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The third issue in Volume VIII of RSI includes twelve papers covering a wide range of topics and contexts. The first paper, written by A. Batabyal and H. Beladi, provides a theoretical model in which the impacts of free trade between (heterogeneous) 'creative' regions are analyzed. A well-established empirical relation, known as 'Zipf's law', is examined in the second paper using data from the States of Russian Federation. The authors, I. Manaeva and S. Rastvortseva, present empirical material that can be used to develop polices of smoothing interregional inequalities. Taken a pure theoretical perspective, in the third paper A. Batabyal analyses the growth mechanisms in relation to the growth rate of creative capital in a region. A. Chenane and L. Hadjou, put forward several scenarios of territorial evolution of the Algerian municipalities in the fifth paper of this issue. What are the effects of pollution taxes on a firm's locational choice? K. Shimamoto attempts to answer this question in the sixth paper, putting particular emphasis in the notion of increasing returns. O. Ismayilov highlights the literature on the 'flypaper' effect and suggests that grants have an effect on organizational revenue, policies, mission, public support, and service effectiveness. A hybrid model based on administrative burden models, is the topic of the paper by N. Alabanos and S. Thodoropoulos. M. Feshari, A. Taghipour and M. Valibeigi apply dynamic OLS approach to the relationship between tourism demand and taxes in the ninth paper. Their results suggest that the tax ratio has negative effect on the tourism receipts and GDP per capita and its growth have positive and significant effect on the tourism receipts in Islamic selected countries. In the tenth paper by V. Artinopoulou presents the potential of Restorative Justice in dealing with the crime prevention and corrections, identifying the strengths and weakness of Restorative Justice on theoretical, methodological and policy level. The clustering of Romanian counties with respect unemployment risk is presented in the eleventh paper, by C. Lincaru, S. Pîrciog and D. Atanasiu. N. Chatzigakis considers the effects of Basel III regulatory framework in the last paper of this issue.

Dr Stylianos Alexiadis

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Articles

TRADE BETWEEN CREATIVE REGIONS WHEN THE INPUT ELASTICITY OF SUBSTITUTION IS LESS THAN UNITY[1]

Amitrajeet A. BATABYAL
Department of Economics, Rochester Institute of Technology, 92 Lomb Memorial Drive, Rochester, NY 14623-5604, USA.
aabgsh@rit.edu

Hamid BELADI
Department of Economics, University of Texas at San Antonio, One UTSA Circle, San Antonio, TX 78249-0631, USA.
Hamid.Beladi@utsa.edu

Abstract

We analyze a model of trade between J heterogeneous regions that are creative in the sense of Richard Florida. There are two non-traded final goods that are used for consumption and investment. There is a continuum of inputs that are freely traded between the creative regions. There is no borrowing or lending between the creative regions. Specifically, we study the impacts of free trade in inputs when the elasticity of substitution between the traded inputs that are used to produce the final consumption and investment goods is less than unity. We first show that creative regions that have lower discount rates will be relatively poor and hence worse off with trade when the above elasticity of substitution is less than one. Next, we explain in detail why this negative result obtains.

Keywords: Creative Capital, Creative Region, Elasticity of Substitution, Input, Trade
JEL classification: R11, F12

1. Introduction

1.1. Overview of the issues and the literature

The publication of two books by the noted urbanist Richard Florida has given rise to great interest among economists and regional scientists in studying the twin notions of the *creative class* and *creative capital*. The first book, *The Rise of the Creative Class*, was released in 2002 and the second book, *The Flight of the Creative Class*, appeared in 2005. Florida (2002, p. 68) helpfully explains that the creative class "consists of people who add economic value through their creativity." This class consists of professionals such as doctors, lawyers, scientists, engineers, university professors, and, notably, bohemians such as artists, musicians, and sculptors. What differentiates these individuals is that they possess creative capital which is defined to be the "intrinsically human ability to create new ideas, new technologies, new business models, new cultural forms, and whole new industries that really [matter]" (Florida, 2005, p. 32). The creative class is salient, says Florida, because this group generates ideas, information, and technology, outputs that are increasingly significant for the growth of cities and regions. Therefore, cities and regions that want to succeed on the global stage must attempt to attract and retain members of this creative class who are the primary drivers of economic growth.

Researchers have now analyzed various aspects of creative capital and the creative class. Focusing on the Canadian periphery, Petrov (2007) points out that the geographic distribution of creative capital is very uneven and heavily concentrated in major urban centers. McGranahan and Wojan (2007) concentrate on rural counties in the United States and find support for Florida's creative class thesis. Donegan and Lowe (2008) contend that cities with a large creative talent pool are also more likely to have substantial income inequality. Florida et al. (2008) show that the creative class idea outperforms conventional educational attainment measures in accounting for regional labor productivity measured with wages. In contrast, conventional educational attainment measures are a better predictor of regional

income than the creative class idea. Westlund and Calidoni (2010) concentrate on regional development in Japan and find no significant support for Florida's thesis which they interpret as the idea that a heterogeneous civil society with diverse values including tolerance will have a positive effect on regional development.

Marrocu and Paci (2012) conduct an empirical analysis of Florida's creative class by studying the activities of creative graduates, bohemians, and non-creative graduates. Their analysis shows that if the objective is to explain the economic performance of a region, then the creative graduates have the greatest positive impact, non-creative graduates have a lesser impact, and bohemians have no impact. Gabe et al. (2013) study the employment prospects of three classes of individuals in the United States in the 2006-2011 period. Their analysis shows that relative to members of the service and working classes, members of the creative class had the lowest likelihood of being unemployed during this period. A similar finding about the superior employment prospects of the creative class has been obtained by Currid-Halkett and Stolarick (2013).

The studies discussed in the preceding two paragraphs have advanced our understanding of many aspects of the twin notions of creative capital and the creative class. Even so, these studies have typically analyzed creative regions as *closed* economies and hence they are silent about the effects of trade between creative regions on the growth and/or the welfare of these same trading regions. Having said this, there is now a growing literature on interregional trade[4] but, for the most part, this literature has analyzed trade between generic regions and not regions that are creative in the sense of Richard Florida[5].

Very recently, this unhappy state of affairs has begun to change with the appearance of three papers that have analyzed trade in the context of creative regions. First, Batabyal and Nijkamp (2010) concentrate on a two-sector trading regional economy and provide the first theoretical analysis of the creative capital accumulation decision faced by individuals in this regional economy. Second, Batabyal and Nijkamp (2011) analyze a two-sector model of a trading creative regional economy. Their analysis shows that whether or not faster productivity growth in the tradable sector results in the departure of creative people from this sector to the non-tradable sector is independent of whether this faster productivity growth is neutral or non-neutral. Finally, Batabyal and Beladi (2014) study a model of trade between two creative regions where one region is larger than the other region in terms of its endowment of creative capital and there is sector specific learning by doing. They show that when a specific condition holds, the smaller region specializes completely in the production of what they call input 1 but there is incomplete specialization in the larger region.

1.2. Relation to previous literature and contributions of our paper

To the best of our knowledge, the papers discussed in the previous paragraph are the only ones to have theoretically analyzed trade between creative regions. In this paper, we complement the findings in these previous three studies by focusing explicitly on a specific aspect of the functions describing the production of the two final goods in the creative regions under study. This particular aspect is the magnitude of the elasticity of substitution between the various traded inputs that are used to produce the two final goods in the different regions.

The effects of trade when the elasticity of substitution is greater than unity are relatively straightforward to discern from the extant literature on trade between nations[6]. Therefore, in this paper, we focus on the case where the elasticity of substitution is less than unity. Not only has this case not been studied in the literature but, as we show in the remainder of our paper, this "less than unity" case has significant implications for the welfare effects of trade between creative regions.

The remainder of this paper is organized as follows. Section 2 describes the theoretical framework in detail. Section 3 demonstrates that with trade, creative regions that

[4] See Horiba (2008), Andresen (2009), Ghemawat *et al.* (2010), de la Mata and Llano (2013), and de la Mata (2014) for additional details on this literature.

[5] Recall that creative regions are populated by members of the creative class who possess creative capital.

[6] See Acemoglu and Ventura (2002) for additional details on this point.

have lower discount rates will be relatively poor when the above mentioned elasticity of substitution between the various traded inputs is less than one. Section 4 explains in detail why the negative result in section 3 obtains. Finally, section 5 concludes and then suggests two ways in which the research delineated in this paper might be extended.

2. The Theoretical Framework

2.1. Preliminaries

Our model is adapted from the prior work of Acemoglu and Ventura (2002) and Acemoglu (2009, pp. 663-674). Consider an infinite horizon aggregate economy made up of J creative regions that are indexed with the subscript j where $j=1,2,...,J$. There is a continuum of inputs that we index by $v \in [0,N]$. There are two final goods that are used for consumption and investment. The trade that we study is in inputs[7] between the different creative regions and there is no trade in the two final goods. There is also no borrowing or lending between the different creative regions.

The creative regions being studied differ in their technology, savings, and economic policies. For the *jth* creative region, we describe how advanced this region's technology is with μj, its time preference with ρj, and the effect of its economic policies on the incentive to invest with δj. The triple $(\mu j, \rho j, \delta j)$ varies across space, i.e., across the different creative regions under study, but it is constant over time.

The representative creative class household in the *jth* region has a logarithmic utility function described by

$$\int_0^{\infty} e^{-\rho_j t} log\{C_j(t)\}dt, \tag{1}$$

where $C_j(t)$ is consumption at time t. The representative creative class household in region j possesses creative capital and the stock of this creative capital at time t=0 is $H_j(t) > 0$. The budget constraint of the representative creative class household in region j at time t is

$$p_j^I(t)\dot{H}_j(t)+p_j^C(t)C_j(t)=Q_j(t)=w_j(t)H_j(t), \tag{2}$$

where $p_j^I(t)$ and $p_j^C(t)$ are the time t prices of the investment and consumption final goods, $Q_j(t)$ is total income, $H_j(t)$ is creative capital, and $w_j(t)$ is the return to creative capital.[8] Equation (2) says that expenditures on investment plus consumption (the LHS) equals total income which, in turn, equals the income of creative capital (the RHS). Note that the two prices $p_j^I(t)$ and $p_j^C(t)$ will generally differ across the various creative regions because the production functions—on which more below—for the investment and the consumption goods are dissimilar.

The production of the N inputs in our aggregate economy is split up across the J creative regions. In effect, this means that each input can only be produced in a single creative region. This assumption also has the implication that while each creative region might be small from the standpoint of its import markets, each such region influences its terms of trade by the amount of the inputs it exports. Here, the expression "terms of trade" refers to the price of the exports of a region divided by the price of its imports. Now using the technology proxy μ_j for creative region j described earlier, the above "splitting up" assumption tells us that we can sum over all the creative regions under study and write

$$\sum_{j=1}^{N} \mu_j = N. \tag{3}$$

Equation (3) tells us that if the *jth* creative region has a relatively high μ_j then this means that this *jth* region has the technology to produce a larger variety of inputs. The various inputs are produced competitively in the different creative regions under study. In addition, we suppose that in each creative region, the production technology of the inputs is such that one

[7] Jones *et al.* (2005) have pointed to the importance of trade in inputs in the case where the regions under study are actually nations.

[8] A dot above a variable indicates a derivative with respect to time.

unit of creative capital produces one unit of any input that this region is capable of producing. Finally, there is free entry in the production of inputs. Hence all input production in the J creative regions under study is *competitive* and the prices of the inputs produced in creative region j are given by

$$p_j(t)=w_j(t). \tag{4}$$

2.2. The dynamic model

In any creative region j, the consumption and investment final goods are produced using this region's creative capital and a collection of the freely traded inputs available in our aggregate economy. Specifically, the production function for the consumption good is given by

$$C_j(t)=\alpha\, H_j^{\,C}(t)^{1-\beta}\{\int_0^N x_j^{\,C}(v,t)^{(\gamma-1)/\gamma}\, dv\}^{\beta\gamma/(\gamma-1)}, \tag{5}$$

where $\alpha>0$ is a parameter, $H_j^C(t)$ is the portion of the jth region's creative capital that is used to produce the consumption good, and $\beta\in(0,1)$ is a scale parameter. The expression inside the curly brackets in equation (5) denotes the collection of inputs that are bought from the other creative regions in our aggregate economy and then used to produce the consumption good in region j. In this regard, $x_j^C(v,t)$ is the amount of input v that is used to produce the consumption good C at time t. Note that the expression inside the curly brackets in equation (5) involves integrating over all possible inputs in our aggregate economy. The key parameter in equation (5) is γ or the elasticity of substitution between the different traded inputs. As noted in section 1, in this paper we shall be concerned with the case in which $\gamma<1$. This is the case in which there is a *limited* amount of substitutability between the different inputs that are used to produce the final consumption good. Finally, the parameter β is in the exponent on the expression inside the curly brackets. Two features of this parameter are worth emphasizing. First, this parameter ensures that the production function in equation (5) exhibits constant returns to scale in creative capital and in the various traded inputs given in the expression inside the curly brackets. Second, we can also interpret β as the share of trade in the jth creative region's gross domestic product.

The production function for the investment final good I_j is given by

$$I_j(t)=\left(\frac{1}{\delta_j}\right)\alpha H_j^I(t)^{1-\beta}\{\int_0^N x_j^I(v,t)^{\frac{\gamma-1}{\gamma}}\, dv\}^{\frac{\beta\gamma}{\gamma-1}}, \tag{6}$$

where the parameter $\delta_j>0$ can be thought of as a productivity parameter. In this regard, note that ceteris paribus, a high (low) value of δ_j decreases (increases) the output of the investment good. Inspecting equation (6), we see that except for the δ_j parameter, the production functions for the consumption and investment final goods are identical. Now, for the creative capital market in the jth region to clear, we must have

$$H_j^C(t)+H_j^I(t)+H_j^\mu(t)\leq H_j(t), \tag{7}$$

where H_j^μ (t) is the portion of creative capital in region j that is used to produce the traded inputs and $H_j(t)$ is the total available creative capital in region j at time t.

To proceed further, we work with the so called unit cost functions. These functions give us the cost of producing one unit of the consumption and investment final goods in terms of an ideal price index for the traded inputs. Adapting equations 19.27 and 19.28 in Acemoglu (2009, p. 667) to our problem, the two unit cost functions we seek are given by

$$F_j^C[w_j(t),\{p(v,t)\}_{v\in[0,N]}]=w_j(t)^{1-\beta}\{\int_0^N p(v,t)^{1-\gamma}dv\}^{\beta/(1-\gamma)} \tag{8}$$

and

$$F_j^I[w_j(t),\{p(v,t)\}_{v\in[0,N]}]=\delta_j\, w_j(t)^{1-\beta}\{\int_0^N p(v,t)^{1-\gamma}dv\}^{\beta/(1-\gamma)}, \tag{9}$$

where $p(v,t)$ is the price of input v at time t. Note that these input prices do not have a region specific subscript because they are freely traded and hence all the regions in our aggregate economy face the *same* input prices.

An equilibrium in our aggregate economy of J creative regions arises when all markets clear and the representative household in the creative class in each region j maximizes its utility given the time path of prices. In this regard, maximizing the utility—equation (1)—of the representative creative class household in region j, we get the two first order necessary conditions for an optimum in each region j and for all time t. These two conditions are

$$\frac{w_j(t)+\dot{p}_j^I(t)}{p_j^I(t)} - \frac{\dot{p}_j^C(t)}{p_j^C(t)} = \rho_j + \frac{\dot{C}_j(t)}{C_j(t)} \tag{10}$$

$$lim_{\,t\to\infty}[e^{-\rho_j^t}\{\frac{p_j^I(t)H_j(t)}{p_j^C(t)C_j(t)}\}]=0. \tag{11}$$

and

Equation (10) is the so called consumption Euler equation[9]. In words, this equation tells us that the net rate of return to creative capital (the LHS) must be equal to the rate of time preference plus the slope of the time path of consumption (the RHS). Equation (11) is the transversality condition that must hold at the end of the maximizing horizon.

Let us integrate the budget constraint in equation (2) and then simplify the result by using the first order necessary conditions in equations (10) and (11). This gives us an equation for the consumption function in region j and that equation is

$$p_j^C(t)C_j(t)=\rho_j\{p_j^I(t)H_j(t)\}. \tag{12}$$

In words, equation (12) tells us that at any time t, the representative creative class household in any region j spends a fraction ρj of its wealth—given in the curly brackets on the RHS—on consumption (the LHS).

We have now described the prices of the traded inputs and the behavior of consumption and the creative capital stock in each region j. We now delineate the prices of the consumption and the investment goods and the relative prices of the traded inputs in the aggregate economy. Let us use the ideal price index for the collection of all the traded inputs as our *numeraire* for the aggregate economy. Since the traded inputs enter the two production and unit cost functions—see equations (5), (6), (8), and (9)—in constant elasticity of substitution or CES form, we can adapt equation 19.32 in Acemoglu (2009, p. 668) to our problem and deduce that the ideal price index we seek is given by

$$\{\int_0^N p(v,t)^{1-\gamma}\mathrm{d}v\}^{\frac{1}{1-\gamma}} = 1 = \sum_{j=1}^{J}\mu_j\, p_j(t)^{1-\gamma}. \tag{13}$$

The first equality in (13) defines the ideal price index. The second equality arises from the fact that creative region j produces μ_j inputs and each of these inputs has the same price $p_j(t)=w_j(t)$ specified in equation (4). In the model that we are studying, each region exports almost all of its production of inputs and it imports the so called "ideal basket" of inputs produced in the aggregate economy. Therefore, the relationship that equation (4) specifies denotes not only the price of the inputs produced by creative region j but also this region's terms of trade.

Using equation (13), the two unit cost functions in equations (8) and (9) together provide us with expressions for the equilibrium prices of the consumption and investment final goods at any time t in region j. These two expressions are

$$p_j^C(t)=w_j(t)^{1-\beta} \text{ and } p_j^I(t)=\delta_j\, w_j\,(t)^{1-\beta}. \tag{14}$$

Inspecting equation (14), we see that the prices of the final consumption and investment goods are given in terms of the rate of return to creative capital $w_j(t)$.

Next, we discuss the condition that must hold for trade in inputs between the J creative regions in our aggregate economy to be balanced. To derive this condition, note the following four points. First, since each creative region j is assumed to be small, this region spends a fraction β of its income $Q_j(t)$ on imports. Second, the remaining $J-1$ regions in our aggregate economy together spend the fraction $\beta\mu_j\, p_j(t)^{1-\gamma}$ of their income on the inputs produced by

[9] See Acemoglu (2009, pp. 209-210) or Aghion and Howitt (2009, pp. 34-37) for textbook expositions of the consumption Euler equation.

region j. Third, the income of our aggregate economy is simply $Q(t)=\sum_{j=1}^{J} Q_j(t)$. Fourth, the terms of trade for creative region j are given by equation (4). Putting these four pieces of information together, we deduce that the trade balance equation we seek is given by

$$Q_j(t)=\mu_j w_j(t)^{1-\gamma} Q(t). \tag{15}$$

The equations (2), (4), (12), (14), and (15) together fully describe the equilibrium in the aggregate economy we have been studying thus far.

Our final task in this section consists of two steps. In the first step, we delineate the state of our aggregate economy by describing the temporal evolution of the stock of creative capital for any creative region $j=1,\ldots,J$. To do this, we first combine equations (2), (12), and (14) and then combine equations (2) and (15). After some algebra, we see that the evolution of the creative capital stock is given by

$$\frac{\dot{H}_j(t)}{H_j(t)}=\frac{w_j(t)^{\beta}}{\delta_j}-\rho_j, \tag{16}$$

and

$$w_j H_j(t)=\mu_j w_j(t)^{1-\gamma}\sum_{i=1}^{J} w_i(t)H_i(t). \tag{17}$$

In the second step, we adapt proposition 19.10 in Acemoglu (2009, p. 669) to our problem and deduce that there exists a unique and (saddle-path) stable steady state aggregate economy equilibrium in which the steady state return to creative capital and the terms of trade in region j are given by

$$w_j^{SS}=p_j^{SS}=\{\delta_j(p_j+g^{SS})\}^{\frac{1}{\beta}}, \tag{18}$$

where the superscript SS denotes the steady state and $g^{SS}=\dot{H}_j(t)/H_j(t)=\dot{Q}_j(t)/Q_j(t)$ refers to the steady state growth rate of our aggregate economy. We are now in a position to shed light on the effects of trade in inputs on creative regions that have relatively low discount rates, given that the elasticity of substitution between the traded inputs or $\gamma<1$.[10]

3. Low Discount Rates and the Effects of Trade

Note that even when the elasticity of substitution between the traded inputs or $\gamma<1$, the resulting equilibrium is still given by the various equations described in section 2.2 above. However, to see what happens to a creative region with a relatively low discount rate ρ_j, let us substitute equation (18) into equation (15). This gives us an expression for the steady state output of creative region j relative to the steady state output of the aggregate economy. Specifically, we get

$$\left\{\frac{Q_j(t)}{Q(t)}\right\}^{SS}=\mu_j\{\delta_j(\rho_j+g^{SS})\}^{(1-\gamma)/\beta}. \tag{19}$$

Inspecting equation (19), it is clear that because $\beta\in(0,1)$ and $1-\gamma>0$, *ceteris paribus*, trading creative regions with lower discount rates will be relatively poor and hence *worse off*. We now explain in detail why this negative result holds.

4. Why Some Creative Regions are Relatively Poor

To comprehend the negative result in section 3, note first that regions with relatively low discount rates have higher levels of creative capital, a lower return to creative capital, and relatively cheaper export goods. In the case where the elasticity of substitution $\gamma<1$, creative regions with relatively cheaper export goods receive a smaller share of the aggregate economy expenditure on exports and, controlling for the technology parameter μ_j, earn *lower* export revenues.

The effects described in the preceding paragraph can be seen clearly by inspecting equation (17). We see that when $p_j(t)$ and hence—from equation (4)—$w_j(t)$ is low, $w_j(t)^{1-\gamma}$ is also low and this decreases the *jth* region's share of the income of the aggregate economy. Put differently, when the elasticity of substitution $\gamma<1$, the demand for each traded input is

[10] In what follows, we adapt some of the discussion in Peters and Simsek (2009, pp. 416-417).

inelastic enough so that increasing the price does not decrease the demand much and lead to higher profits. In other words, creative regions with low discount rates and low export prices receive lower export revenues and hence lower income. These findings tell us that creative regions with low discount rates grow faster and as a result of this faster growth, the price of their goods decreases so much that the fast growth ends up making them relatively poorer and hence *worse off*. In this sense, this result is similar to the prominent "immiserizing growth" result obtained by Bhagwati (1958).

To comprehend this "immiserizing growth" result in a different way, let us focus on two of our assumptions in the model that we have been studying thus far. First, we assumed that the production of all the consumption and investment goods required the use of inputs which had to be imported from other regions. As a result, accumulating creative capital in any region j did not lead to output growth in this same region because the region's production technology depended on imports which the region had to finance through its own exports. Second, with the elasticity of substitution $\gamma<1$, the demand for a creative region's inputs is inelastic enough so that too much production results in potent price effects which, in turn, reduce export revenues. With lower export revenues, the *jth* region can import less and hence produce less. Therefore, these two assumptions together lead to the above mentioned "immiserizing growth" result. This concludes our discussion of trade between creative regions when the elasticity of substitution between the various traded inputs γ is less than unity.

5. Conclusions

In this paper, we analyzed a model of trade between J heterogeneous regions that were creative in the sense of Richard Florida. There were two final goods that were not traded but were used for consumption and investment. There was a continuum of inputs that were freely traded between the creative regions. There was no borrowing or lending between the creative regions. Specifically, we studied the impacts of free trade in inputs when the elasticity of substitution between the various traded inputs γ that were used to produce the final consumption and investment goods was less than unity. We first showed that in the presence of trade, creative regions that had lower discount rates would be relatively poor when γ was less than one. Next, we provided a detailed explanation of the rationale for this negative result.

The analysis in this paper can be extended in a number of different directions. In what follows, we suggest two possible extensions. First, it would be useful to compare the results of this paper with those obtained in a setting in which each creative region operates as a closed economy. In this closed economy scenario, each creative region would only use the inputs it produced in the region, to produce consumption and investment goods. Second, it would also be instructive to compare and contrast the findings of this paper with a scenario in which a region specific social planner makes consumption and production decisions in each of the J creative regions. Studies that analyze these aspects of the underlying problem will provide additional insights into the nexuses between alternate consumption and production structures and the functioning of creative regions that are also open economies.

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ZIPF'S LAW AS ASSESSMENT TOOL OF URBAN INEQUALITY[1]

Inna MANAEVA
World Economy Chair –Belgorod State National Research University, Russia, http://www.bsu.edu.ru
In.manaeva@yandex.ru

Svetlana RASTVORTSEVA
World Economy Chair –Belgorod State National Research University, Russia, http://www.bsu.edu.ru
Srartvortseva@gmail.ru

Abstract

The paper is concerned with the topical issues of regional economics – urban inequality in the Russian Federation. Empirical investigations of Zipf's law were studied in the foreign and Russian literature. Application of this law for assessment of urban inequality using the method of least squares was substantiated. Assessment of urban inequality within the boundaries of the RF federal districts by the indices of population, volume of own production of goods and services is carried out in the paper. The authors used the data of the Federal State Statistics Service for 2014, the investigation included the settlements with the status of a town and with the population over 100 thousand people. Zipf's law displays over the entire territory of Russia. By the population index in the federal districts, Zipf's factor varies within the range from – 0.7 (Northwestern Federal District) to – 0.9 (North Caucasian Federal District). As a result of the performed analysis of the Russia's cities by the population index, Zipf's factor is within the range from –0.3 (Northwestern Federal District) to –1.2 (Central Federal District). Analysis of the volume of production of goods and services determined the range of Zipf's factor from –0.26 (North Caucasian Federal District) to – 0.7 (Central and Volga Federal Districts). By the index of population and volume of production of goods and services the following "primate cities" are determined: Moscow and Saint Petersburg, Yekaterinburg (population), which allows to draw a conclusion on their dominance in urban system and high differentiation of cities by these indices. The obtained empirical estimators prove that Russia has no intermediate group of cities macroregional centers. The results of the investigation can be used for creation of methodological tools to develop the mechanisms of smoothing of interregional inequality, program of economic and social development of cities.

Keywords: city, spatial inequality, Zipf's law, population, population density
JEL classification: R12

1. Introduction

Russia ranks first in the land area and 181th – in population density in the world, which defines a unique feature of distribution of its cities and economic activity in the territorial area. The main feature consists in confrontation of large capital cities and basic mass of cities. Interregional inequality creates a range of problems for modern Russia; high income differences, concentration of competitive advantages within the same territories and their deficit within the other ones are worsened by social inequality. The problems of unequal access to employment market, education, public health service intensify, that threatens the integrity of the country and social and political stability. Different mechanisms of smoothing the interregional differentiation are put into practice: budget interregional transfer deeds, support of "priority development areas", implementation of modernization of monotowns (single-industry towns). In the course of the mentioned measures, understanding of concentration of resources, population, companies in the cities as a source of economic

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growth is essential. Russia's cities are a special subject for investigation of interregional differentiation. The range of urban population varies from 1 thous. people to 12 108.3 thous. people.; population density in cities – from 9.1 per km^2 to 7,165 per km^2 [2]; production volume – from RUB 10.8 mln. to RUB 5,653,126 mln^3. . Geographical and climatic conditions which strongly differ within the Russian Federation territory have effect on the economic development of a city.

The investigation objective, the results of which are given in this paper, is analysis of urban inequality with application of Zipf's law by a variety of the indices: population, population density, volume of own production of goods and services.

The authors chose Zipf's law as a tool for assessment of urban inequality due to applicability of this empirical law for a number of economics spheres that is proved in the papers of foreign economic researchers: distribution of profits of companies testifies that income statistics complies with Zipf's law (Ramsden & Kiss-Haypal, 2000); assessment of hierarchy of city sizes (Blank & Sorin, 2000); "Pareto index – a measure of spatial inequality" (Soo, 2005);

2. Review of Investigations

To achieve the stated objective, let us consider the known empirical studies on these topics, found in foreign economic literature. Vilfredo Pareto brought up a concern with income distribution inequality as early as in 1896 (Flux& Pareto, 1896). The scientist considered wealth distribution among regions and determined that it was utterly unequal: 20% of the population has 80% of the benefit (wealth), and 80% of the population − only 20% of the benefit – the rule "the wealthy become wealthy" (Flux& Pareto, 1896). F. Auerbach (1913), having proved the power-series distribution for city sizes, offered the hypothesis of empirical dependence between a city size (its population) and its rank in the hierarchy of cities of a region or country (Auerbachи, 1913).Thereafter, the provision of F. Auerbach was improved by D. Zipf. The term "Zipf's law" provides that within the territory distribution by city size is subject to Pareto's distribution with the index equal to a unit value. The other definition of Zipf's law consists in the fact that if large cities are ranked in descending order of their population, then relation of population of two cities will be inversely proportional to relation of their ranks. M. Naldi studies four indices (Gini, Bonferroni, Amato, Herfindahl–Hirschman) for their application under the conditions described by Zipf's law (Naldi, 2003). The Herfindahl–Hirschman index displays flexible behavior and, consequently, is capable to solve (expanding) variations in distribution of economic magnitude described by Zipf's law. T.Rosen and M. Reznik (1980) were the first who carried out complex investigations by the example of 44 countries. Approbation of Zipf's law showed that maximum Pareto index takes place in Australia (1.9), minimum one is typical for Morocco (0.8). The researchers state that the index is overrated in Australia, and relate this case to exceptions. If Australia is removed from the sample collection, then Nigeria becomes the leader by Pareto index − 1.5 (Rosen & Resnick, 1980). Kolomak (2014), analyzing Zipf's law in relation of Russian cities concluded: from stability of distribution of city size it follows that there may be population fluctuations for separate cities, however, this is not accompanied by increase (or decrease) of irregularity in urban system and processes of urban population concentration (or deconcentration) (Kolomak, 2014). Validity of Zipf's law is affirmed for Japan and France: urban structures remain stable over time (Zipf's factor is not changed) (Eaton & Eckstein, 1997).

For many countries and periods Zipf's factor significantly differs from 1 (it is often revealed that Zipf's factor is < 1), and is not constant over the long term (Soo, 2005; Nitsch, 2005). The urban system where growth of cities does not depend on their size is able to generate Zipf's law in a steady state (Gabaix, 1999). In the context of expanding economics, Zipf's law requires average growth of cities, in order not to depend on their size (Córdoba, 2008). Zipf's law properly describes urban systems of countries which had no control of sizes, location of cities and internal migration of population (Kolomak, 2014).

Foreign scientists introduce the term "principal city" (primate city) a large city which is a financial and political center of the country. Availability of the "primate city" in the country is indicative of spatial development imbalance "progressive core and lagging periphery" (Baker & Phongpaichit, 2009).

3. Methodology

Zipf's law concerning distribution of city size is represented by a nonlinear relation between city ranks (r) and its size (s), sometimes this rule is called "rank-size". It may be recorded in the form of the following formula:

$$s = r^{-1} \quad (1)$$

Respectively, city size s will be equal to 1, 1/2, 1/3, etc. if city rank r is equal to 1, 2, 3. The largest city is twice as large as the second one, etc. and thrice as large as the third one, etc. This equation is typical for economic phenomena in distribution of income and sizes of companies (Soo, 2005).

Power expression of Zipf's law is represented as follows:

$$y = kx^{-\alpha} \quad (2)$$

where x is quantity, k is a constant, α is exponent of power law. This law is known as a Pareto distribution.

Plausible methods were suggested by M. Goldstein (2004), M. Newman (2005), who base on the Kolmogorov-Smirnov test for determination of distribution as per the power law. The methods are used not only to comply with the data (or a part of the data) as per the power law but also to determine to what extent these data are suitable in comparison with the other types of distribution. Te index is set by the following formula (Jiang & Jia, 2011):

$$\alpha = 1 + n\left[\sum \ln \frac{x_i}{x_{\min}}\right]^{-1} \quad (4)$$

α means a assessable exponent, xmin is minimum value which power function distribution achieves. In Zipf's law, the exponent equals to a unit.

The Kolmogorov-Smirnov test modified by A. Clauset (Clauset et al., 2009), allows to obtain maximum compliance: city size complies with the power law distribution. The main idea consists in maximum distance (δ) between data on cumulative density function and the model:

$$\delta = \max|f(x) - g(x)|, x > x_{mim} \quad (5)$$

where f(x) is cumulative function of synthetic data with the value not less than x_{min} , and g(x) is cumulative function of power law distribution which complies with the condition $x>x_{min}$ in the best way.

Zipf's law or Pareto distribution is an expression of the power law. In the empirical literature for assessment of the power law function exponent the method of least squares is used. Its advantage consists in the fact, that it provides visual criteria according to the law. For large-scale samples such as financial data it is precise enough (Gabaix & Ioannides, 2004):

$$\ln \text{rank} = A - K \ln \text{size} \quad (6)$$

Where:

In_{rank} is a logarithm of city rank;

In_{size} is city population;

K is a parameter of distribution, Zipf's rating which inclines linear dependence between city size and city rank. Zipf's law is observed subject to K=1, that is the largest city κ times as large as κ-th city by size. At K<1 sizes of large cities more predicted by Zipf's law; at K>1 distribution of cities of more uniformly predicted by Zipf's law.

During investigations using Zipf's law, determination of sampling size is important (Brakman, et al., 2009):

– to use fixes quantity of cities (for example, 100 cities per sampling);

– to determine threshold level of index (for example, cities with population more than 100 thous. people).

4. The data

For analysis of urban inequality using Zipf's law we used the data of the Federal State Statistics Service for 2014. The investigation included settlements with status of a city and population from 100 thous. people, that was imposed by absence of the data in the statistics digests for small towns. Testing of Zipf's law was carried out using the method of least squares.

5. Results

Let us classify Russia's cities by population as follows: small towns – population up to 20 thous. residents, medium-size cities – from 20 thous. to 100 thous. residents, big cities – from 100 thous. to 250 thous. resident, large cities – from 250 thous. to 1 mln. residents. Considering this classification let us analyze the RF cities in 2014 г. (Table 1)[4].

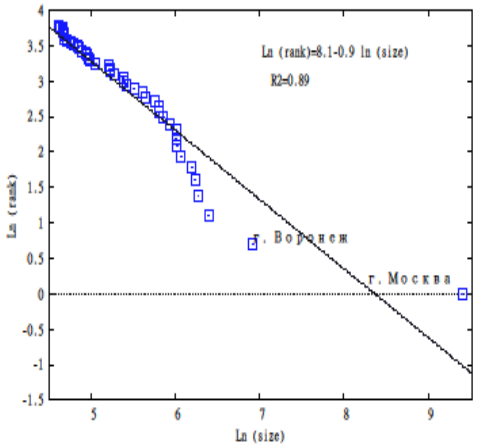
Item No.	Federal District	Small towns up to 20 thous. people		Medium-size towns, 20-100 thous. people		Big cities, 100-250 thous. people		Large cities, 250-1,000 thous. people	
		qty, units	Ratio, %	qty, units	Ratio, %	qty, units	Ratio, %	qty, units	Ratio, %
1	Central	139	45	124	40	27	9	17	6
2	Northwestern	84	56	53	36	4	3	7	5
3	Southern	19	24	43	53	9	12	8	11
4	North Caucasian	7	13	35	62	9	16	5	9
5	Volga	71	36	95	47	15	8	17	9
6	Ural	32	23	86	62	11	8	10	7
7	Siberian	44	34	65	50	11	8	10	8
8	Far Eastern	30	46	26	39	6	9	4	6
9	**Total over Russia**	**426**	**38**	**527**	**47**	**92**	**8**	**78**	**7**

Table 1 Classification of Russia's cities by population in 2014.

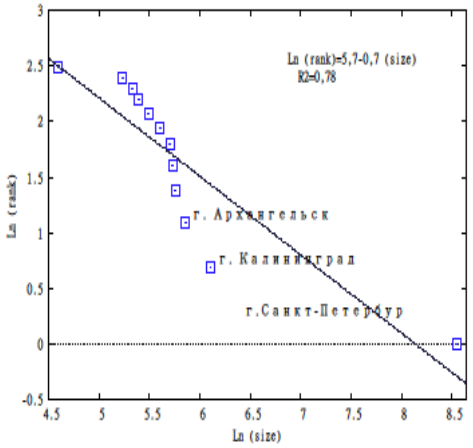
Within the Russia's territory a majority of cities is of medium size. In a number of districts small towns prevail: in the Central Federal District − 45% of total number, in the Northwestern Federal District − 56%.The analysis results show that on average the number of small and medium towns is five times the number of big and large cities.

The diagrams reflecting display of the rank-size rule (Zipf's law) by the index of population in the cities at the regional level of Russia are given in Figure 1 [5].

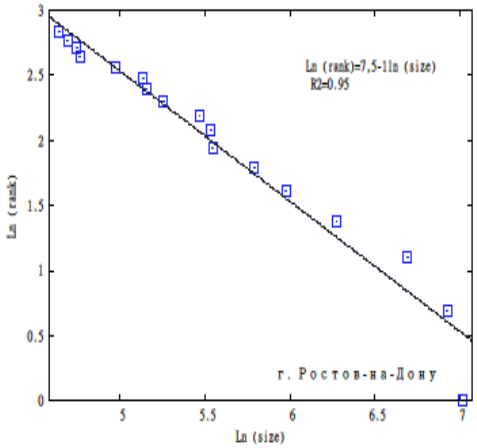
Figure 1. Rank-size relationship by population index, calculated for Russia's cities by Federal Districts, 2014.



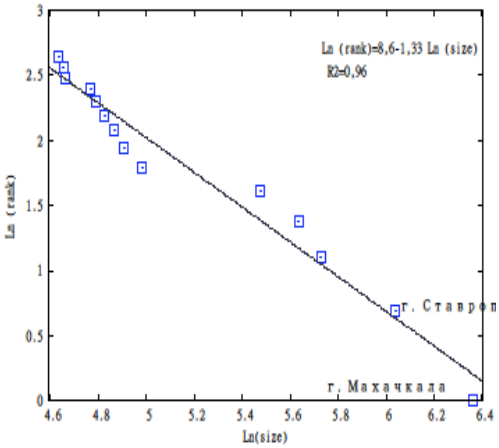
a) Central Federal District



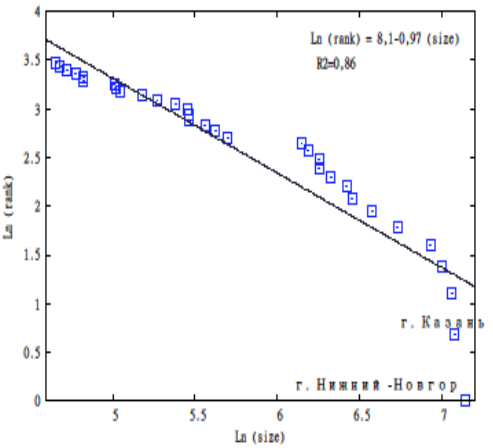
b) Northwestern Federal District



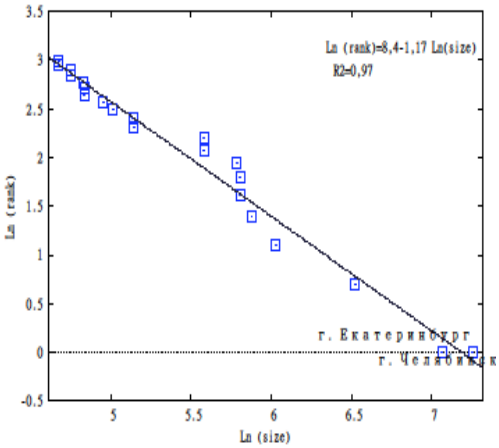
c) Southern Federal District



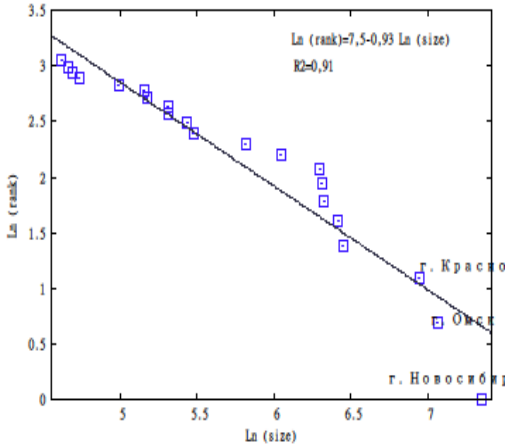
d) North Caucasian Federal District



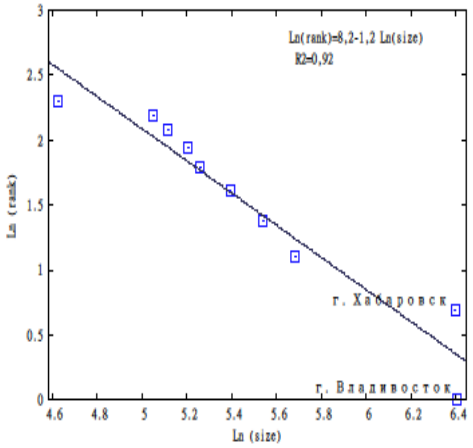
e) Volga Federal District



f) Ural Federal District



g) Siberian Federal District



h) Far Eastern Federal District

Legend: + - observed; − predicted.

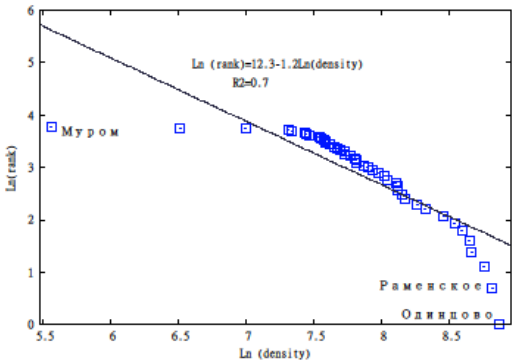
In the Central Federal District the population distribution corresponds to Zipf's law except for six largest cities (490,500-1,014,600 people). As the diagram shows, Moscow is a "primate city", where 52 % of sampling population is concentrated. In the Northwestern Federal District Zipf's law is not fulfilled: the estimated data coincide with linear ones in Murmansk (299.1 thous. people, Petrozavodsk (272.1 thous. people), Ukhta (99.2); Saint Petersburg – "primate city" within the Northwestern Federal District. The estimated data show validity of Zipf's law within the territory of the Southern Federal District. Rostov-on-Don is an exception: its population is lower than one predicted nu Zipf's law. The analysis of city sizes in the North Caucasian Federal District revealed the deviation from Zipf's law. It is particularly remarkable that city sizes are more uniform than they are predicted by the law.

Within the territory of the Volga Federal District large cities from 1,169,200 to 1,263,900 people are exception to Zipf's law. (Nizhny Novgorod, Kazan, Samara).

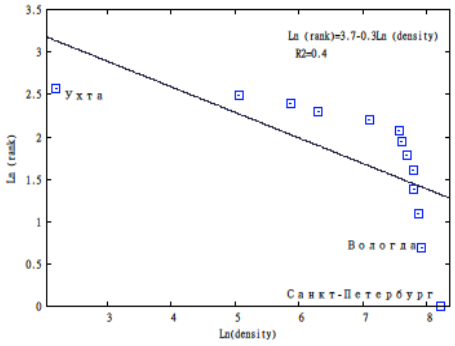
The Ural Federal District has a "primate city" that is Yekaterinburg. Zipf's factor obtained at calculations is more than a unit that is indicative of more uniform city sizes, than they are determined by Zipf's law. In the Siberian Federal District Novosibirsk (1,547,900 people), Omsk (1,166,100 people) do not fall within the scope of Zipf's law. Within the territory of the Far Eastern Federal District the estimated data are lower than predicted ones in Vladivostok, Artem, and higher than predicted ones in Khabarovsk.

The population density analysis results for the cities with population more than 100 thous. people using Zipf's law are given in Figure 2 [6].

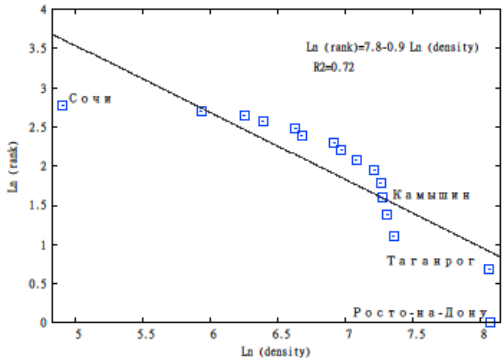
Figure 2. Rank-size relationship by population density index, calculated for Russia's cities by Federal Districts, 2014.



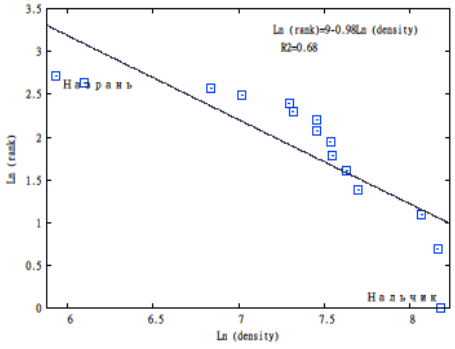
a) Central Federal District



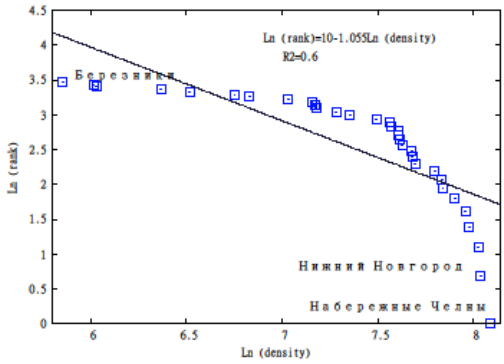
b) Northwestern Federal District



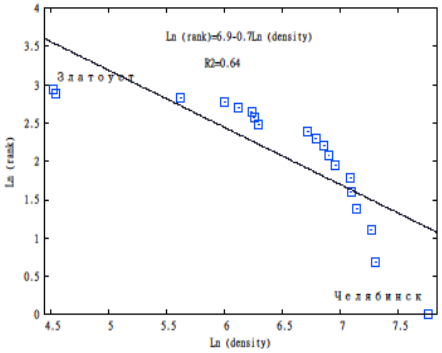
c) Southern Federal District



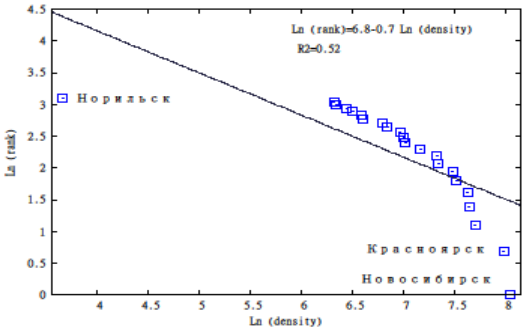
d) North Caucasian Federal District



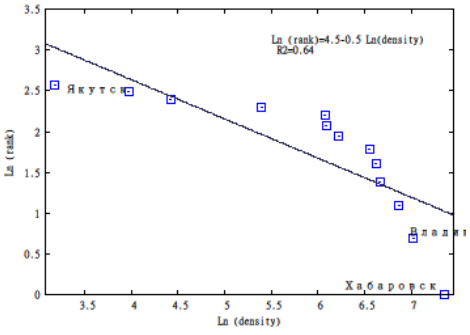
e) Volga Federal District



f) Ural Federal District



g) Siberian Federal District



h) Far Eastern Federal District

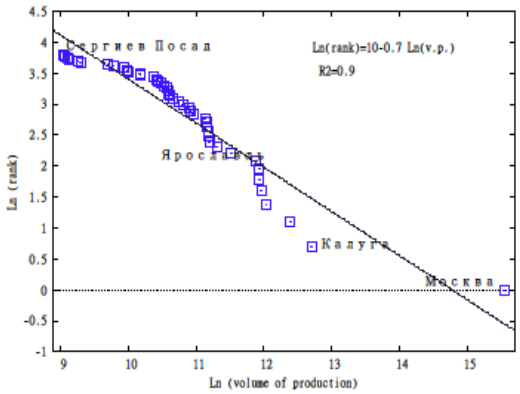
Legend: + - observed; − predicted.

