam Ali and brother of Zeynab[24].

Beyond the religious significance of the protection of the Sayyida Zeynab shrine in Damascus, there is another, practical one. The call for its protection by the leadership of the *Al Quds* force and the leadership of *Hezbollah* has also been utilized as a mobilization call for all Shiites across the Middle East and has been providing ideological legitimacy to the military involvement of Lebanese, Iraqi and Iranian Shiites fighters inside Syrian territory. In any event, Iran and *Hezbollah*, have used the sectarian card in their rhetoric in order to facilitate the mobilization of the Shiite public opinion with regards to their intervention in Syria.

In the middle of May 2013, an elite *Hezbollah* unit along with Syrian army units, launched a counterattack in order to retake Qusair from the Syrian opposition forces. The town of Qusair, with a population of around 50.000 people, is located 35 kilometers southwest of Homs, thus linking the strategically important route from Damascus to the Syrian coast and Lebanon[25]. The Assad regime needs to control this route, which connects its base in Damascus with the predominantly Alawite Syrian coast and the Lebanese Shiite border towns and villages. On the other hand, the Syrian opposition has been trying for many months to cut this route and isolate Damascus from the Syrian coast and northeastern Lebanon. (***See Map 4***)

Map 4. Qusair (indicated above in red) is a strategically located town that connects the capital Damascus with Latakia, the Alawite Syrian coast, as well as northern Lebanon. (Source: The Guardian)

According to Rami Abdel Rahman, director of the Syrian Observatory for Human Rights, "*it was Hezbollah that was leading the battle in Al-Qusair, with its elite forces*"[26]. Furthermore, this battle brought Shiite *Hezbollah* in a direct confrontation with the Sunni extremist organization *Jabhat al-Nusra*[27]. This organization is the most powerful Islamist group among the Syrian opposition and has recently declared itself affiliated and linked with *Al Qaeda*[28].

On 5 June, after two weeks of intense urban warfare, Qusair fell under the control of *Hezbollah* and the Syrian army units. *Hezbollah* had made use of its experience in asymmetric warfare tactics and its urban warfare training and it had shifted the balance of this crucial battle in favor of the Syrian regime. According to reports, *Hezbollah* had used around 2.000 of its elite fighters in the battle of Qusair and had suffered between 150-200 casualties. In the aftermath of the battle, Iran released an official statement, with which it congratulated "*the Syrian people for their victory*"[29].

B.1. The systemic level: Hezbollah's systemic aspirations in Syria

In the case of *Hezbollah*, its strength relies not only with the advanced arsenal that it has managed to acquire through Iran and Syria, but also with its geographical position vis-à-vis Israel and in relation to the Tehran-Damascus geostrategic dipole. Therefore, the event of a regime change in Damascus would present *Hezbollah* with an almost existential challenge. The primary objective for *Hezbollah* is to sustain its asymmetric warfare capabilities against Israel. Within the frame of the Middle East geo-system, *Hezbollah's* primal systemic objective is to ensure for itself three fundamental geostrategic necessities:

a. *The preservation of the strategic depth that is provided to Hezbollah by the Assad regime, particularly in relation to the party's ongoing confrontation with Israel.* The survival of the Assad regime is absolutely vital for the continuation of the Tehran-Damascus-south Lebanon "resistance axis". The Syrian territory, east and north-east of the strategically important Bekaa Valley (the birthplace and first HQ of *Hezbollah* in 1982), allows the Shiite organization vital 'breathing space'. A regime change in Damascus would confine *Hezbollah* in a very tight territory, isolated between the Mediterranean Sea in the west (which is closely patrolled by the Israeli Navy and Air Force), the Israeli borders in the south, the Sunni Lebanese territory in the north and the new, presumably hostile, Syrian regime in the east and northeast. In such an event, *Hezbollah* could find itself geographically, but more importantly, geopolitically isolated.

b. *The maintenance of the weapons route, from Iran and Syria. Hezbollah* bases its attacking capability on the advanced weapon systems that it receives from primarily Iran, but

also Syria. This route is usually by air, from Tehran to Damascus airport and then on land, through the Syrian territory and into the Bekaa valley. The May 2013 Israeli surgical strikes within Syria were aiming to avert the acquisition of the Iranian produced Fateh-110 missiles by *Hezbollah*. These missiles have a range of 300 km, and Israel declared, after the airstrikes (on 3 and 5 May 2013) that it will not "*allow game-changing weapons falling into the hands of Hezbollah*". The first air strike, on 3 May, hit a target in Damascus airport, while the second and biggest one, hit targets close to the city of Damascus, in particular bases of the elite *Republican Guard* and a military research centre. In comments made by Israeli government officials, the Israeli side denied any direct involvement in the Syrian crisis, but made clear that it would act again in order to prevent the strengthening of *Hezbollah*. "*Israel"*, said the official, "*will continue its policy of interdicting attempts to strengthen Hezbollah, but will not intercede in the Syrian civil war as long as Assad desists from direct or indirect attacks against Israel*"[30].

A few months earlier, in January 2013, Israel had also struck a convoy that was heading to Lebanon, close to the Bekaa valley. It was later confirmed that the convoy of trucks was carrying SA-17 anti-aircraft systems destined for *Hezbollah*[31]. These missiles are Russian-made and were transported recently by Moscow to the Assad regime[32]. A former Mossad operations officer commented recently that "*the absolute top priority of the Israeli government – and by extension the intelligence community and the military – is the prevention of a first strike weapons capability that threatens Israel's population centers from reaching the hands of Hezbollah*".[33]

Indeed, after the eruption of the Syrian crisis, Israel has drafted a Syria strategy that focuses mainly on the prevention of the strengthening of *Hezbollah's* arsenal. A strategy that consists of a combination of advanced intelligence via satellite and drone technology and surgical airstrikes. On the other side, *Hezbollah* has attempted to utilize its clandestine operations inside Syria in order to acquire more powerful missiles in its arsenal. In order to do so, the Shiite organization has had to evade the Israeli aerial control. According to Israeli sources, *Hezbollah* has managed to acquire at least 8 Scud-D missiles (which have a range of 300 km, but are less accurate than the Fateh-110 missiles) from Syria[34].

c. *The continuation of Hezbollah's military superiority inside Lebanon.* In light of the higher sectarian tensions that the Syrian crisis has spread across the Levant (Syria, Lebanon and Iraq), it is imperative for the Shiite *Hezbollah* to maintain its military superiority against its Sunni adversaries within Lebanon. Since the start of the Syrian crisis, the north and north-east parts of Lebanon have become transit points for logistical support for the Syrian Sunni opposition. But it is the ever rising Sunni Islamist *Jabhat al-Nusra*, an extremist organization connected with *Al-Qaeda*, that poses a new challenge for *Hezbollah* in Lebanon. *Jabhat al-Nusra*[35] was formed in Syria in January 2012 and it is a direct product of the ferocity of the Syrian conflict. Since then, it has grown speedily, drawing fighters from the wider Middle East. The formation and growth of *Jabhat al-Nusra* is directly connected to *Lebanon,* since many Lebanese Sunnis joined its ranks after the eruption of the Syrian conflict. These originate particularly from the Palestinian refugee camps, as well as the northern city of Tripoli, historically as well as recently, an important urban centre for Sunni Islamist groups[36].

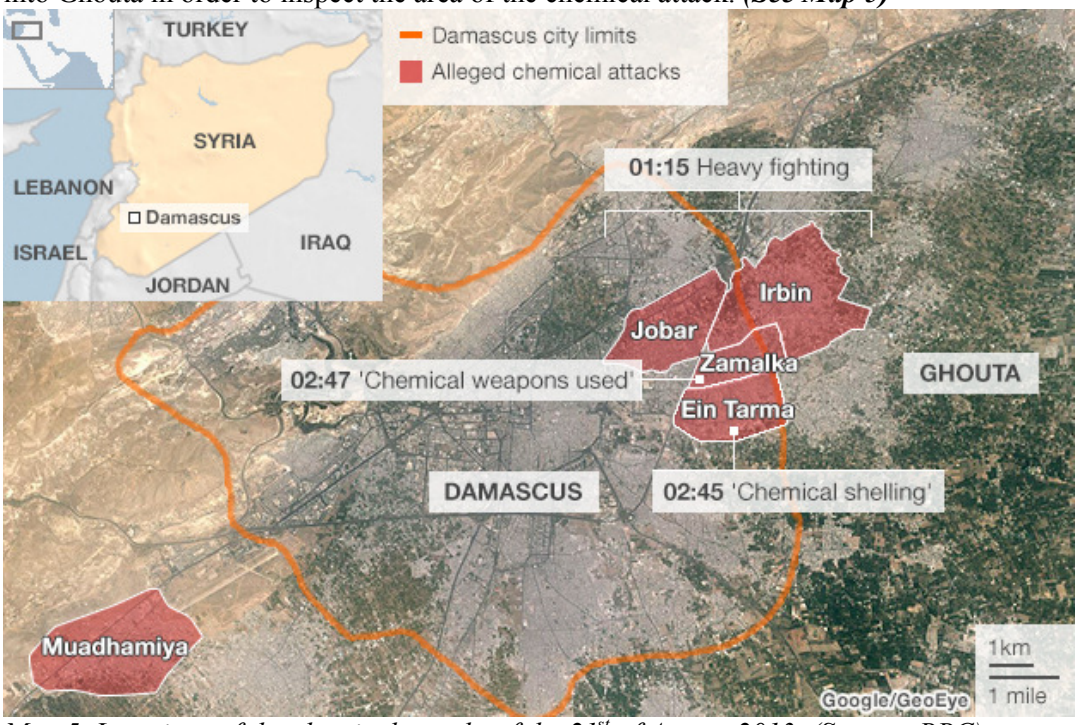
The Palestinian refugee camp of Ain al-Hilweh in Sidon, in south Lebanon, is also a base of a number of Sunni Islamist groups (such as the *Abdullah Azzam Brigades*, the *Osbat al-Ansar* and the *Jund al-Sham*), *which are believed to have close ties with Al Qaeda* in general and *Jabhat al-Nusra* in Syria[37]. According to the Lebanese daily newspaper *Al-Akhbar: "Jabhat al-Nusra has been attempting to establish a base in the Ain al-Hilweh camp*"[38], while in Tripoli, in the north of Lebanon, which is already dominated by Salafi groups, *Jabhat al-Nusra* has a strong presence[39].

The military operations of *Hezbollah* inside Syria, and particularly in the battle for Al-Qusair, lead to the direct confrontation between the Sunni fighters of *Jabhat al-Nusra* and the Shiite fighters of *Hezbollah*. After these developments, *Jabhat al-Nusra* threatened to attack *Hezbollah* in its base, in Dahiye, in the southern suburbs of Beirut[40]. A possible regime change in Syria, which would include a Sunni Islamist element, would constitute an imminent danger for the current power balance within Lebanon. In other words, a new Sunni Syrian regime would most probably attempt to reshape the internal balance of power in Lebanon

against *Hezbollah*, through the advancement of the military ascending of Sunni Islamist groups such as *Jabhat al-Nusra*.

C.1. The super-systemic level: repercussions of a pivotal event in Syria

On 21 August 2013 took place one of the most critical and pivotal events of the Syrian civil war: a chemical attack in the eastern Damascus suburb of Ghouta, an area that had been contested by opposition forces. The attack was launched with surface to surface missiles and the nerve agent that was utilized was sarin gas[41]. On 26 August, UN inspectors were allowed into Ghouta in order to inspect the area of the chemical attack. ***(See Map 5)***



Map 5. Locations of the chemical attacks of the 21st of August 2013. (Source: BBC).

Meanwhile, a complex diplomatic procedure was taking place, since according to US President Obama's 'red line statement', the use of chemical weapons by the Assad regime was subject to a military response by the US and its allies. Turkey, France and the Gulf States pressed hard on the US in order to intervene militarily against Damascus, while the British Parliament rejected David Cameron's call for an airstrike.

This particular event, the rejection of Cameron's call for an airstrike by the British Parliament, is diplomatically very important, since it constitutes an unexpected breach on the geostrategic dipole of Washington and London on a critical issue which is related to their projection of power in the Middle East. Furthermore, it is an event that dealt a vital blow to Washington's determination to proceed to the enforcement of the measures that President Obama had announced in the event of Damascus crossing the 'red line' (namely the use of chemical weapons).

For a number of days, during the beginning of September, all indications were leading to an imminent airstrike by the US against the Assad regime, which, depending on its time and target extent, could even lead to the collapse of the Assad regime. On the other hand, Russia vehemently opposed the use of force against Damascus, claiming also that the chemical attack was carried out by opposition forces, with the aim of forcing the US to strike Damascus. At the same time, Iranian military sources were threatening the US with serious consequences in the event of an US strike inside Syria. During those September days, the wider Middle East was on the verge of a serious military escalation, which would, without doubt, entail critical repercussions for the whole region.

After the Obama and Putin meeting in Saint Petersburg during the G-20 summit (6 September 2013)[42] and after John Kerry's "gaffe'' during a press conference (9 September 2013)[43] regarding the possibility of a political solution in case the Assad regime surrendered all its chemical arsenal, the international community witnessed an impressive switch of the

rigid US stance regarding a military intervention in Syria. Certainly, the rejection of the British parliament of British PM David Cameron's proposal for military action against Syria (29 August 2013), as well as the US current financial fragility and the absence of a legalizing support by the UN Security Council, did play an important role in this abrupt change of the US stance.

Therefore, suddenly and only a few days later and with what at the time seemed an unexpected U-turn, the US and Russia reached, on 14 September, an agreement for the UN to destroy Assad's chemical arsenal[44]. It was, primarily, the result of a very important intervention of the Russian factor on the super-systemic level, which totally reversed the climate of an impending escalation of the crisis in the Middle East. An escalated crisis that would not be confined within Syria, but it would also involve the system of the wider Middle East, as well as super-systemic factors such as Russia and China[45]. The US-Russian agreement was materialized on 26 September, under a UN Security Council Resolution and the beginning of the UN mission inside Syria at the beginning of October[46].

Conclusions

General implications of the US-Russia agreement

i) Increase of the viability and legitimacy of the Assad regime

The US-Russian agreement averted an imminent US airstrike and set in motion the destruction of the Syrian chemical stockpile, but it also reframed the regional geopolitical competition which is taking place and it has Syria as its focal point. The implications of the agreement were primarily evident inside Syria. The Assad regime had avoided the impact that a US airstrike –whether smaller or larger in scope- would have on its military and organizational capabilities and that could, eventually, threaten its viability. Furthermore, the almost immediate agreement by the Assad regime to comply with the UN resolution and with the destruction of its chemical weapons arsenal provided Damascus with a form of legitimacy vis-à-vis the western powers.

ii) Widening of the rift between Syrian moderates and Islamists

On the other hand, the US-Russia agreement dealt a heavy blow to the Syrian opposition, and particularly to the *Syrian National Coalition* and the *Free Syrian Army*, which had invested its efforts on a US military strike against the Assad regime. This lead to further fragmentation of the anti-Assad forces and widened the rift between the Syrian moderate opposition forces and the Islamist opposition forces. This was a rapid process and an almost direct repercussion of the aversion of the US airstrikes: the crystallization of Assad's survival in Damascus shifted the immediate strategic targets of the Islamist groups (the *Jabhat al Nusra*, the *Islamic State of Iraq and Syria or ISIS* among others) that operate inside Syria, which opted now not for the militarily unrealistic removal of the Assad regime, but for their consolidation in Syrian territory that the Assad forces have already been pushed back from. This has often led the Islamist groups in direct confrontation with units of the *Free Syrian Army*[47].

Within this context, on 25 September 2013, most of the Islamist groups fighting against the Assad regime inside Syria announced their cooperation under the title *Islamic Alliance* and stated their separation from the *Syrian National Coalition* (based in Istanbul), as they aimed to achieve increased military effectiveness on the battleground [48]. This development resulted not only in further armed confrontation between units of the *Free Syrian Army* and the Islamists, but it has also profited further the Assad regime, which sees its enemies fragmented and weakened. At the same time, the formation of the *Islamic Alliance* strengthens President Assad's rhetoric, which presents the Syrian war as a battle between the regime and Islamic terrorism[49]. Furthermore, these developments have lead to high numbers of fighters of the *FSA* joining Islamist groups, which are more effective, more organized and have better funding[50].

At this point it is important to make two observations: Firstly, that this form of fighter movement (from secular to Islamist groups) indicates towards two directions: that the number of the Islamist members within the secular opposition groups were higher than previously

calculated and that the military effectiveness of the Islamist groups (as opposed to that of the secular groups) proves to be an important incentive for the growth of the man-power of the radical Islamist groups.

Secondly, that the Islamist government of Turkey has facilitated, through its political help and resources, this growth of the Islamist groups against the secular ones[51]. Turkey's backing of Islamist groups in Syria has alienated some of its traditional allies (such as the US) and has heightened the international pressure towards Erdogan's government. Furthermore, this perilous strategy of facilitating the transport of fighters that are –ideologically or militarily - related to *Al Qaeda*, ultimately run counter to what Ankara aimed for. It has added legitimacy to Assad's claims that his regime is defending Syria against Islamic terrorism and has shifted the international agenda from Assad's violent reaction to the growth of *Al Qaeda's* influence in Syria [52].

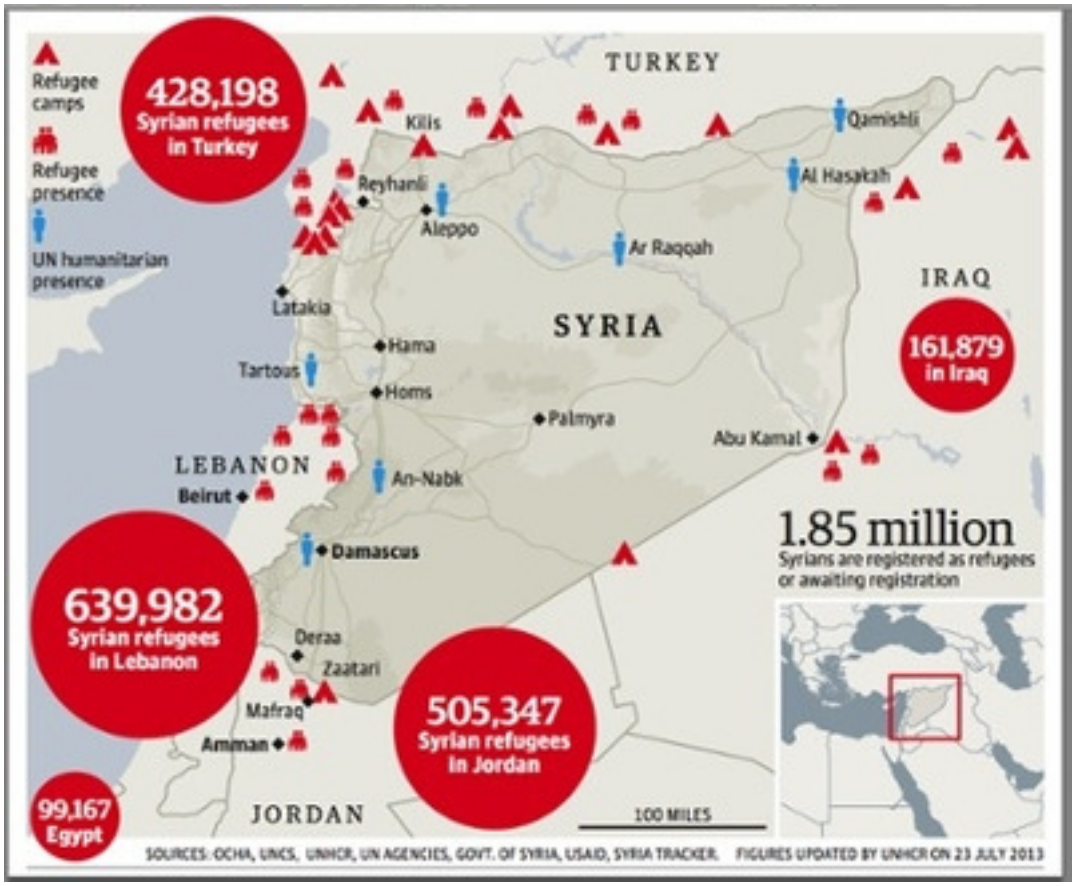
Recently (11 October 2013), the US-based Human Rights Watch organization published an extensive report on human rights violations that Islamist fighters had committed in the region of Latakia during August 2013. In the report, the organization is expressing fierce criticism for Turkey's role regarding the presence of foreign fighters in northwestern Syria: "*According to Syrian security officials, media reports, western diplomats, and direct observations by journalists and humanitarian workers who visited the area in the past, many foreign fighters operating in northern Syria gain access to Syria via Turkey, from which they also smuggle their weapons, obtain money and other supplies, and sometimes retreat to for medical treatment (...) A western diplomat told Human Rights Watch that diplomats from several EU member state missions in Ankara are very concerned about the transiting of nationals from European and other countries through Turkey to Syria*"[53].

iii) Turkey and Saudi Arabia sidelined

The regional implications of the US-Russia agreement are even more significant. The regional actors that were pressing the US towards the direction of a military strike were sidelined, primarily Turkey and Saudi Arabia. Both Ankara and Riyadh had been strong advocates for a wider military airstrike against Damascus and the removal of the Assad regime.

