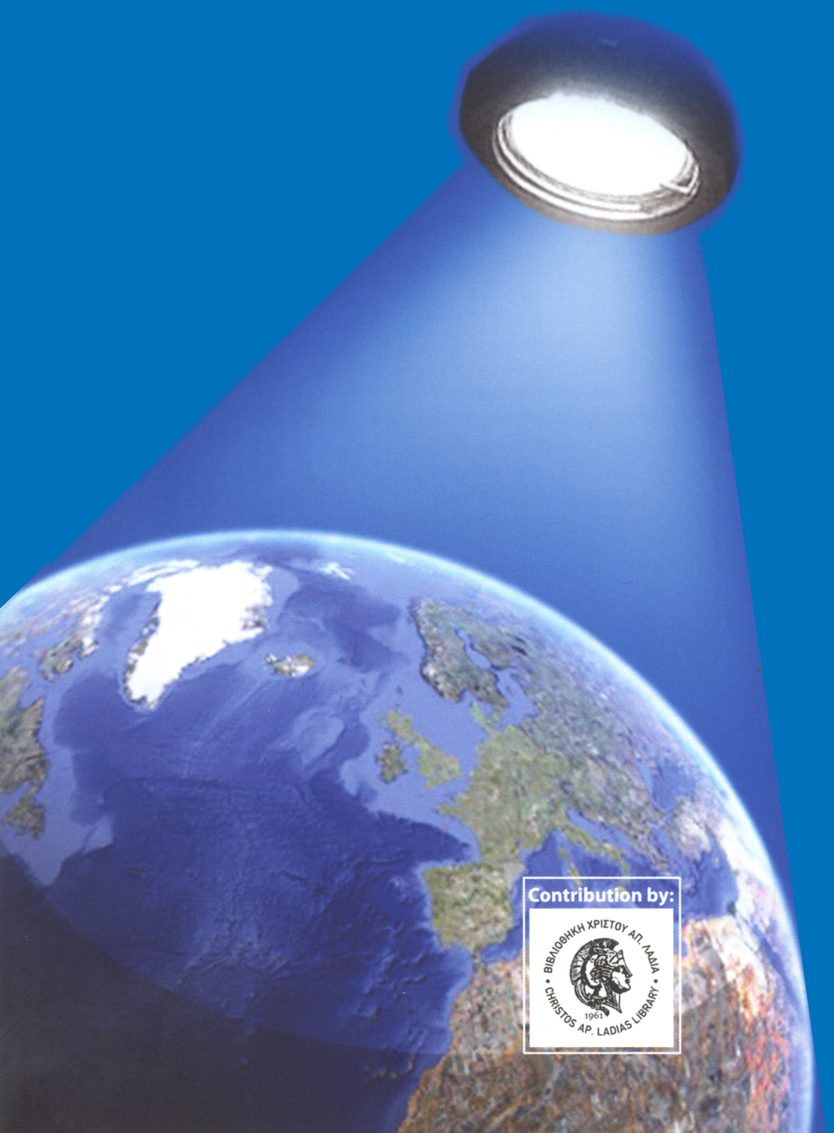
Regional Science Inquiry



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Contents

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Regional Science Inquire, Volume VI, Issue 1 – Editorial

Nowadays, the role of regional economic policies planning is even more important taking into consideration the slowdown in the world economy, and the effects on the economic and business environment created by the financial crisis. Thus, regional economic policies planning have a very important role in creating opportunities making an important contribution to economic growth and development. However, due to their nature, regions are characterized by being very heterogeneous since they differ in their endowments of resources as well as on the risks involved in their productive activities. For this reason, it is of great importance, on the one hand to analyze their efficiency level and potential, and in addition, to analyze the factors which determine their efficiency potential. The key factors influencing the competitiveness of the EU regions revolve around three key areas innovation and research and strengthening networks and clusters; responsible use of natural resources; and the need for open world markets with fair competition. Clustering, collaboration and the formation of strategic alliances are becoming increasingly important. Continuous R&D and innovation efforts are essential elements into guaranteeing the long-term competitiveness of Europe. European research, technical development and innovation policies should focus on developing the framework conditions that stimulate innovation. entrepreneurship and, thus, growth and employment, education and training, environmental policy, labour market, employment and social policy, to facilitate the creation of a sustainable European environment, along with fiscal instruments and incentives.

Under this perspective, growth policies should focus on creating favorable environment for the co-operation between firms and institutions that support the development and exploitation of knowledge and innovation and technical efficiency. Furthermore, policies should promote the entrepreneurial relations between firms and institutions, fostering the development and dissemination of the expertise, the mobility of human and physical capital and the enhancement of the relationships between business and research entities. Specifically, they should encourage actions such as, promoting innovation, technology transfer and interactions between firms and higher education and research institutes, networking and industrial co-operation and support for research and technology supply infrastructure.

These conditions are largely related to productive and technical efficiency and include, among others, the capacity of a regional economy to generate, diffuse and utilize knowledge and so maintain an effective production system. Understanding future challenges and issues is important on future developments, contributing to sustainable growth. This, however, needs to happen not just in central parts where productivity and employment are highest and innovative capacity most developed but throughout the Union. Countries and regions need assistance in overcoming their structural deficiencies and in developing their comparative advantages.Such actions should extend to all the policy areas relevant for economic, scientific and social development and should ideally establish a long-term policy horizon.

Within this framework and policy planning orientation, this issue examines different case-studies, focusing on important and modern scientific related issues, trying to integrate and approach the issues described above:

The first paper, by Adrianus Amheka, Yoshiro Higano, Takeshi Mizunoya, Helmut Yabar, titled: 'Comprehensive Evaluation Approach of Current Situation in Kupang Municipality, NTT Province, Indonesia In order to achieve CO2e target in regional level Based on Kupang IO Table' deals with Indonesia's target to reduce GHG emissions to between 26-41% (0.767-1.244) Gton CO_2e from base year 2010 to target year 2020. Kupang is one of the cities targeted to achieve this. This research begins by introducing current solid waste management, the development of a Kupang input output (IO) table, introducing pollutant sectors and count amount of CO_2e caused by economic activity indicated in the IO table. The results are compared with global warming potential (GWP) for a ten and a hundred year period respectively which show 0.073 Giga Ton (GTon) CO_2e or 9.479% and 0.069 GTon CO_2e or about 9% emitted by economic activity without being treated properly. As a tool for the Kupang government, we outline a framework for future implementation as the best solution to integrate a number of natural resources and to treat wastes (in the form of CO_2, CH_4, N_2O,

NOx, SOx, COD, BOD) before emitted into the environment. This research is the first study that constructs an IO table at a municipal level and counts th

The second paper, by Lamara HADJOU, titled: *'Does immigration fosters the Algerian exports ? A Static and Dynamic Analysis'*, asserts that Algeria has a large immigrant population. It is the third largest African community in the world after that of Egypt and Morocco. Its role in the international trade of Algeria has never been object of evaluation study. In line with the recent literature developed since the 1990s, through the work of Gould (1994), on the relationship between immigration and international trade, we propose in this paper to assess the impact of Algerian immigration networks on Algerian exports. It is clear that immigrants represent an opportunity for diversification and intensification of Algerian exports. However, the involvement of immigrants in trade flows is not evident. It is then necessary to assess first the impact and degree of involvement, to propose later, elements of trade policy that can improve the impact.

The third paper, by Sequeira, Teresa; Diniz, Francisco, titled: '*Planning beyond infrastructures: the third sector in douro and alto trás-os-montes*', begins with a conceptual approach to the third sector, followed by a review of the relationship between investment and growth.The empirical component focuses on Portuguese NUT III Douro and Alto Trás-os-Montes regions, which are said to be less developed, and have been the recipients of a significant amount of investment incentives in the context of the European regional development policy. Its aim is to study the impact of these investments on development. Results reveal there is a higher impact of public investment particularly on infrastructures, compared to productive private investment, and highlight the importance of non-profit private investment on the third sector. Therefore the support to the third sector stands out as an important driver in development policies, since the impact of public investment did not bring about a dynamics of internationally tradable goods which might help the region become independent of public financial support.

The fourth paper, by Pródromos Prodromídis, titled: '*Analyzing the Greek elections results of 2000 under different spatial structures*' attempts to empirically explain the vote shares received by political parties across municipalities in Greece during the national elections of 2000, in terms of demographic, educational, occupational and other factors under two territorial specifications: one based on the conventional sub-regional organization of the country, the other based on that spatial patterns of residuals. It finds that by departing from the approach which relies on typical spatial dummies (a) the regression-fit improves considerably, and (b) a good number of spatial effects which might ordinarily be blurred within conventional partitions may be important and, at the very least, their distinct impact ought to be considered. The lesson is probably useful to readers interested in identifying through statistics, health, education, crime or other policy areas.

The fifth paper, by Elif Berna Var , Burcin Yazgi , Vedia Dokmeci, titled: *'Age and Cohort Analysis of Regional Migration in Turkey'* investigates current age cohort effects on regional migration in Turkey and compares the results with the pattern for the period 1985-1990. The vast amount of migration from the economically backward east and southeast regions to the more developed regions in the west of the country has been continuing for the last half-century. Age cohort analysis of regional migration is given for the periods 1985-1990, 2007-2008 and 2010-2011. Comparison of the results for each period reveals that while migration propensity peaked between the ages of 25-29 for the 1985-1990 period, it peaked between the ages 20-24 during the 2007-2008 and 2010-2011 periods. This could be the result of increasing number of universities which attract younger migrants at the country level. In more recent periods, while the ratio of child migration decreased, the ratios for younger, working age, persons and those in later life increased. Moreover, while the in-migration ratios of the more developed regions increased, those of the less developed regions decreased. Thus, it is expected that inter-regional migration contributes to the transformation of urban structure and the resulting new settlement system will generate a new pattern of growth and interaction among the regions.

The sixth paper, by Anastasia Stratigea, titled: '*Setting Policy Targets for the Future Of Agriculture In EU 2020 – A Methodological Approach*' examines setting targets in a foresight exercise as of crucial importance for both orienting future policy directions as well as

assessing the achievement of policy concerns. The focus of the present paper is on the development of a methodological framework for setting objectives and targets in a foresight study. This framework builds upon a range of approaches that run in parallel in order to assure that all important issues as to the problem at hand are taken into consideration, while it is also combined with participatory approaches, where experts' knowledge is used for serving validation purposes. The framework developed is then applied in AG2020 - a foresight exercise at the EU level, exploring potential policy options for the sustainable development of agriculture in EU by 2020 - with the aim to present the experience gained and difficulties raising towards finalizing objectives and targets used in this specific foresight exercise.

The seventh paper, by Mohammad Reza, Pourmohammadi, Mojtaba, Valibeigi and Mir Sattar, Sadrmousavi, titled: '*The Quality of Life and Regional Convergence in Iranian Provinces*', focuses on regional disparities as one of the main problems in developing countries and Iranian provinces suffer from such disparities. Balanced growth of all provinces of the country has been considered essential for sustainable development. By constructing Human Development Index (HDI) over the period 1996, 2006 and 2011 and four indicators included access to clean water, employment rate, economic participation and average urban income, the main purpose of this paper is to investigate the situation and tendencies in the field of quality of life in Iran based on comparison, convergence and investigates whether there exits convergence in human development indicators. The results of this study reveal that, within the analyzed period, generally the order of provinces in terms of quality of life has not changed, but HDI, access to clean water and average income levels have been increased and the relative convergence with both in unconditional β-convergence and σ-convergence analyses has been occurred. Moreover, the results of this study imply that the convergence of economic indicators is most important issue and economic indicators than other indicators is more consistent.

The eighth paper, by Carmen Bizzarri, titled: '*New Urban Space of Migrants: Geographical and Economics Impacts,*' focuses on the human mobility in Mediterranean cities. This stream of immigrants change to the space of urban life for the historical, geographical and cultural factors leaded to themselves. The paper analyses two cities, Naples and Valencia, because both are very interested of this phenomenon, that changing the articulation of metropolitan areas. The methodology used to compare the different way of new territorialisation based on some indicators: density for districts, the distribution of non EU immigrants in districts, the population pyramid of the non Eu immigrants living in that cities and the place of worship. Starting of this comparison it is possible to understand which is the city, between Naples or Valencia, highlights more integration and new form of territorialisation than the other.

With our thanks and gratitude to the issue authors and the members of the editorial board, we strongly wish that this issue will provide a pathway for further academic and scientific dialogue.

On behalf of the Editorial Board,
Dr. Dr. Aikaterini Kokkinou,
University of the Aegean

Articles

COMPREHENSIVE EVALUATION APPROACH OF CURRENT SITUATION IN KUPANG MUNICIPALITY, NTT PROVINCE, INDONESIA IN ORDER TO ACHIEVE CO2E TARGET IN REGIONAL LEVEL BASED ON KUPANG IO TABLE

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Abstract

Indonesia's target is to reduce GHG emissions to between 26-41% (0.767-1.244) Gton CO_2e from base year 2010 to target year 2020. Kupang is one of the cities targeted to achieve this. This research begins by introducing current solid waste management, the development of a Kupang input output (IO) table, introducing pollutant sectors and count amount of CO_2e caused by economic activity indicated in the IO table. The results are compared with global warming potential (GWP) for a ten and a hundred year period respectively which show 0.073 Giga Ton (GTon) CO_2e or 9.479% and 0.069 GTon CO_2e or about 9% emitted by economic activity without being treated properly. As a tool for the Kupang government, we outline a framework for future implementation as the best solution to integrate a number of natural resources and to treat wastes (in the form of CO_2, CH_4, N_2O, NOx, SOx, COD, BOD) before emitted into the environment. This research is the first study that constructs an IO table at a municipal level and counts the amount of CO_2e emitted freely to environment in Kupang City for the year 2010.

Keywords: GHG Emission, CO2e, IO Table, Kupang City
JEL classification:

1. Background

The Indonesian government continues to make efforts to reduce GHG emission up to 41% with an aim of around 1.244 Gton CO2e in 2020 and in order to achieve this they need to involve stake holders from regional to national levels to achieve this target. The program is being organized by the Indonesian government under the Local Action Plan for GHG emission reduction usually called RAD-GRK. The program provides directions for local governments to carry out multi-sector GHG emission reduction efforts directly and indirectly through specific efforts considering local characteristics, potential, and authority that must be integrated into a local development plan [2]. Some provinces and cities have been intensively involved in the program; however Kupang City, East Nusa Tenggara (NTT) province has never participated in the RAD-GRK program. This is due to shortage of human resource as well as, lack of data availability and local government support including technical, institutional, financial, environmental and social economic factors.

The environment is necessary for life and work, and economic development of a region is dependent on its socio economic situation including agriculture, livestock, industry, private sector and public sector aside from considering the negative impact of GHG emitted in the form of CO2, NOx, SOx, CH4, N2O during production processes and without proper policy to control it particularly in developing cities [17]. It is necessary to consider how pollutant emission from production activities is determined in proportion to production which is known as assuming linearity [13], [16].

Damanhuri (2008) Study as a consequence of kept an economic increase significantly, very often appear a variety of environmental issues such as uncontrolled of accumulation of rubbish and not manageable especially household wastes in almost big cities in Indonesia. As we know increasing volumes of household waste as a result of industrial development can lead to a negative impact on the environment as found in the larger cities of Jakarta, Bandung, Surabaya, Semarang, Kupang, and other regions in Indonesia, while an increased population will also create a higher stream of household waste generation [5]. The accumulation of industry and population in urban areas in Indonesia such as Kupang city shows that waste generation will increase rapidly, and create serious problems now, and in the future if industrialization is concentrated in a few areas, and population level is not reduced. Waste management including household waste will not be able to be implemented instantly, but needs to be assessed comprehensively. Because of the political and economic conditions in Indonesia, the creation of such a program is necessarily an evolutionary process. Ideally, the Indonesian government should implement many of the steps of the process concurrently to deal with this matter. However, this is rarely possible even under optimum conditions described by Law No.18 year 2008 regarding waste management (issued by Indonesian government), as there was no national waste policy up to 2007 [4], [5], [6].

Many large cities in Indonesia are suffering from severe problems caused by disorderly waste management handling. The general method currently practiced in waste management throughout Indonesia is collect-transport-dispose. The municipal methods of transporting household waste from designated collection points to a location for its final dumping, is usually inadequate as most cities have no other alternative if their existing landfill is full or near capacity. If the existing landfills are not adequately prepared and professionally operated, then problems with landfill will always appear. There are not enough collection-transportation vehicles available. The transport vehicles are very often uncovered "old-timers" where the waste has to be deposited manually above the heads of the workers, and these open vehicles sometimes lose part of their load during transit to the dumping area. There is generally too much time lost during transport due to traffic congestion and a transport vehicle can take hours to cover a few kilometres from the city to the landfill meaning that most collection vehicles can do only 2-3 trips a day. Therefore, the Indonesian government should provide more pickup opportunities and endeavour to encourage residents to discard rubbish in the correct place and enable transport to travel to landfill sites more efficiently in both cities and regional districts [4], [5], [17].

Law no. 18 of 2008 is expected to bring major new changes in waste management including household waste, and will serve as an umbrella for solid waste management in Indonesia. Recently, the Indonesian government has undertaken waste management according to several principles, including responsibility, continuity, benefits, equity, consciousness, commonness, safety, security and economic value. These are aimed to improve the health of the community and environmental quality, as well as convert waste into resources i.e. as biomass resource. Indonesia has followed a common rule that waste collection is the responsibility of acity or district (borough council) in their capacity as Waste Collection Authorities (WCAs) [16], [4], [5].

Basically, waste collection systems in Kupang city are lacking because it does not consider gases produced from waste which is emitted to nature directly without any proper treatment, and it will increase the amount of GHG in the future [7].

2. The Assumption Of Kupang City'S Ambition For Maintaining A Sustainable Environment In The Future

Kupang is the capital city of NTT Province and has an aim to be referred to as a model environmental city and for example nowadays many programs organized by the city government deal with environmental sustainability include programs such as *Kupang Green and Clean*, *District Race Clean* and *Competition of Offices Concerned for the Environment*. This is proof that Kupang city is dedicated to promoting programs to reduce GHG emission in society while promoting prosperity. On one occasion the mayor of Kupang stated "*we need to change our attitude and reconsider conventional ways of living as part of innovative environment solution*" [10], [15]. This indicates that in the field of social activities, the city needs to improve eco-conscious urban development through the introduction and promotion of environmental efforts in the community.

As part of environmental promotion, we assume that the city situation needs comprehensive analysis to ascertain in detail the amount of GHG emission emitted to nature by sectors activity in Kupang during 2010. This information will be useful for local government to realise its goal of reducing CO_2 emissions from base year 2010 and act as a core facility dedicated to vitalization of local economies through commitment to carbon reduction projects in Indonesian society and involvement in the RAD-GRK program organized by the national government.

3. Input Output Table And It Usefulness For Prediction Of CO_2 Emission

Input output (IO) analysis was introduced by Dr. Leontief in the late 1930s and has been useful for *inter-industry analysis* and the fundamental purpose of the IO framework to analyse the independence of industries better known as sectors in economics. In order to grasp the economic effects of increasing CO_2 emission from a logical stand point, we need to examine historically the impact of industry infrastructure development in periods of high economic growth by use of an input output model [3], [14]. In general energy IO typically determines the total amount of energy required to deliver a product to final demand, both directly as the energy consumed by an industry's production process and indirectly as the energy embodied in that industry's inputs therefore a more comprehensive examination of a wide variety of factors associated with a spending program, such as impacts on employment, pollution, or capital expenditures should be carefully considered. Further analysis can be done by extending the IO table as necessary. In the case of Kupang, we use a *single region IO model* for city level in order to get a specific input coefficient for the table known as *input coefficient matrix* to figure out the full impact of an exogenous increase in final demand on all industries [3], [14] and describe the coefficient value of intermediate inputs required in the production of one unit of output of the industry. The CO_2 emission of each industry is greatly influenced by the pollutant coefficient of each industry which is done through the *Leontief inverse matrix*. Afterward analysis of environmental problems by extending the IO table can predict how much CO_2 emission has been emitted as a result of social economic activities.

4. Building A Kupang IO Table

There is no Kupang IO table; the only available one is the IO table of NTT province for the year 2006. It was a challenge to produce an IO table at a capital city level based on an IO table at province level. We assume that 80% of activities identified in the IO table of NTT province occur in the capital city (Kupang city) and that 90% of technology in each sector or industry are present in Kupang due to its rapid economic development in comparison with other areas in NTT province. This assumption does not apply to other large cities outside NTT province. The following steps were taken to construct the IO table.

First, the Kupang statistic book year 2010 was used as raw data to get the real value of each sector in order to determine how many sectors will comprise the Kupang IO table and at this point we must *consider carefully how many industries* should be included because this will influence the emission coefficient for each sector after adjustment from the Province IO table to City IO table or changing the *competitive import type to a non-competitive import type (domestic type)* by considering the number of workers in these sectors, The land area in

use for running the sectors mentioned, technology used, clean water and electricity usage, the use of chemicals as raw materials, sector by ownership type (public or private).

Table 1: Adjustment from NTT Province IO table to Kupang City IO table

No	Kupang Sectors classification	NTT Sectors (Adjust to Kupang Sectors)
01	Paddy rice	Paddy rice
02	Corns	Corns
03	Nuts	Nuts
04	Tubers	Tubers
05	Vegetables & Fruits	Vegetables & Fruits
06	Other Crops	Other Crops (6), Cashew(7), Tobacco(9), Coffee& Cocoa(10), Vanillin(11), Clove(12), Cotton(13), Other Plantations(14), Other Agriculture& the services(15)
07	Coconut	Coconut(8), Timber Forest products(19), Other Forest(20)
08	Livestock	Livestock(16)
09	Slaughterhouses	Slaughterhouses(17)
10	Poultry	Poultry(18)
11	Fisheries	Fisheries(21)
12	Food & beverage industry	Foods & beverage industry(23), Rice Milling industry(25), Food industry (26), Other Food industry(28), Oils & fats industry(24), Sugar industry(27)
13	Textile & leather industry	Textile & leather industry(30), Cigarette& Tobacco industry(29)
14	Industrial products of wood & rattan	Industrial products of wood & rattan(31), Paper& Printing industry(32)
15	Fertilizer, chemical & refining industry	Fertilizer, chemical & refining industry(33), Cement(&similar) industry(34), Mining& Quarrying(22), other Industry(37)
16	Industry goods from metal	Industry goods from metal(35), Transportation, machinery& other equipment Industry(36)
17	Electricity & Water supply	Electricity & Water supply(38)
18	Buildings	Buildings(39), Real estate& business services(49)
19	Trades	Trades(40), Hotels(41), Restaurants(42)
20	Road & Rail transportation	Road & Rail transportation(43)
21	Sea & river transportation	Sea & river transportation(44)
22	Air freight	Air freight(45)
23	Transportation support services	Transportation support services(46)
24	Communications	Communications(47), Social services(52), Recreation & Entertainment services(53)
25	Banks & other financial institutions	Banks & the financial institutions(48)
26	Government	Government(50), Other Government services(51)
27	Goods & service not	Individual & other Household services(54), Goods& service

include elsewhere **not include elsewhere(55)**

Within the sector column, there are 27 sectors identified in the city of Kupang based on the 2010 Kupang statistical year book. Whereas the NTT column contained 55 sectors into 27 sectors adjusted according to the number of Kupang sectors. This approach assumes that 90% of activities in NTT sectors were conducted in Kupang City due to its position as the Capital City of NTT province. The value of each sector for the IO tables is shown as Table 1.

Table 2: IO table model of NTT (province) and Kupang (city) on transaction valued at producers' prices

		Buying sectors 1 2 n	Final demand Private. Public. Invest. Exports	Imports	Total Outputs
Selling Sectors	**1**	$z_{11}\ z_{12}\ z_{1n}$	$c_1 \quad i_1 \quad g_1 \quad e_1$	$-m_1$	x_1
	2	$z_{21}\ z_{22}\ z_{2n}$	$c_2 \quad i_2 \quad g_2 \quad e_2$	$-m_2$	x_2
	n	$z_{31}\ z_{32}\ z_{3n}$	$c_n \quad i_n \quad g_n \quad e_n$	$-m_n$	x_n
Value added		$l_1\ l_2\ l_n$	0 0 0 0		L
		$n_1\ n_2\ n_n$	0 0 0 0		N
Total inputs		$x_1\ x_2\ x_n$	C I G E	-M	X

The component parts of the final demand vector represent private consumption (g_i) and exports (e_i). There are often grouped into domestic final demand [1], [12]:

$$(C + I + G) \quad (1)$$

And foreign final demand (exports, E). The final demand vectors for the two sectors:

$$f_1 = c_1 + i_1 + g_1 + e_1 \text{ And} \quad (2)$$

$$f_2 = c_2 + i_2 + g_2 + e_2 \quad (3)$$

Whereas, the components parts of the payments sectors are sectors 1 and 2 for employee compensation (labour service, l_i) and for all other value-added items (n_i) e.g. government services (taxes), capital (interest payments), land (rental payments), entrepreneurship (profit), and so on [12]. Total value-added payments are for two sectors [8], [12]:

$$v_1 = l_1 + n_1 \text{ And } v_2 = l_2 + n_2 \quad (4)$$

We can estimate the *total value of gross output* by summing down the total output column:

$$X = x_1 + x_2 + x_n + L + N + M \quad \text{or} \quad (5)$$

Summing across the total output row:

$$X = x_1 + x_2 + x_n + C + I + G + E \quad (6)$$

We can also find value of *gross domestic income* and *gross domestic regional product (GDRP)* of Kupang city by using the formula:

$$L + N = C + I + G + (E - M) \quad (7)$$

Where $L + N$ is *gross domestic income* and $C + I + G + (E - M)$ is *GDRP*

As for the value of each sector in the Kupang IO table, we need to calculate the input coefficient (a_{ij}) of each sector in the NTT IO table *by making a diagonal matrix* of the table, which is the amount of the diagonal of the matrix, *and represents the value of the total output of each sector.* The formula used divides each element in the intermediate transaction matrix (z_{ij}) by the total of each sector and are shown in the column total ($\sum X_j$). So we can get the input coefficient from each sector (production sectors) which is indicated in table II as follows [1], [12]:

$$aij = \frac{z_{ij}}{\sum x_j} \quad (8)$$

$$\begin{matrix} a_{11} & a_{12} & a_{1n} \\ a_{21} & a_{22} & a_{2n} \\ a_{31} & a_{32} & a_{3n} \end{matrix} \quad (9)$$

Finally we got the input coefficient of 27 sectors from the NTT IO table, and used the same formula to get the value of each sector of the Kupang IO table by dividing each coefficient (a_{ij}) from the NTT IO table with total output or total production of Kupang IO table in order to create an original IO table for Kupang city.

Table III: Supply of product for Kupang IO table (Unit: million Rupiah)

Total intermediate outputs (consumers)	Total exports	Total Final demands	Total imports	Total outputs (products)
29659386.5	0	308774.745	0	5155000.01
3280880.66	1626786.53	2861159.58	0	3189000
897661.507	0	1038843.29	-1610783.4	1144999.99
7231835.73	1189143.46	2493343.39	0	2995000
90972646.2	8053.09744	5333425.96	-2335113.2	8475299.99
33898786.7	459955.722	508785.121	-211648.94	700000
38291391.5	62363.7588	-416472.32	-825324.68	414000
27594374.2	68646193	109638197	0	120200300
17321824.2	0	-59942944	-87835096	68691002.2
35113198.3	2378610.17	11885345.3	0	13375675
21760154.9	166621092	422584479	0	451519000
167545713	5941671.37	-13896294	-260176116	44996789.9
40417052	143979.028	-105796.3	-73241555	30908000.2
37234295	13088389.2	-77780533	-137690351	30569999.5
139891991	17747462.9	-54889665	-182983109	92518969.8
12209569.7	6074155.01	-52038527	-375583122	28825998.4
10459669.3	0	88388007	0	118044746
255748327	0	404836716	0	592126280
176586923	209819455	984629379	-1070317.1	1340501980
66141607.6	28680607.1	158124685	-22857.58	221693740
15866468.5	11803557.4	61958770.2	0	89294260
3352743.31	10115624.8	37459559.4	-1475603	51711110.9
14900086.9	13978477.4	64414343.6	0	101638680
130719736	637977.67	248912990	-3058.2463	419189610
86948540.3	844638.882	58343551.2	-1187.064	174615721
169462782	0	732258207	0	871750800
32860447	15625.5581	158990073	0	181301810
Total: 1666368092	*Total: 559883819*	*Total: 3295898404*	*Total: -1.125E+09*	*Total: 5065547773*

Table IV: Input of specific products & the profit of Kupang IO table (Million Rupiah)

Total intermediate inputs	Wages& Salaries	Business surplus	Indirect taxes	Gross Value Added (GDRP each sector)	Total inputs (products)
946344	1039782	3100013	22269	4208656	5155000
325067	807065	2014891	12858	2863933	3189000

225429	169157	727548	18689	919571	1145000
376445	585448	1970576	37533	2618555	2995000
771014	1778512	5877764	33267	7704286	8475300
125308	92362	467024	4800	574692	700000
56444	87139	261517	882	357556	414000
35522291	22192334	58769447	1288742	84678009	120200300
45632946	4030201	18506442	456952	23058054	68691000
5752515	2777679	4660202	64184	7623160	13375675
85881773	65547485	281985870	3618958	365637227	451519000
34523307	4278991	5940606	129366	10473483	44996790
11084683	7138127	12390665	83078	19823317	30908000
20870352	2113630	7019189	136568	9699648	30570000
33613911	17654901	35546046	1352506	58905059	92518970
17975901	3683895	5690772	838478	10850099	28826000
50241418	14500063	28522748	978072	67803329	118044747
325468325	103195179	142848914	7672248	266657955	592126280
196809215	233892559	783177555	6492439	114369276	134050198
83587195	30470602	83056338	2214930	138106545	221693740
21101942	20387405	30994366	2153934	68192318	89294260
30002093	6515765	7191354	163905	21709017	51711110
29363851	17561510	44847647	729481	72274829	101638680
247262651	98274763	53439151	3177992	171926959	419189610
43466865	51109486	73485795	1262460	131148855	174615720
282527786	559777864	0	0	589223014	871750800
62853019	59035284	53404431	929154	118448791	181301810

5. Leontief Inverse Matrix And Analysis Of Kupang IO Table 2010.

5.1. Leontief Inverse Matrix

Once we derived the Kupang IO table, then we calculated the coefficient of each sector by using the same method as for each sector of the NTT IO table.

Normally in an IO table the total supply must be higher than total demand or can be equal actually (demand ≤ supply) [9], [12]. For the Kupang IO table the total output products are $5x10^{15}$ *Rupiah* bigger than total final demand $3.8x10^{15}$ *Rupiah.* This is very important and has proven that *the table has been produced in an accurate manner* compared with the actual situation and the table describes the market equilibrium supply in Kupang City stated by theory of market equilibrium [18]:

Supply market meet demand = Market equilibrium

To count market equilibrium, an approach using a set of fixed technical coefficients, can simply be rewritten as:

$$Ax + f = x \tag{10}$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{1n} \\ a_{21} & a_{22} & a_{2n} \\ a_{n1} & a_{n2} & a_{nn} \end{bmatrix} \text{x} \begin{bmatrix} x_1 \\ x_2 \\ x_n \end{bmatrix} + \begin{bmatrix} f_1 \\ f_2 \\ f_n \end{bmatrix} = \begin{bmatrix} x_1 \\ x_2 \\ x_n \end{bmatrix} \tag{11}$$

Where a represents the input coefficient matrix, x is column vector of total output and f is column vector of final demand.