The city with maximum population density is located within the territory of the Central Federal District (Odintsovo, the Moscow Region), in the Central Federal District distribution of urban population partially corresponds to Zipf's law. According to the diagram Zipf's law is not applied to the cities with low population density (261.4 per km^2– 1098.6 per km^2) and cities of the Moscow Region, population density of which is higher than 5724 per km^2. It is worthy of note that the regional centers and Moscow fall within the scope of the "rank-population density" rule within the boundaries of the Federal District. In the Northwestern Federal District relation between city population density in and rank is weak (R^2=0.4). Zipf's factor has low value (0.3), that is indicative of high differentiation of the analyzed index, inequality of population concentration in the cities within the boundaries of the Federal District. In the Southern Federal District the "rank-population density" relationship is moderate. Incompliance with Zipf's law is observed in Sochi, Taganrog, Rostov-on-Don. In Novorossiysk and Kamyshin the observed values correspond to the predicted ones. In the

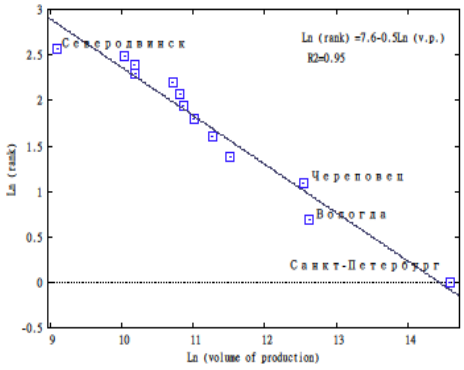
North Caucasian Federal District Zipf's factor is maximum close to 1, that is indicative of uniform population concentration in the cities. The cities with low density, such as Magas, Nazran; with high density, such as Nalchik, Khasavyurt may be an exception. In the Volga Federal District the Zipf's law validity is observed in the cities the density range of which is within 583.9-2,855.7 people per km^2. In the Ural Federal District the "rank-population density" relationship is moderate. The diagram shows that Zlatoust, Miass (low population density), Chelyabinsk, Pervouralsk (high population density) do not fall within the scope of Zipf's law. The obtained data are indicative of nonuniform distribution of population within the Ural Federal District boundaries. The analysis of Zipf's law in the cities of the Siberian Federal District shows wide differentiation of the analyzed index. Population density of Novosibirsk (the leader in the index within the Siberian Federal District boundaries – 3,095.8 per km^2) exceeds the lowest index several dozens times (Norilsk – 39.3 people per km^2).Within the territory of the Far Eastern Federal District nonuniform concentration of city population is observed that confirms low Zipf's factor of 0.48. The estimated data coincide with those predicted in Magadan, Artem. In Khabarovsk and Vladivostok (the highest population density) 30 % of city population of the Federal District is concentrated.

The volume of production of goods and services is an important economic index of the city. Figure 3 shows the results of the analysis of this index within the boundaries of the Federal Districts of the Russian Federation[7].

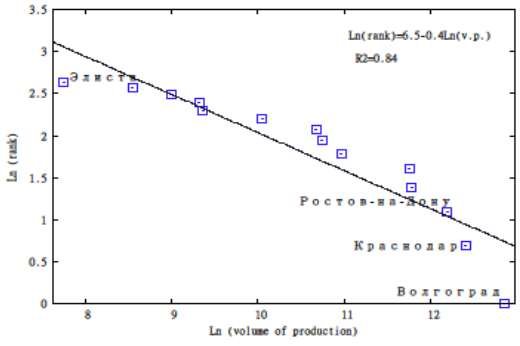
Figure 3. Rank-size relationship by index of volume of production of goods and services, calculated for Russia's cities by Federal Districts, 2014.



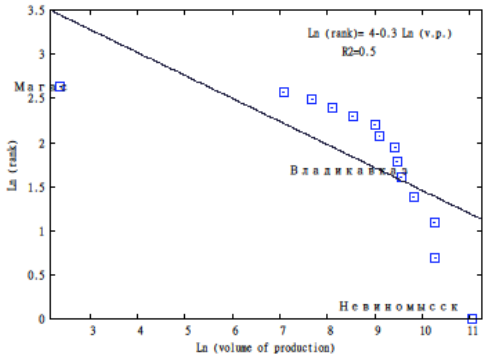
a) Central Federal District



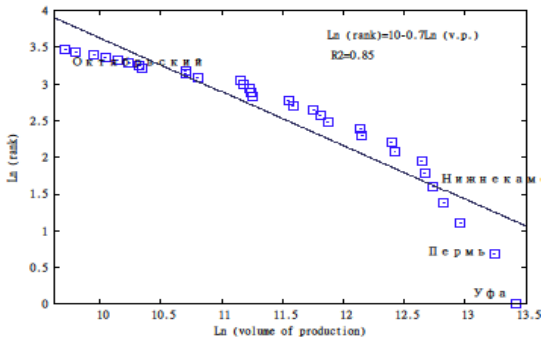
b) Northwestern Federal District



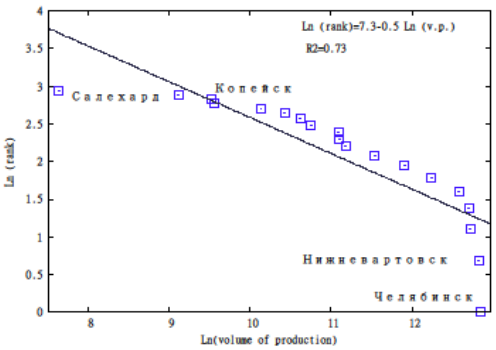
c) Southern Federal District



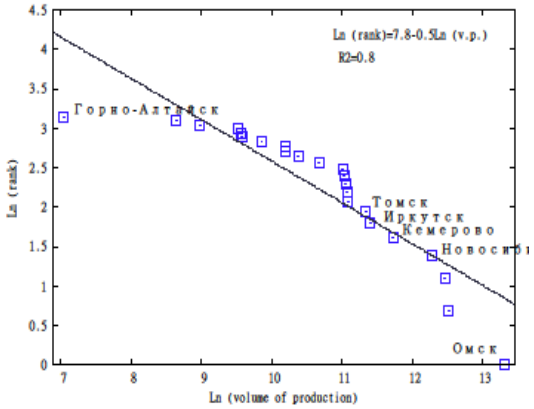
d) North Caucasian Federal District



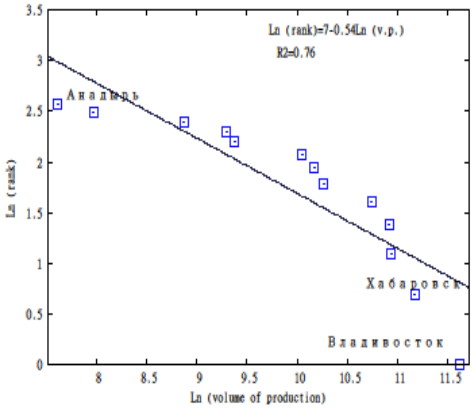
e) Volga Federal District



f) Ural Federal District



g) Siberian Federal District



h) Far Eastern Federal District

Legend: + - observed; − predicted.

The Central Federal District displays strong relation of "rank-volume of production of goods and services". As the diagram shows, high differentiation on the analyzed index is in Moscow ("primate city"). In Serpukhov, Novomoskovsk, Yaroslavl the estimated data coincide with predicted ones. The Northwestern Federal District shows the similar situation: the production volume in Saint Petersburg ("primatecity") is widely differentiated within the Federal District. As the diagram shows, in Pskov, Naryan-Mar, Cherepovets the estimated data coincide with the predicted ones. The analysis of the sampling of the Southern Federal District cities showed relative uniformity of the production volume in the cities: the estimated data coincide with those predicted in Rostov-on-Don, Kamyshin, Maikop. Within the territory of the North Caucasian Federal District Zipf's law is not fulfilled, and wide differentiation of the analyzed index is observed. In Vladikavkaz the estimated data coincide with the predicted ones. Taking into account the analysis results, it is possible to conclude that uniformity by the analyzed index is observed in the Volga Federal District, according to R^2 =0.85 the "rank-production volume" relation is strong. The estimated data coincide with those predicted in Nizhnekamsk, Syzran. In the Ural Federal District own production in the cities is nonuniform: Zipf's factor is 0.47. The diagram shows wide differentiation of the index within the boundaries of the Federal District; in Kopeisk and Kamensk-Uralski the estimated data coincide with the predicted ones. In the Siberian Federal District the volume of production in the cities is nonuniform: the estimated data coincide with the ones predicted in Biysk, Novosibirsk, Irkutsk, Kemerovo. In the Far Eastern Federal District low value of Zipf's factor allows to conclude that the production is concentrated in separate cities and wide differentiation of the analyzed index takes place. The estimated data coincide with those predicted in Magadan, Komsomolsk-on-Amur.

By the index of population and volume of production of goods and services the following "primate cities" are determined: Moscow and Saint Petersburg, Yekaterinburg (population), which allows to draw a conclusion on their dominance in urban system and high differentiation of cities by these indices.

Summary statistics of the obtained investigation results is given in Table 2.

Table 2 Results of Zipf's law check in the Federal Districts of the Russian Federation in 2014.

Federal District	Quantity of observations in a federal district, units	Minimum index value	Maximum index value	Zipf's factor for district cities
Population, thous. people				
Central	44	101.9	12,108.3	- 0.9
Northwestern	13	99.2	5,132	- 0.7
Southern	16	104	1,109.8	- 1
North Caucasian	15	103.1	578	- 1.33
Volga	31	105.1	1,096.7	- 0.97
Ural	20	107.5	1,169.4	- 1.17
Siberian	22	101.7	1,547.9	- 0.93
Far Eastern	13	102.4	603.2	- 1.2
Population density, people per km^2				
Central	41	261.4	7165	-1.2
Northwestern	13	9.1	3,657.8	-0.3
Southern	16	135	3,180	-0.8
North Caucasian	15	377.5	3,558.9	-0.98
Volga	31	349.5	3,244.3	-1.1
Ural	19	92.1	2,334.6	-0.75
Siberian	22	39.3	3,095.8	-0.7
Far Eastern	13	24.1	155.7	-0.48
Volume of production of goods and services, mln. RUB				
Central	44	8,521.7	5,653126	-0.7
Northwestern	13	9,030.2	2,160,129	-0.5
Southern	14	2,340.6	8,060.2	-0.4
North Caucasian	14	10.8	6,1834.6	-0.26
Volga	32	16,603	668,254.5	-0.7
Ural	19	2,089.7	376,257.3	-0.47
Siberian	23	1,151.5	601,058.3	-0.5
Far Eastern	13	2,040.6	110,497	-0.5

We investigated the displays of Zipf's law by the indices of population, population density, volume of production of goods and services within the boundaries of the RF federal districts. This allowed us to determine the following aspects. At large, Zipf's law displays over the entire territory of Russia. By the population index in the federal districts, Zipf's factor varies

within the range from – 0.7 (Northwestern Federal District) to – 1.33 (North Caucasian Federal District).

As a result of the performed analysis of the Russia's cities by the population index, Zipf's factor is within the range from –0.3 (Northwestern Federal District) to –1.2 (Central Federal District). The obtained data allow to conclude that the urban population is distributed unifromly within the territory of the North Caucasian Federal District. Analysis of the volume of production of goods and services determined the range of Zipf's factor from –0.26 (North Caucasian Federal District) to – 0.7 (Central and Volga Federal Districts).

6. Conclusion

The analysis performed allows to draw the following conclusions: The processes of spatial concentration of economic activity take place in Russia. Availability of primate cities by the indices of population and volume of production of goods and services (Moscow, Saint Petersburg, Yekaterinburg (population)) highlights a worrying situation in social and economic space of the Russian Federation. Remarkable separation of Moscow and Saint Petersburg from the subsequent group of cities and high population density of the Moscow Region determine them as centers of interregional attraction. The obtained empirical assessment proves that Russia has no intermediate group of cities macroregional centers. The results of the investigation can be used for creation of methodological tools to develop the mechanisms of smoothing of interregional differentiation, program of economic and social development of cities.

ENDNOTES

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INCREASING RETURNS IN A MODEL WITH CREATIVE AND PHYSICAL CAPITAL: DOES A BALANCED GROWTH PATH EXIST? [1]

Amitrajeet A. BATABYAL
Department of Economics, Rochester Institute of Technology, 92 Lomb Memorial Drive, Rochester, NY 14623-5604, USA.
aabgsh@rit.edu

Abstract

In this note we study aspects of economic growth in a region that produces a final consumption good with creative and physical capital. This consumption good is manufactured with a production function that exhibits increasing returns to scale. Our analysis leads to three results. First, we compute the growth rate of creative capital in our regional economy. Second, we show that despite the presence of increasing returns, the regional economy under study converges to a balanced growth path (BGP). Finally, we compute the growth rates of physical capital and output on the BGP.

Keywords: Balanced Growth Path, Creative Capital, Creative Region, Economic Growth, Increasing Returns

JEL classification: R11, D20

1. Introduction

Economists and regional scientists are now very familiar with the twin concepts of the *creative class* and *creative capital*. According to Richard Florida (2002, p. 68), the creative class "consists of people who add economic value through their creativity." This class consists of professionals such as doctors, lawyers, scientists, engineers, university professors, and, notably, bohemians such as artists, musicians, and sculptors. The distinguishing feature of these people is that they possess creative capital which is defined to be the "intrinsically human ability to create new ideas, new technologies, new business models, new cultural forms, and whole new industries that really [matter]" (Florida, 2005, p. 32).

Florida maintains that the creative class is salient because this group of people gives rise to ideas, information, and technology, outputs that are very important for the growth of cities and regions. Hence, cities and regions that want to succeed in the global arena must attempt to attract and retain members of this creative class who are, we are told, the fundamental drivers of economic growth.

Recently, several studies have analyzed the nature of *production* in regions that use creative capital—possessed by members of the creative class—to produce one or more final consumption goods. For instance, one of the two sectors in the model of a trading regional economy in Batabyal and Nijkamp (2010) uses creative and physical capital to produce a final good. However, these authors do not specify the scale properties of the underlying production functions they work with. Batabyal and Nijkamp (2013) study unbalanced growth in an urban economy with a creative capital possessing creative class. Even so, these authors work with general production functions and they too omit any discussion of the scale properties of these functions.

Usman and Batabyal (2014) analyze goods production, learning by doing, and economic growth in a region possessing both creative and physical capital. The analysis here involves production functions that display decreasing returns to scale. Donovan and Batabyal (2015) study investment in a creative region and the impact that investment income taxation has on the well-being of a creative region. Nevertheless, the production function for consumption

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goods in their paper also displays decreasing returns to scale. Capello *et al.* (2009) have pointed to the important role played by *increasing* returns to knowledge in shaping economic growth in a region but these authors do not formally study the connection between increasing returns and economic growth.

To close this discussion, to the best of our knowledge, the existing literature has paid *no* attention to theoretically analyzing regional economic growth when the underlying creative capital using production function displays *increasing* returns to scale. Given this lacuna in the literature, in this note we study aspects of economic growth in a region that produces a final consumption good with creative and physical capital. This consumption good is manufactured with a production function that exhibits increasing returns to scale. Our analysis leads to three results delineated in sections 3 through 5 below. Section 2 describes the theoretical framework which is adapted from Lucas (1988). Section 3 computes the growth rate of creative capital in our regional economy. Section 4 shows that despite the presence of increasing returns, our regional economy converges to a balanced growth path (BGP). Section 5 computes the growth rates of physical capital and output on the BGP. Section 6 concludes and then suggests two ways in which the research described in this note might be extended.

2. The Theoretical Framework

Consider a regional economy that is creative in the sense of Richard Florida. This creative region is populated by infinitely lived members of the creative class and these members collectively own the region's initial (time $t = 0$) stock of physical capital. Output of the final consumption good at any time t or $Q(t)$ is produced in accordance with the production function

$$Q(t) = K(t)^{\gamma}\{(1\text{-}a_R)R(t)\}^{\delta}, \tag{1}$$

where $K(t)$ is the physical capital input, $R(t)$ is the creative capital input, and $(1 - a_R)$ is the fraction of the creative capital stock that is used to produce the final consumption good $Q(t)$. The exponents $\gamma \in (0,1)$ and $\delta \in (0,1)$. The production function in equation (1) displays increasing returns to scale and hence we have $\gamma + \delta > 1$.

The evolution of the stock of creative capital in our region is given by the differential equation

$$\frac{dR(t)}{dt} = \dot{R}(t) = Ba_R R(t), \tag{2}$$

where $B > 0$ is a shift parameter and a_R is the fraction of the creative capital stock that is used to propagate this stock. The dynamics of the stock of physical capital is described by the differential equation

$$\frac{dK(t)}{dt} = \dot{K}(t) = sQ(t), \tag{3}$$

where $s > 0$ is the savings rate in our creative region. This completes the description of our theoretical framework. Our next task is to derive an analytic expression for the growth rate of creative capital in the regional economy under study.

3. Growth Rate of Creative Capital

Let us denote the growth rate of creative capital $R(t)$ by g_R. Then, to obtain g_R, we divide the left-hand-side (LHS) and the right-hand-side (RHS) of equation (2) by $R(t)$. This gives us

$$g_R = \frac{\dot{R}(t)}{R(t)} = Ba_R > 0. \tag{4}$$

Inspecting equation (4), we see that because the growth rate of creative capital g_R is the product of two positive constants, it itself is also a positive *constant*. We now use this information to show that in spite of the presence of increasing returns, our regional economy converges to a balanced growth path (BGP).

4. Existence of a BGP

We begin our demonstration by substituting the production function in equation (1) into equation (3) which describes the dynamics of the physical capital stock. This yields

$$\dot{K}(t) = sK(t)^{\gamma}\{(1-a_R)R(t)\}^{\delta}. \tag{5}$$

Following the procedure adopted in section 3, to obtain the growth rate of the physical capital stock g_K, we divide the LHS and the RHS of equation (5) by $K(t)$. This gives us

$$g_K = \frac{\dot{K}(t)}{k(t)} = sK(t)^{\gamma-1}\{(1-a_R)R(t)\}^{\delta}. \tag{6}$$

The next step is to analyze the intertemporal behavior of the growth rate of physical capital g_K. To do so, let us first take the logarithm of equation (6) and then differentiate the resulting expression with respect to time. Doing this, we get

$$\frac{\dot{g_K}}{g_K} = (\gamma-1)\frac{\dot{K}(t)}{K(t)} + \delta\frac{\dot{R}(t)}{R(t)} = (\gamma-1)g_K + \delta g_R. \tag{7}$$

Multiplying the LHS and the RHS of equation (7) by $g_K(t)$ gives us

$$\dot{g_K}(t) = (\gamma-1)g_K(t)^2 + \delta g_R g_K(t). \tag{8}$$

Note that because $\gamma \in (0,1)$, equation (8) tells us that the production of the final consumption good in our creative region exhibits decreasing returns to physical capital alone.

Now, using equation (8), we can draw a phase diagram in which the change in the growth rate of physical capital $\dot{g_K}$(t) is a function of the growth rate of physical capital $g_K(t)$.

Figure 1: Phase diagram implied by equation (8)

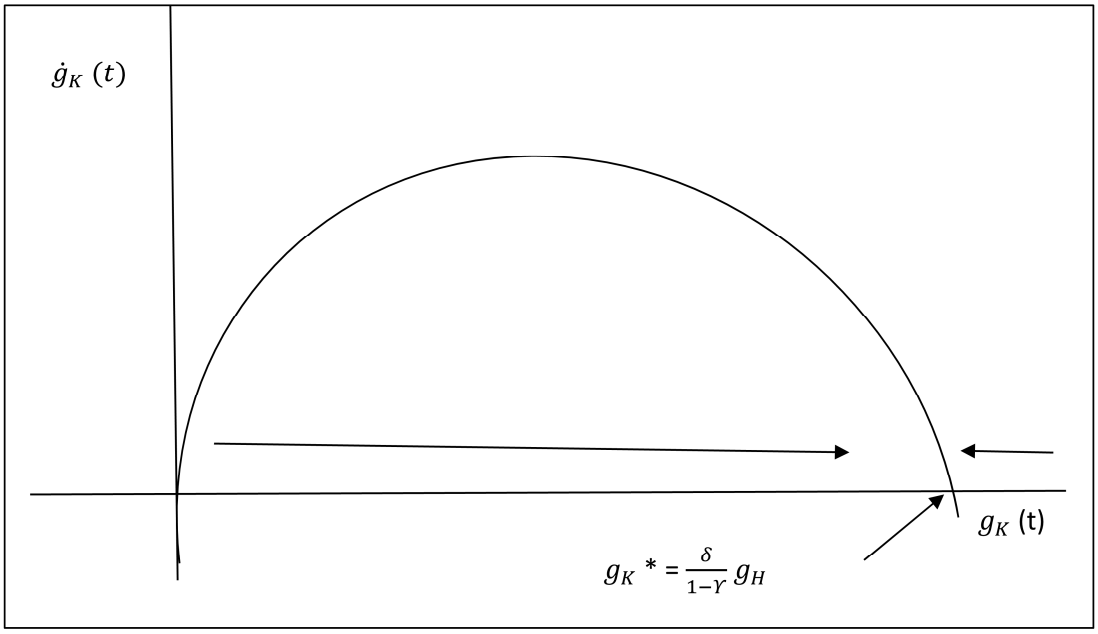

Figure 1 shows that the growth rate of physical capital $g_K(t)$ is constant when $\dot{g_K}$(t)=0 or when $(\gamma-1)g_K$(t)+δg_R=0. Solving this last expression for $g_K(t)$ gives us a closed-form expression for the optimal growth rate of physical capital or g_K^*. We get

$$g_K^* = \left\{\frac{\delta}{1-\gamma}\right\} g_R = \frac{\delta B a_R}{1-\gamma}. \tag{9}$$

Observe that $g_K^* > g_R$ because $\gamma + \delta > 1$ and hence the numerator δ is greater than the denominator $1-\gamma$ in equation (9).

Inspecting equation (9), it is straightforward to confirm that g_K^* is constant. This can also be confirmed by referring to the phase diagram in figure 1. In figure 1, we see that to the left of g_K^*, we have $\dot{g}_K(t) > 0$ and hence g_K(t) rises toward g_K^*. In contrast, to the right of g_K^*, we have $\dot{g}_K(t) < 0$ and therefore g_K(t) falls toward g_K^*. Putting these last two sentences together, we see that the growth rate of physical capital converges to a *constant* value of g_K^* and hence a BGP *exists* in our creative region. Our final task in this note is to compute the growth rates of physical capital and output on the BGP.

5. Growth Rates of Physical Capital and Output

We begin with the output $Q(t)$ of the final consumption good. As in section 4, we differentiate the logarithm of equation (1) with respect to time. This gives us an expression for the growth rate of output. That expression is

$$\frac{\dot{Q}(t)}{Q(t)} = \gamma \frac{\dot{K}(t)}{K(t)} + \delta \frac{\dot{R}(t)}{R(t)} = \gamma g_K(t) + \delta g_R. \tag{10}$$

We know that on the BGP, $g_K(t)$ is constant and is given by equation (9). Therefore, we can rewrite equation (10) as

$$\frac{\dot{Q}(t)}{Q(t)} = \left\{\frac{\gamma\delta}{1-\gamma}\right\} g_R + \delta g_R = \left\{\frac{\gamma\delta+\delta-\gamma\delta}{1-\gamma}\right\} g_R = \left\{\frac{\delta}{1-\gamma}\right\} g_R = g_K^*. \tag{11}$$

From equation (11) it is clear that the output of the final consumption good grows at the same constant rate as the stock of physical capital and this rate is higher than the constant rate at which the stock of creative capital in our region grows. This completes our analysis of increasing returns to scale in output production in a region that utilizes creative and physical capital to produce this output.

6. Conclusions

In this note we analyzed aspects of economic growth in a region that produced a final consumption good with creative and physical capital. This consumption good was manufactured with a production function that displayed increasing returns to scale. Our analysis led to three results. First, we calculated the growth rate of creative capital in our regional economy. Second, we showed that despite the presence of increasing returns, the regional economy being studied converged to a BGP. Finally, we computed the growth rates of physical capital and output on the BGP.

The analysis in this note can be extended in a number of different directions. In what follows, we suggest two possible extensions. First, it would be useful to extend the analysis conducted here by letting the fraction a_R and the savings rate s be endogenous and potentially time varying. Second, it would also be instructive to study the effects that increasing returns to scale have on an aggregate economy of two creative regions where the two regions under consideration trade with each other in either the final consumption good or in inputs. Studies that analyze these aspects of the underlying problem will provide additional insights into the nexuses between increasing returns to scale in production and the economic growth of creative regions.

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THE ANALYSIS OF THE ALGERIAN TERRITORIAL RECONFIGURATION PERCEPTIONS AND METHODS; CASE OF THE MUNICIPALITIES OF THE PROVINCE OF TIZI-OUZOU

Arezki CHENANE
Maître assistant, Faculté des sciences Economiques, Commerciales et des Sciences de Gestion, UMMTO
chenanearezki@gmail.com

Lamara HADJOU
Maître de conférences, Faculté des Sciences Economiques, Commerciales et des Sciences de Gestion, UMMTO
lhadjou@Yahoo.fr

Abstract

The aim of this article is to examine the Algerian territorial reconfiguration perceptions and methods through the case of the municipalities of the wilayah of Tizi-Ouzou. In fact , the investigation that is based on almost direct entertainments and dealt with local actors has therefore allowed to highlight the current territorial division limits. Furthermore, the insufficiency of the criteria taken into account is emphasized by the delay in the decentralization process. Be based on these limits, we have drawn several possible scenarios of the territorial mesh evolution which may give birth to a participative and a permanent local development.

Keywords: Perception, territorial configuration, municipalities, Algerian, scenarios
JEL classification: H1, H7, O2

Introduction

The size of a territory refers to a fairly wide geographical perimeter. Besides, the issue of the optimum size refers actually to fairly municipality dimension. Thus, this issue is raised with sharpness further to the implementation of decentralization in most countries where we regularly proceed with the expansion, the combination or with the restriction of the territorial communities size . This permanent backward and forward motion is interpreted as the impossibility to get an ultimate optimal and theoretical definition of a territory. Indeed , there is no optimum size rather it depends either on the practiced qualification or on the target purpose .

In the light of theoretical and empirical bases of the territorial divisions , we suggest in this article an evaluation attempt of the Algerian territorial and reconfiguration methods through the analysis of the perceptions led by the actors who are daily involved in the management and the development of territories.

The work is structured in three main points. The first deals with theoretical and empirical backgrounds of the territorial divisions. The second point examines the bases of the several divisions carried out in Algeria since the Ottoman time till nowadays. Finally, the last point provides the results of our investigation with the territorial actors.

1. The theoretical and empirical bases of a territorial division

The administrative configuration of a territory often clashes with choices made by the State, trying to find out an arrangement between the level of decentralization as well as the qualifications that are to be assigned to the infra-State territorial entities. These elements lead us to wonder what are the empirical and the theoretical criteria (optimal size of communities) used for defining a division of the territory in decentralized entities that underline the appropriate echelons (municipality, province, region...).

The Territorial division leads mainly to a territorial mesh which is considered as both " a socialized and an operating partition principle and as a social and a political construction that

is deeply related to history and relevant to the leading political choices and even ideological ones" (Raham, 2004, p57).

Thus, the spatial planning is closely related to the appropriation and the territorial mesh . The Organization of the space is the projection of social relationships occurred there. In this context, the spatial planning appears as a reorganization of space and men, taking into account the activities that configure and qualify the territories. Furthermore , the enquiry concerning the territorial equity and the social welfare seems to be a tiring task for managers, because of the disparities induced by the activities and the strategies of the involved actors (companies, economic agents, institutions, etc.). Therefore, the planning must underline the correction of the spatial effects resulted by human activities as a target aim.

Indeed , the analysis of the administrative mesh may allow to highlight several purposes such as the exercise of authority, the role of framing a social project and the optimization of the territorial division (Raham, 2004). Thus , the administrative division requires to devote a great importance to the organization of the space, the formation of the urban framework and the establishment of the urban system basis.

From a technical point of view, the territorial division requires a geometric knowledge in order to take into account both of the spatial dimension (size) as well as the concentration of the population (inhabitants). The technical and theoretical instrument which is set up to be able to define a technical division seems to be that of THIESSEN polygons.

This method, which is applied in most countries, has been the item of criticism (Bartlett, 1989). The problem that is raised by the public management concerning the territorial mesh is relevant to a dimensional order, having regard to the weight of the administrative center ; that of the optimal surface which ensures the best coverage of the services and facilities, and that of the optimum population. Here are the criteria of the optimal size of a territorial community.

According to PINCHEMEL (1997, p 116) , any optimal mesh must fit four requirements:

- **Equality** : it concerns changes in the bond lengths linked to centers and the sides which must be minimum;
- **Compactness** : the ratio of the length of the perimeter to the surface should be minimal;
- **Adjacency** : the paving should cover all and not leave of interstitial spaces;
- **Practicality** : adapting the design to the function.

These four conditions are relating to the administrative organization that may structure and configure the territories divided into entities of different ranks. The ultimate aim consists of looking for a division of space in regular and balanced mesh in order to reduce the disparities and the inequalities between the various entities which consist of territorial municipalities having the same rank.

In addition to the criteria within the model of THIESSEN polygons that has been presented briefly, it must be said that other parameters come into account in the definition of the entities that are behind the development of the territories.

For an optimal administrative division of a territory, it seems that the taking into account of technical, economic, sociological and political criteria would be essential to manage the heterogeneity. This is what we will discuss in the point following this section and which handle the practice of the territorial divisions in Algeria.

2. The restructuring of the municipal territorial frameworks operated by the administrative divisions in Algeria

It is important to note that any territorial mesh, being set , will have direct implications on the future of the territories. The administrative division is a way of understanding the spatial logic. It is designed to identify and establish the boundaries of the ranges. This allows to take possession of the space by releasing the design owned by the governments of their area and its configuration.

It is in this context that one can judge the interest that bear the populations in the territorial frameworks which they are inserted in (Beladjal, 1998). Algeria, which does not escape this reality, is looking for a division that would be operational and practical on the economic level and would establish the authority of the State and support the development of the territories.

In this point, it will be an opportunity to present the various divisions seen by the independent Algeria but before to do so we will draw a brief overview of the different territorial units that prevailed before 1962.

2.1. The pre-independence territorial organization

During the Ottoman time, we attended an early territorial mesh ; that of the tribe based on a relationship between a social organization and the living space of the tribes. The context was characterized by a net decrease of central power held by the Turkish Sultan (Coulot, 1987). The territory is divided into three provinces or Beyliks. The Beylik of the Levant to the East with Constantine for capital, the Beylik of Titteri in the Central with capital Medea and the Beylik of the Ponant corresponding to Western Algeria with Oran to capital. This system that has prevailed during the three centuries of Turkish regency was not a criterion for definening the development entities. It is essentially a zoning authority.

The Turkish organization system which had been useful for three centuries until 1830 , had been kept by the French colonizer. We have seen just after the occupation the transposition of this model in the three departments of Constantine, Algiers and Oran which lasted a century (Coulot, 1987). However, the principles of the organization have taken other forms. The French colonial administration had proceeded with the establishment of a political system imposing social and spatial segregation. This new reorganization has accentuated the process of disintegration of the tribes and the tribal system. On the eve of the colonial era which is accompanied by the population growth and the intensification of economic activities, a new administrative reorganization of the territory became an imperative for conducting the affairs of the country. Thus, the number of departments was multiplied by five to 15 in 1956, while the number of joint passes to 1525. This was a frame of basis for the reforms after the country independence.

2.2. The post independence territorial Organization

The reform of 1963

In the day after the independence, the actions taken within the territorial mesh, were involved in a situation where the control of the territory is carrying it away of the logic of development. A reconsideration and appropriation of a territorial space effort was deployed in attempting, as a first step, to redefine the names of the entities. Indeed, the number of departments that was 15 was kept but renamed Wilayahs. The number of municipalities increased from 1525 in 1958 to 676 in 1963. This grouping was to affect the loss of the municipalities identity, resulting in regional disparities.

The reform of 1974

The territorial division of 1974 was characterized by the fact that he has expressed the desire to promote the development of landlocked and mountainous regions. Therefore, a new territorial configuration is implemented. It resulted in the birth of 16 new wilayahs bringing the total number to 31, so that the number of municipalities has increased of 676 to 704. This division of 1974 comes at a time when Algeria knows massive industrialization and strong urbanization. The aim is the establishment of administrative structures that could take in charge the spatial, economic and social transformations and reduce the phenomenon of rural exodus (Côté, 1983).

The reform of 1984

From 1984 and following the major economic transformations experienced by Algeria, the imperfections of the territorial division of 1974 are come into effect (Raham, 2001). The redivision of 1984 has doubled the number of municipalities, from 704 to 1541. The Wilayahs also increased to reach a total of 48 in the national territory. This new fragmentation of the territory was mainly conceived for setting an effective decentralization through the omnipotence of the municipality which is regarded as a principal basis for the development of the country. The aim is to achieve equilibrium between the different meshes in order to apply single rack equipment (Côte, 1993).

What balance sheet and prospects of the territorial reform in Algeria?

The succession of these various reconfigurations prompts to proceed with an assessment of their relevance in relation to the criteria and the target aims. The current division raises

several questions especially on its efficiency and its future transformation. Thus , a new reform has already been undertaken in the interest of the authorities. It aims to create new delegated wilayahs for managing and responding to demographic changes in the country. However, it seems to us that before launching into a new reform, it remains necessary to examine the strengths and lacunas of the current divisions. Besides , It comes to analyze the perceptions of the local involved actors (elected officials, mayors, heads of district... etc.) to subsequently try to build possible scenes of transformation , the main topic of this article and the following development.

3. The analysis of the perceptions of the current division and the methods of reconfiguring: case of the municipalities of the wilayah of Tizi-Ouzou

This last point has as its main objective to analyze the perceptions of the local actors (including: mayors, elected officials, territorial administrators... etc.) of the different territorial divisions having characterized the Algerian territorial backbone since its independence. It is thus to highlight the criteria taken into account during the divisions as well as the expected methods of restructuring.

3.1. The profile of respondents

The chart below lists all the people surveyed by function and municipality belonging. We interviewed profiles which are varied from mayors and current elected to the ex-mayors and the ex-elected moving through the heads of district and communal administrators. We have considered in our entertainments the three scales basing the territorial framework of the wilayah of Tizi-Ouzou namely the municipalities, the districts and the wilayah . Furthermore, we have taken into account the elected and the non-elected administrators so that we would arise the different points of view.

Tab1. Respondents by function and commune of belonging

Local actors	Mayors/PMAP	The elected municipalities	The elected PAW /committee president	Heads of district	E.g. elected PMAP	Administrators
Total	15	17	5	2	2	7

The selection of our sample by function shows that the majority of respondents are elected municipal officials and presidents of municipal people's assemblies in function. The non-elected administrators and the elected representatives of the People's Assembly of the wilaya come in second position. Finally, the non- elected heads of district come in last position. It is to note that most of interviews were conducted at the municipal level. This scale is that we are interested in first and foremost in our research. We have thus voluntarily privileged this territorial level.

Our investigation was greeted positively by the elected both at municipalities and at the wilayah level. Our research is indeed at the head of the concerns of these elected representatives., we have Often been welcomed in the communal seats during our moving on the ground of the wilaya. Nevertheless, several interviews were led at the level of the PAW of Tizi-Ouzou, taking profit from of the regular meetings of the local elected representatives at the seat of the wilayah.

3.2. Element of methodology

Our investigation has taken place during the last quarter of the year 2014, over a period of four months. Indeed, it consists on a period which was busy for local politicians and outraged by several pitfalls. We have nevertheless managed to keep our aims and gather the optimum conditions for the conduct of our interviews. Our methodology has been focused on grid interview with open-ended questions. This approach is greeted by local actors because it allows them to express themselves freely taking their whole time to refine their arguments.

The elaboration of the survey's grid was based on the theoretical elements developed in the first topic on territorial configurations. Each time, we have reminded the historical context in which new territorial reconstructions have been made in Algeria. Also, we have introduced an originality within our approach by supplying thematic maps accompanied by administrative boundaries , the number of inhabitants , the surface for each municipality as well as highlighting the relief. This process has helped us to be engaged in rich discussions with concrete illustrations on maps.

Methodological framework

Aim : to examine the perception of local actors on the terms of the current territorial division in Algeria. The analysis focuses on the criteria of division and their limits.

Period : September - December 2014

Course : Interview's grid

Places : Municipalities of the wilayah of Tizi-Ouzou

Tools: Thematic maps, demographic and geographic data

Data : Semi-direct interviews

Sample : 48 elected officials , presidents of PMA, heads of district and local officials at the level of 30 municipalities in the wilayah of Tizi-Ouzou

Representativeness : our sample takes into account almost half of the municipalities of the wilayah of Tizi-Ouzou.

Mode of management: interviews face-to-face for an hour at least.

Method of the analysis: the analysis of the profile of local actors and their perceptions diagnosis through a reading grid has been adapted from literature and based on our research hypotheses.

Limits: the limits of this series of interviews are mainly related to the methodology followed and that can be criticized because it is essentially qualitative in nature.

The interviews were mainly led at the level of the people's assemblies of the wilayah and municipalities. We had referred to several people considered as resources occurring within the University of Mouloud Mammeri in Tizi - Ouzou so as to get appointments and be engaged in talks. The investigated sample is representative as we interviewed almost forty-eight people on half of the municipalities of the wilayah of Tizi-Ouzou. The interview face to face is a process stimulated by all the advantages and the terms that can offer .This technics allows to collect original and exclusive information. However, this qualitative analysis will be completed later on by a quantitative analysis for illustrating the results of our research well and efficiently.

3.3. The main results of the investigation

3.3.1. The lacunas of the current division criteria

The current territorial division at the municipal level is qualified by the majority of respondents to be inefficient. The criteria taken into account in the structuring of the territories are often provided by the population variable which remains insufficient to understand the complexity of a territory that consists on a multiple composite having different sizes should be taken into account (Hadjou, 2009).

The wilayah of Tizi-Ouzou has particularly many characteristics related to its mostly mountainous terrain, its high mass population and its many remote mountain villages. These characteristics have not taken into account in the various territorial divisions implemented throughout the post-colonial period. It comes then to review the division to stick closer to the territorial realities of the aforesaid wilayah as well as of other wilayahs of the country. This is the main conclusion raised by the all surveyed local actors.

According to many elected officials in the PMA and the PA of the Wilaya, the ' *current territorial division is not in favor of the economic development* '. Some people consider that there are «too *many municipalities* ", others think instead that *"there are not enough municipalities*." The wilayah level is also regarded as an obsolete due to the weight of the population. Another category of people refers to the need to subdivide into two or even three

wilayahs. Indeed, this consideration must also concern the regional level because at this level "the *process of economic development must be considered and implemented"*

The total population criterion term - need to add the criterion of dispersal

The taking into account of the criterion "total population" is important in the division of territories but it is not exhaustive. The mayors of the municipalities of Souamaa and Wassif underline that " *this criterion must be strengthened by that of the dispersal of the population. A commune having a population mostly agglomerated in the center and another commune with a population highly dispersed in scattered areas referring to different management problems".* Indeed, the first type of municipality is easier to administer according to the mayors, while the second type poses great difficulties in management. The means to endow these municipalities are much more important than those needed for the first type of communes.

This criterion of the population dispersal is not taken into account in the allocation of resources. The mayors wonder about the logic behind the fair allocation of some resources without taking into consideration the municipal characteristics '. All the municipalities receive the same amount under management plans, those of arrangement and urbanism.

Number of villages by municipality : criterion to be considered

This criterion is respected for several times in our interviews with the mayors of larbaanathirathen, Ouagenoun and those of Tigzirt. The number of village by commune varies significantly. More the villages are large ; more the means necessary to connect them for example to AEP networks are high. The poor municipalities in mountainous areas are particularly suffered from this issue , moreover , they are not taken into account neither in the current division nor in the allocation of budgetary resources to municipalities.

Surface - relief: two criteria to be indissociable

The size of the municipalities of the wilayah is relatively homogeneous. Two municipalities, namely Azzefoun and Tizi-Ouzou stand with an area on average twice much larger than the other. However, this conformity of size hides in fact outstanding differences in the relief of the municipalities and it is especially binding in the process of socio-economic development. Nevertheless, this criterion is not taken into account in the successive divisions that marked the wilayah of Tizi-Ouzou.

The elected representatives of the mountainous municipalities as those of Djebel Aissa Mimoun, Beni Acharya, Beni Douala and larbaanathirathen feel «wronged*, relegated and even abandoned* according to their echo. The relief of these municipalities creates a lot of extra costs to the projects (roads, sanitation, connection to EPA, city gas and fiber-optical networks)

Cultural and territorial unity: an ignored dimension

The interviewed elected officials are aware of the fact that successive divisions having characterized the territory of the wilayah in particular and Algeria in general «are *the work of central authorities with the will to break with the local tribal logics that are meant to represent a danger to the* territory's unity. This is interpreted as «the *aggression and the impairment of local solidarity, based essentially on a cultural and geographic unity* '.

According to the elected officials, the division is far from fitting this criterion of cultural and territorial unity. However, this criterion is considered essential to promote a sustainable local development. Some populations are joined to municipalities in which they do not identify themselves. Thus, their living spaces does not coincide with their administrative membership space, this creates a sense of injustice that puts more local populations off the center State. This dilution of confidence in public institutions is unfavorable to any point of view concerning the process of the local territories emergence.

3.3.2. The decentralization process is at the heart of the logics opposite to the local development process

Beyond the deficit of the territorial division within the wilayah of Tizi-Ouzou in particular, and in Algeria in general, the elected official respondents raise the problem of decentralization as a major obstacle to the development of the local territories. In this context, all mayors and elected officials are unanimous to underline the weakness of their prerogatives and the inadequacy of the municipal code with the economic development logics.

Lack of prerogatives of the elected officials - municipal code to be reviewed

Elected officials feel " *powerless and without prerogatives.*" They consider that their work margins are reduced. Thus, according to respondents, the municipal code is still encroaching on their authority. The decentralization process must "promote the involvement of elected officials and local populations in the development of territorial project". This contributive approach is lacunar and the mayor is often powerless to respond «to *the complaints of his staff"* .

The elected officials consider themselves as they are ' facing the bureaucracy of their own administration - the financial supervisor has a freezing power which is often exercised to the detriment of the municipalities interests '. Their decisions and their projects must be endorsed by communal administrators, then by the district Chief and the authorities of the Wilayah. This process slows deeply the decision-making and the implementation of the projects. Moreover, the district level is perceived as a " bureaucratic, unnecessary and without contributions to the local dynamics.

Thus, sectorial policies come over the territorial policies, giving that they are likely to meet the specific needs of the populations and the municipalities. Without reforming of the municipal code and without awarding the necessary prerogatives to the elected, it has been stated by the respondents that" *any operation aimed at restructuring the territory of the wilayah and/or that of Algeria will be doomed to failure»* .

3.3.3. The backgrounds of the current policy related to the territorial arrangement are suspected

Finally, it is the Algerian policy of the territorial planning that has been suspected. Indeed, the latter is contrasted by the elected respondents regardless of their political allegiance or their rank in municipalities (mayors, elected PMA, elected PAW) because of its inconsistencies and its lack of realism. Local characteristics are not at the heart of this policy while the population and the local elected are not associated in its definition. The award-winning sectorial logic comes at the head and the «lack *of confidence is evident between the different levels of decision-making, between the different territorial degrees, between the central State and the local elected officials, between the elected representatives and the elected officials, between the people and the State* ".

Furthermore, according to the surveyed mayors «there is a wide gap between the legal texts and their state in force, thus, it can be defined as a serious problem of credibility of the institutions in the country." The coherence of the territorial planning policy in its texts and practice is necessary to redefine on a sound basis the relationship between the local territories and the State .

Lack of link features between the municipality and the wilayah and between the wilayah and the central State

The respondents have underlined the lack of two territorial link features between the municipality and the wilayah and between the wilayah and the central State. This lack is likely to weaken the logics of local sustainable development. Indeed, these two features exist but in a form that does not allow them to fully accomplish their role in local dynamics.

Between the municipality and the wilayah , the destrict is a relevant inter-municipal echelon to impulse the structural projects which have been failed on a municipal level. According to the respondents, the district in its present form plays only a role of a managing perceived as «bureaucratic *and useless* ". Between the wilayah and the central State, the area program becomes a reality. However, its configuration, its aims and fixed challenges pose real problems in terms of spatial planning. According to the elected, these program areas have been defined according to criteria that are as questionable as those of municipalities. Thus, their geographical and cultural coherence is suspected. In this context, according to the respondents ' this *policy is already doomed to failure.*

3.3.4. The expectations of local actors – building scenarios attempt

In the chart below, we have tried to synthesize the different scenarios built according to the surveyed local actors. Green gradient refers to the urgency of the scenario in question and the eagerness of the elected mayors to move in this direction.

The first scenario refers to a new configuration of the territories at all levels: local, municipal, wilayah and region. This new configuration is meant to bring an overall consistency in the management of the territories by facilitating the work of local actors. It may nevertheless be faced with objections on the part of the local population reluctant to change.

The second scenario is involved in the logic of streamlining the process of allocating the resources that can remedy the inconsistencies in the current division. This scenario seems interesting provided that it is easy to be implemented and as long as it does not commit deep territorial changes. The municipalities which may witness the disgrace of their resources may interfere to slow down the process.

The third scenario refers to the revision of the municipal code and the deepening of the process of decentralization. His main interest lies in the fact to reconsider the role of elected officials and territorial policies. This scenario may take a lot of time and be faced with objections from some parties in power.

Tab2. Scenarios of reconfiguration of municipal territories in the wilayah of Tizi-Ouzou - built according to respondents

Scenarios	Conceivable Options	Interest	terms
1er scenario	**The revision of the current division so as to promote the local development**	- The redefinition of the municipalities with objective criteria close to the daily facts of populations: cultural and geographical unity - The promotion of a new economic dynamics	- The opposition of the local population -the heaviness of the process
2nd scenario	***The streamlining of resources allocation under the PDAU - objective criteria***	-Simple to be implemented -rebalancing the allocation of resources for the benefit of the poor municipalities, particularly those in mountain areas	- the opposition to the wealthy municipalities which are likely to feel aggrieved
3th scenario	***The reform of the municipal code and decentralization: more prerogatives and territorial policies***	-to put the territory at the peak of development - to reconsider the elected as the real actors behind the local development	-the heaviness of the process -the opposition to the parties in power
4th scenario	***Creation of new territories of cooperation – inter-municipal strategic alliances***	- easy to be implemented - the streamlining of human and material resources -the relevance of this scale for economic development -easy alliances to be undone or reconfigured -dynamic process	-alliances not based on objective criteria -political alliances -difficult cultural change

Scenarios	Conceivable Options	Interest	terms
5th scenario	***Redivision, decentralization and territorial strategic alliances***	-initiate a new dynamic of sustainable development in the municipal, departmental and regional territories	-difficult to implement -time long needed

The fourth scenario refers to implementing strategic alliances inter-municipalities, inter-wilayahs and inter-regions (Chenane, 2007). These alliances are conceived to be very flexible and do not require much time for implementation (Buclet, 2011). They are likely to promote a better distribution of resources and a streamlining of human and material resources as well as recovering the problem of the territorial division's irrelevance (Bourjol, 1995). In fact, it is a strategy that can represent another possibility of division as it can complement any territorial division. These alliances may nevertheless produce opposite effects by encouraging cooperation based primarily on political criteria even ideological, non-economic, and social (Le Saout, Madore, 2004).

The last scenario is the most interesting because it combines both the first four. Therefore, it involves the country and the wilayahs in a difficult process but at least it helps in restructuring territories, planning policies and territorial culture. It is thus a territorial upheaval which will necessarily require much time and which might be hampered by several challenges of institutional actors as well as administration and local populations.

Our research demonstrates obviously the need to reform the territorial framework in the wilayah of Tizi-Ouzou. It remains to define the most appropriate modalities and the easiest ones to be implemented, without too many 'quickening' territories. The chart above shows a few scenarios on the basis of the surveyed elected mayor's words.

Conclusion

The analysis of the local actors perceptions concerning the current division shows that this latter suffers from several terms that hinder the municipal local development process. The restructuring of the municipalities has become a necessity to overcome the deficits and give birth to initiatives. This can be done gradually and in different ways. The scenarios that have been suggested in our study are directly inspired by the several experiences of the territorial actors. There are several restructuring methods; each has its own advantages and terms.

Whatever the scenario taken into account, three variables seem essential to promote sustainable local development. First, it is necessary to review and especially to broaden the criteria for division. Then, it is important that the decentralization process would follow its journey giving more prerogatives to the elected. Finally, the population must take part in the projects because without its involvement, initiatives and projects will be hampered or even frozen.

This research should be extended to reach more municipalities and more actors likely to endorse the findings. It is the main term of our approach since we have been limited to the only municipalities of the wilayah of Tizi-Ouzou.