With regards to Turkey, the US-Russia agreement was the second biggest geopolitical setback after the removal of Egyptian President Mohamed Morsi earlier in the summer of 2013. In both cases Turkish Prime Minister Recep Tayyip Erdogan had invested major diplomatic and geopolitical capital. Erdogan has supported the Muslim Brotherhood in Libya, Egypt and Syria. So Ankara has pursued a Sunni and Muslim Brotherhood-orientated foreign policy in the Wider Middle East, which has, nevertheless, backfired heavily and more spectacularly in Egypt and Syria. Many Turkish political analysts have characterized Erdogan's wider Brotherhood backing as failed risk, not only for Turkey but for the entire Eastern Mediterranean.[54.]

Political analyst Daniel Pipes observed recently the following with regards to the Turkish foreign policy and the eastern Mediterranean security system: "*Erdoğan and Foreign Minister Ahmet Davutoğlu have pursued an ambitious foreign policy of "zero problems with neighbors" which, ironically, has led instead to zero friends. Strained relations with Georgia, Armenia, Azerbaijan, Iran, Iraq, Syria, Israel, the Palestinian Authority, Saudi Arabia, Egypt and Serbia, raise the prospect of Ankara reverting to an older Turkish pattern and lashing out at Cyprus and Greece. In both cases, for instance, it could encourage disruptive refugee flows. This is where the brutal civil war underway in Syria, just 70 miles (110 km) away, enters the equation. So far, that conflict has not had a major impact on Cyprus, but the island's proximity, its minimal defense capabilities, and its membership in the European Union (meaning, an illegal immigrant setting foot on Cyprus is close to reaching Germany or France) make it exceedingly vulnerable. The 2.2 million refugees from Syria since 2011* ***(See Map 6)*** *have so far bypassed in favor of (in descending order) Lebanon, Jordan, Turkey, Egypt, and Iraq, but that could quickly change if the Alawites living closest to Cyprus take to the sea in sizeable numbers. Or if Ankara encourages Syrians to emigrate to northern Cyprus and then to sneak across the border into the republic*"[55.]



Map 6. July 2013 estimates of Syrian refugees show that Cyprus has so far escaped the influx.

At the moment, Turkey stands sidelined and its foreign policy in the Middle East seems to be in a kind of uneasy limbo. Ankara's geopolitical orientation is out of focus and Turkey remains at odds with all the major regional actors: with Iran (over Syria), with Israel (over Gaza Strip) and with Saudi Arabia (over Egypt, as Turkey supports the Egyptian Brotherhood that is an ideological and historic enemy of Riyadh).

Furthermore, the military growth of the radical Sunni Islamist groups - which also directed their attacks against the Syrian Kurdish territory on the north and northeast of Syria[56] - led to Assad's decision to utilize the Kurdish military reaction against the Islamist opposition groups and to cede the northern territory that is Kurdish-populated to the leadership of the PYD (Democratic Union Party), the party that is related to the PKK in Turkey. This move has led to the re-rising of future secessionist tensions in the Kurdish-populated southeastern Turkey. Additionally, this de facto alliance between the Syrian regime and the Kurdish PYD has offered Assad a double advantage: it has created a zone that disrupts the flowing of foreign Islamist fighters entering Syria territory from Turkey, as well as an important military diversion vis-à-vis Ankara's Syrian strategy.

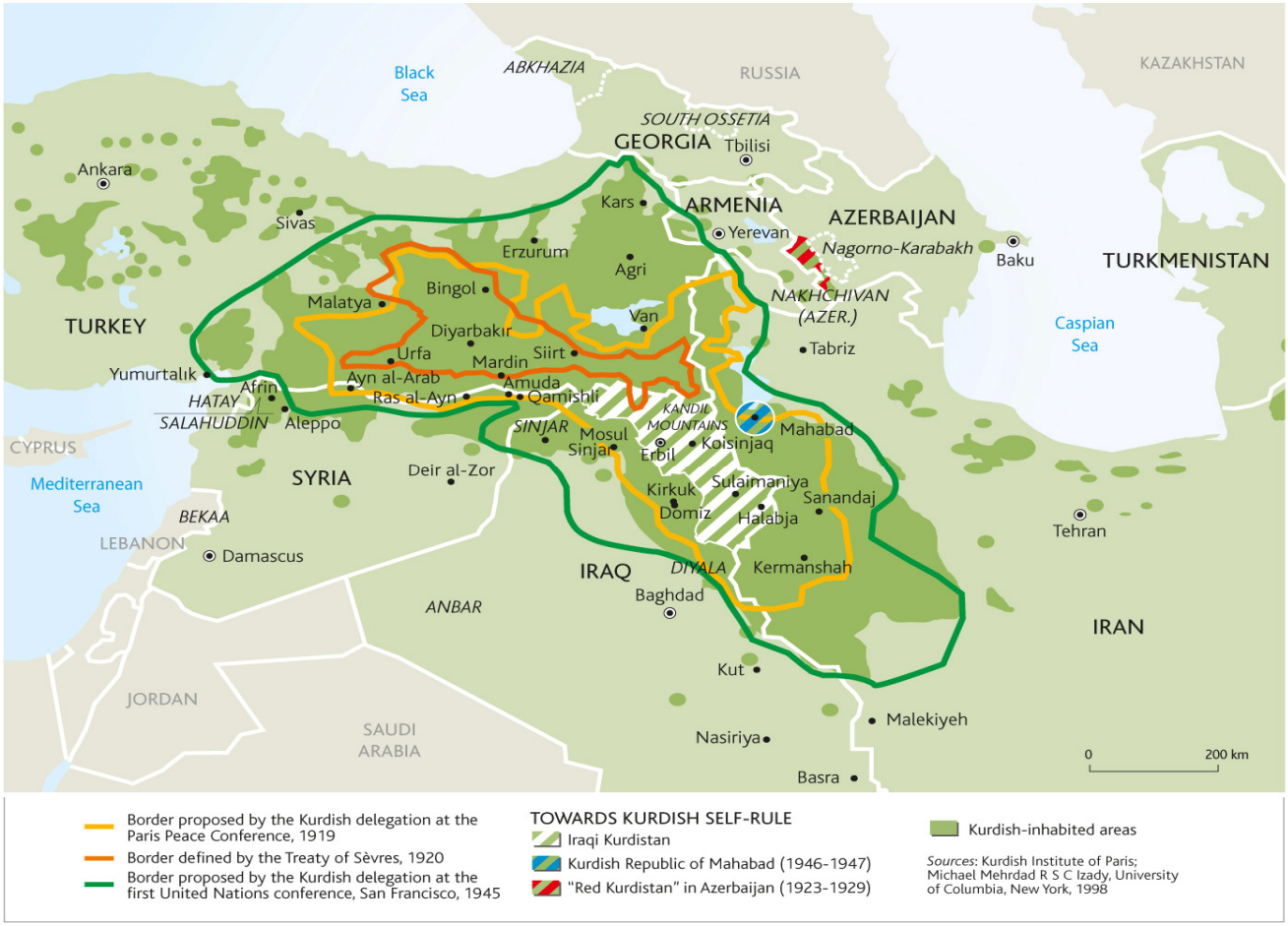
During the months of October and November 2013, the Kurdish YPG (People's Protection Units) defeated the Islamist groups in a series of clashes in northeast Syria and managed to secure a large part of the Kurdish-populated northeast Hasakah province of Syria[57]. This increased military and subsequently political autonomy of the Syrian-Kurdish territory in the northeast, which is a direct result of the Syrian conflict, has also wider regional repercussions. Firstly and in the short-term, for the first time it creates a continuous, if only informal, territorial space, connecting the Kurdish Regional Government in northern Iraq with the 'autonomous' Syrian-Kurdish territory. Secondly, this de facto autonomy of the Kurdish-populated territory and the growing synergy of the DYP with the PKK could lead to a chain-reaction process, re-charge the separatist tendencies of the PKK militants in Turkey, a development which could lead to a new phase of conflict and instability in the adjoining Kurdish-populated territory of southeastern Turkey. ***(See Map 7)***

Ankara, on the other side and in order to monitor such future tendencies, has been fostering its economic and energy relations with the Kurdish Regional Government (KRG) of Masoud Barzani in Iraq. Only recently, the KRG agreed with the Erdogan government to the construction of a second pipeline that will transfer the northern Iraqi oil through Turkey[58]. From the KRG's perspective, the energy route to Turkey is absolutely vital as it provides it with the opportunity to pursue an independent energy policy from the central and Shiite dominated government of Baghdad. In that way, KRG President Barzani aims to enhance its own political and economic position in Erbil vis-à-vis the Maliki government in Baghdad[59].

Additionally, Turkey has recently begun to construct a wall in its southeastern borders, with the aim of separating the Kurdish-populated areas of Turkey from the Syrian ones. The construction of the specific wall sparked clashes between the Turkish police and Kurdish protesting against the project[60].

However, on 12 November, after the abovementioned military gains against the Islamist groups in the northeastern Syria, the PYD announced the formation of a transitional government in Qamishli, Syria. That was a major development and a clear move towards an announcement of the creation of an autonomous Kurdish state in northeast Syria[61]. In light of this development, the close relations between PKK and DYP raise the possibilities that in the future the PYD could opt to follow a confrontational stance against Ankara, instead of the energy cooperation mode that the KRG has followed, and to pursue by military means a greater Kurdistan that would contain parts of southeastern Turkey. In any event, the formation of a Syrian Kurdistan would have a different effect on some of the major powers of the region: Turkey would consider it as a serious threat. Israel, that has traditionally good relations with the Kurds, would view it as a new leverage point against Assad's or even post-Assad Syria and a strategically friendly territory vis-à-vis Iran.

For Saudi Arabia also, the US-Russia agreement on the Syrian chemical arsenal was equally a major setback. Saudi Arabia had invested heavily, both in resources and in diplomatic capital, in the removal of the Assad regime in Syria, a development which would weaken Saudi Arabia's major regional competitor, Iran. Instead, the deal agreed between Washington and Moscow not only left Riyadh isolated, but it also had a direct impact at the core of the Saudi regional strategy. Riyadh's dissatisfaction with the US-Russia agreement became most evident on 18th October 2013, when it declined its election as a member on the UN's Security Council[62].



Map 7. The eruption of the Syrian conflict has brought again the Kurdish issue on the forefront of the regional developments. (Source: Kurdish Institute of Paris; Michael Mehrdad RSC Izady, University of Columbia, New York, 1998)

Both Turkey (which from its part had been negotiating the purchase of advanced Chinese missiles, an unprecedented move from a NATO member) and Saudi Arabia (its decline of the Security Council seat is equally unprecedented) have been experiencing a rift with the US over the Syrian conflict, but also –and this counts mostly for Saudi Arabia- over Washington's recent negotiations with regards to Iran's nuclear ambitions.

That is because the most important implication of the US-Russia agreement was that it lead to the first direct contact between a US President and his Iranian counterpart since 1979 and to direct talks and negotiations over a set of issues and particularly the Iranian nuclear issue. This was a major development, an agile diplomatic maneuver from Washington and potentially a game-changing one, which could transform or even shift power relations that have been established since 1979.

iv) A Shiite sub-system and the new regional role of Hezbollah

Iran's regional influence has been enhanced during the last decade or so. The regional developments of the last decade have gradually given Tehran a serious geopolitical advantage over its regional competitors, particularly Saudi Arabia and Turkey:

1. - One critical development was the Iraq War in 2003, where the US intervention removed the Sunni regime of Saddam Hussein. Gradually, Tehran grew its influence within Iraq, which is now governed by an Iranian-orientated government under Shiite PM Nouri al Maliki[63].
2. - The second development was the Lebanon War in 2006, where *Hezbollah* managed to resist for 33 days a direct attack of the Israeli Defense Forces. This war - despite the fact that Israel enhanced its stance diplomatically by the involvement of Europe in south Lebanon through the presence of UNIFIL II - led to the upgrading of *Hezbollah's* profile in the region and its consequent military and political supremacy

inside Lebanon.

3. - The third development was the Syrian crisis. In the beginning the Syrian crisis threatened the viability of the Assad regime, a strategic ally of the Iranian regime. Nevertheless, as the Syrian conflict raged on, Syria's battleground provided Iran with the opportunity to exercise its geopolitical advantages and to further enhance its regional influence.
4. - Finally, if Tehran utilizes its geopolitical gains wisely, it could proceed into an agreement with Washington by making a number of concessions, especially with regards to its nuclear program. This could lead to a much needed stabilization in the wider region and it could ease Iran's severe economic embargo imposed by the West.

The period analyzed in the previous pages, from April 2013 to October 2013, affirmed the gradual formation, within the last ten years, of a sub-system that is defined by the ascendance of Iranian influence and the geopolitical advantage of the Shiite or Shiite-related element in each of the states that constitute this sub-system, namely Iran itself, Iraq, central and southern Syria and most of Lebanon. It is a sub-system that cuts through the centre of the system of the wider Middle East and it is adjoined to most geopolitically unstable regional conflictual sub-systems: the Syria/Lebanon-Israel sub-system and the Syria-Turkey conflictual sub-system.

In the case of *Hezbollah*, the Syrian crisis has highlighted the evolution of the organization from a proxy actor in Lebanon to a vital partner of the Assad regime and Tehran in the Levant and the spearhead of the Iranian foreign policy in the wider Middle East. Even though the relation between Shiite Islamist *Hezbollah* and the Alawite but secular Assad regime was always defined by common geopolitical objectives and interests (while on the contrary, with the third part of the alliance, Iran, *Hezbollah* has always maintained, in addition to organizational, political and military ties, deep ideological and spiritual connections), Hafez al-Assad, the father of the current Syrian President, had always kept *Hezbollah* and its leadership at a distance. Hafez al-Assad considered *Hezbollah* a vital yet a merely proxy force in the Lebanese arena, often very helpful as a pressure leverage against the Israelis, particularly with regards to the Golan Heights.

On the other hand, when Bashar al-Assad took over power after his father's death, in June 2000, he chose to ascend *Hezbollah*'s status within this power relationship. This was done mostly because the new and inexperienced President needed to strengthen his leadership and legitimization against both a series of regional challenges (such as the Iraq war in 2003) and his domestic opponents. Already since 2006 (after the Second Lebanon War) analysts were commenting that *Hezbollah*'s status had been elevated from a mere proxy to "a partner with considerable clout and autonomy"[64]. Now, seven years later, *Hezbollah*, in close co-ordination with Iran, has been called to assist to the survival of Bashar al-Assad, therefore completing its role as strategic partner to the Baathist regime of Damascus. An assistance that is not based on a mutual religious or ideological agenda, but instead on a fundamental geostrategic aim that is common for *Hezbollah*, Damascus and Tehran: the 'axis of resistance' directed against Israel.

Furthermore, *Hezbollah*'s position in Iran's strategy within the Shiite sub-system that was described above is absolutely central:

i) Firstly, because the effectiveness of *Hezbollah*'s asymmetric warfare, whether against the IDF (Israeli Defense Forces) or against the Sunni opposition (both in Syria but also Lebanon, let us not forget the West Beirut clashes in 2008), establish the Lebanese party and organization as a very powerful ally in the western flank of the abovementioned Shiite sub-system (namely in Lebanon and central and southern Syria).

ii) Secondly, because *Hezbollah* is, historically, the most successful export of the Iranian revolution, it also currently operates as a mould, a formula, upon which Tehran establishes its proxy militia forces within the frame of the central part of its Shiite sub-system (in Iraq), but also parts of eastern and central Syria. Such as the paramilitary Shiite Iraqi groups of *Kataeb Hezb*ollah (or *Hezbollah Brigades*) and the *Asa'ib Ahl al-Haq* (League of the Righteous, also known as the *Khazali Network*).

From its part, *Hezbollah* appears to have underestimated the importance of the super-systemic interventions by Moscow and Beijing that have resulted in a favorable outcome for the Iran-Syria axis (especially with regards to the cancellation of the US airstrikes against the

Assad regime). *Hezbollah* considers that it has been upgraded from a Lebanese paramilitary force into a regional player. On 22nd September, in a televised speech he gave in Beirut, the leader of *Hezbollah* Hassan Nasrallah shifted his rhetoric away from its "traditional enemy", the state of Israel, towards Turkey and Saudi Arabia: he mentioned that Turkey and Saudi Arabia have failed in Syria and called them to revise their stance[65]. Additionally, in an article published in pro-*Hezbollah* Lebanese newspaper *Al Akhbar*, its editor-in-chief wrote the following in an article under the title «*Hezbollah and the new Levant*»: "*When Hezbollah decided, openly and blatantly, to penetrate the heart of the battle against the armed groups in Syria, it did so with awareness of its new role*"[66]. Nevertheless, at this point it would be in the benefit of the wider region and Iran itself if Tehran moved to restrain an overconfident *Hezbollah*. In that way, Iran would maximize its chances of achieving many of its geopolitical objectives - via the diplomatic negotiations with Washington and Tel Aviv's allowance - particularly with regards to its balance of power with Saudi Arabia and Qatar. If it doesn't do so, then it is possible that the chance for a wider regional peace settlement will be lost once again.

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1 The present article was submitted simultaneously to the Editorial committee of JMSS Centre for Military and Strategic Studies.

2 Watt Nicholas & Hopkins Nick, "Cameron forced to rule out British attack on Syria after MPs reject motion," The Guardian, August 29, 2013, http://www.theguardian.com/world/2013/aug/29/cameron-british-attack-syria-mps

3 I. Th. Mazis, "L'effet Syrien et l'analyse géopolitique et géostratégique du Moyen Orient actuel," in Praktika A' Diethnous Mesanatolikou Synedriou tou Athinisi Panepistimiou, Ai Aravikai Exegerseis kai i Anamorfossis tou Araboislamikou Kosmou, eds. I. Th. Mazis, (Dir.) and K. Nokolaou-Patragas, (Athens: Dept. of Modern Turkish and Modern Asian Studies, School of Economomic and Political Sciences, Leimon Editions, 2013), pp. 545-566.

4 For more information regarding the geostrategic role of Qatar, Turkey, Dubai and Saudi Arabia see I. Th. Mazis, "L'effet Syrien et l'analyse géopolitique et géostratégique du Moyen Orient actuel," in ibid, pp. 545-566.

5 "Syria's Metastasing Conflicts", Middle East Reports, International Crisis Group No.143, June 27, 2013. See also: Sarlis Michalis, "O geopolitikos antiktypos tis syriakis krisis stin esoteriki katastasi toy Livanou/The geopolitical impact of the Syrian crisis on the internal situation of Lebanon» in Praktika A' Diethnous Mesanatolikou Synedriou tou Athinisi Panepistimiou, Ai Aravikai Exegerseis kai i Anamorfossis tou Araboislamikou Kosmou, eds. I. Th. Mazis, (Dir.) and K. Nokolaou-Patragas, (Athens: Dept. of Modern Turkish and Modern Asian Studies, School of Economomic and Political Sciences, Leimon Editions, 2013),pp. 359-373.

6 Sly Liz, "Syrian rebels making advances," The Washington Post, November 25, 2012.

7 Evans Dominic, "Car bombs kill 34 in pro-Assad Damascus suburb," Reuters, November 28, 2012. http://www.reuters.com/article/2012/11/28/us-syria-crisis-idUSBRE8AJ1FK20121128

8 Peter Tom, "Syrian rebels say Aleppo may soon be theirs," USA Today, December 17, 2012. http://www.usatoday.com/story/news/world/2012/12/17/aleppo-syria/1775275/

9 "Syria troops battle rebels around Damascus," AFP, December 8, 2012.