Now for *Leontief inverse matrix (L)* which focused on the full impact of an exogenous increase in final demand on all industries or sectors and the formula being used before inversed:

$$I - A \quad (12)$$

Where *I represent an identity matrix* and *A is coefficient matrix* and from this formula, we can estimate a high performance equilibrium model from L and f. Breakdown of the equation into a function matrix is represented by:

$$Ax + f = x \quad (13)$$

$$[I - A]x = f \quad (14)$$

$$x = [I - A]^{-1} f \quad (15)$$

Refer to "(15)", shown *high performance equilibrium model* where we can get the detailed influence of each industry whatever final demand composition is. (See fig. 1 to 3)

Table V: Inverse matrix L' of IO table

Sec.	01	02	03	04	05	06	07	08	09	10	11	12	13
01	1.111	0.002	0.011	0.003	0.001	0.014	0.009	0.121	0.101	0.203	0.043	0.564	0.009
02	0.001	1.085	0.002	0.000	0.001	0.001	0.000	0.018	0.006	0.002	0.001	0.008	0.000
03	0.000	0.000	1.074	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.000	0.000	0.000
04	0.000	0.000	0.001	1.083	0.000	0.000	0.000	0.015	0.007	0.009	0.001	0.002	0.001
05	0.001	0.000	0.002	0.001	1.081	0.003	0.003	0.022	0.017	0.030	0.009	0.103	0.004
06	0.036	0.002	0.023	0.007	0.000	1.087	0.035	0.023	0.014	0.022	0.032	0.066	0.014
07	0.000	0.000	0.001	0.000	0.000	0.003	1.005	0.000	0.001	0.001	0.000	0.002	0.001
08	0.029	0.009	0.089	0.019	0.006	0.028	0.004	1.043	0.277	0.007	0.002	0.020	0.017
09	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	1.002	0.004	0.002	0.014	0.058
10	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.002	0.342	1.039	0.001	0.005	0.020
11	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.003	0.005	1.037	0.020	0.000
12	0.006	0.002	0.012	0.004	0.001	0.023	0.015	0.116	0.117	0.253	0.078	1.018	0.012
13	0.001	0.001	0.001	0.001	0.000	0.006	0.006	0.001	0.002	0.002	0.002	0.002	1.312
14	0.000	0.000	0.001	0.000	0.000	0.002	0.004	0.000	0.000	0.000	0.000	0.001	0.001
15	0.016	0.001	0.007	0.001	0.001	0.008	0.017	0.003	0.003	0.005	0.002	0.010	0.003
16	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
18	0.006	0.002	0.008	0.002	0.001	0.039	0.068	0.004	0.005	0.006	0.005	0.008	0.006
19	0.017	0.009	0.019	0.022	0.007	0.022	0.021	0.050	0.097	0.090	0.049	0.077	0.058
20	0.006	0.003	0.006	0.006	0.002	0.006	0.007	0.013	0.026	0.024	0.013	0.021	0.015
21	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.003	0.006	0.005	0.003	0.005	0.004
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001
23	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.002	0.004	0.004	0.002	0.004	0.003
24	0.001	0.000	0.001	0.001	0.000	0.003	0.008	0.002	0.003	0.003	0.003	0.002	0.014
25	0.006	0.002	0.007	0.002	0.001	0.010	0.011	0.003	0.004	0.004	0.005	0.006	0.011
26	0.002	0.001	0.002	0.001	0.000	0.002	0.003	0.003	0.005	0.005	0.003	0.005	0.004
27	0.001	0.000	0.001	0.001	0.000	0.002	0.003	0.001	0.003	0.002	0.002	0.002	0.002

14	15	16	17	18	19	20	21	22	23	24	25	26	27
0.012	0.033	0.012	0.011	0.015	0.025	0.037	0.055	0.068	0.004	0.044	0.003	0.005	0.054

0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.003	0.000	0.000	0.002
0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000
0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.000	0.009	0.000	0.000	0.005
0.008	0.011	0.016	0.022	0.016	0.015	0.018	0.077	0.019	0.008	0.172	0.008	0.008	0.090
0.028	0.059	0.011	0.008	0.016	0.010	0.010	0.024	0.013	0.003	0.016	0.002	0.004	0.030
0.424	0.012	0.075	0.019	0.074	0.002	0.003	0.001	0.009	0.011	0.007	0.004	0.010	0.002
0.003	0.016	0.004	0.003	0.005	0.004	0.003	0.004	0.004	0.001	0.012	0.001	0.002	0.010
0.004	0.002	0.003	0.002	0.003	0.010	0.003	0.007	0.003	0.002	0.006	0.001	0.002	0.012
0.002	0.003	0.003	0.003	0.003	0.008	0.002	0.003	0.002	0.001	0.017	0.001	0.001	0.011
0.001	0.001	0.001	0.001	0.001	0.004	0.002	0.009	0.003	0.000	0.005	0.000	0.000	0.004
0.021	0.058	0.021	0.019	0.026	0.044	0.066	0.098	0.123	0.007	0.077	0.006	0.009	0.095
0.056	0.007	0.034	0.019	0.021	0.011	0.014	0.001	0.015	0.027	0.012	0.003	0.017	0.005
1.042	0.010	0.026	0.017	0.066	0.002	0.003	0.000	0.009	0.010	0.007	0.005	0.010	0.002
0.023	1.045	0.097	0.080	0.186	0.006	0.028	0.008	0.070	0.031	0.066	0.016	0.041	0.027
0.002	0.003	1.016	0.021	0.016	0.001	0.004	0.000	0.009	0.003	0.002	0.001	0.002	0.000
0.017	0.002	0.019	1.009	0.004	0.002	0.002	0.000	0.003	0.006	0.003	0.001	0.004	0.001
0.053	0.171	0.185	0.266	1.137	0.022	0.042	0.005	0.126	0.163	0.094	0.055	0.143	0.022
0.068	0.043	0.124	0.052	0.113	1.019	0.032	0.035	0.058	0.028	0.125	0.019	0.050	0.066
0.023	0.025	0.050	0.021	0.036	0.018	1.011	0.009	0.016	0.009	0.034	0.006	0.015	0.018
0.005	0.004	0.009	0.004	0.007	0.005	0.002	1.002	0.004	0.002	0.008	0.001	0.003	0.004
0.001	0.001	0.002	0.001	0.002	0.000	0.001	0.000	1.005	0.001	0.002	0.000	0.001	0.001
0.004	0.002	0.008	0.003	0.005	0.002	0.011	0.002	0.058	1.008	0.006	0.001	0.003	0.003
0.027	0.025	0.074	0.112	0.076	0.012	0.029	0.008	0.041	0.045	1.086	0.049	0.041	0.068
0.084	0.053	0.146	0.023	0.043	0.017	0.023	0.003	0.034	0.017	0.018	1.108	0.040	0.008
0.013	0.010	0.025	0.011	0.018	0.005	0.164	0.009	0.269	0.104	0.048	0.096	1.120	0.007
0.010	0.013	0.022	0.041	0.009	0.002	0.097	0.001	0.004	0.007	0.010	0.004	0.004	1.005

5.2. Analysis Of Kupang IO Table 2010

For further analysis of the IO table, a simulation was conducted and some scenarios *based on the simulation into the Base case, Case1 and Case2 were created.*

Base case is conducted assuming *business as usual* which keeps the original value of total final demand and total output as well as ratio total (r_X) between output sectors and final demand formulated as [1], [12]:

$$X = [I - A]^{-1} f \quad (16)$$

$$r_X = \sum X \big/ f \quad (17)$$

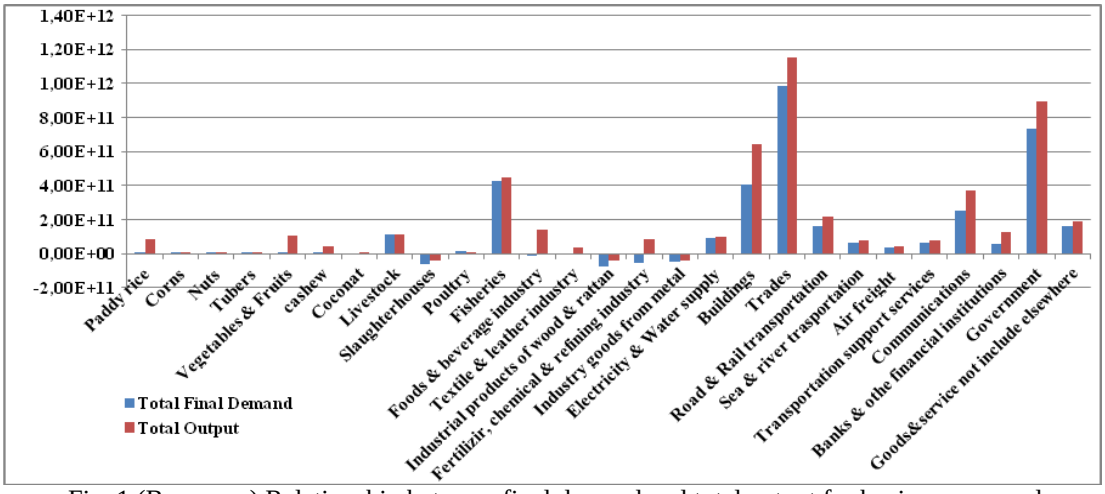

Fig. 1 (Base case) Relationship between final demand and total output for business as usual

For base case, the total output and final demand for sector trades are *$9.8x10^{14}$ and $1.1x10^{15}$ Rupiah respectively* are the highest followed by government, building and fishery sectors. *The ratio total between total output and final demand is 1.47*. This result indicates if we allocate every sector to business as usual; budgeting sectors, exports, imports, household consumption expenditure as well as fixed capital formation do not change significantly and without proper environment policy applied, the possibility of contribution of CO_2 emission in Kupang city is *predicted from trades and government sectors*.

Case1, we supposed that in Kupang city a 10% *increase in private consumption expenditure (household) of sector electricity and water supply*. A new additional output and ratio between total output and final demand are formulated as:

$$\Delta X_1 = [I - A]^{-1} \Delta f_1 \quad (18)$$

$$r_{X_1} = \sum \Delta X_1 / \Delta f_1 \quad (19)$$

With a 10% increase in this sector the amount of additional final demand became *$8.8x10^{12}$ Rupiah* and additional total output is *$8.9x10^{12}$ Rupiah*, whereas the value of other sectors are kept at the same level or unchanged, while *ratio total output sectors and final demand is 1.77*

We chose this sector, because we assumed that an increase in air pollutants and CO_2 emission are bigger sourced by usage of electricity and water supply. When the sector increases, the trade and government sectors also increase based on the base case. So *by anticipating and introducing an increase 10% in this sector we can more easily consider what policies should be applied.*

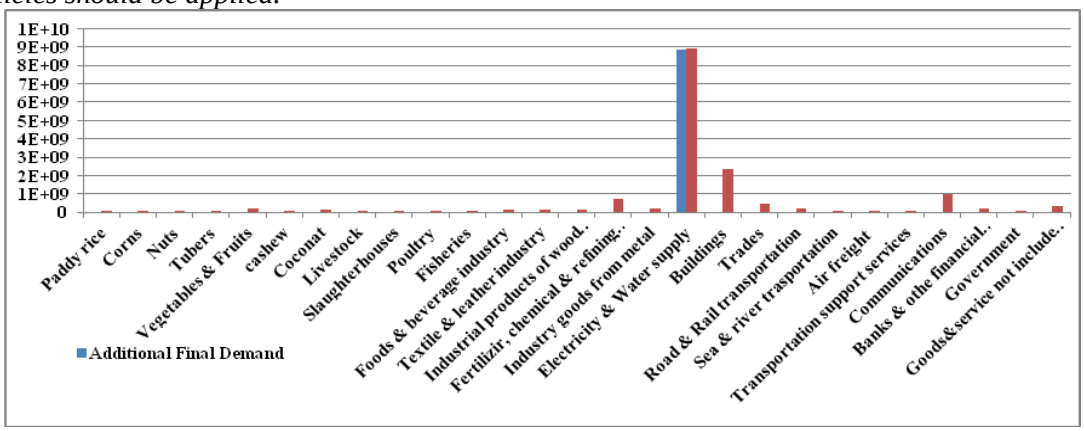

Fig. 2. (Case1) Change in the value of final demand and total output for 10% increase in private consumption expenditure of sector electricity and water supply

Figure 2, shows an increase in10% for electricity and water supply will influence significantly the building and communication sectors as well as lower values for the trades sector and fertilizer, chemical and refining sectors. Thereby, proper policy should be considered for application in the building, trades, fertilizer, chemical and refining sectors. The CO_2e reduction target of the Kupang government can be achieved through an increase of

electricity and water supply by 10% therefore *government must implement carbon tax policy, and promote use of new renewable energy in relevant sectors.*

Case2, we suppose a 10% increase in gross domestic fixed capital formation of livestock sector. A new additional output is formulated as:

$$\Delta X_2 = [I - A]^{-1} \Delta f_2 \quad (20)$$

$$r_{X2} = \sum \Delta X_2 / \Delta f_2 \quad (21)$$

Now the value of additional final demand of this sector becomes $3.3x10^{11}$ *Rupiah* therefore additional total output is $3.4x10^{11}$ *Rupiah*, while other sectors are kept at the same value or unchanged and the *ratio is 1.45*. We chose the livestock sector because we suppose it is possible to implement the future use of renewable energy from *biomass* which is livestock as raw material in Kupang city. Nowadays, in Kupang pollutants are caused by waste from private and public sectors including livestock, household, agriculture, restaurants, government and waste from other public service sector activities. *These sectors will definitely accelerate the contribution and increase of CO_2 emission in Kupang*.

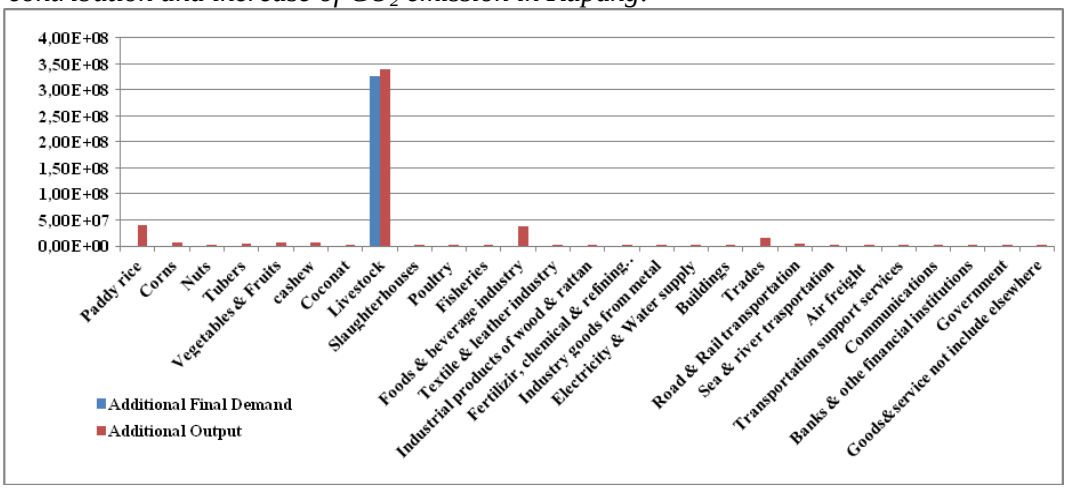

Fig. 3. (Case2) Change in the value of final demand and total output for 10% increase gross domestic fixed capital formation of livestock

Figure 3, clearly shows when there is a 10% increase in livestock sector, other sectors such as foods and beverage, and paddy rice increase rapidly, as well as fisheries and trades sectors; road and rail transportation sectors are also increased. Some agricultural sectors such as corn, tubers, cashews, vegetables and fruits are increased slightly. This relationship among sectors is evident, and we assume livestock sector increases, are caused by the increased productivity of sectors such as agriculture including paddy rice, food and beverage industry, fisheries, trade activities such as restaurants and other activities using transportation services (transport from the field to industries). Therefore, the Kupang government should anticipate increased waste produced by livestock and other sources. However, increased productivity of the livestock sector is still maintained by *introducing a framework of pollutant sector and feasibility to develop integrated new renewable energy as a unit. This matter needs further research*

6. Pollutant Emission Structure

Assumed linearity is necessary to predict the pollutant emission amount from production activities which are determined by their proportion to production amount, and the IO table becomes the principal reference. However, in reality, there is a *non-linear* relation between pollutant emission and production amount due to insignificant results if we using analysis by non-linear structure [12], [14].

The current situation in Kupang, particularly in 2010 suggests the technology used in industries is *expected to be the same as technology used in Japan in 1990*. Therefore, we can estimate using the same formulas used by the *National Institute for Environmental Studies, Japan* to calculate the coefficient emission of CO_2 and air pollutant based on the Japanese IO table for1990.

Calculation of the induced environment burden in each sectors utilized the embodied intensity using equation [11]:

$$e = d\{I - (I - M)A\}^{-1} \quad (22)$$

Where e represents embodied intensity of each sector, d is direct burden per unit production, I is identity matrix, M is import in each sector, and A is input coefficient matrix.

The final demand for each sector f_i, can be divided into domestic final demand Y_i and export demand E_i shown as:

$$F_i = Y_i + E_i \quad (23)$$

For equation the induced environmental burden T_i by the final demand for any sector i:

$$T_i = (1 - m_i)e_i Y_i + e_i E_i \quad (24)$$

Where m_i represents the import coefficient defined by equation

$$m_i = \frac{M_1}{\sum_{j=1}^{n} a_{ij} X_j + f_i} \quad (25)$$

Where a_{ij} represents input coefficient and X_j indicate domestic production of sector j

Refer to "(25)" we have gained the pollutant emission of each sector (see table VI).

Table VI: pollutant emission coefficient for each sector

	Industries	CO2	NOx	SOx	CH4	N2O
		Unit: Kg/100 Million Rupiah				
01	Paddy rice	404.40	5.23	1.31	33.57	0.42
02	Corns	608.57	6.69	2.00	16.79	0.21
03	Nuts	554.38	7.81	1.84	16.79	0.21
04	Tubers	485.65	4.78	1.42	16.79	0.21
05	Vegetables & Fruits	2384.01	23.31	12.01	16.79	0.21
06	Cashew	647.20	7.57	3.63	0.02	0.00
07	Coconut	1997.97	27.39	8.94	0.02	0.01
08	Livestock	517.78	7.51	3.19	123.27	1.12
09	Slaughterhouses	494.50	7.11	2.98	123.27	1.12
10	Poultry	708.27	6.45	5.32	123.27	1.12
11	Fisheries	4583.59	180.24	93.53	0.27	0.08
12	Foods & beverage industry	3449.90	28.50	25.26	0.02	0.00
13	Textile & leather industry	23049.24	200.05	124.41	0.60	0.02
14	Industrial products of wood & rattan	25252.22	205.06	149.00	0.57	0.18
15	Fertilizer, chemical & refining industry	65676.47	424.84	181.39	70.78	0.34
16	Industry goods from metal	51244.33	251.18	150.63	0.66	0.13
17	Electricity & Water supply	13650.87	56.26	44.85	64.79	1.45
18	Buildings	4659.74	40.47	13.77	0.00	0.00
19	Trades	1725.15	15.21	8.34	0.03	0.00
20	Road & Rail transportation	3448.75	49.33	12.43	0.11	0.05
21	Sea & river transportation	11066.33	970.47	637.51	0.11	0.05
22	Air freight	8953.43	131.39	21.64	0.11	0.05
23	Transportation support services	1533.87	22.24	11.75	0.11	0.05

24	Communications	4671.91	33.52	19.81	0.03	0.00
25	Banks & other financial institutions	587.18	4.20	2.35	0.00	0.00
26	Government	4118.20	33.06	18.77	0.08	0.02
27	Goods & services not include elsewhere	2840.61	23.40	12.15	0.07	0.02

Now we are able to identify the air pollutant emission coefficient and GHG emission coefficient accurately based on the Kupang IO table 2010. As for total emission amount each pollutant formulated as follow:

$$E = ZX = \begin{bmatrix} a & b \\ c & d \end{bmatrix} x \begin{bmatrix} p \\ q \end{bmatrix} = \begin{bmatrix} ap + bq \\ cp + dq \end{bmatrix} \quad (26)$$

Where E represents column vector of pollutant emission amount as well as Z and X are represents pollutant emission coefficient matrix and column vector of amount of production (see table VII)

Table VII: Total emission amount of each sector

Chemical Formula	ton
CO_2	**266,166,962**
NOx	**3,489,146**
SOx	**1,875,765**
CH_4	**399,331**
N_2O	**5,276**

7. Total Amount Of GHG CO_2e

To ascertain the amount of CO_2e emitted through economic activity in Kupang, we compared the total emission from each sector to the GWP which references the updated decay response for the *Bern carbon cycle model and future CO_2 atmospheric concentrations* held constant at current levelsfor a time period of100 years and 10 years. The formula used is:

$$GHGCO_2e = CO_2(t)x1 + CH_4(t)x21 + N_2O(t)x310 \quad (27)$$

Refer to (27) we obtained the result of GHG CO_2e based on a Kupang IO table 2010 for GWP 100 years is 0.069 GTon or 9% of the target year 2020 as well as 0.073 Gton or around 9.479% for GWP 10 years of the same target year.

These CO_2e amounts need urgent recognition by both the Kupang government and Indonesian government as users on a regional and national level as well as by international organizations. This is also applicable in preparing guidelines for further policy and promotes use of renewable energy system (RETs) or possibility to construct waste treatment plant systems (WTPs) in order to reduce GHG emission in Kupang. These results will give the Kupang government confidence in deciding proper environmental policies and technical measures to cope with both national and regional targets to reduce GHG emission up to 2020. To achieve the target to reduce GHG emission in Kupang promptly, a framework will be required to simplify and smooth the process.

8. Framework Possibility Integration Rets And Wtps In Kupang City To Reduce GHG Emission

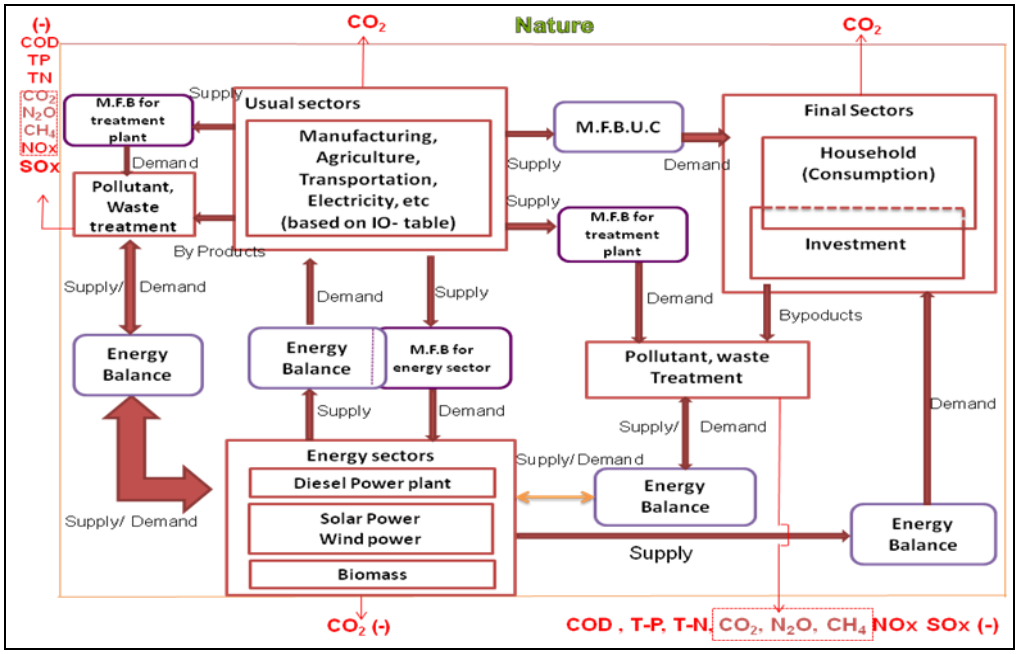

Fig. 4. Framework integrating current and future situation after introducing Renewable Energy Technology system (RETs) and Waste Treatment Process system (WTPs)

The framework is a proposal to government to anticipate the increase of GHG emission in the future. Today in Kupang, electricity is sourced from diesel power plants (DPP) as fossil oriented fuel which emits in the form CO, NOx into the environment directly without proper treatment. Nevertheless, other pollutant sectors (27 sectors) also make large contributions. We divided the industrial sector into two principle sectors, the commodity/ service sector and energy sector. The energy sector produces electricity by DPP and others components produce energy in the form of gasoline, light oil, heavy oil/ kerosene and should be taken into consideration in the market flow balance for the energy sector (M.F.B for energy sector) indicated in the Kupang IO table. The market flow balance of usual commodities (M.F.B.U.C) means the demand for commodities by the usual and energy sectors as intermediate inputs shown in the IO table and by the final demand sector; that is private and public consumption including household and investment (as capital formation) sectors. Energy balance means the demand for electricity by the usual sector, pollution and waste treatment sectors and final sectors should be met by supply of electricity produced by energy sectors and to support it we suggest introducing RETs and WTPs through integrated connection to economic activities in Kupang. Energy substitution described in the framework is possible as far as electricity produced by RETs can be fed into the current electricity power grid.WTPs can become consumers or producers of electricity depending on whether electricity demand is greater or less than electricity produced through the treatment process.

We assumed that when the production level of DPP becomes less, then emission of CO2 can be reduced while the level of economic activities is kept at the same level or more than the level before introduction of RETs and WTPs. Thereby, by introducing this framework and if government accepts it, then CO2 can be further reduced.

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DOES IMMIGRATION FOSTERS THE ALGERIAN EXPORTS ? A STATIC AND DYNAMIC ANALYSIS

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Abstract

Algeria has a large immigrant population. It is the third largest African community in the world after that of Egypt and Morocco. Its role in the international trade of Algeria has never been object of evaluation study. In line with the recent literature developed since the 1990s, through the work of Gould (1994), on the relationship between immigration and international trade, we propose in this paper to assess the impact of Algerian immigration networks on Algerian exports. It is clear that immigrants represent an opportunity for diversification and intensification of Algerian exports. However, the involvement of immigrants in trade flows is not evident. It is then necessary to assess first the impact and degree of involvement, to propose later, elements of trade policy that can improve the impact.

Keywords: immigration, export, Algeria
JEL classification:

Résumé

L'Algérie dispose d'une importante population immigrée. Elle est la troisième plus forte communauté africaine à l'étranger après celle de l'Egypte et du Maroc. Son rôle dans le commerce international de l'Algérie n'a fait l'objet d'aucune étude d'évaluation. Dans la lignée de la littérature qui s'est développée depuis les années 1990, grâce aux travaux de Gould (1994), sur la relation entre l'immigration et le commerce international, nous proposons dans cet article d'évaluer l'impact des réseaux migratoires algériens sur les exportations algériennes. Il est clair que les immigrés représentent une chance pour la diversification et l'intensification des exportations algériennes. Cependant, l'implication des immigrés dans les courants d'échange ne relève pas de soi. Il est alors nécessaire d'évaluer dans un premier temps son impact et son degré d'implication, pour proposer par la suite, des éléments de politique commerciale pouvant améliorer cet impact.

Mots clés : immigration, exportation, Algérie

Introduction

Algeria has a large migrant population abroad. The role of the latter in the development of trade flows should be studied accurately. Diaspora , a term commonly given to this type of population, participate in boosting trade through maintaining cultural links with the country of origin, but also through the dissemination of their eating habits among the population of the Home country. The different channels are studied and highlighted in the theoretical framework . There is also a growing literature on this topic. The case of the Chinese diaspora is the most studied and most emblematic. Other diasporas as Jewish , Turkish and Greek communities have been evaluated.

The North African community, including Algeria are very poorly studied and therefore require our interest. Through a gravity model , we try to make an assessment of the impact of the Algerian diaspora on exports.

This article is structured in five main points : the first point highlights the main features of the Algerian diaspora , in terms of number of Algerians living abroad but also by geographical area and time period . The second point is a review of the literature focusing on empirical studies and the results obtained. The third and fourth points address in detail the methodology used , the model and data mobilized . Finally, the last point explains the main results.

1. Algerian Diaspora : Some Stylized Facts

It is necessary to clarify that the data on the Algerian immigrant population vary from one organization to another . We will mobilize the database of the United Nations (UN), which provided the most comprehensive and the most realistic estimates. Data are available for the following periods : 1960, 1970, 1980, 1990, 2000 and 2010.

Algeria is one of the 17 countries who provided the most migrants in 2007. While the immigrant population represents only about 1% of the 214 million migrants in the world recorded in 2010, but in proportion to the total population of Algeria , the rate rises to 6.8%. At this rate, Algeria has risen to 11th in the world in terms of the share of immigrants in the population of the country of departure. Algeria is a country of emigration but very little of immigration . The immigrant population living in Algeria in 2008 was , just about 0.27 % (95 000 people) of the total population. It comes mainly from Arab countries (80%), non-Arab African countries (10%) and European countries (7%) (Di Bartolomeo et al. , 2010) .

Algeria is the third African country that provides the most emigrants, after Morocco and Egypt. The number of emigrants is also fairly close to that of the two North African countries. Migration plays an important role especially for some regions of Algeria , as Kabylia . This region has , in fact, provided the first wave of Algerian emigration to France in the early 20th century. The economy of the entire region continues to depend on remittances from the Kabyle population living abroad . This very outgoing direction of the economy is due in large part to the hardness of the conditions of production in this region, crossed over a large part, by mountain ranges , unfavorable to the economic activity , including agriculture .

Before measuring the impact of immigration on foreign trade (exports) of Algeria, it is important to describe briefly the history of the formation of the Algerian diaspora, since the early 20th century and stop on its main features. It should be noted that immigration is closely linked to the Algeria 's relationship with the old colonial power (France).

The Algerian immigration starts from the year 1900/1905, to France. It was mainly labor population, rural and male predominantly and largely from the Kabylie. This immigration responded to the need of the rural population to improve their living conditions. The economy of Kabylia at this period was based on a system of subsistence, with insufficient income taken from the mountain agriculture and trade of tree crops (olives, olive oil , figs, acorns, cherries, etc.) and crafts (pottery, jewelry). This first wave, estimated in 1914 at 3,300 people, working as a workers in construction dockyard, in the mines of the Pas-de-Calais in ports and mills of Midi (Noiriel , 2008).

The need for labor force during the First World War (1914-18) will accelerate the use of colonies. The Algeria provided the largest part. After the First World War , new needs will be felt in the field of construction, which will give to the Algerian immigrants the opportunity to stay in France or to bring other members of the family living in Algeria. Thus, the number of Algerian workers in France reached 100,000 people in 1930.

The participation of the Algerian to the Second World War on the side of France, will encourage the latter to grant their French citizenship, so the total freedom of movement and the same rights and duties as other French citizens. The migratory flows from Algeria to France will know a strong growth, from 100,000 people in the years 1930 to 220, 000 in 1954 (Noiriel , 2008).