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PATHOLOGY OF REGIONAL DEVELOPMENT MANAGEMENT IN IRAN DURING THE PERIOD 2005 -2015

Kerāmatollāh ZIĀRIL
Department of Geography, University of Tehran, Iran
zayyari@ut.ac.ir

Alireza MOHAMMADI
Department of Geography, University of Mohaghegh Ardabili, Iran
a.mohammadi@uma.ac.ir

Abstract

In this paper, the management style for regional development in Iran was pathologized. 370 experts were questioned and in order to choose an appropriate style, 30 experts were interviewed through Delphi technique. Statistics methods such as X^2 tests, Spearman correlation coefficient and multi criteria decision methods such as ANP and PROMETEE II were used to giving weight, analyzing, ranking and selecting the appropriate style of management. The research findings indicate that, the majority of experts believe that the management style for regional development in Iran has been completely inefficient during the period 2005-2015, and needs serious reforms. Based on data analyses and use of MCDM and findings, the appropriate management style was selected among various management styles. Finally, "the Network Governance" was proposed as a appropriate style and some recommendation was provided for implementation of this style to regional management in Iran.

Keywords: Pathology; regional development; appropriate management style; Iran; decision analysis.

JEL classification:

1. Introduction

In 2000 and during the political and economic reforms, the Plan and Budget Organization which was renamed to Management and Planning Organization of Iran (MPO) unexpectedly was dissolved with the arrival of president Ahmadinejad in 2005 and it was renamed as "Vice- Presidency for Strategic Supervision" and regional management institutions were merged in Provincial General-governor's office [8]. This organization was revived in 2005 by Hasan Ruhani's government but most of researchers believe that the works done during the 2005 to 2014 which were concurrent with Ahmadinejad's presidency made a dark period in policymaking and regional management in Iran which its consequences continued until 2015. Some of the regional policy making characteristics in this period were absence of common understanding of development meaning among institutes, preventing from stakeholders participation, mismatches of the executive, legislative and sectorial system in regional level, undermining the nongovernmental stakeholders, administrative inefficiency, dependence on oil revenues, administrative and financial corruption of public sectors, instability and constant changes in management [24, 28], single-structure Administrative System, lobbying in Legislative Parliament,, lack of inter-institutional and intersectoral cooperation, lack of proper intellectual ground and instability [8]. The continuance of concentrated administrative and political structure, dissociation among the institutions of public sector, private sector and NGOs and lack of a good governance have converted the regions to a fragmental and non-integrated organism [20]. The institutes' performance have been inefficient and the sectorial perspectives and personal decisions and parallel actions have controlled the regional management [49]. Lack of using the skilled human resources [19, & Abdollahzadeh, 2012), overlap of Institutional and Sectoral Tasks, lack of intersectoral institutions and lack of valid data and information from regions led to weakness of the managing policies [9]. Financial and legal weakness , local institutes' dependence on central government [30], lack of coordination between divisions system of State and regional management system and lack of

Civil Participation, structural, institutional and territorial inadequacies, tough administrative bureaucracy, lack of research and regional development centers or their suspension and fundamental conflict in regional management structure (41, 49), personal administration of regions and being busy with political and sectarian games and their negligence in their regional duties have worsened the conditions of this period. According to the results of Islamic Parliament Research Center (2008), the researches showed that the regional development management in Iran in response to regional demands in this period have been inappropriate. Therefore the pathology of management style of regional development and selecting an appropriate management style or models are necessary for organizing this situation.

This study was aimed to answer three questions: firstly, in terms of utility, what is the situation of the regional development management in Iran during 2005-2015.secondly, what are the characteristics of Appropriate Management style for regional development in Iran? And thirdly, among the common styles, which style is better for regional development?

This paper is consist of eight sections. The first section was introduction. The second section is related to the literature review. The third section is theoretical basis, fourth section is history of regional development management in Iran, the fifth section is the present structure of Regional Development Management, sixth section is methodology and seventh section is findings and discussion and eighth section includes the paper's conclusion.

2. Literature review

During the 2005 to 2015, few researches have been conducted by governmental organizations and academic society about regional development management in Iran which only some of these academic researches are accessible. Sheikhi [42] by discussion about challenges and regional management and executive system in Iran, have concluded that "the regional management system" in Iran is inefficient and incomplete and it is necessary to establish a trihedral (national, regional and sub-regional) regional management. Alemi [2], has concluded that the regional development in Iran is taking a backward step and tends towards the failure and regional institutes do not have enough power. He proposed the decentralization and empowerment of institutes and local organizations. Haj Usefi (2001), in another study has stated that the centralized structure of government, inefficient bureaucracy, domination of sectorial approach, the dependence of regions to the center, inappropriate rules and inapplicable programs are the major obstacles to accomplish the regional development management in Iran. The study and research center of the urbanism and architecture in Iran [34] has indicated the fragmentary of regional planning territories among the institutes and states that the regional management formation is inefficient and their executive structure is not harmonize with planning territories and believes that there is no enough coordination and cooperation between people and regional institutes. This institute has proposed that the decentralization is the main step to reform the present situation. Ministry of Housing and Urban Development [30], concluded that it is necessary to change the approach from comprehensive and traditional approach to strategic approach. Nader Zali and Rasul Zali [47] have concluded that the instability and inefficiency and administrative corruption are among the regional management deficiencies in Iran. Seifoldini and PanahandehKhah (2010) have concluded that the lack of planning, dependence on oil revenues and lack of a good government are reasons for inefficient management system of regional development in Iran.

Zali [46] concluded that the lack of people's participation, lack of common understanding of regional development and contradiction in the regulations are among the main reasons for inefficient regional management in Iran. Soltani [44] believes that the administrative obstacles and inefficient administrative structure are among the main reasons for inefficient regional management. Finally, Kazemyan and Farajirad (2013), indicate that the regional management in Iran has not the characteristics of a "good government". They propose that the regional development policies in Iran must be followed through regional-institutional coordination and integration. At the end, the researches of "Islamic Parliament Research Center" in recent years (2009-2015) have indicated that during the 2014 to 2015, the regional structure in Iran have taken a backward step rather than development.

3. Theoretical bases

Since the 1990s, in most of the democratic countries, the "Regional Governance", is used instead of or equivalent to the regional development management. This term for the first time entered into the global literature from the new institutional economy, new economic sociology, political researches and international relations [14].

Accountability, responsibility, transparency, self-organization, participation, the rule of law, decentralization, strategic landscape, human resources management, efficiency and effectiveness are among the most important characteristics of a good governance [3]. According to Fürst [15], Regional Governance means the institutional network links, coordination of social sub-networks and changing in the approach in dealing with regional issues. Regional Governance meant to reduce the role of governments and its direct and unilateral intervention in managing the regions and regional development plans [23]. Regional Governance is complicated art of leading the institutes [18] for forming and sustaining the influence and power arrangement [21] to deal with regional issues through regional institutes [11] and independent and autonomous networks [37]. Obviously Regional Governance is considered as a structure and process for leadership and coordination at the regional level [6]. Regional Governance can be considered as an interaction between regional development institutes and central governments [1].

According to Böcher [7], the region people will be the major actors in this framework and the regional development will be formed in the context of autonomy along with authority of regional development institutes and their economic and political will. Some of the considerable points in this approach is the Regional coordination, cooperation, regional integration, competitiveness while maintaining the sustainable regional development framework [20]. Finally Benz [6], defines the Regional Governance as a new form of regional policy-making to achieve a sustainable regional development [7]. The Regional Governance characteristics can be summarized as follows: 1- attempting to increase the importance of region as a level of political coordination 2- Territorial principles replacement of functional principle 3- promoting the inter-sectorial partnership through preparedness of networks and small regional partners 4- hierarchical leadership of the competitions through the various motivational tools and models 5- responsibility, self-organization, decentralization and decision-making [7].

According to Dobson (2006), coordination of the regional institutes, making the outlooks for future of the region, comprehension of the relative and competitive advantages of the region, attracting the development actors and investment are the most important characteristics of efficient Regional Governance. - A governance based on the horizontal bonds is flexible, informal, self-guided, based on the local small powers and reliant on the arranging the roles at the levels of local actors [40]. The comprehension of the Regional Governance requires understanding of the networking associations, interests, goals, roles and the future plans of the regional actors [45].

The Regional Governance has no formal and conventional concept in Iran. Therefore the regional management is used as its common concept. During the recent decade, among the five theoretical management style including traditional management, scientific management, strategic management, governance-based management and networking management, practically the traditional and governance-based style s in all periods were dominant in regional management. The governmental institutes have been the major possessors of the resources and absolute actors of regional management in all economic, social and special domains [33].

4. The history of regional development management in Iran

Iran has been among the world's largest producers and exporters of oil and gas until 2015 [12]. Despite the presence of significant resources, the significant lack of intra and inter regional economic_ special balance was among the most important problems of development in Iran [39, 13, 49] and despite the efforts made, the gap between the deprived and developed areas is widened [16]. The first law of regional policymaking and management is The Law of Associations for Provinces and Counties (Literally said in Persian Qānoon-e Anjomanhāye Iyālati va Velāyati) enacted in 1907 [32]. However, Iran officially started policymaking after

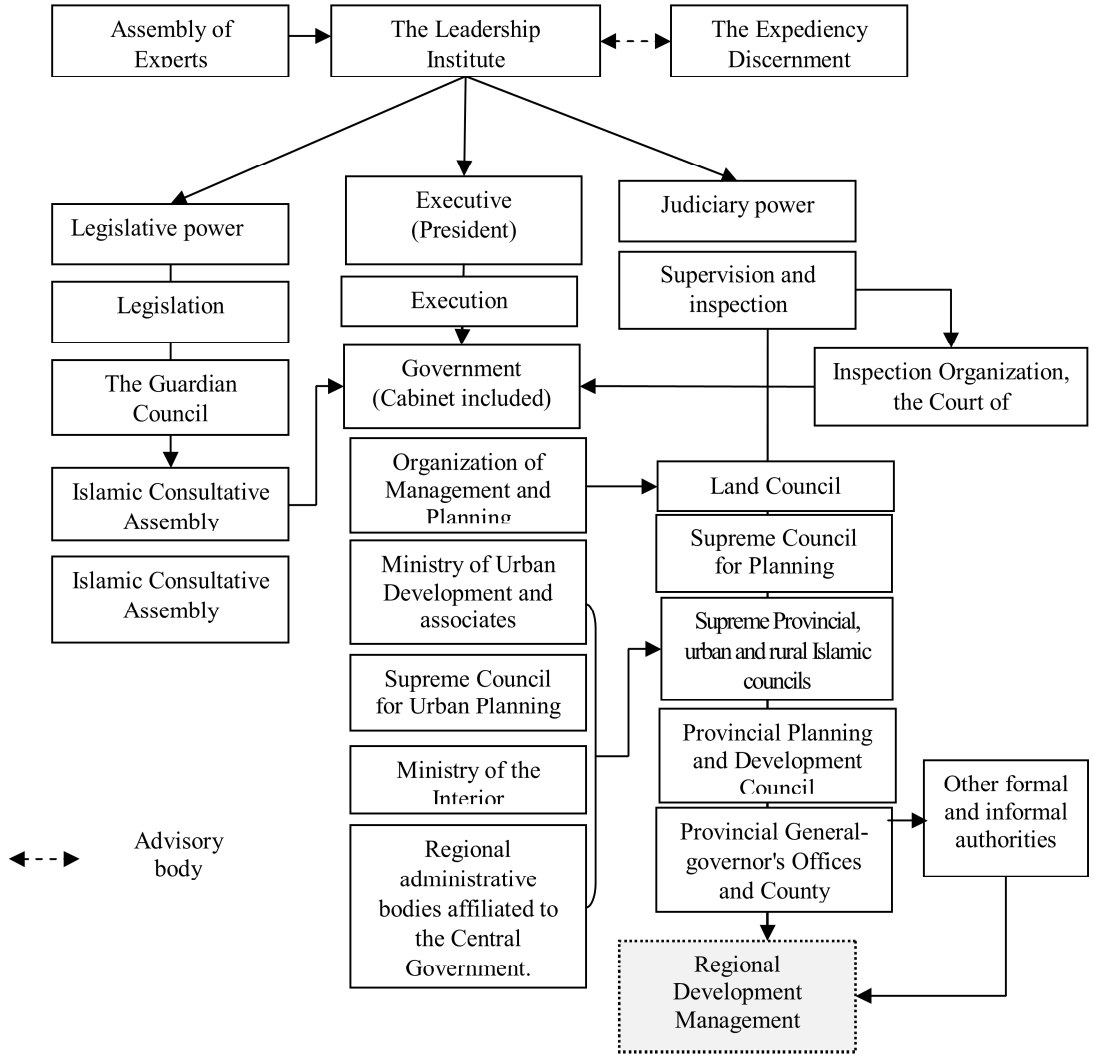
the Second World War with the establishment of a centralized quasi-modernist government (Reza Shah Pahlavi). In 1937 the "Supreme Economic Council" was founded with state planning purposes and then in 1948 first plan of development was prepared and "Regional development Policy-making" began as an action made by the higher authorities [39, 36, 49]. During 1948-1979 the government relying on the oil revenues was seeking modernization, continuous economic growth, industrialization and creating the growth poles in the country [39]. Poverty, inter regional imbalance and migration to the cities were among the most important regional challenges in Iran during this period. Until 1979 the necessary institutional framework for regional development policymaking and management was established by founding Plan and Budget Organization (PBO) and the related regional agencies and the sectoral comprehensive plans were developed with the help of foreign consultants [4]. Until 1979, the Plan and Budget Organization (PBO) developed seven national development plans and regional development plans in that framework [39]. Important regional institutions including "Regional Development Agencies" were created the first one of which was "Dashte Moqan Development Organization" founded in 1953 [9]. Before the Islamic revolution regional policymaking and management was usually seeking regionalization of public policies through top to bottom non-participatory process which was usually associated with environment destruction and sectoral approach toward the regions [39]. Regional management was usually faced with serious weakness of regional organizations, inefficient and centralized government structure and lack of experienced manpower [17].

Islamic Revolution of Iran in 1979 that hampered the bureaucracy system, Iraq's imposed war against Iran in 1980 and the subsequent international sanctions against Iran has a negative effect on policymaking system and regional development management. After the war in 1988, regional policymaking in Iran focused on the reconstruction of areas damaged by the war. During the years 1981 to 2005, most of the government that came to power were seeking construction, reforms, social justice, decentralization, eradication of poverty, preventing the rural - urban migration and the realization of the public participation in regional development slogan. In this period three five year development plans have been prepared and implemented in the country. However the areas were still associated with instability of development [39].

5. The present structure of the management of regional development in Iran (2015-2005)

After the 1979 revolution and in accordance with Constitution of the Islamic Republic of Iran adopted in 1980, the political system of Iran is Islamic Republic. The three Legeslative, Executive, and Judicial Powers under the leadership of the Supreme Leader who is elected by the Assembly of Experts, are governing the country. In addition to the Supreme Leader, The Expediency Discernment Council of the System oversees the work of the three powers. Islamic Consultative Assembly is the most important institute that approves national and regional laws. The Constitution of the Islamic Republic of Iran, the five-year National Development Plans, "Iran 1404 Outlook Document" approved in 2003, "the Document of General Policies of the Islamic Republic of Iran" approved in 2003, the Regional and Ultra-regional National Documents and Provincial Development Documents approved in 2006 [27] and "Resistance Economy Document" approved in 2014 are among the most important National Executive Documents in the regional management of Iran. At the regional level most government departments make special and regional policies under the supervision of executive power the most important of which is the Ministry of Roads and Urban Development and the Management and Planning Organization of Iran. There are 31 provinces in Iran that form the regional planning and management level. At this level the Provincial governments, in the sub regional level (County) the County Governorship and in districts the district Governorship are considered as the main institutions of regional development. In addition to government agencies, provincial, urban and rural Islamic councils monitor the work of regional institutions. Generally, there are more than 40 organizations and government agencies operate at the regional levels and based on their own ministerial duties [43].

Figure 1: The general structure of regional development management in 2015



Source: [27]

According to the results of Islamic Parliament Research Center, during 2005 to 2015, due to the conflict between the ninth and tenth government's and the countries of the world, Iran's policy and economy was weaker than the previous periods. The economic growth dropped below zero (negative 4.5%). The Gini coefficient increased up to 0.6, the rate of inflation increased from 12% in 2005 to more than 30%. While spending 23 billion dollars of the national income the government debt increased from 3.7 thousand billion dollars in 2005 into 24.7 thousand billion dollars in 2014 [26]. Despite the emphasis of the Fourth Development Plan (2005-2009) on the development of appropriate international economic relations and interactions [27] the inappropriate adventures and government policies during 2005 to 2013 led to the intensification of international sanctions against Iran the consequences of which continued until 2015. With the worldwide decline in oil prices in 2015 a new shock was imposed on the national economy. In this period the most important instruments of regional development are the five year provincial development plans prepared in line with the 5-year national development plans. During this period, the fourth (2005-2009) and fifth developments plans (2011- 2015) at national were approved by Islamic Parliament and conveyed to the government to be executed. At the regional level these plans were prepared by the Regional Management and Planning Organizations and State Planning Council and conveyed to the government institutions to be executed. County Spatial Planning that had been prepared before the revolution since 1966 and have been prepared after the revolution 1983, had been prepared in some provinces by the provincial planning and management organization in the studied period (2005-2014). Then suddenly, in 2007, in a reckless action

the Management and Planning Organization of the country and its provincial offices were liquidated by government [25].

Along with the Provincial Preparation Plans in this period, the Regional Spatial Plans and Province Master Plans have were prepared by the Department of Housing and Urban Development and they are still being prepared. But in 2011 some of the Ministries of the Interior such as "Department of Transportation" and "Housing and Urban Development" were merged without conducting the related studies and preparing these plans faced with difficulties. In this period, provincial trips and subsidized development destabilized intellectual foundations, self-sufficiency and economic independence of the regions and not only the sectoral and spatial development plans were not implemented but also suspended. Although the land planning has been proposed since few decades ago in Iran, after the revolution during the investigated period, with the realization of fourth and fifth national development plans and formation of Land Planning Council in 2004 [25] this Council since the date of formation until 2007 had limited but effective activities. In 2007 with the liquidation of the Management and Planning Organization this Council was also liquidated. Although in 2011 the Regional Planning Office was formed in Vice President's Strategic Supervision, it never had a chance to dominate the situation until 2015 (Ibid).

According to the results of MRC [25, 26, 27] during 2005-2014 a series of actions and weaknesses of the ninth and tenth governments led to inefficient management in regional development of Iran. According to the state nature of regional management, the regional management structure has been associated with stagnation and backwardness in recent years. This has accelerated the regional development instability and despite the efforts made by the new government in 2015 for the renovation and modification of regional management, structural obstacles still remain.

6. Methodology

This study was based on the referential and questionnaire methods. In the first step with the reference to articles, books and reports available, the theoretical literature, history and a long list of research variables were extracted. The variables were categorized into five main aspects. The five categories are:

Theoretical approach and bases: sustainable development, approach, theoretical foundations, coordination, policy, future study.

Institutional structure and decision-making: the reform of the existing style, decentralization, preparation and approval of plans, content and tools, plan execution, supervision, monitoring system, participation in the development, administrative structure.

Efficiency and performance: capacity building and empowerment, administrative structure, leadership, stability, financial planning, sustainable development, innovation and creativity, new methods and tools, operational objectives, exceptionability and flexibility, accurate data, quality orientation, improving resource management.

Good governance: accountability, responsiveness, rule orientation, justice orientation, private sector and NGO (non-governmental organizations) partnership, efficiency and effectiveness, participation reception, transparency.

The appropriate management style: accountability, responsiveness, rule orientation, justice orientation, private sector and NGO (non-governmental organizations) partnership in management, integration oriented, participation reception, strategy oriented and prospective, Realistic, program oriented, stable, information oriented, knowledge oriented, accountable and the responsive, law oriented, efficient, effective, exceptionable, controllable, dynamic, justice oriented.

In the second step the researcher made electronic questionnaire with 5 point Likert scale was prepared. In the third step, in order to assess the internal validity of the instrument the qualitative and quantitative methods were used. The questionnaires have been distributed among a number of experts and university professors and their comments were applied on the final version. To assess the quantitative validity of research tool the questionnaire was sent to 30 experts in the field of regional development studies (geography, urban planning, social sciences, management, economics and other related fields). Then using the content validity ratio or CVR [22] the quantitative validity of the research tool was assessed (equation 1).

$$\text{Equation 1: CVR} = \frac{n_E - \frac{N}{2}}{\frac{N}{2}}$$

In this equation ne equals the number of experts that among the alternatives "bad", "poor", "good", "very good" or "excellent" chose the last three alternatives. N is the total number of experts. The value of CVR is variable between +1 and -1. The value of the coefficient was calculated as 0.46 which was evaluated as “essential" according to the positive value of the coefficient. In the fourth step, the population was classified into 4 groups including: 1) decision-makers (public and state sector), 2) academic and scientific and research institutions (public and private sector), 3) counseling and preparation of plans centers (private sector), 4) institutions and regional executives (state sector). Then the data related to these groups was collected using statistical and organizational data through visiting their websites (universities, research centers, consulting firms, provincial governments, etc.). Using multistage cluster sampling the population size was determined as 6700 subjects. Then using Cochran equation (equation 2) the sample size was determined.

$$\text{Equation 2: } n = \left(\frac{NZ^2\,pq}{Nd^2 + Z^2\,pq}\right)$$

Where: N= sample size, Z= the value of normal variable of standard unit that at 95 percent level of confidence equals 1.96, p= the value of the attribute in the community, q= the percentage of people who lack that attribute in the population.

(q =1-p) = d the value of allowable error

$$\text{Equation 3: } n = \left(\frac{6700(1.96^2)(0.5\times0.5)}{6700(0.05^2)+(1.96^2)(0.5\times0.5)}\right)100 \cong 363 = 370$$

Then the electronic questionnaires were sent to the samples to be filled using the random sampling method. 157 and 183 responses were received on the first and second round respectively. On the third round in order to compensate the lack of or incomplete responses, again a number of questionnaires were sent to the new samples from the same cluster and 30 correct responses were added to the answers. In the fifth step the Cronbach alpha (equation 4) and Gutman methods were used to assess the reliability of the instrument.

$$\text{Equation 4: } \alpha = \frac{k}{k-1}\left[1 - \frac{\sum_{i=1}^{k}\sigma_{Yi}^2}{\sigma_x^2}\right]$$

K equals the number of questions, σ_{Yi}^2 is the variance of the sub-test K, σ_x^2 is the test variance. Cronbach’s alpha coefficient was obtained as 0.814 that indicates the validity of the instrument. In order to test the normality of the data the Kolmogorov –Sminoroff test at 0.05 significant level was used and the result of the test indicated that the level of sig was smaller than 0.05 and the variables were not distributed normally. In the sixth step using the Delphi method a researcher made form as 9 point Thomas L. Saaty scale was sent to 30 elites to conduct the pair wise comparison of the main research components and weight the criteria the results of which were used in Super Decision Software. In step seven the collected data were analyzed in SPSS to extract the descriptive and inferential statistics. In step eight using data analysis in Super Decision, Visual PROMETHEE and the MCDAM Engine software the experts’ opinion (370 samples) and 30 elites were used to rank the possible alternatives to determine the most appropriate regional development management style. One of the main problems of this study was the lack of statistics and classified data from the regions and timely responses to the electronics questionnaire.

ANP Method

One of the most widely used methods of weighting and ranking is the ANP or Analytical Network Process designed by Tomas Saaty in 1996. In this study ANP is used as the most complete and desirable method of multi-criteria decision making method. In ANP the relationship between the criteria, sub-criteria, alternatives and the clusters is multi dimensional network. The ANP algorithm is based on the following steps: (1) Determining the subject and choosing the possible alternatives (2) Forming the network structure, clusters and related elements (3) Defining the internal and external dependencies of the clusters, criteria and elements (4) Conducting the pair wise comparisons and calculating the weighted

vector of comparison (5) Forming the initial weighted and non-weighted super matrix and the limit supermatrix. (6) Performing the ranking calculations and choosing the top alternative using Lane et al. equation to choose the top alternative [48]:

$$\text{Equation 5: } Di = \sum_{J=1}^{j} W_j \times E_{jj}$$

In this study since the Promethee is the basis of selection, ANP is used to determine the weight of criteria [37, 38].

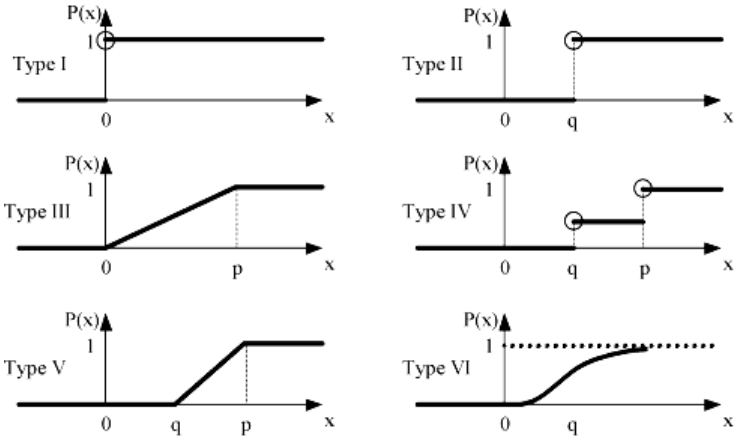
PROMETHEE II method

This method is one of the methods of MCDM designed by two Belgian professors Jean Pierre Brans and Bertrand Mareschal in the 1980s that using limited qualitative and quantitative criteria evaluates and ranks the alternatives [5].

If we assume A is the set of the alternatives among which we have to choose, assuming K effective criteria in decision making, for each item A∈a, the (a)fj value indicates the value of j-th criterion in alternative a. The ranking is done in three steps:

First step: The criteria are determined and the preference function Pj is allocated to each one of the j criteria. The Pj (a,b) value is calculated for each pair. This value varies between zero and 1. If the relationship fj (a) = fj (b) applies, Pj (a, b) equals zero and as fj (a)-fj (b) increases this value is increased as well and when the difference is large enough, the value of Pj (a, b) approaches 1. Various shapes can be assumed for function Pj that depend on the modeling of j-th criterion. PROMETHEE method proposes six generalized criteria for preference function to the decision maker than include: 1- A normal function, 2- U function, 3- V function, 4- Interchange function, 5- V functions with neutral zone, 6- Gaussian functions. However, for each criterion fj, one weighting factor i.e. wj is considered as well. Figure 2 presents the preference functions. (See Figure 2)

Figure 2: Preference functions (generalized criteria)



Source: [10]

Second step: The amount of preference for each alternative a is calculated on alternative b. The greater the value of π (a, b) is more preferable alternative a will be. π (a, b) is calculated as follows:

$$\text{Equation 6: } \pi(a,b) = \sum_{j=1}^{k} wjpj(a,b), (\sum_{j=1}^{k} wj = 1)$$

π (a, b) indicates the degree of priority of alternative a over the alternative b.

Third step: The general preference of alternative a over other alternatives and the output flow is calculated as:

$$\varphi+ \quad \frac{1}{n-1}\sum_{x\in A}\pi(a,x)$$

(a) = Positive ranking flow or the output flow

This flow indicates the priority of alternative a over other alternatives. This flow is in fact the a alternative power. The greatest Φ +(a) is the best alternative. The preference of other alternatives over alternative a, which is called the input flow in calculated as:

$$\varphi\text{-}(= \frac{1}{n-1}\sum_{x\in A}\pi(x,a)$$

(a)= Negative ranking flow or the input flow

This flow denotes the extent of other alternatives have priority over the alternative a. This flow is in fact the weakness of alternative a. The smallest φ- (a) denotes the best alternative. Therefore by obtaining and separate analysis of the flows φ + and φ- it is possible to conduct a partial ranking (IPROMETHEE ranking). For the complete ranking of the alternatives the net flow (final) ranking must be defined for each alternative (IIPROMETHEE ranking):

Equation 9: φ (a) = φ +(a) —φ(a)

This flow is the result of the balance of positive and negative ratings. The higher net flow denotes the preferred alternative [5]. (See Figure 3)

Figure 3: The process of implementing the model PROMETEEII

Step 1. Determination of deviations based on pair-wise comparisons

$$d_j(a,b) = g_j(a) - g_j(b) \qquad (1)$$

Where $d_j(a,b)$ denotes the difference between the evaluations of a and b on each criterion.

Step 2: Application of the preference function

$$P_j(a,b) = F_j[d_j(a,b)] \quad j=1,\ldots,k \qquad (2)$$

Where $P_j(a,b)$ denotes the preference of alternative a with regard to alternative b on each criterion, as a function of $d_j(a,b)$.

Step 3: Calculation of an overall or global preference index

$$\forall a,b \in A, \qquad \pi(a,b) = \sum_{j=1}^{k} P_j(a,b)w_j \qquad (3)$$

Where $\pi(a,b)$ of a over b (from 0 to 1) is defined as the weighted sum $p(a,b)$ of for each criterion, and w_j is the weight associated with jth criterion.

Step 4: Calculation of outranking flows/ The PROMETHEE I partial ranking

$$\phi^+(a) = \frac{1}{n-1}\sum_{x\in A}\pi(a,x) \quad (4) \quad \text{and} \quad \phi^-(a) = \frac{1}{n-1}\sum_{x\in A}\pi(x,a) \quad (5)$$

Where $\phi^+(a)$ and $\phi^-(a)$ denote the positive outranking flow and negative outranking flow for each alternative, respectively.

Step 5: Calculation of net outranking flow/ The PROMETHEE II complete ranking

$$\phi(a) = \phi^+(a) - \phi^-(a) \qquad (6)$$

Where $\phi(a)$ denotes the net outranking flow for each alternative.

Source: [5]

Among of the main advantages of PROMETHEE II are simplicity, clarity and reliability [31]. The reason for choosing this method is the possibility to use it when we are dealt with the elites that care about the time of participating in the poll. The second reason is its ease of use for ranking using Visual Promethee software.

7. Findings and discussion

The regional development approach

According to most researchers, the management structure of regional development in Iran is based on sectoral planning [39, 49]. On the other hand, spatial planning is distributed among distinct entities that do not follow an integrated program [39, 20] and the blueprint approach governs it. The results of X^2 test for the component variables "regional development approach" show that lack of attention to sustainable development obtains the number

160.935, the need to move from the comprehensive approach to strategic approach obtains number 354.649, the change of theoretical foundations of regional management obtains 221.876 value, consistency obtains 0.692 value, the need for change policy obtains the value 131.486 and future study obtains 1.557. Since the level of significance of X^2 test is 0.001 in most variables which is less than 0.05 and the value of X^2 test for all variables is 169.854 at the level of significance of 0.001 and 95% confidence level, the existing management style is in adverse condition based on approach and it needs to be modified.

The regional management institutional and executive structure

The results of X^2 test for every single variable indicate that, the need to modify the existing style with the value of 32.701, decentralization with the value of 288.972, preparation and approval of plans with the value of 289.935, revision of the plans' content with the value of 327.670, attention to the implementation of the plans with the value of 135.611, the necessity to revise supervising the plans' implementation with the value of 407.665, the necessity to revise monitoring system with the value of358.483 provide the need to participate in the development with the value of 73.178. Also the X^2 value for the sum of indicators presents the value 384.265 that with the level of significance of 0.001which is smaller than 0.05 at 95% confidence level denote that the regional development administrative and institutional structure in Iran is in poor conditions.

The efficiency and effectiveness of the regional management administrative structure

Another component that challenges regional management system in Iran is the efficiency and effectiveness.

The results of X^2 test for every single variable of this component indicate that, the need to change the administrative structure obtained the value of 175.449, making the capacity and empowerment obtained the value of 103.789, appropriate organizational leadership obtained the value of 37.632, administrative stability obtained the value of 334.714, specialty orientation obtained the value of 299.503, financial planning obtained the value of 131.438, sustainable development in organizational structure obtained the value of 186.2, innovation and creativity obtained the value of 461.270, use of the new managerial methods obtained the value of 159.476, having operational objectives obtained the value of 154. 157, exceptionability and flexibility obtained the value of 40.227, using efficient data obtained the value of 158.957, paying attention to quality orientation obtained the value of 205.692 and improving resource management obtained the value of171.670. Also the X^2 value for the sum of indicators presents the value 318.378 hat with the level of significance of 0.001which is smaller than 0.05 at 95% confidence level denote that the administrative and institutional structure of regional development management in Iran is in poor conditions.

Good governance

According to the centralized decision –making structure in Iran, good governance is one of the challenges of regional development management system in Iran. The results of X^2 test indicate that the lack of attention to the participation of people in regions obtained the value of 328.027, transparency obtained the value of 106.643, responsibility obtained the value of 48.530, efficient response obtained the value of 293.459, attention to the law obtained the value of 155.259, attention to the justice obtained the value of 140, attention to the partnership of private and public institutions obtained the value of 252.362, and intra organizational efficiency and performance obtained the value of 147.989. Also the X^2 value for the sum of indicators presents the value130.449 with the level of significance of 0.001which is smaller than 0.05 at 95% confidence level denote that the administrative and institutional structure of regional development management in Iran is in poor conditions in terms of good governance components. Moreover, the correlation test result between the components "the need to modify the existing style" and "good governance" obtained the value of 0.347 with the level of significance of 0.001. This means that the experts who believe to modify the existing style are in favor of the fact that the existing style lacks the characteristics of good governance.

The appropriate style for management

The results of X^2 test indicate that the index of being regional obtained the value of 515.838, exceptionability obtained the value of 363.362, participation reception obtained the value of 193.578, integrated approach obtained the value of570.622, strategic orientation obtained the value of 198.168, realism obtained the value of 307.627, program orientation obtained the value of 287, stability obtained the value of 68.032, information orientation obtained the value of 210.881, knowledge orientation obtained the value of 168.38, accountability and the responsiveness obtained the value of 131.486, law orientation obtained the value of 156.362, efficiency obtained the value of 183.476, effectiveness obtained the value of 201.768, exceptionability obtained the value of 92. 119, being controllable obtained the value of 153.476, dynamicity obtained the value of 198.584 and justice orientation obtained the value of 215.989. Also the X^2 value for the sum of indicators presents the value159.395 with the level of significance of 0.001which is smaller than 0.05 at 95% confidence level denote that the appropriate style of management is in accordance with good governance indices. With regard to the abnormal distribution of the variables the non-parametric Spearman correlation test was used to test the correlation between the need to "revise the existing style of management" and the "appropriate style of management". The test statistic was calculated as 0.583 (Table 1) which indicate that there is a strong and significant correlation between these two conditions. It means that the participants who believe to modify the existing style are in favor of the model that has the characteristics of good governance. (See Table 1)

Table 1. Correlation Between existing condition and proposed management style

Variable	Correlation	Significance level
The need to modify the existing condition The proposed management style	0.583	< 0.001

Source: Authors

In addition, the X^2 test result indicates that among the different patterns of management, management styles based on the participation have higher priority to create an appropriate system of regional management (Table 2). Also the X^2 test result indicates that among the different patterns of management, management styles based on the participation have higher priority to create an appropriate system of regional management (Table 2).

Table 2: The results of the Chi squared test to analyze various management styles

Item	The observed value	Expected value	The remaining	Chi squared value	Degree of freedom	Significance level
Other	10	92.50	-82.50	221..157	3	< 0.001
The traditional model of management	146	92.50	53.50			
The modern management style	35	92.50	-57.50			
The collaborative management style	179	92.50	86.50			
Total	370					

Source: Authors

Proper management realms

Considering that in the existing condition there is a hierarchical relationship ruling on the strong central management system in Iran, most experts and elites believe that management levels must obey the national, regional, sub- regional and local model. In addition, there is a belief that the existing centralized system is in appropriate and the regional levels are not appropriate on their own for management development. Rather, an appropriate style should obey a hierarchical integrated system with balanced distribution of power between national, regional and local institutions (See Table 3).

Table 3: Frequency distribution of management levels based on the responsive authorities

Levels of management	Frequency	Frequency percentage	Cumulative percentage
Government oriented	33	8.92	11.89
At both national and regional level	114	30.81	42.70
At national, regional and district, local level	202	54.59	97.30
Entirely at regional level	10	2.70	100
Other	11	2.97	2.97
Total	370	100	

Source: Authors

In the present situation, the national level is very strong and local level is very weak. With the existence of political and administrative institutions and councils of the planning and development of the province, in the present regional management structure, citizens and local communities are on the margins of decision –making. The government is forefront of policy - making in the regions. The communities are widely dependent on the governmental resources and actions at regional levels. The strong dependence of the Iran's economy on oil has led to the severe reliance of small communities and local associations at regional level.

Selecting the appropriate management style

In this section in the first step based on the pair wise comparison made by 30 elites, the final weights of 4 main criteria were calculated using the ANP method in Super Decision software. The governance criterion obtained the weight of 0.51, efficiency and effectiveness criterion obtained the weight of 0.37, the approach and methodology obtained the weight of 0.08 and decision making and execution obtained the weight of 0.04. In the appropriate mode the adaptation rate in ANP method was calculated as 0.09 which is smaller than 0.1; hence the pair wise comparison at 99 % confidence interval is appropriate to execute PROMETHEE model. Then, regarding that PROPETHEE II method is based on criteria rather than sub criteria, the elites were asked to score their optimal management alternative based on the criteria mentioned in the study and through pair wise comparison. The frequency of the obtained data from the selection of elites became the quantitative foundation being used in PROMETHEE II method.

In the second step, the direction and evaluation units of criteria were specified in Visual PROMETHEE. All the criteria were in the positive criteria category. This means that the difference between the values of comparison of alternatives affect the priority of priority of the alternatives if it is higher than 5. Below the weight obtained from ANP are considered in the model. With regard to the quantitative data, the indifference limit (q) and priority limit (p) was selected among 6 functions of third kind function (V Shape). In the third step the values scored by the elites were applied to the models to specify the priority of the alternatives in PROMETHEE model. Then the P value or the priorities of the alternatives (models) were calculated towards each other. (See Table 4)

Table 4 the initial matrix of criteria based on the percentage of the votes of 30 elites

		Criteria			
		Approach and Methodology	Decision - making and execution	Efficiency and effectiveness	Good Governance
ANP weight		0.08	0.04	0.37	0.51
Management styles	1. Traditional	0	7	0	0
	2. modern	7	21	17	0
	3. Strategic	40	24	21	20
	Governance	27	28	30	400
	Network	26	20	32	36
	Total	100	100	100	100

Source: Results of the study. Based on the elites questionnaire, 2014

In the fourth step after involving the weights and specification of the functions, the positive (Ph +) negative flow (-Ph) and final ranking of the alternatives was conducted using PROPETHEE II. (See Table 5).

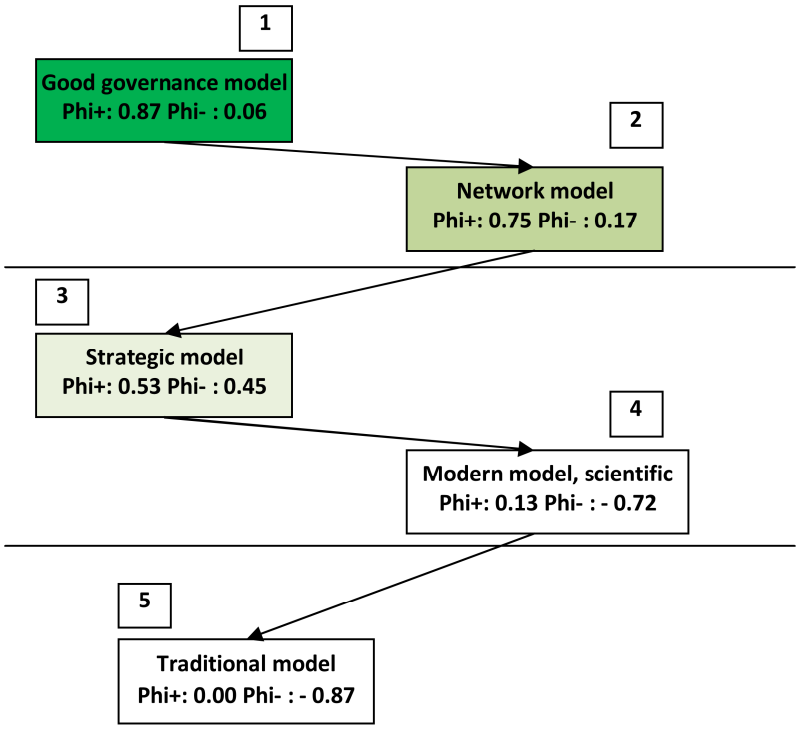
Table 5: ranked net flow of alternatives

Rank	Management style	+Phi	Phi-	Phi
1	Governance model	0.8682	0.0576	0,8106
2	Network model	0,7470	0,1707	0,5763
3	Strategic model	0,5258	0,4475	0,0783
4	Modern model	0,1258	0,7172	-0,5914
5	Traditional model	0,0000	0,8737	-0,8737

Source: Results of the study calculated on Visual PROMETHEE

The processing of the data entered to Visual Promethee by PROMETHEE II and calculating the ranked net flow (Table 5) resulted in the fact that the governance, network and strategic models are the three prior models respectively which are closely related in terms of the decision making criteria and have the highest priority. To ensure the accuracy of calculations in Promethee the obtained result was compared with the opinions of 370 samples. The result was that the governance-based management style with the frequency of 40%, the network-based management style with the frequency of 34% and strategy-based management style with the frequency of 24% were the proposed models of the respondents and the comply with the final model of PROMETEEHE. The final output of PROMETHEE II ranking using the "Promethee ranking network" diagram in GAIA modeling of Visual PROMETHEE software is displayed graphically (As in Figure 4).

Figure 4: Final ranking network of the alternatives (PROMETHEE Ranking Network)



Source: Results of the study

To understand which criteria had the determining role in ranking the models, the Action Profile Tool in GAIA was used. The results showed that in the governance model, the governance and decision making criterion, in network management style, the efficiency and effectiveness criterion and in strategic management style, the attitude and approach criterion had prominent roles. It was found that the traditional and modern management styles that are still common in Iran and the public sector cannot be considered as appropriate styles to improve the regional development management. Since each selected model have some advantages by combining the capabilities of the top three models it is possible to achieve an integrated model which can be known as the management style based on network governance. In this model the attitude strategy, good governance, efficiency and effectiveness are focused. According to the documents related to 21 United Nations Agenda network governance besides the geographical area has something to do with social, economic and political networks [29].

Results of the study confirm the ideas of Alemi [2], Haj Yousefi (2001) and the Center for the Study and Research of Urban Planning and Architecture in Iran [34] about the inefficiency of existing style of regional development management in Iran. Despite the formation of regional institutions there is still resistance against decentralization from national level and in the formal system of development management the local communities particularly those in rural areas do not contribute to the development. Also due to the domination of sectoral attitude in the administrative structure and the domination of physical attitude in administrative tools, the findings of Ministry of Roads and Urban Development [30] and Haj Yousefi (2001) about moving from the comprehensive to strategic approach and sectoral to physical approach are confirmed. Also, according to the findings of this study and confirming the fact that the regional management and development system in Iran is constantly changing due to lack of management stability, the opinions and findings of Nader Zali and Rasoul Zali [47] and Soltani [44] based on the fact that the existing style of regional development management in Iran is unstable and inefficient, are approved. Also, the since in the present study we obtained the good governance model as the appropriate management style, the findings of Seifoddini et al. (2010) and Kazemian and Faraji Rad [20] based on the need to establish an acceptable regional governance model are confirmed. Also the findings of this research confirm the results of Majlis research center during the recent years (2009 to

2015) and the rollback and stagnation of regional development management during 2005-2015 are confirmed for several reasons.

8. Conclusion

This study has some important results. First of all, the existing regional development management style in Iran during 2005-2015 has an inefficient structure that follows the traditional, bureaucrat and sectoral programming system. In terms of organizational and administrative structure the existing style lacks the necessary efficiency and effectiveness. Also it lacks the characteristics of a good governance model in which the public participation has no place. The results show that it is necessary for the existing style to be modifies into three levels of national, regional and sub-regional with a powerful national center. Such changes demand the decentralization of decision –making system in favor of the regions at these tree levels and in the regional management the participatory approaches implementation at the sub regional and local levels. Since each of the governance, strategic and network models have some unique advantages, by the integration of these models we obtain the "Network Governance" model as the appropriate management style. This model can integrate the regional actions at three levels. The execution of this model requires the empowerment of regional institutions, the development of the network society, the modification of theoretical bases of regional management, the promotion of efficiency and effectiveness of regional institutions, contribution to establish regional governance and facilitation of the participation of local communities and NGOs in the development. Also modifying the role of Planning and Development Council of Provinces to the regional parliament could be an important step in the decentralization from the national level.

Resources:

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EFFECTS OF ENVIRONMENTAL REGULATIONS ON POLLUTION REDUCTION AND FIRM LOCATION

Kenichi SHIMAMOTO
Hirao School of Management, Konan University, Nishinomiya, Japan
kenichi@center.konan-u.ac.jp

Abstract

Urban pollution continues to be a crucial issue in cities across the globe, especially in developing countries. Examining the effect pollution tax has on a firm's decision to locate closer/further to the urban centre will be worthy from an environmental preservation perspective. This paper analyses the relationship between pollution tax and the firm's location when considering the firm's efficiency of pollution abatement and its efficiency of production. The results find that a firm which has exhibited increasing returns to scale in pollution abatement performance in response to pollution tax increases its output level. It also shows that the firm's location depends on the efficiency of pollution abatement and production efficiency. The changes to pollution level at the urban centre due to pollution tax depends on the changes to the firm's output level, the firm's location choice, and the firm's pollution abatement performance.

Keywords: firm location; environmental regulations; pollution abatement, efficiency
JEL classification:

1. Introduction

Environmental problems in urban areas continue to be crucial issues in various regions across the globe. The United Nations (1996) reports that urban issues, including urban environmental problems, are becoming more immediate and are greatly affecting the wellbeing of the majority of the population. For instance, the World Bank (1997) reports that many Chinese cities have ambient concentrations of particulates and sulphur dioxide which are significantly higher than the guidelines of the World Health Organization. The 6.32 million residents of the urban area of Shanghai are exposed to particulate matter levels which are substantially higher than the normal population exposure level in western countries (Kan and Chen, 2004). Shijianzhuang has an annual energy growth rate of approximately 10 percent, mainly induced by industrial development (Peng et al., 2002). Concentration of plants and increase in transportation in urban areas are major factors of environmental and human health degradation. According to Wackernagel and Rees (1996), each area has the carrying capacity to cope with pollution. However, pollutions beyond the carrying capacity may cause huge and irreversible damage to both the environment and human health (Arrow et al., 1995). Given that urban areas are closer to the threshold of the carrying capacity than the countryside, polluting firms locating to urban areas could push the pollution level beyond the threshold and lead to critical environmental damage and affect human health to urban dwellers (Doull, 1996; Millimet and Slottje, 2003; US National Research Council, 2002）. Taking these issues into consideration, it will be meaningful to examine the relationship between environmental policy and a firm's location decision to the urban area.

This paper will analyse how pollution tax influences a firm's location decision and how this is linked with urban pollution by using spatial economic theory. Spatial economic theory studies which examine the firm's choice to locate to the urban centre (output market site) or to the input site are well documented (e.g. Tan, 2001; Tan and Hsu, 2000; Park and Mathur, 1990; Park and Mathur, 1988). Concerning environmental regulations, though not common in spatial economic theory, there are several theoretical studies which focus on the role environmental regulations play. For example, Motta and Thisse (1994) consider a two-country, two firm economic model. When the environmental policy of a firm's home country and the market size of the firm's country change, they analyse whether a firm stays in its

home country; or the firm produces in two countries; or the firm produces only outside the home country. In Markusen's (1997) study, he considers environmental policy to be endogenous and that there are strategic interactions between governments. Hoel (1997) using a partial equilibrium model, examines situations where regions provide incentives to attract industries through relatively lax environmental regulations resulting with firms suffering from disutility due to the abnormally high pollution effecting firms to choose elsewhere. Fredriksson et al. (2003) examine the impact environmental regulations have on plant location, controlling for bureaucratic corruption[1]

With regard to studies on the impact of environmental regulations on a firm's location using spatial economic theory, Hwang and Mai (2004) examine the impact pollution tax has on the firm's output, on the location and on the pollution level in the central business district. Tan (2005) analyses the effect pollution tax has on firms' location and on urban pollution concentration, under stochastic emissions using *n*-input sites model. However, these studies do not take into account the role pollution abatement has on firms' location decision. Pollution abatement refers to the ability for a firm to reduce the pollution it emits. There are spatial economic theories which consider the role of pollution abatement. Isik (2005) analyses how various taxes including emissions tax affect firm's location decision under the uncertainty of production and the cost of abatement investment and Mathur (1976) investigates the effect pollution tax has on the implementation of pollution abatement using both a cost minimizing model and a profit maximizing model. Gokturk (1979) examines the impact changes to the pollution tax has on the location decision and the abatement decision of firms by assuming that output and pollution emissions are joint outputs of a material input. Like Mathur's (1976) study, Forster (1987) studies the sufficient condition for pushing the polluting firm away from the urban centre, however he explains that the condition depends upon the specification of the production and pollution emissions technology.