10 Nakhoul Samia, "Divided Damascus confronted by all-out war," Reuters, February 13, 2013. http://www.reuters.com/article/2013/02/13/us-syria-crisis-damascus-idUSBRE91C0UG20130213

11 "Syrian rebels capture northern Raqqa city," Al Jazeera, March 5, 2013. http://www.aljazeera.com/news/middleeast/2013/03/201334151942410812.html

12 "Damascus mosque blast kills 42 including senior Syrian imam," Reuters, March 21, 2013, http://www.reuters.com/article/2013/03/21/us-syria-crisis-blast-idUSBRE92K0X520130321

13 Barnard Anne, "Syrian Rebels hit central Damascus with mortar shells, "The New York Times, March 25, 2013.

14 Authors note: since 1979 Iran is a Shiite religious regime, while Syria is a fiercely secular Baathist regime.

15 Mamouri Ali, "The rise of Cleric Militias in Iraq, "Al Monitor, July 23, 2013, http://www.al-monitor.com/pulse/originals/2013/07/shiite-cleric-militias-iraq-fears.html

16 Sadjadpour Karim, "Iran's unwavering support to Assad's Syria," Carnegie Endowment for International Peace, August 27, 2013.

17 Salomon Jay & Gorman Siobhan, "Iran's spymaster counters US moves in the Mideast," The Wall Street Journal, April 6, 2012.

18 Filkins Dexter, "The shadow commander," The New Yorker, September 30, 2013.

19 Chulov Martin, "Syria's war more complex than ever," The Guardian, September 19, 2013.

20 Fasihi Farnaz, Solomon Jay & Dhager Sam, "Iranians dial up presence in Syria," The Wall Street Journal, September 16, 2013.

21 Nakhoul Samia, "Hezbollah gambles all in Syria", Reuters, September 26, 2013, http://www.reuters.com/article/2013/09/26/us-syria-hezbollah-special-report-idUSBRE98P0AI20130926

22 Barnard Anne & Mourtada Hania, "Leader of Hezbollah warns it is ready to come to Syria's aid," The New York Times, April 30, 2013.

23 Salhy al-Souadad, "Iraqi Shiites flock to Assad's side as sectarian split widens," Reuters, June 19, 2013, http://www.reuters.com/article/2013/06/19/us-iraq-syria-militants-idUSBRE95I0ZA20130619

24 Karouny Mariam, "Shiite fighters rally to defend Damascus shrine," Reuters, March 3, 2013, http://www.dailystar.com.lb/News/Middle-East/2013/Mar-04/208671-shiite-fighters-rally-to-defend-damascus-shrine-of-sayyida-zeinab.ashx#axzz2lSoPw3eR Also, Ghorabi Jamal, "Damascus: Guardians of Zainab's shrine," Al-Akhbar, March 29, 2013, http://english.al-akhbar.com/node/15384

25 Aziz Jean, "The battle for Qusayr is key front in Syria war," Al-Monitor, April 22, 2013, http://www.al-monitor.com/pulse/originals/2013/04/syria-conflict-bombing-lebanon-qusayr-damascus.html

26 "Syria troops, Hezbollah advancing on Qusayr," France 24, May 9, 2013.

27 Aziz Jean, "Jabhat al-Nusra and Hezbollah in first confrontation," Al-Monitor, March 8, 2013, http://www.al-monitor.com/pulse/originals/2013/03/jabhat-al-nusra-hezbollah-confrontation.html

28 "Syria's al-Nusra Front part of al-Qaeda," BBC, April 10, 2013, http://www.bbc.co.uk/news/world-middle-east-22078022 Also, "Iraqi al-Qaeda and Syrian group 'merge'," Al Jazeera, April 9, 2013, http://www.aljazeera.com/news/middleeast/2013/04/201349194856244589.html

29 Chulov Martin, "Syrian town of Qusair falls to Hezbollah in breakthrough for Assad," The Guardian, June 5, 2013.

30 Landler Mark, "Israel hints at new strikes, warning Syria not to hit back," The New York Times, May 15, 2013.

31 Kais Roi, "Israel hit SA-17 missiles shipment," Yedioth Ahronoth, January 30, 2013.

32 Gordon Michael & Schmitt Erik, "Russia sends more advanced missiles to aid Assad in Syria," The New York Times, May 16, 2013.

33 Badran Tony, "Israel's strategic clarity in Syria," Now Lebanon, May 9, 2013, https://now.mmedia.me/lb/en/commentaryanalysis/israels-strategic-clarity-in-syria

34 Katz Yaakov, "Syria increasing arms shipments to Hezbollah," Jerusalem Post, July 16, 2011.

35 USA Dept of State, October 27, 2013, http://www.state.gov/r/pa/prs/ps/2012/12/201759.htm

36 Khasan Hilal, "Lebanon's Islamist stronghold," Middle East Quarterly 18 No.2, (Spring 2011): 85-90.

37 Hashem Ali, "Lebanon is pivotal for Syria's jihadists," Al-Monitor, March 12, 2013, http://www.al-monitor.com/pulse/originals/2013/04/jabhat-al-nusra-lebanese-jihadists-rafik-hariri.html

38 "Al Nusra Front seeking a Lebanese base in Ain al-Hilweh," Al-Akhbar, February 2, 2013.

39 Aziz Jean, "Jabhat al-Nusra reportedly in Lebanon," Al-Monitor, December 24, 2012, http://www.al-monitor.com/pulse/originals/2012/al-monitor/jabhat-al-nusra-lebanon.html Also, Babak Dehghanpisheh & Suzan Haidamous, "More Lebanese Sunnis are crossing into Syria to aid rebellion officials say," Washington Post, January 26, 2013, http://articles.washingtonpost.com/2013-01-26/world/36559835_1_young-lebanese-men-nusra-front-syrian-security-forces Also, Chararah Nasser, "Al-Qaeda seen expanding influence in Lebanon," Al-Monitor, March 15, 2013, http://www.al-monitor.com/pulse/originals/2013/04/exclusive-al-qaeda-lebanon-deepens-roots.html

40 Luca Ana Maria, "A different type of spillover," Now Lebanon, April 13, 2013.

41 Evans Dominic & Oweis Khaled, "Syrian gas 'kills hundreds'," Reuters, August 21, 2013.

42 Anishchuk Alexei, "Putin, Obama discussed Syria arms control idea last week: Kremlin," Reuters, September 10, 2013, http://www.reuters.com/article/2013/09/10/us-syria-crisis-russia-usa-idUSBRE9890I020130910

43 Press Conference by John Kerry and William Hague (United Kingdom Foreign and Commonwealth Office), U.S. Department of State, Office of the Spokesperson, September 9, 2013.

44 Syria has until 30 June 2014 to destroy its chemical weapons arsenal.

45 Mazis Th.Ioannis, "Geopolitical Analysis of the Greater Middle East System in the Present Juncture," Regional Science Inquiry Journal, Vol. 5, No. 1. (2013): 169-170.

46 Irish John & Nichols Michelle, "US and Russia agree on UN chemical arms measure," Reuters, September 26, 2013, http://www.reuters.com/article/2013/09/27/us-un-assembly-syria-resolution-idUSBRE98P1AJ20130927

47 "Fighting in Syria between moderate rebels, al Qaeda intensifies," Reuters, September 24, 2013, http://www.reuters.com/article/2013/09/25/us-syria-crisis-usa-fighting-idUSBRE98O01Z20130925

48 Solomon Erika, "Syria rebels reject opposition coalition, call for Islamic leadership," Reuters, September 25, 2013, http://www.reuters.com/article/2013/09/25/us-syria-crisis-opposition-idUSBRE98O0LA20130925

49 Wood Paul, "A new Islamist alliance has given Assad the enemy he wants," The Spectator, October 5, 2013.

50 Roggio Bill, "Free Syria Army continues to fracture as more units defect," The Long War Journal, October 17, 2013, http://www.longwarjournal.org/archives/2013/10/free_syrian_army_con.php

51 Tastekin Fehim, "Radical Groups operate on Turkey's border,"Al Monitor, October 13, 2013, http://www.al-monitor.com/pulse/originals/2013/10/jihadist-syria-border-turkey-radical-groups.html

52 Tatershall Nick, "Al Qaeda's rise in northern Syria leaves Turkey with dilemma," Reuters, October 17, 2013, http://www.reuters.com/article/2013/10/17/us-syria-crisis-turkey-qaeda-idUSBRE99G06C20131017

53 "You can still see their blood: Executions, indiscriminate shootings and hostage taking by opposition forces in Latakia countryside," Human Rights Watch Report, October 11, 2013, http://www.hrw.org/reports/2013/10/11/you-can-still-see-their-blood

54 Tatershall Nick, "Turkey's 'worthy solitude' sidelines Erdogan in the Middle East," Reuters, September 18, 2013,

55 Daniel Pipes, "Cyprus rides a troubled sea of oil and gas opportunity," November 9, 2013, http://www.washingtontimes.com/news/2013/nov/5/pipes-cyprus-rides-a-troubled-sea-of-oil-and-gas-o/print/

56 "Tel Aviv Notes", Moshe Dayan Center, Vol. 7, No. 20, October 27, 2013.

57 Spyer Jonathan, "Kurds defending autonomous Rojava enclave in Syria," Jerusalem Post, November 8, 2013.

58 Pamuk Humeyra, "Iraqi Kurdistan plans second oil export pipeline to Turkey," Reuters, October 31, 2013, http://uk.reuters.com/article/2013/10/31/uk-iraq-kurdistan-oil-idUKBRE99U0PB20131031

59 Van Heuvelen Ben, "Iraq's region pursues ties with Turkey – for energy revenues and independence," Washington Post, November 9, 2013.

60 "Turkish police fire tear gas as Kurds protest against Turkish wall," Reuters, November 7, 2013, http://www.reuters.com/article/2013/11/07/us-syria-crisis-turkey-kurds-idUSBRE9A60SG20131107

61 Hall Richard, "Syria's Kurds move towards autonomous state with announcement of transitional government," The Independent, November 12, 2013.

62 Worth Robert, "Saudi Arabia rejects UN Security Council seat in protest move," The New York Times, October 18, 2013.

63 Prime Minister since May 20, 2006.

64 Hokayem Emile, "Hizballah and Syria: outgrowing the proxy relationship," The Washington Quarterly 30 Vol. 2, (Spring 2007): 35-52.

65 "Nasrallah: Saudi Arabia, Turkey have failed in Syria," Al Akhbar, September 23, 2013, http://english.al-akhbar.com/node/17115

66 Amin Ibrahim, "Hezbollah and the new Levant,"Al Akhbar, June 10, 2013, http://english.al-akhbar.com/node/16065

INTERPRETING OVERALL INEQUALITY IN CHINA: THE ROLES OF PHYSICAL CAPITAL, HUMAN CAPITAL AND SOCIAL CAPITAL

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Abstract:
This paper investigates the relationship between overall inequality in China and the contributions of physical capital, human capital and social capital. The investment in physical capital tends to enlarge overall inequality while human capital helps to reduce the inequality. Human capital appears to be more influential than physical capital in overall inequality reduction in the research period. Social capital (people's social networks) however, does not seem to exert any impact on overall inequality in the post-reform era. Possible policy implications of these results are that measures should be taken to pursue more even distributed investment of physical capital and to increase people's education in order to reduce overall inequality in China.

Keywords: Overall inequality, Capital investment, Economic growth, China
***JEL classification*:** D24, E22, E24

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1. Introduction

Unlike the US, Japanese prefectures and European regions where convergence across regions occurs (Barro and Sala-i-Martin, 2003), China, however, provides a different case of which regional inequality has risen and varied in the past two decades (Khan and Riskin, 2001; Fan and Sun, 2008). The Gini coefficient in China is estimated to be 0.33 in 1980 and rose to 0.45 to 0.47 in recent years (Sisci, 2005; World Bank, 2006). Many studies have attributed Chinese regional inequality to many factors like factor endowments (Chen and Fleisher, 1996), urban-biased fiscal and monetary policies (Yang and Cai, 2000), regional policy which boosted capital investment in eastern provinces and open economic zones (Wei and Fan, 2000). Basically, the variation of regional inequality in China is deep rooted in the over three-decade fast Chinese economic growth ever since 1978 (Pei, 2006; Lee, 2007). It is the uneven distribution of economic growth among different regions/provinces that lead to the regional inequality. Thus, the driving factors to the economic growth would fundamentally influence the variation of regional inequality in China.

Generally, physical capital has been found to play a key role for the Chinese economy in the post-reform era (Chow, 1993; Urel and Zebregs, 2009). Human capital in terms of years of education has also been found to play an important role in the economic growth. It is believed that human capital contributes to technological improvement and innovation which can help to advance the economy (Wang and Yao, 2003; Kuo and Yang, 2008). The connection between social capital and economic development has been highlighted in a large number of studies over the last 15 years (Westlund and Adam, 2010). Particularly, with the declining of the relative importance of natural endowments for regional development and the convergence trend in human capital, social capital becomes increasingly important for economic growth (Mohan and Mohan, 2002). Thus, the different roles of the three capitals in economic growth across provinces would lead to regional inequality in China. The paper aims to interpret such

topic and provide implications for policy making to reduce regional inequality in China in the future.

2. Data and econometric framework

The paper focuses on the relationship between regional inequality and physical capital, human capital and social capital. In the benchmark model, we run fixed effect regression of panel data with Gini coefficient as the dependent variable and the three "capitals" as the main independent variable:

$$Inequality_{it} = \alpha_0 + \alpha_1 Physical_{it} + \alpha_2 Human_{it} + \alpha_3 Social_{it} + \alpha_4 X_{it} + \lambda_t + \xi_{it}$$

Where $Inequality_{it}$ is the measure of Gini coefficient of province i at year t. $Physical_{it}$ is the investment ratio which represents physical capital, $Human_{it}$ is the measure of human capital of province i at year t, proxied by student enrollment rate, $Social_{it}$ is measure of social capital of province i at year t. X is a vector of control variables that influence economic growth: economic openness (Trade), measured by the ratio of export and import to GDP; FDI (foreign direct investment), measured by the ratio of utilized FDI to GDP; governmental expenditure (Gov), measured as the ratio of government budget expenditure to GDP; state ownership (Soe), measured by the share of state owned enterprises in total industry output value. These variables generate impact on the capitals' efficiency and further influence the economic growth across provinces in China. λ_{it} is the year effect and ξ_{it} is an unobserved error term that varies across time and provinces. We collect data for 29 provinces in China from 1981 to 2010[1]. Almost all the data are from National Bureau of Statistics (NBS). Table 1 reports the descriptive statistics for the main variables.

Table1. Statistics of variables in the study

Variable	Obs	Mean	Std.Dev	Min	Max
Inequality	870	2.431	0.809	0.261	4.759
Physical	870	0.435	0.124	0.153	0.982
Human	870	0.007	0.008	0.0004	0.064
Social	609	1.37	0.625	0.42	4.210
Gov	866	0.144	0.063	0.048	0.548
Soe	870	0.606	0.198	0.107	0.938
Trade	860	0.239	0.347	0.006	2.203
FDI	870	0.024	0.033	0.000005	0.243

There are no statistics of Gini coefficients at provincial level in China. Then, we need to find a suitable proxy for Gini coefficient. Yang (1999) argues that increases in urban-rural income differentials have been the main driving force behind the rising overall inequality in China. According to World Bank (1997), the urban-rural income gap is responsible for a third of total China's inequality in 1995 and a half of the increase in inequality since 1985. Thus, we use urban-rural income differential to proxy Gini coefficient in each province. Following Putnam (2000), social capital has two main aspects: structural social capital (networks and associations) and cognitive social capital (attitudes and norms of behavior, shared values, reciprocity and trust). Thus, the measure of social capital consists of testing the public participation, social connections, general trust and social norms (Knack and Keefer, 1997). In this study, the measure of social capital covers the period 1990-2010. We only measure social capital at the principal level in China in terms of the number of associations for every 10,000 people to represent the structural capital of social networks and public participation. The association is a reciprocal organization constituted by people of common characteristics and non-profit and non-governmental are its fundamental features. Since there is no available data on provincial trust in the research period, we have no measure of cognitive social capital and therefore only examine the role of structural social capital in China.

3. Results and interpretation

3.1 The Benchmark Model

[1] We do not include Chongqing and Tibet due to data availability. Taiwan, Hong Kong and Macau are not included either.

As results in Table 2 shows, the estimated coefficient of *Physical* is positive and significant at 1 percent level. Keeping other things unchanged, a one percentage point increase in *Physical* will result in a 0.732 percentage point increase in Gini coefficient. *Human* contributes to the decrease of Gini coefficient. Keeping other things unchanged, a one percentage point increase in *Human* will result in a 1.291 percentage point decrease in Gini coefficient. *Social* is, however, found insignificant in the full sample regression. Further regression shows that both *Physical* and *Human* are significant in the three sub-periods. Besides, the coefficients of *Human* have been larger than that of *Physical*, indicating the more influential role of human capital in the reduction of Gini coefficient in China. Social capital still presents no significance in the three periods.

Table 2. Full sample and sub-period regression

Dependent Variable	*Full Sample Regression*			*1980s*	*1990s*	*2000s*
Inequality	1	2	3	4	5	6
Physical	0.333**	0.245**	0.732***	0.548**	1.081***	0.076***
	(0.144)	(0.145)	(0.158)	(0.267)	(0.276)	(0.012)
Human		-11.507***	-1.291**	-9.62***	-5.437**	-1.358***
		(3.427)	(0.514)	(3.453)	(2.151)	(0.433)
Social			-0.038		0.094	-0.045
			(0.035)		(0.061)	(0.036)
Gov	1.011***	0.775**	0.329	2.229***	3.301***	-0.149
	(0.353)	(0.358)	(0.425)	(0.598)	(1.033)	(0.135)
Soe	1.052***	1.083***	0.219	0.011	1.319***	0.106
	(0.0143)	(0.143)	(0.144)	(0.256)	(0.271)	(0.157)
Trade	0.057	0.138**	0.052	-0.129*	0.054	-0.061
	(0.052)	(0.057)	(0.066)	(0.113)	(0.091)	(0.096)
FDI	-0.352	-0.246	1.743	1.721	2.003***	0.373
	(0.516)	(0.514)	(3.532)	(2.199)	(0.72)	(0.856)
Estimation Method	FE	FE	FE	FE	FE	FE
Year-Specific Effect	YES	YES	YES	YES	YES	YES
Pro. Num.	29	29	29	29	29	29
Observations	856	856	609	276	290	290
R^2	0.403	0.427	0.214	0.306	0.048	0.002

Note: Standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively.

3.2 Robustness check

3.2.1 Medium-term determinants

The paper constructs a panel that contains non-overlapping five-year averages of the data for each province. By taking such measure, we are able to reduce short-term variations and identify the medium-term determinants of Gini coefficient. As Table 3 shows, the estimated coefficient of *Physical* is positive and significant at 5 percent level while *Human* presents negative significance at 10 percent level in the full sample regression. Then, both *Physical* and *Human* start to be significant since 1990s. The estimated coefficient of *Human* has been larger than that of *Physical* in the sub-periods. *Social*, however, presents no significance in the whole and sub- study periods. These findings are in high accordance with results in Table 2.

Table 3. Robustness check: Five year average

Dependent Variable	*Full Sample Regression*			*1980s*	*1990s*	*2000s*
Inequality	1	2	3	4	5	6
Physical	0.708*	1.241***	0.701**	-1.781	2.519**	0.085**
	(0.401)	(0.347)	(0.416)	(1.42)	(0.885)	(0.048)
Human		-1.18*	-1.282*	-3.775	-17.48**	-0.69*
		(0.845)	(0.854)	(84.48)	(6.737)	(0.37)
Social			-0.105		0.129	0.059
			(0.072)		(0.194)	(0.088)
Gov	1.338*	1.079	1.088	1.957	-5.522*	-1.532
	(0.802)	(0.821)	(0.823)	(1.526)	(4.695)	(1.448)
Soe	1.189***	0.605	1.272***	-0.587	-0.852	0.074
	(0.346)	(0.406)	(0.348)	(0.789)	(0.786)	(0.359)
Trade	0.15	0.251	0.281	-0.231	0.491	-0.463
	(0.142)	(0.159)	(0.182)	(0.45)	(0.679)	(0.386)
FDI	-1.62	-1.506	-1.298	-1.408	1.427	2.777
	(1.345)	(1.343)	(1.403)	(11.5)	(3.247)	(3.609)
Estimation Method	FE	FE	FE	FE	FE	FE
Year-Specific Effect	YES	YES	YES	YES	YES	YES
Pro. Num.	29	29	29	29	29	29
Observations	174	174	172	56	58	58
R^2	0.404	0.429	0.426	0.066	0.1	0.082

Note: Standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively.