After the independence of Algeria in 1962, the Algerian become again foreign in France, but the freedom of movement is maintained and a special benefit status is reserved for them. The repatriation of French people from Algeria will grow the number of ‘Algerians’ in France. France enters the period of thirty glorious years with strong growth and high need for labor. As a result, the number of Algerian immigrants needed by France will more than double between 1962 (350, 000 persons) and 1982 (800, 000 persons).

The period from the 1980s to the 1990s is marked by a sharp decline in the Algerian immigration due to the economic crisis in France and Europe, but also restrictive policies implemented by France to reduce the number of immigrants, and by Algeria, who reduce sending Algerian workers in France, after the tragic events in those years (racism). In 1995, Algerian immigrants living in France are among of 932, 275 people, that is 74.5 % of the total of Algerian immigrants in the worldwide (Carim, 2010). The rest is distributed among the other European countries (14.9%), the countries of North Africa (4.2%), Arab (1.6%), North America (1,1%) and other (3.7%).

From the 1990s onwards, new trends are emerging in Algerian emigration (Labdelaoui , 2009). Migration remained relatively stable, but the reasons for immigration and destinations have changed. The new immigrants are graduates , young men and women , looking for a job rather than subsistence to feed their families, but looking for better employment conditions (salary and career) to a final integration. The trend to feminization is a phenomenon that marking a break with a former predominantly male immigration (Bouklia -Hassan , 2011). Women now account for nearly half of this population. The destination of Algerian immigrants diversified, although France is always ahead of the favorite destinations of Algerians. Now, some of the young immigrants chosen Canada and the USA . North America recorded the highest annual growth in 2002, with nearly 12.4% against 2.6% for France. Algerian immigrants in North America is estimated at over 40,000 people in 2006, two-thirds in Canada (Khelfaoui, 2006). This immigration to North America, and especially to Canada (Quebec) is distinguished by its high level of education (an average of 13.3 years of education compared to the average of other foreign communities that is 10.6 years).

Tab1 . Dispersion of Algerian immigrants by country of residence, 2010

Pays	**Nombre**	**%**
UE-27	**1171212**	**87**
including France	1057135	78
UK	40555	3
Spain	23269	1,7
Germany	20295	1,5
Italy	15861	1,2
Belgium	8004	0,5
SOUTH MEDITERRANEN COUNTRIES	**40294**	**3**
including Tunisia	15846	1,2
Morocco	13233	1
NORTH AMERICA	**32015**	**2**
including Canada	20298	1,5
United States	11717	0,5
OTHER	**107119**	**8**
including Israel	*46734*	*3*
TOTAL	**1350640**	**100**

Source : World Bank, 2010

Algerian diaspora has little changed his destination since the beginning of the last century. This is a constant that marks the specificity of the Algerian diaspora, mainly installed in France (Tab1.) . As shown in the first table, more than 78% of Algerian immigrants settled in France. The United Kingdom, Belgium and the countries of southern Europe (Italy and Spain) are the secondary destinations for Algerian immigrants. The countries of North Africa and Middle East occupy a marginal and secondary place to the Algerian diaspora .

2. Literature

Diaspora networks are increasingly recognized in both the theoretical and empirical level, as a means to overcome non-tariff barriers to international trade. The relationship is the subject of a growing literature, especially in recent years. The pioneering article by Gould in 1994 already showed that the growth of Korean exports to the U.S. in the 1970s, was closely correlated with increased immigration to that country (Gould, 1994). Korean immigrants in Los Angles occupied positions of entrepreneurs specializing in the import business of Korean products. The mastering of Korean language and knowledge of networks have facilitated the exchange activities.

All studies since the pioneering article by Gould (1994) to the last article published in 2012 by Felbermayr , G. J. and F. Toubal show that the Diaspora has a positive pro-trade effect. However, the intensity of the elasticity of import or export diaspora varies from one study to another. These variations are not negligible but they are mainly explained by differences in estimation methods, samples and data used. It is clear that all diasporas do not act with the same intensity on international trade. As we have already noted, the characteristics of each diaspora (history, middle ages, middle qualification... etc.) ae likely to affect the relationship with international trade. The elasticity of export varies from 0.02 (Gould , 1994) to 0.57 (White, 2007) while the import elasticity varies from 0.01 (Gould , 1994) to 0.88 (Hong Santhapparaj , 2006). An increase in the immigrant population of 10 % would have a direct effect on exports of the host country of order of 0.2% to 5.3%. This same increase would affect in order of 0.1 % to 8.8 % the imports of the host country.

We remind here the two mechanisms through which the diaspora affects trade : exports of the host country are impacted via the mechanism of transaction costs, while imports are impacted both by transaction costs and preferences. Logically, the export elasticities must be below the import elasticities, which is not always the case. When the import elasticities are equal to or lower to export elasticities, this means that the preference of the diaspora has no effect. In the opposite case, it means that the diaspora maintains a clear preference for the products of the country of origin.

The results of Gould (1994) show that the preference of the diaspora has no effect. Transaction costs are the only mechanism through which the diaspora has an effect on trade. Helliwell (1997), Grima and Yu (2002), Rauch and Trindade (2002), Blanes (2005), Combes and al (2005), Blanes and Martin- Montaner (2006), White (2007a), White and Tadesse (2007) obtained the same result as Gould. In contrast, Head and Ries (1998), Dunlevy and Hutchinson (1999, 2001), Hong (2009), Wihte (2007b), Felbermayr and Tobal (2012) find that import elasticities are higher than the export elasticities thus confirming the idea that the preference effect of diaspora is significant.

Studies differ depending on the scale considered. Some have chosen to study the effect of the diaspora across nations (Gould, 1994 , Head and Ries, 1998, Dunlevy and Hutchinson, 1999 and 2001... etc.), others preferred regional / departmental scale (Helliwell, 1997, Wagner, Head and Ries, 2002, Combes et al, 2005 Tadesse and White, 2008 ... etc.). Past focused mostly on the impact of diaspora on regional exports. The effect is significant for all of these studies, although the intensity varies from one study to another. The difficulty in the case of these regional studies is to have complete data on this scale .

Empirical studies discern in their estimations two main types of products : homogeneous products and differentiated products. The diaspora impact more the late because of their specificities and high transaction costs. The diaspora is expected to reduce these costs more effectively than the market. Import and export elasticities for differentiated products are in some studies, like that of Rauch and Trindade (2002) two times higher (0.47 against 0.21) than in the case of homogeneous products. The studies have focused mainly on the impact of the diaspora on international trade in goods. It does not exist in our knowledge a specific studies measuring the impact of diaspora networks on international trade in services.

After a brief presentation of our model and mobilized data, we detail the results of our estimations.

3. Specification Of The Gravity Model

To measure the impact of the Algerian diaspora on exports, we will mobilize the gravity model. All the studies cited above actually use this model to assess the impact. We use the following specification, following Bratti et *al*, (2012), Andrés Artal -Tur et *al*. (2012) and Bandyopadhyay et *al*. (2008). The model is based on the basic specification obtained by Anderson and Van Winccop (2003), plus several binary variables supposed to capture non-traditional factors that impede or facilitate bilateral trade relations. Variable diaspora or migration is integrated within this group of variables as a factor that can accelerate bilateral trade.

The specification of our model takes the following general form:

Cross section data :

Ln (1 + Xij) = a + a + b Ln Ln YiYj Dij + c Ln (1 + Diaspij) + d + e Religionij Adjaij Colij + f + g + eij Zleij ..... (1)

Panel data :

Ln (1 + Xtij) = a + a + b Ln Ln YtiYtj Dij + c Ln (1 + Diasptij) + d + e Religionij Adjaij Colij + f + g + Zletij wtij ..... (3)

Where: wtij = uij + etij . uij is a random error term individual .

Xij are exports of country i to country j at time t ;

Yi Yj is the GDP of country i at time t multiplied by the GDP of country j at time t. These two traditional variables measure the influence of the size of market on Algerian exports . In the literature, this effect is positive and the elasticity is close to 1 ;

Dij is bilateral distance between country i and country j . This variable is intended to capture the effect of geographic proximity (transport costs) on Algerian exports ;

Diaspij is the native population of the country i living in country j at time t. This is the variable that we are interested primarily in the study. It aims to measure the impact of the Algerian diaspora on the date exports and total exports of Algeria. As shown in the table above, its influence and sgnificativité varies from one country to another, and according to the mobilized estimation methods. The caution about its impact is fundamental, especially since there is no general consensus among the authors. Its impact must also be differentiated according to the specificity of each diaspora. However, it is difficult to distinguish between immigrant communities in their respective vocations (commercial, enterprising workers ... etc.) ;

Religionij is a binary variable taking the value of 1 if the two countries i and j share a common religion and the value 0 otherwise;

Adjaij is a binary variable taking the value of 1 if the two countries i and j share a common border and the value 0 otherwise. This variable captures the potential additional benefits of proximity that are not captured by the variable distance. However, the effect of borders remains somewhat ambiguous because of its strong correlation with political borders (Fontagne et al , 2002) ;

Colij is a binary variable taking the value of 1 if the country i was colonized by country j and the value 0 otherwise. This variable is particularly important in the case of Algeria, which shares a long common history with France, promoting trade flows.

Zleij is a binary variable taking the value of 1 if the two countries i and j are members of the same free trade area and the value of 0 otherwise. This variable is introduced into the model to measure the impact of trade agreements signed by Algeria with the countries of the European Union (Euro-Mediterranean free trade area) and the Arab countries (Arab Free Trade Area). Under these agreements some products are fully exempt from customs duties, thus fostering trade;

eij error term (taking into account the omitted variables) associated with the dependent variable **Xtij** ;

a is the constant;

a, b, c , d, e , f and **g** are the model parameters to be estimated ;

t is time.

The logarithmic form of the model allows the interpretation of the parameters as elasticities. However, this form is a problem because our database contains several variables equal to 0 for exports and immigrations flows. As the logarithm of 0 does not exist, it is necessary to address this problem. There are several methods to overcome this difficulty : either delete from the sample all values Xtij and DIASPtij that are equal to zero (eg having had recourse to this method : Gould (1994), Helliwell (1997) Girma and Yu (2002), Mundra (2005), Hong and Santhapparaj (2006), White (2007b), Bandyopadhyay (2008). The second method used by Head and Ries (1998), Rauch and Trindade (2002) and White (2007a), addresses this problem by using the Tobit estimation procedure. A third method is to add a constant, often 1 to the variable ‘export’ and ‘diaspora’. This is justified by the fact that ln (1 + x) ≈ ln (x) for high value. This is the last two methods that we take in our case like authors such Dunlevy and Hutchinson (1999, 2001), Dunlevy (2006), Combes et *al*. (2005) Head and Ries (1998), Rauch and Trindade (2002).

We have data on three periods, 1990, 2000 and 2010. So we estimate our model for the total exports over the three years. At first, the regression is in cross section. In a second step,

we construct a regression on panel data (1990, 2000 and 2010). Panel data that combine time series and cross-sectional data provide more information, more variability , less collinearity among variables, more degrees of freedom and performance .

There are several methods of estimating mobilized by the authors. Each method has advantages and disadvantages. For this reason, it is a common practice in the literature to include several estimation methods using the same database, to verify that it gives better results. Many authors have used this method like Santos and *al* (2006), Felbermayr and *al* (2010).

Two main methods will be mobilized in our cross section estimate ins (Santos and *al*, 2006) : the traditional method of ordinary least squares (OLS), the method of pseudo maximum likelihood (PPML). Santos et *al* (2006) show that the fundamental problem of the log-linearization of the empirical model in the presence of heteroskedasticity leads to non-consistent estimates with the traditional OLS method. The PPML method address this problem by providing unbiased estimators. The latter deals also with the problem of the presence of many zero values in the data . In both cases, we use the command 'robust' in *Stata* to correct heteroscedasticity. For our estimates panel mode, we use three methods used in the literature including Head and Ries (1998), Rauch and Trindade (2002) : The method of least squares grouped, the Tobit method and PPML method. The Hausman test will help to choose between the fixed or random effects. We retain only the specific effects related to time. Other wise, we can not take into account the static variables, or they are important in our model.

4. Source Of Data

The data used in this research include Algeria and seventy two countries trading partners. We took in our sample all countries with which Algeria has business relationships that could be described as at least regular and intense. We therefore exclude countries with which Algeria trade little or not at all. Our sample thus consists of 72 countries over three years, 1990, 2000 and 2010. Unfortunately, we do not have complete data for all years, which may introduce a selection bias.

Our export data are mainly from the database UN Comtrade. It is for us the most complete. Data on GDP and population come from the base built by Prof. Angus Maddison[1] and U.S. academic colleagues, who have embarked on a project seeking to develop the largest updated database in the world based on the variables related to economic development. Data on distance and binary variables are collected from all of the same base built by CEPII[2] for researchers working with gravity models. The data on the Algerian diaspora are collected from the database of the World Bank " Global Migrant Origin Databse[3] ".

5. Empirical Results

The discussion of our results on the relationship between diaspora and Algerian exports, will occur in two stages. In the first step, we present the results obtained by cross-sectional data study over the three years for which we have data on the stock of Algerian immigrants in the world, namely in 1990, 2000 and 2010. We compare the effect of the Algerian diaspora on exports year by year, following the same procedure as Felbermayr et *al* (2010), Rauch and Trindade (2002). Following Santos et *al* (2006), we estimate our model using two approaches : ordinary least squares (OLS) and the pseudo maximum likelihood (PPML). We compare the results of each period in terms of significance of the variables of interest, but also in terms of dispersions elasticities.

The problems related to the cross-sectional analysis and in particular the specific effects may introduce a bias in the estimates. To solve this problem of heterogeneity, the authors use

1 http://www.ggdc.net/maddison/Historical_Statistics/horizontal-file_02-2010.xls

2 Centre d'Etudes Perspectives et d'Informations Internationales

3 http://www.migrationdrc.org/research/typesofmigration/global_migrant

panel data. We will mobilize this approach in the second stage, taking into account the nature of the specific effects (fixed or random). To strengthen our results, we will mobilize three approaches : 1. The least squares grouped like Bandyopadhyay and *al*. (2006), Murat and *al.* (2011), Bratti and *al.* (2012), 2. The Tobit method as in Head and Ries (1998), Rauch and Trindade (2002), White (2007a) and 3. PPML method as in Santos and *al.* (2006).

5.1. Results In Cross Section Mode

The 1990s

Following the work of Santos and al. (2006), the relevance of traditional methods (OLS - Ordinary Least Squares) estimation of gravity models are challenged. The authors emphasize the inadequacy of these approaches due to the nonlinear form of the model and the presence of many zero values. In particular, they highlight the problem of overestimation of the effect of certain variables such as the influence of the size (GDP), geographical proximity and colonial ties on trade. We find this same problem in our own results.

The table below (**Tab2**.) presents the regression results for the case of Algerian exports . The coefficients of the variables taken into account vary greatly depending on whether the estimate was made by the OLS or PPML method. The latter provides more efficient and moderate estimators. The variables sizes (Yi*Yj) and adjacency are the only ones to be significant in both cases. However, the coefficients are ten times higher in the OLS case than in the PPML one. The sign of these variables corresponds to our expectations as both positively impact the total exports of Algeria. An increase in the size of the Algerian economy and that of its partners by nearly 1% would increase about of 0.27 % the total of Algerian exports.

Tab2 . Impact of the diaspora on exports - 1990

LnXij	**(1)**	**(2)**
	OLS	**PPML**
LnYiYj	2.799***	0.270***
	(5.08)	(4.50)
LnDij	-2.418a	-0.208
	(-1.73)	(-1.53)
LnDiaspij	0.479	0.0445
	(1.29)	(1.22)
Adjaij	8.770**	0.803**
	(2.81)	(2.60)
Colij	-2.647	-0.426a
	(-1.06)	(-1.82)
Religionij	-1.351	-0.159
	(-0.72)	(-0.76)
Zleij	1.440	0.126
	(0.66)	(0.60)
_cons	-36.83*	-2.531
	(-2.04)	(-1.41)
R-squared	0.4854	0.2426
Log-likelihood		334.48497
N	72	72

t statistics Cluster-robust standard errors in parentheses
a p < 0.10 * p < 0.05, ** p < 0.01, *** p < 0.001

Geographical distance is significant and intense in the OLS case, but it is not the case PPML . Having a common border with Algeria result in an increase of 126% of Algerian exports. The colonial link variable is not significant in the first model, but it is in the second threshold of 10%. However, its sign is negative and does not correspond to our expectations. That would mean that the colonial link shared by Algeria and France has the effect of reduing the Algerian exports nearly by -0.43 % compared to other countries that do not have this link with Algeria.

The variable of our interests 'diaspora' is not significant in both cases. The presence of Algerian immigrants is not a priori a factor favoring exports for the 1990s. Other variables such as the common religion and free trade zone are not significant. They have no impact on Algerian exports.

The 2000s

The following table (**Tab3**.) presents the regression results for the 2000s. Compared to 1990, we find the same significant variables and the same elasticities. It is the case of the size and distance variables that seem to confirm their significant positive effect for the first and negative effect for the second on the Algerian total exports.

In contrast, the variable adjacency with positive sign and a high impact in 1990, is no longer significant in 2000. This is also the case for the variable colonial link that is significant for the year 1990 when it is no longer in 2000.

Tab3 . Impact of the diaspora on total exports - 2000

LnXij	**(1)**	**(2)**
	OLS	**PPML**
LnYiYj	2.443***	0.200***
	(4.53)	(3.93)
LnDij	-4.205**	-0.335**
	(-3.23)	(-3.12)
LnDiaspij	0.121	0.00372
	(0.40)	(0.16)
Adjaij	2.635	0.204
	(0.84)	(0.93)
Colij	0.651	-0.0345
	(0.32)	(-0.24)
Religionij	2.030	0.164
	(1.00)	(1.04)
Zleij	-2.627	-0.202
	(-1.20)	(-1.19)
_cons	-9.700	0.594
	(-0.63)	(0.47)
R-squared	0.3797	0.1570
Log-likelihood		-321.39742
N	72	72

t statistics Cluster-robust standard errors in parentheses
a p < 0.10 * p < 0.05, ** p < 0.01, *** p < 0.001

All the other variables show the same non-significant coefficients between the two periods in 1990 and 2000 in both models (OLS vs. PPML). This is the case of the diaspora variable that seems to play no role in the total Algerian exports .

The 2010s

The following table presents the last regression of the Algerian total exports for the year 2010. Two main variables are significant at the 5% level. These are the size and adjacency variables. The effect of the variable size seems to be confirmed for the three periods studied even if the intensity seems to weaken over time. The adjacency variable, significant in 1990, insignificant in 2000, is significant for the year 2010. However, its impact is reduced by half between 1990 and 2010. The sharing of a common border increases total Algerian exports nearly by 39%. In contrast, the distance variable is not significant, as it was in the previous periods. The variable common religion, not significant with OLS method, is significant with the PPML method at the 10 %. Its effect appears only on the period 2010 and seems very low.

All other variables namely colonial link, free trade zone and diaspora are not significant. The diaspora seems to have no impact on total Algerian exports in 2010 as in the previous periods (1990 and 2000).

Tab4 . Impact of the diaspora on total exports – 2010

LnXij	**(1)**	**(2)**
	OLS	**PPML**
Ln Yi Yj	2.493***	0.174***
	(5.27)	(4.77)
LnDij	-1.129	-0.0686
	(-0.96)	(-0.77)
LnDiaspij	-0.00566	-0.000189
	(-0.03)	(-0.02)
Adjaij	4.958*	0.327*
	(2.40)	(2.20)
Colij	2.300	0.0812
	(1.24)	(0.75)
Religionij	3.143	0.222a
	(1.62)	(1.79)
Zleij	0.906	0.0874
	(0.46)	(0.59)
_cons	-37.41**	-1.068
	(-2.68)	(-0.87)
R-squared	0.3163	0.1080
Log-likelihood		-281.49695
N	72	72

t statistics Cluster-robust standard errors in parentheses
a p < 0.10 * p < 0.05, ** p < 0.01, *** p < 0.001

5.2. Results In Panel Mode

In this second step, we proceed to estimate our models in panel mode as in Bandyopadhyay (2008), Murat and *al.* (2011), Bratti and *al.* (2012), Head and Ries (1998), Rauch and Trindade (2002), White (2007a), Santos and *al.* (2006). This will take into account the unobservable specific effects associated with time and context. The inability to introduce in our models the fixed variables incites us to take into account only the time specific effects. The introduction of specific effects associated with each partner country of Algeria will effectively eliminate all our binary variables (Adjacency, Religion, Colonial Link and Free Trade Zone) because they do not vary over time.

In a first phase, we use the Hausman test to choose between the two methods that control for the specific effects : fixed effects *vs* random effects. The first also called covariance model assumes that the specific effects are constant and not random. They just change the value of the constant. The estimation is done by the grouped OLS method after the addition to the model the binary variables associated with time t. The random effects model, also called composite error model assumes that the specific effects associated with time and individuals are truly random. Their effect is not more exerted on the constant but on the random perturbation (error term) .

The Hausman test carried out on our data on total Algerian exports, led to accept the null hypothesis and choose the random effects model .

After this test, we set up a number of tests to assess the heteroscedasticity, multicollinearity and normality of residuals. We identified problems of heteroscedasticity that

we corrected using the 'robust' command in Stata. We also eliminated the problem of multicollinearity by removing the variable population strongly correlated with GDP.

The following table presents the results of our estimates in panel mode over the period 1990 to 2010. We estimate our models in three ways (OLS, Tobit and PPML) and in each approach we distinguish two specifications, the first without lagged exports variable and the second with a lagged exports variable. In total, this allows us to estimate six models. The introduction of a lagged exports variable (laggedLnXij) following the formulation of Gould (1994) and Head and Ries (1998), who interpret it as a means of partial adjustment of the model. The lagged dependent variable also partially control the specific effects of each country, such as the degree of integration into the global economy.

In the table below, we present the results of the panel regression for total Algerian exports. We mobilized three approaches and six specifications (from 1 to 6). Again, the results of the first two approaches (OLS and Tobit) are very similar, in contrast, the coefficients of the PPML approach are lower. Following Santos and *al*. (2006), we consider that the latter approach is the one that gives the most efficient coefficients.

Tab5 . Impact of the diaspora on total export - Years 1990-2010 (panel)

LnXij	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	OLS-RE	**OLS-RE**	**TOBIT-RE**	**TOBIT-RE**	**PPML-RE**	**PPML-RE**
LnYiYj	2.869***	2.661***	2.858***	2.881***	0.252***	0.286***
	(11.16)	(9.05)	(9.00)	(8.64)	(8.75)	(8.94)
LnDij	-2.785**	-2.543**	-2.777**	-2.782**	-0.257**	-0.286**
	(-3.08)	(-2.85)	(-3.14)	(-3.08)	(-2.69)	(-2.62)
LnDiaspij	-0.0489	0.0144	-0.0392	-0.0389	-0.0139	-0.0115
	(-0.35)	(0.10)	(-0.27)	(-0.27)	(-1.51)	(-1.21)
Adjaij	6.358**	5.736**	6.325**	6.364**	0.586*	0.663*
	(2.77)	(2.80)	(2.80)	(2.77)	(2.45)	(2.45)
Colij	1.379	1.361	1.326	1.272	0.0215	-0.0774
	(1.04)	(1.01)	(0.31)	(0.29)	(0.05)	(-0.15)
Zleij	0.270	0.195	0.254	0.297	0.0126	0.0138
	(0.17)	(0.13)	(0.18)	(0.20)	(0.08)	(0.08)
Religionij	1.526	1.607	1.522	1.543	0.164	0.175
	(1.03)	(1.17)	(1.32)	(1.32)	(1.29)	(1.22)
laggedLnXij		0.0897		-0.0140		-0.0195***
		(1.21)		(-0.21)		(-5.28)
_cons	-32.14***	-30.67***	-32.00**	-32.33**	-1.330	-1.640
	(-3.67)	(-3.71)	(-2.90)	(-2.89)	(-1.20)	(-1.33)
R-squared	0.3899	0.3978	/	/	/	/
Log-likelihood	/	/	-686.923	-684.135	-882.210	-865.97
N	216	215	216	215	216	215

t statistics Cluster-robust standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

RE : Random Effect

Significant variables are the same regardless of the approaches used. These are the variables, size (GDP), geographical distance and adjacency. These results corroborate those obtained in the overall cross sectional approaches, with some minor differences. The introduction in the model of the variable lagged exports produces no noticeable effect on the significant variables or the intensity of the estimated coefficients.

The variables colonial ties and common religion has no impact on total exports . This can be explained by the nature of the products exported by Algeria, mainly standards products such as oil and gas. The special ties or affinities related to history or religion have no effect on this kind of homogenous goods. The free trade agreements signed by Algeria with the European Union and the Arab countries, don't produce any significant or positive impact on Algerian exports .

Ultimately, our variable of interest, the diaspora, has no impact on Algerian exports. The importance Algerian immigrant population in the world, particularly in countries like France, Belgium, Spain and Canada does not affect the Algerian exports. The question here is why, unlike other diasporas, including Chinese, Indian, Greek, Turkish and Moroccan, Algerian diaspora does not promote exports of the country of origin ? Several reasons could explain this fact. These include institutional and administrative constraints which destroys all efforts to promote the diversification of Algerian exports.

6. Conclusion

In this article, we propose a first approach trying to assess the impact of the Algerian diaspora on Algerian exports. The main result of this assessment is that the Diaspora has no impact on the Algerian exports. This absence of effect may be explained by the nature of the Algerian exports, which are oil and gas. The market of these product is essentially determined by the price. The sale of these product does not poses any particular difficulty, requiring the use of diaspora networks.

In addition, many institutional and administrative constraints are partly responsible of a weak diversification of Algerian exports and of the low involvement of the diaspora.

Algeria's total exports are impacted by three variables : the size, distance and adjacency . The size and adjacency have a positive effect on exports, the distance has a negative effect. Regional agreements have no positive impact on Algerian exports. This is also the case of variable colonial link and common religion. The nature of Algerian exports could also here explain the lack of those effects.

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PLANNING BEYOND INFRASTRUCTURES: THE THIRD SECTOR IN DOURO AND ALTO TRÁS-OS-MONTES

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Abstract

This paper begins with a conceptual approach to the third sector, followed by a review of the relationship between investment and growth.

The empirical component focuses on Portuguese NUT III Douro and Alto Trás-os-Montes regions, which are said to be less developed, and have been the recipients of a significant amount of investment incentives in the context of the European regional development policy. Its aim is to study the impact of these investments on development.

Results reveal there is a higher impact of public investment particularly on infrastructures, compared to productive private investment, and highlight the importance of non-profit private investment on the third sector.

Therefore the support to the third sector stands out as an important driver in development policies, since the impact of public investment did not bring about a dynamics of internationally tradable goods which might help the region become independent of public financial support.

Keywords: Low Density Regions, Regional European Policy, Subsidies and Investment
JEL classification: R58, R11, R10

1. Introduction: Third Sector, Investment And Growth

1.1. The Third Sector

Although the "third sector" does exist since the 19th century, as a result of the various workers' associations and solidarity movements, it was only after Delors' and Gaudin's works (1979) have been published that the subject has become relevant for the scientific community. In fact Delors and Gaudin (op.cit.) mentioned the importance of what they called "un troisième secteur", thus referring to an heterogeneous set of entities, such as associations, cooperatives, mutualist entities and others, of a public or private nature, but which had a distinct social position as well as different objectives from those which generally constitute the lucrative private sector and the public sector. Drucker (1997) clearly distinguished these institutions, he referred to as non-profit, from the rest, explaining that they do not supply goods or services or produce effective regulation; their product is a "modified human being", in other words, "agents of human evolution" (Drucker, 1997: 10).

This subject has increasingly attracted the attention of various quadrants and has been much debated; so much so that in 1998 the French government ordered Lipietz a study in which the author declares himself in favour of a third sector in the economy, defined on its *"utilité écologique et sociale"*[1] (Lipietz, 2000: 4).

[1] Ecological and social usefulness.

In Lipietz's words (2001), this third sector corresponded to the interception of social economy with solidarity economy, thus involving three different concepts. Thus, social economy represents all the activities developed by the associations, the cooperatives and mutuaries, all of them linked by the principles of democratic management (one person one vote); undistributed profits and their non-profit nature. It is a sector that is strictly linked to the Welfare State and which has paralyzed from the eighties onwards, due to a setback of this kind of state policies. This brought about what came to be known as the solidarity economy, an alternative economy aiming at combining economic and social aspects in such a way that it ensures that one's place in society can be supported by alternative ways to employment. According to Laville (1994), this solidarity economy helps putting in perspective the importance of the economic sphere as regards other activity areas, while considering the monetary economy in its context.

When compared to social economy, this new approach introduces the spirit as its main innovation against some conservative views as regards legal form. The new spirit revealed itself in the agents' motivation since they started using the ecology, local development and social utility banners along with new ways of doing things. Therefore, according to Liptiez (2001:2), what truly defines solidarity economy, unlike social economy, is how it can come up with answers to the question "on behalf of what it is done" rather than "how it is done".

In this context, the third sector appears as a solidarity economy concept but bearing the *status* of social economy and highlighting its double funding, either by selling services or by benefiting from public subventions and/or tax exemption.

Also Evers (2000:567) shares the vision of the third sector as an intermediate space between State, market and informal sector intercession, whose main feature is diversity "*…des modes d'hybridation mis en œuvre par les associations qui le constituent".*[2] Besides the denominations that have already been looked into, other authors use the expression "new social economy" (Defourny *et al*, 1999; Bidet, 2000). However, more important than how one calls it, it is the difference between the new approaches and the one favoured in the eighties as noted by Bidet (*op.cit*.); contrary to Delors' third sector, in which full employment was indeed possible, the new social economy, just like the solidarity economy or Liptiez's third sector, focus on the notion of activity rather than on employment, thus underlining the importance of voluntary work. Consequently, the new approaches no longer seek an alternative solution to the market, like Delors' and Gaudin's (1979); instead, they target the capitalist mode of production.

Authors like Defourny and Develtere (1999); Laville, (1999); and Nyssens (2000) point out the difference in approach between the French and the Anglo-American School, identifying the former with the problematic of the social and solidarity economy and the latter with the non-profit or voluntary organizations sector[3]. When approaching the third sector, the Anglo-American school has emphasised the role of non-profit or voluntary organizations and the sector's functional component, neglecting the normative perspective based on social aims.

Finally, as claimed by Lallement and Laville (2000:523) «*C'est d'ailleurs cette appellation de tiers système ou de tiers secteur qui domine au niveau international »*[4]. Also, when confronted with the question of who deals with social issues in a knowledge-based society, Drucker (2006:438-439) argues that the answer is neither the government nor the firms but rather "a new, independent social sector". Furthermore, "if the twentieth century was one of social changes, the twenty-first century must bring about social and political innovation"; therefore, society must be made pluralistic, with several centres of power, making room for organizations other than the government to do multiple tasks in the name of common good and social cohesion.

The third sector has undoubtedly become an essential actor as far as development goes.

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[2] Ways of hybridization put into practice by the associations it is composed of.

[3] Anheier and Salamon (2006) stressed this difference and, besides the French notion of social economy, they also refer the Italian notion of associativism, the German tradition of the subsidiarity principle and the British tradition of charity and purpose and determination.

[4] Besides the designation third system or third sector prevails at an international level.

1.2. Brief Analysis Of The Role Of Investment According To The Main Economic Growth Theories

The growth of economies has been of particular interest for economic analysis originating different theoretical explanations which differ not only as regards identifying the characteristics of any growth process, but also in choosing and stressing out the factors which influence that growth the most. When one focus on the problematic of capital accumulation, one notices that it represents a growth factor often mentioned in most theories and their subsequent models.