These spatial economic studies which consider the role of pollution abatement do not, however, examine the role pollution tax have on the 'efficiency' of pollution abatement. The 'efficiency' of pollution abatement in response to pollution tax means whether more than one unit of pollution reduction can be achieved by an additional one unit in pollution tax.[2] It is natural to suspect that the efficiency of pollution abatement in response to pollution tax would differ amongst firms, and so the reduction in pollution level would also differ. As the Porter hypothesis implies, if the firm's technological innovation is triggered through environmental regulations such as pollution tax, the firm can improve its competitiveness and increase its profit (Porter and van der Linde, 1995). Given that the efficiency of pollution abatement is through technological innovation, the firm will succeed in reducing the burden of pollution tax and in turn, will influence the firm's production and profit. Hence, it will be meaningful to take into consideration the efficiency of pollution abatement.

One of the contributions of this paper is that in order to observe the efficiency of pollution abatement, it analyses the effect pollution tax has on the firm's location, focusing on three measures of pollution abatement efficiency - i) increasing returns to scale (IRS); ii) decreasing returns to scale (DRS); and iii) constant returns to scale (CRS). Analysing the effect pollution tax has on pollution abatement in this way is a first in not only spatial economic theories, but to the best of our knowledge, has not been used before. Furthermore, in past studies which observe the effect environmental regulations have on pollution

[1] There are many empirical studies which examine the influence of environmental regulations on a firm's location decision where the firm will move to the region with less stringent environmental regulations and then the region will suffer from pollution problems (pollution haven hypothesis). Some studies which support the pollution haven hypothesis are: Rowland and Feiock (1991), Birdsall and Wheeler (1993), Mani and Wheeler (1998) and Keller and Levinson (2002) and Cole and Elliott (2005). While the following studies do not support the pollution haven hypothesis: Kirkpatrick and Shimamoto (2008), Levinson (1996) and List and Co (2000). A review of the key issues are provided by Dean (1992), Nordstrom and Vaugham (1999) and Zarsky (1999).

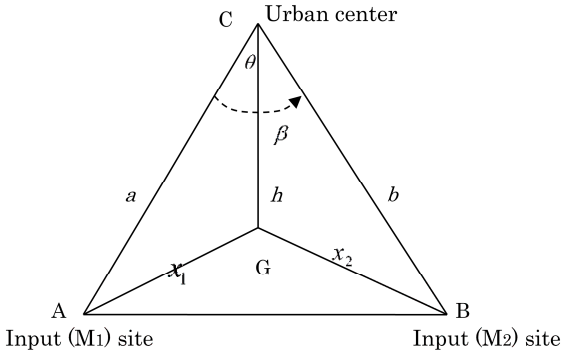
[2] The role of the efficiency of pollution abatement has been highlighted in other studies though they do not explicitly state that it is led by pollution tax. For instance, in studies on the Environmental Kuzunets Curve, it is explained both theoretically and empirically concerning the importance of the role pollution abatement play in achieving an inverted-U shape where pollution per capita begin to fall after a certain point of income per capita is reached (e.g. Andreoni and Levinson, 2001).

abatement, it was found that none had applied in their analysis the firm's production function ('efficiency' of production) which is used in spatial economic theory. In reality, firms will perform production activities in various forms and have varying degrees of productivity and so it will be necessary to consider the efficiency of the production. Hence this paper will not only examine how pollution tax influences the firm's output, location and the pollution level of the urban centre, it will also attempt to take into consideration the efficiency of production. The paper is based on the model introduced by Hwang and Mai (2004). As explained earlier, the model by Hwang and Mai (2004) does not include the efficiency of pollution abatement, which is applied to this model to investigate the decision making process of a firm's location influenced by pollution tax. The results find that a firm which has exhibited increasing returns to scale in pollution abatement efficiency in response to pollution tax increases its output level. It also shows that a firm's location depends on its efficiency of pollution abatement and production. Finally it demonstrates that the changes to pollution level in the urban centre caused by pollution tax are determined by the changes to the firm's output level, the location where the firm chooses, and the firm's pollution abatement efficiency.

The remainder of this paper is organized as follows. Section 2 applies a basic Weberian locational triangle framework to analyse the impact pollution tax policy has on a firm's output and location. Section 3 examines the impact pollution tax policy has on the pollution level of an urban centre. The main conclusions of the paper are provided in Section 4.

2. The Model

Figure 1. Locational Triangle



The model used in this paper is a partial equilibrium framework and a Weberian triangle space based on a monopolist, following the studies by Hwang and Mai (2004). The firm employs two transportable inputs $M1$ and $M2$, which are located at A and B, respectively, when producing output q. As represented in Figure 1, the output is sold at the urban centre (output market) C. The optimal location chosen by the firm is G. The distance between G from A and G from B are represented by $x1$ and $x2$, respectively; the distance between G and C is h; the angle between CG and CA is θ; the angle between CA and CB is β; and the lengths of CA and CB are represented by a and b, respectively.

In order to simplify the analysis, through the minimization of the total cost subject to a given output level, the total cost function is first derived as follows:

$$Min(\overline{w}_1 + r_1 x_1)M_1 + (\overline{w}_2 + r_2 x_2)M_2 \tag{1}$$

$$s.t.\ q = f(M1, M2),$$

where f specifies the production function of the firm. $\overline{w}_1$ and $\overline{w}_2$ are base prices of $M1$ and $M2$ at A and B, respectively. These are assumed to be constant. The constant transport rates of $M1$ and $M2$ are $r1$ and $r2$, respectively. $x1$ and $x2$ are defined by the law of cosines. That is

$$x_1 = \sqrt{a^2 + h^2 - 2ah\cos\theta}, \quad x_2 = \sqrt{b^2 + h^2 - 2bh\cos(\beta - \theta)}.$$

It assumes the production function to be homothetic for simplicity. Shephard (1970) explained that if and only if the cost function is separable into input prices and output level, can the production function be homothetic. Therefore, the cost function as shown in Equation (1) can be represented as the product of input price function $c(w1,w2)$ and the input level be determined by the output level $H(q)$:

$$T(q) = c(w1,w2)H(q) = c(\theta, h)H(q), \quad (2)$$

where $w1 = \overline{w}_1 + r1x1$ and $w2 = \overline{w}_2 + r2x2$ represent the delivered prices for $M1$ and $M2$, respectively; c represents a function of $w1$ and $w2$, which are shown as a function of θ and h. θ and h are variables employed in a firm's location decision-making process. Using Equation (2), the relationship between the average and marginal costs can be derived as:

$$\frac{H}{q} > (=,<)H_q, \quad (3)$$

provided that the production function is increasing (constant, decreasing) returns to scale, i.e., IRS (CRS, DRS).

It next assumes that the inverse demand function is differentiable at any point and that the increase of output leads to a decrease of price (i.e. $P = P(q)$, $Pq < 0$). Governments gain revenue by imposing pollution tax on pollution emitted. The following specifies the pollution tax revenue function $R(q)$:

$$R(q) = eA(e)y(q), \quad (4)$$

where e denotes the pollution tax rate[3] and $y(q)$ represents the amount of pollution which is dependent on the amount of output produced. Like Hwang and Mai (2004), this paper assumes that the output linearly leads to the increase of the emissions (i.e., $yq > 0$ and $yqq = 0$). Under this assumption, it is possible to derive that $Rq = eAyq > 0$ and $Rqq = 0$. $A(e)$ is the reduction rate of pollution ($0<A(e)<1$), i.e. the pollution abatement responding to the pollution tax rate (pollution abatement efficiency function). It assumes that the firm's pollution abatement improves due to pollution tax (i.e. $Ae < 0$). It also assumes that the pollution abatement efficiency function is everywhere twice differentiable. Further to these assumptions, the firm will need to:

$$\underset{q,\,\theta,\,h}{Max}\ \pi = [P(q) - th]q - c(\theta, h)H(q) - R(q), \quad (5)$$

where t denotes the constant transport rate of shipping one unit of the output to the urban centre. Deriving the first-order conditions for profit maximization with respect to q, θ, and h and then, in order to examine the effect a change in the pollution tax has on the production and location decisions, it performed a total differentiation on these first-order conditions with respect to q, θ, h, and e. Using the comparative static matrix obtained through this total differentiation procedure, it is possible to calculate the comparative static effects of a stricter pollution tax as follows:

$$\frac{dq}{de} = \frac{R_{qe}D_{\theta h}}{D}, \quad (6)$$

$$\frac{dh}{de} = \frac{-\pi_{\theta\theta}c_h R_{qe}}{D}\left(\frac{H}{q} - H_q\right), \quad (7)$$

$$\frac{d\theta}{de} = \frac{\pi_{\theta h}c_h R_{qe}}{D}\left(\frac{H}{q} - H_q\right), \quad (8)$$

[3] As in the study by Hwang and Mai (2004), the pollution tax e is treated as an exogenous variable, not conditional on the location of the plant.

where D is the relevant bordered Hessian determinant. Note that the second-order conditions require $D < 0$, $D\theta h = \pi_{\theta\theta}\pi_{hh} - \pi_{\theta h}^2 > 0$, and $\pi_{\theta\theta} < 0$; and that c_h<0. It takes into consideration the importance that the effect of a change in pollution tax has on production in understanding the economic factors effecting the optimal firm location and the measurement of pollution emission, by first observing the following.

$$R_{qe} = y_q(A + eA_e) \quad . \tag{9}$$

It follows immediately from Equation (6) and (9) that:

$$R_{qe} < 0 \quad \text{if} \quad \left|\frac{A}{e}\right| < |A_e| \quad \text{hence,} \quad \frac{dq}{de} > 0 \quad , \tag{10a}$$

$$R_{qe} = 0 \quad \text{if} \quad \left|\frac{A}{e}\right| = |A_e| \quad \text{hence,} \quad \frac{dq}{de} = 0 \quad , \tag{10b}$$

$$R_{qe} > 0 \quad \text{if} \quad \left|\frac{A}{e}\right| > |A_e| \quad \text{hence,} \quad \frac{dq}{de} < 0 \quad , \tag{10c}$$

where $\left|\frac{A}{e}\right| < (=,>)|A_e|$ indicates that pollution abatement efficiency function is IRS (CRS, DRS). As explained in Section 1, IRS (CRS, DRS) in pollution abatement efficiency function means that more than one (one, less than one) unit of pollution reduction can be achieved by an additional one unit increase in pollution tax. Therefore, the following proposition can be derived:

Proposition 1.

A firm where pollution abatement exhibits IRS is able to increase its change in output level even if the pollution tax rate is increased. On the other hand, a firm with DRS pollution abatement will decrease its change in output level if the pollution tax rate is increased. For a firm where pollution abatement exhibits CRS, a change to the output level is invariant with respect to a change in the pollution tax rate.

Proposition 1 will be explained in more detail. Pollution abatement is IRS when a one unit increase in pollution tax results in a more than one unit decrease in the level of pollution. This suggests 'efficiency' of pollution reduction, since there is a less than one unit burden of payment per unit increase in pollution tax. Hence, the firm can increase its output. On the other hand, when pollution abatement is DRS and a one unit increase in pollution tax results in less than one unit of pollution abatement, there is an increase in the burden of payment of more than one unit, reducing the firm's output. This suggests 'inefficiency' of pollution reduction. If the pollution abatement is CRS, the changes to the pollution tax rate are equivalent to the changes to the pollution abatement. This indicates no changes to the additional payment of pollution tax, so the additional output level of the firm does not change.

Next it will observe the effect on locational choice. The impact of pollution tax rate on firm location from Equation (3), (7) and (10a)-(10c) are summarized in Table 1.

Table 1: The impact of pollution tax rate on firm location

	$\frac{H}{q} > H_q$ (*IRS*)	$\frac{H}{q} = H_q$ (*CRS*)	$\frac{H}{q} < H_q$ (*DRS*)
$\left\|\frac{A}{e}\right\| < \left\|A_e\right\|$ (*IRS*)	$\frac{dh}{de} < 0$	0	$\frac{dh}{de} > 0$
$\left\|\frac{A}{e}\right\| = \left\|A_e\right\|$ (*CRS*)	0	0	0
$\left\|\frac{A}{e}\right\| > \left\|A_e\right\|$ (*DRS*)	$\frac{dh}{de} > 0$	0	$\frac{dh}{de} < 0$

From Table 1, it can derive the following proposition:

Proposition 2.

In response to an increase in pollution tax, the firm which will locate closer to the urban centre 1) will exhibit IRS in pollution abatement and IRS in production function; or 2) will exhibit DRS in pollution abatement and DRS in production function. On the other hand, the firm which will locate further from the urban centre 1) will exhibit IRS in pollution abatement and DRS in production function; or 2) DRS in pollution abatement and IRS in production function. The firm which will not locate closer to either the urban centre or the input sites 1) will exhibit CRS in pollution abatement; or 2) IRS or DRS in pollution abatement and CRS in production function.

Here it will explain Proposition 2 in more detail. At first, it will describe the firm which exhibit DRS in pollution abatement in response to the changes in pollution tax. As described in Proposition 1, the firm which exhibit DRS in pollution abatement responded to the increase in pollution tax rate by a decrease in the output level. For a firm which exhibit CRS in production function, a unit decrease in the output level will mean a unit decrease in the input level, suggesting that the output-input ratio is the same as that of before the change in the output level. Hence the firm will remain in the same location. For a firm which exhibits an IRS in production function, the input level will decrease by less than one unit with the decrease of one unit of the output level. Therefore, the decrease to the transportation cost of the input is smaller than the decrease in the transportation cost of the output, suggesting that the firm with production function under IRS will locate further from the urban centre. As for the firm which exhibit DRS in production function, the input level will decrease by more than one with a one unit decrease in the output level. Hence, the decrease to the transportation cost of the output is smaller than the decrease in the transportation cost of the input, indicating that the firm with production function under DRS will move closer to the urban centre.

Next, it will examine the firm which exhibits IRS in pollution abatement in response to the changes in the pollution tax rate. As described in Proposition 1, the output level of this firm increased responding to the change in the pollution tax rate. For the firm which exhibit CRS in production function, a one unit increase of input is led by one unit increase of the output, suggesting that the output-input ratio remain the same as before the changes to the output level. Accordingly, the firm remains in the same location. As for the firm which exhibit IRS in production function, the input level increases by less than one unit when the output increases by one unit. Hence, the increase to the transportation cost of the output is greater than the increase to the transportation cost of the input before the changes to the output level, indicating that the firm with the production function under IRS will move closer to the urban centre. Concerning the firm which exhibit DRS in production function, the input increases by more than one unit when the output increases by one unit. Hence, the increase to the

transportation cost of the input is greater than the increase in transportation cost of the output before the increase to the output level, suggesting that the firm will move further from the urban centre.

As described in Proposition 1, the firm which exhibit CRS in pollution abatement has no changes to the output level with changes to the pollution tax rate. Hence, the input level does not change under any form of pollution abatement responding to changes in the pollution tax rate, meaning that the firm will remain in the same place.[4]

3. The Impact of Pollution Tax Policy on the Pollution Level in Urban Centres

Next, to examine the total pollution at C (i.e., urban centre), in Figure 1 it sets the following function. The pollution is generated by the firm located at G. The pollution level at C is generally lower than that at G and is dependent on the distance between G and C. If the total pollution level at G is set to Z^G, then the pollution level at C can be set as Z^C, which is defined by:

$$Z^C = k(h)Z^G, \tag{11}$$

k represents the rate of decreasing pollution level which is effected by the distance between C and G. where $k_h < 0$ and $k_{hh} > 0$, indicating that as the distance between the urban centre and the firm increases, the pollution level at C declines at a decreasing rate. Since the pollution generated by the firm is *A(e)y(q)*, then the pollution level at the urban centre can be represented as:

$$Z^C = k(h)A(e)y(q). \tag{12}$$

It can then derive the effect of an increase of *e* (i.e. a higher pollution tax) on Z^C as follows:

$$\frac{dZ^C}{de} = k_h h_e Ay + kA_e y + kAy_q q_e. \tag{13}$$

Equation (13) indicates that the effect of a higher pollution tax can be divided into three effects: the location effect (*LE*), the pollution abatement effect (*AE*) and the output effect (*QE*). The first term of the right-hand side of Equation (13) indicates the location effect, which is ambiguous since it relies on the sign of *he*, which is as shown in Equation (7), is dependent on the characteristic of the production function and the pollution abatement efficiency function. The second term shows the pollution abatement effect, which shows a negative sign as described in Section 2. The third term represents the output effect, which is ambiguous again, since it is dependent on the characteristics of the pollution abatement with respect to pollution tax rates. It will be possible to rewrite equation (13) as;

$$\frac{dZ^C}{de} = \alpha(A + eA_e)(\frac{H}{q} - H_q) + kA_e y + \beta(A + eA_e), \tag{14}$$

where

$$\alpha = -k_h Ay \frac{\pi_{\theta\theta} c_h}{D} y_q, \quad \beta = kA \frac{D_{\theta h}}{D} y_q^2.$$

[4] A change in the pollution tax signifies not only a change in the firm's distance to the urban center *h*, but also its locational triangle θ. The sign of $\frac{d\theta}{de}$, as shown in equation (8), cannot be determined as it is dependent on $\pi_{\theta h}$ as well as the characteristic of the production function, and pollution abatement efficiency function. The sign of $\pi_{\theta h}$ has not been pursued since there is no way to predict it in advance.

Following from Equation (14), the following proposition can be derived:

Proposition 3.

The effect pollution tax has on the pollution level at the urban centre depends on the total effect of the output effect, the location effect and the pollution abatement effect, which are, in turn, dependent on the efficiency of production and the efficiency of pollution abatement. These relationships are represented in Table 2 below:

Table 2: The impact of pollution tax rate on pollution level

	$\frac{H}{q} > H_q$ (*IRS*)	$\frac{H}{q} = H_q$ (*CRS*)	$\frac{H}{q} < H_q$ (*DRS*)
$\left\|\frac{A}{e}\right\| < \left\|A_e\right\|$ (*IRS*)	$AE^- \underset{<}{\overset{>}{=}} LE^+ + QE^+ \rightarrow \frac{dZ^C}{de} \underset{>}{\overset{<}{=}} 0$	$AE^- \underset{<}{\overset{>}{=}} QE^+ \rightarrow \frac{dZ^C}{de} \underset{>}{\overset{<}{=}} 0$	$AE^- + LE^- \underset{<}{\overset{>}{=}} QE^+ \rightarrow \frac{dZ^C}{de} \underset{>}{\overset{<}{=}} 0$
$\left\|\frac{A}{e}\right\| = \left\|A_e\right\|$ (*CRS*)	$AE^- \rightarrow \frac{dZ^C}{de} < 0$	$AE^- \rightarrow \frac{dZ^C}{de} < 0$	$AE^- \rightarrow \frac{dZ^C}{de} < 0$
$\left\|\frac{A}{e}\right\| > \left\|A_e\right\|$ (*DRS*)	$AE^- + LE^- + QE^- \rightarrow \frac{dZ^C}{de} < 0$	$AE^- + QE^- \rightarrow \frac{dZ^C}{de} < 0$	$AE^- + QE^- \underset{<}{\overset{>}{=}} LE^+ \rightarrow \frac{dZ^C}{de} \underset{>}{\overset{<}{=}} 0$

Note: AE^- represents pollution abatement effect; LE^+ (LE^-) refers to a positive (negative) location effect which represents a more adjacent (less adjacent) location to the urban centre; and QE^+ (QE^-)refers to a positive (negative) output effect which represents an increase (decrease) in output.

Proposition 3 will be explained in more detail.

Case 1) Pollution abatement is IRS and production function is IRS (Table 2 - first row and first column):

As described in Proposition 1, for a firm which exhibits IRS in pollution abatement, the output increases by more than one unit when the pollution tax rate increases by one unit. Furthermore, with production function exhibiting IRS, Proposition 2 explains that the increase in input is less than the increase to the output when responding to the change in the pollution tax rate. Hence, the firm will decide to choose the location closer to the urban centre. These results suggest that based on the increase in output and the production conducted close to the urban centre, this would cause an increase in pollution in the urban centre. However, there is the pollution abatement at work. Therefore, the pollution level at the urban centre will depend on the total effect of the positive output effect which reflects the increase of the output level; the positive location effect which represents locating closer to the urban centre; and the pollution abatement effect.

Case 2) Pollution abatement is IRS and production function is CRS (Table 2 - first row and second column):

As described in Proposition 1, for a firm which exhibits IRS in pollution abatement, the output increases by more than one unit when the pollution tax rate increases by one unit. Furthermore, with production function exhibiting CRS, Proposition 1 explains that the increase unit in input is equivalent to the increase unit in output when responding to the change in the pollution tax rate. Hence, the firm will not locate any closer to the urban centre or the input sites, suggesting that the location effect is zero. Therefore, the pollution level at

the urban centre will depend on the total effect of the positive output effect which reflects the increase of the output level and the pollution abatement effect.

Case 3) Pollution abatement is IRS and production function is DRS (Table 2 - first row and third column):

As described in Proposition 1, for a firm which exhibits IRS in pollution abatement, the output increases by more than one unit when the pollution tax rate increases by one unit. Furthermore, with production function exhibiting DRS, Proposition 2 explains that the increase in input is greater than the increase to the output when responding to the change in the pollution tax rate. Hence, the firm will decide to choose the location further from the urban centre. These results suggest that there was an increase in output; the production was conducted away from the urban centre; and pollution abatement was at work. Therefore, the pollution level at the urban centre will depend on the total effect of the positive output effect; the negative location effect; and the pollution abatement effect.

Case 4) Pollution abatement is CRS and production function is IRS (Table 2 – second row and first column):

As described in Proposition 1, the firm's output level does not change with changes to the pollution tax rate. Hence, the firm will not locate either closer or further from the urban centre, meaning that the output effect and location effect are zero. The pollution level of the urban centre will only decrease with the effect of the pollution abatement.

Case 5) Pollution abatement is CRS and production function is CRS (Table 2 – second row and second column):

The same as Case 4.

Case 6) Pollution abatement is CRS and production function is DRS (Table 2 – second row and third column):

The same as Case 4.

Case 7) Pollution abatement is DRS and production function is IRS (Table 2 – third row and first column):

As described in Proposition 1, for a firm which exhibits DRS in pollution abatement, the output decreases by more than one unit when the pollution tax rate increases by one unit. Furthermore, with production function exhibiting IRS, Proposition 2 explains that the decrease in input is less than one unit when output decreases by one unit responding to the change in the pollution tax rate. Hence, the firm will decide to choose the location further from the urban centre. This means that there was a negative output effect which reflects the decrease in output and a negative location effect which represents location further away from the urban centre. Furthermore, the pollution abatement effect is at work. Therefore, the pollution level at the urban centre will decrease.

Case 8) Pollution abatement is DRS and production function is CRS (Table 2 – third row and second column):

As described in Proposition 1, for a firm which exhibits DRS in pollution abatement, the output decreases by more than one unit when the pollution tax rate increases by one unit. Furthermore, with production function exhibiting CRS, Proposition 2 explains that the change to the input is equivalent to the change to the output when responding to the change in the pollution tax rate. Hence, the firm will not decide to locate either closer to or further away from the urban centre, suggesting that the location effect is zero. Therefore, the pollution level at the urban centre will decrease due to the negative output effect which reflects the decrease in the output level and the pollution abatement effect.

Case 9) Pollution abatement is DRS and production function is DRS (Table 2 – third row and third column):

As described in Proposition 1, for a firm which exhibits DRS in pollution abatement, the output decreases by more than one unit when the pollution tax rate increases by one unit.

Furthermore, with production function exhibiting DRS, Proposition 2 explains that the decrease in input is greater than one unit when output decreases by one unit responding to the change in the pollution tax rate. Hence, the firm will decide to choose the location closer to the urban centre. This means that there was a negative output effect which reflects the decrease in output and a positive location effect which represents location closer to the urban centre. Furthermore, the pollution abatement effect is at work. Therefore, the pollution level at the urban centre will depend on the total effect of these three effects.

4. Conclusion

Urban pollution continues to be a crucial issue in cities across the globe, especially in developing countries. Hence, it will be meaningful to examine how pollution tax influences a firm's decision to locate to an urban centre and the different effects it will have on different firm's pollution abatement. The different pollution abatement responses to pollution tax will have an impact on the firms' production and location. If this is examined with the firm's efficiency of production, it will help provide insight to another dimension of a firm's behaviour. This analysis concerning the relationship between pollution tax and the firm's location as well as the relationship with the firm's output and pollution level at the urban centre has produced some interesting results. First of all, it was found that a firm which exhibit IRS in pollution abatement performance in response to pollution tax, that is, a firm with efficient pollution abatement, is able to increase its output level. Therefore, both policy-makers and firms should recognize that the pollution tax does not necessary damage the firm's production activity.

Second, in the firm's location decision, not only was it found that the efficiency of production effected the decision which is consistent with other studies, but it was found that the efficiency of pollution abatement also influencing the decision making process. This suggests to policy-makers that when trying to attract firms to locate to certain areas, it is necessary to understand the influence these effects have on the location decision when considering the optimal pollution tax policy. For instance, the relocating of a polluting firm affected by the pollution tax policy will have a negative impact on the environment of the area. Suppose that the carrying capacity of an urban centre is low or the urban centre is close to the threshold of its carrying capacity, a polluting firm locating to this urban centre can cause irreversible damage to the environment. Therefore, it will be necessary to avoid the polluting firm relocating to the urban centre. To achieve this goal, as indicated in Cases 4,5,6,7, 8 of Proposition 3, pollution tax will be effective with a firm in the region that has exhibited either CRS in pollution abatement; or DRS in pollution abatement and IRS or CRS in production function.

However, as in Case 3 of Proposition 3, if in the region there is a firm which has IRS in pollution abatement in response to pollution tax and DRS in production function, even with the pollution abatement at work and the firm choosing to locate away from the urban centre in response to the changes in the pollution tax, there is the risk that the firm will cause pollution and harm the environment. Hence, concerning the firm's location decision, policy-makers and stakeholders such as the community and NGOs will require assessing the firm's production and pollution abatement ability and conducting various environmental assessment such as environmental impact assessment or strategic environmental assessment.

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FLYPAPER NONPROFITS: CROWDING IN AND CROWDING OUT EFFECTS OF GRANTS ON NONPROFIT FINANCE

Orkhan ISMAYILOV
Department of Public Administration, University of North Texas, (940) 565- 2165
Orkhan.Ismayilov@unt.edu

Abstract

The flypaper effect is a concept most commonly used by economists to study effect of funding by the federal government on state and local government finance. The argument is that funds allocated by a larger institution to smaller institutions changes policies and revenue base of fund receiving institutions. Similar concept is used to study the effect of government grants on nonprofit finance. The argument is that grant money pushes aside private donations that nonprofit organizations receive. However, the literature on the flypaper effect on grant money varies based on disciplines. The literature on the flypaper effect comes from three main disciplines, such as Economics, Business, and Public Administration. Additionally, the literature also highlights that grant money creates crowding in and out effects. The purpose of this paper is analyze and highlight the literature from three main disciplines, and discuss advantages and disadvantages of crowding in and out effects of grant funding. Findings indicate that grants have an effect on organizational revenue, policies, mission, public support, and service effectiveness.

Keywords:
JEL classification:

Introduction

The flypaper effect is a concept derived from the flypaper theory that argues that funds allocated from the federal government to state governments increases expenditure in state governments (Turnbull, 1998). According to the flypaper theory, the tax burden of the tax sticks where it lands, as if a fly would stick to a flypaper (Barnett, 1985). That is to say, the flypaper theory is a concept in the field of economics, which argues that the burden of taxation sticks directly to those who are taxed, instead of spreading through the economy (Barnett, 1985; Wyckoff, 1988). However, the flypaper effect is not only applied to local governments, but to nonprofits as well (Payne, 2011). The flypaper effect in nonprofits has been studied mostly by scholars in the economics literature, but the concept is also applied to the public administration and management literature. One of the important aspects of the flypaper effect in nonprofit finance is its relation to federal grants.

Other concepts that are usually associated with the flypaper effect are crowding *out* and crowding *in* effects. It is argued that when nonprofit organizations receive grants, the grants crowd out private donations, which makes nonprofit organizations dependent on the government (Friedman, 1979). There are advantages and disadvantages with the crowding out effects, but the most important factor is decrease of funding from other financial resources and decrease of support from the public (Brooks, 2003). The crowding in effect, on the other hand, suggests that increase of grant funds increases private donations and public interest (Payne, 1998). However, whether it is crowding out or crowding in effect, according to Heutel (2009) nonprofit organizations act strategically with grant funds to limit the number of stakeholders and customers.

Moreover, if grant money crowds in private donations then the effect has a positive consequence for nonprofit organizations. In order to understand the positive and negative effects, it is essential to explain the difference. The economics literature argues that crowding out effect is a situation where government increases spending for certain programs in the private sector or increases interest rate, which reduces private sector spending and ability to compete with high interest rates (Payne, 1998). For instance, if the federal government increases spending for Medicaid then private insurance companies will face decrease in the

number of customers. To summarize, crowding out takes place when government enters the market, which essentially increases prices and rates (Rozella and Zanola, 2003). Crowding in effect, on the other hand, is a situation where the government reduces spending for certain programs and services, which leads to an increase of private investments (Thornton, 2012).

While the literature discusses negative and positive flypaper effect of crowding in and out situations in nonprofits, this paper finds that there are mainly two conflicting theories used to explain the flypaper effect. Crowding out has a negative effect on nonprofit organization revenue and private donations. A study conducted by Payne (2011) finds that for every $1000 in grant funds received from government, donations from private donors decreased by $772. In addition, the study highlights that fundraising spending of nonprofit organizations decreases by $137. On average, for every thousand dollars received from the government, there is $410 net gain. Theoretically, crowding out creates a situation whereby nonprofits do not rely on private donations. On the other hand, scholars argue that flypaper effect creates a window of opportunity whereby nonprofits are no longer dependent on private donations and do not have to survive solely based on donations (Simmons and Rosemarie, 2004). Theoretically, crowding out effect creates a positive environment for nonprofit organizations to concentrate more on delivering services instead of fundraising efforts (Horne, 2005).

This paper provides an understanding of two seemingly separate concepts; [1] the flypaper effect, and [2] the crowding out and in effect of grant money. The objectives are to determine factors explaining the flypaper effect and how this concept is related to the crowding out and the crowding in effect in the nonprofit sector. This paper is guided by four questions: (1) What is meant by the flypaper effect and the evidence that suggests the effects are present in the public sector? (2) What is meant by crowding out and crowding in effects and how they are related to the flypaper effect? (3) What are the different approaches in explaining the crowding out and crowding in effects? (4) What are the advantages and disadvantages of crowding out and crowding in effects?

What is meant by the flypaper effect and the evidence that suggests the effects are present in the public sector?

Economists argue that when local governments receive grants from the federal government, grant money increases local government spending. Gramlich and Rubinfield (1982) introduced the concept of the flypaper effect and provided empirical results that support the concept. Researchers in different fields have looked at the role of public officials and management. It is argued that politicians are “single minded seekers of re-election” (Mayhew, 1974), and therefore public officials do not disclose the information and ask voters to approve greater funding (Thornton, 2012). The flypaper effect occurs when residents are not aware of true budget constraints. With regards to politics, the flypaper effect is treated as an independent variable, whereby political institutions and politicians use grants for political purposes (Inman, 2008). The approach adopted by political institutions is solely based on self-interest.

Organizational behavioral approach suggests that the behavior of organizations depends on the type of grants (Hines and Thaler, 1995). Generally, behavior of an organization differs based on the allocation of resources to services. Meaning that organization’s behavior changes when certain programs and services need funding. Organizations are able to reduce fees and dues if governmental funding is available for services, however spending does not decrease over time (Dahlby, 2010). Additionally, organizations become interested in spending more resources and getting in debt to make sure the flow of grant money from the government does not decrease overtime. Levaggi and Zanola (2003) finds that grant money received by healthcare organizations in fact pressures organizations to increase spending of own resources. On the contrary, Lalvani (2002) suggests that during recession period, organizations restructure their revenue base by adopting fundraiser and donation friendly image. The literature highlights that the behavior of organizations changes and adapts in order to raise revenue (Bailey and Connolly, 1998).

While research on the flypaper effect of grants on nonprofit expenditure has not been studied thoroughly, the existing literature suggests that the effect varies based on the grant types (Brooks, 2003). Thornton (2012) examines grants given by the Federal Assistance Award Data System (FAADS) by analyzing the structural characteristics of grants. The

empirical results show that conditional grants stimulate fund raising activities in nonprofits. Similarly, researchers have looked at the effect of grants on nonprofit expenditure and find that nonprofits tend to decrease money saving efforts when they have source of funding such as support from the government (Thronton, 2012). It is also noted that if nonprofits choose to not spend money, then government perceives it as lack of need for future funding (Andreoni *et al.,* 2011). Hence, similar to public organizations, nonprofit organizations spend money in order to guarantee support from the government.

Moreover, the literature on the flypaper effect argues that there is an advantage of the flypaper effect in public and nonprofit organizations could also be perceived as a disadvantage. Meaning, depending on the type of an organization, the flypaper effect may provide a window of opportunity for stable and continuous revenue for an organization in form of grants. On the other hand, nonprofit organization face decline in the number of donors and donations overtime. Additionally, another negative effect is decline in fundraising efforts of nonprofits. For instance, a report conducted by Andreoni and Payne (2011) argues that for every $1000 given to a nonprofit, the amount of private donations falls by $757. Theoretically, the flypaper effect has a positive but a minor marginal effect of 24 percent of grant money on nonprofit finance, compared to private donations. However, the Andreoni and Payne (2011) also find that nonprofits save $385 on fundraising expenses for every $1000 received in grants. This effect is also known as crowding out effect, whereby private donations are pushed aside by government grants.

What is meant by crowding out and crowding in effects and how they are related to the flypaper effect?

The crowding out effect is a concept that is derived from the flypaper effect that explains how private donations will be crowded out. In other words, pushed aside by governmental grants (Bekkers and DeWit, 2014). While there are many theoretical arguments for positive and negative consequences of the crowding effect in nonprofit organizations, only few have provided empirical evidence in the public administration literature. The economics literature, on the other hand, provides positive and negative arguments and evidence for crowding out effects in nonprofit organizations (Wu, 2013). The important factors a researcher must consider in empirical research of the crowding out effects are the type of (1) methodology used, (2) sample selection, (3) types of nonprofits, and (4) historical period. The important factors a researcher needs to take into account with regard to donors are motivation for donation, education and income level, and social value of a donor (Simmons and Emanuele, 2004). In fact, Bekkers and DeWit (2014) find that no matter how effective governmental grants are for nonprofit organizations, once the amount of a grant decreases, then support from private donations increases. It is argued that nonprofit funding is cyclical. When grant money decreases, private donations increase. However, the cycle is never permanent.

Scholars argue that the crowding out effect differs based on the type of an organization (Andreoni and Payne, 2011). Theoretically, the crowding out effect in nonprofit organizations has two outcomes. The first outcome is when nonprofits choose governmental grants over private donations, whereby grants crowd out private donors. The second outcome is when the nonprofit chooses to reduce fund raising efforts, whereby grants affect decision making and crowds out fundraising (Eckel *et al.,* 2004). An analysis of over 8000 nonprofit organizations conducted by Andreoni and Payne (2011) highlights that crowding out of donations is around 30 percent, while crowding out of fundraising is 70 to 100 percent. It is argued that governments dictate rules to nonprofit organization and are able to utilize organizations for personal gains through grants. Additionally, Irvin and Carr (2005) suggest that private donations have always been a minor but significant source of income for organizations, yet when other financial sources are available then organizations in fact reduce fundraising efforts.

While the number of nonprofit organizations has grown in the last thirty years, the controversy and the debate over the crowding out effect has been ongoing since 1970s (Horne *et al.,* 2005). Although there are no theoretical findings in the study conducted by Carlson and Spencer (1975), the findings highlight importance of understanding and researching nominal and real crowding out effects. Nominal crowding out does not account for effects such as inflation, while the real crowding out factors in effects that are necessary for to determine true

impact of grants on private donations. In addition, scholars note that the existing literature does not provide in depth analysis of indirect and direct crowd outs (Hughes *et al.,* 2014). The direct crowd out is measured by short term money loss or gains from private donations after receiving grant money. While the indirect crowd out is measured by long term changes nonprofit organizations make after receiving a grant (Eckel *et al.,* 2014).

Whether crowding out has positive or negative effects, knowing how to combat crowding is essential. Public administration scholars find that to combat indirect crowd out, a nonprofit organization must emphasize on the grant design, while combatting direct crowd out requires collective action theories (Hughes *et al.,* 2014). One common way to combat the crowding out effect is by requiring nonprofit organizations to match governmental grants, whereby by gaining money from private donations, nonprofits would be able to reduce negative effects of crowding out (Andreoni and Payne, 2011).

Matching governmental grants, theoretically, has positive and negative effects on nonprofit finance (Brooks, 2000). For example, if nonprofit organizations are required to match grants, then nonprofits are forced to raise funds through private donations. The argument is that nonprofit organizations are able to withhold social value and purpose, which is to serve public and promote social values (Brooks, 2003; Peredo *et al.,* 2006). On the contrary, when nonprofits are solely reliant on grant funds, then organizations are less likely to retain the social values and more likely to become contracted out by serving purpose other than the public (Heutel, 2009). Scholars also argue that decrease in reliance on private donations helps organizations to rethink values and encourage social entrepreneurship behavior (Jones *et al.,* 1998; Roberts and Woods, 2005). Depending on the type of an organization and the mission of an organization, the findings indicate that crowd outs in fact have a positive impact of nonprofit finance (Andreoni *et al.,* 2011).

While the crowding out has positive and negative effects, although seldom, but crowding in effects too have positive effect on nonprofit finance (Bolton and Katok, 2008) (*see Table 1)*. It is argued that when government increases grant funding to nonprofits, then most organizations increase private donations as well (Heutel 2012; Schiff 1986). However, this pattern does not apply to all nonprofits. According to Heutel (2012), new nonprofit organizations benefit the most from grants, whereby a governmental grant attracts attention of private donors who then donate funds to the nonprofit. Hence, the new and developing nonprofit organizations take an advantage of the crowding in effect by raising funds through grants and donations (Hughes *et al.,* 2014). Scholars find that type of a grant and mission of a nonprofit organization is what decides occurrence of the crowding in effects (Schiff, 1986). In addition, the crowding in effect occurs when grants motivate the public to be involved in charitable organizations and contribute to organization's fund (Kakinak and Kotani, 2011).

What are the different approaches in explaining the crowding out and crowding in effects?

The crowding out and in effects have been examined by fields of sociology, economics, business, public administration, and etc. Although, the main focus has been the approaches used to examine the crowding out and crowding in effects on financial, policy, and strategy aspects of an organization. Three fields that are most present in the literature are economics, business, and public administration. The economics literature uses monetary policies and funds approach to examine whether the crowding has negative or positive effects. The business literature uses strategies used by organizations approach to study the crowding effects and how nonprofits financially react to grants. The public administration literature uses policies and value approach to study the crowding effects on nonprofit finance.

Scholars in economics literature are interested in growth of nonprofits after receiving grant money. Main findings show that grants in fact have an effect on organization finance (Knight, 2000; Steinberg, 1987; Connolly, 1997). In order for a nonprofit to accumulate funds from government and private donations, the nonprofit must provide quality service (Heutel, 2009). Depending on services provided by nonprofits, economics literature suggests that grants rarely crowd out private donations. According to Livingston (2010), for each additional dollar increase in governmental spending on charitable organizations, private donations decreased by 16 cents. However, the funds raised through donations fell only 5 cents for each additional dollar spent in government grants.

Yet, maximizing all revenue, whether grants or donations, nonprofit organizations are able to raise more funds (Brooks, 2000). In fact, Andreoni and Payne (2010) highlight that the crowding out effect, although present in nonprofit finance, occurs aggressively when nonprofits do not maximize all available resources. Similarly, Sokolowski (2012) highlights that the crowding in effect is significant in charitable organizations that become active in order to attract funds from government and private donations, however there is no net effect on nonprofit finance. On the contrary to Sokolowski's (2012) findings, Payne (1996) finds that human service and shelter nonprofits, as a result of the crowding out effect of government grants, on average, experience 50 cent decline for every dollar increase in grants. Hence, there are mixed empirical findings that contradict each other. Nonetheless, it is essential that the reader understands net effects of governmental grants on nonprofit finance (*see Table 1*).

While the economics literature examines the net effect of crowding on nonprofit finance, the business literature examines policies and strategies used by nonprofit organizations to raise financial resources. One theoretical argument highlights that charitable organizations, overtime, purposefully adopt policies that attract private donations (Sokolowski, 2012; Heutel, 2012). For example, if government increases spending on healthcare, then charitable organizations are likely to change strategies and policies to become more healthcare friendly in order to receive grants. However, charitable organizations also adapt to societal changes and change mission to receive public support.

According to Borgonovi (2006) the relationship between level of public support and crowding effect takes U shape, whereby funds generated from private donations increase due to an increase in support for charitable organizations. Change in strategy and mission could potentially sway governmental grants and increase private donations (Schiff, 1985). Heutel (2010) finds that large amount of private donations crowds out governmental grants. According to Dokko (2009), when an organization faces reduction in grant funds, private donations increase by 50 to 60 cents for every 25 cents in spent in fundraising efforts. Thus, while charitable organizations value funding, changing strategies and mission, changes sources of funds and financial gains for nonprofits (*see Table 1*).

On the contrary to the economics and the business literature, the public administration literature uses policies and social value approach in examining the crowding effect of governmental grants. According to Brooks (2000), although small amount of the crowding out effect takes place in charitable nonprofits, the effect differs based on type and purpose of nonprofit organizations. For instance, nonprofits providing or championing for social and health services have higher crowding out effect (Brooks, 2000; Brooks, 2003; Payne, 1998). Moreover, Brooks (2003) concludes that due to the crowding out phase, the number of donors and supporters do not decrease, whereas the amount of private monetary donations in fact decreases significantly. The crowding out effects also affects donated time and volunteerism, whereby individuals decrease number of hours they volunteer due to higher grant funding (Simmons and Emanuele, 2004).

While the information on funds received from government for charitable organizations is open to public, the knowledge of available governmental funding to charitable organizations is limited among private donors (Horne *et al.,* 2005), highlighting that private donors are likely to continue donations due to limited knowledge of availability of grant funds to nonprofits. However, the behavior of a private donor is not based on limited knowledge alone. The crowding out effect also affects the structure on nonprofits, whereby nonprofits incline to hiring staff that writes grants to increase governmental funding (Kearns 2012). Hence, the paper finds that the crowding out effects do not only affect private donations, rather the crowding out affects nonprofit strategies and management (*see Table 1*).

Table 1 Approaches to studying the flypaper effect

Economics Literature	Business Literature	Public Administration and Nonprofit Literature
- The flypaper effect affects nonprofits positively, whereby nonprofits gain funds	- The positive or negative results of the flypaper effect depend on nonprofit policies	- Private donors depend on mission and social value of nonprofit organizations
- There is little empirical evidence that suggests the flypaper effects funds gained through private donations	- Nonprofits strategically adopt strategies to increase grant funding	- Although nonprofits disclose information to public, private donors rarely know about external nonprofit findings
- The evidence that suggests decrease of private donations highlights that for every grant dollar, private donations decrease by 25 cents	- The flypaper effect does have significant effect on nonprofit finance, although the evidence cannot be generalized to all charitable organizations	- Nonprofits adopt public friendly policies and mission to increase funding through grants and private donations
- The net effect of the flypaper effect depends on the types of grants		- The flypaper effects has a positive impact on nonprofit finance

What are the advantages and disadvantages of crowding out and crowding in effects?

Although positive and negative effects of crowding vary among nonprofit organizations, the debate over the displacement of philanthropy or encouragement continues among scholars (Brooks, 2000). Theoretical arguments suggest that nonprofits are likely to crowd out private donations, however empirically not many scholars have been able to prove this notion (Schief, 1985). Therefore, the literature on effects of crowding is divided into two sections. The first section argues that grants crowd out private donations, whereby nonprofits whether intentionally or unintentionally diminish fundraising efforts. The second section, on the other hand, argues that grants crowd in private donations, whereby after receiving grants, nonprofit organizations draw more attention from private donors and increase funding through donations (Brooks, 2000). However, Shief (1985) argues that this behavior depends on the type of an organization, while Hughes *et al.* (2014) argue that it solely depends on the private donors.

The advantages of the crowding out effect is creation of stable source of funds, clear mission, less political environment, greater monetary support, less expenditure on staff, and etc. In order to function and provide services, nonprofit organizations must have funds to operate. Yet, not all organizations are able to have stable sources of revenue to operate and continue providing services. For example, an organization that relies on private donations to operate, faces decrease in the amount of donations during economic recessions, which usually forces organizations to decrease number of employees and restructure the budget. Hence, the crowding out effect in fact creates an environment whereby nonprofit organizations are able to continue operations without any disruption due to bad economy or low donations (Silvesind and Selle, 2009). Additionally, by crowding out private donations, nonprofits are able to establish politics free environment, whereby nonprofit management would not be forced to please donors individually to gain support and financial resources (Horne *et al.,* 2005).

In addition, the crowding out effect also allows nonprofits to have clear mission and create reputation for providing particular services. For example, by crowding out private donors, a nonprofit gets rid of majority stakeholders, and is able to build a reputation for providing particular services with approval of the major stakeholder, which is the government.

Nonprofits are not assured to gain minimum amount of financial resources every year from private donors. Receiving grants is more assuring and stable for nonprofits (Andreoni and Payne, 2011). Stable yearly financial resources help nonprofit organizations to master and excel at providing services (Andreoni *et al.,* 2011). Moreover, by crowding out private donations, nonprofits are able to cut administrative and fundraising costs (Payne, 1998). Instead of increasing number of employees to increase funds through fundraising, nonprofits instead hire fewer number of employees for grant writing purposes. Hence, as a result of the crowding out effect, nonprofits are able to decrease costs associated with operating nonprofits. The findings highlights that there is minor decrease in administrative costs (Thornton, 2012).

The disadvantages of the crowding out effects on nonprofits are decrease of public support, decrease in financial resources, increase on governmental influence, and decrease of accountability by stakeholders. Although, the goal of nonprofit organizations is to value social change and provide services where government fails to act (Paredo and McLean, 2006), the crowding out effect creates an environment where public support for nonprofits decreases due to an increase in government grants, which is associated with distrust generated by the public (Payne, 2011). Decrease of public support then results in decrease in private donations (Andreoni and Payne, 2011). Although nonprofit organizations are able to maintain operations even when private donations decrease, the main issue then becomes the number of customers and stakeholders. Where governments are accountable to many stakeholders and serve large pool of customers (Austin *et al.,* 2006), nonprofit organizations are accountable to limited number of customers and stakeholders (Roberts and Woods, 2005). Not only the government becomes the largest stakeholder after proving grants, but it also increases influence over mission and operations of nonprofit organizations (Thonrton, 2014). To summarize, crowding out private donations reshapes purpose and values of having charitable nonprofit organizations (*see Table 2*).

The advantages of the crowding in effect are increase of private donations, increase of public support, increase in the number of stakeholders and customers, and increase of competition among nonprofit organizations. Studies show that governmental grants, in fact, increase private donations, yet the results show that this behavior is attributed to new nonprofits (Heutel, 2012; Hughes *et al.,* 2014). Similarly, the behavior of the public changes towards nonprofit organizations that receive large governmental grants, by increasing support for organizations (Friendman, 1979). An increase of support, whether it is monetary support or simply volunteerism, increases the number of stakeholders in nonprofits, which makes nonprofits more accountable to the public (Horne *et al.,* 2005). Yet, the biggest advantage of the crowding in effect is an increase of competition among nonprofit organizations (Ashley, 2014). Nonprofits that do not rely solely on grants, and by increasing private donations and increasing support of donors helps maintain providing services. Moreover, this creates a competition among nonprofit organizations, whereby organizations not only increase fundraising efforts through private donations, but through attracting supporters from competing nonprofits as well (Sokolowski, 2012; Horne *et al.,* 2005). To summarize, crowding in effect boosts competition among nonprofit organizations and increases quality of services provided (*see Table 2*).