3.2.2 Endogeneity problem

To deal with the potential endogeneity problem, we employ a generalized-methods-of-moments (GMM) panel estimator for dynamic model. We estimate the model by using the lagged values in levels of all explanatory variables. Generally, both *Physical* and *Human* are significant at 1 percent level in the whole and sub- research periods. As Table 4 shows, physical capital contributes to the increase of Gini coefficient while human capital leads to the decrease of Gini coefficient. The estimated coefficient of *Human* is larger than that of *Physical* in the whole research period. *Social* however, only presents negative significance in the 1990s. The results of endogeneity check are also in line with the results in Table 2.

Table 4. Robustness check: Endogeneity

Dependent Variable	*Full Sample Regression*			*1980s*	*1990s*	*2000s*
Inequality	1	2	3	4	5	6
$Inequality_{-1}$	0.476***	0.436***	0.788***	-0.071***	0.721***	0.389***
	(0.017)	(0.016)	(0.024)	(0.021)	(0.058)	(0.083)
Physical	0.833***	0.666***	0.446***	0.864***	0.586**	1.858***
	(0.125)	(0.119)	(0.099)	(0.307)	(0.295)	(0.318)
Human		-2.522***	-10.448***	-13.9***	-7.855***	-8.089***
		(0.192)	(1.676)	(4.622)	(2.271)	(2.637)
Social			-0.053***		-0.25***	-0.011
			(0.018)		(0.051)	(0.039)
Gov	1.022***	-0.303	1.025***	-0.527	2.46**	-0.417
	(0.261)	(0.268)	(0.229)	(0.633)	(1.039)	(0.475)
Soe	-0.086	0.507***	0.672***	-2.249***	0.894***	-0.258
	(0.098)	(0.103)	(0.085)	(0.33)	(0.188)	(0.199)
Trade	0.296***	0.027	0.02	0.147	-0.086	0.094
	(0.055)	(0.056)	(0.047)	(0.21)	(0.091)	(0.081)
FDI	1.891***	3.221***	1.099***	-0.413	2.326***	0.376
	(0.401)	(0.395)	(0.332)	(2.5)	(0.786)	(0.903)

Estimation Method	GMM	GMM	GMM	GMM	GMM	GMM
Year-Specific Effect	YES	YES	YES	YES	YES	YES
Pro. Num.	29	29	29	29	29	29
Observations	798	798	551	218	232	224

Note: Standard errors are reported in parentheses. The symbols *, **, and *** indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively.

4. Concluding remarks

The paper provides robust evidence of the roles of physical capital, human capital and social capital in the changing overall inequality in the post-reform China. The investment of physical capital which plays an important role in advancing Chinese economy for decades actually contributes to the increase of overall inequality. Human capital which helps to reduce overall inequality, has also appeared to be more influential than physical capital in the research period.

There are no findings showing either positive or negative significance of social capital to overall inequality in China. Although Li and Westlund (2013) finds positive contribution of social capital (people's social networks) to Chinese economic growth in the 2000s, we think such economic role would finally transform into peoples's collaboration in collecting investment and other supports in economic activities. Since people's social connections in terms of their economic activities normally confine within certain area or region, thus its economic contribution across regions would present no big difference.

The implications for policy making lie in more even distributed physical capital investment, especially in the less developed provinces, and the continuous investment in people's education which may generate lasting effect on economic growth. These measures can help to reduce the overall inequality in China in the long run.

References

Barro, R. and Sala-i-Martin, X. Economic Growth, Second Edition, Cambridge, MIT Press, 2003.

Chen, J. and Fleisher, B.M. Regional income inequality and economic growth in China, Journal of Comparative Economics, 1996, 22: 141–164.

Chow, G.C., Capital formation and economic growth in China, Quarterly Journal of Economics, 1993,108:809– 842.

Fan, C.C. and Sun, M.J. Regional inequality in China, 1978-2006, Eurasian Geography and Economics, 2008, 49: 1-20.

Khan, A. R. and Riskin, C. Inequality and poverty in China in the age of globalization, Oxford, Oxford University Press. 2001.

Knack, S. and Keefer, P. Does social capital have an economic payoff? A cross-country

investigation, Quarterly Journal of Economics, 1997,112: 1251–1288.

Kuo, C.C. and Yang, C.H. Knowledge capital and spillover on regional economic growth: Evidence from China, China Economic Review, 2008, 19: 594–604.

Lee, C.K., Against the Law: Labor Protests in China's Rustbelt and Sunbelt, Berkeley, Berkeley, CA, University of California Press, 2007.

Li, Y.H. and Westlund, H. Social capital and economic growth in China's provinces, Chapter of "Social capital and rural development in the knowledge society", Hans Westlund & Kiyoshi Kobayashi (Eds.) Cheltenham: Edward Elgar Publishing Limited, 2013,182-197.

Mohan, G. and Mohan, J. Placing social capital, Progress in Human Geography, 2002, 26:191-210.

National Bureau of Statistics of China, Comprehensive Statistical Data and Materials on 60 Years of New China, Beijing, China Statistical Press, 2010.

National Bureau of Statistics of China, China Statistical Yearbook, Beijing, China Statistical Press, 2011.

Pei, M.X., China's Trapped Transition: The Limits of Developmental Autocracy, Cambridge, Harvard University Press, MA, 2006.

Putnam, R.D., Bowling Alone: The Collapse and Revival of American Community, New York, Simon & Schuster, 2000.

Sisci, F., "Is China Headed for a Social Red Alert?," Asia Times Online, October 20, 2005, [http://www.atimes.com/atimes/China_Business/GJ20Cb01.html].

Urel, B. and Zebregs, H. The Dynamics of Provincial Growth in China: A Nonparametric Approach, IMF Staff Papers, 2009, 56: 239-262.

Wang, Y. and Yu, Y.D. Sources of China's economic growth 1952-1999: Incorporating human Capital accumulation, China Economic Review, 2003,14: 32-52.

Wei, Y.H.D. and Fan, C.C. Regional inequality in China: A case study of Jiangsu Province, Professional Geographer, 2000, 52: 455–469.

Westlund, H. and Adam, F. Social capital and economic performance: A meta-analysis of 65

studies, European Planning Studies, 2010, 6: 893–919.

World Bank, China 2020: Sharing Rising Incomes, Washington, World Bank, 1997.

World Bank, World Development Report, Equity and Development, Oxford, Oxford University Press, 2006.

Yang, D.T. and Cai, F., The Political Economy of China's Rural-urban Divide, Working Paper, No. 62, Center for Research on Economic Development and Policy Reform, Stanford Univertsity, 2000, pp. 20.

Yang, D.T., Urban-biased policies and rising income inequality in China, American Economic Review Papers and Proceedings, 1999, 89: 306-310.

THE SERVICES OF GENERAL INTEREST IN ROMANIA: INSIGHTS INTO LEGAL AND INSTITUTIONAL ISSUES AT NATIONAL AND TERRITORIAL LEVEL

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Abstract
This paper addresses the legal and institutional issues generated by the organising and the provision of services of general interest (SGI) in Romania, with a special emphasis on the territorial distribution of competences and the derived responsibilities. It takes into consideration the classification of competences associated to local authorities as a result of the decentralisation process, which are divided into exclusive, shared and delegated ones. A series of drawbacks, inconsistencies are revealed followed by reflections on the solutions adopted by the authorities in favour of economic liberalisation and sustainable development of the local communities. The cooperation between the public authorities and the business sector is particularly addressed in this respect. In methodological terms, several interviews were conducted both among the general informants, namely academic representatives, policy makers, etc. and the representatives of the services providers, such as practitioners or public-administrators involved in delivering SGI. The former category of interview respondents has generated ideas of a national coverage area, while the latter type of interviewees has presented their perspective on certain localities in Romania, but with wide applicability to other similar areas. The interviewees' opinions have been mainly focused on the state and the future challenges on SGI in Romania.

Keywords: *services of general interest, competences, local administrative units, local development, public – private cooperation*

JEL Classification: R10

Introductory remarks

Although there is no universally accepted definition on the constitutive elements of general interest services (SGI) and general economic interest services (SGEI) in the European Union, at the beginning of January 2004 the European Parliament adopted a resolution intended to clarify their content. At the very beginning of this resolution, it is specified that the state has a

major part in producing and providing SGI: 'Public undertakings, public services and services of general interest are structures on which the public authority has a dominant power.' (Fulmini, [1])
The same document provides definitions for internal SGI and SGEI concepts. The primary concept refers to *public services* for utilities like gas, water, electricity, transportation, post and telecommunication. These services are provided by state controlled companies or companies that are entirely owned by state (mail, electricity production and gas production) or by private entities that have state concession (water providers, electricity distribution, etc.) or operating licenses (telecommunication and transportation).

The secondary concept of SGEI refers to public interest services that include services provided by public authorities (or entities delegated by these) under certain conditions. These conditions refer to elements like: universal access (for all population, without considering profitability – e.g. post services); reasonable prices (e.g. energy field); same quality for all providers (e.g. telecommunication field). All these considered, three categories of services can be distinguished, namely:
- services that are not provided by market rules: compulsory education, emergency medical services, social protection;
- state obligations: justice and public security; and
- general economic interest services (SGEI): electricity, telecommunication, post, water and sewerage, waste, etc.

A different manner in classifying SGI, which has represented a starting point in our research, takes into consideration their fundaments: economic SGI and social SGI.
Economic (investment based) SGI include public transportation, postal services, telecommunication, ICT, electricity, gas and water.
Social (consumption based) SGI refer to education, health, child care, social care, social housing and labour market services.

This paper proposes a discussion on the issues generated by the organising and the provision of SGI in Romania, which is a relevant case study considering the gradual market liberalisation since 1990 and the specific issues it has entailed in legal and institutional terms. Also, based on the transformations of the territorial structures in line with the EU general framework for regional policy implementation, it places a particular emphasis on the territorial distribution of competences and the derived responsibilities.

Consequently, the paper begins with an insight into Romania's territorial structures in order to understand the characteristics of the territorial distribution of competences for the SGI, with a particular emphasis on the capabilities of various levels regarding the decision implementation in administrative terms. Then, the options for SGI management are examined as resulted from the existing legislation and corresponding institutional framework. Furthermore, methodological issues regarding the interviews conducted among Romanian specialists are exposed. Finally, the specialists' opinion on the state and perspectives of SGI in Romania are discussed, revealing a series of valuable ideas on the evolution of this sector within the European framework.

Territorial distribution of competences for services of general interest

Romania's administrative-territorial structure comprises one regional level – the counties, named 'judete', corresponding to NUTS3 level of the EUROSAT (there are 41 counties plus Bucharest municipality) and one local level (cities, towns, communes). Also, according to the Regional Development Law no. 151/1998 (updated as Regional Development Law no. 315/2004) [2] eight development regions have been created and intended to serve as 'the framework for conceiving, implementing and evaluating regional development policy as well as for collecting the statistical data corresponding to the NUTS 2 level of the EUROSTAT' (Law no. 151/1998 [2] and Law no. 315/2004 [3]). Each region comprises between 4 and 7 counties (excepting Bucharest - Ilfov region). The eight regions 'are not administrative-territorial units and do not have judicial personality' (Law no. 151/ 1998 [2] and Law no.

315/2004 [3]). More recently, for statistical analysis purposes Romania is also present in EUROSTAT territorial scheme with four macro-regions corresponding to the NUTS 1 level (each of them comprises two development regions).

Hence, the counties (NUTS 3) are the only administrative units at regional level. At local level there are 320 urban centres (of which 103 municipalities) and 2854 communes. They are also administrative units. From the LAU perspective, the LAU 1 level in Romania is the same as NUTS 3, that is counties while the LAU 2 level is represented by the 3174 localities (municipalities (big cities), towns and communes).

In the described construction, only the counties and the localities have local administration competencies, whereas the development regions cannot be used as structures capable to implement the government's decisions in their territories. The current programming period has revealed a series of cases when the development regions were not able to promote larger scale, inter-county projects because they do not have judicial power, while the counties do have and, at the same time, counties may have divergent political interests.

Before 1990, in Romania the SGI were entirely provided by the public authorities. Afterwards, the market was gradually liberalized and the SGI captured the attention of private operators. Nowadays, the business sector is involved next to the public authorities in offering services of general interest of high quality in order to obtain the citizens' satisfaction. The cooperation between the public authorities and the business sector in Romania is more developed in the area of services of general interest that prove to be profitable, such as waste service and public transport, rather than services that need high investments in infrastructure, such as electricity, gas and water supply service. One convenient way for providing services of general interest refers to a combination between the public authorities and private sector resources, by creating companies with mixed capital. The contractual form available in Romania for these new formed companies, with public – private capital, is the public-private partnership, stipulated by Law no. 178/2010 of Public – Private Partnership [4].

As regards the territorial distribution of competences for the services of general interest, they are divided between counties - LAU 1 (the same as NUTS 3) and localities (municipalities, towns and communes) – LAU 2. As previously mentioned, the development regions are not administrative units and, consequently, do not have competences in the administration of the services of general interest[1].
The Law no. 195/2006 of Decentralization [5] provides a clear classification of the competences attributed to the local authorities at locality – LAU 2 and county – LAU 1 level. The competences are divided into three categories, namely exclusive competence, shared competence, and delegated authority, as shown in Table 1.

Table 1: SGI competence type by LAU level

Type of competence	County (LAU 1)	Municipalities, towns and communes (LAU 2)
Exclusive	- Administration of local airports - Administration of the county public and private domain - Administration of the cultural institutions of county interest - Administration of the public health units of county interest - Primary and specialized social	- Administration of the public and private domain of the commune or city - Administration of the road infrastructure of local interest - Administration of cultural institutions of local interest - Administration of public health units

[1] At present there are serious political debates with regard to re-organising and transforming the development regions into administrative units, determined by the need to make them more powerful in relation to the counties.

	services for victims of domestic violence - Specialized social services for the elderly - Other competences established by law	of local interest - Planning and urbanism - Water supply - Sewage and wastewater treatment - Public lighting - Waste - Social services with primary character for child protection and the elderly - Social services with primary and specialized character for victims of domestic violence - Local public passenger transport - Other competences established by law
Shared with central authorities	- Administration of the road infrastructure of county interest - Special education - Medical and social care services dedicated to persons with social problems - Primary and specialized social services for child protection - Specialized social services for people with disabilities - Community public services for inhabitants' account - Other competences established by law	- Thermal power supply produced in a centralized system - Social and youth housing - Pre-university education, excepting the special education - Public order and safety - Social aid for people in need - Prevention and management of the emergency situations at local level - Medical-social services addressed to persons with social problems - Social services with primary character for people with disabilities - Community public services for inhabitants' account - Administration of road transport infrastructure of local interest at commune level - Other competences established by law.
Shared with county authorities	N/A	- Provision of services of public utilities through regional operators
Delegated by state	N/A	- Payment of allowances and benefits for adults and children with disabilities.

Source: authors' processing based on Law no. 195/22 May 2006 of decentralization [5]

A bird's eye view on legal and institutional issues relating to SGI in Romania

Compared to the EU approach, the Romanian legislation does not define the terms of 'public interest' or 'general interest'. There is just a definition of 'legitimate public interest' which can be found in the Law no. 554/2004 of Administrative Litigation [6] and stipulates that the legitimate public interest is 'the interest which envisages the power of law and constitutional democracy, the guarantee of the rights, liberties and fundamental duties of citizens, satisfying the community needs, the implementation of the public authorities' competences' (Law no. 554/2004, art. 2 par. l, [6]).
There is not a uniform definition of the public service concept either. The national legislation utilizes both a functional and an organic approach of this concept and many times the term of 'public interest service' is employed without making clear its content.

The term of 'public service' is defined by the same law as 'the activity organized/authorized by a public authority in order to satisfy a legitimate public interest' (Law no. 554/2004, art. 2

par. k, [6]). Further on, the Law no. 178/2010 of Public-Private Partnership [4] defines the 'public service' as 'the totality of actions and activities which ensure the satisfying of the utility needs and the general/local public interest needs of various collectivities' (Law no. 178/2010, art. 4 par. c, [4]).
In this respect it is necessary that the proposed definition ensure a correct understanding of the concept, in accordance with the European level tendencies. A basic option at the EU level is that of the functional defining of the general interest services, comprising market and non-market services, which are classified by the public authorities as being of general interest and subject to obligations specific to public services.

In 2006 the Law no. 51/2006 of Communitarian Services of Public Utilities [7] was issued in order to ensure the basis of the regulatory framework for the services of general interest in Romania[2]. This law specifies the authorities that impose the regulation of services of public utilities and their working principles. The National Authority for Regulating Community Services on Public Utilities **(**Autoritatea Nationala de Reglementare pentru Serviciile Comunitare de Utilitati Publice - ANRSC**)** is the regulatory authority for the following services of general interest: water supply, waste and sewerage, heat generation, transmission, distribution and supply in a centralized system, apart from heat energy produced in cogeneration, waste, sanitation of localities, public lighting, public and private management of administrative-territorial units and local public transport, under powers conferred by special law. This public institution of national interest has judicial personality and is subordinated to the Ministry of Administration and Interior of Romania. For the natural gas and electricity services there is a similar regulatory body, named the National Agency for Energy Regulation (Agentia Nationala de Reglementare in domeniul Energiei - ANRE). The activities of regulating and monitoring the services of transport are done by the Romanian Road Authority (Autoritatea Rutiera Romana - ARR), a public institution that is subordinated to the Ministry of Transports and Infrastructure (Ministerul Transporturilor si Infrastructurii).

According to the Law no. 51/2006 of Communitarian Services of Public Utilities [7] the two types of management of public services in Romania are represented by the direct management and indirect management.
Furthermore, the *direct management* is achieved through its own structures of local authorities, such as:
- specialty compartments;
- public services or special directions without judicial personality, organized within the City Council's own device; and
- public services or special directions with judicial personality, organized under the Local Council, with its own heritage, etc.

Another section of this law refers to the delegated management which means 'the way in which local authorities [...] transfer to one or more operators all duties and responsibilities on the supply / provision of public utilities, and also the management and exploitation of related systems of public utilities, under a contract called contract of management delegation' (Law no. 51/2006, art. 30 par. 1, [7]).
In the case of *delegated management* of public utilities services, the operators can take the following form:
- commercial companies as suppliers of services, set up by local authorities with the capital owned by the administrative - territorial units;
- commercial companies as suppliers of public utilities services resulted from the administrative reorganization of the autonomous of local or county interest or of the public services subordinated to the local authorities, whose capital is owned in whole or in part, as owner / co-owner, by the administrative - territorial units; and
- commercial companies as suppliers of public utilities services with private or mixed capital.

[2] Found in the Romanian legislation as services of public utilities.

The management delegation agreement may take the form of concession contract or public - private partnership contract.

According to the same law, the public utilities services are managed directly or by delegation. A certain method is selected by the decision of local councils, county councils, the General Council of Bucharest Municipality or Community Development Association based on some particular criteria, such as the nature and condition of service, present interest, etc. Legal relations between local authorities and operators of public utilities are regulated as follows: direct management by the decision of contracting out and delegated management by decisions and contracts (including concession) by which the service management is delegated.

In order to deepen this overall review, the specialists' opinion on the state and perspectives of SGI in Romania has been investigated. The next sections discuss the research methodology as well as the results of this inquiry.

Research methodology

For a better understanding of the situation of SGI in Romania and their potential evolution over time the interview was proposed as the most suitable instrument in the project's research context. The adopted technique has been the in-depth interview, since it includes guidelines that make it applicable to different contexts[3]. The interviews have been directed to two main categories of respondents, as follows: the general informants, namely key-users, academic representatives, policy makers and the representatives of the services providers, such as practitioners or public-administrators involved in SGI delivery. In this way, both the beneficiaries and the policy makers/providers were enabled to express their view on SGI in Romania. The opinions and ideas of both types of respondents have a national spreading, even though some of them are mainly focused on the North-East Region of Romania[4].

The issues that were discussed along the interviews addressed the following research foci:
- the way SGI are provided in the region/state;
- the major providers of SGI (local authorities, private companies, public – private partnerships etc.);
- the plans and programmes related to SGI;
- the criteria used for assessing SGI in the region/state;
- the financing of SGI (government funding, local government funds, payment of users etc.); and
- the main future challenges of SGI.