Adam Smith himself (1776) admitted as an assumption that capital accumulation was a key element to the growth process and so did the first post-Keynesian authors (like Harrod, 1939 and Domar, 1946). With the neoclassics (Solow, 1956), there is a shift of emphasis which is now set on both exogenous technical progress and the ability to stimulate growth with investment playing second fiddle.

Romer (1986; 1990), Lucas (1988), Barro (1990) and Rebelo (1991) provide other explanations within the so-called endogenous theory which account for the *per capita* variables growth through factors and mechanisms deriving from the economy itself. They posit that when knowledge is considered exogenous, it becomes possible to reverse the diminishing returns associated with capital accumulation; knowledge becomes, then, the growth engine, a process supported by capital accumulation, and investment recovers some of the importance it had in post-Keynesian models.

1.3. Growth Accounting, Public And Private Investment

Several studies have tried to analyse the economic growth process by looking into the relative contribution of factors. As far as capital and work are considered, the works of Christensen *et al* (1980), Elias (1990), Young (1995) and Jorgenson and Yip (2001) are worth mentioning. These authors have shown that, in most of the growth processes studied, contribution of capital has largely outdone the contribution of work.

Other research studies have tried to be a little more specific, and it is possible to identify aspects such as the infra-structures (Aschauer, 1989a; Barro, 1990), the incentives to innovation (Romer, 1990), human capital (Lucas, 1988; Barro and Lee, 2001), constant returns to scale (Rebelo, 1991) the spreading of technology (Barro and Sala-i-Martin, 1997), as well as others such as institutional framework and macroeconomic stability (De Haan and Sturm, 2000; Easterly, 2001).

There is also the question of the nature of public or private investment. The former's likely impact on long term growth is particularly appealing to the new endogenous growth theory (Aschauer, 1989b and 2000; Riedel, 1992; Easterly, 1992; Ramirez, 1994). The works that have been looked into show several levels of decomposition of public investment, from investing solely on non-military public investment (Eberts, 1990; Munnell and Cook, 1990; Andrews and Swanson, 1995), to making use of complementary disaggregation, trying other categories such as motorways, water supply, sewage and others (Moomaw *et al*, 1995; Garcia-Milà *et al*, 1996), besides public investment on education (Moomaw and Williams, 1991; Evans and Karras, 1994). In the particular case of investment on "*core infrastructures*", and inspired by Roseinstein-Rodan (1961) and his *Theory of a Big-Push*, worth mentioning are Aschauer's pioneer studies (1989a and 1989b), in which the author claims that this nucleus of infrastructures may have a differentiated impact on economy, an idea which several later studies do but confirm (Easterly and Rebelo, 1993; Démurger, 2001; Rovolis and Spence, 2002; Nijkamp and Poot, 2004).

As concerns private investment, the emphasis has historically been given to investment on equipment as a source of economic growth; it is not by chance that the period when economies witnessed a strong growth, much because of the development of machinery, was known as the industrial revolution. However, after some studies in the field of growth have been published, namely Solow's (1956) and other of his followers', pointing to capital accumulation being significant in only a small fraction of the countries' productivity growth, the importance of investing on equipment was sidelined. Bradford de Long and Summers (1991), following Kravis *et al*. (1982) and Summers and Heston (1991), have provided quantitative evidence that contradicts this assumption, showing there is a clear, strong and

statistically robust relationship between rates of equipment and machinery investment and productivity growth.

The differentiated impact of investments has been the object of much debate, namely the controversial question of knowing whether private and public investment are complementary, independent, or if one can replace the other. According to Pereira and Andraz (2004), evidence currently points to public capital and private production factors being complementary in the short term. As to efficiency, several authors argue private investment is more efficient as well as productive than public investment (Serven and Solimano, 1990; Coutinho and Gallo, 1991; Khan and Kumar, 1997), despite little empirical evidence to the fact.

1.4. Some Particularities Regarding Less Favoured Regions

According to most of the literature on the topic, the concept of less favoured region applies to an area where there are high levels of poverty, mortality and unemployment, associated with low levels of qualification and basic infrastructures. In the case of EU, the name less favoured region has been used to generically refer a region which, according to EU's economic and social cohesion policy, is considered suitable for the implementation of certain goals, namely the goal of "convergence", which aims at helping less favoured regions recover economically. Qualifying for most of the funds and support programmes are the regions whose *per capita* GDP is lower than seventy five per cent of EU average. In this context, one may ask what special features may affect the previous growth factors' framework.

First and foremost the answer is population. Although Malthus's pessimistic view of the minimum subsistence (1798) was theoretically contradicted by capital accumulation and technological innovation, the evolution in the primary sector in many of the currently so-called less favoured regions in Europe is, nevertheless, not much different from what Malthus predicted: the low income in agriculture caused by a labour surplus and the low capital intensity led to a rural exodus of people seeking for better paid jobs. As a result, those regions are now confronted with lack of labour, although in the past they had high levels of population growth. Also, in those regions people have low qualifications, which is particularly negative when one considers the emphasis on technological progress and human capital of growth theories.

Also notable is the small size of local markets, either because of their weak purchasing power or due to low population density, which may be an impairment to attracting business. The situation tends to become more complicated when other factors are brought into the equation, such as the inadequacy of communication, energy and transportation infrastructures.

Another important aspect has to do with the fact that most growth models equal investment savings, in which investment translates into productive investment, a notion that is not necessarily true, according to Diniz (2006). The savings of a region do not have to be invested there and there are even examples of depressed regions with high levels of savings which are invested elsewhere.

As to competitiveness, the major problem in less favoured regions is that it depends predominantly on the use of natural and human resources in a competitiveness-cost perspective. Furthermore, the processes involving the use of natural resources are often unsuitable as well as obsolete, labour is little qualified and external economies are weak.

Therefore, when dealing with a less favoured region, one inevitably faces a number of aspects which strongly affect the development process.

2. Study Case: Investment Impact On The Development Of The Inner North

2.1. Introduction

Pigou (1920) presented the first theoretical argument in favour of incentives based on the occurrence of externalities. Other arguments can be added, namely return loss compensation, protection of an incipient industry and regional development (Galenson, 1984; UNCTAD, 1996; Blomström, 2002).

Precisely the latter has led the European Union (EU) to contemplate derogation as regards the EC treaty which conditions those investments likely to compromise competition. Thus, the

EU has become a reference as to the use of incentives as a way to promote reduction of regional disparities. Accordingly, our study will focus on how European investment in the form of financial incentives affects the development of two Portuguese regions, Alto Trás-os-Montes and Douro (Silva and Sequeira, 2011).

2.2. Characteristics Of The Area Studied

The area integrates two NUTS III, Alto Trás-os-Montes and Douro, located in Northern Portugal, with an area of 12,273 km^2, which represents about thirteen-point-four percent of the total (INE, 2004).

It has been suffering from a strong decline in the resident population, and presently is characterised by low population density, an aged and little qualified population and unemployment rates higher than the national average.

In economic terms, neither the *per capita* GDP not the purchasing power in 2007 reached seventy percent of the national average value (INE, 2009; 2010). The entrepreneurial fabric is weak, consisting mainly of micro firms which generate few jobs and little turnover. The region's contribution to the national Gross Value Added is not relevant, only two-point-nine percent (INE, 2010), and the primary sector takes the lead both in production and employment structure terms. Significant is also the high weight of Civil Service in the general framework of the employed population.

When one compares the country with EU averages, the region's backwardness does stand out even more.

2.3. Aims

Portugal has been a member of the EU since 1986, and has received important financial incentives to its development through the then called Community Support Framework (CSF) and the Community Initiatives Program (CIP).

Back then, the aims of the work were: 1) assess the relative access of the region being examined to community funds[5] and the typology of the supported investment from the beginning of the CSF I until the interim evaluation of CSF III; 2) assess the impact of supported investments per incentive on the regions development at the level of the *concelho*[6].

2.4. Methodology

2.4.1. Variables

2.4.1.1. Dependent Variable

The *per capita* Purchasing Power Indicator (IpcPC) is " an index number that equals 100 in the country's average and compares *per capita* purchasing power with the national reference value on a daily basis in various *concelhos* and regions" (INE, 2005c: 4). Using (IpcPC) as a development indicator is a result of there being no other development indicators available at the level of the *concelho* for the period in question.

2.4.1.2. Independent Variables

One might expect that the positive evolution of purchasing power at the level of the *concelho* meant an income increase and that increase was caused by growth. After having reviewed the relationship between investment and growth, we divided the investment made into three great categories which would later be further divided: public investment; productive private investment; and non-profit private investment. The programmes targeting public investment made it possible to use a classification very similar to the one used by Aschauer

5 The European Social Fund was not considered in the present analysis due to having been impossible to collect data on supported investment at the level of the *concelhos*. Therefore, the investment on human capital variable could not be used.

6 Portuguese territorial-administration unit.

(1989); investment on general infrastructures, which are essentially *core infrastructures*, was calculated and then complemented with other categories which appeared to us as being extremely relevant, such as investment on education and health infrastructures, besides a residual category referred to as other public investments.

The inclusion of private investment followed a logic of examining the activity sector in which the investment occurred, departing from the assumption that different economy sectors have substantially different levels of productivity and competitiveness and, as such, different impacts were likely to follow.

As regards non-profit private investment, we have inspired ourselves in Drucker's concept of the "third sector" (1997). The result of our considerations was a nine category investment classification structure of which four refer to public investment (nuclear infrastructures; health infrastructures; education infrastructures; other public investment); three to private investment (on the primary, secondary and tertiary sectors); and two to non-profit private investment (economic and social activity support).

2.4.2. Time Span

The time span studied focused on the period elapsed from the beginning of the application of CFS I (1989) until the interim evaluation of CFS III (2002).

2.4.3. Data Gathering

Data regarding (IpcPC) were obtained after consultation of previous studies on the purchasing power at the level of the *concelho* for the period in question (INE, 1993; 1995; 1997; 2001; 2002b; 2005c).

As to incentive supported investment, data gathering was done by direct contact with the institutions in charge of managing the supports and lists of regional investment projects regarding the various *concelhos* were obtained. (ADH, 2005; DESTEQUE, 2005; DGDR, 2001; 2002, 2003, 2005, IFADAP, 1990, 1995; 2005; **IDRAH**, 2005; INGA, 2005).

Data concerning 34,200 projects were individually sorted out and included in the investment categories previously defined. At a later stage, values were deflated (base 1989) and *per capita* investment calculated by category and year for each of the thirty-three *concelhos* composing the area considered in the present study (INE, 2002a, 2003 and 2005b).

Values referring to the population's initial structure, namely qualifications level and activity in 1991, were also used (INE, 1993 and 2005a).

2.4.4. Techniques

In order to assess the region's relative access to Community funds a comparison was made with the national totals by fund and support programme, followed by an investment composition analysis.

Econometric techniques suitable to analysing panel data were used after multiple linear regression tests had been made and clusters built as an exploratory analysis.

2.5. Results

2.5.1. The Region's Access To Community Funds And Supported Investment

During the period in question, two point sixty-five thousand million Euros were invested in the region, backed by the European Regional Development Fund (ERDF), the European Fund of Agricultural Orientation and Guarantee (FEOGA) and the Cohesion Fund.

As far as the access to funds is concerned, we were able to conclude that:

The ERDF was the fund which contributed the most to financing investment in the region; investment here corresponded to about three point nine percent of the total of the country. Bearing in mind that the region represents four point three percent of the total population and thirteen point four percent of the national territory (INE, 200), it is possible to conclude that access was relatively limited.

- The percentage of FEOGA supported subsidies absorbed by the region oscillated between fourteen and sixteen percent of the total received by the country. General access was significant, since the region had eleven point nine percent of the usable agricultural area and contributed with eleven point five percent of the sector's Gross Value Added (INE, 2004).
- In terms of the Cohesion Fund, the region absorbed only zero point five percent of the national amount due to only two projects having been presented.

As regards the distribution of supported investment, data show private investment (fifty-two percent) was higher than public investment (forty-four percent), although less subsidised. The heavily subsidised non-profit investment was considerably lower (four percent).

Within each of these categories we have:

- Public Investment - investment on nuclear infrastructures predominated (sixty-one percent) followed by the residual other public investments category (twenty-six percent) and investment on education infrastructures (twelve percent); on the contrary, investment on health infrastructures was very low, though (one percent).
- Productive private investment- investment on the primary sector comes in first (forty-three percent), followed closely by investment on the secondary sector (forty percent); investment on the tertiary sector registered significantly lower values (seventeen percent).
- Non-profit private investment - the investment on economic activity support prevailed (eighty-eight percent), whereas there was little social support (twelve percent).

2.5.2. Impact Of Community Fund-Supported Investment

2.5.2.1. The Model

After a previous exploratory analysis had been conducted, steps were taken to find out, during the period in question, which types of investment had had an impact on the *per capita* purchasing power indicator's evolution regarding each *concelho*. Such variables as initial qualification level and activity in the tertiary sector for the year 1991 were also used[7].

The regression of purchasing power growth in each *concelho* for n *concelhos* and t time spans was formulated as an error component model, namely a log-log model:

$$\log ipcpc_{it} = \log \beta_0 + \log invprisecpr_{it} + \log inprivsesec_{it} + \log invpriseter_{it} + \log ipubinfraestruturas_{it} + \log outipub_{it} + \log invnlucrativo_{it} + \log acterciario91_i + \log esuperior91_i + u_{it} \quad (1)$$

where:

i=1, 2,…33 (*concelhos*); t= 1,2…5 (different time periods) and:

$ipcpc_{it}$ = *per capita* purchasing power indicator for *concelho* i during the period t;

$invprisecpr_{it}$ = private investment on the primary sector; $invprisesec_{it}$ = private investment on the secondary sector; $invpriseter_{it}$ = private investment on the tertiary sector ; $ipubinfraestruturas_{it}$ = public investment on infrastructures; $outipub_{it}$ = other public investments; $invnlucrativo_{it}$ = non-profit private investment. All of these investment variables refer to thousands of Euros worth of *per capita* accumulated investment[8], at constant 1989 prices, for the *concelho* i from the period t-4 to t.

Furthermore:

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[7] Based on Barro's principles (1991), the variables higher education and activity in the tertiary sector, reporting to the year that is the closest possible to the year chosen as the beginning of our analysis ,were introduced in order to ascertain to what extent the initial characteristics had any influence on the per capita purchasing power indicator.

[8] Since we did not possess any studies on the purchasing power for all the years in question and, on the other hand, we held the previous notion that considering the investment for that very year would not be very meaningful in terms of the purchasing power, we have decided to deal with per capita accumulated investment. Of the various periods examined, the five year period had the best results. Hence the option to relate the purchasing power in a one year period with the per capita accumulated investment in a five year period.

acterciario91$_{i\,i}$ = level of employed population in the tertiary sector; esuperior91$_i$ = level of population with a college degree in percent of the resident population for the *concelho* i in 1989;

Decision between fixed and random effects was based on the Hausman test and on the Breusch-Pagan test (Greene, 2003 and Hoyos, 2005); the results obtained pointed to a random effects model.

Estimation was done with recourse to the Generalized Least Squares (Arellano, 2003; Greene, 2003 and Hsiao, 2003).

2.5.2.2. Estimation Results

Statistically significant coefficients were obtained ($\alpha = 0{,}05$) and are as follows: private investment on the tertiary sector (logiprivseter) showed the value of 0.0495; investment on infra-structures (logipubinfraestruturas) had the value of 0.0768; other public investments (logoutipub) reached 0.0338; non-profit private investment (loginvnlucrativo) presented a coefficient of 0.0682; and population with a college degree in 1991 had a coefficient of 0.2746 besides the constant 1.5725. In view of the log-log model used, these values must be understood as elasticities.

Table 1 – Main results of the estimation of GLS random-effects model

Random-effects GLS regression		Number of obs =	165
Group variable (i): concelho		Number of groups =	33
R-sq: within =	0,5387	Obs per group: min =	5
between =	0,8219	avg =	5,0
overall =	0,7438	max =	5
Random effects u_i ~ Gaussian		Wald chi2(9) =	66821,28
corr(u_i, X) =	0 (assumed)	Prob > chi2 =	0,0000

logipcpc	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
logiprivsecpr	-0,0355	0,0272	-1,31	0,1910	-0,0888	0,0177
logiprisesec	-0,0104	0,0079	-1,32	0,1880	-0,0259	0,0051
logiprivseter	0,0495	0,0099	5,01	0,0000	0,0302	0,0689
logipubinfraestruturas	0,0768	0,0180	4,26	0,0000	0,0415	0,1121
logoutipub	0,0338	0,0162	2,09	0,0370	0,0020	0,0656
loginvnlucrativo	0,0682	0,0133	5,11	0,0000	0,0420	0,0943
logacterciário91	0,1383	0,1355	1,02	0,3070	-0,1272	0,4038
logesuperior91	0,2746	0,0690	3,98	0,0000	0,1394	0,4098
_cons	1,5725	0,2030	7,75	0,0000	1,1747	1,9703
sigma_u	0,0384					
sigma_e	0,0488					
rho	0,3819	(fraction of variance due to u_i)				

The main aspects to retain are: in the first year, the population with a college degree significantly determines the evolution of purchasing power; amongst the various investment categories, public investment on infrastructures holds the greatest impact on purchasing power, followed first by non-profit private investment on the tertiary sector and then by other public investments. Worthy of notice is also the fact that there was no statistic significance for private investment on both the primary and secondary sectors.

3. Conclusion

The theoretical considerations established at the beginning of this presentation drew the attention to the importance of investment in the growth process, especially when one is dealing with less favoured regions. Despite the numerous difficulties that have been mentioned, investment is likely to have a relatively more significant impact, given the expected externalities.

The results that have been obtained are consistent with the theoretical review that has been undertaken. And the first aspect to be remembered is the relevance of human capital

contribution, revealed by the impact of the variable expressing the initial percentage of the population with a college degree.

As regards investment impact, the fact that public investment on infrastructures comes in first is accounted for both by its indirect effect on the region's business and its ability to attract qualified human resources as well as its direct effect on creating jobs and generating income in the construction business.

Non-profit private investment was dominated by investment on institutions engaged in promoting and supporting economic activities; it is expected that it will have an immediate effect on employment and on the demand for local goods and services, as well as, in the long term, on the activity it seeks to stimulate.

We would like to point out that private investment on the tertiary sector also generates employment and income. It has, however, a weakness, which is the relatively high weight of jobs in the Civil Service in this region, likely to indirectly turn the demand for these goods and services into a strong dependency on the State.

Finally, in the category other public investments, composed of public investment that is not directly related to infrastructures, the weight of the construction business and job creation also accounts for its impact.

Yet, there are other investments which, although not statistically significant, should nevertheless be mentioned. It is the case of the primary sector, which appears as significant in many of the models tested, but with a negative coefficient, that is, reducing purchasing power. The available information on the region's real agricultural situation allows us to understand this result for the farmers' situation is often made worse after investments on reconverting or expanding the activity. As to the secondary sector's negative signal, namely the region's agri-businesses, particularly the wine business, it is understandable given the difficulties the sector has been going through.

In short, productive public investment's impact was weak, felt only in the tertiary sector; as regards public investment, although it had a greater impact, this did not, however, translate into a dynamics of internationally tradable goods likely to endow the region with its own dynamics and to guaranty that it can do without public support.

Additionally, this type of investment can be very important for a region's *take-off*, provided there are certain development conditions, such as investment on infrastructures and on environmental sustainability. This is a necessary condition for competitiveness, but not sufficient, though. Especially now that almost everywhere there is a tendency to homogenise infrastructures, neglecting any competitive advantage thereof ensuing; the same applies to environmental issues.

These results give us motive to worry as regards the future, because once the *Big Push* effect ends or slackens, or Community support to non-profit investment ceases and, on the other hand, employment in the Public Administration continues to decrease, purchasing power in the region will meet with serious difficulties.

In this context, we believe that the region's development strategy will have to be one of valuing specific resources (natural resources, its farming and cattle raising aptitude and tourism potential), as important elements in differentiating regional strategies; of committing itself strongly to overcoming its weaknesses, especially the business sector's vulnerabilities, which have to be approached with professionalism, focus, improvement of technology and commercial networks; and of taking definite steps towards internationalisation.

The policies designed for the region must be reoriented, beginning with including the population's contribution to its formulation and, most importantly, having a different focus, one which looks at the region as a whole and forsakes the traditional fragmental approach based on activity sectors. As far as public support is concerned, we pinpoint the need to continue supporting the productive tissue as well as give incentives to investment on human capital and innovation rather than pursuing an infrastructure investment policy.

Finally, in view of one of the model's most relevant *outputs*, it was possible to conclude that the non-profit private investment, regardless of not being very significant compared to the total amount invested in the region, registered one of the greatest impacts on purchasing power in the various *concelhos*.

Can we say we are back to the *small is beautiful policy*? There is no doubt the supported initiatives included in this category, characterised by a strong local component, either in terms

of employment or their connection to the supported productive activity, involve relatively low investment and little resources. Maybe, in the near future, the productive activity those entities promote will in turn back up the supporting structures, helping the region move forward in a self-sustaining perspective.

List Of Portuguese Acronyms Used In The Text

ADH	Association for the Historical Douro
CETRAD	Centre of Transdisciplinary Studies for Development
DGDR	Directorate General for Regional Development
DESTEQUE	Association for the Development of Terra Quente
IDRAH \	Institute of Rural Development and Hydraulics
IFADAP	Institute for Agriculture and Fisheries Finance
INE	National Statistics Institute
INGA	National Agricultural Intervention and Guarantee Institute
NUT	Nomenclature of Territorial Units
QCA	Community Support Framework (CSF)
UTAD	University of Trás-os-Montes and Alto Douro

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ANALYZING THE GREEK ELECTIONS RESULTS OF 2000 UNDER DIFFERENT SPATIAL STRUCTURES.°

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Abstract

The paper attempts to empirically explain the vote shares received by political parties across municipalities in Greece during the national elections of 2000, in terms of demographic, educational, occupational and other factors under two territorial specifications: one based on the conventional sub-regional organization of the country, the other based on that spatial patterns of the residuals. It finds that by departing from the approach which relies on typical spatial dummies (a) the regression-fit improves considerably, and (b) a good number of spatial effects which might ordinarily be blurred within conventional partitions may be important and, at the very least, their distinct impact ought to be considered. The lesson is probably useful to readers interested in identifying through statistics, health, education, crime or other policy areas.

Keywords: electoral preferences, political parties, disaggregated data, delineation of micro-regional policy areas

JEL classification: C31, D72, R10

1. Introduction

The purpose of this paper is to analyze the national election results of 2000 in Greece, and advance the study of disaggregated observations through the use of spatial information extracted from the data.

Methodologically, it sets out to empirically explain within a seemingly unrelated regression (SUR) framework the vote shares received across the country's municipalities by the four political parties that entered parliament. Inherently, the aforesaid econometrical framework is deemed more appropriate for analyzing elections in multiparty systems compared to the standard ordinary least squares (OLS) model (Jackson, 2002; Tomz et al., 2002; Doyle and Walsh, 2007), though in this case (a case that will rely on data pertaining to the whole population rather than a sample) the difference is probably of little consequence as the need to estimate standard errors for parameters diminishes.

To ease the reader into the topic we cast it in terms of the phenomenon under examination. Firstly, we match the disaggregated information contained in two datasets: one providing the election results, the other providing a good number of explanatory variables that feature in the relevant literature, namely, gender, age, education, occupation, sectoral employment, unemployment, community density and the presence of children, in order to rationalize the former in terms of the latter (Pattie and Johnson, 1997; Dow, 1998; Leigh, 2005; Kaniovski and Mueller, 2006; Doyle and Walsh, 2007). Then, like most empirical socio-economic analyses that take into account the spatial dimension, we consider the use of dummy variables standing for conventional territorial partitions (such as provinces, regions, counties, cantons), in this case, prefectures. Yet, bearing in mind that these formations are often drawn after geographic, historical, gerrymandering, geometric or other factors, and that there is a good chance they are internally heterogeneous, hence, not as appropriate controls as generally

° The paper has benefited from suggestions offered to an earlier version by participants at the 49th Congress of the European Regional Science Association (http://www.prd.uth.gr/ERSA2006/). Thanks are due to Konstantinos Hatzis for diligently helping match the census and election datasets. The usual disclaimer applies.

thought to be,[1] an attempt is made to delineate spatial units that are almost certainly more homogeneous internally, and distinctly different from surrounding areas in ways which are relevant to the matter under consideration (in this case, electoral preferences). Obviously, the new strain of estimated spatial coefficients can be interpreted like conventional spatial coefficients in typical econometric analyses. However, it may also be preferable to conventional spatial coefficients insofar as it: (a) Provides a superior econometric fit (i.e., explains a larger portion of variation in the data). (b) Enables analysts to concentrate on the territorial formations identified in order to explore (deduce) via field surveys or other means what the additional source of the disparity may be. (c) Permits policy-makers, stakeholders and the like to undertake better-informed, spatially-targeted interventions. In the context of the application considered in the paper: to address the concerns of crucial constituencies, design better-tailored promotional campaigns, etc. At the same time the paper contributes to the fledging literature regarding Greek elections (e.g., Athineos, 1983; Zafiropoulos and Chadjipadelis, 2001; Valasaki and Photis, 2005).

The material is organized as follows: Section 2 describes the country's morphology and introduces the data, namely the disaggregated April 2000 election results, and the disaggregated March 2001 Census population statistics. Section 3 analyzes the former in terms of the latter under the conventional zoning regime (Model I), and Section 4 analyzes the vote shares that the political parties received across the country's municipalities in terms of the population statistics without spatial regressors (Model II). Section 5 considers the spatial patterns produced by the residuals, describes a procedure for devising territorial groupings from the spatial information born by the residuals, and identifies a number of seemingly homogeneous districts, on the basis of which Section 6 explains the votes shares in terms of both the new spatial and the other available regressors (Model III) and discusses the results. In the end, Section 7 offers the conclusions.

2. A Few Words On The Country's Morphology, The Data, And The Variables Considered

Situated at the edge of southeastern Europe, Greece spans an area of 132 thousand square kilometers; and at the time under consideration was inhabited by about 10.934 million people (2001 Census) living in 1,034 municipalities.

The terrain is dominated by high mountain-chains (42.2% of the country's surface), small valleys traversed by rivers or inlayed with lakes, narrow coastal strips, a multitude of islands (35.1% of the surface),[2] and a very jagged coastline. These natural features greatly fragment the country into a host of tiny places, giving rise to the notorious patchwork of city-states and self-governing tribes in classical antiquity, and the mosaic of jurisdictional cantons (armatolics, semi-independent and other areas) in early modern times. Obviously, the splintering impact of the landscape is, to some extent, tempered by the effectiveness of the transportation network now linking these districts (coastal strips, plateaus, and islands). On the other hand, the terrain is sufficiently irregular to critically impede the spatial representation of the country's localities via contiguity or proximity weight matrices.

The election result which we are about to analyze, was shaped by 6.868 million valid ballots; and the parties that entered into the Parliament were the Socialist Party (43.8%), Conservative Party (42.7%), Communist Party (5.3%) and Confederation of the Left (3.2%). The numbers in parentheses denote the percentage of the national vote received by the parties in question. The aggregate figures of the datasets regarding (a) the demographic, educational, and occupational characteristics of the population, and (b) the electoral following of each

[1] Depending on the relevance of the territorial divisions employed, both the type of the analysis carried out and the quality of the findings or implications may vary. For instance, in the case of economic analysis, conventional territorial groupings such as counties modeled after ancient or medieval demarcations, may constitute poor proxies for contemporary economic areas. Metaphorically speaking, it is like trying to fit a certain body into an inherited suit and analyze it based on the seams, colors and other features of the suit. In our view, it is essential to search for an alternative approach that groups localities in manner that is more likely to agree with the data or phenomenon under consideration.

[2] Though three islands, namely, the Peloponnese (16.2% of the country's surface), Euboea (2.8%), Lefkas (0.2%), are also joined to the mainland by fixed links (bridges): the former at two places, each of the other two at one.

political party are provided in Tables 1 and 2, respectively. For the most part, both are accessible at the same level of disaggregation; and in a few places that they are not (for the ballots cast in a number of very small communities on the northern Pindos mountain-range were counted along with the ballots of neighboring villages), the population data are amalgamated accordingly. Furthermore, the monastic community of the Holy Mountain in Central Macedonia is excluded from the analysis. (It does not participate in the electoral process.) This permits the explanation of local voting preferences in terms of the demographic and other features of 1,022 local populations.

To empirically explain the 2000 election results in terms of:

- population characteristics, we will assume that the demographic and socio-economic conditions recorded in the 2001 Census conducted across the country's municipalities, had remained roughly the same in the months that intervened; and
- each locality's representative household, we will standardize (i) the total number of votes the political parties collectively received, and (ii) the total resident population figure (i.e., the overall gender-and-age, education, and labor force participation and abstention numbers) in each locality, to one.

Table 1: The March 2001 census

a. *Area: 132 thousand square kilometres. Number of municipalities: 1,034.*

b. *Population composition in thousands of persons*

Age	Men	Women	Level of formal education	Men	Women
0-14	857 (7.8%)	804 (7.4%)	Little or none	1,011 (9.2%)	1,297 (11.9%)
15-24	818 (7.5%)	744 (6.8%)	Primary school certificate	1.531 (14.0%)	1,609 (14.7%)
25-34	878 (8.0%)	840 (7.7%)	Lower secondary school cert.	636 (5.8%)	523 (4.8%)
35-44	780 (7.1%)	785 (7.2%)	Upper secondary school cert.	1,391 (12.7%)	1,308 (12.0%)
45-54	694 (6.3%)	707 (6.5%)	Post-secondary school cert.	159 (1.5%)	203 (1.9%)
55-64	569 (5.2%)	631 (5.8%)	Bachelor degree	631 (5.8%)	552 (5.0%)
65-74	539 (4.9%)	630 (5.8%)	Postgraduate degree	54 (0.5%)	29 (0.3%)
≥ 75	279 (2.5%)	380 (3.5%)			
Total	10,934 (100%)		Total	10,934 (100%)	

c. *Employment structure in terms of thousands of persons*

	Men	Women
Non-participants	2,394 (21.9%)	3,659 (33.5%)
Unemployed	280 (2.6%)	233 (2.1%)
Employers	372 (3.4%)	132 (1.2%)
Employees, paid	1,751 (16.0%)	1,140 (10.4%)
family members	48 (0.4%)	175 (1.6%)
Self-employed	569 (5.2%)	182 (1.7%)
By profession		
Managers, etc.	269 (2.5%)	109 (1.0%)
Science & art professionals	258 (2.4%)	251 (2.3%)
Technicians	172 (1.6%)	170 (1.6%)
Clerks	162 (1.5%)	255 (2.3%)
Service & sales workers	330 (3.0%)	274 (2.5%)
Skilled primary-sector workers	322 (2.9%)	233 (2.1%)
Craft workers	594 (5.4%)	71 (0.6%)
Plant & machine operators, assemblers	275 (2.5%)	33 (0.3%)
Unskilled workers	228 (2.1%)	169 (1.5%)
Inadequately described	129 (1.2%)	63 (0.6%)

By sector	Men	Women
Agriculture etc.	358 (3.3%)	240 (2.2%)
Fishing	13 (0.1%)	5 (0.0%)
Mines & quarries	11 (0.1%)	1 (0.0%)
Manufacture	369 (3.4%)	162 (1.5%)
Energy & water	31 (0.3%)	7 (0.1%)
Construction	364 (3.3%)	12 (0.1%)
Trade-repairs	392 (3.6%)	251 (2.3%)
Hotel, restaurants	155 (1.4%)	118 (1.1%)
Transport etc.	238 (2.2%)	48 (0.4%)
Finance etc.	55 (0.5%)	54 (0.5%)
Business activit. & real estate	127 (1.2%)	124 (1.1%)
Public. admin.	222 (2.0%)	109 (1.0%)
Education	97 (0.9%)	161 (1.5%)
Health etc.	66 (0.6%)	126 (1.2%)
Other services	79 (0.7%)	67 (0.6%)
Priv. households	4 (0.0%)	58 (0.5%)
Extraterritorial	1 (0.0%)	1 (0.0%)
Not specified	159 (1.5%)	83 (0.8%)

Source: National Statistical Service of Greece. Provided at the municipal level in mid-2004.
Note: Included are four thousand 10-to-14 year-olds reporting to have joined the workforce. Numbers in parentheses are percentages.