There are few disadvantages of the crowding in effect of grants for nonprofit organizations, yet the most important factor is an increase in the number of stakeholders. Nonprofits, like politicians, are accountable to customers and stakeholders. Yet, just like politicians, nonprofits would rather have one major stakeholder to report to instead of many. That is, if a nonprofit accepts equal amount of financial resources from grants and private donations, then organizations are to report to many stakeholders (Siversind and Selle, 2009). Although significant, according to Heutel (2009) the impact of crowding in funds from other sources does little impact on nonprofit management and accountability. However, the important factor is that nonprofits in fact act strategically and choose whether to crowd in or crowd out (Bailey and Connolly, 1997).

Table 2 Advantages and Disadvantages of Crowding in and out Effects

	Advantages	Disadvantages
Crowding out	- Larger monetary gains - Decrease in fundraising efforts - Decrease of customer and stakeholder pressure - Decrease in administrative costs	- Decline in number of staff members - Decrease of social value and purpose of an organization - Decrease of donor accountability - Decline of public support - Increase in governmental and influence
Crowding in	- Increase of monetary funds through donations and grants - Increase of donor and public accountability - Increase in public support - Decrease of governmental influence - Increase of service effectiveness	- Nonprofit competition for funding - Increase of the number of stakeholders

Conclusion

The purpose this paper is to critically evaluate and examine the literature on the flypaper effect in nonprofit organizations. In order to clearly understand the flypaper effect, this paper asks series of questions. The first question asks whether the flypaper effect is present in nonprofit finance and to what extend it effects private donations. The findings highlight that the flypaper effect becomes present in nonprofits when organizations receive grant money. The literature shows that the flypaper effect, mostly, has a negative effect on private donations and on other sources of revenue for nonprofits. Yet, conflicting literature argues that the flypaper effect, although significant, does no harm private donations. Additionally, scholars provide theoretical argument of positive effect of the flypaper effect, whereby grants help increase donations and public support. Nonetheless, this paper concludes that strategies and policies adopted by nonprofit organizations, in fact, play major role on whether the flypaper effect produces positive or negative outcome.

The paper also discusses the approaches adopted by various fields in studying the flypaper effect. While examining the literature, the paper finds that three fields have analyzed and examined the flypaper effect in nonprofits. To clarify and distinguish the differences, this paper examines all three approaches individually. The findings highlight that scholars in the field of economics are interested in finding the net effect of grants on nonprofit finance. Yet, the findings suggest that depending on the type and purpose of a nonprofit, organizations react differently to the flypaper effect. To support this claim, the scholars in the business field investigate whether nonprofits adopt certain strategies and policies to promote the flypaper effect. The findings suggest that nonprofits adapt strategically based on grant requirements to attract funds. However, this behavior does not apply to all organizations. The nonprofit and public administration literature also supports findings of business scholars, while adding that private donors usually are unaware of the amount of funding nonprofits get through grants. Yet private donors continue donating time and resources if the mission and social values of nonprofit organizations do not change.

Moreover, the paper in depth discusses what the crowding in and out effects are, and whether the effects have positive or negative effect on nonprofit organizations. The summary of findings highlights that the crowding out effects in fact do not have major impact on nonprofit finance. The essential impact of the crowding out effect is change nonprofit

behavior to retain grand money. On the other hand, the findings of the crowding in effect suggest that private donations do not diminish even when grant funds increase. Moreover, grant funding help nonprofit organizations to attract more private donors and other financial resources.

Therefore, the paper concludes that the flypaper effect varies based on the type of a nonprofit organization, educational and income level of donors, and most importantly the amount of grant funding. The paper also notices the gap in the literature. The area that has not been examined is the relationship between nonprofit organizations and politics. Hence, this paper recommends to examine the flypaper effect of grants based on the providing agency, and more specifically to research question "Does the flypaper effect depend on the agency that provides grants?".

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A HYBRID MODEL PROPOSAL BASED ON SCM AND RCM ADMINISTRATIVE BURDEN MODELS (A.B.Ms)

Nikos ALABANOS
Department of Maritime Studies, University of Piraeus
nikosalab@yahoo.gr

Sotiris THODOROPOULOS
Department of Maritime Studies, University of Piraeus
stheod@unipi.gr

Abstract

The existent administrative burden models' (ABM's) perform certain weaknesses mainly on: a) Regulatory cost measurement expansion, b) Integration & standardization of data and sampling measurement methods, c) Integration & Standardization of time and resources d) Evaluation of the weaknesses of Public Administration and e) lack of standardized international comparison benchmark. Based on these main deficiencies the address of certain amendments that will meet contemporary challenges such as: i) the standardization of data collection methodology, ii) a more solid substantive cost measurement methodology, iii) an extended AB measurement capabilities module and finally iv) the feature of international comparison, is a significant amelioration.

Keywords: Administrative burden, Administrative Burden Model (A.B.M.), administrative costs, substantive costs, international comparison, Standard Cost Model (S.C.M.), Regulatory Cost Measurement Model (R.C.M.).

JEL classification: G38, K20, L51

1. Introduction

A comparative analysis among the main A.B.M's designates that certain amendments or incorporations on ABM's could be further expand their scope and their capabilities, mainly referring to the: a) adoption of an appropriate statistical method for typical business unit's determination, leading both to an unbiased, objective and impartial typical business selection and administrative costs determination for the total survey population via extrapolation process, b) the standardization of the methodological approach for the questionnaire response collection, in line with best practices or/and methodologies that have been developed internationally. Primarily this could be achieved at the preparatory stage (setting phase) of questionnaires, enhancing the information provided by the qualitative variables, c) the expansion of compliance cost measurement capabilities (e.g. substantive compliance cost of business units measurement, opportunity cost measurement and transaction cost measurement between business units and public sector) and d) the adoption of an AB international comparison numéraire, through the implementation of nominal or real exchange rate (PPP or MEP) measurement techniques, facilitating also the benchmarking of administrative burdens worldwide [OECD (2011); World Bank (2010); Weigel (2009); Frank A.G. den Butter, Marc de Graaf & André Nijsen, (2009); Regulatory Reform Group, (2008)].

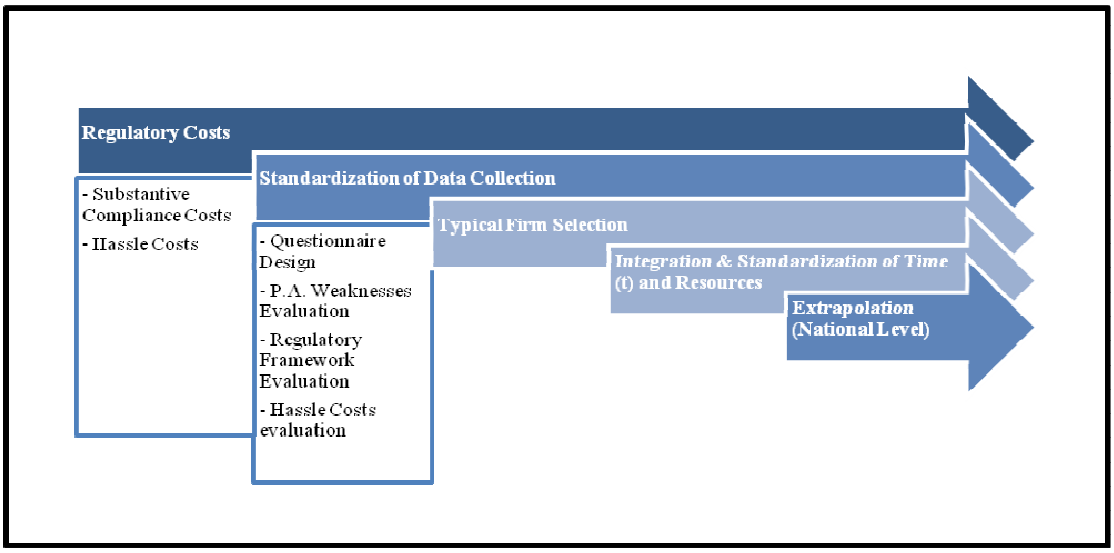
Furthermore, the comparison among the existent ABM's presents many deficiencies, especially in the fields of: a) Data collection methodology, b) risk assessment methodology for the recognition of the administrative sectors with significant A.B, (c) weakness evaluation of Public Administration and finally d) Regulatory Framework Efficiency Evaluation [INTOSAI, (2013)].

2. A new Hybrid A.B.M. Proposal

The proposed hybrid ABM is being based on the existent ABM's structure (mainly on the international SCM and RCM) with the introduction of certain amendments. As, the structure

of the proposed amendments associated with the structure and the workflow implementation steps of SCM, therefore we are quoting only the corresponding steps at SCM structure, where model calibration is being adopted *(Graph 1)*.

Graph 1: Hybrid A.B.M's main futures



2.1.1. Determination of Regulatory Cost types and Source based classification - (S.C.M. - Phase 1 - Step 1)

The S.C.M. step 1 is being modified in order the regulatory costs to be splited out into three (3) different module categories, allowing measurement of different types of administrative and regulatory costs. Hence, the measurement model composed of three (3) different modules. The first (1st) module includes the administrative costs as a combination of the corresponding costs of the S.C.M. and R.C.M. models. The second (2nd) module includes all cost drivers associated with the substantive compliance costs that a typical firm confronts, based mainly on RCM identified compliance cost factors. Finally, the third (3rd) module corresponds to the necessity for hassle cost measurement or assessment, according to World Bank survey experience and methodology [World Bank, (2010)].

Administrative Costs

Composes of three (3) different types of administrative cost subcategories:

i) Information obligations (IO) Costs: Include the costs for all the necessary administrative activities in order a typical firm to comply with the disclosure requirements of the regulatory framework.

ii) Data Withhold Obligations (DWO) Costs: Include withhold or availability data costs, in order obligations to be submitted whenever it's asked for (IT or file record keeping policy) and in compliance with the disclosure requirements of the regulatory framework.

iii) Educational & Training Obligations (ETO) Costs: it includes the costs related with the necessary training or/and education for the adaptation of personnel professional skills with the requirements of the regulatory framework (In accordance with R.C.M provisions).

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Substantive Compliance Costs

Composes of **four (4)** different substantive cost subcategories:

i) Financial Costs: Costs associated with requirement to carry out certain amount of capital resources to the State, due to the regulatory framework provisions (e.g. taxes on earnings, SSF contributions, license fees, fines e.t.c).

ii) Personnel Costs: Costs related to HR management, exclusively related to the compliance with the regulatory framework. These costs inter-related with staff training, cooperation strengthening, supervision issues, etc.

iii) Material Costs: Includes all material expenses exclusively related to the compliance with the regulatory framework, including the cost of materials procurement, services from third parties, infrastructure financing and depreciation, etc.

iv) Opportunity Costs: Includes foregone yield, due to the utilization of capital resources for the compliance with the regulatory framework.

(+)

Hassle Costs

That composes of **three (3)** different hassle cost subcategories:

i) Loss of Time - Opportunity Cost: Associated with the loss of productive time by the administration or/ant the personnel in order to comply with the obligations imposed by the regulatory framework.

ii) Non-formal compliance Costs: Includes any potential payouts for the verification of informative or substantial compliance of a business unit with the regulatory framework that although they don't indicated as prerequisites, they have been adopted by the typical firm as factor successful or accelerated completion of the adaptation process.

iii) Corruption Costs: Includes any potential payouts to public or private sector representatives for a false or fraudulent verification of informative or substantial compliance of a typical firm.

2.1.2. Standardization of Data Collection (S.C.M. - Phase 2 - Step 7)

The questionnaire design at the S.C.M. Step 7 during the preparation of interview drivers, takes into account the following procedures.

a) Questionnaire Design & Evaluation

The design of the questionnaire is being based on the principles of DELPHI survey type, since: i) those involved in the survey of regulatory framework processes, don't have a thorough knowledge of the internal entities environment and processes and ii) due to informational asymmetry there may be collective benefits based on subjective judgment. For these reasons questionnaire design takes into account the following principles:

- A constant feedback policy that allows the repetition of those questions which the research team deems as influential or requires a more clear response.
- Use of descriptive statistics on the 1st round of sample responses in order to assess any outliers, assessing also responses of a quantitative nature.
- For those answers where deviation exceeds an (x%) percent of the standard deviation (s) (decided by the survey team depending on the attributes characteristics, socioeconomic factors e.t.c) and in accordance with the confidence interval, a 2nd round responses is being conducted on those questions that divergence appears.
- Repetition of questions, aiming to the limitation of stochastic factors that can stir up standard deviation's increase.

b) Public Administration Weaknesses Evaluation

Focusing on public administration's weakness, mainly on the efficacy and efficiency of administrative strategic vision and operations, it is a prerequisite to detect inner public administration weaknesses that could provoke or cumber AB phenomenon (a corresponding process addressed also by B.H.T. Model).

The simplification, redesign and/or elimination of administrative procedures should take into account the existence of all the necessary safeguards on administrative procedures, while essential information for administrative weaknesses associated with AB, contributes substantially both to regulatory distortions withdrawal and finally to the introduction of administrative reforms.

Thus, questionnaire evaluation is crucial in order queries and replies to be addressed appropriately. Therefore during questionnaire design phase, survey team structures the queries in that manner that the acquisition of information on the efficiency and quality of public

administration within the public entity under survey to be assisted. This information answers at least to the following issues:

- Identification and evaluation of internal controls within the public entities, associated with the assurance of proper operation of administrative processes under survey (e.g. assurances that deviations from regulatory framework don't exist), which is also interrelated with the performance of public administration and the reduction of AB. These issues refer to the following sub-categories: (i) authorization and approval procedures, (ii) allocation of tasks and roles, (iii) access control, (iv) verification.
- The identification and assessment of risks associated with: a) the effectiveness and quality of public governance within the entity under survey, and b) the performance of the administrative operation of the entity. These risks must be divided into two (2) sub-categories: i) endogenous risk (inherent risk) or the risks associated with the environment and the functioning of the entity and ii) risk of internal controls (internal control risks) or the risks associated with the existence of an effective internal control environment (INTOSAI, 2013).

b) Regulatory Framework Efficiency Evaluation

The collection of qualitative data related to the effectiveness of regulatory framework, is quite significant for the reduction of AB. By either using "five-point scale Likert" or "Scale of one to ten" method, questionnaire design should take into consideration the following subjects:

- Evaluation of the regulatory framework quality.
- Assessment of the positive or negative impact of the regulatory framework and the regulatory burden on business operation.
- Assessment of the positive or negative impact of the regulatory framework on the competitive structure and operation of market.

All this queries should be accompanied by proposals for the improvement and amendment of the regulatory framework.

d) Hassle Costs Evaluation

da) Tax Cost

Retrieving information and qualitative data in correlation with tax compliance, questionnaire design takes into account the principles and structure of World Bank's Enterprise Surveys. In particular, the research team structures a cluster of sub-questions referring tax compliance and quantification, with which significant information on the structure and function of the regulatory environment are collected. The content of the sub questions answers mainly on the following issues:

- The assessment of regulatory framework's effectiveness in relation to the necessary time of management and staff involvement on tax compliance issues (time tax).
- The assessment of annoyance degree for certain tax attributes.
- The assessment of the annoyance degree from the current tax administration governance level and quality.
- A diagnosis of tax framework key features, in line with the methodology sets out in the Paying Taxes of Doing Business (WB). These features are related to: a) tax burden - tax rate issues, b) tax compliance time and c) the payment process.

db) Corruption Cost

A separate set of qualitative and quantitative questions is being adopted, related with the detection of corruption attitudes during compliance process. On that sub-step, the survey team proceeds to the identification of possible regulatory failures or internal control inefficiencies associated with the appearance of corruption that contributes to unfavorable business environment, as well as to entry market barriers, followed with increased production costs and high risks associated with "doing business" intention.

For the design of the questionnaire are taken into account the principles, the structure and the variables used by World Bank (2013) BEEPS methodology, while the structure of the

questions are based on the model of Enterprise Surveys Indicator Descriptions. The structure of the questionnaire answers mainly on the following issues:

- The identification of the administrative processes where evidences for corruption phenomenon or corruptions shadows exist.
- The identification of management activity type where corruption evidences exist (tax, licensing, etc.).
- The estimation of average number of meetings required in each step with the respective tax - administrative officers.
- The existence of internal control at the respective tax transaction procedures.
- The assessment of the influence degree of subjective judgment and action of tax administration during transactions.
- In case of corruption incidents disclosure, the estimation of financial returns value (in average).
- The qualitative and quantitative analysis of the responses.

dc) Opportunity Cost due to Time Loss

The opportunity cost due to time loss results from the calculation of the time loss by management and employees, due to liabilities related to the compliance with the regulatory framework, in combination with an implicit interest rate, associated with the potential employment performance loss in productive activity of the business unit.

The indicative terms of time loss obligations consist of the following obligations:

- **Information Compliance Obligations**: Include time spending by the management or employees for the preparation, correction and communication of the necessary information, the duration of the meetings with the competent authorities, internal conferences etc.
- **Substantial Compliance Obligations**: The time spent by the management for tax compliance, consultation with financial stockholders in order to finance investment projects in compliance with the regulatory change, the planning of training programs due to legal framework changes etc.

While opportunity cost is being calculated according to the same methodology that has been adopted by the respective stages of the SCM or RCM, implicit interest rate is being calculated by the survey team on the basis of: a) the interbank interest rate in € (EURIBOR) for business deposits, or b) the ratios of net operating profit of the typical firm.

The process for opportunity cost calculation includes the following steps: a) Determination of total time loss (T_{tw}), b) Definition of costs associated with time loss, c) Determination of implicit rate of interest (i_i) and d) multiplication of the implicit interest rate (i_i) on time loss (T_{tw}) and labor and management cost (PC).

$$OC_{tw} = (T_{tw} \times PC \times)(1 + i_i) \quad (1)$$

Where

$OC_{tw} = Adjusted\ Opportunity\ Cost\ due\ to\ time\ loss,$

T_{tw}= *Time loss (workdays)*

$i_i = implicit\ rate\ of\ interest\ on\ deferred\ payement$, *(weighted average cost of capital, WACC)*

$PC = Labor\ \&\ staff\ management\ cost$

2.1.3. Typical Firm selection - (S.C.M. - Phase 2 - Step 10)

A major challenge refers to the sample representativeness during the application of A.B.M.s, an increased estimation's accuracy could be fostered through the adoption of a

stratified random sampling process[1] for the homogenization of the population and according to the population's characteristic in interest.

Therefore, the phase 2 - step 10 of the International SCM is being amended through the adoption of the following sub-steps.

1. Data collection on specific population characteristics from official sources, associated with the regulatory burden under survey (e.g. financial performances & outcome, size type, geospatial type e.t.c.).
2. Definition of specific stratification scales for the population, according to the characteristic under survey. Specifically, the population is divided into non-overlapping groups/layers according to the characteristic under survey. During stratification process, the researchers calculate the weight of each group in the total population ($W_i = {}^{N_i}/_{N}$)$W_i = {}^{N_i}/_{N}$[2]. For the determination of the number of *m* layers to be selected, significant differences among the true mean in stratum *i* (μ_i) in accordance with minimized true variance (σ_i^2) should be also taken into account.
3. The size of the required total sample (*n*) is determined by the degree of confidence with which the estimation $\bar{X}_n = \sum_{i=1}^{m} W_i \bar{X}_i$ $\bar{X}_n$ $(\bar{X}_n = \sum_{i=1}^{m} W_i \bar{X}_i)$of the true mean μ is not far than a given value $e = \bar{X}_{st} - \mu$ e $(e = \bar{X}_{st} - \mu)$of sampling error, that is, the problem may be stated as "what should be the size (*n*) of the stratified random sample so as the following confidence level be true?" (statistical function 2):

$$P(|\bar{X}_n - \mu| \leq e) = 1 - a \tag{2}$$

The determination of the sample size (*n*) ensures a given value V for the variance of the sampled mean $(V(\bar{X}_n) = V)$. Thus, the statistical function for the calculation of the sample size (*n*) is given by the following relation (statistical function 3):

$$\mathrm{n} = \frac{n_0}{1 + [\sum_{i=1}^{k}(N_i/N)\sigma_i^2]/(\mathrm{NV})}$$

where

$$n_0 = \frac{1}{\mathrm{V}} \sum_{i=1}^{k} \frac{(N_i/N)^2 \sigma_i^2}{W_i} \tag{3}$$

Where:

n= the size of the stratified random sample, $n=n_1+n_2+\ldots+n_m$

N_i=units of group or stratum i, i=1,2,…,m,

N=total population, $N=N_1+N_2+\ldots+N_m$.

4. Survey team verifies the representativeness of characteristic(s) under survey in different stratification layers, calculating also the representative rate of the characteristic(s) in the total sample.

5. In each group/layer via a random sampling method or random numbers generation method we take a random sample. For this sample, an estimator of the mean and the

[1] *The stratification compared with simple random sampling, has less dispersion for the estimator of the population mean (a mean estimator with significantly smaller variance than the random sampling).*

[2] *Where Ni=units of group or stratum i, i=1,2,…,m, N=total population, N=N1+N2+…,Nm.*

variance of the characteristic (q) on survey are being calculated (statistical functions 4 and 5):

$$\bar{X}_n = \frac{1}{n}\sum_{i=1}^{k} n_i \bar{X}_{n_i} \quad (4)$$

$$\sigma_{\bar{X}}^2 = V(\bar{X}_n) = \sum_{i=1}^{k} \left(\frac{N_i}{N}\right)^2 \frac{\sigma_i^2}{n_i}\left(1 - \frac{n_i}{N_i}\right) \quad (5)$$

6. The researchers verify whether the mean and the variance of the characteristic(s) of the sample are within the confidence interval (hypothesis statistical testing through one-sample test). In those cases where there is a discrepancy, the researcher proceeds to a resampling[3]. For the determination of the confidence interval it's used a normal distribution function with known mean and variance wherein.

   For a typical normal distribution we define [z(a/2), z (1-a /2)], in which z belongs to a given probability (1-a).
7. Where, according to survey team's estimations, risk factors exist that may limit business unit response, an indicative percentage increase of the sample [indicatively + 20% or + 30%] could be set via the sampling process of sub-step 5, addressing effectively situations of non-response to the questionnaire interviews.
8. Interviews conducted in the whole sample of business units selected on the sub-step 5.

2.1.4. Integration & Standardization of time and resources (S.C.M. - Phase 2 - Step 12)

The need for standardization of the "compliance time" on each sub-categories of costs, could be achieved through the use of descriptive statistical measures (mean and standard deviation), which are obtained for each different stratified sample. Statistical outliers business units may be excluded from the sample, in cases where the necessary for compliance time compliance exceeds a certain percentage (x%) from the standard deviation of the sample's layer (σ).

For the identification of statistical outliers in a normal or stratified distribution commonly used the methodological criteria of: i) Chauvenet's criterion, ii) Grubbs' test for outliers, iii) Dixon's Q test or iv) Peirce's criterion.

Survey group may for practical reasons also easily use the method of interquartile range (interquartile range method), where Q_1 and Q_2 are the lower and upper quartiles respectively, and k a variable where $k \geq 0$, then the outliers are those observations that are outside the range (statistical function 6):

$$[Q_1 - k(Q_3 - Q_1), \quad Q_3 + k(Q_3 - Q_1)] \quad (6)$$

2.1.5. Export valid data at the national level (S.C.M. - Phase 3 – Step 13)

For the process of extrapolation to the population of a regulatory cost under survey, the S.C.M. step 13 is being amended as follows:

a) After total cost calculation according to the stratification of the sample scales (Phase 2 - Step 10) and the integration & standardization of time and resources occurred (Step 2 - Step 12), follows the calculation of the total regulatory cost to the population of the layer ($LTRC_i = \sum_i RC_i$ ($LTRC_i = \Sigma_i RC_i$, RC = regulatory cost) based on the usual statistical properties (statistical functions 7 and 8):

[3] *We accept that the population follows the normal distribution or that any deviation is marginal and do not affect the estimator.*

$$\overline{TRC_i} = \frac{1}{n}\sum_{i=1}^{k} n_i \overline{TRC_i} \quad (7)$$

$$LTRC_i = \overline{TRC_i} \times n_i \quad (8)$$

b) For the estimation of the average total regulatory cost of the entire population and its consequent variance, the survey team use also the above a weighted average statistical function of the $LTRC_i$ with their weights $W_i = {}^{N_i}/_{N}$ (statistical function 9):

$$PTRC_i = \sum_{i=1}^{n} (w_i \times LTRC_i) + \cdots + (w_n \times LTRC_n) \quad (9)$$

Where:

n= the size of the stratified random sample, $n=n_1+n_2+\ldots+n_m$

$PTRC_i$ = Population Total Regulatory Cost

w_i = The weight of each group in the total population

2.1.6. Adjustments for International Comparison (S.C.M. - Phase 2 - Step 15)

For the adaptation of the administrative and substantive compliance cost in terms of international comparison, the survey team implements the method of purchasing power parity (PPP) with the adaptations and modifications adopted by the OECD and Eurostat at the S.C.M. Step 15. Specifically, the procedures followed include:

- **Step 1:** Linking of the calculated different types of administrative and compliance costs with EUROSTAT collective services categorization (COFOG 98).
- **Step 2:** Linking of the calculated at Step 1 administrative and compliance costs with the public services types of actual cost for which the estimated purchasing power parity (PPP) exists at the lowest level of expenditure aggregation (Basic Heading).
- **Step 3**: PPP values on public services types and for each different type of administrative and compliance costs, provided by OECD – Eurostat data in accordance with EKS PPP methodology, where an indirect PPP between two (2) countries is obtained by calculating it indirectly through the PPP acquired from Step 2. The calculation formula for EKS is as follows (statistical function 10):

$$PPP_i = EKS_{\frac{A}{B}} = \left\{ F^2_{\frac{A}{B}} \times cF_{\frac{A}{B}} \right\}^{\frac{1}{3}} \quad (10)$$

Where:

EKS = the geometric mean of the Purchasing Power Parity (PPP) and all indirect PPP between a pair of countries (A and B).

$F_{A/B}$ *= The formula for calculating Fisher's PPP, which is the geometric mean of the Laspeyres type PPP and Paasche type of PPP.*

PPP_i *= PPP for category (i) costs*

If there are no details then for the calculation it is used the aggregate value of PPP for the respective categories BH Code 14.01.14.1 / or 14.01.15.1, with corresponding weights according to the classification of individual compliance costs.

- **Step 4:** Calculation of administrative and substantive compliance cost in terms of PPP, through the following equation (statistical function 10):

$$TC_{PPP} = \sum_{i=1}^{n} (C_1 \times PPP_1) + \cdots + (C_n \times PPP_n) \quad (11)$$

Where:

TC_{PPP} = total compliance costs under PPP conditions
C_n = compliance costs for category (n) costs,
PPP_n= PPP for category (n) costs

3. Discussion and Conclusion

With the proposed amendments into SCM and RCM structure, the new hybrid ABM, corresponds effectively into certain challenges, referring mainly to: a) a better regulatory cost segregation and typical firm selection procedure, b) a new substantive and hassle cost module development, c) the integration and standardization of time and resources, d) public administration weaknesses and regulatory framework efficiency evaluation, e) amendments to the extrapolation process to the population, f) adjustments on PPP methodology base for international comparison capability.

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TOURISM DEMAND AND TAX RELATIONSHIP IN ISLAMIC REGIONS

Majid FESHARI
Assistant Professor of Kharazmi University province, Iran.
majid.feshari@gmail.com

Ali AKBAR TAGHIPOUR
Assistant Professor of Damghan University
taghipour.a9@gmail.com

Mojtaba VALIBEIGI
Assistant Professor of Buein Zahra Technical University, Buein Zahra city, Qazvin province, Iran.
M.valibeigi@bzte.ac.ir
Mojtaba.valibeigi@gmail.com

Abstract

The relationship between tax and tourism receipts is one of the crucial issues in tourism literature and has been considered empirically in recent years. For this purpose, the main objective of this paper is to determine the long-run relationship between tax ratio to GDP and tourism receipts in OIC selected countries during the 1990-2014. The econometric model for these countries has been estimated by applying dynamic OLS approach. The main findings of this study reveal that tax ratio has negative effect on the tourism receipts and GDP per capita and its growth have positive and significant effect on the tourism receipts in Islamic selected countries. Hence, the main policy implication of this paper is that the tourism managers in these countries should adopts policies to improve the tax revenue through the increase of product capacity. Moreover, the increasing of GDP per capita can improve the tourism receipts in these countries.

Keywords: Tourism, Taxation, Tax Incentives, GDP Per Capita, DOLS Approach
JEL classification: C23:L83:O49

1. Introduction

Upon to macroeconomics literature, tax rate has always been proposed as one of the government tools for the investment attraction. Policymakers try to increase the investment rate, performing some fiscal policies, especially the foreign direct investment, such as optimized tax rate determination. The main argumentation that most countries, especially developing ones, use the tax rate for the foreign direct investment and economic growth promotion is that it works as a tool for the economic activity attraction in competitive environment of economy. In addition, it can strengthen the other economic sectors such as tourism. Empirical studies about the tax rate and investment relation in economic sectors particularly tourism shows that there is a direct relation between the tax rates and investment. In present study, it has been tried to assess the tax rate influence on foreign exchange earnings of tourism in selected Islamic countries during the 1990 to 2014, utilizing the integration approach in panel data and Westerlund method. This study has been organized as below:

In second part a literature review has been done, part three introduces the Dynamic Ordinary Least Square (DOLS) in panel data. In fourth part the study model and statistic database have been presented. The results of model estimation and analysis in addition to conclusion and policy recommendations generate the final part of study.

2. Literature Review

The first theoretical arguments about the tax rate and investment in tourism section belongs to Zodrow and Mieszkowski (1986). Upon to this model and in the event that the

investment has the mobility and the work force does not transferred, countries vie lesser than optimum amount for the investment attraction, mainly through the taxation. Its reason is that the tax increasing on investment causes the cost growth and consequently investment conducting to the countries with lower tax on investments.

Bucovetsky and Wilson (1991) evaluated this model under the asymmetric compete circumstance between the great and small countries. They concluded that great countries has the more taxation ability than the small ones, because the tax base in them has the lower sensitivity against the tax rate fluctuations. In other complex model, proposed by Keen (2002), the tax rate targeting and optimum taxation causes the cost reducing and consequently investment growing in economic parts. The main assumption in all tax competition models is that demand for the capital stock has the inverse relation to cost of capital. More taxation on capital stock will reduce the capital cost. This supposition originated from the Jorgenson neoclassical investment theory. This theory considers the investment as a function of capital relative price and the investment function relates directly to the current production and inversely to the capital (Van Parys and James, 2010). Per capita income in addition to tax rate is effective on tourism demand. Upon to economic theories, if the tourism considered as a normal commodity, it is expected that per capita income increasing, upsurge the tourism demand. Therefore, the per capita income can cause the tourism demand growing in long-run period via the demand curve transferring towards the right and up. Cost of Living index is one of the effective variables on tourism foreign exchange earnings. In the most of empirical studies such as Martin & Witt (1987), Habibi et al (2008) and Gormus and Gocer (2010), the Commodity and services prices index or real exchange rate have been utilized as the appropriate substitute variable for the living costs in destination country. It can be said that in consequence of real exchange rate increasing, the travel cost to the destination country will reduce and people tendency will intensify. Therefore, the real exchange rate has the positive effect on tourism demand. It is used as a suitable variable for the cost of living index in terminus country. In addition, the substitute product price can be one of the effective variables on foreign tourism demand. The substitute product prices defined as the ratio of weighted average cost of living in substitute countries on living cost in destination country. It is expected that increasing of substitute product price caused the foreign tourism demand amplifying. Because the living cost has increased in substitute countries relatively and the tourism demand for the destination country will grow accordingly. Expectation and habit is other effective variable on tourism demand, which generally entered to the demand model as a stuck dependent variable. Its reason is that when a tourist goes to a country, he/she tends to experience again that satisfactory and enjoyment. In addition travelling to a country that has been experienced before has the less risk and is more pleasurable. In most of empirical studies on tourism demand estimation such as Nordstrom (2005), Lim (2003), Song & Witt (2003) and Gormus & Gocer (2010) the amount of stuck dependent variable has been used as the expectation and habit. Upon to this, it can be supposed that other variables such as the per capita income, the real exchange rate and the expectation and habit are effective on tourism demand in addition to tax rate. Due to aforementioned sentences, the tax rate influence on tourism foreign exchange earnings along with per capita income, the real exchange rate and the expectation and habit variables will be introduced and assessed. Studies of Kulendran and Wilson (2000), Song and Witt (2003), Eilat and Einav (2004), Phakdisoth and Kim (2007), Habibi et al. (2008) and Gormus & Gocer (2010) are the most important researches about the effective factors on foreign tourism demand. In these studies, various econometrics methods in time series and panel data have been utilized to explain the most important factors on tourism demand and diverse results have been obtained. As a conclusion of aforesaid studies it can be said that most of them have focused on effective factors on tourism foreign exchange earnings whereas the tax rate effect has not been assessed on tourism foreign exchange earnings especially for the developing and OIC selected countries.

3. Dynamic Ordinary Least Square (DOLS) Approach

Present study has exploited the Dynamic Ordinary Least Square (DOLS) method for the long-term equilibrium relationship among the tax rate and tourism foreign exchange earnings variables for OIC selected countries. It has been proposed by Kao and Chiang (2000) and is one of the long-run estimate methods in panel data. Monte Carlo simulation studies have

shown that DOLS method has the lesser RMSE in small samples, comparing the other estimation methods such as Fully Modified Ordinary Least Square (FMOLS). Moreover, the DOLS is a parametric method in parameter estimation. It eliminates the correlation problem between the explanatory variables and disturbance terms, using the lead and lag stuck difference values of explanatory variables and the dependent ones. In addition, the optimum stuck in this method is determined by the Akaike and Schwartz Bayesian test statistics (Kao and Chiang, 2000:182-183).

An important point in DOLS is that there is an ability for Co-integration vector estimation in situation that integration order of variables are different. Another advantage of this method is compatibility and estimators have an asymptotical normal distribution. While the estimated disturbance terms are not compatible and can be considered exogenously.

It is needed to check the model variable stability order before the estimation of long-run relation between the variables. There are many tests for the stability assessment of panel data such as Levine test, Lin and Chu, Britveng and Hardy test, which have the more limited assumptions (see Baltagi (2005) for more details). Because the same and share amount consideration is not appropriate for the unit root tests, therefore the Im, Pesaran, Shin and the extended Fisher-Dickey Fuller test statistics were used for the variable stability assessment. Using of these tests can cause the differences of dependent variable between the individual units and present logic results of variable stability.

4. Study Model and Statistic Database

Utilized model in present study explained as below, upon to theoretical bases and empirical literatures such as Gago et al. (2009), Van Parys and James (2010), Gormus and Gocer (2010).

$$LTR_{it} = \eta_i + \beta_1 LTR_{it-1} + \beta_2 TAX_{it} + \beta_3 LGDPP_{it} + \beta_4 LRER_{it} + \nu_{it} \quad (1)$$

Where LTR is the logarithmic indicator of tourism foreign exchange earnings. TAX is the tax rate, LGDPP is logarithm of per capita income and LRER is logarithm of the real exchange rate, which is the multiplication of Nominal exchange rate and the consumer price index ratio (CPIit) over the consumer price index of the United States (CPIUS). Therefore, the calculated equation of real exchange rate obtained by equation 2:

$$RER_{it} = NER_{it} * \frac{CPI_{it}}{CPI_{USt}} \quad (2)$$

In model 1, the logarithm of stuck tourism foreign exchange earnings have been considered as the dynamic effects of foreign exchange earnings in previous period over the foreign exchange earnings of current year. It can be said that the tourism foreign exchange earnings in the MENA region will rise due to Increasing in per capita income. Moreover, it is expected that foreign exchange earnings will reduce due to tax rate growing. The real exchange rate also has the positive anticipation effect on tourism foreign exchange earnings. The study period is between the 1990 to 2014 while the related statistics and information have been extracted from the compact disk, published by the World Bank Development Indicators (2015).

5. Model estimation and the study results analysis

In this section, the model will be estimated and research results will be analyzed. For this aim, the research variables stability have been tested, using the Im, Pesaran, Shin and the extended Fisher-Dickey Fuller test statistics (table 1).

Table1. Results of IPS unit root test and ADF-Fisher

ADF-Fisher test statistics in Surface				IPS test statistics in Surface		
Result	Probable value with Intercept	Probable value with Intercept	Result	Probable value with	Probable value with	Variable Name

	and time trend			Intercept and time trend	Intercept	
Unstable	0.13	0.15	Unstable	0.19	0.23	LTr
Unstable	0.58	0.62	Unstable	0.36	0.43	LRER
Stable	0.000	0.000	Stable	0.00028	0.0032	TAX
Unstable	0.48	0.54	Unstable	0.74	0.75	LGDPP

Considering the table 1, it can be explained that Tourism foreign exchange income, the real exchange rate, the per capita income logarithms are stable by once differencing while the tax rate logarithm is stable on surface. In next step, existence or absence of long-run balance relation between the variables was assessed by the Westerlund test.

Westerlund test (2008) does not consider the long-term variables equal to estimated parameters for the first order difference unlike the Kao and Chiang (1999) and Pedroni (2004) co-integration tests. However, it suggests four new test that have normal distribution and consider the disturbance term dynamism. In those tests, the hypothesis of co-integration relationship existence between the model variables are assessed via the error correction term coefficient. Table 2 shows the results of Westerlund test.

Table2. Results of Westerlund test for the long-run relation between the model variables

Test statistics name	value	z.value	p.value
G_t	-4.13	-3.41	0.000
G_a	-20.35	-2.23	0.023
P_t	-8.11	-3.22	0.001
P_a	-18.25	-2.82	0.002

Table 2 reveals that the hypothesis H0, has been refused and other hypothesis, shows the Co-integration relationship, will be accepted. Therefore, existence of a long-run balance relation between the variables is approved. In the following, the empirical model was estimated by the DOLS and results have been shown in table 3.

Table3. Results of long-run relation between the model variables based on DOLS method in panel data

stuck dependent variable and The explanatory variables	coefficient	-test value t	(PV)
$LTR(-1)$	0.22	27.38	0.000
TAX	-0.09	-2.46	0.014

LRER	0.35	1.75	0.079
LGDPP	1.2	5.11	0.000
C	-8.03	-3.94	0.000
Freedom degree	12	----	----
The number of observations	124	----	----

Based on table 3, it can be concluded that the stuck amount of tourism foreign exchange earnings has the positive and meaningful effectiveness on tourism foreign exchange earnings in the current year. In other words, tourism foreign exchange earnings in the current period will increase equal to 0.22% in consequence of tourism foreign exchange earnings in the previous period, which shows the positive influence of that. Stretch revenue logarithm of the real exchange rate equals to 0.75 %, reveals that 1% growth in real exchange rate will cause increasing in destination countries, foreign exchange earns about 0.35%. In consequence of devaluing the national currency, the cost of journey to these countries will be reduced and foreign tourism demand will be amplified subsequently. Tax rate has a negative and meaningful effect on tourism foreign exchange rate in MENA region. In other word, increasing the tax rate will cause the foreign exchange rate reduction. Tax rate coefficient in model is -0.09. Tax revenues improving will cause the exchange dependency reduction to the tourism revenues and it can be expected that tourism revenue increasing will cause the foreign exchange rate declining. The per capita income has the meaningful and positive effect on tourism foreign exchange earnings so, 1 % increasing in per capita income in MENA region, growth the tourism foreign exchange earnings equal to 1.2%. Therefore, it can be stated that tourism foreign exchange earnings will amplify, as a result of production level improving and per capita income growing. Thus, the tourism demand is a luxury item in viewpoint of income elasticity. At the final section, considering the existence of long-term balance relation between the variables, error correction model for panel data have been estimated as below (table 4).

Table4. Results of error correction model estimation for panel data (ECM)

Variable Name	coefficient	t-test amount	(PV)
$\Delta LGDPP_{it-1}$	0.14	1.69	0.03
$\Delta LRER_{it-1}$	0.78	1.04	0.29
ΔTAX_{it-1}	-0.2	0.69	0.56
e_{it-1}	-0.58	-6.75	0.000
C	0.29	2.56	0.02

Considering the table 4, first order stuck difference of tax rate has a negative and meaningful effect in short-term on tourism foreign exchange earnings. Furthermore, Short-term adjustment error speed has been about -0.58 towards the balance amount and long-term. It shows that about the 58 % of adjustment error in each period has been balanced in relatively little time. It is worth noting that in estimated model, some variables are meaningful and some are not. The per capita income has the positive influence on tourism foreign exchange earns, in short-time period. One unit increasing in per capita income will boost the tourism foreign exchange earns about the 0.14 unit.

6. Conclusion and Recommendations for Policy Research

Model estimation results show the positive effectiveness of the tourism foreign exchange earns stuck amount on the tourism foreign exchange earns in current year while the tax rate variable has the negative influence. Therefore it can be concluded that improving the tax rate earns can generate the reduction of dependency on tourism foreign exchange earns. The per capita income and the real exchange rate have the positive influence on tourism section and the producing level growing will cause the demand increasing especially in tourism demand. Moreover, the real exchange rate increasing in this group of countries simplify the tourist enterance circumstance and tourism foreign exchange earns subsequently. The obtained results of present study is compatible with theoretical bases and empirical studies of Gago et al. (2009), Van Parys and James (2010). The most important political advice is that politician and economy experts should provide the situation of tax incomes by the performing of appropriate fiscal policies such as tax rate reduction and giving the tax incentives. Since the tax income growing can cause the dependency deteriorating on tourism foreign exchange earns. Additionally, producing level increasing, improving the capacity and production power and subsequently growing the per capita income can rise the demand amount for the tourism industry and tourism foreign exchange earns. Producing increasing and per capita incomes in addition to the general level of domestic prices control for the real exchange rate amplifying can be another policy suggestion in this field.

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Annexes and attachments:

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xtabond ltr L.ltr lrer lgdpp tax, inst(L.lgdpp) lags(1) maxldep(1) twostep ar
> tests(2)
note: L.ltr dropped because of collinearity

Arellano-Bond dynamic panel-data estimation  Number of obs         =        94
Group variable: i                            Number of groups      =        12
Time variable: t
                                             Obs per group:    min =         2
                                                               avg =  7.833333
                                                               max =        13

Number of instruments =     19               Wald chi2(4)          = 311670.81
                                             Prob > chi2           =    0.0000
Two-step results
------------------------------------------------------------------------------
         ltr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         ltr |
         L1. |    .223621   .1054061     2.12   0.034     .0170288    .4302132
             |
        lrer |   .7518932   .4285892     1.75   0.079    -.0881262    1.591913
       lgdpp |   2.568735   .5023116     5.11   0.000     1.584223    3.553248
         tax |  -.0038006   .0015478    -2.46   0.014      .000767    .0068341
       _cons |  -8.032545   2.038952    -3.94   0.000    -12.02882   -4.036273
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List of the studied countries

Iran	Azerbaijan	Albania	Palestine	Mali
Jordan	Uzbekistan	Afghanistan	Algeria	UAE
Indonesia	Uganda	Ivory Coast	Senegal	Sudan
Suriname	Syria	Somali	Sierra Leone	Niger
Nigeria	Brunei	Bangladesh	Pakistan	Bahrain
Benin	Burkina Faso	Iraq	Saudi Arabia	Oman
Cameron	Kuwait	Chad	Tajikistan	Turkmenistan
Turkey	Tunisia			

RESTORATIVE JUSTICE: A VALUE FOR MONEY JUSTICE?

Vasso ARTINOPOULOU
Professor in Criminology, Head of Sociology Department, Panteion University of Social and Political Sciences 136 Syngrou Avenue, 17671 Athens, Greece
Co Founder and Co Director of the Restorative Justice for All Institute (London, UK)
vasiliki.artinopoulou@panteion.gr

Abstract

The deadlocks of the traditional criminal justice systems are reflected in the reproduction of the multiple and complex social inequalities, the high rates of reoffending and recidivism, the underrepresentation of the victims' voices, and the overpopulated prisons. In this paper, I thoroughly analyze the Restorative Justice case through an evidence-based perspective. I examine the deadlocks of the criminal justice systems by employing recent statistics from the Council of Europe (SPACE I and II). After reviewing the state of the art, I present the potential of Restorative Justice in dealing with the crime prevention and corrections, identifying the strengths and weakness of Restorative Justice on theoretical, methodological and policy level. Original research findings from a victim-oriented approach are also presented to address the need of expanding Restorative Justice beyond the field of juvenile delinquency. The paper addresses also the economy of the Restorative Justice comparing to the traditional criminal justice systems and focuses on the social capital as a key issue for assessing the impact of Restorative Justice in the community and social level. I conclude with suggestions for a new model of Restorative Justice that brings together theory, research and practice in the criminal justice policies. The need for inter- and trans- disciplinary approaches and synergies is also stressed in the paper's conclusions.

Keywords: Restorative Justice, Criminal Justice System, Social Capital, Human Rights, Crime Prevention Policies

JEL classification:

Introduction

Justice is a wide, abstract and complex concept. It's not easy to define what justice is, but it is easier to define what injustice is. Justice is then defined only through its opposite, by social injustice and inequality. Surprisingly enough, justice as a concept is everywhere; in the families, the schools, the communities, the states, and the international institutions. Justice is the key concept of socialization and the demand at the same time. The history reflects a permanent demand of justice. Wars, revolutions and social uprisings reflect the struggle for social justice and equity.

No matter how we define the notion of justice, either as a social construction or an inherent value, we argue that justice is a fundamental principle of the socialization that seeks realization in the everyday life worldwide. Furthermore, justice can be transformed into conscious praxis, and the term 'doing justice' instead of the mere rhetoric word 'justice' could alternatively be used.

The aim of the paper is to address the potential of restorative justice as a form of 'doing justice' through identifying the problems and the deadlocks of the current criminal justice systems that exist - at least- in the developed countries. To that, I argue that we need more responses to the complex problems, as criminality is, and we need to find out flexible and effective ways of crime prevention and pro-active strategies to reduce criminality and re-offending. Restorative justice could be an alternative to the traditional criminal justice ways in this perspective.

The paper has two main parts. In the first part, I present the problem statement through the review and elaboration of research data and findings on prison population, reoffending, and crime statistics that reflect the deadlocks of the current traditional criminal justice systems. In the second part, I explore the potential of restorative justice through addressing the concepts,

the methodologies and the practices of restorative justice. The justifications for the restorative justice potential focused on its holistic and integrated perspective, the evidence on the fields that restorative justice works, and the economics of restorative justice are presented in order to explain why restorative justice is a value for money justice. Social capital is also taken into consideration in the justification, due to the pro- active perspective or restorative justice.

For the purpose of this paper, I focus on the traditional western culture and mainly the US, Canada and Europe. Since there are many differences in between the continents and the countries, the criminal justice systems are different, as are the legal practices. The differences between the continental and Anglo-Saxon justice systems limit the scope of the paper. However, I put the concepts of crime, offender, victim, prison settings, rehabilitation, community, reoffending, and others in the wider framework of the 'rule of law' and 'human rights'.

That to say, in the first part where the deadlocks of the criminal justice systems are presented, I use statistics and data from reliable sources –whatever means 'reliable' in crime statistics- as the Council of Europe (SPACE I), the FBI's Uniform Crime Reporting (UCR) Program and the International Centre for Prisons Studies. I try to avoid the abstract and philosophical concepts and analysis frameworks, despite my background in classic and ancient greek philosophers, as Plato's and Aristotle's theories of justice. Instead, I argue that the problems and the deadlocks of the traditional criminal justice policies reflect the need for radical changes in the current complex, multicultural and postmodern societies. I present a review of worldwide statistics from various organisations and synthesize them in order to illustrate how the criminal justice system works and their structural problems.

A few original research findings are also included, but they come only from UK and Greece, so they have limited value for generalizations. It is not really a meta-analysis of the research findings, but a thorough elaboration to describe the problems and the deadlocks of the criminal justice systems and how the restorative justice could be an option for exploring more effective ways of dealing with the crime issue. The methodological choices of restorative justice mostly focus on the qualitative research and include case studies, narratives, focus groups, field research and participant observation. In the second part of the paper, I justify why and how the qualitative methodologies fit better to the restorative justice theory and research. Thus, the empirical limitations found both in the difficulties of the comparative approach and the problems of generalization in the field of criminal justice systems and the restorative justice approach.

I. Problem statement: The deadlocks of the current criminal justice systems

The criminal justice systems are founded in democracy and in the protection of human rights. In the context of the Enlightenment (this time including the French and Scottish Enlightenment) and the ideas of the French revolution, the values and principles of *equality, liberty and justice* defined the fundamental triad, the building ideas as it were behind the values, ideals of and demand for democracy, society and the birth and sociopolitical organization of western European nation-states. Thus, punishment aims mostly at the rehabilitation of the offender than the retribution.