Twenty interviews were applied in January - May 2012 among persons having an endorsed opinion on SGI at the national and territorial level in Romania. Two interviewees represented the academia and policy makers' opinion, while the others came from the local public administration and local service providers.
Thus, Ioan Radu is an important academia representative as his main research expertise is focused on SGI. He is a former president of the National Regulatory Authority for Communitarian Services of Public Utilities in Romania, the current president of the National Association of Technicians, Experts and Researchers for Public Services of General Interest and councillor in the domain of public services, economics and management within the Municipality of Bucharest.
Anca Cador is the manager of the Direction of market monitoring and field consultancy within The National Authority for Regulating Community Services on Public Utilities in Romania (ANRSC). Moreover, she expressed her opinion from the position of policy maker.

[3] The in-depth interview was created by the SeGI team members of the Institute of Geography and Spatial Economy of the Polish Academy of Sciences as one of the institutional partner within our project. The responses to the interviews conducted in Romania by the Bucharest University of Economic Studies' research team within the SeGI project may be accessed upon request.
[4] This region was the subject of the particular case study of SeGI project corresponding to Romanian partner.

Additionally, 8 interviews were carried out in Suceava county and 10 interviews in Vaslui county, at both municipality/town and commune level.

Results

Interviewees' perceptions on the state of SGI at national and territorial level in Romania

One of the interviewees belonging to the academia and policy-makers category specified that up to date most of the regulations for SGI have been developed and approved in order to harmonize the Romanian legislation with the *acquis communautaire*. In this respect, competences for all parts involved in the implementation, monitoring and control of the legislation compliance were established. In the future, based on the support of the central and local public administration authorities, it is expected that the quality of the SGI will increase and, implicitly, the citizens' quality of life, accompanied by the elimination of social exclusion and isolation. This could lead to the provision of services of general interest in a performing and non-discriminatory manner.

Law no. 51/2006 of Communitarian Services of Public Utilities [7], with further improvements and additions, establishes a uniform legal and institutional framework, with objectives, competences, functions and tools required for the creation, organization, management, financing, operation, monitoring and control of regulated supply/provision of SGI. It also entrusts the ANRSC with responsibilities and competences in the position of regulator, monitoring and controlling authority in this domain. Starting from this law that represents the legal framework of the SGI in Romania, for each public service specific laws have been developed and adopted, except for the law of public and private administration of the territorial administrative units whose project was rejected. Also, the 'National strategy for accelerating the development of communitarian services of public utilities' was developed and approved by the Government Decision no. 246/2006 [8]. It lays the foundations of the multi-annual plan for the development of these services.

An issue of a great interest refers to the financing of the capital expenditures for achieving the public investment objectives of the territorial- administrative units with regard to the public utilities systems. It is ensured from the following sources: own funds of the operators and / or local budget funds; bank loans, which can be guaranteed by administrative-territorial units, the Romanian state or other entities specialised in the provision of bank guarantees; grants obtained through bilateral or multilateral arrangements; special funds set up under the special taxes, established at the local public administration authorities level; funds transferred from the state budget, as participation in co-financing investment programmes accomplished with external financing; participation of private capital in public-private partnership contracts such as 'build-operate-transfer' and its variations, according to the law; funds provided by users.

When it comes to the operators' revenues, both users' own financial resources and local budget funds can be implied. Thus, the operators' revenues are collected from the users via prices or rates - the amounts representing the value of the supplied / provided services and, where appropriate, from the local budget allocations. In the latter case, the following principles have to be observed: ensuring the financial autonomy of the operator; ensuring the economic profitability and efficiency; ensuring an equal treatment of the public utilities services in relation to other SGI; full recovery of the costs relating to the provided services by the operators.

As far as the financing forms of SGI are concerned, most interviewees have mentioned that almost all of them are encountered in Romania, namely funds from contributors, governmental funding, local governmental funds, payment of user and various combinations. In a hierarchical order based on the interviewees' answers, the users' payments occupy the first position.

In all Romanian regions the practice of establishing the prices of SGI is the same. The prices are established in accordance with the necessary expenses for the functioning of SGI, adding a minimum share for development. The price recommendations are sent to the ANRSC for approval. After the approval is obtained, the Local Council, as deliberative authority of the local public administration, approves the tariffs by decisions.

Starting from the calculation methodology established by the competent regulatory authorities, prices and tariffs for services of public utilities are based on the production and operating costs, on the maintenance and repairs costs, on the payment relating to immobilized capital in tangible and intangible assets, on the environmental costs, on the financial costs associated with loans, on the costs arising from the contract of delegation, and also include a quota for creating sources of development and modernization of the systems of public utilities, and, finally, a profit share is added. A general recommendation formulated by the interviewees for the local public administration authorities is put a stronger emphasis on the development and modernization issues when establishing the prices and tariffs. By covering, most of the times, only the costs implied by SGI, the risk would be the lack of funds for further development of SGI.

Most interviewees provided positive answers when asked about the legally defined criteria for quality, accessibility, affordability of SGI. Additionally, in a very large proportion, the interviewees agreed with the fact that the category of users that have difficulties in accessing the SGI is made of low-income families or unemployed. The main barriers identified as hindering the access to services are of economic and social nature. More specifically, the interviewees specified as barriers the lack of infrastructure, the limited material resources and the lack of financial resources of the citizens.

The evaluation of the quality and the provision of SGI could be conducted by using the annual assessment reports and the laws in force. The interviewees pointed out that the national legislation specifies the necessary procedures for each type of service and the way of solving the users' complaints. They also mentioned that several indicators for assessing the SGI quality have been developed, being included in the methodology of the national plan. The evaluation of the quality of services provided by the local public sector is in most of the cases conducted internally, based on operating regulations of each service. Annually the evaluation of the SGI is made by local administration on the occasion of the Local Council meetings. In addition, an external evaluation of SGI is made by the citizens benefiting from them. The Court of Auditors, the ANRSC, the central and local public administration are among the controlling bodies of the accessibility and affordability of SGIs, enumerated by the interviewees.

Going further, the analysis of the North-East Region's particular case (NUTS 2 level) has revealed the following distribution of responsibilities between SGI operators:
- the local public authorities are responsible for local public administration, water supply service, sewage, sanitation, local road infrastructure, social assistance, library, cultural centres, education- only the infrastructure;
- state is in charge with education, health and railway transport; and
- private companies operate in health, local road transport, postal services, electric energy, and telecommunications.

At a lower level (NUTS 3), evidence for Vaslui county, as part of the North-East Region, has been provided:
- The water supply service is mainly ensured by the local public administration authorities but is not usually provided to all villages included in a commune. However, the expanding of this service is specified in the local strategies, benefiting from governmental support. There are only a few private operators that are encouraged to provide this service in the envisaged area.
- The electricity distribution is ensured by E-On Moldova, which is private company holding the monopoly in the domain.
- The education at the local level contains preschool, primary education, gymnasium and high school coordinated at the county level by the Education Inspectorate.

- Telecommunications are provided by all main private companies in Romania.
- The road transport is provided by private companies whereas for railway transport the support comes from the Romanian national company of railways.

The main suppliers of public utilities services and their status heavily depend on the type of provided service, and the territorial and administrative characteristics of the locality in which the service is provided.
Among the investigated cases there are situations of natural monopoly. As specified by Law no. 51/2006 [7], in the domain of public utilities services it is defined as the market situation particular to some services of public utilities that, on a bounded area, can be supplied / provided only by a single operator. At the same time, any agreements which lead to the growth of the monopoly of services of public utilities, to the restriction, prevention or distortion of competition on the market of services of public utilities as well as association agreements or any concerted practices between operators are forbidden, regardless the manner of organization, ownership or method of management.

The government ensures the accomplishment of the state general policy in the domain of public utilities services, according to the Programme of Governance and to the objectives of the National Plan of Economic and Social Development, by implementing a series of actions aiming at supporting the local public administration authorities to develop the service infrastructure and to improve the provision of the SGI. In relation to emphasizing this statement, the vast majority of interviewees pointed out that there are strategy plans or programmes that regulate SGI. Some of the interviewees specified that these kind of plans or programmes can be found at both local and national level.

Interviewees' perceptions on the perspectives of SGI at national and territorial level

The interviewees have expressed a series of opinions on the driving forces that influence SGI at national and territorial levels and the future concerns on SGI.
When asked about future concerns on the services of general interest, Ioan Radu mentioned two different directions: on one hand the service privatization and, on the other hand, the privatization of the service management. The latter direction means to delegate through a public - private partnership the management of a certain service with clear obligations for the concessionaire regarding the capacity of holding up the necessary investments in time and ensuring the quality by accomplishing the indicator levels stipulated in contract. Within the contract that is signed between the local administration and the service operator is stipulated the name of the authority in charge with the contract monitoring. The interviewee has indicated as example the investment programme of Apa Nova, called 'Bucur'. This programme is specified in the additional contract no. 6 at the concession contract between the local authorities of Bucharest and Apa Nova. As the Mayor stated on his BlogSpot, this Programme started in 2011 and implies an investment of 60 million dollars from Apa Nova to the city of Bucharest during the following years. Based on this programme, there are in progress of execution 53 streets, summing up 20,000 km public network of water supply and 14,600 public network of sewage. The newest technical asset will be the construction of two interception channels that will diminish the risk of flows in the city centre of Bucharest in case of extreme weather phenomena. Even if the intention of the authorities is to maintain the current tariff levels, it is very possible to cover the return on investment from the updated tariffs applied to the citizens as well. As regards the authority in charge with the monitoring of the water supply quality in respect to the performance indicators[5] in Bucharest, its name is the Municipal Authority of Regulation in Public Services. Moreover, other examples may be identified in energy, health, social assistance as private houses for the elderly. In addition, another action that is still a challenge for Romania regards the unique counter[6] which deals

[5] Such as a certain level of the concentration of sand in water; a new treatment plant for Bucharest at Glina.
[6] Called 'ghiseul unic'.

with the customers complains about the service. As the National Authority of Consumers Protection stipulated, these complaints have to be solved by each local public administration authority through the unique counter.

When it came to the future directions of the SGI in Romania the interviewee pointed out a series of targets, such as:
- the acceleration of the decentralization policy, so as to place the services under the administration of the local authorities;
- involving the non - governmental organizations in providing SGI, mainly for those services that have a social character;
- observing the principles of sustainable development with regard to energy, sanitation, environment and others[7];
- political will for the modernization of SGI and for the promotion of the public – private partnership;
- a coherent management[8] that should be adopted by the local public administration;
- selecting the most competent employees and developing managerial competences[9]; and
- the involvement of the civil society in providing quality SGI through the interaction between central administration – local administration and civil society.

A final issue discussed with Ioan Radu envisaged the challenges that SGI have to face. The following challenges have been revealed by the interviewee:
- Identification of new sources of energy.
- Romania's obligation to move towards an efficient waste management.
- The obligation of taking into account the role of the civil society in assuring the provision of SGI, mainly social services.
- As Romania has to implement the standards imposed by of the European Union regarding various SGI, the attraction of foreign investments is the main solution in this case.
- Promoting professional competence by developing an educational system that encourages specialization in a certain SGI (e.g. assistants, nurses, etc.).
- A higher interest for collecting financial resources from external sources, also from different programmes that are developed by a certain European country and having Romania as beneficiary.

Another principal interviewee, Anca Cador mentioned that SGI are in the middle of the debates and represent the main question of the role assumed by the public authorities in a market economy: on one hand, they have to monitor the proper functioning of the market, and, on the other hand, to guarantee the general interest by satisfying the primary necessities of the citizens and preservation of the public goods when the market fails to do so. How public authorities fulfil their obligations to citizens is subject to a constant evolution by responding to economic, technological and social approaches.
In the particular case of Romania, certain SGI are still provided by public authorities. In recent years, they have entrusted more frequently the provision of these SGI to public and private enterprises or to partnerships between the public and private sectors. Further on, the public administration is more focused on defining public objectives and monitoring, assuring the regulation framework and - where appropriate, funding those services. This evolution does not determine public authorities to give up their responsibility to guarantee the accomplishment of the objectives of general interest. Through relevant regulations, public authorities must be able to determine national and local policies on services of general interest and to monitor their implementation.
Finally, Anca Cador stated that the SGI have an extraordinary impact on the environment. On the one hand, SGI represent a major pollutant, and on the other hand, substantially participate to the limitation of the pollution degree (e.g. waste water treatment, collection and waste

[7] One example refers to producing approximately 30% of energy by alternative sources, which is a European target that Romania had to accomplish by the beginning of 2011.
[8] By applying the Emergency Ordinance no. 109/2011 regarding the obligation for public enterprises to implement the principles of corporate governance [9].
[9]The constraint that appears in the case of Romania and makes this issues very difficult to implement is that the salaries are very low and very skilled persons are not attracted to enter in public administration.

disposal). Obeying the environmental requirements throughout the entire life cycle of the SGI infrastructure (build-operation-maintenance-demolition) becomes extremely important in the framework of sustainable development concept, as in the context of universality principle corresponding to services of general interest (Balalalia (Iosif), Petrariu and Bumbac, [10]).

When applied at territorial level, the interviews highlighted the main challenges that are associated to SGI in the near future, such as:
- liberalization, quality, cost/efficiency;
- the increase of demand for services;
- financing and the limitation of funds for the development of SGI;
- attracting European funds through different projects;
- developing systems of renewable energy;
- competition;
- bureaucracy;
- decentralization;
- equitable relationship between providers and users; and
- observing European legislation.

Summing up the interviewees' opinions collected at territorial level, the main issues that have to be considered by the SGI strategies and policies refer to:
- bureaucracy and the legislative fluctuation;
- competition, quality and cost/ output ratio;
- observing the European norms;
- developing systems of renewable energy;
- technology development;
- regionalization;
- economic crisis and financial instability;
- an even higher lack of financial resources;
- political influence and corruption;
- decentralization of SGI; and
- competition, quality of services and better prices.

Concluding remarks

The legal framework created in Romania after 1990 for the SGI reflects the option for market liberalisation, applied in a differentiated way depending on the characteristics of various services. Obviously, the private sector is much more interested in the profitable services rather than in those requiring a high amount of preliminary investments in infrastructure.
For meeting the citizens' needs in a higher degree the involvement of the private operators is recommended not only independently but also in a public - private capital based cooperation, as supported by the public-private partnership law.

Changes in the territorial structures institutional framework are also recommended so as to ensure a better distribution of competences for the SGI, considering that at present the development regions are not administrative units and, consequently, do not have competences in the administration of the services of general interest.

Apart from the general issues regarding the administrative-territorial structure of Romania and general aspects corresponding to SGI in Romania, this research has provided a qualitative analysis of the SGI in Romania in accordance with the territorial distribution of competences and the derived responsibilities.
Regulations corresponding to SGI, the financing forms, the mechanism of establishing the SGI prices, the evaluation of the quality and the provision of SGI, the programmes and plans associated to SGI represent the main subjects discussed along the applied interviews related to the state of SGI in Romania.

When asked about the future of SGI in the region/ country most of interviewees tried to give rather optimistic answers and hopes in good evolutions. The future optimistic directions envisage the development of SGI in accordance with the European policies so as to consolidate the economic and social cohesion. However, pessimistic answers have been also provided and they are mostly related to the uncertainty on the market and the financial constraints.

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References

Fulmini, A., "Public Undertakings and Services Of General Interest", 2006, online at http://circa.europa.eu/irc/opoce/fact_sheets/info/data/market/rules/article_7197_en.htm, accessed September 1st, 2012.

Law no. 151/1998 on regional development in Romania, published in the Official Journal of Romania no. 265 of July 16, 1998, amended.

Law no. 315/2004 on regional development in Romania, re-published in the Official Journal of Romania no. 577 of June 29, 2004.

Law no. 178/2010 on Public – Private Partnership, published in the Official Journal of Romania no. 676 of October 5, 2010.

Law no. 195/2006 on decentralization, published in the Official Journal of Romania no. 453 of May 25, 2006.

Law no. 554/2004 on Administrative Litigation, published in the Official Journal of Romania no. 1154 of December 7, 2004.

Law no. 51/2006 on communitarian services of public utilities, published in the Official Journal of Romania no. 254 of March 21, 2006.

Governmental Ordinance no. 246/2006 on the National strategy for accelerating the development of communitarian services of public utilities, published in the Official Journal of Romania no. 295 of April 3, 2006.

Emergency Ordinance no. 109/2011 on the corporate governance of public enterprises, published in the Official Journal of Romania no. 883 of December 14, 2011.

Balalia (Iosif), A.I., Petrariu, I.R. and Bumbac, R., "Service innovation- impressive generator of competitiveness and challenging incentive for sustainable development", in The 22nd RESER International Conference- Services and Economic Development: Local and Global Challenges, Bucharest, Romania, 2012.

LOCAL ACTORS AND LEADERSHIP IN RURAL DESTINATIONS: EXPLORING THE ROLE OF GASTRONOMIC CONFRATERNITIES

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Abstract
By means of an exploratory and comparative study focusing on the three rural destinations in Wallonia (Chimay, Orval and Rochefort), we have put forward reflections on the role and influence of gastronomic confraternities, both as actors in local economic and tourist development and in terms of their leadership capacity. By means of this exploratory research, we are not seeking to analyse the effectiveness or economic performance generated by the activities of the gastronomic confraternities, but rather to show the opportunities they offer for local actors to form and gain access to such networks. After having identified the many reasons and advantages to local actors of joining a gastronomic confraternity, we will try to understand why some of them do not seem to be interested in local actors, whereas others draw attract members of the local economic, political and social elites.

Keywords: Wallonia, Trappist monks, tourist promotion, beer, local development

JEL classification : R12, L25, L26

Introduction

According to several analysts, the main components of the current trends in rural tourism are to be linked to the concept of authenticity that tourists associate notably with tradition, local culture, contact with nature and enthusiasm for discovering new forms of heritage, notably including gastronomic heritage and local products. A number of studies focusing on tourist demand show that the consumption of local products in the course of holiday stays partially fulfils the quest for authenticity by certain tourists. Other scholars emphasise the important role played by the consumption of local agrifood products in the tourist experience, particularly by its influence on the positive impressions tourists take away from their visit (Bessis, 1995; Bessière, 1998; Van Westering, 1999; Fields, 2000; Poulain, 2000; Du Rand *et al.*, 2003; Assouly, 2004; Espeitx Bernat, 2004; Tellstrom *et al.*, 2005; Tregear *et al.*, 2007; Henderson, 2009 ; kim *et al.*, 2009; Sims, 2009; Barrey and Teil, 2011; Bertella, 2011; Grasseni, 2011).

This phenomenon has encouraged many public and private actors to turn to tourism in the hope of reinvigorating local development. In fact, in the past 30 years, several projects were set up to develop tourism in such a way that it contributes to policies and strategies of development in a rural area. The particular position occupied by tourism is due to the fact that this sector is considered capable of participating in cross-sectoral development patterns that favour the local economy as well as the protection of heritage and the strengthening of regional identities. The role thus attributed to, or even imposed on, tourism is part of a political and economic context of changing rural spaces that are seeking new forms of development or alternatives to a declining agricultural economy. This paradigm, which consists in considering tourism as a strategic axis of development, is a recurring rhetoric in regions that have been left vulnerable by the decline of an agrarian economy. Since these tourism strategies are fully part of territorial competition between cities or between rural communities, they regularly look to tourism, which is thus perceived by many private and public sector economic players as the hope for these regions.

Among the studies conducted on local agrifood products (LAPs), some have to do with agriculture and their value for tourism. Emphasis is placed, for instance, on the role of tourism in participating in rural development, thus stressing the specific challenges to rural spaces such as landscape management and agricultural diversification (Kneafsey and Ilbery, 2001; Pecqueur, 2001; Parrott *et al.*, 2002 ; Meler and Cerovic, 2003; Renting *et al.*, 2003;

Vandecandelaere and Touzard, 2005 ; Bossuet *et al.*, n.d.; Boucher and Requier-Desjardins, n.d.; Corigliano, 2000; Pecqueur, 2001; Vandecandelaere & Touzard, 2005; Hirzack *et al.*, 2005; Roux *et al.*, 2006; Tregear *et al.*, 2007; Muchnik *et al.*, 2008; Scheffer and Piriou, 2009; Green and Dougherty, 2009; Herault-Fourner *et al.*, 2009; Deverre and Lamine, 2010). In these sense, the touristic valorization of LAPs makes it possible to diversify the range of what a region has to offer and to strengthen the tourist appeal of certain destinations (Bessière, 1998; Boyne *et al.*, 2000; Fields, 2000; Ilbery and Kneafsey, 2000; Scarpato, 2000; Hjalager, 2002 ; Betry, 2003; Meler and Cerovic, 2003; Kivela and Crotts, 2006; Everett and Aitchison, 2008; Kivela and Crotts, 2009; Sims, 2010; De Myttenaere, 2011). From this perspective, the valorization of food resources can turn these products into local emblems at the service of regional communication and marketing strategies. But even beyond this promotional function, these emblematic resources can also serve as a source of local identity, reinforcing people's sense of belonging to their territory (Bessière, 1998; Shortridge, 2003; Everett and Aitchison, 2008; Green and Dougherty, 2009; Barthe *et al.*, 2010; Bertella, 2011).