Consequently, the voter and population figures (i.e., the explained and explanatory elements) of the individual observations in each party's function lie between zero and one. Also, in the places in which the actual number of votes cast exceeds the number of residents, we will make an attempt to trace the impact produced by the non-resident (or out-of-district) voters.[3] To proxy this we construct a dummy variable that takes (a) the value of one when the total number of votes received exceeds by 4% the number of residents aged 20 years or older reported at the time of the Census, and (b) the value of zero otherwise.[4]

Table 2: Outcome of the April 2000 national elections

Allocation of votes				
Socialists	Conservatives	Communists	Confed. of Left	Others (21 parties)
3,007,596 (43.8%)	2,935,196 (42.7%)	379,454 (5.5%)	219,880 (3.2%)	325,885 (4.7%)

Source: Ministry of the Interior. Provided at the municipal level in mid-2006.
Notes: Polling stations: 18,959. Valid ballots: 6,868,011. Invalid ballots: 158,516 (2.3% of all ballots)
The numbers in parentheses supply the percentages of the valid ballots.

As the out-of-district-voter dummy is negatively correlated with population density (r = -28%), we will replace the population density regressor with a measure that is net of the out-of-district-voter effect. Indeed, in order to altogether avoid a situation whereby part of the explained variance is accounted by two or more regressors (which makes it hard to disentangle the effects) the explanatory variables will be made orthogonal to each other. In essence, instead of regressing the explained variable, say, *y* on arguments w, x and z (e.g., the out-of-district or spatial dummies on population density and education or age etc., respectively), we will first regress *x* on *w*, predict *x'* and estimate an orthogonal $\chi = x - x'$, then regress *z* on *w* and χ, predict *z'*, and estimate an orthogonal $\zeta = z - z'$. Thus, we will be explaining *y* in terms of *w*, χ and ζ; effectively, separating the influences of the regressors and minimizing the effects caused by collinearities.[5]

We commence our analysis by considering a model that relies on the country's conventional territorial partitions (Model I), and then move on to juxtapose it to a model that relies on territorial partitions extracted from the data (Model III).

3. An Empirical Analysis Of The Electoral Results Based On The Conventional Territorial Division Of The Country And The Characteristics Of The Population

In Table 3, we endeavor to explain the vote shares that each of the four parties received across the country's municipalities in terms of a common set of available factors within a SUR system, by taking into account the conventional grouping of districts. The results are associated with modest levels of fitness (the R^2 values range between 50.4 and 53.90%); and are read in reference to the population share of males aged 35-44 who lack primary school diplomas, engage in paid work as employees or are self-employed in the Table's unlisted sectors and occupations, and vote in the Athens prefecture. In view of the underlying assumption that all equations are interrelated, the expression that pertains to the vote-share of the political parties that participate in the election but do not enter parliament serves as the complementary equation, and is recovered from the other four. (See Table's final column.) In

[3] In Greece, many voters (estimated to over 1.2 million people at the time of the 2000 election) owing to sentimental attachment to their place of origin (own birthplace or village of their ancestors) opt to retain their voting rights in their place of origin instead of transferring to the place of residence: usually Athens or some other urban center.

[4] The age-ranges which are supplied at the disaggregated level in the Census data do not allow a closer correspondence to the minimum age for eligibility to vote in Greece (18 years old) at the time of the election. The measure of 4% provides the best fit in a good number of preliminary econometric experiments.

[5] The only correlations left are those between the two sets of dummies: the highest being observed in the cases of out-of-town voters and the localities forming the prefectures of Athens (r = -26.63%), East Attiki (r = -25.08%), and somewhat lower in the cases of Trikala (r = 12.20%), Ioannina (r = 11.69%), Piraeus (r = - 11.53%), Arkadia (r = 11.31%), Serre (r = 11.25%) Thessaloniki (r = -11.20%), Karditsa (r= 10.67%), Samos (r = -10.66) etc.

this setting, the estimated territorial coefficients with values in excess of ±0.01, and the estimated coefficients of the modified covariates with values in excess of ±2, seem to suggest the following:

Table 3: The seemingly unrelated system of the 2000 election percentage results with prefectural regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
1	Constant	0.43*	0	0.38*	0	0.08*	0	0.05*	0	0.06*
2	Out-of-town (dummy)	0.01	0.18	0.01	0.08	-0.01*	0.001	-0.01*	0	-0.00
	Spatial factors									
	Attiki									
3	Athens pref. (reference)									
4	East Attiki pref.	-0.03*	0.002	0.09*	0	-0.03*	0	-0.02*	0	-0.01*
5	Piraeus pref.	0.01	0.404	0.04*	0.009	-0.02*	0.001	-0.02*	0	-0.01
6	West Attiki pref.	0.01	0.701	0.01	0.737	-0.01	0.197	-0.02*	0	0.01
	C. Greece & Euboea									
7	Boeotia pref.	0.02	0.138	0.05*	0.002	-0.03*	0	-0.03*	0	-0.02
8	Euboea pref.	0.03	0.024	0.04	0.016	-0.03*	0	-0.02*	0	-0.02
9	Evritania pref.	0.01	0.56	0.11*	0	-0.05*	0	-0.04*	0	-0.03
10	Fokis pref.	-0.03	0.076	0.11*	0	-0.03*	0	-0.03*	0	-0.02
11	Fthiotis pref.	0.00	0.98	0.10*	0	-0.04*	0	-0.04*	0	-0.03
	C. Macedonia									
12	Halkidiki pref.	-0.03	0.054	0.12*	0	-0.04*	0	-0.03*	0	-0.02
13	Imathia pref.	0.01	0.65	0.06*	0.002	-0.03*	0.001	-0.03*	0	-0.01
14	Kilkis pref.	-0.07*	0	0.13*	0	-0.01	0.091	-0.03*	0	-0.01
15	Pella pref.	-0.03	0.136	0.11*	0	-0.04*	0	-0.04*	0	-0.00
16	Pieria pref.	-0.04	0.028	0.11*	0	-0.03*	0	-0.03*	0	-0.02
17	Serre pref.	-0.05*	0	0.15*	0	-0.04*	0	-0.03*	0	-0.02*
18	Thessaloniki pref.	-0.02	0.091	0.06*	0	-0.01	0.056	-0.03*	0	-0.00
	Crete									
19	Hania pref.	0.11*	0	-0.04*	0.007	-0.02*	0	-0.03*	0	-0.01*
20	Iraklio pref.	0.16*	0	-0.08*	0	-0.04*	0	-0.03*	0	-0.01*
21	Lasithion pref.	0.18*	0	-0.07*	0.004	-0.06*	0	-0.03*	0	-0.03*
22	Rethimnon pref.	0.09*	0	0.01	0.514	-0.04*	0	-0.03*	0	-0.03
	E. Macedonia & Thrace									
23	Drama pref.	-0.03	0.147	0.13*	0	-0.05*	0	-0.04*	0	-0.01
24	Evros pref.	0.01	0.4	0.08*	0	-0.05*	0	-0.04*	0	-0.01
25	Kavala pref.	-0.01	0.42	0.10*	0	-0.04*	0	-0.03*	0	-0.02
26	Rodopi pref.	0.07*	0	-0.02	0.433	-0.05*	0	0.02*	0	-0.02
27	Xanthi pref.	-0.01	0.526	0.11*	0	-0.05*	0	-0.03*	0	-0.01
	Epiros									
28	Arta pref.	-0.05*	0.001	0.09*	0	-0.02*	0.007	-0.02*	0	0.01*
29	Ioannina pref.	0.00	0.795	0.06*	0	-0.01	0.016	-0.03*	0	-0.02
30	Preveza pref.	-0.02	0.374	0.09*	0	-0.02	0.06	-0.03*	0	-0.03
31	Thesprotia pref.	0.03	0.092	0.05	0.017	-0.04*	0	-0.03*	0	-0.01
	Ionian Islands									
32	Kefallinia pref.	0.01	0.755	-0.00	0.923	0.04*	0	-0.03*	0	-0.01
33	Kerkira pref.	0.01	0.708	0.05*	0.004	-0.01	0.186	-0.03*	0	-0.02
34	Lefkas pref.	0.03	0.167	-0.02	0.331	0.03*	0.002	-0.02*	0	-0.02
35	Zakinthos pref.	-0.01	0.701	0.03	0.189	0.03*	0.007	-0.02*	0	-0.03
	Thessaly									
36	Karditsa pref.	-0.02	0.117	0.09*	0	-0.00	0.623	-0.03*	0	-0.03
37	Larisa pref.	-0.03	0.011	0.07*	0	0.01	0.294	-0.03*	0	-0.02
38	Magnesia pref.	-0.01	0.275	0.08*	0	-0.02*	0.007	-0.03*	0	-0.02
39	Trikala pref.	-0.00	0.928	0.06*	0	-0.01	0.429	-0.03*	0	-0.02
	N. Aegean Islands									
40	Hios pref.	0.07*	0	0.03	0.225	-0.04*	0	-0.03*	0	-0.03
41	Lesvos pref.	-0.01	0.553	-0.02	0.356	0.06*	0	-0.01*	0	-0.02
42	Samos pref.	-0.05*	0.008	-0.05	0.024	0.12*	0	0.01	0.121	-0.02

Table 3 (continued): The seemingly unrelated system of the 2000 election percentage results with prefectural regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
	S. Aegean Islands									
43	Cyclades pref.	0.05*	0	0.04*	0.002	-0.05*	0	-0.03*	0	-0.01*
44	Dodekanese pref.	0.10*	0	0.00	0.761	-0.05*	0	-0.03*	0	-0.03
	S. & E. Peloponnese									
45	Argolis pref.	-0.02	0.113	0.12*	0	-0.04*	0	-0.03*	0	-0.02
46	Arkadia pref.	0.02	0.155	0.06*	0	-0.03*	0	-0.03*	0	-0.02
47	Korinthia pref.	0.02	0.287	0.08*	0	-0.05*	0	-0.03*	0	-0.02
48	Lakonia pref.	-0.07*	0	0.17*	0	-0.04*	0	-0.04*	0	-0.03*
49	Messenia pref.	-0.02	0.189	0.11*	0	-0.03*	0	-0.03*	0	-0.03
	W. Greece									
50	Aetolia-Akarnania	0.02	0.062	0.06*	0	-0.03*	0	-0.04*	0	-0.01
51	Ahaia pref.	0.09*	0	0.00	0.9	-0.04*	0	-0.03*	0	-0.02
52	Ilis pref.	0.04*	0.009	0.04*	0.006	-0.05*	0	-0.02*	0	-0.01*
	W. Macedonia									
53	Florina pref.	-0.02	0.196	0.12*	0	-0.04*	0	-0.04*	0	-0.02
54	Grevena pref.	0.01	0.509	0.05	0.044	-0.01	0.241	-0.03*	0	-0.02
55	Kastoria pref.	-0.07*	0	0.15*	0	-0.04*	0	-0.03*	0	-0.01*
56	Kozani pref.	-0.01	0.677	0.08*	0	-0.03*	0	-0.03*	0	-0.02
	Population density (net of effects numbered 2-56)									
57	People/km^2	0.00*	0.002	-0.00*	0	0.00*	0	0.00*	0	0.00*
58	People/km^2 - square	-0.00	0.088	0.00*	0	-0.00*	0.001	-0.00	0.035	-0.00
	Demographic composite-on (net of effects numbe-red 2-58)									
59	% aged 0-14 years	0.21	0.494	0.02	0.965	-0.15	0.304	-0.13	0.051	0.05
60	% women aged 15-24	0.18	0.573	-0.10	0.785	-0.06	0.701	-0.10	0.145	0.08
61	% men aged 15-24	0.23	0.402	-0.00	0.996	-0.20	0.132	-0.10	0.07	0.07
62	% women aged 25-34	0.37	0.349	-0.46	0.309	0.11	0.575	-0.00	0.963	-0.01
63	% men aged 25-34	-0.23	0.502	0.81	0.04	-0.36	0.03	-0.15	0.037	-0.07
64	% women aged 35-44	-0.34	0.394	0.36	0.434	-0.08	0.682	0.11	0.19	-0.05
65	% men aged 35-44 (ref.)									
66	% women aged 45-54	-0.80	0.02	0.61	0.126	-0.06	0.723	0.16	0.033	0.10
67	% men aged 45-54	1.20*	0.002	-0.77	0.082	-0.34	0.068	-0.20	0.015	0.10
68	% women aged 55-64	-0.16	0.65	0.26	0.512	-0.13	0.413	-0.03	0.654	0.06
69	% men aged 55-64	0.53	0.145	-0.29	0.489	-0.06	0.718	-0.13	0.083	-0.05
70	% women aged 65-74	0.69	0.047	-0.51	0.201	-0.08	0.631	-0.09	0.211	-0.01
71	% men aged 65-74	-0.21	0.556	0.40	0.315	-0.22	0.197	-0.12	0.1	0.14
72	% women aged ≥ 75	-0.06	0.86	0.12	0.743	-0.07	0.628	-0.02	0.725	0.03
73	% men aged ≥ 75	0.28	0.447	0.09	0.83	-0.19	0.282	-0.06	0.462	-0.12
	Education composition (net of effects numbered 2-73)									
74	% w/o qualification (ref.)									
	% are women with									
75	6-year school cert.	-0.30	0.021	-0.09	0.549	0.26*	0	0.06	0.024	0.06
76	9-year school cert.	-0.37	0.224	0.11	0.759	0.27	0.06	-0.03	0.654	0.02
77	12-year school cert.	-0.68*	0.002	0.48	0.059	0.15	0.157	-0.01	0.825	0.06
78	post-secondary cert.	-0.58	0.326	-0.32	0.642	0.47	0.096	0.32*	0.009	0.10
79	bachelor degree	-0.30	0.384	-0.75	0.062	0.77*	0	0.13	0.081	0.15
80	postgraduate degree	-6.22*	0.007	3.97	0.132	1.55	0.161	0.68	0.158	0.03

Table 3 (continued): The seemingly unrelated system of the 2000 election percentage results with prefectural regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
	Education composition (net of effects numbered 2-73)									
	% are men with									
81	6-year school cert.	0.49*	0.005	-0.06	0.77	-0.31*	0	-0.09	0.013	-0.04
82	9-year school cert.	0.13	0.591	-0.00	0.99	-0.16	0.186	0.03	0.515	-0.01
83	12-year school cert.	0.70*	0	-0.47	0.034	-0.21	0.022	-0.04	0.276	0.03
84	post-secondary cert.	-0.04	0.941	0.77	0.245	-0.49	0.08	-0.09	0.458	-0.15
85	bachelor degree	0.51	0.107	0.15	0.681	-0.57*	0	0.04	0.589	-0.12
86	postgraduate degree	2.50	0.054	0.95	0.523	-2.26*	0	-0.80*	0.003	-0.39
	Workforce involvement (net of effects numbered 2-86)									
	% are women									
87	not participating	0.18	0.075	-0.08	0.514	-0.04	0.392	-0.06*	0.007	-0.01
88	unemployed	0.62	0.082	-0.56	0.173	0.03	0.858	-0.16	0.037	0.06
89	empl. in hotels etc.	0.35	0.158	-0.07	0.797	-0.23	0.052	0.04	0.445	-0.09
90	empl. in priv. h/holds	0.67	0.525	-1.79	0.138	0.28	0.576	0.41	0.066	0.43
	% are men									
91	not participating	0.23	0.054	-0.24	0.069	-0.05	0.341	0.08*	0.002	-0.00
92	unemployed	-0.66	0.024	0.42	0.213	0.14	0.301	0.16	0.011	-0.06
93	empl. in trade etc.	0.04	0.888	-1.12*	0.001	0.59*	0	0.14	0.025	0.34
94	empl. in transport etc.	-0.41	0.15	0.25	0.444	0.14	0.317	-0.07	0.213	0.10
95	empl. in finance etc.	2.42	0.147	0.45	0.812	-2.06*	0.01	-0.17	0.624	-0.64
96	empl. in education	3.51*	0	-3.03*	0.001	0.19	0.61	0.12	0.457	-0.80
97	empl. in priv. h/holds	-13.89*	0	22.27*	0	-2.37	0.197	-3.14*	0	-2.86
	Workforce involvement (net of effects numbered 2-97)									
	% are women occupied									
98	as clerks	0.08	0.889	-0.72	0.295	0.59	0.041	0.04	0.769	0.01
99	as craft workers	-0.45	0.448	0.66	0.331	0.02	0.934	-0.20	0.103	-0.03
	% are men occupied									
100	as technicians	1.13	0.06	-2.10*	0.002	0.67	0.02	-0.06	0.617	0.37
101	as craft workers	0.21	0.143	-0.63*	0	0.15	0.03	0.09*	0.003	0.17
102	as unskilled workers	-0.16	0.324	0.08	0.656	-0.03	0.703	0.02	0.478	0.08
	(net of effects numbered 2-102)									
	% are classified as									
103	female employers	0.88	0.033	-0.53	0.264	-0.30	0.126	-0.10	0.264	0.05
104	male employers	-0.48	0.033	0.59	0.023	-0.10	0.357	0.04	0.385	-0.05
105	employees & self-employed, and/or involved in other sectors and occupations (ref.)									
	Statistics: χ^2	1098.24		1031.69		1173.94		1166.53		
	R^2	0.5181		0.5043		0.5366		0.5390		

Note: Asteristcs (*) denote rejection of the hypothesis of equality to zero at the 1% margin of error, as estimated in analyses that rely on samples. In the last column asterisks indicate confidence for the signs of the residual function's coefficients on account of the high z-statistics obtained in all previous regressions.

The Socialist party's intercept is set at 43% of the vote. At the same time the party's performance improves substantially in the Hania, Iraklion and Lasithion prefectures of Crete, the neighboring Dodekanese, and areas with higher-than-average population shares of men with postgraduate qualifications or employed in the financial and education industries; and

deteriorates in constituencies possessing higher-than-average population shares of women with postgraduate qualifications and men employed in private households.

The Conservative party's intercept is set at 38% of the vote. The party's performance improves substantially in the Central Greek prefectures of Evritania, Fokis, and Fthiotis, the Peloponnesian prefectures of Argolis, Lakonia, and Messenia, the Macedonian prefectures of Drama, Florina, Halkidiki, Kastoria, Kavala, Kilkis, Pella, Pieria, and Serre, the neighboring prefecture of Xanthi, and areas with higher-than-average population shares of women with postgraduate qualifications and men employed in private households; and deteriorates in constituencies possessing higher-than-average population shares of men employed in the education industry or as technicians.

The Communist party's intercept is set at 8% of the vote. The party's performance improves substantially in the insular prefecture of Samos, and deteriorates in constituencies possessing higher-than-average population shares of men with postgraduate qualifications or employed in private households and the financial sector; while the intercept regarding the Confederation of the Left is set at 5% of the vote, and the party's performance deteriorates in areas with a higher-than-average population shares of men employed in private households.

Acknowledging that the aforementioned spatial dummies may also absorb or reflect to some or considerable extent the impact of demographic and other factors considered, and bearing in mind the reasoning for exploring and incorporating the spatial patterns of the omitted variables (developed in the Introduction), we turn to an alternative approach in which no spatial determinants are assumed or regressors used (at least in the first stage): Model II.

4. An Empirical Analysis Of The Electoral Results Based On The Characteristics Of The Population But No Spatial Regressors

Like before, we analyze the vote shares that each party received across the country's municipalities within a SUR framework. The results are presented in Table 4, and, once again, men aged 35-39 with minimal school qualifications employed in the same sectors and occupations serve as the reference population. Understandably, in the absence of spatial arguments (conventional or other), the coefficients produced are likely to be more biased than those recovered via Model I.[6] So the reader who is interested in the more refined, final results may skip to Section 5. The one who peruses the findings will note that (a) the statistical fits of the estimated functions are rather low (the R^2 values range between 18.7 and 36.0%), and (b) a small number of coefficients (actually, nine) associated with modified covariates become quite more prominent compared to the previous model. In this setting:

The Socialist party's intercept is set at 44% of the vote; the party's performance improves substantially in areas with higher-than-average population shares of men aged 45-54 years, 75 and older, in possession of postgraduate qualifications or employed in education and finance or as technicians; and deteriorates in constituencies with higher-than-average population shares of women with postgraduate qualifications or employed as craft-workers, and men employed in private households.

The Conservative party's intercept is set at 43% of the vote. The party's performance improves substantially in areas with a modest or high out-of-town voter element, and higher-than-average population shares of women with postgraduate qualifications or employed as craft-workers, and men employed in private households; and deteriorates in constituencies possessing higher-than-average population shares of men aged 45-54 years, 75 or older, employed in the education industry or as technicians, and women employed as clerks.

The Communist party's intercept is set at 6% of the vote, and the intercept regarding the Confederation of the Left at 3%. Again, the former party's performances deteriorates in constituencies possessing higher-than-average population shares of men with postgraduate qualifications or employed in private households and the financial sector; while the latter party's performance deteriorates in areas with a higher-than-average population shares of men employed in private households.

[6] Regrettably, in both cases, data limitations prevent us from considering factors, such as the presence of social groups with particular sensitivities or issues: religious, linguistic, historical, refugee or other.

Turning our attention to the residuals, we note that: (a) The Socialist party attracts an inordinately high percentage of the voting public in two municipalities in north-western Peloponnese, namely, Tritea and Kalentzion (the homeland of the party's founder); three municipalities in eastern Crete (Itanos, Lefki and Sitia), and a municipality situated on a neighboring cluster of South Aegean islands (Olympos-in-Karpathos). Obviously, the party's overall overall performance in these places cannot be adequately explained by the factors

Table 4: The seemingly unrelated system of the 2000 election percentage results without spatial regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
1	Constant	0.44*	*0*	0.43*	*0*	0.06*	*0*	0.03*	*0*	0.05
2	Out-of-town (dummy)	0.00	*0.381*	0.03*	*0*	-0.01*	*0*	-0.01*	*0*	-0.01
	Population density (net of the previous effect)									
3	People/km^2	0.00	*0.97*	-0.00*	*0*	0.00*	*0*	0.00*	*0*	0.00
4	People/km^2 - square	0.00	*0.973*	0.00*	*0*	-0.00*	*0*	-0.00*	*0*	0.00
	Demographic composition (net of effects numbered 2-4)									
5	% aged 0-14 years	1.43*	*0*	-1.66*	*0*	0.18	*0.309*	-0.05	*0.435*	0.11
6	% women aged 15-24	1.07*	*0.004*	-1.07*	*0.01*	-0.06	*0.758*	-0.01	*0.926*	0.06
7	% men aged 15-24	1.11*	*0*	-1.37*	*0*	0.19	*0.203*	-0.01	*0.841*	0.08
8	% women aged 25-34	1.58*	*0.001*	-1.91*	*0*	0.31	*0.182*	0.01	*0.95*	0.01
9	% men aged 25-34	0.91	*0.021*	-0.80	*0.072*	-0.06	*0.776*	-0.08	*0.313*	0.02
10	% women aged 35-44	-0.23	*0.62*	-0.11	*0.836*	0.15	*0.513*	0.18	*0.047*	0.00
11	% men aged 35-44 (ref.)									
12	% women aged 45-54	-0.08	*0.84*	-0.91	*0.033*	0.35	*0.069*	0.40*	*0*	0.23
13	% men aged 45-54	2.46*	*0*	-2.40*	*0*	-0.02	*0.935*	-0.19	*0.028*	0.14
14	% women aged 55-64	0.96	*0.011*	-1.46*	*0.001*	0.34	*0.078*	0.08	*0.29*	0.07
15	% men aged 55-64	0.62	*0.139*	-0.48	*0.31*	0.01	*0.975*	-0.13	*0.117*	-0.02
16	% women aged 65-74	0.83	*0.034*	-0.95	*0.03*	0.30	*0.13*	-0.15	*0.06*	-0.03
17	% men aged 65-74	0.38	*0.332*	-0.52	*0.239*	-0.08	*0.689*	-0.03	*0.74*	0.24
18	% women aged ≥ 75	0.90	*0.014*	-1.36*	*0.001*	0.43	*0.021*	0.04	*0.542*	-0.02
19	% men aged ≥ 75	2.31*	*0*	-2.35*	*0*	-0.02	*0.928*	0.11	*0.173*	-0.05
	Education composition (net of effects numbered 2-19)									
20	% w/o qualification (ref.)									
	% are women with									
21	6-year school cert.	-0.06	*0.643*	-0.34	*0.015*	0.26*	*0*	0.08*	*0.001*	0.06
22	9-year school cert.	0.27	*0.398*	-0.15	*0.67*	0.02	*0.891*	-0.23*	*0*	0.09
23	12-year school cert.	-0.12	*0.607*	-0.09	*0.731*	0.17	*0.171*	-0.02	*0.733*	0.06
24	post-secondary cert.	-1.39	*0.04*	-0.15	*0.843*	1.05*	*0.002*	0.21	*0.12*	0.28
25	bachelor degree	-0.53	*0.145*	-0.35	*0.387*	0.76*	*0*	-0.08	*0.275*	0.19
26	postgraduate degree	-4.88	*0.077*	3.71	*0.231*	0.45	*0.752*	0.85	*0.125*	-0.12
	% are men with									
27	6-year school cert.	0.46*	*0.01*	0.04	*0.826*	-0.33*	*0*	-0.13*	*0*	-0.05
28	9-year school cert.	-0.22	*0.413*	0.48	*0.103*	-0.19	*0.156*	0.01	*0.91*	-0.08
29	12-year school cert.	0.38	*0.068*	-0.07	*0.751*	-0.21	*0.05*	-0.09	*0.024*	0.00
30	post-secondary cert.	0.58	*0.387*	-0.24	*0.754*	-0.23	*0.497*	0.10	*0.465*	-0.21
31	bachelor degree	0.54	*0.11*	0.18	*0.63*	-0.63*	*0*	0.11	*0.1*	-0.20
32	postgraduate degree	2.31	*0.143*	0.95	*0.592*	-2.21*	*0.006*	-0.79	*0.012*	-0.26
	Workforce involvement (net of effects numbered 2-32)									
	% are women									
33	not participating	0.01	*0.943*	-0.02	*0.863*	0.04	*0.459*	-0.07*	*0.003*	0.04
34	unemployed	-0.05	*0.898*	-0.03	*0.957*	0.16	*0.435*	-0.24*	*0.004*	0.15
35	empl. in hotels etc.	1.58*	*0*	-1.19*	*0*	-0.24	*0.053*	0.03	*0.481*	-0.18
36	empl. in priv. h/holds	0.64	*0.602*	-1.82	*0.188*	0.15	*0.808*	0.71*	*0.004*	0.32

Table 4 (continued) : The seemingly unrelated system of the 2000 election percentage results without spatial regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. ofl Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
	Workforce involvement (net of effects numbered 2-32)									
	% are men									
37	not participating	0.34	*0.011*	-0.34	*0.02*	-0.08	*0.251*	0.08*	*0.002*	0.00
38	unemployed	-0.53	*0.102*	0.45	*0.22*	0.03	*0.842*	0.15	*0.018*	-0.10
39	empl. in trade etc.	-0.35	*0.295*	-0.91	*0.014*	0.66*	*0*	0.12	*0.063*	0.47
40	empl. in transport etc.	-0.11	*0.711*	-0.30	*0.371*	0.41*	*0.008*	-0.04	*0.485*	0.05
41	empl. in finance etc.	4.66	*0.011*	0.23	*0.911*	-4.05*	*0*	-0.12	*0.743*	-0.71
42	empl. in education	3.70*	*0*	-3.37*	*0.001*	0.32	*0.499*	0.10	*0.592*	-0.75
43	empl. in priv. h/holds	-12.95*	*0.004*	20.81*	*0*	-3.50	*0.128*	-2.65*	*0.003*	-1.71
	(net of effects numbered 2-43)									
	% are women occupied									
44	as clerks	1.36	*0.035*	-2.15*	*0.003*	0.36	*0.276*	0.19	*0.138*	0.24
45	as craft workers	-2.12*	*0*	3.09*	*0*	-0.54	*0.079*	-0.40*	*0.001*	-0.02
	% are men occupied									
46	as technicians	2.40*	*0*	-2.00*	*0.007*	-0.35	*0.305*	-0.21	*0.117*	0.15
47	as craft workers	0.08	*0.61*	-0.37	*0.047*	0.06	*0.504*	0.09*	*0.005*	0.13
48	as unskilled workers	-0.45	*0.013*	0.58*	*0.004*	-0.11	*0.237*	-0.04	*0.323*	0.01
	(net of effects numbered 2-48)									
	% are classified as									
49	female employers	1.01	*0.036*	-0.28	*0.6*	-0.76*	*0.002*	-0.14	*0.136*	0.17
50	male employers	-0.71*	*0.006*	0.74	*0.011*	0.09	*0.515*	0.01	*0.801*	-0.13
51	employees, self-employed, and/or involved in other sectors and occupations (ref.)									
	Statistics: χ^2	355.67		357.68		221.06		520.20		
	R^2	0.2582		0.2687		0.1867		0.3602		

Note: Asteristcs (*) denote rejection of the hypothesis of equality to zero at the 1% margin of error, as estimated in analyses that rely on samples. In the last column asterisks indicate confidence for the signs of the residual function's coefficients on account of the high z-statistics obtained in all previous regressions.

considered in the regression or factors which are highly correlated with them. (b) The Conservative party attracts an inordinately high percentage of the vote in two mountainous districts in western and southern Epiros (Fourka and Anogion, respectively), as well as in three municipalities in the south-eastern and eastern Peloponnese (Itilon, Molai, Ahladokampos). (c) The Communist party attracts an inordinately high percentage of the vote on the island of Ikaria and two municipalities on the island of Lesvos (Mandamadou and Agiasos); (d) the Confederation of the Left in a municipality in Thrace (Arriana); and (e) the parties that do not enter into parliament in a municipality in Epiros (namely, Melissourgi, birthplace of the leader of the fifth largest party, an offshoot of the Socialist party), and a municipality in north-western Peloponnese (Foloi).

As these localities and several localities around them exhibit similar, though smaller, residuals, it is worth considering if each such cluster might constitute a territorial formation or part of broad territorial formation that is differentiated from other localities in terms of some feature which is missing from the analysis. Next we attempt to construct a set of fresh spatial arguments molded from the clues supplied from the residuals of this Model. Understandably, the residuals are orthogonal to the demographic and other regressors.