This reflects how the criminal justice system is constructed in an abstract and ideal perspective. Nevertheless, there is a gap between the ideal and the real. What we face in USA and Europe is an increase of penal populism and of punitive attitudes, at least during the last decade. Research findings reinsure that criminal penal attitudes and prison population increase more and more, independently of the rates of criminality and the trends in crime statistics. And here is the paradox: even if the crime rates decline, both the prison population and the punitive attitudes are continuously increasing. Cecelia Klingele (2013) argues that punitive attitudes are what actually increases the prison population despite the lower crime rates. Namely, more strict prison sentences are imposed instead of probation/community sentences etc. And ½ of admissions to jail and 1/3 of admission to prison are for probation and parole violations.

Trying to address this paradox I present a few crime statistics from US and Europe that illustrate the decline in crime rates. The crime statistics and the findings in the US come

from the 2013 edition of the FBI's annual report *Crime in the United States.* This publication is a statistical compilation of offence and arrest data reported by law enforcement agencies voluntarily participating in the FBI's Uniform Crime Reporting (UCR) Program[1].

A total of 18,415 cities, county, state, university and college, tribal, and federal agencies participated in the UCR Program in 2013. A summary of the statistics reported by these agencies was included in *Crime in the United States*, *2013*. Overall the estimated number of violent crimes in the nation decreased 4.4 percent in 2013 when compared to the 2012 data, according to FBI figures. Property crimes decreased 4.1 percent, marking the 11th consecutive year the collective estimates for these offences declined.

More specifically the violent crime rate declined 5.1 percent compared to the 2012 rate, while the property crime rate declined 4.8 percent. Additional information on the two types of crimes is presented in the table below (Table 1).

Table 1: Violent and Property Crimes in the US

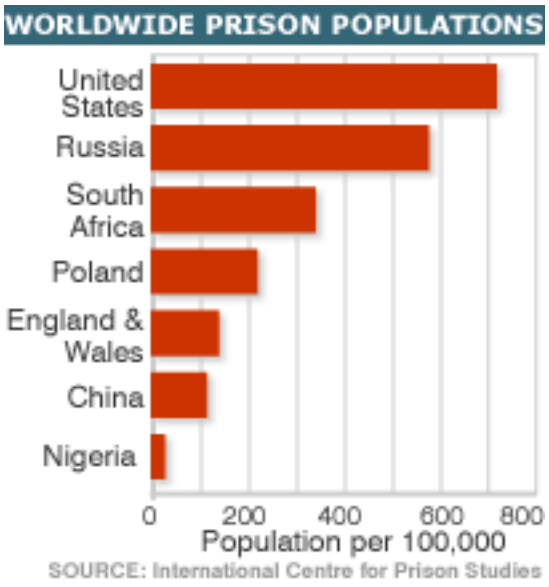
	Violent crimes	**Property crimes**
Number of crimes in 2013	1,163,146	8,632,512
Estimated rate	367.9 offenses per 100,000 inhabitants	2,730.7 offenses per 100,000 inhabitants
Decline compared to 2012	• murder and non-negligent manslaughter—4.4% • rape [legacy definition]—6.3% • robbery—2.8% • aggravated assault—5.0%	• burglaries —8.6% • larceny-thefts—2.7% • motor vehicle thefts—3.3%
Total arrest rate	159.8 per 100,000 inhabitants	513.2 per 100,000 inhabitants.
Arrest rate by crime offense per 100,000 inhabitants	• murder and non-negligent manslaughter —3.4 • rape (aggregate total of revised and legacy) —5.5 • robbery— 32.0 • aggravated assault— 118.8	• burglary — 82.9 • larceny-theft — 405.5 • motor vehicle theft — 21.4 • arson —3.4

Notably, collectively, victims of property crimes (excluding arson) suffered losses calculated at an estimated $16.6 billion in 2013. The FBI also estimated that agencies nationwide made about 11.3 million arrests, excluding traffic violations, in 2013. In 2013, there were 13,051 law enforcement agencies that reported their staffing levels to the FBI. These agencies reported that, as of October 31, 2013, they collectively employed 626,942 sworn officers and 275,468 civilians, a rate of 3.4 employees per 1,000 inhabitants.

And as the figure (Figure 1) below shows the US as the country with the highest prison population worldwide.

[1] http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2013/crime-in-the-u.s.-2013/summary-2013/2013-cius-summary-_final

Figure 1: Worldwide Prison Populations



Similarly, as the figure above illustrates the picture in Europe is not much different. In the western European prison populations England and Wales have the highest per capita prison population in Western Europe - 143 people per 100,000 inhabitants (Figure 2). Scotland, where 135 people out of every 100,000 are in jail, is also above average. Northern Ireland, however, is among those countries with the lowest rates of imprisonment.

Figure 2: Western European Prison Populations

Crime statistics in Europe, however, have declined during the last 10 years as well. The very recent research findings on penal statistics coming from the member states of the Council of Europe, verify that trend (M. Aebi and N. Delgrande, Strasburg, 3 May 2013, PC‐CP (2013)5). However, the prison population didn't follow this trend.

According to that SPACE report, on 1st September 2011, there were 1,825,356 inmates held in penal institutions across Europe. On the same date in 2010, there were 1,861,246 inmates. This represents a decrease of about 2% from 2010 to 2011. The average European prison population rate was 154 inmates per 100,000 inhabitants, which is slightly higher than in 2010 when there were 149.3 inmates per 100,000 inhabitants. Additional information is presented in table 2.

Figure 3: Prison Population 2011 in the MS of the Council of Europe

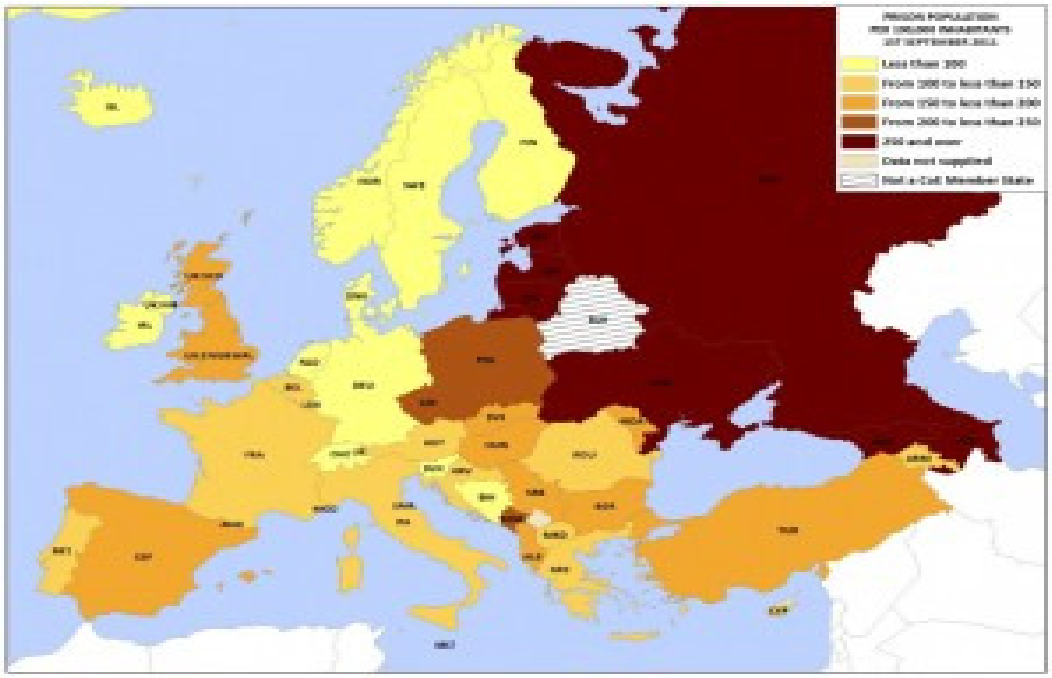


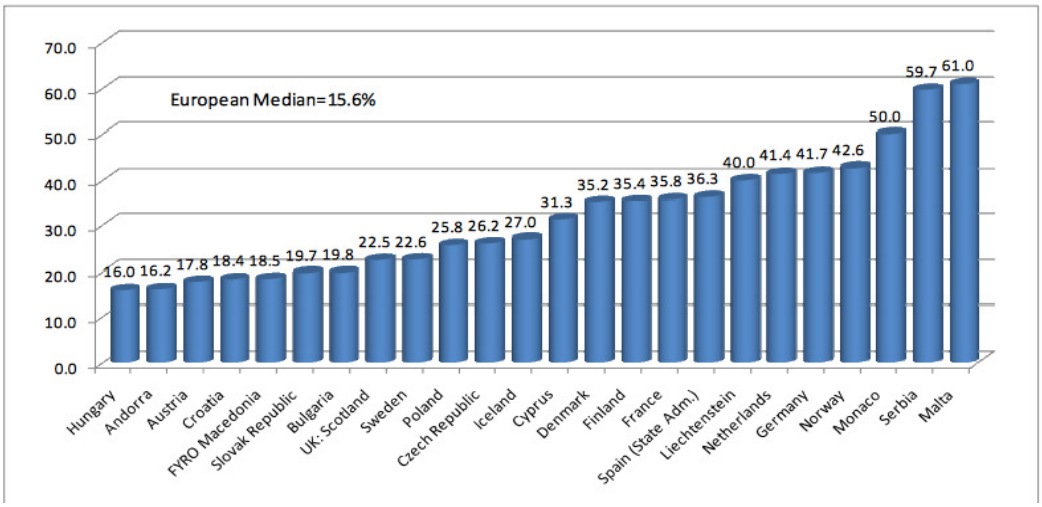
Table 2: Facts and figures about European prisons in 2010-11

Prison capacity	99.5 inmates per 100 places *-half of the Prison Administrations were experiencing overcrowding.* *- Since 2009, when there were 98.4 inmates per 100 places, there has been an increase of 1% in the prison density.*
Average age of prison population	*33 years*
Female inmates	5.3% of the total prison population *-Almost one fourth of them were pre - trial detainees*
Foreign inmates	21% of the inmates *-The lower numbers are found in Eastern European countries, where they seldom represent more than 2% of the prison population* *-the highest in Western European countries, where they usually represent more than 30%.* *-Around a quarter of the foreign inmates were citizens of EU Member States*
Pre - trial detainees	21% of the inmates *-The percentage increases to 27% when inmates without a final sentence are included*
Sentence length	26% less than one year 26% one to three years 48% longer sentences 14% more than 10 years

Type of offence	drug offences —17.5%, theft —17.5% robbery —12.2% homicide —12.2%
Length of imprisonment	9 months in 2010
Duration of pre - trial detention	5months in 2010
Average mortality rate	28 deaths per 10,000 inmates in 2010
Average inmates per custodian	3 inmates per one custodian in 2010.
Amount spent	93 Euros per day and per inmate in 2010 *The median amount was 50 Euros due to the huge differences across countries (from3 to 750 Euros). *The 33 Prison Administrations that provided data on this item had spent more than 17.000million Euros in 2010.*

Prison population consists of convicted in sentences less than one year, for less serious crimes. The imposition of the alternatives to prison sentences (such as community service, probation, etc), diversion procedures and restorative justice practices may contribute to the discharge of the criminal justice workload and the reducing of prison population.

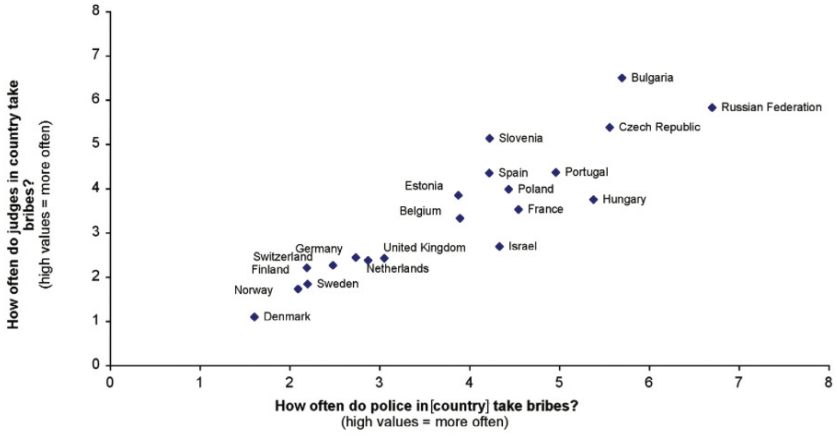
Figure 4: Countries with the highest percentage of prisons sentenced to less than one year



The citizens' trust in the criminal justice institutions appears to be another significant issue since it seems to be relatively low across Europe. The Eurobarometer survey in the member states of the EU shows that the Europeans are almost divided in their perceptions. A majority (53%) tends to trust their national criminal justice systems, although a sizeable minority (43%) tend not to trust (Flash Eurobarometer 385, *Justice in the EU*, TNS Political & Social, November 2013:13). Of course, there are differences between the EU member states. People in Finland and Denmark (both 85%) demonstrating the highest levels of trust, since Slovenia (24%), Slovakia (25%) and the Czech Republic (25%) show the lowest rates. Furthermore, according to the findings of the European Social Survey (European Social Survey, *Trust in Europe, Topline results from round 5 of the European Social Survey*, 1st issue, December

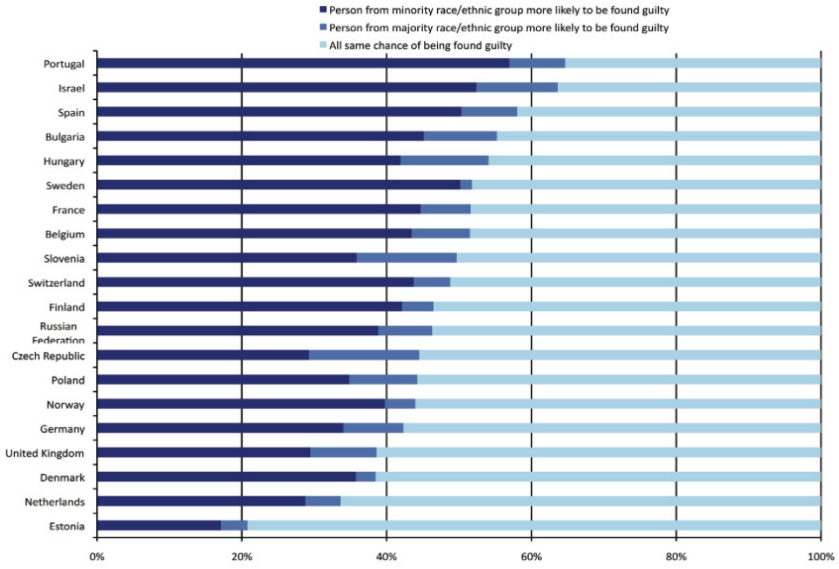
2011)[2] the Europeans believe that corruption and bias exist both in police and justice, as Figures 5 and 6 illustrate

Figure 5: Perceptions of judicial and police corruption



Source: European Social Survey Round Five, 2010

Figure 6: View on how fair the courts are to majority versus race/ethnic groups: by country



Source: European Social Survey Round Five, 2010

Furthermore, the high rates of reoffending and the failures of rehabilitation policies burden more and more the deadlocks of the criminal justice systems. In a survey conducted in the United States, from the 404,638 prisoners that were released in 2005, two- thirds (67.8%) were arrested again within three years of release, while 76.6% had been arrested within five years . [3]

Statistics illustrate the problems of the criminal justice efficiencies and the gap between the ideal and the pragmatic. The level of trust of the European population in doing justice is also problematic. With an average rate of 24% of the foreigners in the European prison population (Aebi & Delgrande 2015) and the inequalities reflected in the criminal justice systems (Cole 2000, Statistics on Race and Criminal Justice System, Ministry of Justice, UK, October 2011) we also address the issue of the minority populations in prisons that are often disproportionately represented. The reasons for this phenomenon are complex. One claim is that racism is surely alive and active within such systems – a reflection of conscious or

[2] http://www.europeansocialsurvey.org/docs/findings/ESS5_toplines_issue_1_trust_in_justice.pdf
[3] http://www.nij.gov/topics/corrections/recidivism/Pages/welcome.aspx

unconscious prejudice among the broader population. Whether this effort is conscious, involuntary, or some combination of both, it is argued that aspects of today's criminal justice system sustain the iniquities of a different era, such that real discrimination is merely disguised in socially acceptable practices of safety and justice (Artinopoulou, 2014).

Prison overpopulation has an impact on the relations between inmates and the prison staff, the protection of prisoners' rights as set by the international organizations (UN, A/RES/40/33 Standard minima rules for the treatment of prisoners, Council of Europe Recommendations R (99)22, R (2006)2, the decisions of the European Court of Human Rights), the prison as workplace for the staff, the effectiveness of the crime policies etc. Even if prison as an institution within the criminal justice system is the best way for the offender's treatment in the history of punishment, comparing to other forms of brutal punishments, as the death penalty and the mediaeval public executions, the way that prisons function is totally ineffective, and dangerous for the human rights today. Democracy and human rights are constantly violated in the prison settings worldwide. I kindly remind the article 10 of the UN International Covenant on civil and political rights that 'All persons deprived of their liberty shall be treated with humanity and respect for the inherent dignity of the human person'.

The correction systems reflect the social values of each society and the level of development. Prisons do not exist in a vacuum. Given that, I'm not quite sure if we have to be proud of our culture since the offenders' punishment is still the goal of the justice instead of crime reduction and offender's rehabilitation. At the end of the day, we have to admit that the prisons have failed to achieve their aims. And the traditional criminal justice systems are trapped in their deadlocks if they somehow work...

These are the reasons why we try to find new ways of dealing with crime, punishment, re-offending prevention and reintegration. That's why we explore the potential of restorative justice, as a complementary and/or alternative response to the criminal justice deadlocks and problems. More as a matter of pragmatism than of utopism.

II. THE POTENTIAL OF RESTORATIVE JUSTICE: A FEW JUSTIFICATIONS

A. The complex concept of restorative justice: A different Zeitgeist

The criminal justice system(s)(CJS) are de facto and de jure legitimate structures of power. Both the theories of social contract and conflict, agree that power is an inherent, corporate and fundamental element in the criminal justice system. Legitimacy and authority are to be found in the background of the CJS. Obedience, social control, trust, normative commitments to the rule of law, and moral arguments on fair and justice contribute as to the social construction of law and the CJS, as to the reproduction of its legitimacy and authority in time and space. The citizens' trust to the CJS lays on the free willing consent and not the coercive one.

The attack of September 11th led to reconsidering of the concepts of risk and danger (Zinn, 2010) and affected the safety and criminal justice policies worldwide. The emphasis put as on the individual and collective feelings of safety as on concept of 'risk'. A punitive penal and social environment was created for the organized crime, terrorism and transnational crime. So, the main question remains: is there is any place left for Restorative Justice Values and practices? In other words, if and how Restorative Justice may enrich the spectrum of the responses in crime and how RJ values, such as fairness and equity may get involved in that scene.

I don't suggest restorative justice as a solution or a panacea in the deadlocks as presented above. Neither do I believe that there are pre-constructed responses in the social problems, as crime and criminality are. However, I do believe that the complex problems seek for complex responses. Different needs, different contexts, many different personalities and individuals, different values and cultures, all differences demand multiple answers and a wide spectrum of responses.

Restorative justice is perceived as a trend in criminology that seeks to bring healing after wrongdoing. It has also a proactive dimension. Its emphasis is primarily on repairing the harm done to parties involved in the conflict, often by urging conversation between offenders and victims. It is a model of justice that has developed over the last several decades to affect criminal justice systems in numerous countries. Its historical roots borrow from a variety of

cultures and philosophies, and its modern application is found not only in the criminal justice system but also in restorative practices influencing education, the workplace, and also cases of pervasive ethnic and social conflict. To date, restorative exercises such as face-to-face dialogues between victims and offenders are said to be the most widely practised and researched modality because direct engagement is considered fundamental to restorative justice (Umbreit et al, 2005).

It's not easy to define what restorative justice is, due to its holistic, interdisciplinary and integrating perspective. Restorative justice is the field where researchers, policy makers and professionals are dealing with law and human rights. Usually, restorative justice represents an alternative response and paradigm in the criminal justice system. Especially it is highly recommended for violent and property crimes, for juveniles offenders, putting emphasis on the victims' rights, the offender's accountability, and the restoration of the harm/damage.

The literature on restorative justice shows that it seeks to encourage more civic and social participation to prevent and resolve problems of criminality through personal engagement in healing and peace. Gavrielides and I argue that restorative justice is a different Zeitgeist. It relates to how you and I view, pursue, achieve and indeed want to experience justice at the inter-personal, inter-community and inter-state levels. (Gavrielides & Artinopoulou, 2013a). So, restorative justice is more than a trend in criminology, even if it reflects the continuum in the criminological thinking. Restorative justice lays on abolitionism and victimology (Artinopoulou, 2010) and focuses on the individual (offender/ victim) and the micro and meso level of analysis. Restorative justice perceives crime as a violation of interpersonal relations that reflects the broken social and community bonds. It also introduces practices as victim-offender mediation and conferences, aiming to give voice to the victims and the offenders and restore the relations through forgiveness and healing (micro and meso level in case of community involvement). Restorative justice's key concepts are the accountability and the responsibility of the offender, the restoration of the damage done to the victim, the active participation of the community, and the healing through the process of catharsis (Artinopoulou, 2010). Restorative justice aims in the restoration of the harmful effects of crime and advocates for the offender to have the opportunity to repair the harm and the implications caused by his actions (Eglash, 1977; Gavrielides & Artinopoulou, 2013a). It also stresses the importance of repairing the relationships between the offender and the victim, as well the offender's relationship to the society, aiming at last to his re-integration into the community. Whereas, it also calls for an active participation in the restoration process of all the members involved or affected by the crime (Artinopoulou, 2010; Marshall, 1996). Conferences and victim-offender mediation are a few of the practices encompassed by restorative justice, that offer the opportunity to all the involved parties to come together under a safe context and resolve the issues or damages caused by the offender's actions (Artinopoulou, 2010). Finally, a 2005 meta-analytic study examining the effectiveness of restorative justice practices, found that restorative programs were significantly more effective in recidivism reduction comparing to traditional approaches (Latimer, Dowden, & Muise, 2005). According to the research findings, 'the overall mean effect size for the 32 tests that examined the effectiveness of restorative justice program- ming in reducing offender recidivism was +.07 (SD = .13) with a 95% CI of +.12 to +.02. Although the effect sizes ranged from +.38 to –.23, more than two thirds of the effect sizes were positive (72%). In other words, restorative justice programs, on average, yielded reductions in recidivism compared to nonrestorative approaches to criminal behavior. In fact, compared to the comparison and/or control groups who did not participate in a restorative jus- tice program, offenders in the treatment groups were significantly more successful during the follow-up periods, $t(31) = 2.88$, $p < .01$' (Latimer et al, 2005:137).

Restorative justice is multi-, inter- and trans-disciplinary approach. Its foundations lay in sociology, psychology, social anthropology, economics, criminology and law. It includes a bottom-up perspective and focuses on the community level. Interactionism, relationism, social transformation, social change, the 'otherness', restoration and healing are only a few key concepts in the restorative justice vocabulary. Restorative justice is inclusive, integrating and holistic as it refers to different scientific discourses. I defined restorative justice as a field of interdisciplinarity, where interdisciplinarity is defined as the discourse on the discourses (Artinopoulou, 2015)

The wide and integrating perspective of restorative justice is also reflected in the multiple fields of its implementation. From schools to the courts, from family to prison settings, restorative justice practices include a range of communication strategies from listening skills to the victim- offender mediation and Alternative Dispute Resolution techniques.

The most frequently used practices are the mediation, the community conferences, and the restorative circles. The active participation not only of the opposed parts but also of the community members is encouraged through restorative justice. However, the issues of reproducing social and other inequalities and power structures during the restorative practices are still pending for any further research exploration (Artinopoulou, 2014).

B. Research based evidence on restorative justice

The diverse aspects, concepts and approaches embodying restorative justice do not often allow for extensive research in the field and quantification of it results. Thus existing empirical data range from small research projects focused on the community to wide comparative research projects on the European or international level. Lode Walgrave after addressing the methodological problems and the empirical inefficiencies of restorative justice research asks for the second generation of research in the field (Walgrave, 2011). I agree with him that there is an eminent need for further research in order to examine and justify in which fields of crime, to whom offenders and victims, to what communities fits and how it works.

A study towards that direction was conducted by Sherman et al (2015). The authors in a recent meta- analysis on repeat offending in the UK and after examining 519 studies and a random sample of 1880 accused or convicted offenders found that, on average, restorative justice conferences are a cost- effective means of reducing the frequency of recidivism. 'The average effect size is .155 standard deviations less repeat offending among the offenders in cases randomly assigned to Restorative Justice Conferences than among the offenders in cases assigned not to have a restorative justice conference. The 95% confidence interval for this effect lies between only .06 standard deviations less crime and .25 standard deviations less crime. This means that the average effect across all these experiments is highly unlikely to be a chance finding.." (Sherman et al 2015:12).

John Braithwaite refers to the previous to 2006, several studies that have shown a 40% reduction in reoffending in the first year outcomes of the RISE[4] youth violence experiment in Canberra and almost 45% reduction in the British case (Braitwaite, 2014:4).

Recent studies implementing stricter research methodologies and combined data conclude that restorative justice results into a significant reduction of reoffending (Weatherburn and Macadam 2013). John Braithwaite, one of the pioneers in restorative justice elaborates the latest evidence on restorative justice effectiveness (Braithwaite, 2014) and stresses once again the importance of putting offenders and victims into follow-up rehabilitation programs.

Artinopoulou & Gavrielides push the barriers of restorative justice addressing the issue of the appropriateness of restorative justice in cases of domestic and/or interpersonal violence. In their comparative research between UK and Greece argue that restorative justice works even in cases of minor offences of domestic violence, through the recognition of the victims' needs and the change of the dynamics in the abusive behavior (Gavrielides & Artinopoulou, 2013b).

However, the expansion of the restorative justice literature isn't in accordance with the research development in relevant fields, potentially due to the holistic and 'alternative' character of restorative justice that adopts and prefers the qualitative social research methods rather than the quantitative ones. Narratives, life histories, case studies, focus groups and field research are the main methodologies used by restorative justice to explore the potential responding to the crime through other roads than those of the criminal justice system. The

[4] The Reintegrative Shaming Experiments project (RISE) has been running in the Australian Capital Territory since 1995. It examines conferencing in Canberra, which is based on the "Wagga model" of police-run conferences. The study is being conducted by the Centre for Restorative Justice at the Australian National University. Source:
http://www.aic.gov.au/criminal_justice_system/rjustice/rise.html

limitations of generalization that are inherent in the qualitative social research don't allow for justifying the restorative justice's potential in the macro- structural level.

Acknowledging these methodological problems, I present a recent European experience on Restorative justice from a transnational EU funded, two-year project (2012-2014). Five countries involved (UK, Greece, Bulgaria, Netherlands and Germany)[5] and I participated as the principal investigator and the head of the research team from Greece. The project entitled "Restorative Justice in Europe: Safeguarding Victims & Empowering Professionals" aimed at facilitating the implementation of the restorative justice related articles (principally Articles 12 and 25) of the Directive 2012/29/EU of the European Parliament and of the Council of 25 October 2012,otherwise known as "the Victims' Directive". The Directive establishes minimum standards on rights, support and protection of victims of crime, replacing Council Framework Decision 2001/220/JHA. The project focused on the implementation of the restorative justice (RJ) related articles. During the project, original research was conducted in the five participating countries, in order to identify the victims' needs and the potential of restorative justice. The data presented are included in the final project review report submitted to the EU by the project coordinator (IARS 2015)

Table 3: Original research from the RJE project (JUST/2011-2012/JPEN/AG/2951)

Country	Sample contacted	Sample reached	Research method employed
UK	39 victims	24 victims	In-depth interviews (qualitative)
	54 offenders	28 offenders	In-depth interviews (qualitative)
	5240 contacts	107 victims and offenders	Online survey (quantitative)
	51 experts	24 experts	Focus group (qualitative)
Germany	740 contacts	100 contacts	Online survey (quantitative)
Greece	100 victims	20 victims	In-depth interviews
	10 professionals	10 professionals	In-depth interviews
Bulgaria	10 victims	10 victims	In-depth interviews
	22 professionals	22 professionals	Focus groups (x5)
Netherlands	197 practitioners/professionals	75 practitioners/professionals	Attitudinal survey (qualitative)
	197 practitioners/professionals	75 practitioners/professionals	Fact finding survey (qualitative)
	20 stakeholders/experts	20 stakeholders/experts	In-depth interviews
	10 offenders (juveniles)	10 offenders (juveniles)	In-depth interviews

[5] IARS (UK) was the project leader, and the other partners were the Institute of Conflict Resolution (Bulgaria), the University of Applied Sciences for Public Administration Bremen (Germany), Restorative Justice Netherlands (the Netherlands) and The European Public Law Organisation (Greece)

Country	Sample contacted	Sample reached	Research method employed
Netherland	20 experts	20 experts	Mini conference
	5 case studies (juvenile prisons x 2)	5 case studies (juvenile prisons x 2)	In-depth observation
Overall total	6715	550	

In total, 27 face-to-face pilots were carried out in the five participating countries reaching 1,131 individuals and 383 organisations. Dr Gavrielides representing the coordinator organization IARS (London, UK) mentions in the final report to EU:

'Focusing on restorative justice, the victims who responded to our research and had participated in restorative justice had an overall positive experience and they would recommend it to others... However, three key barriers identified that prevent victims from opting for restorative justice are (1) availability in the criminal justice system (2) low awareness (3) gatekeepers and power structures within the restorative justice and criminal justice professions. In the eyes of victims, a successful justice process is one that takes into account their: (1) emotional needs (2) need for information (3) need for practical support (e.g. medical support, transport, childcare) (4) need for financial compensation (5) need for safety and security (6) need to be treated with dignity and respect (human rights standards). Victims want from restorative justice to be: (1) voluntary (2) safe (3) accessible (4) able to hold the offender accountable (5) timely ('justice delays – justice denies') (6) neutral and (7) independent. Among victims, awareness of the rights and protection standards included in the Victims' Directive is absent. This is also the case for professionals servicing victims as well as policy makers'.

Of course, there is a pool of research findings for restorative justice practices and evaluation research also It seems that juvenile delinquency, violent offences, desistance and reoffending prevention are the fields that restorative justice works positively at the moment (Umbreit et al 2003, Bonta et al 2006). Recently the findings on the Good Lives Model, the positive psychology and the restorative justice interventions in reducing reoffending seem also very promising. The Good Lives Model (GLM) suggests certain principles for the effective rehabilitation as primary examples of a risk management approach and a strength-based approach of working with offenders (Ward and Maruna 2007). Despite the methodological problems of the evaluation research, there is a coherent trend in justification of the effectiveness of restorative justice in these fields.

C. Beyond the economic analysis: a social capital approach

Cost -effectiveness analysis and other calculations prove that restorative justice is much cheaper than the criminal justice functions, indeed. And this is a justification in favor of restorative justice implementation that many 'restorativists' argue.

Focusing in the UK, as a European country with long-standing restorative tradition in the community sector, the cost-savings found in London were much higher because of the kinds of crimes the London site dealt with - serious burglary and robbery. Here reductions in reconvictions through RJ Conferencing saved the Criminal Justice System 14 times the cost of delivering RJ; in Thames Valley project the cost-savings ratio was 2 to 1 (RJ saved the CJS twice as much as it cost to deliver). Summed together the RJ Conferencing demonstrated cost-savings on average of £9 to £1 – through reductions in the frequency of offending RJ saved the CJS 9 times what it cost to deliver (Restorative Justice Council, November 2011, p. 4).

In the same report of the Restorative Justice Council in the UK, using the Ministry of Justice data, modelled the potential cost-savings from delivering restorative justice in 70,000 cases. They found that restorative justice would provide cashable cost-savings to criminal justice agencies alone of £185 million over two years.

Crime by former prisoners costs society more than £11 billion per year (Prison Reform Working Group 2009), while RJ can deliver cost savings of up to £9 for every £1 spent.

According to Victim Support (2010: 29), "if RJ were offered to all victims of burglary, robbery and violence against the person where the offender had pleaded guilty (which would amount to around 75,000 victims), the cost savings to the criminal justice system - as a result of a reduction in reconviction rates - would amount to at least £185 million over two years".

Nevertheless, I argue that only the cost -benefit perspective will not benefit restorative justice on a long-term basis. The justification of 'doing cheap justice' maybe fits in the era of austerity, through cutting down the public spending for crime and criminal justice policies, but at the same time it divests restorative justice from its holistic, processing and integrative perspective.

Restorative justice implementation through victim-offender mediation and community conferences refers to the tertiary level of dealing with the crime issue. That means that the aims of the restorative interventions are both the prevention of the reoffending and the healing/restoration of the harm/ or damage done to the victim(s). Recognising the effectiveness of the primary level prevention strategies and policies in a longitudinal basis, social and economic investments are needed. Restorative justice's proactive dimension empowers the values of fairness and justice lead to the prevention in the primary and secondary level. Thus, the benefits are much more than the narrow comparison of how much a restorative program costs comparing to other programs in the traditional criminal justice system.

Furthermore, the economics of restorative justice are not able to measure and calculate any possible effects in changing attitudes and perceptions in a long -term basis. My concern at this point is that the more we argue that restorative justice is cheap justice the more we undermine the restorative content, values and aims. The dilemma is if the wide and superficial implementation of restorative justice alters its philosophy and becomes an alibi for the politicians to reduce the public spending in the confrontation and prevention of systemic problems, such as power imbalances, race, gender and class.

Besides the pros and cons of the economics of restorative justice, I agree that restorative justice embraces the ideal, the values and the vision of justice in the current post -modern societies. It is grounded in the democracy and the active participation of the citizens in doing justice. That's why I strongly relate restorative justice to the social capital, trust, social change and transformation. Social capital is a complex concept referring to the social bonds, links, networks and connections that bind families, communities and societies. Beyond the differences in the definition of the social capital (Hanifan, 1916, Hanifan, 1920, Coleman 1988, Putnam 1993, Fukuyama 1996, World Bank 1999) there is a crucial core found in the social bonds of communities, and the sense of belonging that bring great benefits to people. Only a few attempts have been made to relate the concepts of restorative justice with the social capital. Bazemore (2005), Braithwaite (1989) and Hsiao-fen Huang et all (2011) addressed the restorative justice as a way of building and developing the social capital. I do agree that we need more complex and sustainable methodologies while trying to identify the interconnections between restorative justice and social capital in terms of impact assessing of the restorative practices. To this end, we may use the tools of social policy impact assessment (Barrow 2000, Becker & Vanclay 2003, Vanclay, 2014) to justify the social dimensions of doing justice and why not to elaborate new tools for assessing the impact of restorative justice in the development of the social capital. Enriching the spectrum of social impact assessment in criminal justice policies in general and in restorative justice policies in concrete may lead to research-based evidence on where, how and when restorative justice works. Identifying the social indicators and adjusting restorative justice in certain contexts will facilitate the evaluation of this kind of justice and contribute to a thorough justification of the holistic, integrating and relational perspective of restorative justice.

D. Suggesting the Gavrielides & Artinopoulou Model of Restorative Justice

Through addressing the methodological problems of defining and assessing the effectiveness of restorative justice and recognizing the wideness, diversity and vagueness of restorative justice, both Theo Gavrielides and I suggested an operational model for restorative justice, in order to elaborate on theoretical, the methodological and the practical level. A tool conveyed through an attempt to reconstruct the restorative justice philosophy. It is included in

the last chapter of our common publication '*Reconstructing Restorative Justice Philosophy' (*Ashgate, 2013) and is open to any kind of testing. The model resulted from the detailed analysis and deconstruction of RJ, as theory, research and practice.
Our basic arguments are:

a. That we have to accept there is an injustice, an imbalance in the status quo. We call this imbalance 'conflict'; this can be between individuals, communities, states or even ourselves and reflected in the deadlocks of the traditional criminal justice systems.
b. There are two forms of justice: the lawful and the fair. Both are desirable and can co-exist. However, whereas the lawful requires a structure and a system of regulation, the fair is value-based and can be attained through loose and bottom-up methods.

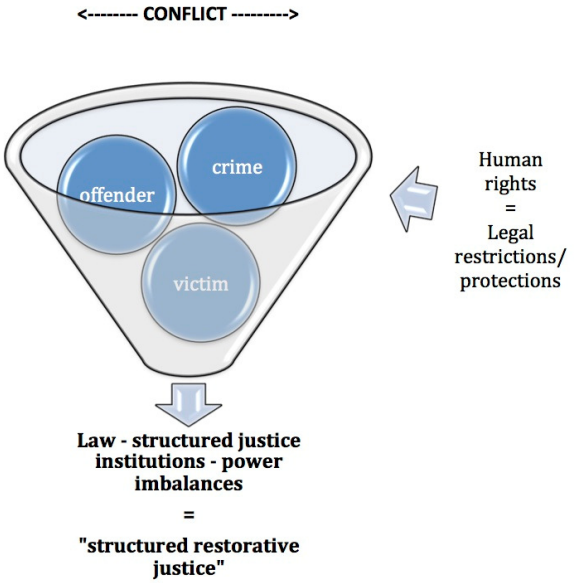
There is enough empirical evidence to show that restorative justice exists in both forms; the structured and unstructured – the lawful and the fair. There is no better or worse form. There is also no reason for comparing it with what isn't. Our reconstructed vision of restorative justice philosophy has a dual dimension: the structured and unstructured restorative justice. So let us focus on understanding it as it is.

Structured restorative justice

Structured restorative justice is placed within the criminal justice and refers mostly to the diversion procedures.

Chart 1 illustrates how this structured way of delivering justice and restorative justice works. Within this model, conflict creates crime, offenders and victims. All three are placed within a funnel. Emptying the funnel will bring peace. Exit from the funnel can be achieved through a legalised and structured justice system that is served by structured institutions. The outside layer of the funnel, which is made of human rights as these are materialised through the law, regulates the power imbalance that this structure creates. Structured restorative justice is one way of emptying the funnel and is part of many other structured forms of delivering and maintaining justice and bringing peace (Gavrielides & Artinopoulou, 2013).

Chart 1: Structured Restorative Justice

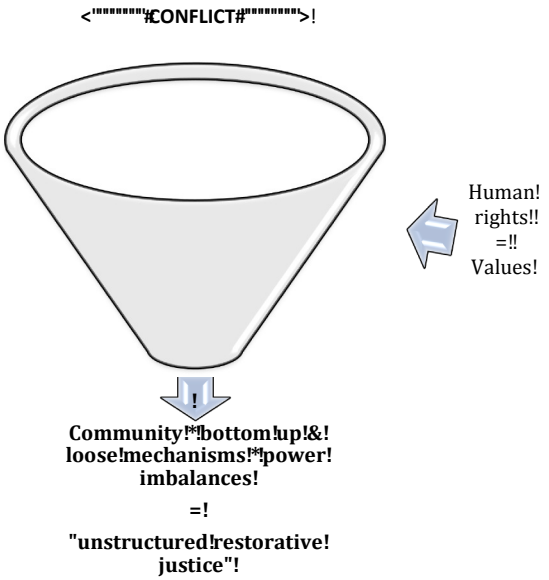


Unstructured restorative justice

The unstructured restorative justice model perceives conflict in terms of the broken social liaison between individuals, communities, groups, and states and/or between the states. It also creates harmed parties independently of whether these are labelled as victims or offenders. Under this model, it does not matter who did what to whom. What matters is that the conflict has caused harm and a broken liaison in the pre-existent relationship of the harmed parties.

The funnel is the unstructured restorative justice is filled with the concepts of harm, broken social liaison and the harmed parties. Interestingly enough, the funnel does not empty when the law intervenes, but only when the community takes action. Unlike the previous funnel, here loose and bottom- up mechanisms that aim to restore harm and the broken social liaison are used. These are not dependent on formalised sub-systems. They use localised and informal projects of bringing peace (Gavrielides & Artinopoulou 2013).

Chart 2: Unstructured Restorative Justice



Human rights are the common issue in both models. In the structural restorative justice model, they are represented by the legal restrictions and the legislation; while in the unstructured model, human rights are relevant to the values of fairness and justice, through the value –based guidelines. Social capital is strongly related to the unstructured restorative justice, because of the crucial role of the communities and the social bonds that lead not only to the restorative justice practices but also to the result of the restorative practices in empowering the social bonds. A mutual, and interactive, process before and after the restorative practices reflects and empowers the social capital in certain social contexts.

We hope that this model contributes to the better conceptualization of restorative justice, as it reflects the interactive, transformative and processing character of restorative justice. It is currently under testing in multiple contexts and open to any addition, comments or critics. Through enriching the restorative justice framework as with the human rights dimension, as with the social liaison intervention, this model responds to the question why restorative justice is a value for money justice.

III. Conclusion

Through addressing the deadlocks and the problems of the traditional criminal justice systems, as the increase of the prison population and the inefficiencies of the offenders' rehabilitation policies, I suggested the implementation of restorative justice as an additional/ alternative response to the crime issue. Restorative justice is an interdisciplinary field of 'doing justice', through social change and transformation. It perceives crime as the reflection of the social bonds and aims to the restoration through taking over the responsibility of the offender and responding to the victim's needs. Research findings support the restorative justice practices in the fields of juvenile delinquency, property and violent offences. Restorative justice has positive effects in the reintegration of the offenders and the reduction of recidivism (Wigzell & Hough, 2015). The Gavrielides and Artinopoulou model on structured and unstructured restorative justice contributes to the conceptualization of restorative justice and reflects its interactive and transformative approach.

Finally, Restorative justice benefits the criminal justice systems through the new ways of dealing with the crime issue that it provides. Victim-offender mediation, community

conferences and offenders' social reintegration policies are only a few practices of 'doing justice' and reassuring both victims' and offenders' rights. RJ benefits societies and communities, as it focuses on the social bonds and strengthens the social relations in the basis of societies. Being a bottom up and relational process, restorative justice asks for restoration of the harm, and the restoration of the social bonds. It's a transformative and dynamic process of social change that goes beyond the static and monolithic responses of the traditional criminal justice ways of dealing with the crime issue. It is also proactive at the same time because the empowerment of the social bonds leads to better societies. RJ benefits the economies and develops the social capital as well. That's why restorative justice is a value for money justice, not only in terms of the cost -benefit analysis but of the social benefits as well.

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A MODEL OF A SYSTEM OF MONITORING AND ALERT SYSTEM OF THE RISK OF UNEMPLOYMENT – ROMANIAN CASE[1]

Cristina LINCARU[2]
National Scientific Research Institute for Labour and Social Protection - INCSMPS, Bucharest,, Romania
cristina.lincaru@yahoo.de

Speranta PÎRCIOG
Scientific Manager, National Scientific Research Institute for Labour and Social Protection - INCSMPS, Bucharest,, Romania
pirciog@incsmps.ro

Draga Atanasiu
National Scientific Research Institute for Labour and Social Protection - INCSMPS, Bucharest,, Romania
incsmps1@incsms.ro

Abstract

Public Employment Services (PES) have to "react efficiently and effectively to unceasingly changing public and political demand" and also to cope successfully to the growing "competitive environment's "demand. (Public Employment Services' Contribution to EU 2020: PES 2020 Strategy Output Paper, 2013). One direction that allow PES to "enhancing labour market transparency and providing evidence to support policy design" is to fully exploit the informational potential provided by the registered unemployment indicator in a systemic way.

In Romania the registered unemployment administrative unit is AJOFM – County Agency for Employment and Training of the Labour Force (CAE) - the PES provider at NUTS 3 level, while the lowest administrative unit is represented by localities at LAU 2 / NUTS 5 level. The ANOFM – The National Employment Agency for Labour Force in short NEA implements the policies and strategies of Labour Ministry in the field of employment and training for the persons seeking a job. The following 4 dimensions of the unemployment risks, expressed through aggregate indices for: the level, seasonality (with 2 aggregate indices), of cohesion tendency and of the density of unemployment served to make a sketch for an **System of Monitoring and Alert system of the Risk of Unemployment.** The Unemployment risk for each county by 10 sub-indices (5 urban and 5 rural) by the 4 dimensions of the unemployment risk at county level is represented in radar graphs. The 10 scores for each county, are compared to scores obtained at national average and with the theoretical thresholds (maximum and minimum of the intermediary categorical scale) and finally all the counties are grouped by 4 cluster types in regard with the unemployment risk: **Alarm, Alert, Balance, Low risk of unemployment and figured in Maps.**

Keywords: unemployment risk, registered unemployment, local level, composite indicators, monitoring and alarm system

JEL classification:

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[2] Contact person: PhD. LINCARU Cristina, National Scientific Research Institute for Labor and Social Protection - INCSMPS, Bucharest, Povernei 6-8, Bucharest, Sector 1, Romania, 010643 Romania, Telephone(s) +40-21-3124069/3172431, Fax(es) +40-21-3127595, http://www.incsmps.ro, cristina.lincaru@yahoo.de, lincaru@incsmps.ro, Mobile: +40723520938

Introduction

In line with Europe 2020 Strategy [1] there are integrated approaches as it is the post-carbon perspectives well as environmentally, socially and economically sustainable [2]. The response to multiple challenges of climate change, ecosystem degradation, social equity and economic pressures requests a shift in paradigm especially for urban areas.

The interest for tackle unemployment in sustainable way is iterated by European Commission [3] Strengthening the social dimension of European Monetary Union is under competences of the Member States. Following the crises, the unemployment and persistent unemployment is an important part of the human capital underutilisation and also an important cause of labour market unbalances. Using adequate instruments and tools is possible better policy coordination, effective monitoring, and better **understanding of social developments** and finally diminish the risks "unemployment, poverty and wider social consequences." [3] Unemployment (internal imbalance indicator) next is included next to other fourteen indicators in the Macroeconomic Imbalances Procedure (MIP) scoreboard part of the The Alert Mechanism Report (AMR). [4]

McVicar [5] concludes that there is "evidence is growing that job search monitoring and benefit sanctions for infractions reduce the duration of unemployment and increase the rate of job entry". Following the crises in many OECD countries "job search monitoring and benefit sanctions are likely to remain important policy tools". Robalino and Weber [6] considers that "biometric identification can facilitate the monitoring of conditionality's related to participation in job-search and training activities" in the case of designing and implementing unemployment benefit systems in middle and low income countries.

Public Employment Services (PES) have to "react efficiently and effectively to unceasingly changing public and political demand" and also to cope successfully to the growing "competitive environment's "demand. [7].

PES are the principal labour market institutions with the objective to accelerate the labour market integration of jobseekers contributing to successful labour market transitions. This process is realised through specialised services and measures (active and passive). The changing labour market realities, more and more visible after the crises, requests the PES capacities adapting. [8]

In 2014, Romania is positioned in the IInd quadrant by the type of use of PES in job search and share of unemployed jobseekers. This Quadrant includes the countries with "Low use of PES and High Unemployed" close to Spain and Italy. [7] Even is a EU country Romania is an emergent economy[9], in development, fact that indicates the underestimation of unemployment especially in rural areas, the registration rates are very low [10]. Jobseekers in Romania exceeds the national registered unemployed persons by law (law 76/2002) (including also the inactive and employed), but ignoring the international mobility and migration for work of the Romanian citizens.

In 2016 Romania's among the priorities challenge are the "key development disparities are between urban and rural areas" coupled with "delays in adopting a general and transparent human resources management approach" [11] Strengthen the National Employment Agency's services to employers and jobseekers and improve access to integrated public services and "offering personalised services to jobseekers and employers"[12] represents a key challenge for Romania. [11] One direction that allow PES to "enhancing labour market transparency and providing evidence to support policy design" is to fully exploit the exquisite informational potential provided by the registered unemployment indicator in a systemic way. The main contribution of this article is to make a sketch for a System of Monitoring and Alert System of the Risk of Unemployment (SMASRU) that allow **to exploit simultaneously the national, regional and local profile of unemployment in both spatial and temporal analysis**. Even if the registered unemployment is a partial measure for labour market attachment, the detailed characteristics of this indicator provided by National Institute of Statistics offers the conditions to push its boundaries.

In Romania the registered unemployment administrative unit is ***CAE*** - the PES at NUTS 3 level, while the lowest administrative unit is represented by localities at LAU 2 level equivalent to NUTS 5 level. Some recent research results proved that the spatial variation of registered unemployment is more heterogonous at NUTS 5 level than at NUTS 3 level. The

Law 76/2002 is profiling the labour market policies and especially active measures in a homogenous perspective addressing the "normal spatial" profile of registered unemployment, regardless the spatial variation (managed at national level by ANOFM – the PES at NUTS 0 level). On this background our research question is focused identification of on better "unusual" profile of registered unemployed persons comparing to the "normal profile".