The subject of "food tourism" has to date received little attention from social science researchers, since tourism and gastronomy have only gradually come to be regarded as subjects of proper academic study (Hjalager and Richards, 2000; Santich, 2004; Csergo and Lemasson, 2008). In the last decade, however, there has been substantial growth in the number of publications addressing this topic, including for instance analyses of the logic behind the tendency of private or public actors in the field of tourism to organise into groups in order to develop agricultural products that could lend greater dynamism to local development (Bossuet *et al.*, n.d.; Boucher and Requier-Desjardins, n.d.; Corigliano, 2000; Pecqueur, 2001; Vandecandelaere and Touzard, 2005; Hirzack *et al.*, 2005; Roux *et al.*, 2006; Tregear *et al.*, 2007; Muchnik *et al.*, 2008; Scheffer and Piriou, 2009; Green and Dougherty, 2009; Herault-Fourner *et al.*, 2009; Deverre and Lamine, 2010).

While much research into tourism studies examining strategic networks concentrates on formal actors and structures, a very limited number of research projects specifically concern the role of informal structures and associations of volunteers involved in actions and strategies for tourist development. Associations such as gastronomic confraternities have rarely been examined and hence their roles and influences have largely remained undocumented. Yet the campaigns conducted by gastronomic confraternities can have considerable impact, notably by projecting local images and identities, on regional marketing and the development of tourism. The research we have carried out indicates that under certain conditions, they can also play an important part in the dynamics of tourism development and thus demonstrate a territorial leadership that ought not to be neglected.

This article considers the question of the relationships between tourism development in rural areas and the creation or reinforcement of the potential for local leadership of gastronomic confraternities involved in the commodification of local agrifood products in Wallonia (Belgium). Like many other rural areas in Europe, Wallonia has seen an increase in tourism-related projects that are centred on promoting local agrifood products (LAPs), including abbey beers. Their production, marketing and promotion to tourists by public and private actors appear to be opening up new opportunities for developing or upgrading the range of local items on offer to tourists.

This research is intended to determine the scope of action of the gastronomic confraternities and their role in local leadership in the domain of tourism development projects in rural areas. We aim to examine the role of those players involved in such campaigns, the conditions under which these are rolled out, as well as the resources and methods used. More generally, the aim of this paper is to understand how and under what conditions gastronomic confraternities will become resources at the service of tourism strategies and projects in rural areas.

We will look closely at the analysis of various situations where campaigns and strategies are being developed for promoting LAPs for tourism purposes, concentrating more specifically on the analysis of three abbey beers (Orval, Chimay and Rochefort) of the Walloon Region of Belgium.

We will first review the types of activities and tourism campaigns in which the confraternities invest their energies locally. Next, we will analyse the rituals of enthronement of the new members of these associations, in order to discover how they participate in stimulating the imagination of tourists and in constructing individual, collective and territorial identities.

Beyond the challenges linked to marketing both products and their territory, we will show why the events organised by these confraternities play a role in the production of images,

symbols and focal points for identity, thereby contributing not only to the appeal of the region but also to the creation or reinforcement of the potential for leadership of the actors involved in these carefully staged events. The task will therefore be to analyse the symbolic and socio-political functions of the rituals of enthronement. We will show that the territorial leadership enjoyed by certain confraternities is strengthened by the creation of veritable networks both within and outside the often significant economic and political powers. Beyond the structure and operation of the confraternity itself, the objective is to gain an understanding of its social and economic function within its environment.

In the first instance, we will illustrate this potential power by presenting and analysing major elements that characterise the range of influence of the confraternities. Next, we will observe the varying degrees of intensity of the power and influence they wield within the various territories under study, and to explain the conditions necessary to render that power effective. While certain confraternities enjoy the support of public and private actors and gain access to resources that generate tourism development projects, their ability to mobilise these resources differs. Finally, the hypotheses regarding the dynamics observed will be sketched out on the one hand from the perspective of the various socio-cultural contexts, and on the other hand in light of the role played by the other actors involved in producing abbey beers, namely, the monks, whose attitude to tourism is, as we shall see, somewhat unusual.

Method

The approach we have taken in order to fulfil these objectives is to proceed via an empirical analysis of a qualitative nature (Kaufmann, 1996; Decrop, 1999; Finn *et al.*, 2000; Miles and Huberman, 2003; Hannam and Knox, 2005; Paille and Mucchielli, 2008) based in particular on theories of territorial socio-economic and of economic sociology (Granovetter, 1985; Massey, 1995; Colletis *et al.*, 1999; Gilly and Torre, 2000; Granovetter, 2000; Pecqueur and Zimmermann, 2004; Gilly and Lung, 2004).

This research is based on a heterogeneous body of qualitative data (texts, narratives, images), gathered through semi-structured interviews and field observations. The interviews (around thirty people questioned across three regions) were conducted principally with office-holders in the gastronomic confraternities as well as with the main actors in the tourist institutions of the regions in question. These interviews, of variable length (between half an hour and an hour and a half), conducted between 2010 and 2012, were designed to obtain information about perceptions, representations and practices of the local actors concerned by the tourist promotion of LAPs. These data were supplemented by a review of the regional press, of documents on the history of the regional economy, as well as of the narrative and iconographic details collected during the public enthronement rituals of the gastronomic confraternities. These qualitative data taken together were subjected to a thematic analysis using the qualitative analytical software 'Nvivo'.

Presentation of the territories and resources

The analysis here focuses on the valorisation among tourists of the Trappist beers of Chimay Orval and Rochefort, three Cistercian abbeys located in the Walloon towns of the same names. These Trappist beers are local agrifood products that have several features in common: they are the same type of product (beer), their producers share a common identity (Trappist Cistercian monks), and they have the same legal status (resources belonging to private actors) and are produced using the same methods and approaches, and finally, they bear the name of the territory where they are produced. However, the socio-cultural, economic and tourist contexts from which they emerged are different.

Chimay is a rural commune located in the south of the province of Hainaut, with a population of around 10,000 and covering an area of nearly 200 km². The economy of the Chimay area, and more generally that of the 'Boot' of Hainaut, has historically been very closely linked to the iron and steel industry, as a result of which it faced serious socioeconomic difficulties starting in the 1970s, when the old heavy industry sector began to decline. Tourism plays a secondary role in the economy of this region, linked mainly to the tertiary public sector and agrifood industries.

Orval is a rural commune in the South of the province of Luxembourg (South of Wallonia) situated in the agro geographical area of the Gaume, which is the most southern region of

Wallonia, covering an area of nearly 750 km² with some 45 000 inhabitants. Economy of Gaume is mainly based on silviculture, agriculture and, to a lesser extent, tourism.
Rochefort is a rural commune in the province of Namur, with some 12,000 inhabitants and covering an area of 165 km². Since the second half of the 20th century, Rochefort has enjoyed considerable tourist flows. The grottoes of Han, a major attraction that draws over 350,000 visitors annually, began to be developed as a tourist destination in the beginning of the 19th century, and still constitutes one of the major tourist sites of the region and is among the most frequented in Wallonia. Tourism is one of the chief economic resources for this destination, alongside forestry, the extraction of rock and other materials from the nearby quarries, and the agrifood industry.
Gastronomic confraternities are local associations comprising persons who participate in the valorization of LAPs, their members designated through a series of enthronement rituals. "The gastronomic confraternities, in a spirit of friendship and fraternity, share a common desire to rediscover their roots while helping to protect their region. They have assumed the task of "nurturing their attachment to their territory and its riches, and helping to promote it" (Delairesse and Elsdorf, 2006, p.4).
These associations may be involved in events and activities for tourists that are intended to promote local agrifood products, such as local festivals, food markets, and other events featuring products and emphasising their importance locally.
Among such public events, the rituals of enthroning new members are spectacles that appeal to tourists, thus participating in marketing not only the products but also the territory itself. It is clear that the socio-cultural, political and identity stakes involved are high.

The ritual enthronement of new members of gastronomic confraternities: between territorial marketing, identity construction and regional elites strategies

The ritual enthronement practised by the three gastronomic confraternities studied share a common foundation: a staging that regulates down to the finest detail the positions and distances that are a spatial translation of a pre-existing or temporary hierarchy; codes (verbal and musical); rhetorical forms; and the visual styles of the principal actors (posture, facial expressions, clothing, jewellery, ornaments, etc.). We offer an analysis and overall interpretation of the three case studies.
Through the enthronement of new members, the gastronomic confraternities designate the people who will attend the various gastronomic events organised beyond the regional and national boundaries, thus helping to promote the products they represent, in this case Trappist beers, outside their local territory. In spite of their convivial nature, the enthronements follow a precise and earnest ritual. Accompanied by grandiose music, the Grand Master and the members make their ceremonial entrance, dressed in gowns of thick scarlet cloth on which rest the chains and medals bearing the coat of arms of the association. Once mounted on a stage facing the public, the Grand Master inaugurates the ceremony. If the opening speech is the place to recall the mission of the confraternity and the prestige of the Trappist beers, it also serves as an occasion for presenting the various qualities and merits of the candidate members. This ceremony is crucial, since it emphasises the seriousness of the event and the exclusive and selective nature of the enthronement. The confraternities only enthrone a limited number of members per year, a strategy that serves to enhance their legitimacy and to emphasise how rare an honour it is to receive this designation. After the words of praise, the future member is subjected to a taste test in order to evaluate his skill in testing the Trappist products being promoted. Only after that, donning a cape that attests to his future membership, is he invited by the Grand Master to take the oath of homage and fealty to the noble cause of the confraternity.
In this type of visual spectacle, none of the appearances are left to chance: the elaborate garments, the gilded medals, the coats of arms, the Gothic script on the diploma and a sort of authenticating decorum are marshalled to gain recognition for the heritage aspect of Trappist beers. The tone of voice, verbal rhetoric, the appearance of the protagonists, the lighting and accompanying music all play a decisive role in constructing the event, impressing on it a distinctive style that cannot but affect the way the spectators receive the message (Bromberger, 1990; Abdelmalek and Chauvigne, 2001; De Myttenaere, 2011).

Territorial marketing actions

The staging of these events, and all their constituent elements, are intended to evoke the historical depth of the products as well as of their producers (the Trappist monks); the effect is to emphasise the uniqueness of the products and to bear witness to the longstanding tradition of these beers.

The aim of the enthronements is to promote the local product and give collective expression to the excellence of the region by stressing the noble and prestigious nature of the product and distinguishing these Trappist beers from other beers. These visual events thus serve in a sense to encapsulate the image that a geographical or social group wishes to project to its own members or the outside world. The gastronomic confraternities studied are concerned not so much to participate in improving the quality of the beer as to enhance quality at a symbolic level and create difference by reinforcing a certain image. This image conforms to the renewed notion of quality behind the production and valorization of monastic beers. By communicating these messages abundantly at the traditional, cultural and social levels, such discourses rely upon strategies of differentiation within a context of beer-brewing and tourism that is particularly competitive. The aim is thus first and foremost to create a world of gastronomic meaning that seeks to move away from the image of industrial production that is seen as inauthentic because it is regarded as the opposite of traditional artisanal production.

Therefore in the ritual enthronements, those officiating emphasise the historical depth underlying the product by underscoring the continuity between the product, the history of the monks, and the confraternities. As long as the producer is a monk, the mythic dimension of the monastic milieu offers a narrative of spatio-temporal origins whose historical and cultural richness plays a key role in the symbolic and economic dimensions of the product. What is at play is a sort of transfer of authenticity and of the sacred, brought about notably by rituals of a Christian inspiration that participate in the traditional cultural image associated with both the product and its producers (De Myttenaere, 2013).

As manufacturers, the monks are unusual in that they are not supposed, according to the Rule of St Benedict which they follow, to promote consumption, and thus should not resort to commercial strategies that are the stock in trade of capitalist society. By highlighting this traditional image, associated with the monastic world and conveyed in part by the confraternity, the monks appear to remain above any marketing approach. This discreet use of advertising by the monks should be understood in the light of the history and weight of "religion in western societies and the taboos that surround it, notably when it comes to commerce" (Lugrin and Molla, 2008, p.170).

Construction and political use of identity symbols

What values are expressed by the rituals and festivities of the confraternities and what social significance should we assign to these events? Of the rituals, we can say that they participate first of all in consecrating a local legitimation of LAPs. The confraternities disseminate cultural models, and the method they use to promote the territory participate in the "heritagization" of Trappist beers. The ritual enthronements are, in other words, not merely commercial activities guided by marketing strategies. Rather, they are moments laden with socio-cultural meaning and emotion for both actors and spectators. If the problem of economic attractiveness and tourism development plays an important part in this process, it can also be seen to have a role in terms of the construction of identity and of social representations. By putting forward local specificities and particularisms, the aim is to produce promotional discourses and images that help create a sense of belonging to a community and a territory. The link between the product and the territory is all the more direct given that these beers carry the name of the place where they are brewed. In this sense, the Trappist beers, with their added value for tourism, become not only territorial emblems but also serve as symbols, identity markers that enable local people to share a common interpretation of their area.

On the other hand, the enthronement rituals as public events participate in and reinforce the visibility of the actors who take part in them, and render visible the boundary between those who have a right to appear "in full honours" and those who do not. The same is true within the group itself. One can frequently identify within the gastronomic confraternities a number

of actors who occupy privileged places in the social hierarchy, within domains as diverse as politics, economics or the media, at both local and regional levels. Seen from this perspective, the participants' appearance and the decorum surrounding the proceedings are all ingredients conceived as supporting the values they seek to celebrate, as well as political messages they wish to transmit. By taking part in these local festivities, displaying their attachment to their local territory in order to render it attractive to tourists, and demonstrating their ability to incarnate socio-cultural emblems with strong powers of association and hence to arouse collective emotion, local actors place themselves in the limelight to ensure their public visibility. These actors present themselves as representing that which is constitutive of local identity, hoping thereby to win over the adherence of the local population and to enjoy a renown that can establish or confirm their socio-political or economic authority locally. These factors can thus contribute to constructing legitimacy and thereby to gain a form of power. In this sense, the rituals of enthronement are inscribed within economic and socio-political strategies. Seen from this angle, the promotion of territorial identities is not an end in itself, but is instrumentalized for political or economic trajectories and for the purposes of local development. Commitment to civil society contributes to accumulating moral capital that appears to be a prerequisite to gaining status as a local notable. Given that our societies value the spectacular, appearance in public does not merely crown fame that has already been achieved, serving as a way station or culmination of a "cursus honorum", but can in fact be the starting point for a recognition among actors who are only beginning to try to establish their power (Bourdieu, 1982; Bromberger, 1990; Abdelmalek and Chauvigne, 2001; laferté, 2008). These observations are in line with those whose research on the local development (notably in France) shows that new forms of territorial leadership and new modes of action by local politicians in the face of the practical reality of decentralisation are constructed by means of promoting local resources mobilised around projects of identity formation and local development (Garcia and Genieys, 2005; Koebel, 2000)

Places of mediation between regional actors from a variety of socio-professional backgrounds

Finally, by virtue of the bonds of sociability thus formed and their many ramifications, the confraternities facilitate relationships among local and regional actors and in this sense constitute veritable places of mediation between actors from a variety of different socio-professional backgrounds. In this sense, the network of local associations, such as gastronomic confraternities, can also serve to mediate between the public authorities and segments of the (real or potential) electorate and thus constitutes a space for acquiring or maintaining local power.

By virtue of their multiple roots in local socio-economic and political life and of the range of responsibilities covered by their members, the structures of these associations, often made up of the local elite, further reinforce their influence and can thus serve as crucial elements in making up local leadership and in facilitating local competitiveness and development.

In fact, authors who discuss the coordination of the economy of proximity and analyse collective action, focusing notably on localised industrial districts and local production systems, stress the importance of networks of confidence and cooperation among territorial actors when it comes to the economic success of projects involving local competitiveness and development. This research shows that the areas where we see a close proximity between actors with differing socio-professional backgrounds but shared values are the areas marked by a more pronounced culture of cooperation, facilitating the circulation of information among local networks and favouring access to socioeconomic, cultural and financial resources (Marshall, 1919; Bagnasco, 1977; Becattini, 1990, 2003; Cooke and Piccaluga, 2006; Bouba-Olga and Grossetti, 2008; Courlet, 2008).

Gastronomic confraternities of the Trappist beer : different implications for the political, tourist and social spheres

As we have seen, the confraternities are institutions made up of actors who may be involved in numerous aspects of the social, economic and political life of their local community, but not all of these local actors are able to penetrate the networks to which these associations grant access. Becoming a member of a confraternity requires a selection process that leaves nothing to chance. Depending on the confraternity, the selection privileges local actors who already enjoy a certain legitimacy, social visibility and media appeal. For this reason, not all local actors have the same capacity to play a part in producing the symbols and markers of the local territory and identity, and as a result, to enjoy the social prestige that such processes can

generate. Moreover, each confraternity has a different way of acting locally, not all of them enjoying the same field of influence.

Although our analyses tell us more about the tools and modes of constructing visibility and gaining the recognition of local elites than about the precise effects these can have, our case studies do reveal important contrasts among different areas when it comes to the role and influence of the gastronomic confraternities. While some confraternities enjoy the support of public and private actors and have access to resources that generate tourist development, not all of them have this possibility. These contrasts can be observed through a series of indicators set out in the table below.

TABLE I: Various indications of the local influence of gastronomic confraternities

Confraternities	Food resources being promoted	Level of involvement of the confraternity in the local tourism and cultural campaigns	Socio-professional affiliations of the members of the confraternities	Place of enthronement of the new members of the confraternity	Intensity of attendance at the enthronement of new members of the confraternity	Logistical – economic support by local authorities	Logistical – economic support by the Trappist monks
The confraternity of the Sossons d'Orvaux (Orval)	Trappist beer from Orval	Major involvement	Important positions in the cultural, political and socio-economic sectors of their region	At the abbey of Orval	Between 450 and 500 people	Significant financial and logistical contribution	Significant financial and logistical contribution
Jurade Princière (Chimay)	Trappist beer and chees from Chimay	Major involvement	Important positions in the cultural, political and socio-economic sectors of their region	At the castle of the Princes of Chimay	Between 450 and 500 people	Significant support by public actors responsible for tourism	Significant financial and logistical contribution
The confraternity of the Grusalle and of the Trappist beer of Rochefort	Trappist beer from Rochefort	Little involvement	Majority of local restaurant owners and shopkeepers	In the back room of a restaurant in Rochefort	Between 30 and 50 people	No support	No support

The 'Jurade Princière' (Chimay) : a confraternity that is very involved in tourist projects

The local confraternity in Chimay, known as the 'Jurade Princière' (princely order of sworn members), counts several hundred members with a varying degree of involvement: there are permanent members and others who are just enthroned for a day, the position of whom differs depending on the level of responsibility they hold within the association and the extent of their participation in the collective activities that are necessary for the maintenance and smooth operation of the confraternity (preparing the festivities, organising the activity, participating in the General Assemblies, keeping the treasury's accounts, etc.).

The Jurade Princière is not only very active in organising and carrying out campaigns and events that serve as a magnet for tourists in the principality of Chimay, but also in managing and collecting the funds needed for holding these events. This confraternity was founded in 1986 on the 500th anniversary of the Principality of Chimay, at the initiative of the former director of events policy at the Chimay brewery and of local actors that include members of the family of the princes of Chimay. The origin of the Jurade Princière should thus be understood from the perspective of the commercial strategies of the Chimay brewery, carried forward by local actors; this explains why this confraternity promotes only the Trappist beer, and secondarily Chimay cheese. Among the events and activities in which the association

takes an active part, some are more specifically aimed at local people, and in such cases the profits generated are distributed to charitable organisations or invested in educational projects. The present head of the gastronomic confraternity is the Prince of Chimay, and the majority of its members are professionally involved to varying degrees in the social, cultural or political life of Chimay and hold (or held) important positions: heads of tourist and cultural associations (Tourist Office, libraries, cultural centres), sports clubs, members of the Chamber of commerce, heads of the local social welfare office, fire-fighters, etc. It would seem that just about every local association is represented within its ranks.