5. An Algorithm For Devising Fresh Territorial Regressors After The Residuals

The procedure developed hereinafter both deviates from and blends aspects of the two main empirical approaches that deal with space: (a) The approaches that rely on the use of

dummy variables standing for territorial partitions but make no attempt to exploit the spatial information held in the data, as if the latter is properly (perpetually?) captured by the established, conventional partitions. (b) The approaches that utilize the spatial structure of the data by integrating it in the regression via a weight matrix in order to correct the non-spatial coefficients (e.g., coefficients regarding age, education, etc.) but may not be easily or properly employed in Greece due to the country's irregular, very idiosyncratic terrain.[7]

This said, it falls in with the belief that nearby things may exhibit similar behavior (or may be more important in affecting behavior) compared to more distant things. Yet, it also recognizes that (i) not all nearby things exhibit similar behavior (or are always important in affecting behavior), and (ii) not all phenomena (attitudinal, environmental, income and employment or specialization-related or other) spill over in space in the same manner. Indeed, it is agnostic in this respect, and refrains from modeling the information contained in the data as a smooth function of space. So while it looks into the features of the adjacent or neighboring observations, it also by-and-large lets the patterns provided by the data guide the grouping or indicate the structure. There is good rationalization for the occurrence of these patterns. If relevant factors are missing (see note 6), then their impact, including their spatial concentrations and dispersions, is channeled in the error term. A suggestion expressed by Nass and Garfinkle (1992) serves as point of departure. In dealing with an omitted variable, they proposed the incorporation of a proxy that tracks the spatial pattern displayed by the extreme positive or negative residuals. Yet, instead of searching for such a proxy or resorting to assumptions regarding its source, here it is devised. For if the spatial patterns of the residuals (whether positive or negative) reflect the impact of the omitted factors, why not treat the issue of missing information, associations or underlying relationships among localities as a *black box*, the features of which may be discovered with the help of algorithms and econometrics? Essentially, a binary proxy (a dummy variable) is constructed in order to indicate the presence of a locality (observation) or cluster of localities that exhibit a preference (towards one or two or more political parties) that cannot be explained by the available factors; and then inserted in the regression so that the analyst, at the very least, may explore (or experiment with) it. Constructing dummies tailored to the spatial imprints of the (unexplained) portion of the regression is not only the simplest solution one can try before turning to other answers;[8] but also allows the analyst to:

- Capture the spatial component of the unknown or missing factors and reduce the gap caused from their unavailability.
- Estimate (a) the level of dissimilarity of the identified territorial formations from the intercept as in conventional models (e.g., Model I), as well as (b) the impact and significance of the spatial component (or the spatial dimension) of the omitted variable(s) across space. This is especially attractive if it does not consume many degrees of freedom compared to the conventional model.

We outline the process of grouping localities into wider spatial formations in the following steps:

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[7] The contiguity or proximity weight matrix, is often considered in empirical analyses in a good number of countries and cases with particular morphological features, such as the contiguous states of the USA, in order to provide a spatial representation of the territorial units (with the off-diagonal elements of the matrix capturing the contiguity or proximity of the observations) so that all units are connected with at least one other unit. Thus, there can be no "islands". In our view, the contiguity matrix is not suited to handle the country's striking polynesian feature; while the proximity matrix is likely to mix Euclidean land with sea distances and assume they are the same; when, in fact, we may not really know how connections are made. Using simulations techniques and relying on the map coordinates of Greece, Tsimpanos et al. (2012) cast doubts as to whether the seemingly improved (in relation to the OLS) results of the geographically weighted regression are not in fact spurious (misleading).

[8] To illustrate via a contraposition, we can turn to McMillen's (2003) fairly straightforward simulation revolving around the existence of a spatial dummy (conspicuous if the residuals were projected on a map) which the empirical analyst fails to notice, thus ending up with an incorrectly specified model seemingly suffering from spatial autocorrelation, which not even a spatially autoregressive, as well as a locally weighted regression model can eradicate. In a way, the recovery of a problematical result as a consequence of a wrong assumption, serves as a sobering reminder to look for simple answers first, in spite of the capacity to treat complex problems with sophisticated solutions.

I. Run the five regressions without spatial regressors, as in Model II. (The regressors are modified so as to be orthogonal towards each other, for the reasons mentioned in the penultimate paragraph of Section 2.)
II. Estimate the residual values in each of the five equations. (The outcome is the one described in the penultimate paragraph of Section 4). Hence, each locality (voting district) is now characterized (even differentiated from other observations) by the values and combination of values of its five residuals.[9]
III. Assign the same dummy to localities situated in close proximity (including localities on opposite coasts, separated/linked by water) if each of the five residuals associated with one locality are similar to the respective residuals of the other locality: similar with regard to exceeding or not a certain threshold (here this threshold is initially set to 0.04).[10] Assign different dummies to distinct groupings (formations) and to isolated localities.
IV. Re-run the four SURs in terms of the said spatial dummies, and the other available regressors. (As in Step I, modify the covariates so that they are orthogonal towards the dummies and to each other). Examine separately each and every observation's inclusion in a grouping to ensure the formation's homogeneity. If the observation's exclusion boosts the coefficient's significance then the observation is excluded from the grouping. The spatial dummies associated with coefficients which are statistically different from zero at the 1% level are retained.
V. Estimate the residual values in each of the five equations. As in Step II assign the same spatial dummy to localities in close proximity if each of the five residuals associated with one locality are similar tothe respective residuals of the other: similar with regard to exceeding or not a lower threshold (here set to 0.025) in all five equations, is the same.[11] Assign different dummies to distinct groupings (formations). Repeat step IV.
VI. Repeat step V for the remaining observations (i.e., those associated with smaller positive residual values).
VII. Band together neighboring formations identified in the previous steps if their coefficients (across regressions) are similar by replacing their initial dummies with a new (common) dummy.[12] Naturally, the degrees of freedom increase. Re-estimate the SUR system with the new dummies.

Eventually, the procedure yields 55 spatial formations, one of which serves as the reference area and the rest correspond to micro-regions (clusters or districts) and outliers. To visual aid the reader the formations are displayed in Map 2. The map reveals a number of spatial voting preference patterns or concentrations which (a) are attributable to the unknown (unavailable) factors; and (b) bear little or no connection to the country's thirteen broad regional and 54 narrow sub-regional (prefectorial) partitions along the lines of which the parliamentary seats are allocated (see Map 1). The second observation is striking considering the interest of candidates, elected officials and political parties in resolving matters and building loyalties over the years, along these particular territorial scales. Indeed, it seems that if a spatial organization is not imposed on the data, it may not pop up at all; and if questioned,

[9] For instance, one locality may exhibit (be associated with) a large positive residual value in the first equation, another locality may exhibit large positive residuals values in both the first and third equations, a third locality may exhibit a large positive residual value in the third equation and a large negative residual value in the fourth equation, and so on.

[10] The threshold value is not arbitrary. Commencing from observations that exhibit an unexplained high preference of 0.04 or more ensures the consideration of a modest number of territorial cores or formations. See also next note.

[11] We find that: (a) Observations associated with at least one residual value in excess of 0.04 turn out to be associated with a statistically significant positive coefficient. (b) A good number of observations the residuals of which range between 0.025 and 0.04 also turn out to be associated with statistically significant coefficients, while other observations associated with residual values in the same range turn out to be associated with less significant coefficients in all four equations. (c) As a rule, observations with smaller residuals (<0.25) turn out to be associated with coefficients of low significance in all four equations. One suspects that in empirical analyses involving different phenomena and data, the thresholds will vary. Observations associated with high residuals values in the fifth equation are also given a dummy.

[12] In this fashion, a number of contiguous localities in Thrace associated with large positive residuals in both the first and fourth equations (which translates to high, yet otherwise unexplained, local support for both the first and the fourth political parties) are assigned the same dummy variable and treated as a potential territorial cluster.

as in this exercise, it may vanish. Last but not least, from a statistical point of view, we cannot but note that though the number of spatial arguments ($55 - 1 = 54$) is about the same as the number of formations employed in the prefectural model (53), the equation's fitness improves considerably.

6. A Regression With Spatial Dummy Variables That Capture Omitted Information

The empirical results generated by the new specification are presented in Table 5. (In the interest of brevity, a few secondary comments regarding the determinants are provided in note 13.) We notice that (a) the estimated intercepts resemble those obtained via Model II; (b) the R^2 values of the four functions reveal higher levels of explained overall variation (ranging between 65.1% and 77.4%) compared to Models I and II; (c) a small number of coefficients (four and one, respectively) associated with modified covariates, now become prominent while other coefficients (three and eight, respectively) become less prominent.

In this setting the Socialist party attracts a high percentage of the vote in the areas which are indicated in Map 2 with green, purple and yellow,[14] esp. in the north-western Peloponnese (a district that includes (encircles) the homeland of the party's founder and tends to favor the party even when it is not performing well nationwide, e.g., in the 2004 and 2007 elections); parts of western and central Crete, most of the eastern half of Crete and the south-eastern Aegean islands (i.e., districts which the party for a long time tended to win, election after election); a cluster of small islands in the central-eastern Aegean; and the districts of Agion Miron, Varikon and Orini on the island of Hios, in West and Central Macedonia, respectively. Likewise the Conservative party is favored in the areas that are indicated in Map 2 with blue (see note 14), esp. the western slopes of the central Pindos mountain-range; a succession of clusters encircling the western plain of Thessaloniki, Mt.Vermion and lake Vegoritis; the district of Pikrolimni on the eastern plain of Thessaloniki; a part of central Macedonia running from the eastern suburbs of Thessaloniki to mountains Falakron and Paggeon (including the birthplace of the party's founder); pockets of municipalities along the mid-course of the Kompsatos river on the Western Rodopi mountains; the districts of Nimfeon and Ktimenion in West Macedonia and Central Greece, respectively; and a pair of small islands on the north-western extremities of Greece. At the same time the Communist party enjoys a high percentage of the vote in the areas indicated in Map 2 with red, pink and purple (see note 14), esp. the islands of Lesvos, Inouse, Ikaria, and the municipality of Marathokampos on the west side of the island of Samos; the Confederation of the Left in the areas indicated with orange, yellow, pink and brown; and the other parties in the areas indicated in Map 2 with black and brown, esp. the municipalities of Agnanta and Melissourgi on the western slopes of the Athamanian mountains, and Foloi in north-western Peloponnese.

Overall, a good number of geographic power bases is delineated, as well as (gray-colored) areas where support is soft, for which party-strategists might have to compete. The yellow patch in the northern part of the Rodopi prefecture see (Model 3, #45) matches the zone inhabited by the Muslim community, rather than the whole prefecture (Model 1, #26). The red blots in the Ionian islands, Thessaly, the neighboring regions (Model 3, #22, 28) and elsewhere, reveal a solid pro-communist sub-stratum that hardly ever shows up in typical maps of election results and, apparently, is only partly evident in Model 1 (#32, 34-35, 37). The presence of high support in the birthplaces of the socialist and conservative party-founders and

[13] The highest correlations between dummies are observed between the out-of-town dummy variable and the localities of (a) the southern Pindos mountain-range (r = 15.57%), (b) Athens and a string of localities extending to the south Attic peninsula (r = -13.17%), and (c) the eastern slopes of the central Pindos mountain-range and its eastern extensions (r = 10.51%). Since the coefficients associated with the 6th and 7th regressors of the preliminary version of the model (Table 4) are most similar, in order to conserve degrees of freedom the variables are merged into variable 61. There is no loss in the information conveyed.

[14] The meaning of the colors used in Map 2 is as follows: green indicates an inordinately high electoral percentage favoring the Socialist party, blue stands for favoring the Conservative party, red for favoring the Communist party, orange for favoring the Confederation of the Left, black for favoring the parties that did not enter into parliament, purple for favoring both the Socialist and Communist parties, yellow for favoring both the Socialist party and the Confederation of the Left, pink for favoring both the Communist party and the Confederation of the Left, brown for favoring the Confederation of the Left and the other parties.

the neighboring localities suggests that localism (or a party-related home-state or home-town advantage) may endure long after a politician's passing.

Table 5: The seemingly unrelated system of the 2000 election percentage results with micro-regional regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
1	Constant	0.44*	*0*	0.43*	*0*	0.05*	*0*	0.03*	*0*	0.05
2	Out-of-town (dummy)	0.01*	*0*	0.02*	*0*	-0.01*	*0*	-0.01*	*0*	-0.01
	Spatial factors									
3	Athens, environs, belt extending from S. Peloponnese to C. Aegean	-0.05*	0	0.08*	0	-0.02*	0	-0.00*	0	-0.01
4	E. Athenian suburb of Zografou	-0.02	0.61	-0.04	0.329	0.02	0.35	0.03*	0.003	0.01
5	E. Athenian suburbs of Kesariani and Viron	-0.02	0.551	-0.10*	0	0.07*	0	0.04*	0	0.01
6	S. Athenian suburb of Ellinikon	-0.01	0.85	-0.09	0.025	0.07*	0.001	0.02	0.087	0.01
7	S. tip of Attica penins.	0.03	0.202	-0.10*	0	0.00	0.776	0.05*	0	0.01
8	String of W. Athenian suburbs	0.01	0.291	-0.12*	0	0.06*	0	0.02*	0	0.02
9	Cluster of NW. Athenian suburbs	0.02	0.339	-0.10*	0	0.02	0.092	-0.01	0.176	0.07
10	Cluster of N. Athenian suburbs	-0.03	0.14	-0.02	0.254	0.00	0.777	0.04*	0	0.01
11	N. Athenian suburb of Krionerion	-0.01	0.718	-0.08	0.046	0.08*	0	0.01	0.15	0.01
12	NW. Edge of Attica	-0.04	0.107	0.01	0.863	0.00	0.754	0.03*	0	0.00
13	Area by Mt. Elikon	0.01	0.781	-0.08*	0.009	0.06*	0	0.01	0.179	0.00
14	N. Euboean gulf	0.04*	0	-0.02	0.058	-0.01	0.057	-0.00	0.174	-0.01
15	NE. Euboea, Skopelos	-0.02	0.21	-0.06*	0.004	0.05*	0	0.04*	0	-0.01
16	Orei distr. in Euboea	-0.04	0.285	-0.02	0.56	0.07*	0.001	0.00	0.694	-0.01
17	Sourpi distr. in SW. Thessaly	-0.07	0.081	0.00	0.99	0.08*	0	-0.00	0.844	-0.01
18	Nea Ionia distr. in SW. Thessaly	0.01	0.719	-0.10	0.02	0.06*	0.006	0.03*	0.005	-0.00
19	Area between Paggasaean - Corinthian gulfs	-0.05*	0	0.08*	0	-0.02*	0	-0.01*	0.001	-0.01
20	NW. Peloponnese	0.11*	0	-0.07*	0	-0.02*	0	-0.01*	0	-0.01
21	Foloi dist. in NW. Peloponnese	-0.45*	0	-0.03	0.476	-0.01	0.55	0.01	0.127	0.48
22	String across Ionian Sea, Ambrakian gulf	-0.02	0.043	-0.04*	0	0.06*	0	0.00	0.03	-0.01
23	Pair of N. Ionian isles	-0.04	0.126	0.12*	0	-0.03	0.019	-0.02*	0.007	-0.02
24	Isles between Lefkas isl. and Akarnania	0.10*	0	-0.13*	0	0.03*	0.006	0.00	0.834	-0.01
25	Area by S. Valtos Mts.	0.05*	0.002	-0.02	0.201	-0.01	0.088	-0.01	0.02	-0.00
26	Ktimenion distr. in NW. Central Greece	-0.08	*0.039*	0.14*	*0.001*	-0.03	*0.123*	-0.01	*0.165*	-0.01
27	S. Pindos Mts., upper Pinios course	-0.07*	*0*	0.09*	*0*	-0.01	*0.014*	-0.01*	*0*	-0.01
28	SW. plain of Thessaly, lower Pinios course	-0.04*	*0*	-0.02	*0.04*	0.06*	*0*	-0.00	*0.942*	-0.01
29	E. mid-Pindos Mts.	0.05*	*0*	-0.05*	*0*	0.01	*0.246*	-0.00	*0.259*	-0.00
30	W. Athamanian Mts.	-0.02	*0.366*	-0.14*	*0*	0.03	*0.069*	0.01	*0.209*	0.13
31	W. Ioannina plateau	-0.02	*0.317*	-0.07*	*0*	0.08*	*0*	0.01	*0.142*	0.00
32	W. mid-Pindos Mts.	-0.13*	*0*	0.16*	*0*	-0.01	*0.339*	-0.00	*0.376*	-0.01
33	Distraton distr. in W.	-0.02	*0.546*	-0.02	*0.691*	0.07*	*0.001*	-0.01	*0.262*	-0.02

Table 5 (continued) : The seemingly unrelated system of the 2000 election percentage results with micro-regional regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
	Spatial factors									
34	Varikon distr. in W. Macedonia	0.14*	0	-0.13*	0.001	-0.00	0.96	-0.01	0.501	-0.00
35	Nimfeon distr. in W. Macedonia	-0.21*	0	0.24*	0	0.00	0.923	-0.01	0.375	-0.02
36	Ring about the W.Thessalonian plain-Mt.Vermion-lake Vegoritis	-0.08*	0	0.11*	0	-0.02*	0	-0.01*	0	-0.00
37	W. Krousia Mts.	-0.07*	0	0.04	0.082	0.05*	0	-0.00	0.315	-0.00
38	Pikrolimni distr. on the E. Thessalonian plain	-0.15*	0	0.13*	0.001	0.02	0.45	-0.01	0.546	0.00
39	String of E. Thessalonian suburbs	-0.00	0.942	-0.15*	0	0.08*	0	0.03*	0	0.04
40	Area between the Thessalonian plain and Falakron-Paggeon Mts.	-0.08*	0	0.10*	0	-0.02*	0	-0.01*	0	-0.00
41	Orini distr. on Menikion Mt.	0.12*	0.002	-0.09	0.034	-0.01	0.79	-0.01	0.149	-0.02
42	Rodolivos on Paggeon Mt.	-0.10	0.011	0.02	0.634	0.05	0.013	0.03*	0.001	-0.01
43	Kotili distr. on the W. Rodopi Mts.	0.01	0.847	-0.01	0.831	-0.01	0.628	0.03*	0.002	-0.02
44	Satre and Seleron districts on the W. Rodopi Mts.	-0.14*	0	0.19*	0	-0.02	0.12	-0.02	0.021	-0.01
45	E. Rodopi Mts.	0.07*	0	-0.10*	0	-0.03*	0	0.07*	0	-0.01
46	Mid-Evros course	-0.04*	0.007	0.07*	0	-0.02	0.021	-0.01*	0.001	0.00
47	Thasos isl, western Limnos isl., Agios Efstratios isl. in N. Aegean	-0.02	0.453	-0.04	0.063	0.07*	0	0.00	0.564	-0.01
48	Belt along N. Aegean from Thrace to Euboea	0.07*	0	-0.06*	0	-0.01*	0.008	-0.00	0.308	0.00
49	Lesvos isl., Ikaria isl, western Samos isl. in the Mid-NE. Aegean	-0.06*	0	-0.09*	0	0.13*	0	0.03*	0	-0.01
50	Agios Miron distr. on Hios isl.	0.19*	0	-0.15*	0	-0.02	0.289	-0.01	0.138	-0.00
51	Nea Ionia distr. on Hios isl.	0.03	0.483	-0.04	0.339	0.00	0.885	0.03*	0.002	-0.02
52	Panormos distr. in the Cyclades	0.09	0.016	-0.22*	0	0.01	0.557	0.03*	0.009	0.09
53	Fourni, Patmos and Donousa islands	0.13*	0	-0.14*	0	0.03*	0.005	0.00	0.754	-0.02
54	Suburbs of Iraklion	0.11*	0	-0.15*	0	0.04*	0.001	0.01	0.262	-0.01
55	E. Crete, SE. Aegean	0.15*	0	-0.11*	0	-0.03*	0	-0.00	0.267	-0.01
56	Parts of W. Crete	0.11*	0	-0.10*	0	-0.00	0.806	-0.00	0.277	-0.00
57	Rest of the country (ref.)									
	Population density (net of effects numbered 2-57)									
58	People/km^2	0.00	0.551	-0.00*	0	0.00*	0	0.00*	0	0.00
59	People/km^2 - square	0.00	0.922	0.00*	0	-0.00*	0	-0.00*	0	-0.00

Table 5 (continued) : The seemingly unrelated system of the 2000 election percentage results with micro-regional regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
	Demographic composition (net of effects numbered 2-59)									
60	% aged 0-14 years	0.74*	0	-0.78*	0	-0.01	0.95	-0.14*	0.008	0.19
61	% aged 15-24	0.64*	0	-0.68*	0	0.02	0.871	-0.09	0.041	0.12
62	% women aged 25-34	1.10*	0	-1.31*	0	0.10	0.51	0.08	0.275	0.03
63	% men aged 25-34	0.22	0.372	-0.13	0.612	-0.13	0.314	-0.10	0.091	0.15
64	% women aged 35-44	-0.60	0.034	0.31	0.31	0.03	0.866	0.10	0.141	0.16
65	% men aged 35-44 (ref.)									
66	% women aged 45-54	0.03	0.906	-0.56	0.02	0.02	0.864	0.21*	0	0.31
67	% men aged 45-54	1.61*	0	-1.62*	0	-0.06	0.701	-0.17	0.014	0.24
68	% women aged 55-64	0.34	0.139	-0.51	0.041	-0.01	0.963	-0.00	0.956	0.17
69	% men aged 55-64	0.14	0.572	-0.07	0.788	0.10	0.477	-0.16	0.011	-0.01
70	% women aged 65-74	0.99*	0	-0.74*	0.004	-0.12	0.364	-0.17*	0.005	0.04
71	% men aged 65-74	0.01	0.968	-0.23	0.375	-0.01	0.938	-0.08	0.176	0.31
72	% women aged ≥ 75	0.30	0.187	-0.38	0.117	0.06	0.621	0.00	0.994	0.02
73	% men aged ≥ 75	1.36*	0	-1.52*	0	0.05	0.726	0.04	0.524	0.07
	Education composition (net of effects numbered 2-73)									
74	% w/o qualification (ref.									
	% are women with									
75	6-year school cert.	-0.02	0.813	-0.18	0.025	0.13*	0.001	0.04	0.043	0.03
76	9-year school cert.	0.17	0.387	-0.27	0.202	0.13	0.218	0.05	0.316	-0.08
77	12-year school cert.	-0.02	0.895	0.04	0.759	-0.02	0.817	0.02	0.528	-0.03
78	post-secondary cert.	-0.55	0.165	-0.58	0.171	0.56*	0.009	0.36*	0	0.22
79	bachelor degree	-0.12	0.579	-0.36	0.119	0.37*	0.002	0.02	0.75	0.10
80	postgraduate degree	-7.41*	0	6.77*	0	0.28	0.757	0.52	0.215	-0.16
	% are men with									
81	6-year school cert.	0.14	0.158	0.03	0.758	-0.11	0.039	-0.07	0.011	0.00
82	9-year school cert.	-0.14	0.326	0.20	0.198	-0.02	0.773	0.01	0.766	-0.04
83	12-year school cert.	0.20	0.08	-0.25	0.038	0.06	0.335	-0.05	0.059	0.05
84	post-secondary cert.	-0.71	0.053	0.69	0.075	-0.04	0.835	0.09	0.308	-0.04
85	bachelor degree	0.13	0.487	-0.00	0.988	-0.18	0.074	0.08	0.082	-0.03
86	postgraduate degree	2.87*	0.002	-0.67	0.51	-1.22	0.017	-0.56	0.02	-0.42
	Workforce involvement (net of effects numbered 2-86)									
	% are women									
87	not participating	0.12	0.067	-0.06	0.423	-0.05	0.188	-0.01	0.521	-0.01
88	unemployed	0.21	0.393	-0.19	0.48	-0.06	0.684	-0.04	0.541	0.07
89	empl. in hotels etc.	0.50*	0.001	-0.15	0.461	-0.18	0.027	0.02	0.599	-0.21
90	empl. in priv. h/holds	1.01	0.196	-2.87*	0.001	0.96	0.024	0.71*	0	0.21
	% are men									
91	not participating	0.21*	0.008	-0.31*	0	0.01	0.872	0.08*	0	0.02
92	unemployed	-0.53*	0.008	0.44	0.041	0.13	0.225	0.06	0.205	-0.10
93	empl. in trade etc.	-0.18	0.365	-0.79*	0	0.44*	0	0.15*	0.003	0.38
94	empl. in transport etc.	0.04	0.845	-0.21	0.266	0.17	0.097	-0.05	0.298	0.07
95	empl. in finance etc.	3.89*	0	-0.64	0.589	-2.45*	0	0.06	0.819	-0.86
96	empl. in education	2.08*	0	-1.53	0.012	0.16	0.611	-0.02	0.862	-0.68
97	empl. in priv. h/holds	-8.40*	0.009	15.15*	0	-3.53	0.041	-2.26*	0.005	-0.96

Table 5 (continued) : The seemingly unrelated system of the 2000 election percentage results with micro-regional regressors, in terms of the 2001population characteristics across Greece's 1,022 localities

	Dependent variables:	Socialists		Liberal-Conserv.		Communists		Confed. of Left		Others
	Explanatory variables	coef. (1)	P>|z|	coef. (2)	P>|z|	coef. (3)	P>|z|	coef. (4)	P>|z|	residual of functions (1)-(4)
	Workforce involvement (net of effects numbered 2-96)									
	% are women occupied									
98	as clerks	1.57*	0	-2.23*	0	0.10	0.656	0.25	0.014	0.31
99	as craft workers	-1.69*	0	2.18*	0	-0.33	0.103	-0.28*	0.003	0.12
	% are men occupied									
100	as technicians	2.12*	0	-1.49*	0.001	-0.33	0.129	-0.21	0.004	-0.10
101	as craft workers	0.15	0.135	-0.46*	0	0.14*	0.009	0.09*	0.001	0.07
102	as unskilled workers	-0.43*	0	0.54*	0	-0.08	0.172	0.00	0.997	-0.03
	(net of effects numbered 2-101)									
	% are classified as									
103	female employers	0.68	0.019	-0.40	0.2	-0.34	0.032	-0.02	0.742	0.08
104	male employers	-0.38	0.017	0.62*	0	-0.17	0.053	0.01	0.931	-0.08
105	employees & self-employed, and/or involved in other sectors and occupations (ref.)									
	Statistics: χ^2	3012.49		3432.28		2222.41		1766.28		
	R^2	0.7467		0.7741		0.6891		0.6505		

Asteristcs (*) denote rejection of the hypothesis of equality to zero at the 1% margin of error, as estimated in analyses that rely on samples. In the last column asterisks indicate confidence for the signs of the residual function's coefficients on account of the high z-statistics obtained in all previous regressions.

The limited extent of the socialist-green spots in the northwestern Peloponnese and parts of Crete, compared to the large tracks of the country covered in conservative-blue, is in reverse proportion to the votes cast in the particular election; however indicates a rather narrow (extended) geographic support for the socialists (conservatives) if changes in policy-orientation due to deterioration in economic or other conditions, undermined the loyalties of sectoral, professional or other groups.

The remaining results suggest that the Socialist party's performance improved substantially in areas with a modest or high out-of-town voter element, and higher-than-average population shares of men with postgraduate qualifications, employed in education and finance or as technicians; and deteriorated in constituencies possessing higher-than-average population shares of women with postgraduate qualifications and men employed in private households. The Conservative party's performance improved substantially in areas with higher-than-average population shares of women with postgraduate qualifications or employed as craft-workers, and men employed in private households; and deteriorated in constituencies possessing higher-than-average population shares of women employed in private households or as clerks. The Communist party's performance deteriorated in areas with higher-than-average population shares of men employed in finance; and both the Communist party's and the Confederation of the Left's performance deteriorated in areas with higher-than-average population shares of men employed in private households.

7. Summary And Conclusions

In closing, the paper proposes a methodology for incorporating the spatial patterns of the residuals in the regression, on the grounds they may capture unobserved characteristics and improve the explanatory capacity of the empirical analysis. In essence, localities are grouped or not grouped together in spatial formations, in a manner that fits the data. This may be especially handy in analyses dealing with irregular or idiosyncratic terrains, in which cases the conventions employed to treat spatial association may seem inappropriate or inconsistent.

Map 1: The regional and sub-regional organization of Greece

Key for colors (commencing from north-west, moving clockwise)

Ionian Islands
- Kerkira prefecture
- Lefkas prefecture
- Kefallinia prefecture
- Zakinthos prefecture

Epiros
- Thesprotia prefecture
- Ioannina prefecture
- Arta prefecture
- Preveza prefecture

West Macedonia
- Kastoria prefecture
- Florina prefecture
- Kozani prefecture
- Grevena prefecture

Central Macedonia
- Pella prefecture
- Kilkis prefecture
- Serre prefecture
- Thessaloniki prefect.
- Halkidiki prefecture
- Holy Mt. peninsula
- Pieria prefecture
- Imathia prefecture

East Macedonia and Thrace
- Drama prefecture
- Xanthi prefecture
- Rodopi prefecture
- Evros prefecture
- Kavala prefecture

North Aegean Islands
- Lesvos prefecture
- Hios prefecture
- Samos prefecture

South Aegean Islands
- The Cyclades
- The Dodekanese

Crete
- Hania prefecture
- Rethimnon prefecture
- Iraklion prefecture
- Lasithion prefecture

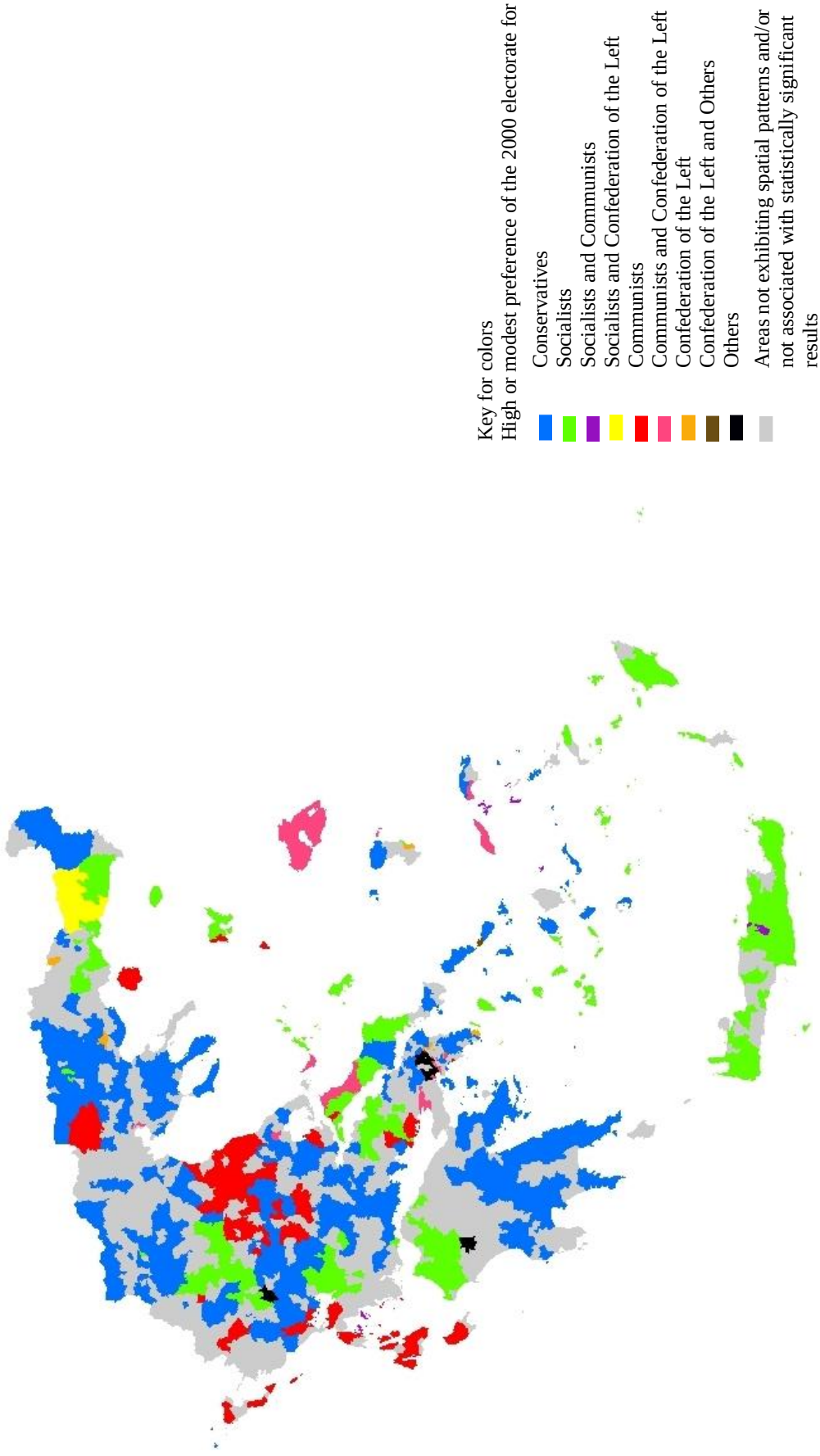
Attiki
- Western Attiki prefecture
- Athens prefecture
- Eastern Attiki prefecture
- Piraeus prefecture

South and East Peloponnese
- Korinthia prefecture
- Argolis prefecture
- Arkadia prefecture
- Lakonia prefecture
- Messenia prefecture

Western Greece
- Aetolia & Akarnania prefecture
- Ahaia prefecture
- Ilis prefecture

Thessaly
- Trikala prefecture
- Larisa prefecture
- Magnesia prefecture
- Karditsa prefecture

Central Greece and Euboea
- Evritania prefecture
- Fthiotis prefecture
- Euboea prefecture
- Boeotia prefecture
- Fokis prefecture



Map 2: Portrayal of the spatial coefficients associated with low error probability values (≤1%) as per the results of Table 5

The methodology is applied to the 2000 election results in Greece. It leads to the identification of a number of demographic, educational, sectoral and occupational groups, as well as distinct territorial groupings of constituencies with similar voting disposition (indicated in Map 2), the effects of which are quite large, as well as a number of constituencies, the effects of which appear to be smaller. The regression-fit improves considerably compared to the version that relies on the conventional territorial specification.