The following 5 dimensions of the unemployment risks, expressed through aggregate indices for: the LAU 2 average level by county, seasonality (with 2 aggregate indices: (1) month average variation, (2) monthly amplitude), of cohesion tendency and of the density of unemployment served to make a sketch for an System of Monitoring and Alert system of the Risk of Unemployment. Using [13] the indices for the unemployment risk is the result of the following steps applied by area of residence (both in rural and urban area): multivariate analysis, normalizing through applying an Quartile "Categorical scale", aggregation of the sub-indices and finally cluster analysis by each of 4 dimension by the cumulative criteria's: average level of unemployment at LAU2 level, the variation of unemployment average at LAU2 versus national average at LAU2 level, cumulative effects on short (1 year span) and medium term (3 years span), indices calculated in both annual and monthly variation. Among the results of this System is possible to represent by radar graphs the Unemployment risk for each county by 10 sub-indices (5 urban and 5 rural) by the 4 dimensions of the unemployment risk at county level, iterated above. The 10 scores for each county, are compared to scores obtained at national average and with the theoretical thresholds (maximum and minimum of the intermediary categorical scale) and finally all the counties are grouped by 4 cluster types in regard with the unemployment risk: Alarm, Alert, Balance, Low risk of unemployment and figured in Maps

Methodology and Data

The space and time is more and more represented in maps, as a synthetic and dynamic tool to better monitor the unemployment. USA is providing a large spectrum of dynamic maps for monitoring: unemployment rate annual and also monthly changes by county and state, since 2007 [15] and also in [15], [16]. Cournoyer presents since 2010 the U.S. Metros / Mapping persistent unemployment with predictions for 2018 [17]

Alberti [18] analysis data from Current Population Survey of the Census Bureau (used by the Bureau of Labor Statistics) from 2006 to the present in monthly frequency, on four dimensions: race or ethnicity, gender, age, and educational attainment. This interactive tool allow to monitor also the seasonal variation, current month and moving average of that month and the preceding 11 months.

Gløersen et. al. [19] integrates in analysis the density dimensions in view to differentiate the core to periphery.

Kouba et.al. [20] Calculates for eight regions in four countries: Austria, the Czech Republic, Hungary and Slovakia, a space with high level of heterogeneity: the Potential percentage of unemployed reduction if the unemployed in selected occupations were perfectly mobile across the studied area and the Mismatch index.

In view to avoid unemployment insurance fraud while the person is employed, Fuller et.al [21] concludes that "the optimal policy monitors the unemployed at fixed intervals. …Unemployment benefits are relatively flat between verifications but decrease sharply after a verification."

In line with Moretti [22] Crowley et.al [23] suggested that "geographic disparities in youth unemployment levels are truly to be addressed" for youth, as one precondition of the success of their employment.

Romania is ranking 90's place from 181 countries (Index Mundi) in the "Unemployment, total (% of total labour force) (national estimate)". [24] Evidence map: The impact of monitoring and sanctioning on unemployment exit and job-finding rates" points that Romania is an efficiency driven economy while the developed countries are driven by innovation – driven economy [25] addressed by Card et.al. [26] Clipa & Pohoață & Clipa presented in 2012 the new economic geography and regional policy in Romania [27]. Mocanu-Perdichi made in 2009 a sustainable development index for Romania at county and regional level [28].

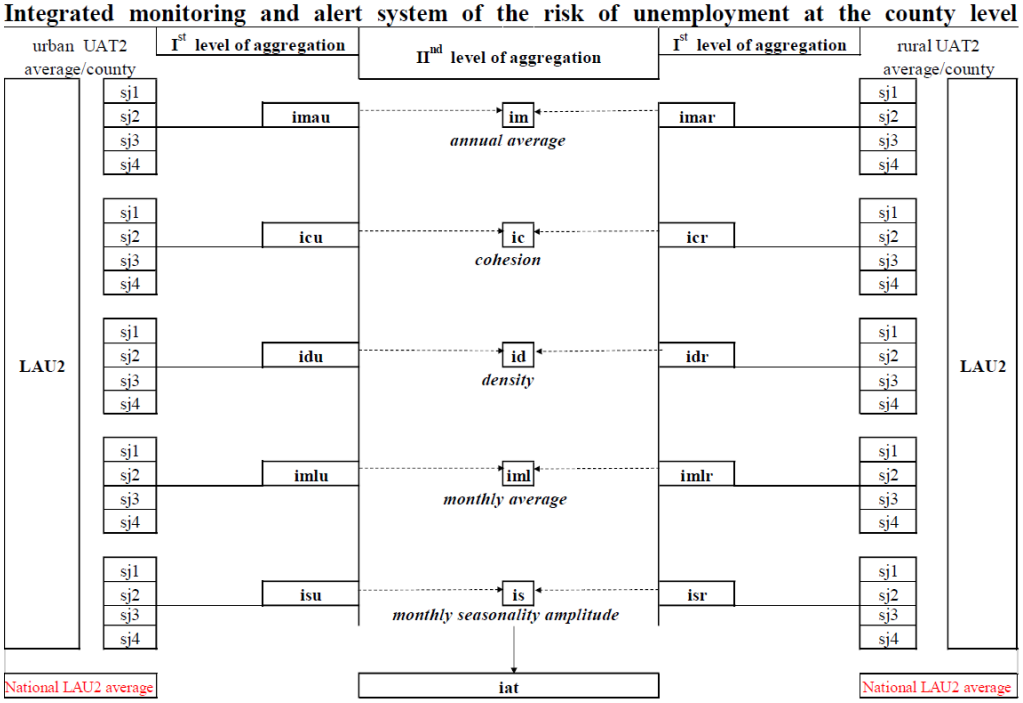
The number of administrative unemployed persons is one of the best labour market data accessible at the moment in both spatial and temporal profile. This approach was experimented by author's team (Lincaru, Ciuca, Pirciog, Atanasiu, Chiriac and Drăgoiu) in a large spectrum of papers. [29], [30], [31], [32], [33], [34]

In this (2016) autumn the Development Ministry MDRAP launched the Territorial Observatory – an Informational Integrated System to Support the Public Policies for Territorial Development, [35] which provides over than 100 indicators [36] from different domains (territory, dwelling, economy, demography, planning) at NUTS5 /LAU 2 level. The registered unemployment is presented in a dynamic map for the unemployment rate (with interactive options: select top 10%, bottom 10%, average, etc.).

Our model is presented in Figure 1.

Figure 1

Integrated monitoring and alert system of the risk of unemployment at the county level



Unemployment risk assessment / county

iat =

4	3	2	1
Alarm	**Warning**	**Echilibru**	**Low risk of unemployment**

Source: realised by authors

Lattice data

- $q \in 1 \div 3189$ *number of LAU2 or NUTS5 level*
- **J** $\in 1 \div 42$ *number of counties NUTS3 level*
- q_j *number of LAU2 in a county j*
- qu_j *number of urban LAU2 units in a county j*
- qr_j *number of rural LAU2 units in a county j*
- **qu** *number of urban LAU2 units at national level*
- **qr** *number of urban LAU2 units at national level*

u urban residence areas (314 LAU2) by SIRUTA
r rural residence areas (2867 LAU2) by SIRUTA, missings 8 LAU2

t reference year,

t-1 lag with short term perspective

t-3 lag with medium term perspective

$m \in 1 \div 12$, *the index of the month in a year*

N number of registered unemployed persons in the month m of the year t in the q UAT2 from the j county

i indices following the Quartile normalisation method

ma annual average

ml month average

A_{kj} area of LAU2 from the k units in a j county [km2]

Administrative and geographical data – area data it is also the statistical unit LAU2 /NUTS 5 level (and not the persons or households), following Anselin [37]. Location variables LAU2

local administrative units counting 3190 units, with polygons provided by ESRI in 2014 using SIRUTA from INS, with the role of statistical units. For each polygon it is calculated its area.

a. Area data are provided by Romania ESRI shape polygons that reflects territorial description of LAU2 are regulated according Law 351/6th July 2001 regarding the National Territory Arrangement Plan - spatially geocoded using the polygons areas for LAU2 described by ESRI Romania using Arc GIS Software. The territorial administrative units LAU2 level are represented in SIRUTA code by Municipality, County residence, Town and Commune and are equivalent with NUTS5 level. Based on the development status was coded rural areas the communes and all other categories as urban areas (with status detained in the reference year 2013).

b. attribute data: Socio-economic indicators (Romania, provided by INS) as attribute information for each LAU2 the statistic unit by cluster type: Registered unemployed persons at the end of the month in 2010-2013 at LAU2 level, SOM101E INS TEMPO, counting 4 years*12months * 3190 LAU2 units;

Variable number of unemployed registered at the local level LAU2 (Figure 1) is differentiated by urban and rural counties by the following dimensions:

- Dimension 1: **Unemployment annual average dimension;**
- Dimension 2: **Cohesion annual tendency dimension;**
- Dimension 3: **Unemployment the annual density tendency estimation unemployment at LAU2 level by county (unemployed persons/km2**);
- Dimension 4: **Seasonality (1) tendency estimation based on each month average variation unemployment at LAU2** level by county (unemployed persons/month/LAU2) and then annual average;
- Dimension 5: **Seasonality (2) tendency estimation based on monthly amplitude (Maximum- Minimum) of unemployment at LAU2 level by county** (unemployed persons/month/LAU2);

These five dimensions noted as $D_{v,}$ v=1 to 5, are calculated for 4 years 2010:2013 as follows:

Dimension 1: Unemployment annual average dimension.

Calculated by residence area (urban and rural)

Calculated by residence area (urban and rural)

the annual average of urban unemployment at LAU2 level by county (average):

$$N_{j_{u_t}} = \sum_{q=1}^{qu_j} \frac{\sum_{m=1}^{12} N_{qu_{t_m}}}{12qu_j} \quad (1)$$

the annual average of rural unemployment at LAU2 level by county (average):

$$N_{j_{r_t}} = \sum_{q=1}^{qr_j} \frac{\sum_{m=1}^{12} N_{qr_{t_m}}}{12qr_j} \quad (2)$$

National annual average of unemployment at LAU 2 level

$$N_{u_t} = \sum_{q=1}^{qu} \frac{\sum_{m=1}^{12} N_{qu_{t_m}}}{12 * qu} \quad (3)$$

Dimension 2: Cohesion annual tendency dimension

$$Max(N_{ju_t}) = \max_{i=1,\ qu_j} \frac{\sum_{m=1}^{12} N_{i_{tm}}}{12}$$

$$Min(N_{ju_t}) = \min_{i=1,\ kj} \frac{\sum_{m=1}^{12} N_{i_{tm}}}{12}$$

the urban Cohesion tendency estimation

$$\text{Ncu\_sj1} = \boldsymbol{Max}(N_{ju_t}) - \boldsymbol{Min}(N_{ju_t}) \quad (4)$$

$$Max(N_{jr_t}) = \max_{i=1,\ qr_j} \frac{\sum_{m=1}^{12} N_{i_{tm}}}{12}$$

$$Min(N_{jr_t}) = \min_{i=1,\ kj} \frac{\sum_{m=1}^{12} N_{i_{tm}}}{12}$$

the rural Cohesion tendency estimation

$$\text{Ncr\_sj1} = \boldsymbol{Max}(N_{jr_t}) - \boldsymbol{Min}(N_{jr_t}) \quad (5)$$

Dimension 3: Unemployment the annual density tendency estimation unemployment at LAU2 level by county (unemployed persons/km2),

$$\boldsymbol{Ndu_{ju_t}} = \sum_{q=1}^{qu_j} \frac{\sum_{m=1}^{12} \frac{N_{qu_{tm}}}{A_{qu_j}}}{12qu_j} \quad (6)$$

$$\boldsymbol{Ndr_{jr_t}} = \sum_{q=1}^{qr_j} \frac{\sum_{m=1}^{12} \frac{N_{qr_{tm}}}{A_{qr_j}}}{12qr_j} \quad (7)$$

Dimension 4: Seasonality (1) tendency estimation based on each month average variation unemployment at LAU2 level by county (unemployed persons/month/LAU2),

In this case there are 2 sub aggregation level reflecting t*he unemployment LAU2 average at county level – spatial heterogeneity by month, finally aggregated by year.*

$$\boldsymbol{Nmlu_{u_{tm}}} = \sum_{q=1}^{qu} \frac{N_{qu_{tm}}}{qu} \qquad \text{For each month } m \in [ian: december] \quad (8)$$

$$\boldsymbol{Nmlr_{r_{tm}}} = \sum_{q=1}^{qr} \frac{N_{qr_{tm}}}{qr} \quad (9)$$

At each county there are calculated the unemployment means at county level for each month following the steps:

Subprocedure

a. *Calculating (12 times each * 5 dimensions=60 indicators)*

$$Ndu\_sj1_m\ ,\ Ndu\_sj2_m, Ndu\_sj3_m, Ndu\_sj4_m$$

$$Ndr\_sj1_m,\ Ndr\_sj2_m\ ,\ Ndr\_sj3_m\ ,\ Ndr\_sj4_m$$

b. *Normalising in quartile ∈{1, 2, 3, 4}, where 1 is for low variation , …4 is for high variation;*

c. $$\text{imlu\_sjw} = \left[\frac{\sum_{m=ian}^{December} [\![Ndu\_sjw]\!]\_m}{12}\right]_{Normalised}$$

d. Sezonality - Aggregate index for the change in average monthly urban unemployment at UAT2 level

$$\textbf{imlu = imlu\_sj1+ imlu\_sj2+ imlu\_sj3+ imlu\_sj4} \quad (10)$$

Obs – the same steps for Seasonality (1) tendency estimation based on each month average variation rural unemployment at LAU2 level by county (unemployed persons/month/LAU2)

Dimension 5: Seasonality (2) tendency estimation based on monthly amplitude of unemployment at LAU2 level by county (unemployed persons/month/LAU2)

Seasonality (2) tendency estimation based on monthly amplitude of urban unemployment at LAU2 level by county (unemployed persons/month/LAU2)

$$\left.\begin{aligned} Max(N_{j_{u_{tm}}}) &= \max_{j}\left[\max_{t,\,m=1\div12} N_{qu_{j_{tm}}}\right] \\ Min(N_{j_{u_t}}) &= \min_{j}\left[\min_{t,\,m=1\div12} N_{kj}\right] \end{aligned}\right\} \quad \text{Nsu} = \boldsymbol{Max}(N_{j_{u_{tm}}}) - \boldsymbol{Min}(N_{j_{u_{tm}}}) \tag{11}$$

Seasonality (2) tendency estimation based on monthly amplitude of rural unemployment at LAU2 level by county (unemployed persons/month/LAU2)

$$\left.\begin{aligned} Max(N_{j_{r_{tm}}}) &= \max_{j}\left[\max_{t,\,m=1\div12} N_{qr_{j_{tm}}}\right] \\ Min(N_{j_{r_t}}) &= \min_{j}\left[\min_{t,\,m=1\div12} N_{kj}\right] \end{aligned}\right\} \quad \text{Nsr} = \boldsymbol{Max}(N_{j_{r_{tm}}}) - \boldsymbol{Min}(N_{j_{r_{tm}}}) \tag{12}$$

For each Dv is calculated at the **county** level for each s_{jw} (w=1 to 4)

sj1:

Dv_sj1 **Mean Dvj (/ 12 months)** (13)

Short term inertia

sj2: Dv_sj2 **Short term ST** (14)

$$ST\_Dv_{j_r} = Dv_{j_{r_t}} - Dv_{j_{r_{t-1}}}$$

Medium term inertia

sj3: Dv_sj3 **Medium Term MT** (15)

$$MTDv_{j_r} = Dv_{j_{r_t}} - Dv_{j_{r_{t-3}}}$$

Spatial heterogeneity

sj4: Dv_sj4 **Distance from national mean DM** (16)

$$DMDv_{j_r} = Dv_{j_{r_t}} - Dv_{r_t}$$

Normalisation Max Min (OECD, 2008) (17)

$$\max_{j=1,\ 42}\left(\text{Dv\_s}_{jw}\right) - \min_{j=1,\ 42}\left(\text{Dv\_s}_{jw}\right) \Rightarrow$$

$$\text{Quartile} \Rightarrow \begin{cases} 1\ if\ \text{Dv\_s}_{jw} \in Q1\ [0;25\%) \\ 2\ if\ \text{Dv\_s}_{jw} \in Q2\ [25;50\%) \\ 3\ if\ \text{Dv\_s}_{jw} \in Q3\ [50;75\%) \\ 4\ if\ \text{Dv\_s}_{jw} \in Q14\ [75;100\%] \end{cases}$$

iat= im+ic+id+iml+is (18)
im =imau+imar (19)
imau = imau_sj1+ imau_sj2+ imau_sj3+ imau_sj4 (20)
imar = imar_sj1+ imar_sj2+ imar_sj3+ imar_sj4 (21)
ic =icu+icr (22)
icu = icu_sj1+ icu_sj2+ icu_sj3+ icu_sj4 (23)
icr = icr_sj1+ icr_sj2+ icr_sj3+ icr_sj4 (24)
id =idu+idr (25)
idu = idu_sj1+ idu_sj2+ idu_sj3+ idu_sj4 (26)
idr = idr_sj1+ idr_sj2+ idr_sj3+ idr_sj4 (27)
iml =imlu+imlr (28)
imlu = imlu_sj1+ imlu_sj2+ imlu_sj3+ imlu_sj4 (29)
imlr = imlr_sj1+ imlr_sj2+ imlr_sj3+ imlr_sj4 (30)
is =isu+isr (31)
isu = isu_sj1+ isu_sj2+ isu_sj3+ isu_sj4 (32)
isr = isr_sj1+ isr_sj2+ isr_sj3+ isr_sj4 (33)

where, 1 = below the national average, 2 = close to the national average, 3 = level of attention, 4 level alarm

Composite indicator for the **annual average unemployment** at LAU2 level by county (average):

- *im – national*
- *imau – urban*
- *imar – rural*

Sub-composite indicator for **urban** unemployment at LAU2 level by county
1 = low number of unemployed persons/ small changes ....4 = high number of unemployed persons / varies widely

- *imar_sj1 - annual average variation*
- *imar_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *imar_sj3imau_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *imar_sj4 - distance of county average compared to national average of LAU2- danger indicator*

Sub-composite indicator for **rural** unemployment at LAU2 level by county

- *imar_sj1 - annual average variation*
- *imar_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *imar_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *imar_sj4 - distance of county average compared to national average at LAU2 level- danger indicator*

Composite indicator for the **cohesion tendency estimation** of unemployment at LAU2 level by county (Max-Min, average)

- *ic – national*
- *icu – urban*
- *icr – rural*

Sub-composite indicator for the **cohesion** tendency estimation of **urban** unemployment at LAU2 level by county
1 = low number of unemployed persons/ small changes ....4 = high number of unemployed persons / varies widely

- *icu_sj1 - annual average variation*
- *icu_sj 2icu_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *icu_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*

- *icu_sj4 - distance of county average compared to national average at LAU2 level - danger indicator*

Sub-composite indicator for the **cohesion** tendency estimation of **rural** unemployment at LAU2 level by county

- *icr_sj1 - annual average variation*
- *icr_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *icr_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *icr_sj4 - distance of county average compared to national average at LAU2 level - danger indicator*

Composite indicator for the **density tendency estimation** of unemployment at LAU2 level by county (unemployed persons/km2)

- *idu - national*
- *idu - urban*
- *idr - rural*

Sub-composite indicator for the **density** tendency estimation of **urban** unemployment at LAU2 level by county

(1 = low number of unemployed persons/km2/ small changes....4 = high number of unemployed persons/km2, / varies widely)

- *idu_sj1 - annual average variation*
- *idu_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *idu_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *idu_sj4 - distance of county average compared to national average at LAU2 level- danger indicator*

Sub-composite indicator for the **density** tendency estimation of **rural** unemployment at LAU2 level by county

- *idr_sj1 - idr_sj1 – annual average variation*
- *idr_sj2- change on short term in 2013 compared to 2012, 1 year spin*
- *idr_sj3– change on medium term in 2013 compared to 2010, 3 years spin*
- *idr_sj4 - distance of county average compared to national average at LAU2 level- danger indicator*

Composite indicator for the **Seasonality (1) tendency estimation based on each month average variation** of unemployment at LAU2 level by county (unemployed persons/month/LAU2)

- *iml - national*
- *imlu - urban*
- *imlu - rural*

Sub-composite indicator for the **Seasonality (1)** tendency estimation based on **each month average variation** of **urban** unemployment at LAU2 level by county

1 = low number of unemployed persons/ small changes ....4 = high number of unemployed persons / varies widely

- *imlu_sj1 - annual average variation*
- *imlu_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *imlu_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *imlu_sj4 - distance of county average compared to national average at LAU2 level- danger indicator*

Sub-composite indicator for the **Seasonality (1)** tendency estimation based on **each month average variation** of **rural** unemployment at LAU2 level by county

- *imlr_sj1 - annual average variation*
- *imlr_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *imlr_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *imlr_sj4 - distance of county average compared to national average at LAU2 level- danger indicator*

Composite indicator for the **Seasonality (2) tendency estimation based on monthly amplitude** variation of unemployment at LAU2 level by county (unemployed persons/month/LAU2)

- is - national
- isu - urban
- isr - rural

Sub-composite indicator for the Seasonality (2) tendency estimation based **on monthly amplitude of urban** unemployment at LAU2 level by county

1 = low number of unemployed persons/ small changes ....4 = high number of unemployed persons / varies widely

- *isu_sj1 - annual average variation*
- *isu_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *isu_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *isu_sj4 - distance of county average compared to national average at LAU2 level- danger indicator*

Sub-composite indicator for the Seasonality (2) tendency estimation based **on monthly amplitude of rural** unemployment at LAU2 level by county

- *isr_sj1 annual average variation*
- *isr_sj2 - change on short term in 2013 compared to 2012, 1 year spin*
- *isr_sj3 - change on medium term in 2013 compared to 2010, 3 years spin*
- *isr_sj4 - distance of county average compared to national average at LAU2 level- danger indicator*

The normalised values of indices and sub indices are represented in Arc Gis Desktop – Arc View 9.3. as choropleth maps by the 4 categories determined.

Results

The result of this activity is a sketch for a fully use the informational potential of registered unemployment indicators, already available spatial vectorised, comparing LAU2 average both in time and space. The spatial units corresponds with administrative units, each level of analysis corresponding with a policy level of action, institutional attributes, measures and action packages and intervention / monitoring mechanism. The results provide an image of registered heterogeneity in space and time, looking at the average, density, amplitude of unemployment at LAU2 level by month, year, county, national, etc. The results could be gathered by the following typologies that allow differentiation / resemblance counties in comparable terms (Figure 1) by several criteria:

- Changes in chronological annual and monthly (seasonal) short and medium term unemployment levels; this criterion is relevant for sizing NEA and especially the CAE capacity to provide customized solutions for customers of PES services.

- Change in spatial heterogeneity of unemployment: its size of intra-county amplitude and density variation provide a profile for the cohesion tendency monitoring at the county level. These information is useful regarding the PES's measures designing and sizing of resources

in order to increase access to work. These issues presents also the potential to improve the economic performance of the demand. Unemployment available in a rich information format and with a very good frequency and therefor e could work as the mirror for economic activity, could be used as a proxy indicator for employment (considering as 0 in information, employment as 1);

- The agglomeration / concentration of unemployment is looked in short-term coupled with medium term. This criterion provides additional information on the depth, severity and magnitude of unemployment in some areas, is working as monitoring instrument for analysis disadvantaged areas, areas regulated by the Government Decision 24/1998 and implemented by Regional Development Ministry MDRAP;

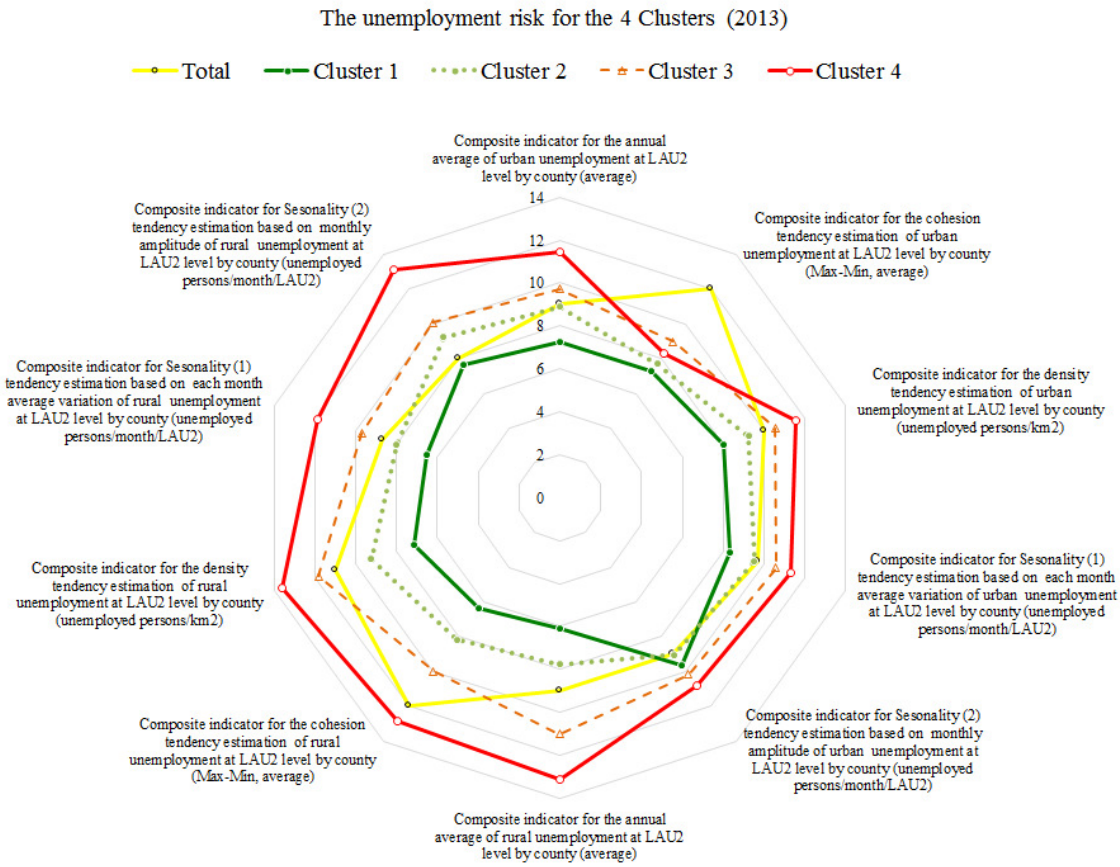
- This dashboard offer an input to better design the inter-county mobility of labour force at this stage on national area but this limit could be easily passed through if the model is applied in trans-frontier neighbouring LAU2 units abroad.

The main objective of this system is to support management at county unemployment (CAE structures) and nationally (NAE) in a coordinated macro, mezzo and micro integrated manner. This system (completed) can serve as a management tool with minimal additions could increase the transparency of PES services for all its beneficiaries. The model when is validated could be transformed in an algorithm with output in a dynamic map application, easily accessible for interested stakeholders.

The proposed system integrates the before mentioned four dimensions of risk of unemployment, each detailed at the county level by 5 sub-indices calculated for 2013, using data back in 2010. The level, seasonality (two aggregate indices), the trend of cohesion and density of unemployment. The method used was that normalization, aggregation, finally clustering and map representation.

For the 5 dimensions correspond to each dimension 4 sub indices (average, short term, medium term and distance to national mean) calculated by residence area (urban and rural). The Level I of aggregation characterize urban unemployment by the five sub indices (imau, icu, idu, imlu, isu) and the rural unemployment by the five sub-indices (imar, icr, idr, imlr, isr). Level II of aggregation sum up all five sub-indices at urban and rural areas at national level (im, ic, id, iml, is). Unemployment aggregate risk assessment / county is summarized with comparable values at national level by a total aggregate index (iat) as a result of aggregation Level II.

Figure 2



(Average scores / cluster type)

Cluster of unemployment risk type	cod	*Imau*	*icu*	*idu*	*imlu*	*isu*	*Imar*	*icr*	*idr*	*imlr*	*isr*	Iat
Alarm	Cluster 4	11	8	12	11	11	13	13	14	12	13	**4**
Warning	Cluster 3	10	9	11	11	10	11	10	12	10	10	**3**
Equilibrium	Cluster 2	9	8	9	10	9	8	8	9	8	9	**2**
Low risk of unemployment	Cluster 1	7	7	8	8	10	6	6	7	6	8	**1**

Score minim - 4/ dimension
Score maxim – 16/ dimension

Note: distortion between the 4 clusters and risk profile registered for the national level is induced by very high population of Bucharest (not included and corresponding administrative subdivisions sectors of the capital).

Scores at the county level are distributed quantile and indexes are assigned values from 1 to 4 according to the risk of unemployment (Table 1, Figure 2), from the maximum risk to minimal risk, as follows:

Cluster 4 - Unemployment Cluster **Alarm** type – label the counties with high scores 4. The main feature of these counties is the cumulative achievement of all the risks of unemployment except for the change in the aggregate index trend cohesion at urban UAT2. This last dimension is questionable, requesting more attention.

Cluster 3 - Unemployment Cluster **Alert** type – labels the counties that achieve scores that are assigned values about big scores - 3. The main feature of these counties is the realization of lower values than those in cluster 4 but higher than those of cluster 2, except for the change in the aggregate index trend cohesion at urban UAT2 where indicated a higher risk than counties in cluster 4. The mark of this cluster is higher relative score of density comparing to all other sub indicators.

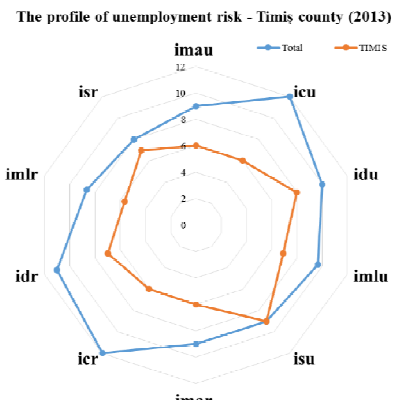
Cluster 2 - Unemployment Cluster **Balance** type - labels for counties that achieve scores that are assigned values about low scores - 2. The main feature of these counties is the realization of lower values than those in Cluster 3 but higher than those in cluster 1, except for aggregate risk index expressed by the aggregate index for Seasonality (2) tendency estimation based on monthly amplitude of urban unemployment at LAU2 level by county (unemployed persons/month/LAU2) is lower than the 1 cluster's index value.

Cluster 1 - Unemployment **Cluster Low risk** type - labels the for counties associates who are assigned with very low scores - 1. The main feature of these counties is the cumulative achievement of low values for all risk of unemployment size, except for aggregate risk index expressed by Seasonality (2) tendency estimation based on monthly amplitude of urban unemployment at LAU2 level by county (unemployed persons/month/LAU2) is having higher values than the values achieved in cluster 2.

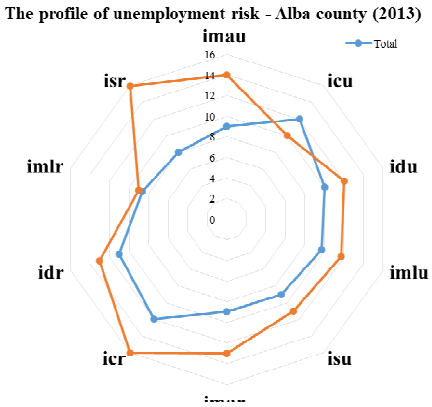
Integrated monitoring and alert system of the risk of unemployment at the county level (for all 42 counties) presents an dashboard the following selected elements:

a. **Summary scores aggregated** levels by counties (Figure 3) and their **hierarchy** (Figure 4): Hierarchy by aggregate unemployment risk reflects the Counties profile by the 5 dimensions of the risk of unemployment at the county level: average, cohesion, density, seasonality (seasonality by monthly average and seasonality by monthly amplitude) based on the unemployment variation at LAU2 level with base 2013 by area of residence (urban and rural).

Figure 3 The worst and best counties in terms of unemployment risk in 2013



Best performance



Worst performance

b. Composite indicator for unemployment risk at LAU2:

- Map 1. Composite indicator for urban unemployment risk at LAU2 level by county, 2013- [Iau]
- Map 2. Composite indicator for rural unemployment risk at LAU2 level by county, 2013- [Iar]

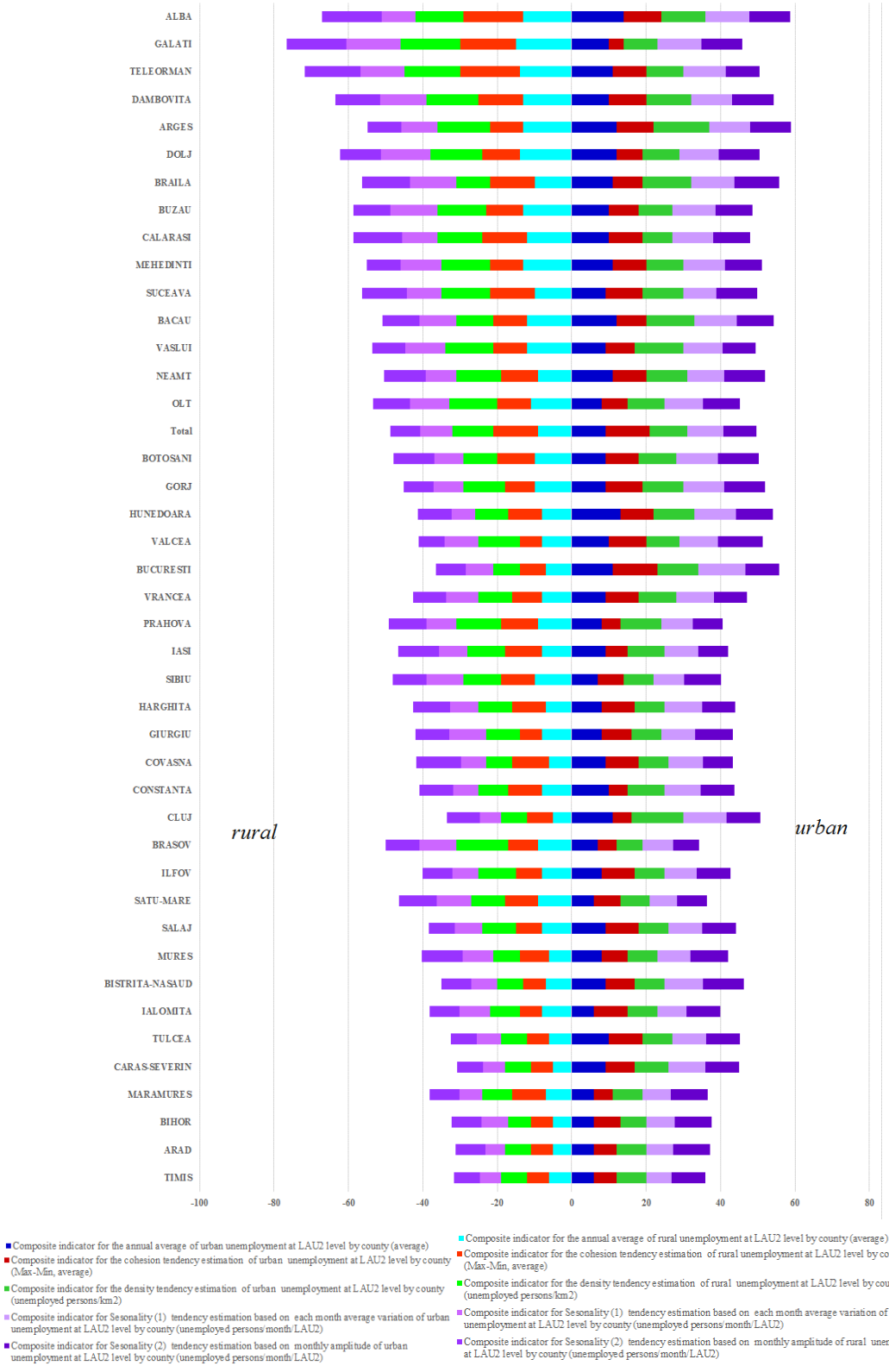
c. Summary of subindex corresponding risk of unemployment at counties level dimensions 2013:

c1. Annual **average** of unemployment at LAU2 level:

- Map 3. Composite indicator for the annual average of urban unemployment at LAU2 level by county (average) 2013 - [imau]
- Map 4. Composite indicator for the annual average of rural unemployment at LAU2 level by county (average) 2013- [imar];

Figure 4 Counties profile by the 5 dimensions of the risk of unemployment at the county level: average, cohesion, density, seasonality (seasonality by monthly average and seasonality by monthly amplitude) based on the unemployment variation at LAU2 level with base 2013 by area of residence (urban and rural)

- Hierarchy by aggregate unemployment risk -



c2. **Cohesion** tendency estimation of unemployment:

- Map 5. Composite indicator for the cohesion tendency estimation of urban unemployment at LAU2 level by county (Max-Min, average) 2013- [icu];
- Map 6. Composite indicator for the cohesion tendency estimation of rural unemployment at LAU2 level by county (Max-Min, average) 2013- [icr];

c3. **Density** tendency estimation of unemployment at LAU2 level:

- Map 7. Composite indicator for the density tendency estimation of urban unemployment at LAU2 level by county (unemployed persons/km2) 2013- [idu];
- Map 8. Composite indicator for the density tendency estimation of rural unemployment at LAU2 level by county (unemployed persons/km2) 2013- [idr];

c4. Seasonality (1) tendency estimation based on each **month average variation** of unemployment at LAU2 level:

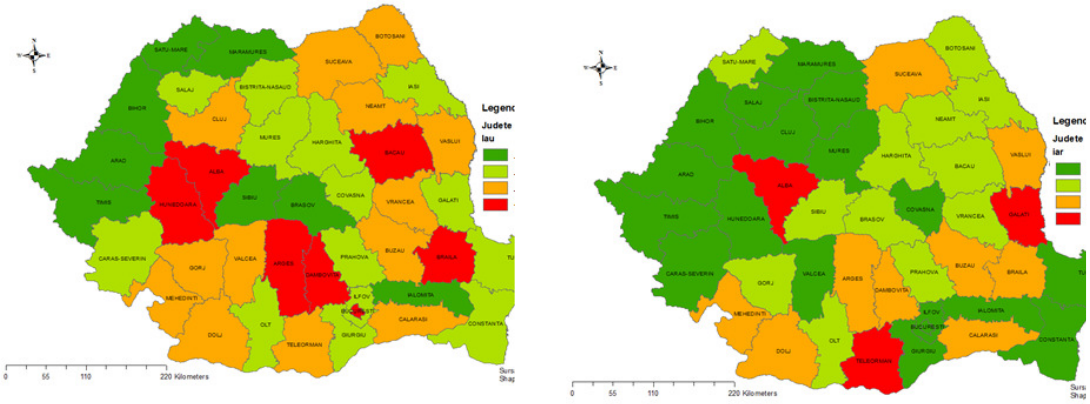
- Map 9. Composite indicator for Seasonality (1) tendency estimation based on each month average variation of urban unemployment at LAU2 level by county, 2013 (unemployed persons/month/LAU2) - [imlu];
- Map 10. Composite indicator for Seasonality (1) tendency estimation based on each month average variation of rural unemployment at LAU2 level by county, 2013 (unemployed persons/month/LAU2) - [imlr];

c5. Seasonality (2) tendency estimation based on monthly **amplitude** of unemployment at LAU2:

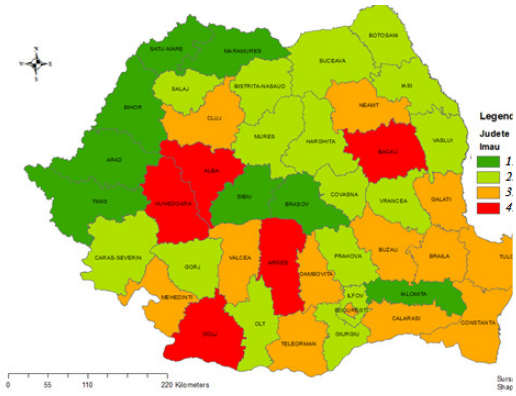
- Map 11. Composite indicator for Seasonality (2) tendency estimation based on monthly amplitude of urban unemployment at LAU2 level by county 2013 (unemployed persons/month/LAU2) - [isu];
- Map 12. Composite indicator for Seasonality (2) tendency estimation based on monthly amplitude of rural unemployment at LAU2 level by county 2013 (unemployed persons/month/LAU2) - [isr];

Figure 5 Choropleth maps of the counties profile by the 5 dimensions of the risk of unemployment at the county level: average, cohesion, density, seasonality (seasonality by monthly average and seasonality by monthly amplitude), in 2013

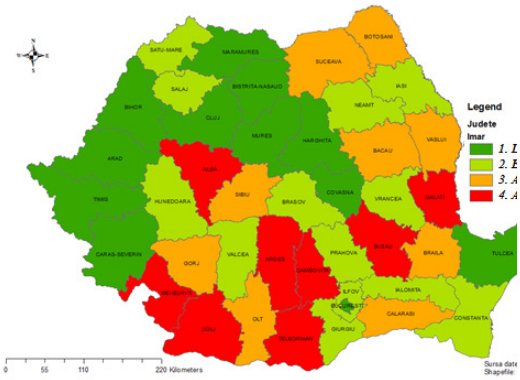
Map 1: [Iau] **Map 2: [Iar]**



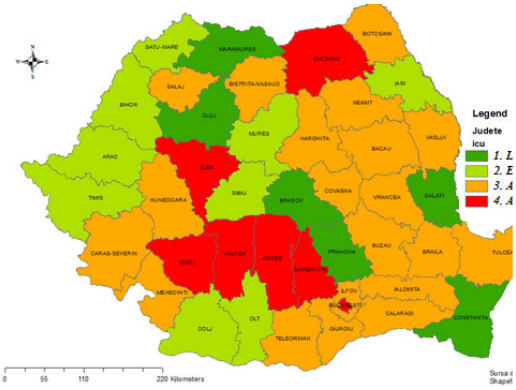
Map 3: [imau]



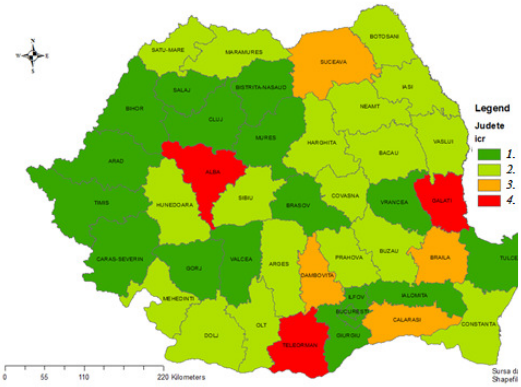
Map 4: [imar]



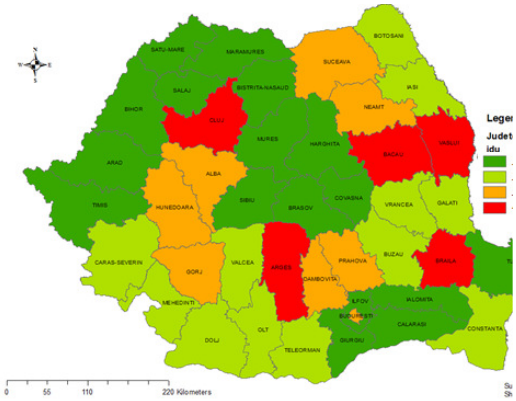
Map 5: [icu]



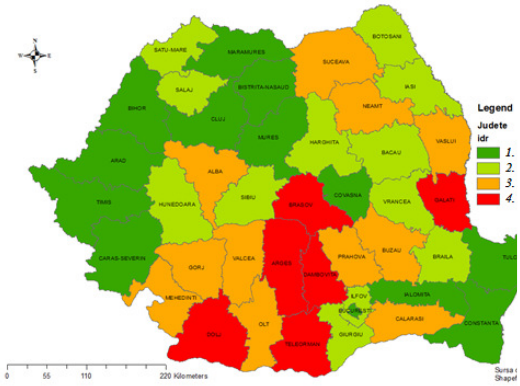
Map 6: [icr]



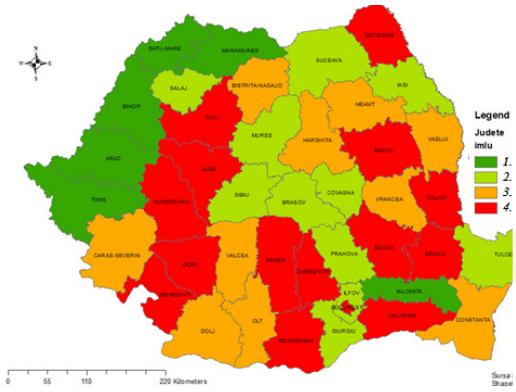
Map 7: [idu]



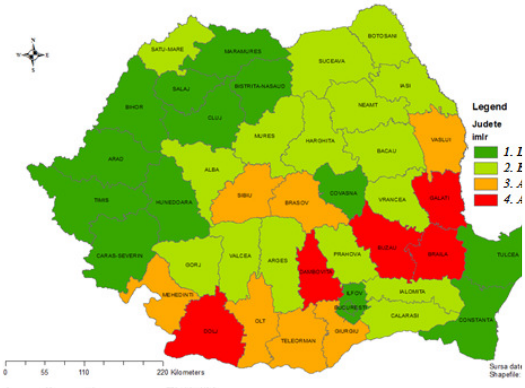
Map 8: [idr]



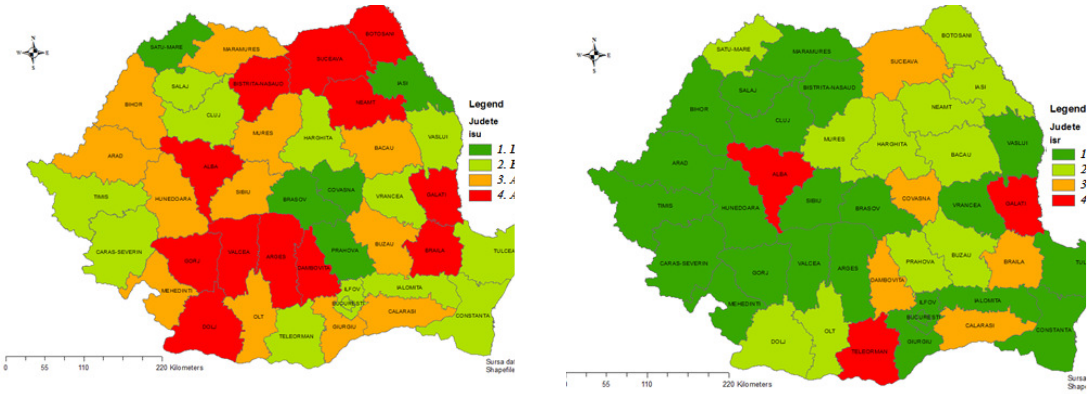
Map 9: [imlu]



Map 10: [imlr]



Map 11: [isu] **Map 12: [isr]**



Source: maps realised by authors in Arc GIs Desktop, counties boundaries from ESRI RO, using own calculation with unemployment data from TEMPO INS

Discussions

Among the effects of information economy already visible is represented by the labour market big data (inclusive public data) available and accessible for all. In regard to labour market management NEA has the main role as a data and user at central, mezzo and local level. These challenge are assumed by NEA through NEA's 2014-2020 in the "Upgrading and improving public employment services" it's IInd Objective.[38] Our paper offer support to create tools to realise the Specific Objectives " "II.1 Developing and adapting information system to support the work of the NEA" and "Specific Objective II.3 creating a system of labour market analysis" [38]

The dashboard sketch intend to present the variation in the number of registered unemployed at the LAU 2 level both in time and space. This management tool make a complex evaluation in a differentiated and comparable manner the registered unemployment at LAU level providing 4 facilities:

1. Unemployment risk evaluation uses 4 labels: Alarm, Alert, Balance, Low risk of unemployment and figured in Maps;
2. The counties hierarchy by risk of unemployment criterion evaluated multidimensional;
3. Grouping counties with similar characteristics;
4. Complex counties characterization by radar graphs (in report to its cluster and national characteristics);

This synthesis allows us to provide useful outputs in managing unemployment, as follows:

- Sizing more accurate budgets for NEA accordingly to the rural /urban main profile of the counties;
- More adequate diagnosis unemployment levels at county level by identifying processes of accumulation, agglomerations and persistent unemployment in some locations. These conditions are prerequisite for designing specialized packages of measures and services better tailored for the PES clients, some of them innovative or in addition to the current applied;
- More efficient allocation of resources – e.g. in case of seasonality, anticipation and human resource in excess need for short period of time - civil servants involved in the implementation of programmed actions could be organised in more flexible manner;
- Anticipating Changes in registered unemployment in a fully compatible form with the NEA Informational System and its national network;
- Increasing the efficiency and efficacy of PES activity towards: increasing the registration rates in both urban and rural area, increasing its capacity to accelerate the integration of jobseekers on the labour market and finally increasing the use of PES and decreasing the Unemployment,

The new opportunities provided by [35] allows the dynamic instruments like maps / mobile applications etc. to increase the labour market transparency at all levels, following the current functional models [15], [16], [17]

Conclusions / Final remarks

In an increasing dynamic global environment the technological solutions provides new challenges and opportunities. Gathering the existing information regarding the registered unemployment is possible to provide a better answer using an improved profile with a relative small added supplementary effort. Unemployment enriched profile is represented by the maps resulted our model's executing. This model emphasise and amplify counties spatio-temporal profile by the 5 dimensions of the risk of unemployment at the county level: average, cohesion, density, seasonality (seasonality by monthly average and seasonality by monthly amplitude) based on the unemployment variation at LAU2 level with base 2013 by area of residence (urban and rural).