The enthronement ceremonies and other events that mark its calendar take place at the castle of Chimay, indicating a close proximity to the princely family that is especially valued by the local inhabitants. The festivities surrounding the enthronements are promoted via the local and regional press and through the tourist organisations, thus attesting to a desire on the part of the confraternity to lend these events a tourist dimension. The closing banquets of these ceremonies have a large attendance, with more than 500 guests annually – that is, the maximum number of people that the banqueting hall can accommodate. Like the confraternity of the Sossons d'Orvaux at Orval, the persons enthroned are selected for their renown and membership in political and economic circles. It should also be emphasised that the Jurade Princière receives logistical support and sponsorship from the Groupe Chimay as well as from local actors responsible for tourism.

The Sossons d'Orvaux: a gastronomic confraternity that is very involved in the local network of associations

The confraternity of the 'Sossons d'Orvaux' comprises more than a hundred local and regional actors who come together around the touristic valorization of the Trappist beer of Orval. This confraternity is involved in organising events and festivities with a tourist dimension and participates in regional events of significance for the agricultural sector (markets of local products and farmers' markets). The confraternity is also particularly active in philanthropic actions and projects. For instance, it participates in preparing meals in shelters for the homeless and financially supports several local charities such as centres for women who are victims of domestic violence, for persons suffering from addictions or for indigent elderly persons. The philanthropic activities which the confraternity undertakes are regularly the subject of media coverage and are mentioned in its website, thereby reinforcing the reputation and legitimacy of this organisation whose mandate extends far beyond those of promoting the local Trappist beer.

Like the Chimay confraternity, the members of the Sossons d'Orvaux hold important positions in the cultural, political and socio-economic sectors of their region. In this regard, we may mention for instance that the current head of the confraternity is also the director of the Tourist Office (Maison du Tourisme), which is the principal public structure responsible for organising and promoting tourism on a regional scale.

The enthronements conducted by the Orval confraternity take place in the abbey of Orval and draw a large audience, particularly for the annual banquets. This attests to a close proximity between the region's population and the abbey, confirmed by the testimony by the head of the local confraternity: "Whether someone is politically on the left or the right is all the same to us, political conflicts and differences of opinion are left at home. What binds us is first and foremost Orval and the Gaume region[1] ." While the enthronements and other festivities connected to the confraternity are public, the closing banquets are strictly reserved for local actors (members of the confraternity and a few guests). These are occasions intended to favour convivial exchange: "it is an opportunity to see friends from the region and to have a nice time together sitting down with a good Orval beer"[2]. Given this testimony, one of the essential aspects of the banquets are the chance to form and renew bonds between actors from the political, economic, media and other local circles of the region, gathered around an element that makes sense to them all: Orval beer. The meal contributes to developing and maintaining the internal bonds among the elite of the Gaume, and thus it could be said that the confraternity of the Sossons d'Orvaulx achieves the objective of maintaining local social bonds.

[1] Interview realized with the Grand Master of the Sossons d'Orvaux confraternity, Orval, April 2012.
[2] Ibidem.

The confraternity of the Grusalle and of the Trappist beer of Rochefort has a low level of involvement in local tourist or charitable activities

Contrary to what we have observed for the territories of Chimay and Orval, the local confraternity of Rochefort has a very low level of involvement in the valorization of LAPs to tourists, and does not take part in any local project of a social or charitable nature. The activities they engage in are limited to their presence at a small number of local events, but they are neither their initiators nor directly involved in their organisation. Like the two other confraternities, this one holds an annual "Chapter" at which new members are enthroned. Although the enthronements are advertised by the tourist organisations in Rochefort and via the confraternity's website, the banquet held on the occasion involves less than fifty people, made up largely by local restaurant owners and shopkeepers. However, the confraternity of the Grusalle has no existence outside its own circles, and in this regard differs radically from those of Chimay and Orval.

How are we to understand and interpret these differences among the confraternities? Why are the gastronomic confraternities of Orval and Chimay important local institutions in terms of their territorial leadership, while that of Rochefort seems to play only a minor role in the dynamics of tourism development? To seek to answer this question, we believe it is important to bear several factors in mind: the economic weight of the resource being promoted in a socio-economic context that is specific to each territory and the social legitimacy of the associations' members of appear to be decisive. Certainly these interpretations can only be regarded as hypotheses that require further research to confirm, nuance or disprove.

On the socio-economic and cultural importance of Trappist monks and beers

Our observations of the territories under study here suggest that the influence of confraternities and the local leadership which they engender should, in our view, be interpreted from the perspective of the socio-economic and cultural importance of the Trappist monks and their food products. It seems that where the monks as producers carry considerable economic weight, the confraternities are seen as strategic networks by certain local actors who therefore seek to join them because of the many economic, political and socio-cultural opportunities they are likely to offer.

In Chimay, thanks to the significant economic growth of the abbey, owing notably to the commercial success of its Trappist products, the Groupe Chimay (a limited company owned by the monks) is one of the principal job providers of the region, and its turnover places it among the top 100 enterprises in Wallonia. The Groupe Chimay is made up of some ten subsidiaries active at local levels in the agrifood, tourism and cultural sectors as well as in sustainable development. The monks control nearly all the principal sectors that provide jobs in this region. The Groupe Chimay has set up a museum space, the Espace Chimay, dedicated to the history of the Trappist monks and their production methods, as well as a restaurant, the Auberge du Poteaupré, that serves and sells monastic products; these are the two main tourist attractions included on most organized tours of the region.

As in Orval so in Chimay, the monastery and the interpretation centre devoted to its Trappist products, the Atelier Frère Abraham, are the principal tourist attractions of the region. The majority of tourist flows to this region are concentrated on the abbey site, which hosts numerous services (interpretation centre, guided tours of the ruins of the medieval abbey, signposted walks, accommodation, etc.). Not only do Orval abbey, its products and activities occupy a significant place in tourism and the economy of the region, but the Trappist products are also regarded by numerous local actors as cultural objects and markers. Many of those interviewed in the course of this field study expressed a sincere attachment to these products, as is evident from the testimony of a local restaurant keeper: "a good Gaume resident absolutely must drink Orval beer – someone who does not appreciate Orval is someone who is not really one of us". In both Orval and Chimay, the processions that mark the opening of the festivities for the enthronement of new members of their respective gastronomic confraternities move along the streets with great pomp and ceremony, thus underscoring the

public and demonstrative intent of the organisers. In Chimay, the procession starts at the village church and ends at the castle of Chimay, while the one in Orval ends at the abbey, where the enthronements are held. The choice of these emblematic locations is significant in itself, inasmuch as the castle and princely family as well as the abbey and its monks are linked, in the collective memory of the local populations, to the spatial stability and permanence of the group, two dimensions that Halbwachs considers central to the process of constructing individual and collective identities (Halbwachs 1994). By using these emblematic places, the local actors stress not only the religious dimension and nobility of the Trappist products, but also their roots in the territory and their links to identity in the two rural areas where the Catholic francophone party has, ever since the nineteenth century, occupied a central place in the political landscape. While the heritage dimension associated with Trappist products means that the gastronomic confraternities and the monks help create or reinforce a sense of belonging and impact on the territorial emblems and points of reference for local identity, it should nevertheless be noted that the confraternities are only one possible outlet for the expression of identity formation, as the actors often have a number of other means of exhibiting, expressing and constructing their identities. The place of Trappist products in the production of social and local identity differs among our three case studies.

Unlike the dynamics observed in the Chimay and Orval regions, the Trappist monks and their products in Rochefort play a secondary socio-economic role, from the point of view of both the agrifood sector and of tourism. Although the Trappist products are present among other food items in the communication strategies of the local tourist industry, they nevertheless play only a secondary role in the strategies and campaigns of local development. Contrary to Chimay and Orval, Rochefort's local marketing strategies do not rely on the valorization of concepts such as authenticity, products of the local *terroir* or village social life, all aspects of collective imagination generally associated with rural areas. The tourist appeal of Rochefort and the resultant influx of visitors derive essentially from the key attractions such as the caves and grottoes that are the legacy of karstic phenomena, as well as kayaking on the Lesse River – an important economic resource for tourism in Wallonia (De Myttenaere and d'Ieteren, 2009). The influence of the Trappist abbey and its food products on the economy of Rochefort is less important because the monks do not take part in the economic dynamics, not wishing to get involved in the tourist sector. Visits to the abbey are not in fact allowed, nor is there a monastery store or museum dedicated to its products. In a context where the monks stay out of local economic activities, we can observe that the confraternity is composed largely of members of the artistic and creative layers of society, and thus does not constitute, in the eyes of the elites, a strategic network that offers socio-economic or political opportunities. Given that elites wish to arouse and maintain belief in their legitimacy (Bourdieu, 1982), they tend to belong to the local confraternity only if the latter is seen to be influential.

Discussion and conclusion

By means of a comparative study focusing on the three areas of Chimay, Orval and Rochefort, we have put forward reflections on the role and influence of gastronomic confraternities, both as actors in local economic and tourist development and in terms of their leadership capacity. These associations, through their participation in promoting local products, organise events with a focus on tourism and thus contribute to diversifying the range of products on offer in this sector within their territories and to enhancing their attractiveness. Among their activities, the ritual enthronement of their new members are important events in for the social life of their areas, and thus constitute a key aspect of their raison d'être. The social bonds they forge give rise to networks that facilitate connections among local actors, whether of the public or private sector, and members of the local population, and create resources for local leadership. The relations formed or reinforced in the course of such festivities thus have a long-term impact beyond simply the commercial promotion of local heritage food products.

In spite of their appearance, which might suggest a superficial and anachronistic staging aimed at an audience of outside consumers, the enthronement ceremonies carry a meaning and participate in strategies that are important in themselves. These activities are reinforced by the toponymic dimension of the product being promoted and a thick collective consciousness and history that are indispensable for their effectiveness.

The Trappist products studied here are economic resources around which questions of cultural and identity issues can coalesce. It is for this reason that gaining entry into the networks created by the gastronomic confraternities has a significance that far exceeds the benefits for marketing and tourist development. Emphasising their socio-cultural, historical and geographical attributes therefore builds a bridge towards the spheres of political and economic power, since it is within the confraternities that local actors can appropriate the symbolic and identity markers represented by these LAPs. Once they have incorporated these into their image, they can use these points of reference to reinforce their legitimacy, in other words, their charisma as local leaders.

If the actors make their choices depending on the context of action and from among many possible sources of local identity, the importance of public enthronement rituals for acquiring or reinforcing social authority varies according to the local situation, and functions in accordance with a 'dialectal' dynamic and logic. Those enthroned who enjoy renown or legitimacy thanks to their position in the socio-economic, political or media spheres raise the cachet of the confraternity, and the confraternity in turn helps to further enhance the standing of the newly enthroned, as a result of the prestige enjoyed by the product being promoted, namely Trappist beer, a prestige that is proportionate to that of the members of the confraternity.

The dynamic and generative capacity of gastronomic confraternities can be perceived only by taking account of the socio-economic context in which they operate, contexts that contribute to building or reinforcing their territorial leadership. In this way, far from being limited to short periods of time or a narrow spaces, they are capable of acting on a fairly large scale and of integrating "society", "history" and "politics" into their scope of action.

We do not consider that membership in gastronomic confraternities can be reduced to a quest for power and strategic positioning in political, socio-cultural and economic domains, even though the role played by these aspects should not be neglected. The specificity of the commitment and mobilisation of local elites in the gastronomic confraternities lies in the convergence of a number of different motives: connection to a territory, protection of particular or general interests, social ties, all of which are intrinsically linked to the construction or reinforcement of social status.

The relationships into which actors within a territory enter, and their capacity for joint organisation by means of networks, are the result a complex, dynamic process that involves multiple sociocultural, political or institutional factors. Legitimacy, authority and local leadership appear, in our case studies, to be influenced by the attitude and behaviour of the Trappist monks towards tourism. Although affected by the entrepreneurial atmosphere in the territories analysed, the degree of their power, their involvement in local socio-economic institutions and their economic behaviour must be interpreted in terms that go beyond the purely local context. These actors have motives and interests of their own, and should be understood in relation to the particular relationships they maintain with the economy in the light of their religious identity (De Myttenaere, 2013).

Finally, if as seems most likely, the socio-economic and cultural weight of the Trappist monks and their food products exert an influence on the confraternities and of territorial leaders within the areas studied, we nevertheless cannot claim, at this exploratory stage of our research, to have developed a model of the role and influence of these variables on local leaders and on tourist development and dynamics. Other case studies focusing on different territories are indispensable in order to nuance the validity of the interpretations offered here.

Bibliography

Abdelmalek, A., Chauvigne, C., 'Faire l'andouillle à Guémené'. La confrérie des 'Goustiers de l'Andouille': entre marketing et célébration identitaire', *Ruralia*, No. 8, 2001, pp. 121–140.

Bagnasco, A., *Tre Italie. La Problematica Territoriale Dello Sviluppo Italiano*, Bologna, Il Mulino, 1977.

Becattini, G., 'The Marshallian Industrial District as a Socio-Economic Notion', in Pyke, F., Becattini, G. and Sengenberger, W. (eds.), *Industrial Districts and Inter-Firm Co-Operation in Italy*, Genève, International Institute for Labour Studies, 1990, pp. 37–51.

Becattini, G., *From Industrial Districts to Local Development: an Itinerary of Research*, Cheltenham, E. Elgar, 2003.

Bessiere, J., 'Local development and Heritage: traditional food and cuisine as tourist attractions in rural areas', *Sociologia Ruralis*, Vol. 38, 1998, pp. 112–113.

Betry, N., 'La patrimonialisation des fêtes, des foires et des marchés classés 'sites remarquables du goût' ou la mise en valeur des territoires par les productions locales', *Ruralia*, Vol. 12/13, 2003.

Bossuet, L., Filippi, M., Triboulet, P., Vincent, T., 'L'organisation de la filière gras dans le Sud-Ouest: comment les acteurs mobilisent-ils les signes de qualité pour valoriser leur production?', [n.d.], available at: http://afm.cirad.fr/documents/5_Agro_industries/Syal/FR/FILIPPI_TREBOULET_VINCENT.pdf

Bouba-Olga, O., Grossetti M., 'Socio-économie de proximité', *Revue d'Économie Régionale et Urbaine*, Vol. 3, 2008, pp. 311–328.

Boucher, F., Requier-Desjardins, D., 'La concentration des fromageries rurales de Cajamarca: enjeux et difficultés d'une stratégie collective d'activation de la qualité', in *Les systèmes agroalimentaires localisés: produits, entreprises et dynamiques locales*, Actes du colloque Syal, 16-18 octobre 2002, Agropolis, Montpellier, France.

Bourdieu, P., 'Les rites comme actes d'institution', *Actes de la recherche en sciences sociales*, Vol. 43, 1982, pp. 56– 63.

Boyne, S., Williams, F., Hall, D., 'Gastronomy on the trail of regional success: tourism, food production and the Isle of Arran Taste Trail', in Hjalager, A. and Richards, G. (Eds.), *Tourism and Gastronomy*, London, Routledge, 2000, pp. 91–114.

Bromberger, C., 'Paraître en public. Des comportements routiniers aux événements spectaculaires', *Terrain*, Vol. 15, 1990, pp. 5-12.

Colletis, G., Gilly, J.-P., Leroux, I., Pecqueur, B., Perrat, J., Rychen, F., Zimmermann, J.-B., 'Construction territoriale et dynamiques productives', *Revue Sciences de la Société*, No. 48, 1999, pp. 1-23.

Cooke, P., Piccaluga, A., *Regional Development in the Knowledge Economy*, London, Routledge, 2006.

Corigliano, M.A., 'The route to quality: Italian gastronomy networks in operation', in Hjalager, A. and Richards, G. (Eds.), *Tourism and Gastronomy*, London, Routledge, 2000, p.p. 166–185.

Courlet, C., *L'économie Territoriale*, Grenobles, Presses Universitaires de Grenobles, 2008.

Csergo, J., Lemasson, J.-P., *Voyages En Gastronomies. L'invention Des Capitales et Des Régions Gourmandes*, Paris, Autrement, 2008.

Decrop, A., 'Triangulation in qualitative tourism research', *Tourism Management*, Vol. 20, 1999, pp. 157–161.

Delairesse, Y., Elsdorf, E., *Quand Les Confréries Gastronomiques Se Mettent à Table*, Liège, Noir Dessin Production, 2006.

De Myttenaere, B., 'Analysis of the Process of local Agrifood Products Development and Tourism in a Rural Area: a Case Study in the South of Belgium', *Journal of Tourism Challenges and Trends*, Vol. IV No. 1, 2011, pp. 103-120.

De Myttenaere, B., 'Valorisation touristique des bières trappistes en Wallonie. Des dynamiques de développement contrastées', *Mondes du tourisme*, No. 7, 2013, pp. 68–83.

De Myttenaere, B., D'ieteren, E., 'Le kayak en Wallonie: à la croisée des enjeux du développement touristique et de la protection de l'environnement', *Téoros*, Vol. 28 No. 2, 2009, pp. 9–20.

Deverre, C., Lamine, C., 'Les systèmes agroalimentaires alternatifs. Une revue des travaux anglophones en sciences sociales', *Economie rurale*, No. 317, 2010, pp. 56–73.

Everett, S., Aitchison, C., 'The role of food tourism in sustaining regional identity: a case study of Cornwall, South West England', *Journal of sustainable tourism*, Vol. 16 No. 2, 2008, pp. 150–166.

Fields, K., 'Demand for the gastronomy tourism products: motivational factors', in Hjalager, A. and Richards, G. (Eds.), *Tourism and Gastronomy*, London, Routledge, 2000, pp. 37–50.

Finn, M., Elliott-White, M., Walton, M., *Tourism & Leisure Research Methods*, London, Pearson Education, 2000.

Garcia, M.-C., Genieys, W., *L'invention Du Pays Cathare - Essai Sur La Constitution D'un Territoire Imaginé*, Paris, L'Harmattan, 2005.

Gilly, J.-P., Lung, Y., 'Proximités, secteurs et territoires', paper presented at the Quatrièmes journées de la proximité, 17-18 juin 2004, Marseille, France, 2004.

Gilly, J.-P., Torre, A., *Dynamiques de Proximité*, Paris, L'Harmattan, 2000.

Granovetter, M.S., 'Economic Action and Social Structure: The Problem of Embeddedness', *American Journal of Sociology*, No. 91, 1985, pp. 481–510.

Granovetter, M.S., *Le Marché Autrement: Les Réseaux Dans L'économie*, Paris, Desclée de Brouwer, 2000.

Green, G., Dougherty, M., 'Localizing linkages for food and tourism: culinary tourism as a community development strategy', *Journal of the Community Development Society*, Vol. 39 No. 3, 2009, pp. 148–158.

Halbwachs, M., *Les Cadres Sociaux de La Mémoire*, Paris, Albin Michel, 1994.

Hannam, K., Knox, D., 'discourse analysis in tourism research. A critical perspective', *Tourism recreation research*, Vol. 30 No. 2, 2005, pp. 25–30.

Herault-Fourner, C., Olivier, F., Scheffer, S., 'Quel impact des contextes territoriaux sur l'émergence de démarches de valorisation des produits alimentaires fondées sur une proximité producteurs - consommateurs?', paper presented at the XLVIe colloque ASRDLF, 6-8 juillet 2009, Clermont-Ferrand, France, 2009.

Hirzack, M., Moalla, M., Mollard, A., Pecqueur, B., Rambonilaza, M., Vollet, D., 'Du panier à biens à un modèle plus général de biens complexes territorialisés: concepts, grille d'analyse et questions', paper presented at the Symposium INRA PSDR: Territoires et enjeux du développement régional, 9-11 mars 2005, Lyon, France.

Hjalager, A., Richards, G., 'Still undigested: research issues in tourism and gastronomy', in Hjalager, A. and Richards, G. (Eds.), *Tourism and Gastronomy*, London, Routledge, 2000, pp. 224–234.

Hjalager, A.-M., 'A typology of gastronomy tourism', in Hjalager, A. and Richards, G. (Eds.), *Tourism and Gastronomy*, London, Routledge, 2002, pp. 21–35.