Thus, by departing from the empirical approaches that rely on typical spatial dummies, the paper shows that some spatial effects that might ordinarily be blurred within conventional partitions may be important and, at the very least, their distinct impact ought to be considered. The lesson is probably useful to a broader readership than the one concerned with the identification of electoral areas and the design of spatially-tailored voter-related campaigns in Greece: For instance, analysts and policy-makers interested in identifying through statistics, health, education, crime or other policy areas or areas the distinctiveness of which ought to be surveyed. Nevertheless, the exercise is likely to interest nominees for political office and their advisors, even if the particular period and incident are somewhat disassociated from current developments in Greek politics.

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AGE AND COHORT ANALYSIS OF REGIONAL MIGRATION IN TURKEY

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Abstract

This article investigates current age cohort effects on regional migration in Turkey and compares the results with the pattern for the period 1985-1990. The vast amount of migration from the economically backward east and southeast regions to the more developed regions in the west of the country has been continuing for the last half-century. Age cohort analysis of regional migration is given for the periods 1985-1990, 2007-2008 and 2010-2011. Comparison of the results for each period reveals that while migration propensity peaked between the ages of 25-29 for the 1985-1990 period, it peaked between the ages 20-24 during the 2007-2008 and 2010-2011 periods. This could be the result of increasing number of universities which attract younger migrants at the country level. In more recent periods, while the ratio of child migration decreased, the ratios for younger, working age, persons and those in later life increased. Moreover, while the in-migration ratios of the more developed regions increased, those of the less developed regions decreased. Thus, it is expected that inter-regional migration contributes to the transformation of urban structure and the resulting new settlement system will generate a new pattern of growth and interaction among the regions.

Keywords: Cohort shift, migration, age, regional, Turkey
JEL classification:

1. Introduction

A number of life-cycle considerations—such as marriage, divorce, completion of schooling, start of a career, the birth and raising of children, unemployment and retirement—are critical in an individual or a family decision to migrate (Greenwood, 1985). Thus, the decision to migrate alters depending on the potential migrant ages (Nelson and Sewall, 2003). Several fundamental changes in migration behavior and regional population redistribution have been attributed to age-cohort effects. The age structure of a migrant population is normally expressed by a set of age-specific proportions that specify how that population is distributed across a full range of ages or age groups (Rogers et al. 2001). Age-cohort techniques have been used to better understand inter-regional population movements with respect to working age or retirement age groups (Plane, 1992; Plane, 1993). Young adults and middle-aged migrants are attracted to job locations, whereas later life migrants are attracted to mild climates, environmental amenities, and proximity to family and friends. These individuals are less sensitive to employment opportunities and more apt to migrate based on place-specific amenities (Long, 1988). In this situation, it is to be expected that younger migrants are attracted to metropolitan areas, while older migrants might be more apt to choose non-metropolitan destinations (Wilson, 1988; Nelson and Sewall, 2003). However, the rising

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number of recreational communities has also generated non-metropolitan employment opportunities which attract young migrants to these locations. This subject is much more popular and has been widely investigated in developed countries whereas in developing countries, its importance is less recognized. Thus, this paper analyzes the age and cohort effects on inter-regional migration in Turkey between 1985 and 2011 to highlight migration trends within this perspective through time.

Kulkarni and Pol (1994) investigated inter-state migration in the United States according to age groups between the 1970s and 1990s. Their results illustrated that while there is an overall decline in migration, some age-specific mobility rates have remained relatively constant (e.g., 25-29 and 30-34) thereby increasing the share of the total mover population from those age cohorts. Pellegrini and Fotheringham (1999) analyzed inter-metropolitan migration and hierarchical destination choice in the U.S. by taking into consideration younger adult groups (25-29 and 35-44 years old). According to their results, the higher ratio of migrants traveled to the Southwest, Miami and New York, in contrast to the lower ratio of migrants who preferred the Northeast and mid-west. This movement is constant with well-known inter-state migration trends in the recent past. Rogers et al. (2002) developed a model for decomposing a set of age-specific and origin-destination-specific migration flows in the United States for four periods between 1955 and 1990. According to Tobler (1995), the concepts of age and space form the basics of migration laws.

Baryla and Dotterweich (2001) examined the significant factors that impact on student migration in different U.S. regions. The study showed that higher education institutions that have regionally recognized quality programs have a greater ability to attract non-resident students. In addition, it appears that there is a link between non-resident enrollment and the economic environment in which the university is located.

According to a study by Bartley (2006), age-specific migration rates indicate how the effect of independent variables such as employment and amenity factors vary over a lifetime. Thus, one can examine if younger workers differ from older workers and whether retired migrants (60 and above) have a different pattern altogether. For instance, in Paris, while mainly retired people are departing the region in growing numbers, young adults are drawn to the capital to study or to find work (Baccaïni, 2007). Moreover, the social background of people also effects their migration during old age. According to Lundholm (2012) people born in the rural areas are more prone to return at an older age compared to those born in urban settings.

Dennett and Stillwell (2010) investigated age variations in origin-destination migration data from the 2001 U.K. census. They used a national district classification as a framework for summarizing a series of matrices, each containing very large numbers of cells. The results demonstrate how migration propensities and patterns vary between types of district, providing new insights into the processes through which the population is redistributed throughout Britain. Bell and Rees (2006) compared migration in Britain and Australia through the use of age-time plans. Niedomysl and Amcoff (2011) in Sweden and Andersen (2011) in Denmark explained old age return migration with respect to social considerations and amenities.

With respect to developing countries, Levy and Wadycki (1972) made a comparison between the young (15-24) and middle-aged (25-54) migrants in Venezuela. According to the study, age is an important factor, especially for male migrants. The results indicated that the destination opportunities are more effective on young migrants' decisions. On the other hand, Beals et al. (1967) found that in Ghana, there were no significant differences between the age groups in the response to migration. Studies in Brazil and Colombia showed similar characteristics to Venezuela as reported by Sahota (1968) and Schultz (1970). As Turkey is a developing country, migration studies with an age focus are limited. One of these studies (Bahar et al., 2009) examined old age migration to the Mediterranean region in relation to retirement. Tanfer (1983) studied the socioeconomic characteristics by the destination and type of move between 1965-1970 with age-specific rates. Gokhan and Filiztekin (2008) did not use age as a variable but descriptively examined the age groups for their internal migration study in Turkey and stated that the migrants between the 15-29 accounted for more than the half of the migrants.

Thus, two types of approach have been used for modeling migration (Shen, 1999). The first uses age, gender, origin and destination-specific migration rates. The second approach

focuses on modeling migration flows directly by using distance, origin, and destination to explain migration. By following the first approach, the present paper analyzes age and spatial structures of the observed inter-regional migration flows in Turkey and compares them with the results of the previous generation. The organization of the paper is as follows. The background information about the regions and the government policy are discussed in the second section. In the third section, the demographic analysis of migration trend is investigated. The distribution of inter-regional migration according to the age groups is then discussed. The final section is devoted to the discussion of results and suggestions for further research.

2. Background Information About The Regions And Government Policy

The regional policies of Turkey are important when attempting to understand the characteristics of its regions. When compared to previous periods, population movements within Turkey started to increase from the beginning of the 1950s as an outcome of industrialization, liberalization movements and construction of highways in the country. People preferred to move to a new location for economic, educational, social and political reasons. Due to the high migration rates, an efficient market system was developed to control migration during the 1980s. However, it caused problems such as the depopulation of less developed regions and the over-population in metropolitan areas with an increasing demand for housing, infrastructures and public facilities such as hospitals and schools (Gezici and Hewings, 2004).

The governmental policies of "five-year national development plans" and 'priority provinces for development' are directly related to economic imbalances in Turkey, and must be understood. All these policies tried to achieve the same goal: equal development of the regions, but they were not all successful in removing the imbalanced structure of Turkey. Thus, the failure of the 'priority provinces for development' policy was announced in 2000 and this is the situation which Turkey faces: the periphery is less developed than the core (Gezici and Hewings, 2004).

Turkey's present migration schema is still in a transition state. "There are different mechanisms serving socio-economic processes in society in general and in particular segments. Any migration mechanism must be appropriate to the emerging market relations and, accordingly, serve their needs. Regulators of this mechanism reflect provincial differentiation in the development of new forms of economic activity and these are generated by the transition from traditional to market forms (employment and education). This group of factors has the strongest influence on migration" (Yazgi et al., 2013). Balkir (1995) described Turkey's regional disparities into 3 different groups: (i) Demographic disparities such as migration and urbanization; (ii) economic disparities such as income, industry and the service sector; (iii) disparities in infrastructure which include public services such as health and education. The present study deals with the first group of disparities by analyzing inter-regional migration according to age groups.

3. Demographic Analysis Of Migration Trend

Migration is a dynamic subject which can change depending on demographic, economical, and cultural factors (Rogerson, 1987; Milne, 1993; Plane, 1992). Based on life-course understanding of migration flows, it is to be expected that younger cohort shifts would be more responsive to labor and housing market variations, while older cohorts would be directed towards regions with good amenities or to the areas with lower living expenses (Walter, 2002).

Demographers have observed that age and gender play an important role in migration rates. The most important factor that makes a difference in migration levels is the age factor (Clark and Hunter, 1992). The probability of migration generally occurs when a person reaches his/her twenties. This age is usually the peak point of migration due to reasons such as entering university, beginning a career, and so on. However, after their twenties, this mobility sharply declines until they reach retirement. There can be a slight increase in the mobility as people retire (Rogers, 1979; Pandit and Withers, 1999; Walters, 2000). In addition to the role of age in migration, the existing facilities in a location may also play an important

role for the multiple movements during people's life cycle. In other words, some specific locations may provide opportunities for a short period which causes people to move from there to another place. For instance, an individual may stay in a place near his/her college which will be left after graduation. To find work, he/she may prefer to live in a metropolitan area. This accommodation may again change according to retirement preferences like returning to his/her hometown or moving on to a retirement area. Another reason that younger people have higher mobility rates is that they take less responsibility related to community, family, real estate etc. which enables them to change their accommodation more often. It has been proven by studies that the probability of inter-regional migration for families with working wives is less when compared to other groups.

3.1. Analysis Of Regional Migration According To Age Groups In Turkey

In this study, by adopting an age-disaggregate decomposition of regional migration pattern changes, the differences in migrant destination choices among various age groups may be highlighted as well as the interdependency that exists according to different life stages. The location of regions is illustrated in Figure 1.

Figure 1- Geographical regions of Turkey.

(Source: Evcil et al., 2006)

The age-specific distribution components of in-migration at the country level are illustrated in Figures 2, 3, and 4 for the periods 1985-1990, 2007-2008 and 2010-2011, respectively. First, regional in-migration increased throughout these periods at the country level. Second, while migration propensity peaked among persons ages 24-29 during the period 1985-1990 at the country level, it peaked between ages 20-24 for the periods 2007-2008 and 2010-2011. This could be the result of increasing number of universities and job opportunities at the country level in recent decades (Yazgi et al., 2013). Third, the common characteristic of these figures is the sharp decrease of migration after the peak at the ages 24-29 until the age 65+ and then a small increase was observed in the later life migration. There are several reasons for the later life migration of people such as amenities, climate, lower cost of living, and return to hometown. These also depend on income level or sociological needs which are common for both the developed and the developing countries (Litwak and Longino, 1987; Walters, 2000).

Investigation of the trend of Turkish in-migration according to age groups reveals through time that the total number increased from 2,273,492 in the period 2007-2008 to 4,761,821 in 2010-2011. During the period of 2007-2008, the ratio of child in-migration was 21.8% (Table-1) and decreased to 19.3% (Table-2) in the period of 2010-2011. The ratio of the younger age group in-migration was 41.8% and increased to 46.0% in the period 2010-2011. This ratio was much higher for some other developing countries. For example, China

recorded a figure of 68.8% (Liang and White; 1997). Although the in-migration ratio of the middle age group decreased from 22.2% to 20.8% and from 11.3% to 10.6% for the older age group between the two periods, it increased from 2.9% to 3.3% for the later life age group at the country level. Thus, the results are parallel to the findings of the previous research (Rogers et al. 2002; Walters, 2000).

3.2. Age And Cohort Analysis Of In- And Out-Migration According To Regions

During the period 2007-2008, the regional in-migration of the Marmara region has the highest ratio, 36.5% due to its large amount of job alternatives and university education facilities (Yazgi et al., 2013) whereas Southeast Anatolia has the smallest in-migration ratio with 7.0% due to its shortfall in jobs and university education facilities. The Marmara region is followed by Central Anatolia (15.4%), Black Sea region (12.2%), Mediterranean region (10.8%), Aegean region (10.4%) and East Anatolia (7.7%). So, the inter-regional migration ratio decreases from the west to the east of the country.

The comparison of the regional in-migration between the periods 2007-2008 and 2010-2011 reveals that while the ratios of in-migration of the Marmara region increased to 37.3%, Central Anatolia to 16.4%, East Anatolia to 8.6% and Southeast Anatolia to 7.4%, whereas those of the Black Sea region decreased to 10.8%, the Mediterranean region to 10.1% and the Aegean region to 9.4%. These results illustrated that the regions with large metropolitan areas have continued to attract an increasing amount of in-migrants by having large amount of employment alternatives and better quality universities, which are the most important factors to attract migrants as illustrated by Yazgi et al. (2013). On the other hand, the increase in the number of in-migrants to East and Southeast Anatolia represents return migration which could be the results of subsidies provided by different national and international resources or the jobs created as a result of the Southeastern Anatolia Project (GAP).

During the period 2007-2008, while peak in-migration distribution was between the ages of 20-24 for most regions, it was between the ages of 25-29 for East and Southeast Anatolia. However, during the period 2010-2011, the peak for East Anatolia also switched to the ages of 20-24. This is probably the result of a recent increase in the number of universities in this region.

In general, while there are persistent regularities in the age profiles of regional in-migration flows, there are slight changes in comparison with Turkey's overall ratio between the periods of 2007-2008 and 2010-2011. During the period of 2007-2008, while the ratio of child in-migration group is higher for Southeast Anatolia (25.1%), the Mediterranean region (24.1%), East Anatolia (23.3%) and Central Anatolia (22.0) than Turkey's overall ratio (21.8%), it is lower for the rest of the regions. Between the two periods, this ratio decreased for all the regions. During the period 2007-2008, while the younger age migration ratios are higher for the Marmara region (45.0%) and Southeast Anatolia (43.6%) than Turkey's overall ratio (41.8%), they are lower for the rest of the regions. During the period 2010-2011, while this ratio increased to 51.0% for East Anatolia, 47.6% for Central Anatolia, 46.8% for the Marmara region and 46.5% for Southeast Anatolia, compared to 46.0% for Turkey overall. The ratios of the other regions stayed lower than Turkey's overall ratio. This can be the result of the large amount of university education facilities and alternative jobs in the Marmara region and the result of GAP project in Southeast Anatolia as mentioned above. The in-migration ratios for the middle and later age groups fell sharply as expected, and they continued to fall during the period 2010-2011. Between 2007-2008, while later life in-migration ratio is lower for the Marmara region (2.6%), the Mediterranean region (2.6%) and Southeast Anatolia (1.6%) than Turkey's overall ratio (2.9%), they are higher for the other regions. However, it is expected that the Mediterranean region in particular should have a higher in-migration ratio than Turkey's overall ratio due to its climate and amenities being more attractive for retired migrants. Meanwhile, for the period 2010-2011, this ratio increased in all regions. In sum, while the decrease of the child migration ratio can be the result of a decreasing birth rate, the increase in the later life age migration ratio can be the result of improvement in health care delivery and standard of living.

Table 1-The numbers of in- migration with respect to age groups (2007-2008) in Turkey

Age	Turkey	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	Eastern Anatolia	Southeastern Anatolia
'0-4'	126357	40939	12562	15144	19836	14915	11914	11047
'5-9'	158300	56111	16450	19132	24921	16424	12792	12470
'10-14'	130545	49332	13634	15362	19620	13261	9637	9699
Subtotal	415202	146382	42646	49638	64377	44600	34343	33216
%	21.8%	21.1%	21.5%	24.1%	22.0%	19.2%	23.3%	25.1%
'15-19'	169961	71541	17543	16479	26292	15845	10915	11346
'20-24'	325308	128531	35248	33857	48972	34088	22513	22099
'25-29'	301200	112218	3026	31468	44170	33458	25429	24197
Subtotal	796469	312290	55817	81804	119434	83391	58857	57642
%	41.8%	45.0%	28.1%	39.7%	40.8%	35.9%	39.9%	43.6%
'30-34'	197059	65995	20994	22986	30607	23229	17728	15520
'35-39'	133848	44653	14822	15824	21611	16487	10991	9460
'40-44'	91084	32684	10117	10487	14491	12084	6029	5192
Subtotal	421991	143332	45933	49297	66709	51800	34748	30172
%	22.2%	20.6%	23.1%	23.9%	22.8%	22.3%	23.6%	22.8%
'45-49'	75061	27334	8052	8018	11580	12151	4471	3455
'50-54'	62136	21526	6241	6021	9458	12458	3942	2490
'55-59'	46500	15316	4550	4296	7124	10016	3234	1964
'60-64'	31543	10386	2894	2766	5022	6677	2488	1310
Subtotal	215240	74562	21737	21101	33184	41302	11647	9219
%	11.3%	10.7%	11.0%	10.2%	11.3%	17.8%	7.9%	7.0%
'65+'	54332	17807	5102	4135	8682	11143	5384	2079
%	2.9%	2.6%	2.6%	2.0%	3.0%	4.8%	3.7%	1.6%
Total	1903234	694373	198469	205975	292386	232236	147467	132328
%		36.5%	10.4%	10.8%	15.4%	12.2%	7.7%	7.0%

(Source: TUIK (Turkish Statistical Institute) – Migration Statistics)

Table 2-The numbers of in- migration with respect to age groups (2010-2011) in Turkey

Age	Turkey	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	Eastern Anatolia	Southeastern Anatolia
'0-4'	135525	46807	11989	16000	21655	12991	12112	13971
'5-9'	137615	49016	12507	16956	21975	13349	10953	12859
'10-14'	120747	45026	11195	14474	19666	11912	8445	10029
Subtotal	393887	140849	35691	47430	63296	38252	31510	36859
%	19.3%	18.4%	18.6%	22.9%	18.9%	17.4%	18.0%	24.3%
'15-19'	223054	85303	22901	19264	41885	23475	17875	12351
'20-24'	395546	149058	36634	35630	69396	38268	39046	27514
'25-29'	322899	123384	28475	31673	48504	27914	32271	30678
Subtotal	941499	357745	88010	86567	159785	89657	89192	70543
%	46.0%	46.8%	45.8%	41.7%	47.6%	40.7%	51.0%	46.5%
'30-34'	212141	77185	20356	23392	32448	20832	19452	18476
'35-39'	129172	47464	13365	14889	20958	13531	9972	8993
'40-44'	83594	32208	8838	9652	13512	9184	5394	4806
Subtotal	424907	156857	42559	47933	66918	43547	34818	32275
%	20.8%	20.5%	22.1%	23.1%	20.0%	19.8%	19.9%	21.3%
'45-49'	71884	28223	7084	7583	11609	9782	4006	3597
'50-54'	56507	21917	5381	5295	8849	9424	3250	2391
'55-59'	52343	19118	4466	4483	8078	10390	3705	2103
'60-64'	36609	13164	3080	3028	5736	7252	2898	1451
Subtotal	217343	82422	20011	20389	34272	36848	13859	9542
%	10.6%	10.8%	10.4%	9.8%	10.2%	16.7%	7.9%	6.3%
'65+'	68084	25992	5933	5199	11142	11784	5668	2366
%	3.3%	3.4%	0.030868244	2.5%	3.3%	5.4%	3.2%	1.6%
Total	2045720	763865	192204	207518	335413	220088	175047	151585
%		37.3%	9.4%	10.1%	16.4%	10.8%	8.6%	7.4%

(Source: TUIK (Turkish Statistical Institute) – Migration Statistics)

Figure 2- Age distribution of in- migration (2007-2008) in Turkey.

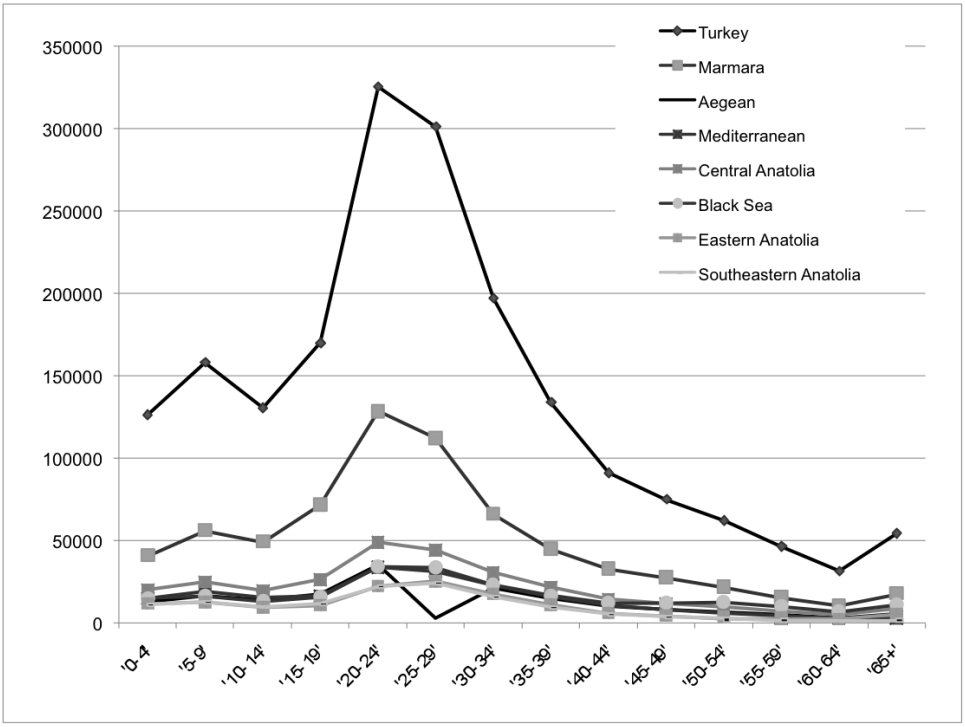
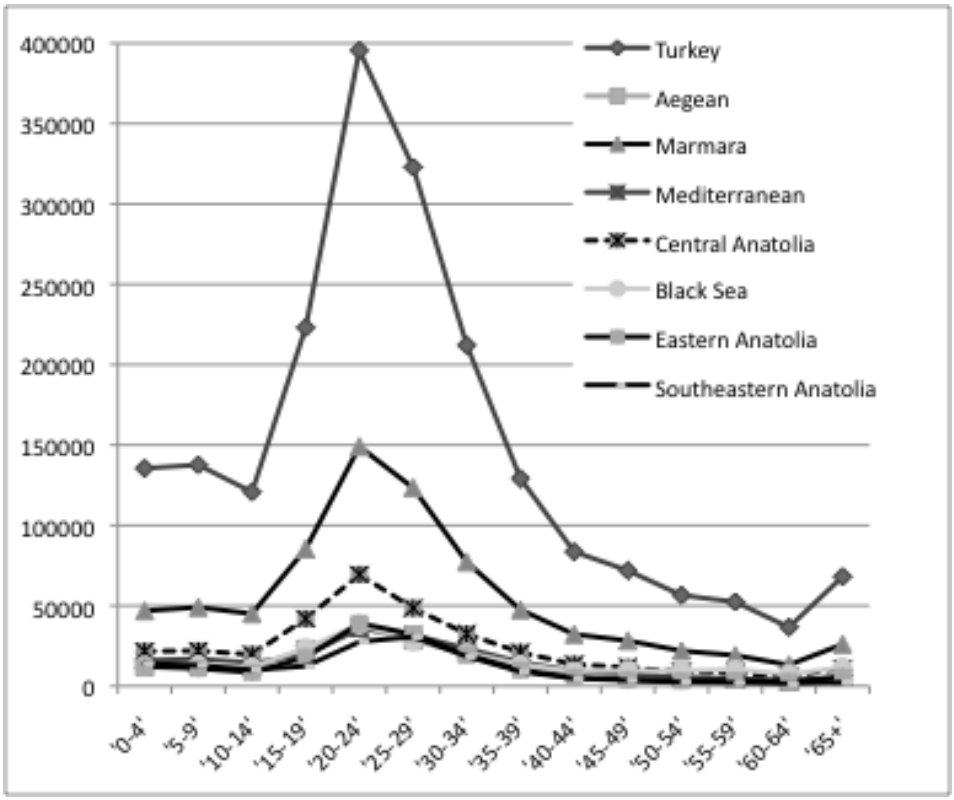
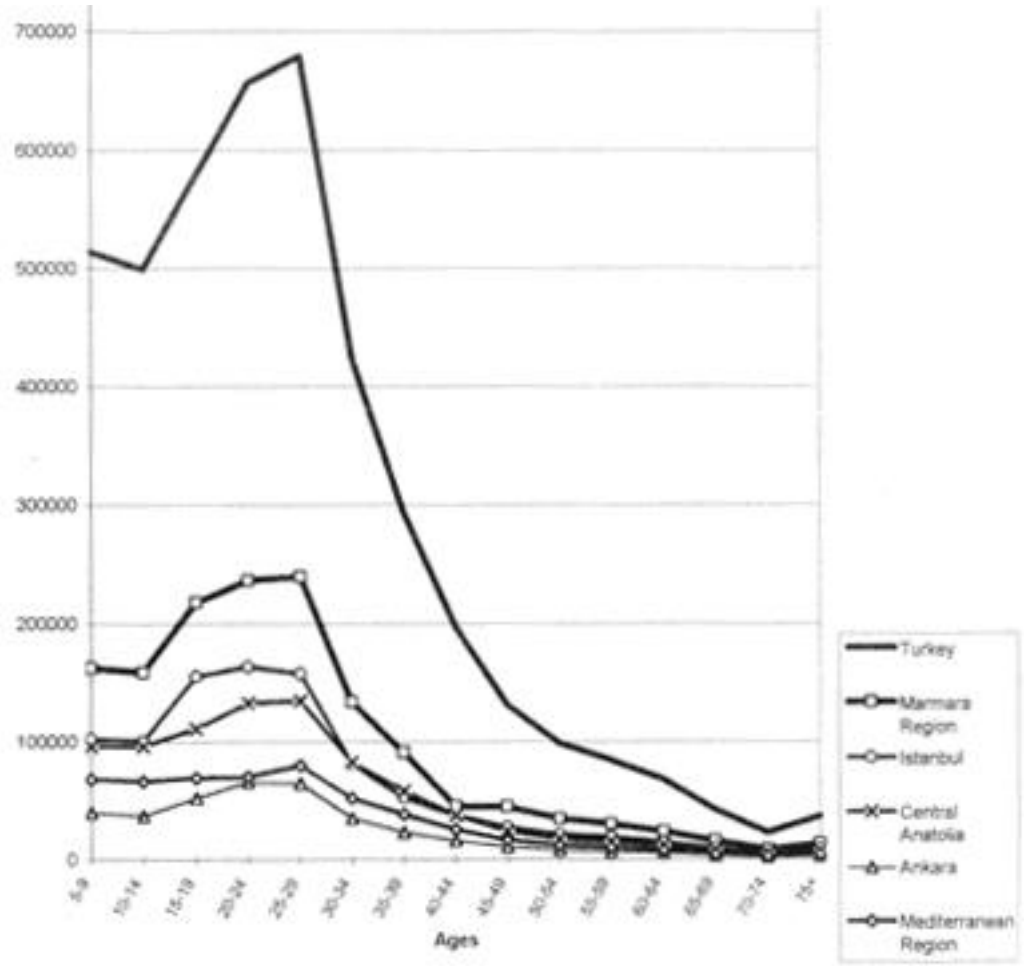


Figure 3- Age distribution of in- migration (2010-2011) in Turkey.



Thus, the results illustrate that the general in-migration trend in Turkey remained almost constant during the period 2007-2011. In general, these indicators also match up with the results of the study made for the period of 1985-1990 (Figure-4). The corresponding results of both studies also prove that the migration is a kind of traditional habit which cannot be easily changed over a short period. At the same time, it is a complex and dynamic subject which depends on various demographic, economic and social factors as already illustrated by Yazgi et al. (2013).

Figure 4- Age distribution of in-migration (1985-1990).