In European landscape Romania presents in 2015 a totally different structure of the share of population in total population: Cities 32.3%, Towns and suburbs 23.6% and rural areas 44.1% compared to EU28: Cities 41.6%, Towns and suburbs 30.7% and rural areas 27.7%. [39] Romania is an emergent economy, an upper middle income country - in development, with only 54% urban population from total population in 2014, decreasing with -0,1pp since 1990 [39] – presenting almost flat tendency of urbanisation, process dissimilar to high income countries. The high income countries presents accelerate processes of urbanisation from 74% in 1990 to 81% 2014 [40] Urban / rural dichotomy reflects the major divide for Romania – but there is still room to further discuss the periurban areas.

LAU2 level base of aggregation put in light the high heterogeneities in NUTS 3 counties areas! Here in Romania but also in EU 28 - OECD alerts about the poverty in urban areas requests a magnifier tool to better understand these phenomena's.

Spatial perspective offers the informational tools to shape a precise profile, multidimensional integrated as a base to smart development not only to urban areas but also to rural areas if designing adequate solutions.

Main limit of this model is given by the fact the Bucharest, the biggest city in Romania (also the capital of Romania) – is a LAU2 – introduce distortions, therefore requests a special study case.

Automatization through an algorithm and building dynamic maps could improve this model development if is desirable. Monitor maps for unemployment represents useful tools already implemented in some countries as well as in Romania. The Territorial Observatory presents a big data exploitation in dynamic maps by indicator type, intermediary steps towards more advanced tools promotion.

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HOW THE REPLACEMENT OF BASEL II BY BASEL III HAS AN EFFECT ON ECONOMIC GROWTH

Nikiforos CHATZIGAKIS
n.chatzigakis@gmail.com

Abstract

After the recent crisis, the Basel Committee decided to create a new regulatory framework, Basel III. This is because the recession demonstrated the inability of Basel II accord to prevent the economic crisis. Basel III on the other hand, has come to rectify all these weaknesses, however its focus is on liquidity risk and on regulatory capital requirements. For this reason, Basel III makes changes on capital definition and has increased the capital charges for derivatives and securities. Also, Basel III has introduced the liquidity and coverage ratio that the former is separated into Liquidity coverage ratio (LCR) and Net stable funding ratio (NSFR), which their main objective is to increase liquidity during economic stress periods. Even though Basel III has not been fully implemented and it's under construction, its main provisions of capital requirements, liquidity coverage ratio (LCR), Net stable funding ratio (NSFR) and the leverage ratio have been criticized as increasing the cost of bank lending to borrowers. Finally, it is argued that Basel III could have a dampening effect on economic growth.

Keywords: Basel II, Basel III, regulation, Liquidity coverage ratio (LCR), Net stable funding ratio (NSFR)

JEL classification:

Introduction

The Basel Committee on Banking and Supervision (BCBS) was set up in 1974-1975 in response to the crisis in the mid-seventies. Committee's goal was the allocation of supervisory responsibility for international active banks. Also, BCBS wanted to tackle systemic risk, as it was a serious problem during that period. For this reason, BCBS created Basel I as a response to the international problem of systemic risk - a problem that was not limited to national boundaries. This is because banks had invested in foreign debt and had started to do business in foreign countries. Also, banks had increasingly borrowed from each other rather than from depositors. So, Basel Committee created Basel I to impose a common regulatory framework through the Capital Accord. This regulatory framework had two objectives: The first was that this new framework should serve to strengthen the soundness and stability of the international banking system and secondly, this framework should be fair and have a higher degree of consistency in its application to banks in different countries with a view to diminish existing sources of competitive inequality amongst international banks.

The recent financial crisis revealed certain inadequacies of Basel II and for this reason the Basel committee created Basel III regulatory framework where the focus is on capital requirements and liquidity requirements – as lack of liquidity is one of the main drawbacks of Basel II and a necessary ingredient to boost the spreading of systemic risk. To better understand the effectiveness of Basel III, it is necessary first to determine how Basel III rectified the inadequacies of its predecessors.

Once the changes of Basel III are acknowledged, the next step would be to analyze the practical implication Basel III would have on the lending provisions of the banking institutions. The implementation of capital and liquidity requirements as well as leverage requirements indicate that the new regulatory accord could impede the credit provisioning to borrowers by the financial institutions. It is also examined, how the alleged decrease on lending could slow down the pace of economic growth.

Basel III: a new regulatory framework

Basel III makes changes to the previous capital regime of Basel II. Certain changes are a direct response to the inadequacies of Basel II to prevent systemic risk from spreading and thus prevent recessionary phenomena. In what follows I will examine and analyze the changes made by Basel III.

According to the Basel committee on banking supervision (BCBS), the Basel III proposals have two main objectives. The first goal is to strengthen global and liquidity regulation. The second goal is to improve the banking sector's ability to absorb shocks arising from financial and economics stress, which in turn would reduce the risk of a spillover from the financial sector to the real economy. These objectives are achieved through the changes to the capital definition and levels, and through the increase of capital charge for derivatives and securities financing transactions. These goals are also accomplished with the increase risk charge for financial institution exposures and with the introduction of leverage ratio, liquidity ratio (lCR), Net stable funding ratio (NSFR).

i) Changes on capital definition and capital charge

Banks will be required to hold a higher percentage of common equity that is, common shares and retained earnings, in their regulatory capital. The definition of capital will be simplified, with tier 3 capital being abolished. The core capital 1 increases from 2 per cent to 4.5 per cent. An extra conservation buffer of 2.5 per cent, which raises the core tier 1 ratio to 7 per cent, further strengthens it. The Basel committee has agreed on the creation of an additional countercyclical buffer consisting of common equity of a further 2.5 per cent of risk-weighted assets. This will only apply during times of rising of economic activity in order for banks to save money that can be used during recessions or severe economic stress periods.

In assessing the significance of these requirements posed by Basel III, it is useful to recall that in June 2007 Northern rock had tier 1 capital in excess of 11 per cent and total capital in excess of 18 per cent. Looking at the large banks, only RBS had tier 1 capital less than 8 percent and very few had total capital less than 12 per cent.

These requirements will be imposed on all banks. However, the Basel committee is considering to impose further capital charge to systematically important institutions (SIFIs) in order to ensure the stability of these institutions. It is believed that SIFIs will be subject to 9 percent minimum with national authorities retaining the power to impose higher standards if the deem so.

The changes made to the risk weightings proposed by Basel III apply to derivative and financing exposures as well. The primary effects of the changes proposed in the Basel III package require banks to model the risk of loss arising from deterioration of the credit counterparties of these transactions. It also require banks to identify circumstances where there is a specific legal connection between exposure and the credit risk of an instrument used to hedge that exposure. In addition, it requires banks to increase the levels of margin, which they hold in respect of over the counter derivatives and securities financing transactions. Moreover, it requires banks to maintain a small risk charge (1-3 percent) in respect of position and collateral exposures to central counterparties (CCPs).

ii) Introduction of the leverage and liquidity ratio

The leverage ratio, which is an existing technique used in the US, is implemented in Basel III. It is characterized, as "a non risk sensitive capital requirement with its purpose is to act as a backstop measure to reduce the risk of a build up of excessive leverage in the financial institutions as well as in the financial system as a whole". The argument behind the leverage ratio is that the sheer size of a banks assets and liabilities may in the end create risk. The rationale behind this is that banks should not be permitted to grow the absolute size of their balance sheet above a certain multiple of their capital no matter how well hedged they may be. The leverage limit must be 3 percent - which means that the bank's gross borrowings should not be more than 33 times the bank's tier 1 capital.

Nonetheless, the leverage ratio poses a problem. Different countries vary significantly in the extent to which they recognize netting on an accounting basis. Thus, no compromise has been reached as to the meaning of gross borrowings. The basis on which the leverage

ratio is applied must be set by regulators in order to produce a globally applicable standard. The Basel committee gives a solution to this problem by stating that the leverage ratio should be applied to the gross assets. However, regulatory netting will be recognized for derivatives. Thus, on and off balance sheet exposures may be recognized for regulatory purposes. Financial collateral and on balance sheet netting will not be recognized equally.

The liquidity coverage ratio (LCR) requires banks which hold highly liquid assets to meet all the cash outflows over a 30-day period during a stress-funding period. The rationale behind the leverage ratio rule has an important impact for the banks, because under existing rules banks hold enough assets to fund the normal outflows of the bank. LCR imposes a somewhat different view as to how fast funds can flow out, especially during economic stress periods, and instructs the bank to use its asset pool accordingly.

The basic requirement is that the highly liquid asset pool to be capable of meeting the net cash outflow over the prescribed period and therefore it is mandatory to consider inflows. Scheduled payments of interests as well as repayments of loans have the potential to reduce the net outflow. However, for this reason Basel III demands from the bank to assume that it will be ready to raise any finance from secured funding on non-governmental securities and, simultaneously, the bank will be unable to draw on any of its backup liquidity lines. In addition, the bank will be subject to 100 percent drawing on all the liquidity lines it has granted. Moreover, it will be subject to a 3-notch ratings downgrade and will, therefore, be subject to collateral calls.

The LCR asset pool must be separated and identifiable from any other asset pool the bank holds and completely unencumbered. This means that certain assets may be deemed to be ineligible for inclusion in the LCR asset pool.

The question as to which asset can be regarded highly liquid is one that has not been answered yet. Surely, government securities issued by 0 percent weighted sovereigns are to be considered as highly liquid as they are cash balances held with central banks. Similarly, other government bonds may also be included to the extent that they match net outflow in the relevant currency.

The issue with the eligibility rules which the bank has in order to determine whether an asset is liquid enough to be in high liquidity asset pool are different with the eligibility rules the central bank has in order to determine whether an asset is liquid enough and give funding to banks in return of the liquid asset.

The NFSR is designed to encourage and incentivize banks to use stable sources to fund their activities to reduce dependency on short term wholesale funding. Banks will need to increase the proportion of wholesale and corporate deposits with maturities greater than one year, but currently, the appetite for term debt is limited. For most banks it will be difficult to increase the proportion of wholesale deposits with maturities greater than one year, which is likely to lead to higher funding costs. Also, managing the NSFR by altering the asset mix will likely result in an increase in the proportion of short-term assets, reducing yield.

Basel III: rectifying the inadequacies of its predecessor

The recent financial crisis highlighted the areas that the Basel II accord failed to adequately regulate, and as a consequence Basel II regulation was proved to be ineffective to prevent or mitigated tis effects. The areas in Base II that lacked sufficient regulation was the provisions that dealt with liquidity and leverage, internal models, procyclical provisions in banking and reliance on rating agencies. The drafting Committee of Basel III recognizes the recent crisis as a liquidity crisis and as a result the focus is on liquidity without disregarding other important areas.

Liquidity was seen as the major drawback of Basel II, and indeed is an important flaw for a financial system to bear, as the systemic risk can be spread everywhere as the recent crisis demonstrated. For this reason Basel III introduced liquidity standards which are separated into two categories (LCR and NFSR) in order to respond in all contingencies of the problem of lack of liquidity. Also, liquidity standards are supported by the conservation buffer, that aims at maintaining macro prudential stability. In addition, in order to ensure stability and liquidity of the financial system, Basel III introduced the leverage ratio as well as a countercyclical buffer, which will enable banks to lend more during financial stress periods. Moreover, Basel

III endeavors to tackle the problem that interconnectedness of the financial system creates towards the realization of systemic risk.

Although Basel III main focus is on the systemic risk, it does not underestimate other weaknesses found in Basel II. For example, Basel III makes targeted amendment to the exiting capital requirements for trading books imposing new capital charge relating to migration risk, new charge for banks using value at risk (VAR) models and aligning capital charges for securitized products in the trading book with existing charges in the banking book. Further, Basel III makes other changes too such as it increases capital requirements for re-securitization. Lastly, Basel III has made provisions that eliminate incentives to rely on external ratings when calculating credit risk. International organization of securities commissions (IOSCO), which sets the code of conduct fundamentals for credit rating agencies, will also be implemented.

It has been argued that one way of successfully tackling liquidity risk is by preventing systemic risk from spreading. Shwerter has contended that Basel II failed to tackle the factors that cause systemic risk. Before demonstrating how Basel II drawbacks contributed towards the spreading of systemic risk into the financial system, it is preferable to define first systemic risk and Basel II drawbacks.

Systemic risk is the distress in the financial system caused by large institutions or many small ones that can have severe negative consequences in the real economy. Thus, the failure of one financial institution can have negative externalities on the other institutions and potentially to the whole financial system. A single bank may have the potential to take action to prevent its own collapse but may be unwilling to take action to prevent the collapse of financial system. So, a financial institution's risk may have broad effect on the financial system because each institution does not take into account the systemic risk it imposes on other banks.

Moreover, a crucial point that needs to be clarified about systemic risk is that it has two different dimensions. The first, the cross-sectional dimension, treat the structure of the financial system and includes spillover, that is the process of the effects of a single distressed bank that can harm other banks. The second dimension is referred to as time dimension and addresses the question on how cumulative risk can develop over time - and therefore considered the problem of pro-cyclicality. Pro-cyclicality is one of the main problems that have exacerbated the recent financial crisis as has as an effect to destabilize the whole financial system through amplifying financial shocks. It is of vital importance to eradicate, or at least reduce, pro-cyclicality in order to reduce systemic risk in the financial markets.

There are special factors that enable determining whether financial institutions are of systemic importance. One of the most important factors is size and interconnectedness. Further, contributing factors are idiosyncratic risk, leverage, common risk exposure, maturity mismatch and pro-cyclicality. To tackle the problem of systemic risk, the risk must first be measured and be priced. In order to measure and price the risk the spillover effect of the distressed bank has to be internalized so as to be prevented from spreading. If the effects are not internalized then the distressed institutions has the potential of destabilizing the whole financial system.

The main idea behind Basel II regulation is that it provides a regulatory framework that ensures the stability of a financial institution as well as it minimizes the risk of default of that particular institution. However, Basel II main objective should have been to guarantee the stability of the whole financial system. So one important drawback of Basel II regulatory framework is that it focuses on microprudential regulation. If Basel II had a macroprudential view in regulation and supervision then it would have been able to take stock of the direct and indirect connection of the banks through the interconnectedness response and common risk exposure. Another drawback of the Basel II framework that has been demonstrated during the financial crisis is that it does not provide any treatment to the systemic (liquidity) risk. If Basel II had treated systemic (liquidity) risk then the recent financial crisis might have been avoided or at least its harshness on the economy might have been prevented. Pro-cyclicality, which destabilizes the financial system through reinforcing financial shocks, has been increased by Basel II rather than eliminated.

Since Basel II focuses on microprudential regulation, which means that it attempts to guarantee each financial institutions well-being, this accord has failed to fulfill this task due to

the lack of concern for systemic risk and interconnectedness. To make things worse, under this accord financial institutions have significant incentives to become 'too big to fail' (TBTF), 'too many' (TMTF) or 'too interconnected' `(TITF) since it increases the possibility to be bailed out if they become distressed during a financial crisis.

Basel III provides a wide-ranging response to its predecessor's drawbacks. Its macroprudential answer is the countercyclical and conservation buffer that is used to strengthen the capital base. The latter is used to increase flexibility as it can be lowered in times of distressed whereas the former protects the financial institution sector from periods of excessive credit growth since it is only activated during such times. In addition, the latest accords tackle the international coordination problem since at least 27 member states of the committee will implement the regulatory framework. This is a great development, as the United States had not implemented the previous accord (as it regarded it voluntary), but can still implement Basel III. Thus, a pivotal banking area seems to be included in the new regulatory framework, which have as a result a more consistent regulatory landscape. However, implementation of countercyclical buffer has to be done on national level since they have to take into account the economic situations of the particular country. This entails that international coordination is quite limited.

Furthermore, Basel III provides new liquidity standards and the Net stable funding ratio as a response the systemic liquidity risk. Also, the accord's response to pro-cyclicality is the conservation and the countercyclical buffer in order to create an extra capital buffer so as to avoid excessive credit growth. However the new accord does not provide any answer to tackle the problems of TBTF, TMTF or TITF. Moreover, Basel III accord provides a sufficient response to the transparency limitation as it requires disclosure for capital and liquidity standards and the leverage ratio, as well as a publication of national countercyclical buffer and an implementation of CCPs, which highlights bilateral exposure between banks. The new Basel III framework tackles the last drawback of its predecessor - i.e. sustainability - with enhanced capital base, wider risk coverage and new liquidity standards.

Basel III effects on lending and the economy

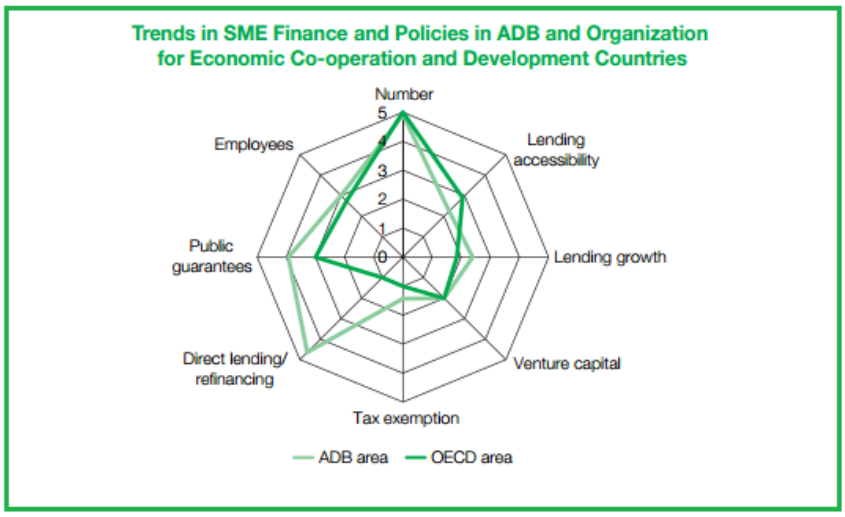
It can be argued that Basel III regulation will have an adverse effect on economic growth since banks will increase the lending premiums on borrowers and specifically on SMEs and entrepreneurs. Higher premium could mean a lower access to funding for this sector of the economy, which in turn could adversely affect global GDP. To better comprehend Basel III implications on economic growth, it is necessary first to examine the effects the increased regulatory capital, liquidity and leverage requirements will have on bank lending and on the economy.

i) Effects of increased regulatory capital

Increase of regulatory capital as required by Basel III for SMEs is due to their high probability of default (PD). For estimating the probability of default of SMEs and entrepreneurs, certain factors are considered such as its financial resilience and sustainability during a financial stressed period, asymmetric information and the size of banks.

It is helpful to examine the effects Basel III regulations would have on economic growth through the application of the regulation at small and medium enterprises (SMEs) and entrepreneurs, as SMEs amounted to more than 90% of all enterprises and employed 60%-70% of the total number of employees in both the OECD and ADB area.

Table 1. Trends in SME Finance and Policies in ADB and OECD (2013)*



Scale		5	4	3	2	1
A. SME Landscape						
Number	Share of SMEs to total number of enterprises	more than 90%	70–90%	60–70%	50–60%	less than 50%
Employees	Share of SME employees to total number of employees	more than 90%	70–90%	60–70%	50–60%	less than 50%
B. Bank Lending						
Accessibility	SME loans share to total loans	more than 50%	40–50%	30–40%	20–30%	less than 20%
Lending growth	Annual growth, latest year	more than 30%	20–30%	10–20%	0–10%	negative
C. Venture and Growth Capital Invested						
Venture capital	Relative to 2007 (2007 = 1)	more than 2.5	2.0–2.5	1.5–2.0	1.0–1.5	less than 1.0
D. Policy Responses						
Direct lending/ refinancing	Share of countries with direct lending and refinancing scheme(s)	90–100%	70–90%	50–70%	30–50%	less than 30%
Public guarantees	Share of countries with public credit guarantee scheme(s)	90–100%	70–90%	50–70%	30–50%	less than 30%
Tax exemption	Share of countries with tax incentive schemes for SMEs	90–100%	70–90%	50–70%	30–50%	less than 30%

*Based on data from ABD Asia SME Finance Monitor 2013 and the OECD Scoreboard 2013. Source:

(ABD and OECD, 2014, p. 22)

For Basel III purposes, when calculating regulatory capital, and in order banks to estimate risk, they use the probability of default (PD) in IRB approaches. According to the OECD scoreboard, SMEs and entrepreneurs demonstrate a high probability of default during and after the recent financial crisis mainly due to the fall of demand of the goods they offer. This is manifested by the increased number of bankruptcies and delays in payments.

It is reasonable to expect that an economic downturn would affect many aspects of the economy. SMEs and entrepreneurs could be highly affected by such a downturn due to lack of financing their resources and because of the fall in demand for goods. These two factors make survival of such sectors of the economy hard.

When calculating capital requirements for Basel III purposes, the borrower's PD must be estimated. It has been observed that during economically stressed periods, SMEs and entrepreneurs would be the first to absorb the consequences. For this reason, a borrower with a high PD, must sustain tightened credit requirements. This is supported by the research made by cardone-ripotella, Ponce and Briozzo that examined the effects of Basel II and III on capital as required by the regulatory accord and risk premiums for SME lending. Their research was based on Spanish SMEs and led them to the conclusion that the average PD

from the period of 2005 to 2007 was a little more than 3% while for the period of 2008 PD increased by 5,47% and further to 7,55 in 2009.

The cost of funding for SMEs would be high as it is argued that asymmetric information would make banks unable to assess the companies' creditworthiness. Because an outsider party would have lesser information about an SME, an additional premium would be required for this bias.

Another reason that access to funding is costlier for SMEs and entrepreneurs has to do with the size of the banks. Intermediary banks, cooperative banks and private banks are these financial institutions that concentrate on SMEs. For this category of financial institutions to issue a new equity, the required return would have to be higher than larger banks. These banks would have to cover capital requirements right away through retained earnings This could have a negative impact for SMEs and entrepreneurs because banks that primarily lend to SMEs and entrepreneurs, face a higher cost of funding through the equity market.

ii) Effects of liquidity requirements

As far as liquidity requirement is concerned and its effect on economic growth, it can be argued that it could increase the cost of funding for borrowers. A bank may hold high liquid assets and less liquid assets. Both have the potential to increase the cost of funding to SMEs and entrepreneurs.

A bank holding high liquid assets which do not lose their value during period of intense distress and yield lower returns than less liquid assets, these assets usually put pressure on margins and hence revenues. Because SMEs and entrepreneur's loans are considered to be less liquid assets, banks may require higher risk premiums on their loans. From this point of view, liquidity requirements could affect the cost of funding to SMEs and entrepreneurs.

Assuming that banks have commenced to purchase high liquid assets and sovereign bonds, the LCR can have two main consequences. Firstly, banks would shift their investments towards credit bank deposit and the sovereign debt which the regulator considers them more liquid than the private obligations. In addition, deposit facilities have a 100% inflow rate for the LCR in the Basel III framework. This could have the effect of reducing the credit provision. Secondly, an interest increase would lead to a decrease in assets profits, and thus a reduction of the quantity of credit. As it said in the ESBG report " the extension in the liability maturities and the reduction of asset maturities limits the intermediation role of financial institutions". In conclusion, the LCR could hamper the lending provision of the bank in terms of quantity and alterations in maturity patterns.

The adoption of NSFR has the potential to lead to a more stable and long term funding that could have the effect to increase the lending costs. The price effect of this requirement would be to increase the average price for borrowing as resorting to banking resources at the expense of other will increase. In addition, collecting more long term savings could lead to an increase in the demand of savings. The volume effect of the NSFR would be to increase the average cost of lending which comes due to the replacement of long term for short term funding. As its mentioned in the ESBG report "the revenues will decrease due to the limitation on the balance sheet size, and will increase in other sources of revenues in order to preserve bank profitability, which is essential for ensuring banks access to markets." The report concludes that this situation would lead to an increase of the credit cost

iii) Effects of leverage requirements

The Leverage requirement can be seen as a cross check of the risk based approach. It is based on the amount of tier 1 capital to the accounting balance sheet. This measure purpose is to avoid creating a big balance sheet. However, it has its gray areas. First accounting regulation and accounting balance sheet rules differ among countries. Hence, the leverage ratio's implementation differs from country to country and has been criticizing as inciting unfair competition internationally. Secondly, the leverage requirements promote a change from large balance sheets to smaller ones. This means that banks with large low risk balance sheets would be required to hold more capital than banks with smaller high risks balance sheets. Banks having smaller balance sheets suggest a decrease in revenues.

As it can be deduced, the leverage requirements limit new business and this could have an impact for SMEs and entrepreneurs access to lending. The leverage ratio doesn't distinguish SMEs loans from other assets and in this way, it may not affect SMEs and entrepreneurs specifically, rather the total supply of credit.

Effects on economic growth

The purpose of Basel III is to reduce a probability of a future financial crisis and prevent systemic risk from spreading. Thus, Basel III purpose is to promote stability in the financial system. As it is argued, Basel III regulations could increase the cost of lending, especially for SMEs and entrepreneurs which play a pivotal role for a country's economy as SMEs amounted for more than 90% of all enterprises and employed 60%-70% of the total number employees in both OECD and ADB area. To conclude, increase of the cost of lending could have a negative impact on economic growth.

Furthermore, the impact that a potential credit increase might have on economic growth has been analyzed by Slovic and Cournede. . As described at the OECD report "the likely impact of Basel III on bank lending spreads (table 2) can be calculated by combining the estimated bank lending spread sensitivities (table 3) with the reaming bank capital increases described in table 4". In order for banks to meet the regulatory capital requirements as imposed by Basel III in 2019, they would have to increase their lending spreads on average by approximately 50 basis points.

Table 2. the impact of Basel III on bank lending spreads

	Remaining Capital Increase (percentage points)		Increase in Bank Lending Spreads (basis points)	
	2015	2019	2015	2019
United States	0.6	3.1	12.3	63.6
Euro area	1.3	3.8	18.6	54.3
Japan	1.7	4.2	14.3	35.3
Average (unweighted)			15.1	51.1
Average (GDP weighted)			15.6	52.9

Source: Authors' estimates.

Table 3. Increase in bank lending spreads for a one percentage point increase in bank capital

	$r_t^E - r_t^L$ (basis points)	AL (percentages)	RWA (percentages)	$r_{t+1}^{AL} - r_t^{AL}$ (basis points)
United States	12.7	47.5	76.4	20.5
Euro area	9.4	35.4	53.9	14.3
Japan	7.7	66.0	72.0	8.4
Average (unweighted)				14.4
Average (GDP weighted)				16.1

Note: The input data of the estimation represent an average of the last three pre-crisis years (2004-2006) calculated based on aggregated bank balance sheets.

Source: Authors' estimates.

Table 4. Remaining increases in bank capital ratios

	Capital Increase Required until 2015 (percentage points)			Capital Increase Required until 2019 (percentage points)		
	Required	Achieved	Remaining	Required	Achieved	Remaining
United States						
Tier 1	2.0	1.6	0.4	4.5	1.6	2.9
Common Equity	2.5	1.9	0.6	5.0	1.9	3.1
Euro area						
Tier 1	2.0	1.4	0.6	4.5	1.4	3.1
Common Equity	2.5	1.2	1.3	5.0	1.2	3.8
Japan						
Tier 1	2.0	1.5	0.5	4.5	1.5	3.0
Common Equity	2.5	0.8	1.7	5.0	0.8	4.2
Average (unweighted)						
Tier 1	2.0	1.5	0.5	4.5	1.5	3.0
Common Equity	2.5	1.3	1.2	5.0	1.3	3.7

Source: IIF, Authors' calculations.

The effect of implementing Basel III capital requirements, which were to be effective as of 2015 (4,5% for the common equity ratio, 6% for the tier 1 capital ratio), banks would be require to arise their lending spreads on average by about 15 points. If capital requirements are effective as of 2019 (7% for the common equity ratio, 8,5% for the tier 1 capital ratio) the lending spreads would increase by about 50 points.

Table 5. Macroeconomic impact of 2015 Basel III capital requirements

	GDP level (percentages)					GDP growth (percentage points)
	Year 1	Year 2	Year 3	Year 4	Year 5	annual
United States	-0.01	-0.04	-0.07	-0.10	-0.11	-0.02
Euro area	0.00	-0.04	-0.17	-0.26	-0.39	-0.08
Japan	0.00	-0.05	-0.07	-0.17	-0.19	-0.04
Average (simple)	0.00	-0.04	-0.10	-0.17	-0.23	-0.05
Average (GDP weighted)	0.00	-0.04	-0.11	-0.17	-0.23	-0.05

Source: Authors' estimates.

Table 6. Macroeconomic impact of 2019 Basel III capital requirements

	GDP level (percentages)					GDP growth (percentage points)
	Year 1	Year 2	Year 3	Year 4	Year 5	annual
United States	-0.05	-0.20	-0.34	-0.49	-0.59	-0.12
Euro area	0.00	-0.13	-0.51	-0.76	-1.14	-0.23
Japan	0.00	-0.12	-0.18	-0.41	-0.47	-0.09
Average (simple)	-0.02	-0.15	-0.34	-0.55	-0.73	-0.15
Average (GDP weighted)	-0.02	-0.16	-0.38	-0.58	-0.79	-0.16

Source: Authors' estimates.

The macroeconomic impact of implementing Basel III on GDP growth is in the range of -0.05 to -0.15 percentage per annum. More specifically, if Basel III requirements were fully effective as of 2015, the decrease of GDP in United states, Euro area and Japan has been estimated to decrease on average by -0.23% 5 years after the implementation by banks. This means that it would lead to a -0.05-percentage point decrease on GDP growth. If on the other hand Basel III requirements were in force as of 2019, the macroeconomic consequences would be larger. It would mean to have an average impact on annual GDP growth about -0.15 percentage point.

Table 7. Macroeconomic impact of a 100 basis point increase in bank lending rates

	GDP level (percentages)					GDP growth (percentage points)
	Year 1	Year 2	Year 3	Year 4	Year 5	annual
United States	-0.08	-0.31	-0.54	-0.77	-0.93	-0.18
Euro area	0.00	-0.23	-0.93	-1.40	-2.10	-0.42
Japan	0.00	-0.33	-0.50	-1.17	-1.33	-0.27
Average (simple)	-0.03	-0.29	-0.66	-1.11	-1.45	-0.29
Average (GDP weighted)	-0.03	-0.28	-0.69	-1.08	-1.45	-0.29

Note: The numbers include international spillover effects among the three economies. The spillover effect of a 100 basis point rise in lending rates on GDP level in the 5th year is on average about -0.35 percentage point; the GDP weighted spillover effect is about -0.30 percentage point. The international spillovers have the highest impact on Japan, and the lowest impact on the United States. The analysis in the rest of this study takes these effects into account.

Source: Authors' estimates.

*The above data and tables are derived from Slovik P. and B. Cournede (2011), "Macroeconomic Impact of Basel III", OECD Economics Department Working Papers, No. 844, OECD Publishing.

However, it has been argued that the dampening effects on the pace growth by Basel III would have a temporary impact and in the long run it may even have a positive effect by creating a stable financial structure that would incite economic growth. In the same vein, it has been stated at the Capgemini report about the impacts of regulations on bank lending that as banks are required to increase their capital reserves and avoid obtaining high risk weighted assets in accordance with Basel's regulatory requirements, they would notice a decrease of their cost of capital due to enhanced portfolio risk and a lower risk premium for high quality assets. This would have the effect to better credit margins in the long run.

It is noteworthy to say that estimating the impacts of Basel III is a difficult task and even more demanding for when assessing the impact to SMEs. This is partly due to lack of robust data. Although some data for SMEs are readily available, data for the majority of SMEs associated with credit supply is difficult to come by as most of SMEs are informal business that are invisible to policymakers and regulators. Also, lack of common SME definition can create inconsistencies at the application of regulations among countries. For example, some loans to very small businesses are treated as consumer, rather than commercial lending.

Countercyclical buffers and liquidity standards are two new characteristics that have been added in Basel III regulatory structure. Hence, data on the lenders behavior regarding these two requirements is not available. As it has been stated in ACCA report, "this behavior must be modeled instead using analogous but naturally occurring trends". Although it might be easy to do it in the case of the countercyclical buffer, it is much harder for the liquidity requirement.

Conclusion

Basel III as it has been demonstrated, it is a refinement of Basel II as new provisions have been introduced which regulate areas that have been neglected or inadequately supervised by its predecessor. It is difficult to say whether Basel III is capable of preventing a future economic crisis as it is still under construction and is not yet fully completed. Furthermore, it can be argued that Basel III main features could stand as a hurdle to the lending provisions of the financial institutions. However, this cannot be conclusive as these characteristics are implemented and take effect for the first time. As long as Basel III effects in economic growth are concerned, it can be contended that although it may seem that the new regulatory accord decelerate economic growth in the short term; in the long run Basel III could work as a safe financial structure impeding excessive risk. In this way, Basel III could provide a stable and sound platform for economic growth.

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Announcements, Conferences, News

25th Pacific Conference of the RSAI Sustainable & Resilient Regional Development
May 17 - 20, 2017, Tainan, Taiwan

Conference Overview[1]

The Regional Science Association International (RSAI), the Pacific Regional Science Conference Organisation (PRSCO), the Chinese Regional Science Association-Taiwan (CRSA-T) and National Cheng Kung University (NCKU) invite regional scientists, economists, economic geographers, urban planners, policy makers, and researchers of related disciplines to participate in the 25th Pacific Conference of the RSAI. The Conference will be hosted by the CRSA-T and Department of Urban Planning, NCKU. It will be held in Tainan, Taiwan, May 17-20, 2017

The theme of the conference is**: Sustainable and Resilient Regional Development** and the sub-themes are:

- ***Asian Urban and Regional Issues****: Globalization and Economic Integration, Disaster Management and Planning, Regional and Urban Governance Policy, Urbanization and Public Investment*
- ***Environmental and Sustainable Development****: Green and Energy Economics, Ecological Issues, Landscape Issues, Economic Valuation, Climate Change*
- ***Innovation, Knowledge and Industry Issues****: Agglomeration and Clusters, Regional Innovation System, Industrial Location and Economic Geography, Innovation, Spillover and Diffusion, Industrial Parks and Districts, Tourism and Cultural Industries*
- ***Method of Urban and Regional Analysis:*** *Migration and Demographic Analysis, Spatial Statistics, Geo-simulation, visualization and computation, Geographical Information System, Spatial Econometrics, Big Data and Data Mining, Spatial Analysis, I-O and CGE modeling*
- ***Spatial Economy:*** *Labor Markets and Human Capital, Public Finance and Governance, Regional Economic Growth, Spatial Economics, Urban Structure, Growth and Development, Social and Equity Issues*
- ***Transportation Issues****: Transit Oriented Development (TOD), Intelligent Transportation Society (ITS), Transportation and Urban Form, Infrastructure, Transportation and Communication, The Geography of Urban Transportation Finance, Urban Transport Sustainability*
- ***Urban and Regional Planning****: Healthy Cities and Age-Friendly Environment, Resilient Cities, Rural Development, Land Use Planning, Smart and Knowledge Cities, Housing and Real Estate*
- ***Other Topics of Regional Science***

Deadline for the Submission of Abstracts in General Program is December 15th, 2016.

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1 Conference overview by **Christos Genitsaropoulos**, Technological Education Institute (T.E.I.) of Sterea Ellada, Greece

International Seminar & 48th Regional Science Conference on Rural Habitat, Institutions and Development: Changing Nature &Challenges
January 5-7, 2017, Suryamaninagar, Tripura- 799022, India

Conference Overview[1]

The theme of the International Seminar & 48th Regional Science Conference is **"Rural Habitat, Institutions and Development: Changing Nature & Challenges"** which would provide a platform to address, share and debate to the issues concerning to the rural world.

The seminar organised by Department of Geography and Disaster Management, at Tripura University Campus, Suryamaninagar, Tripura and will be held during January 5-7, 2017.

In more detail, the Seminar contains the following Themes and Sub-themes:

- ***Rural Habitat:*** *Theoretical Aspects and Modelling, Rural Settlements: Trends, Forms, Sizes, Spacing and Pattern, Rural Morphology, Settlement as Socio-Economic Node, Rural Migration: Nature, Pattern and Behavior; Socio-Ethnic Harmony and Conflicts*
- ***Rural Institution:*** *Theoretical Aspects and Modelling, Panchayati Raj Institutions, Rural Financial Institutions, Rural Market, Approaches to Rural and Regional Planning, Community Organization, SHGs*
- ***Rural Infrastructure:*** *Physical Infrastructure: Road Transportation Communication and Connectivity, Electrification, Telecommunication, Digital India, Social Infrastructure: Education, Health and Public Policy, Health Facility and Human Growth Pattern, Rural Infrastructure and Human Development, Aspects of Infrastructure for North-East India*
- ***Rural Economic Activities and Livelihood:*** *Agriculture and Allied Sectors; Agro-Industry, Productivity, Efficiency and Sustainable Development, Livelihood Pattern and Standard of Living, Poverty and Food Security, Rural Economy, Climate Change, Hazard, Stand up India, Start up India*
- ***Rural Development****: Rural-Urban Interaction, Women and Child Development, Women Empowerment and Gender Issues, Microfinance and Inclusive Growth, Government Schemes and Programmes, Social Inequality and Regional Disparity*
- ***Impact of Globalization:*** *Theoretical Aspects and Modelling Policies, Emerging Issues and Human Response, Liberalization, Economic Restructuring and Social Transformation*

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1 Conference overview by **Christos Genitsaropoulos**, Technological Education Institute (T.E.I.) of Sterea Ellada, Greece

Academic Profiles

Associate Professor Kurt Paulsen

Kurt Paulsen is Associate Professor in the Department of Urban and Regional Planning at University of Wisconsin-Madison. His main areas of interest are in land use planning, land use change, housing, public finance, and intergovernmental relations.

His research has been published in the Journal of the American Planning Association, Landscape and Urban Planning, Urban Studies, Journal of Planning Literature, Land Economics, Housing Policy Debate, Regional Science and Urban Economics, Journal of Planning Education and Research, Journal of Environmental Planning and Management, Urban Affairs Review, and Journal of the American Water Resources Association.

Recent Academic Publications:

- Paulsen, K. (2015). "Great Neighborhoods" for Whom? Comment on Talen et al., "What is a 'Great Neighborhood'?" Journal of the American Planning Association, forthcoming. DOI: 10.1080/ 01944363.2015.10 77088.
- Schneider, A., Chang, C., and Paulsen, K. (2015). The Changing Spatial Form of Cities in Western China. Landscape and Urban Planning. 135: 40-61.
- Paulsen, K. (2014). Geography, Policy, or Market? New Evidence on the Measurement and Causes of Sprawl (and Infill) in U.S. Metropolitan Regions. Urban Studies. 51(12), 2629-2645.
- Paulsen, K. (2014). The Effects of Land Development on Municipal Finance. Journal of Planning Literature. 29(1), 20-40.
- Paulsen, K. 2013. The Effects of Growth Management on the Spatial Extent of Urban Development, Revisited. Land Economics, 89(2):193-210.
- Paulsen, K. (2012). The Evolution of Suburban Relative Housing-Unit Diversity. Housing Policy Debate 22(3): 407-433.
- Paulsen, K. (2012). Yet Even More Evidence on the Spatial Size of Cities: Urban Spatial Expansion in the US, 1980-2000. Regional Science and Urban Economics. 42(4):561-568.
- Dyckman, C. and Paulsen, K (2012). Not in My Watershed! Will Increased Federal Supervision Really Bring Better Coordination Between Land Use and Water Planning? Journal of Planning Education and Research. 32:91-106.

By Christos Genitsaropoulos, Technological Education Institute (T.E.I.) of Sterea Ellada, Greece

Professor Vassilis Kougeas

Vassilis Kougeas was born in Athens in 1952. He received his bachelor degree in Law from Aristotle University of Thessaloniki and earned his master degree on history from University Paris I - Panthéon Sorbonne. He attended courses in European Law at the Free University of Brussels / U.L.B. In 1989, Mr Kougeas was declared Doctor of the department of Public administration of Panteion University.

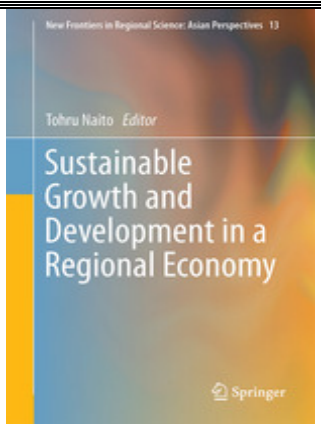
He began his academic career as a lecturer at Panteion University in 1987 and in 1996 he became an associate professor in the Department of Law, in which he repeatedly served as Director of the Public Law and elected two consecutive times Head of the Department. At undergraduate level he teaches courses of financial law (Public Accounting Law and Tax Law) at the Public Administration department, whereas at postgraduate level he teaches courses of Community Tax Law and European financial law (postgraduate studies program "Law and European Integration" of the General Law department).

Vasilis Kougeas has also been working as a lawyer from 1977. His experience includes working at the legal and press department of the President of the Greek Republic, Michail Stasinopoulos, at the offices of the European Union which received scholarship in Brussels and at the General Confederation of Greek workers as research associate. He has also worked as a management consultant and as a lawyer for the National Bank of Greece.

He is actively engaged in poetry and in amateur level in painting and construction.

By Nikiforos Chatzigakis

Book Reviews



Book Title: Sustainable Growth and Development in a Regional Economy

Author: Tohru Naito
Springer Japan,
ISBN: 978-4-431-55293-2 (Print)
978-4-431-55294-9 (Online)

This book is "must have" book for those working on issues of urban and regional science either students or researchers and practitioners. Using a combination of theoretical and empirical analysis, this book provides a prescription for achieving sustainable economic growth, includes examples using data from Asian countries as well as a theoretical model and deals with current topics such as the environment, social security, community dynamics and networks.

Recently, most Asian countries have achieved rapid economic growth and their existence cannot be ignored in the world economy. However, these countries now face the serious problems that have confronted more developed countries such as environmental problems, social security and unemployment. Rapid economic growth has brought environmental pollution, regional disparities, and serious congestion due to insufficient infrastructure.

Thus, it is necessary to understand the background economic mechanism in order to find the prescription for each problem.

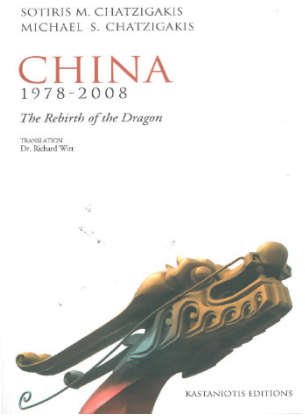
In more detail, the book contains the following chapters:

- 1o Introduction and Summary
- 2o Regional Agglomeration and Spatial Economics
- 3o Urban Unemployment and Urban–Rural Migration
- 4o Neoclassical Economic Growth and Public Policy
- 5o Endogenous Growth Model with Public Financed R&D
- 6o Emission Tax Timing and a Monopoly Market
- 7o The Basic Model of Illegal Dumping and Recycling of Wastes
- 8o The Basic Model of Airline Network
- 9o Urban Unemployment, Privatization Policy, and a Differentiated Mixed Oligopoly
- 10o The Network Analysis of Transportation
- 11o R&D Policy and Political Corruption in a Growing Economy
- 12o Fertility, Costs for Children and Public Policy

13o Environmental R&D Organization in a Differentiated Cournot Duopoly

- 14o Recycling Activities and Unemployment in Economically Developing Countries

Book Review by Christos Genitsaropoulos, Technological Education Institute (T.E.I.) of Sterea Ellada, Greece



Book Title: China 1978-2008: the rebirth of the dragon
Author(s): Sotiris M. Chatzigakis, Michael S. Chatzigakis
ISBN: 978-960-03-5423-2

This book is a real-life document, a travel account based on 'live recordings' of the China of 1978, of 2006, and 2008, and its development. When Sotiris Chatzigakis made his first journey to China, in 1978, there were the makings of the new era OF Deng Xiaoping (1905-1977). His second journey was twenty- eight years later, in 2006, and his second journey, in 2008, completed a span of three decades. On this last two journeys, he was accompanied by his son Michael, who took an active part in writing the present book.

The main themes of the book are china's escalating democracy; how china deals with political liberties and human rights; the geographical importance of Eurasia; china's leading role in the developing countries; the role of Confucianism; similarities and differences to rising economies; the growth of shanghai and Guangzhou; and investment in education and technology. This is therefore not a traveler's diary so as the account of a temporal current towards the morrow. As Sotiris Chatzigakis notes, a central element in Chinese politics is a sense of purposiveness: "feeling of purposiveness", he replied at once, looking at the view of Beijing. "Compared with China, America seems to be running on autopilot. China has a purpose, America, if not the west as a whole, has reactions to ailments".

Book Review by Nikiforos Chatzigakis

THE REGIONAL SCIENCE INQUIRY JOURNAL (RSI J)
Instructions to authors

Review process

Each suitable article is blind-reviewed by two members of the editorial review board. A recommendation is then made by the Editor-in-Chief. The final decision is made by the Editor-in-Chief. If a revision is recommended, the revised article is sent for a final approval to one of the Editors.

The journal will reserve the copyright over all the material published therein. However, the authors may personally use their work elsewhere after publication without prior permission, provided that acknowledgement is given to the Journal as well as notification for such an action. Any views expressed in the journal are the views of the authors and not the views of the Journal. Obtaining the permission to reproduce any material copyrighted by third holders and the right to use it is the responsponsibility of the authors.

Style and Format of the Article

In order for a article to be submitted to the Regional Science Inquiry Journal (RSIJ) for publication, the following should be taken into consideration:

1. All submitted articles should report original work, previously unpublished and not under consideration for publication elsewhere and they are subject to both review and editing.
2. Articles should be in good technical English with a length normally between 6,500-8,000 words, while all other texts should not exceed 2,500 words, apart from the references, tables and illustrations.
3. The first page of the manuscripts should contain the article title, the name and the affiliation of the authors with sufficient contact details (the corres- ponding author should be properly identified here).
4. Articles should have a set of Keywords (up to 7) and an Abstract (under 250 words, without references), followed by the Introduction, Methodology and Data, Results, Discussion, Conclusions and References.
5. Manuscripts should be submitted in one single electronic file, an MS Word file, to the registered electronic address of the editors. It is also possible, for review purposes only, to submit the manuscript as a PDF file (or other similar format). The books for review are sent in two copies to the seat of the Journal.
6. Manuscripts should be typewritten with margins 2.5 cm x 2.5cm on A4 size article. Margins should be consistent on all pages.
7. All pages should be numbered consecutively.
8. Titles and subtitles should be short.
9. The text should be set in Times New Roman, size 11pt, normal, in a single column. Texts that do not comply with the specified formation will be returned to the authors for proper adjustment.
10. Tables and illustrations should be titled, conse-cutively numbered, embedded in the manuscript in one single electronic file, properly cited and placed in the main text. Tables are numbered separately from the illustrations. If you have original drawings or photos you must scan them and embed them in the file as above. Tables and illustrations should not appear on the opening page (first page) or after the references and must fit within the page margins.
11. Colour texts or illustrations are accepted for online publishing; however hard copies should only be black and white.
12. Footnotes should be kept to a minimum, num- bered consecutively throughout the text with super- scripts and should appear at the bottom of each page.
13. Authors are encouraged to include a concise literature survey. References to published literature within the text should be cited by the name of the author followed by the consecutive number in square bracket, and should be presented in a numerical list at the end of the text.
14. Full references should be given in the following form:

Author(s) (Name and Initials), “Title of Article”, in Title of Book or Title of Journal or Title and Place of Conference, Editor(s) (Name and Initials), Volume (Vol.) Nr/Issue Nr, Place of Publication, Publisher, Year, Pages (pp.).