Ilbery, B., Kneafsey, M., 'Producer constructions of quality in regional speciality food production: a case study from south west england.', *Journal of Rural Studies*, Vol. 16, 2000, pp. 217–230.

Kaufmann, J.-C., *L'entretien Compréhensif*, Paris, Nathan, 1996.

Kim, Y.G., Eves, A., Scarles, C., 'Building a model of local food consumption on trips and holidays: A grounded theory approach', *International Journal of Hospitality Management*, Vol. 28 No. 3, 2009, pp. 423–431.

Kivela, J., Crotts, J.C., 'Tourism and Gastronomy: Gastronomy's Influence on How Tourists Experience a Destination', *Journal of Hospitality & Tourism Research*, Vol. 30 No. 3, 2006, pp. 354–377.

Kivela, J., Crotts, J.C., 'Understanding Travelers' Experiences of Gastronomy Through Etymology and Narration', *Journal of Hospitality & Tourism Research*, Vol. 33 No. 2, 2009, pp. 161–192.

Kneafsey, M., Ilbery, B., 'Regional images and the promotion of speciality Food and Drink in the West Country', *Geography*, Vol. 86, 2001, pp. 131–140.

Koebel, M., 'Les profits politiques de l'engagement associatif sportif', *Regards sociologiques*, No. 20, 2000, pp. 165–176.

Laferté, G., 'La sociabilité bourgeoise dans le vignoble aux sources de la commercialisation et de la politisation du territoire rural dans l'entre-deux-guerres', in Antoine, A. and Mischi, J. (eds.), *Sociabilité et Politique en milieu rural*, Presses Universitaires de Rennes, Rennes, 2008, pp. 303–313.

Lugrin, G., Molla, S., *Dieu, Otage de La Pub?*, Genève, Labor et Fides, 2008.

Marshall, A., *Industry and Trade, a Study of Industrial Technique and Business Organization, and on Their Influences on the Conditions of Various Classes and Nations*, London, MacMillan, 1919.

Massey B., D., *Spatial Divisions of Labor: Social Structures and the Geography of Production*, New-York, Routledge, 1995.

Meler, M., Cerovic, Z., 'Food marketing in the function of tourist product development', *British Food Journal*, Vol. 105 No. 3, 2003, pp. 175–192.

Michael Hall, C., Wilson, S., 'Scoping paper: local food, tourism and sustainability', [n.d.], available at: http://canterbury-nz.academia.edu/CMichaelHall.

Miles, M., Huberman, A., *Analyse des données qualitatives*, Bruxelles, De Boeck, 2003.

Muchnik, J., Cañada, J., Torres Salcido, G., 'Systèmes agroalimentaires localisés: état des recherches et perspectives', *Cahiers Agricultures*, Vol. 17 No. 6, 2008, pp. 513–519.

Paille, P., Mucchielli, A., *L'analyse qualitative en sciences humaines et sociales*, Paris, A. Colin, 2008.

Pecqueur, B., 'Qualité et développement territorial: l'hypothèse du panier de biens et de services territorialisés', *Economie rurale*, Vol. 37-49 No. 261, 2001, pp. 37–48.

Pecqueur, B., Zimmermann, J.-B., *Economie de Proximités*, Paris, Lavoisier, 2004.

Roux, E., Vollet, D., Pecqueur, B., 'Coordination d'acteurs et valorisations des ressources territoriales: le cas de l'Aubrac et des baronnies', *Economie rurale*, No. 293, 2006, pp. 20–37.

Santich, B., 'The study of gastronomy and its relevance to hospitality education and training', *International Journal of Hospitality Management*, No. 23, 2004, pp. 15–24.

Scarpato, R., 'Gastronomy as a tourist product: the perspective of gastronomy studies', in Hjalager, A. and Richards, G. (Eds.), *Tourism and Gastronomy*, London, Routledge, 2000, pp. 51–70.

Scheffer, S., Piriou, J., 'La gastronomie dans la promotion d'une destination touristique: de l'image aux lieux de pratiques (analyse comparée de la Normandie et de la Bretagne)', paper presented at the XLVIe colloque ASRDLF, Entre projets locaux de développement et globalisation de l'économie: quels déséquilibres pour les espaces régionaux?, 6-8 juillet 2009, Clermont-Ferrand, France.

Sims, R., 'Putting place on the menu: the negociation of locality in UK food tourism, from production to consumption', *Journal of Rural Studies*, Vol. 26 No. 2, 2010, pp. 105–115.

Tregear, A., Arfini, F., Belletti, G., Marescotti, A., 'Regional foods and rural development: The role of product qualification', *Journal of Rural Studies*, No. 23, 2007, pp. 12–22.

Vandecandelaere, E., Touzard, J.-M., 'Création de ressources territoriales et construction de la qualité. Les routes du vin', in Torre, A., Filippi, M. (Eds.), *Proximités et changements socio-économiques dans les mondes ruraux*, Paris, INRA, 2005, pp. 59–72.

Announcements, Conferences, News

RSA Conference Europe 2013

"Where the world talks security"

Conference Overview[1]

The RSA conference Europe "Where the world talks security" took place in Amsterdam in October 29-31, 2013 at Amsterdam RAI. The participation of field experts was decisive for the understanding of substantial issues in security sector in the program committee (ISC, Information Security Forum, FireEye, ABN Amro Bank, UBS, The Centre for Strategic Cyberspace and Security Science, Qualys, Microsoft, RSA, Cassidian Cybersecurity GmbH, Daimler, Sophos Ltd., Oracle, Telekom Innovation Laboratories, IOActive, Pixidust Ltd. IKEA).

Security policy analysis and technology development have been nowadays much-discussed and simultaneously much-promising. It is not only a question for academics and researchers but also for practitioners. The changing economies necessitate a rapidly progressing security technology and organizational patterns.

The objectives of the conference was to discuss multifaceted security issues, as follows:

- Application and Data Security
  (design, development, implementation and operation of packaged and custom-developed applications, mitigation of threats via the web and cloud computing infrastructures, privacy, regulations and big data trends)
- Governance, Risk & Compliance
  (quantifying and managing risk, compliance-related standards such as PCI, Sarbanes Oxley etc, communicating and enforcing policies and standards in the enterprise)
- Hackers & Threats
  (underground economy, advanced threats, new classes of vulnerabilities, exploitation techniques, reverse engineering, live demos and code dissection)
- Human Element
  (insider threats, social networking, social engineering, incl. spam, phishing, pharming, etc. as well as security awareness)
- Mobile Security
  (employee-owned devices/BYOD programs, smartphone/tablet security and consumerization trends)
- Security Architecture
  (deployment of security-enabled technologies, emerging technologies, network and endpoint security, identity and access management, IDS/IPS and physical security, network monitoring, firewalls, new threats to networks, information on DoS and DDoS attacks, enterprise rights management, forensics, as well as vulnerability assessments and penetration testing, cloud computing security and the security aspects of virtualization)
- Security Trends
  (emerging technology, legislation, regulation and business trends and the impact on the security industry and strategic planning, government policy and legislation and the impact on the European community, changes in the IT security ecosystem, professional development)

Keynote speakers, open sessions, seminars and group discussions have produced insightful results.

[1] **Conference overview by Nikolaos Hasanagas, Aristotle University of Thessaloniki, Greece**

5th Conference of Administration Scientists

«Reorganizing Administration and State in post-memorandum era»

Conference Overview[1]

The 5th Conference of Administration Scientists «Reorganizing Administration and State in post-memorandum era» took place in University of Thrace, Komotini campus in November 28-30, 2013. It has been jointly organized by the Law School of University of Thrace and the Hellenic Institute of Administration Scientists. It has also been supported by Komotini Municipality and the Eastern Macedonia-Trace Prefecture. The participants have been originated by many institutions, such as University of Thrace, University of Athens, National Public Administration Centre, Centre of International and European Economic Law, and other designated academic and research institutions. The conference covered a wide array of current policy issues, such as:

- Public Administration
- Implementation of Government Policy
- Employment in the Public Service
- Management And Policies of the Government
- Management Of Public Programs
- Government Decision Making,
- Analysis of Policies and the Inputs Necessary to Produce Alternative Policies
- Organization of Government Policies and Programmes

[1] Dr. Dr. Aikaterini Kokkinou, University of the Aegean

RSA Conference Asia Pacific 2013

"Where the world talks security"

Conference Overview[1]

The RSA conference Asia Pacific "Where the world talks security" took place in Singapore in June 5-6, 2013 at Marine Bay Sands, Singapore. It is remarkable that the program content has been selected by a committee composed of company and governmental representatives (SAP, Aujas, Thales Australia, Akamai Technologies, EMC, PwC, ISC, Ministry of Home Affairs of Singapore, Singapore Police Department, Singapore Cryptography and Security Department Institute for Infocomm Research).

Security policy and means are quite challenging issue not only for policy makers and researchers but also for filed experts, practitioners and stakeholders. It is of utmost importance not only for governmental actors but also for entrepreneurs, NGOs and private persons. The changing economies necessitate a rapidly progressing security technology and organizational patterns.

The objectives of the conference was to discuss multifaceted security issues, as follows:

Cloud & Virtualization Security
(security architecture in the cloud, governance, risks, migration issues, identity management and case studies)

Cybercrime & Law Enforcement
(digital forensics techniques, legal, education and social issues underlying cybercrime policies, Privacy against Forensics, cyber bullying, harassment, organised crime, detection and prevention etc)

Data & Application Security
(design, development, implementation and operation of packaged and custom-developed applications, mitigation of threats via the web and cloud computing infrastructures)

Mobile Security
(managing employee-owned devices/BYOD programs, smartphone/tablet security and consumerization trends)

Security Infrastructure
(network and endpoint security, IDS/IPS and physical security)

Insightful approaches and results have been achieved on the afore-mentioned topics through keynote presentations made by industry leaders and a great variety of sessions.

[1] Conference overview by Nikolaos Hasanagas, Aristotle University of Thessaloniki, Greece

Academic Profiles

Dr. Anne Margarian is a senior researcher in the field of the economy of rural areas in Braunschweig Area, Germany. Her special interest is in industry- and firm-structures of rural areas and in the coordination of economic activity (in space). She uses statistical analyses as well as case-studies and causal models. Another special emphasis in her work is in policy assessment.
In the short time at the CAU (Christian Albrecht University Kiel) she conducted smaller statistical analyses in the context of a project on the tabbaco markets in Malawi, she wrote a project proposal concerning the relevance of specific food industries of Switzerland and she started to write a concept for an analysis of the implementation and institutional realization of the German farm investment aid. As an evaluator at Institute for farm economics, she was engaged in the assessment of the German programs for the development of rural areas. In her team they focused on the evaluation of the farm investment aid. Her personal emphasis was on the analysis of agricultural structures and their potential affectedness by interventions.

Her most recent publications include (Working papers- Articles)

1. Margarian, Anne (2013)
   A constructive critique of the endogenous development approach in the European support of rural areas.
   Growth and change, Band 44, Heft 1, Seiten 1-29, englisch
   ISSN: 0017-4815
2. Margarian, Anne (2013)
   Der ländliche Strukturwandel in Europa: eine Herausforderung für Politik und Wissenschaft.
   Land-Berichte, Band 16, Heft 1, Seiten 56-71, deutsch
   ISSN: 1868-2545
3. Margarian, Anne (2012)
   Employment development policy in European regions: the role of agriculture.
   EuroChoices , Band 11, Heft 3, Seiten 20-21, englisch
   ISSN: 1478-0917
4. Margarian, Anne (2011)
   Gewinnentwicklung und Betriebsaufgabe in der Landwirtschaft: Angebotseffekte, Nachfrageeffekte und regionale Heterogenität.
   Schriften der Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaues, Band 46, Seiten 291-304, deutsch
5. Margarian, Anne; Küpper, Patrick (2011)
   Identifizierung peripherer Regionen mit strukturellen und wirtschaftlichen Problemen in Deutschland.
   Berichte über Landwirtschaft, Band 89, Heft 2, Seiten 218-231, deutsch
   ISSN: 0005-9080
6. Margarian, Anne (2010)
   Coordination and differentiation of strategies: the impact on farm growth of stategic interaction on rental market for land [online].
   German journal of agricultural economics, Band 59, Heft 3, Seiten 202-216, englisch, zu finden in <http://www.gjae-online.de/news/pdfstamps/outputs/GJAE-bd3654c53a97f0aa4f24d5241108fba0.pdf> [zitiert am 03.09.2010]
7. Margarian, Anne (2010)
   Counterpoint : a theoretical foundation of rural development interventions and evaluations is needed.
   EuroChoices , Band 9, Heft 2, Seiten 35-39, englisch
   ISSN: 1478-0917
8. Küpper, Patrick; Margarian, Anne (2010)
   Versteckte Dynamik - wirtschaftliche Innovationen in ländlichen Räumen.
   Europa regional, Band 18, Heft 2-3, Seiten 79-94, deutsch
   ISSN: 0943-7142

By Antonia P. Obaidou, Aristotle University of Thessaloniki, Greece

Daniela Luminita Constantin is Full Professor of Regional Economics at the Academy of Economic Studies of Bucharest and the Director of the Research Centre for Macroeconomic and Regional Forecasting of this university. She's also President of the Romanian Regional Science Association, Member of the Evaluation Committee of Romania's Regional Operational Programme co-funded by the EU, Reviewer for International Journal of Services Technology and Management, Inderscience, Journal of Economic and Social Geography - Tijdschrift voor economische en sociale geografie (TESG), Wiley-Blackwell and Editor for International Journal of Environmental Technology and Management.

Her main scientific interest concentrates on regional policies, regional convergence and competitiveness, EU structural assistance, migration, SMEs and entrepreneurship, environmental issues and human security. She carried out numerous research stages abroad as Fulbright, DAAD and Phare-Tempus scholar.

Daniela Constantin has authored or co-authored a large number of books and an article published in Romania and abroad and has participated in various national and international research project teams.

Her most recent publications include:

Working papers

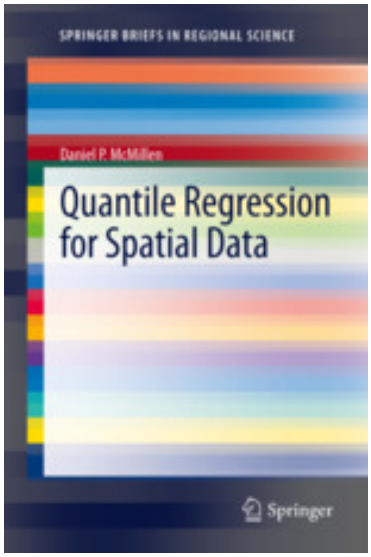
1. Daniela L. CONSTANTIN & Raluca Mariana Petrescu & Claudiu HERTELIU & Alina IOSIF & Alina PROFIROIU, 2012. "**The Services of General Interest in Romania: Legal and Institutional Aspects at National and Territorial Level**,"ERSA conference papers ersa12p926, European Regional Science Association.
2. Eduarda Marques da Costa & Pedro Palma & Daniel Rauhut & Alois Humer & Daniela Constantin & Xabier Velasco, 2012. "**Indicators of Services of General Interest in EU regional context: between the need to measure and the lacking of their meaning**," ERSA conference papers ersa12p1114, European Regional Science Association.
3. Daniela L. CONSTANTIN, 2012. "**Middle Of The Road: Romaniaâ€™S Regional Policy In The Current Eu Programming Period**," ERSA conference papers ersa12p920, European Regional Science Association.
4. Daniela L. Constantin & Constanta Bodea & Carmen B. Pauna & Zizi Goschin & Mariana Dragusin & Ion Stancu, 2011. "**The Question Of Clusters In Less Developed Areas. Empirical Evidence From Romaniaâ€Šă„Ã´S Eastern Regions**," ERSA conference papers ersa10p1157, European Regional Science Association.
5. Anca Dachin & Daniela Constantin & Zizi Goschin & Constantin Mitrut & Bogdan Ileanu, 2011. "**The Capacity Of Urban Centres To Contribute To The Rural Development In Romania. An Inquiry From R&D And Innovation Perspective**," ERSA conference papers ersa10p1236, European Regional Science Association.

Articles:

1. Raluca Mariana Grosu & Daniela Luminita Constantin, 2013. "**The International Migration in the EU. A Descriptive Analysis Focused on Romania**," Acta Universitatis Danubius. OEconomica, Danubius University of Galati, issue 9(4), pages 306-318, August.
2. Daniela-Luminita Constantin, 2013. "**Romania's Regional Policy between the Current Realities and the Challenges of the 2014-2020 Programme Period**," Acta Universitatis Danubius. OEconomica, Danubius University of Galati, issue 9(4), pages 281-291, August.
3. Daniela Luminiţa Constantin & Mariana Drăguşin & Raluca Mariana Petrescu & Alina Elena Iosif, 2012. "**The Effective Management of Municipal Real Property. The Question of Services for the Business Use of Real Property**," The AMFITEATRU ECONOMIC journal, Academy of Economic Studies - Bucharest, Romania, vol. 14(Special N), pages 738-754, November.
4. Daniela-Luminita CONSTANTIN, 2012. "**The Regional State Aid Schemes As A Support To Sustainable Urban Development**," REVISTA ADMINISTRATIE SI MANAGEMENT PUBLIC, Faculty of Administration and Public Management, Academy of Economic Studies, Bucharest, Romania, vol. 2012(8), pages 126-132, June.
5. Lorena BĂTĂGAN & Daniela Luminiţa CONSTANTIN, 2012. "**The readiness of employees for the future society. Case study**," Theoretical and Applied Economics, Asociatia Generala a Economistilor din Romania - AGER, vol. 0(10(575)), pages 93-104, October.

By Antonia P. Obaidou, Aristotle University of Thessaloniki, Greece

Book Reviews



Quantile Regression for Spatial Data
McMillen, Daniel P.

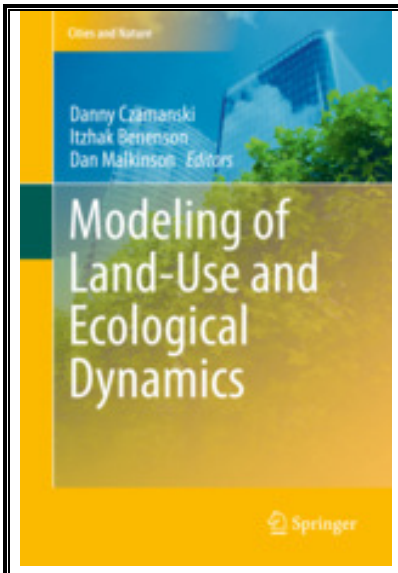
Series: Springer Briefs in Regional Science, 2013

ISBN: 978-3-642-31815-3

The author points out the difference of quantile regression analysis from conventional regression models regarding distribution issues. Quantile regression is not focused on how the expected value of the dependent variable responds to a change in an explanatory variable but is extended to possible changes for the entire distribution of the dependent variable. However, the use of quantile regression in the analysis of spatial data is disseminated enough. The objective of this book is to make quantile regression procedures more accessible for researchers working with spatial data sets. The emphasis is on interpretation of quantile regression results.

McMillen lays emphasis on graphical interpretation of quantile regression results, presents spatial estimators and parametric as well as nonparametric approaches. He also presents a series of hypothetical and real examples, aiming at making the quantile regression analysis more accessible for researchers. The book can be interesting for experts related to Spatial Econometrics, Regional Economics and Statistics in general.

Book Review by Nikolaos Hasanaga, Aristotle University of Thessaloniki



Modeling of Land-Use and Ecological Dynamics

Edited by Dan Czamanski, Itzhak Benenson, Dan Malkinson

Springer Cities and Nature, 2014
ISBN: 978-3-642-40198-5

This book presents insightful approaches through various models of land-use dynamics, integrated approach to urban and rural and open space dynamics as well as landscape phenomena.
The analysis is empirically illustrated. It emphasizes the self-organizing character of the landscape phenomena and the impacts of human activities. The interaction between urbanization and nature, an especially the consequences of city expansion to agricultural and natural landscapes are discussed.
State-of-the-art modelling approaches to land-use issues are presented at different spatial resolutions and temporal time scales. The second part is dedicated to case studies of the effects and Impacts of the emerging urban-agriculture open space patterns are explored through the examination of urban-rural open space patterns. This book can be interesting for experts related to Ecology, Geography, Agriculture, Forestry, Nature Conservation, Rural Development, Regional Science and Theoretical Computer Science.

Book review by Nikolaos Hasanagas, Aristotle University of Thessaloniki