(Source: Census of Population 1990, Internal Migration by Permanent Residence, State Institute of Statistics, Prime Ministry of Turkey)

The total regional out-migration increased from 2,273,492 (2007-2008) to 2,420,181 (2010-2011) at the country level but it varies according to different age cohorts. During the period 2007-2008, the out-migration ratio for the Marmara region was 29.2%, Central Anatolia 16.1%, the Black Sea region 13.5%, East Anatolia 12.9%, Southeast Anatolia 9.9%, the Mediterranean region 9.8%% and the Aegean region 8.6% (Table-3). For the 2010-2011 period, while the regional out-migration ratio of the Black Sea region increased to 13.9%, the Mediterranean region to 10.7%, and East Anatolia to 12.9%, that of Southeast Anatolia decreased to 9.0%, the Marmara region to 28.5%, Central Anatolia to 15.6%. The result for East Anatolia remained the same (Table-4).

The distribution of out-migration age cohort ratios according to the regions in comparison to Turkey's ratios varied for the periods 2007-2008 and 2010-2011. During the period 2007-2008, while the ratio of migrating children for Southeast Anatolia (30.5%) and East Anatolia (27.0%) are higher than that of Turkey's overall out-migration ratio (21.8%), it is lower for the rest of the regions. This situation did not change for the period 2010-2011. During the period 2007-2008, while the ratios of out-migration for the young working age group of the Aegean region (45.3%), the Mediterranean region (45.1%), the Black Sea region (45.1%), Central Anatolia (44.0%), and East Anatolia (41.9%) are higher than the overall ratio of Turkey (41.8%) due to the high mobility of the younger age group towards large metropolitan areas for employment and/or university education (Yazgi et al., 2013), it was lower for the other regions. During the period 2010-2011, these ratios increased for all the regions. Similar to the in-migration ratios, the out-migration ratios fall sharply for the middle age and older age groups in all the regions. Following this, the out-migration ratios of the later life age group increased slightly after the age 65+. During the period 2007-2008, while this ratio was higher for the Marmara Region (4.1%) and Central Anatolia (3.1%) than Turkey's overall ratio (2.9%), it was lower for the rest of the regions (Table-3). During the period 2010-2011,

these ratios increased for all the regions while the dominance of the Marmara region and Central Anatolia was preserved.

Table 3-Age distribution of regional out-migration for the period 2007-2008 in Turkey

Age	Turkey	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	Eastern Anatolia	Southeastern Anatolia
'0-4'	126357	34425	9418	11298	18638	15069	20386	17123
'5-9'	158300	40135	11612	14605	23129	20532	26101	22186
'10-14'	130545	33685	10194	12536	18978	17387	19726	18039
Subtotal	415202	108245	31224	38439	60745	52988	66213	57348
%	21.8%	19.5%	19.1%	20.6%	19.8%	20.6%	27.0%	30.5%
'15-19'	169961	43314	13734	17852	25355	26083	23541	20082
'20-24'	325308	83590	33393	35591	60813	48770	38068	25083
'25-29'	301200	83606	27080	30729	48594	41235	41114	28842
Subtotal	796469	210510	74207	84172	134762	116088	102723	74007
%	41.8%	37.9%	45.3%	45.1%	44.0%	45.1%	41.9%	39.3%
'30-34'	197059	58276	16815	18594	30217	24881	27153	21123
'35-39'	133848	40208	11710	12949	20951	17212	17072	13746
'40-44'	91084	28971	8256	9169	14828	12390	9576	7894
Subtotal	421991	127455	36781	40712	65996	54483	53801	42763
%	22.2%	22.9%	22.5%	21.8%	21.5%	21.2%	21.9%	22.7%
'45-49'	75061	26785	6656	7164	12398	10054	6990	5014
'50-54'	62136	25061	4992	5522	10260	7724	5260	3317
'55-59'	46500	20318	3549	3931	7744	5164	3496	2298
'60-64'	31543	14074	2367	2556	5308	3512	2363	1363
Subtotal	215240	86238	17564	19173	35710	26454	18109	11992
%	11.3%	15.5%	10.7%	10.3%	11.6%	10.3%	7.4%	6.4%
'65+'	54332	23015	4001	4030	9409	7374	4502	2001
%	2.9%	4.1%	2.4%	2.2%	3.1%	2.9%	1.8%	1.1%
Total	1903234	555463	163777	186526	306622	257387	245348	188111
%	29.2%	8.6%	9.8%	16.1%	13.5%	12.9%	9.9%	

(Source: TUIK (Turkish Statistical Institute) – Migration Statistics)

Table 4-Age distribution of out-migration (2010-2011) in Turkey

Age	Turkey	Marmara	Aegean	Mediterranean	Central Anatolia	Black Sea	Eastern Anatolia	Southeastern Anatolia
'0-4'	135525	35830	10500	13221	19631	16735	23086	16522
'5-9'	137615	36034	10694	13711	19312	17501	23933	16430
'10-14'	120747	31519	9513	12246	16482	16593	20470	13924
Subtotal	393887	103383	30707	39178	55425	50829	67489	46876
%	19.3%	17.7%	16.1%	17.9%	17.4%	17.9%	25.5%	25.5%
'15-19'	223054	57455	21117	29025	32739	32919	27919	21880
'20-24'	395546	100559	43694	49000	67173	55777	44673	34670
'25-29'	322899	86842	32755	35383	53890	44445	41511	28073
Subtotal	941499	244856	97566	113408	153802	133141	114103	84623
%	46.0%	42.0%	51.1%	51.7%	48.2%	46.8%	43.1%	46.1%
'30-34'	212141	61618	19678	21370	32039	27252	29299	20885
'35-39'	129172	37884	11677	12791	19445	17552	17689	12134
'40-44'	83594	25131	7856	8528	13057	12415	10015	6592
Subtotal	424907	124633	39211	42689	64541	57219	57003	39611
%	20.8%	21.4%	20.5%	19.5%	20.2%	20.1%	21.5%	21.6%
'45-49'	71884	24043	6381	6933	11295	11428	7493	4311
'50-54'	56507	21771	4942	5035	9091	8538	4607	2523
'55-59'	52343	22067	4137	4286	8097	7429	4334	1993
'60-64'	36609	15996	2843	2846	5728	4791	3026	1379
Subtotal	217343	83877	18303	19100	34211	32186	19460	10206
%	10.6%	14.4%	9.6%	8.7%	10.7%	11.3%	7.4%	5.6%
'65+'	68084	26649	5192	4940	11004	11219	6644	2436
%	3.3%	4.6%	2.7%	2.3%	3.4%	3.9%	2.5%	1.3%
Total	2045720	583398	190979	219315	318983	284594	264699	183752
%	28.5%	9.3%	10.7%	15.6%	13.9%	12.9%	9.0%	

(Source: TUIK (Turkish Statistical Institute) – Migration Statistics)

As shown in Figure 5 and Table 3, during the period 2007-2008 while the peak of out-migration distribution was between the ages 25-29 for East Anatolia and Southeast Anatolia, it was between the ages 20-24 for the rest of the regions. During the period 2010-2011, as shown in Figure 6 and Table 4, the peak of out-migration distribution was between the ages 20-24 for all regions which leads to the conclusion that migration for university education is gaining importance as already illustrated by Yazgi et al. (2013).

The results of the study reveal that there are three basic characteristics of migration according to age variation as already illustrated by Tobler (1995). The first is that migration flows exhibit distinct origin-destination-specific patterns, which are relatively stable over time. The second is that inter-regional in-migration and out-migration patterns are similar to each other. The third is that there are strong regularities in age profiles, which is illustrated by the fact that the majority of migrants are young adults. Finally, later life migration reveals a parallel result to the previous research in that return migration to home town is the highest in the Black Sea Region while it is the second highest for the Marmara Region, which is the opposite result to previous studies (Walters, 2000).

Figure 5- Age distribution of out-migration (2007-2008) in Turkey.

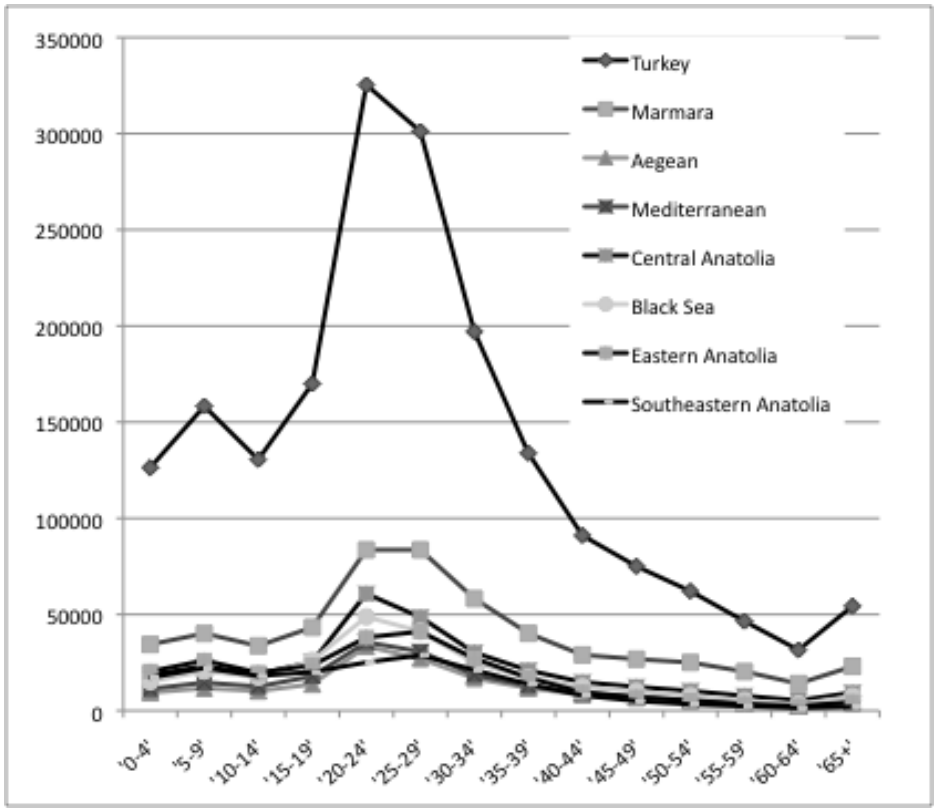
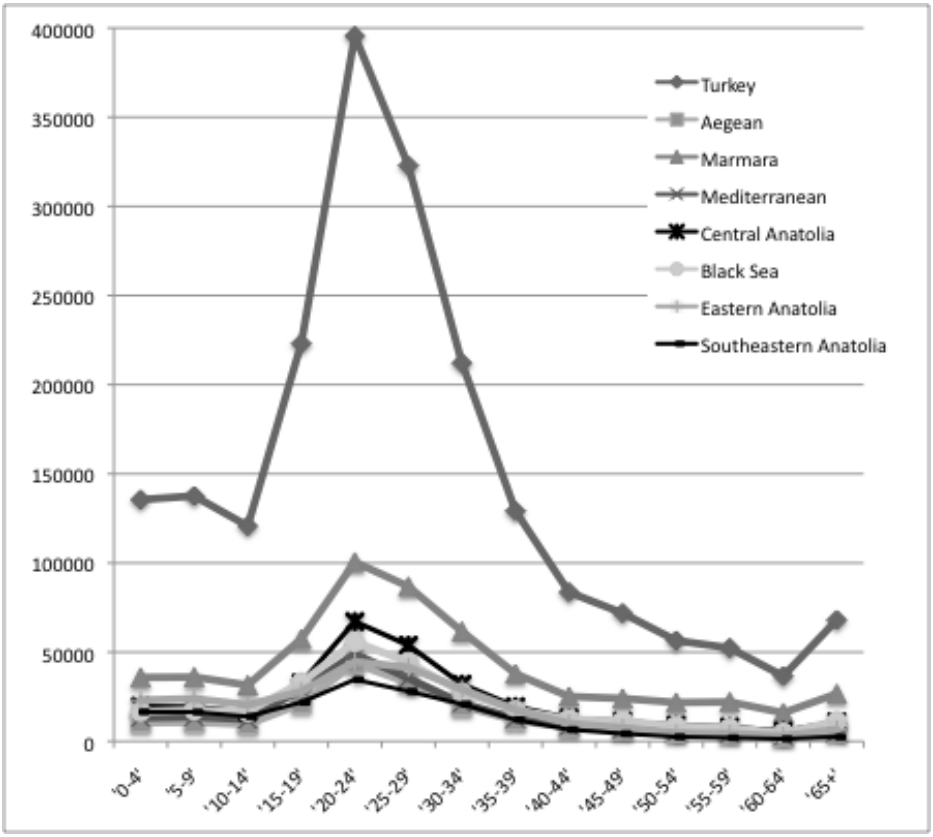


Figure 6- Age distribution of out-migration (2010-2011) in Turkey.



4. Conclusion

The purpose of this study is to investigate the several related population phenomena, including regional population redistribution, and the relationship between age and regional in- and out- migration patterns. In general, our findings concerning regional level characteristics are consistent with previous research in Turkey and in other developing countries. Individuals are more likely to move out of regions with a lower level of economic development to higher income large metropolitan areas. This is parallel to classic arguments about migration and economic development.

One of the cornerstones of geographic analysis is recognition of different spatial scales, and migration studies can be greatly enhanced by adopting different scales of analysis (Pandit and Withers, 1999). By focusing on age differences in the inter-regional migration and comparing them with previous results, this article adds a new perspective on the scale at which these age-cohort dynamics and period effect explanations. In aggregate, the developed areas grew more rapidly than less developed regions in recent decades. This analysis, however, demonstrates that such aggregate trends are not uniform across all regions.

The age composition of the migrants is investigated for the periods of 1985-1990, 2007-2008, and 2010-2011 at both the country and regional level. According to the results at the country level, while in-migration reached its peak point at the ages of 24-29 for the period 1985-1990, the peaks switched to between 20-24 for both in- and out- regional migration for the periods 2007-2008 and 2010-2011. Following this, migration falls sharply during the both periods until 65+. Later, it increased slowly which shows that later life migration in Turkey follows a similar, though less extensive, pattern to that of developed countries.

Moreover, during the period 2007-2008, the regional analysis of the age composition of in-migrants reveals that the Marmara region and Central Anatolia have higher migration ratios than other regions due to the large amount of employment opportunities and educational facilities which are the major reasons for attracting migrants as shown by Yazgi et al. (2013). While their dominance continued during the period 2010-2011, the ratios of the

Mediterranean, the Aegean, and the Black Sea regions decreased but that of East Anatolia and South Anatolia increased as a result of return migration.

Furthermore, the age composition of regional in-migration varies according to the regions to some extent. During the period 2007-2008, the child in-migration ratios of East and Southeast Anatolia are higher than the other regions due to their higher birth rates. During the period 2007-2008, while peak in-migration was between the ages of 25-29 for Southeast and East Anatolia, it was between the ages of 20-24 for the other regions which have more extensive job alternatives and better university education facilities. On the other hand, during the period 2010-2011, it switched to the ages 20-24 in East Anatolia, probably, due to the increasing number of universities in this region. Although it is to be expected that there is a higher amount of later life in-migration ratios for those regions with amenities such as the Mediterranean region, these ratios are higher for Central Anatolia and the Black Sea regions. The former can be explained by its higher quality of health care facilities and higher quality of life which is important for the later life migrants, whereas the higher in-migration ratio for the Black Sea region could be the result of the rural background of people which are more prone to return at older age compared to those born in urban areas. These ratios have further increased during the period 2010-2011.

In general, the out-migration pattern is similar to in-migration with some slight differences. The out-migration ratios of the Mediterranean and Aegean Regions were lower than those of the other regions. Moreover, between the period 2007-2008 and 2010-2011, while the out-migration ratios of children decreased, the ratios of younger age and later life age groups increased for all regions. In some places, this may cause the need for transformation of facilities related to children, and in others it may increase the demand for later life group facilities.

In sum, internal migration between developed and less developed regions has an important effect on the transformation of their economic, political and urban structure as well as their social fabric and life styles. The results of the study can be useful for demographers, geographers, sociologists, urban and regional planners and policy makers by providing background to address the problems in the aforementioned subject areas. Further research into regional migration can be extended by including the education and professional levels of migrants.

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SETTING POLICY TARGETS FOR THE FUTURE OF AGRICULTURE IN EU 2020 – A METHODOLOGICAL APPROACH

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Abstract

Setting targets in a foresight exercise is of crucial importance for both orienting future policy directions as well as assessing the achievement of policy concerns. The focus of the present paper is on the development of a methodological framework for setting objectives and targets in a foresight study. This framework builds upon a range of approaches that run in parallel in order to assure that all important issues as to the problem at hand are taken into consideration, while it is also combined with participatory approaches, where experts' knowledge is used for serving validation purposes. The framework developed is then applied in AG2020 - a foresight exercise at the EU level, exploring potential policy options for the sustainable development of agriculture in EU by 2020 - with the aim to present the experience gained and difficulties raising towards finalizing objectives and targets used in this specific foresight exercise.

Keywords: objectives and targets, foresight, participatory planning, policy, EU agricultural policy
JEL classification:

1. Introduction

The meeting of the European Union Agricultural Council in 1997 stated that 'European agriculture as an economic sector should be versatile, sustainable, competitive and spread throughout Europe, including the less favoured and mountainous regions, contributing thus to their economic development. At the same time, it must be capable of maintaining the countryside, conserving nature and making a key contribution to the vitality of rural life. Furthermore, it should be able to respond to consumers' concern and demand regarding food quality and safety, environmental protection and the safeguarding of animal welfare' (SCENAR 2020, [1]).

The agricultural sector is thereby considered as one of the most important production sectors of the global economy, as it largely determines the population's survival and quality of life through the quantity / quality and safety of agricultural production. Agriculture is also considered as a sector determining the *development potential* of a significant part of the European territory - the *rural regions* - and is largely associated with the economic prosperity, tradition, production systems, culture etc. of the European local regions' population – the *farmers* (Giaoutzi and Stratigea, [2] and [3]).

Moreover, increasing population growth rates at a global scale impose a significant increase on food demand, affecting the agricultural production pattern worldwide. Economic performance in the agri-sector, on the other hand, implies a sort of intensification of production and use of additives, which may affect the quality of products but also harm the quality of land and water resources, placing thus at risk the future development of the sector.

The above discussion stress the importance of the environmental, but also the social and economic dimension of the agricultural sector, implying the necessity for *future policies in agriculture* to focus on *sustainability targets*, incorporating at the same time the *quality-safety* dimension of agricultural production.

Along these lines, the *focus* of the present paper is on the development of a methodological framework for setting objectives and targets in a foresight study, while it also elaborates on its application in a specific foresight exercise, the AG2020[1] project, aiming at the structuring of backcasting policy scenarios for the sustainable development of agriculture in EU by 2020. The *structure* of the paper has as follows: in Section 2 is shortly discussed the AG2020 framework; Section 3 elaborates on the definitions of the basic concepts used in the paper; Section 4 presents the proposed methodological framework for indulging in objectives and targets; Section 5 presents the application of this framework in AG2020, for the setting of objectives and targets to be used for the structuring of policy scenarios for the sustainable future development of agriculture in EU 2020; while finally, in Section 6 some conclusions are drawn.

2. The Ag2020 Framework

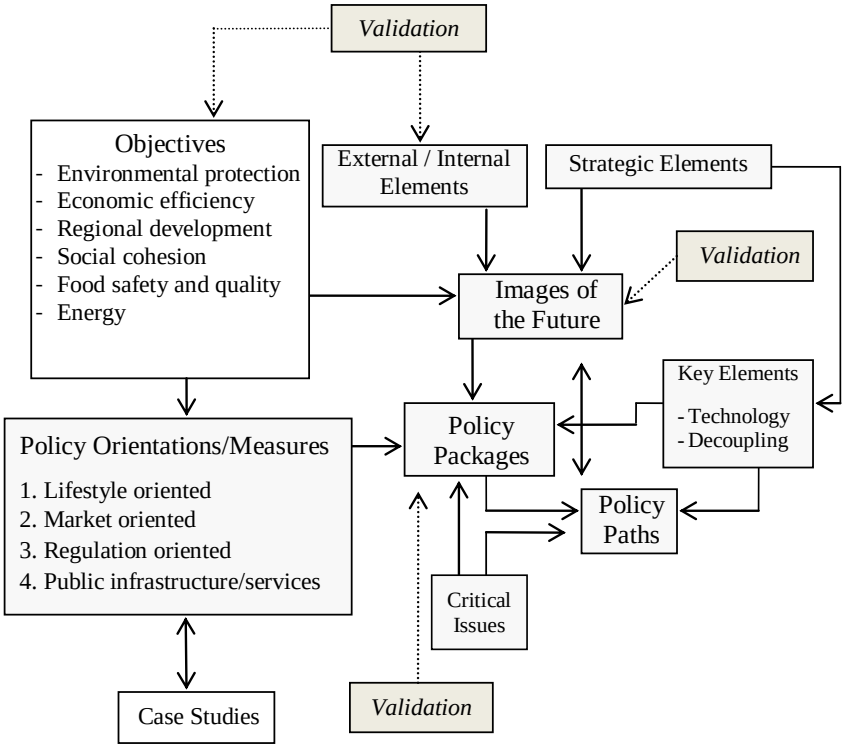
The AG2020 project has developed an innovative backcasting methodology for structuring backcasting policy scenarios at the European level for the sustainable development of agriculture in 2020. The structuring of these strategic policy instruments was based on the following elements (Giaoutzi and Stratigea, [4]; Giaoutzi et al., [5]; Giaoutzi and Stratigea, [2] and [3]):

- objectives and targets in AG2020,
- baseline scenario,
- the Images of the Future, and
- the policy framework.

In the first part of the AG2020 process, *objectives and targets* were set for orienting the future of the EU Common Agricultural Policy towards the desired ends. On this basis, the *baseline scenario* was structured to identify the scale of changes needed in order to pursue the selected targets. These, together with the external/internal and strategic elements (Figure 1), were used for building the AG2020 *Images of the Future*.

[1] AG2020 Project: Foresight Analysis for World Agricultural Markets (2020) and Europe, 6th Framework Programme, Contract No.: 44280-AG2020, STREP, 2007-2009.

Figure 1: Strategic policy scenarios – The AG2020 framework



Source: Giaoutzi and Stratigea, [2] and [3]; Giaoutzi and Stratigea, [6]; Giaoutzi et al., [7] (after POSSUM, [8])

In the second part, the alternative policy options were selected. These relate to the policy measures, packages and paths; the scale of required changes; and the principles for their implementation, based on the acceptability, lead-times, dynamic effects and adaptability criteria, in the AG2020 context.

3. Defiition Of Concepts

As the agricultural sector is a sector closely relating to many aspects of the environmental, economic but also social reality, there is a certain need for developing inter-disciplinary approaches in policy studies in the sector. In this respect, it is considered of importance the establishment of a common ground for discussion among different specialities, thus reaching interdisciplinary communication, while avoiding misinterpretation of terms (i.e. goal, objectives and targets). The scope of the present section is to clarify the concepts of goal, objectives and targets for making policy decisions in the context of a foresight exercise.

In the international literature and in many national policy documents, a *goal* has been frequently used interchangeably with the term *objective*. More specifically (see also Figure 2):

- a *goal* is a more general description of a desired direction, a long term aim of the society e.g. sustainable development, and can be further translated into several objectives; while
- an *objective* is more specific than a goal and can be partly achieved during the planning period (WHO, [9]).

Moreover, a *target*, as defined by World Health Organization (WHO, [9]) is '… an intermediate result towards the achievement of goals and objectives; it is more specific, has a time horizon and is frequently, though not always, quantified', while '… a goal refers to the long-range aims of the society and is usually expressed in rather general terms' (Figure 2). *Targets* are also defined as '… explicit endpoints of public policy, expressed in terms of relevant indicators, to be pursued within a given time horizon with a systematic monitoring of progress towards their achievement' (Egenhofer, [10]).

The relationships among goals, objectives and targets can be seen in Figure 2, where each goal can be further translated into several objectives. To each objective can be addressed quantifiable and non- quantifiable targets. Reaching objectives and goals, in this respect,

implies reaching endpoints of targets. Furthermore, quantifiable targets can be presented by properly defined indicators, which will be used, during the process for monitoring and evaluation purposes.

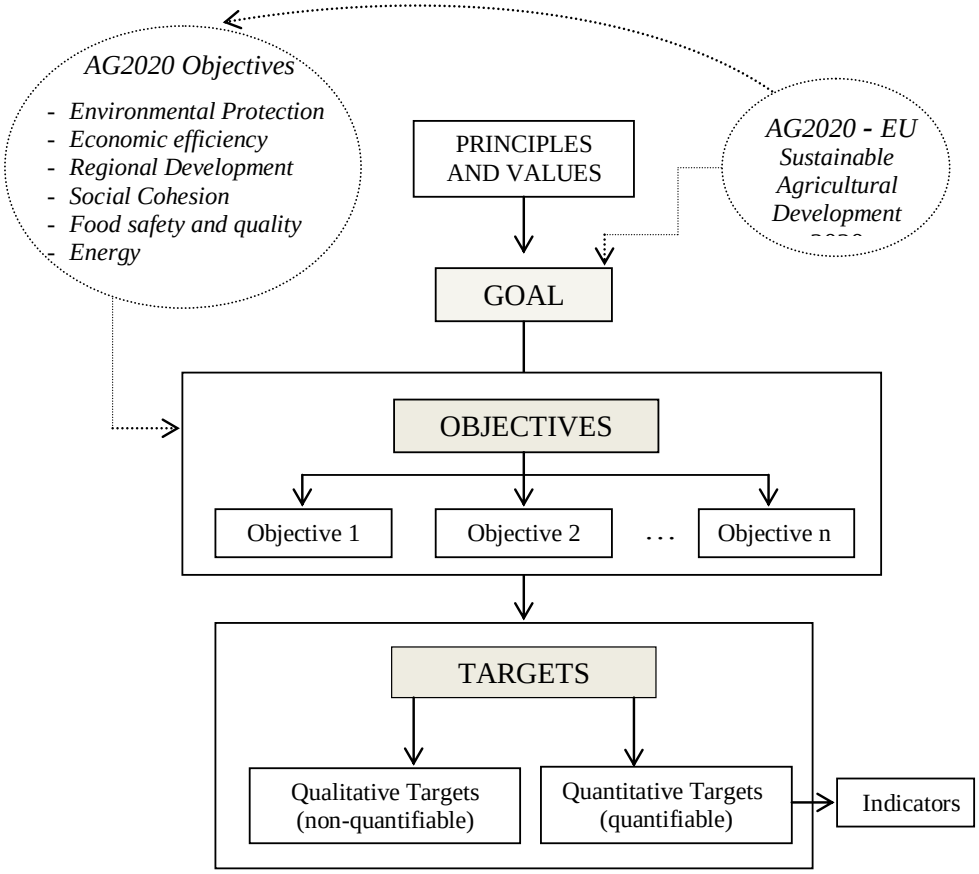
The following three different *categories* of targets can be distinguished (Egenhofer, [10]):

- *Hard targets*: refer to targets that are mandatory within a certain structure e.g. EU target for the reduction of greenhouse gas (GHG) emissions under the Kyoto Protocol. For the EU member states, these are legally binding and thus enforceable and if they are not achieved, sanctions will kick in. They rely on standard EU policy formulations and implementation and they are by definition compatible with the internal market[2].
- *Indicative targets*: similar to the previous category, but distinct as to the level of commitment required, e.g. the EU renewable energy targets for electricity and biofuels. These targets are still mandatory in the sense that member states need to make an effort to meet them. Their difference from hard targets is that member states can still divert to some extent from these indicative targets, if there is a good excuse for that, while it is unclear how failure in achievement will be sanctioned.
- *Aspirational targets*: these express long-term objectives or aspirations, e.g. EU target stating that 'the overall global mean surface temperature increase should not exceed 2°C above pre-industrial levels' or that 'a 15-30% reduction in CO_2 emissions by 2020 should be reached' or the 'Lisbon target' of 'making EU the most competitive economy in the world' (EU, [11]). Such targets are meant to guide policy making towards a certain direction.

Setting hard targets seems to be less problematic as they are legally binding and thus enforceable, they rely on standard EU policy formulation and implementation and they are by definition compatible with the internal market. More problematic seem to be the *indicative* or *aspirational targets* or EU targets that express a *vision* of where the EU and its member states want to go at a certain time.

[2] By definition the EU law is compatible with EU primary, secondary and case law such as the provisions on the internal market and competition.

Figure 2: Goals, objectives and targets



Source: Giaoutzi and Stratigea, 2007a

In any case, targets have to be *realistic* and *plausible* within a given time frame. If targets set are very ambitious, they may result in excessive costs, which in turn render targets politically untenable. This might eventually lead to a reversal of policies (Egenhofer, [10]). Targets should also be formulated into quantifiable measures (indicators), so that conclusions can be drawn about the level of their attainability. This of course does not imply the exclusion of qualitative targets for those objectives, which cannot be expressed in quantitative terms. Also, targets may serve only one objective at a time, therefore the selection of targets should take that into account.

Finally, it should be kept in mind that targets can be set either at the *EU level* or at the *member state level*. The spatial level used for the selection of targets depends on the purpose of the targets' setting exercise. Practically:

- *hard targets* aim at legally binding member states and are set at the EU level;
- *indicative and aspirational targets* stimulate member states towards a certain direction and use the overall EU targets. These can be treated at a member state level, based on national characteristics, economic structure, social values, etc.

4. Defining Policy Targets - A Methodological Framework

In the following is discussed the methodological framework developed for the identification of policy targets. The steps followed in this framework are shown in Figure 3 and are presented in the following.

4.1. Indulging On The Objectives

The first step of the methodological approach refers to the identification of objectives. As objectives are practically reflecting a certain dimension of the goal, their selection is to a large extent based on the goal pursued. From a range of goal-specific potential objectives, a limited number can be selected through a *selection process* that is mainly based on:

- *Significance*: objectives should be significant, and be translated into discrete targets e.g. energy security. It is important to *'choose an appropriate baseline to ensure that different sectors and/or states face similar challenges'* (Egenhofer, [10]:3).
- *Realistic and achievable*: there should be some guarantee that the required results can be achieved in an efficient way and at a reasonable cost, i.e. 'what is needed' is broadly in line with 'what is possible'.
- *Properly formulated*: the most critical point is to formulate objectives in a proper way. It is particularly important to define the required policy outcome, e.g. near-zero carbon power generation, rather than prescribe the possible solutions e.g. renewables, nuclear. In that way, the market will be able to choose the most efficient solutions. However, sectoral targets, e.g. for renewables, may be needed for a transition period, to avoid crowding out certain technologies, which would result in a smaller technology portfolio for near-zero-carbon technologies than otherwise would be the case. For example most, if not all, renewable generation technologies will need to be subsidized for a certain period, in order to bring down the costs. Thus flexibility on the type and range of solutions can be assured (Egenhofer, [10]).

4.2. Defining A Comprehensive Set Of Potential Targets

Policy targets have particular value when focusing on the policy-implementation process and its outcomes. As Stead [12] points out, they are the means towards influencing the achievement of policy concerns.

Potential policy targets are usually selected by means of a 'top-down' approach combined with a 'bottom up' approach, used for convergence, validation and checking purposes (see Figure 3).

The *'top-down' approach* represents a deductive, comprehensive and systematic strategy using a framework, where targets are derived from principles, objectives, sectors, issues and causal relationships (POSSUM, [8]). The 'top-down' approach is materialized through a number of:

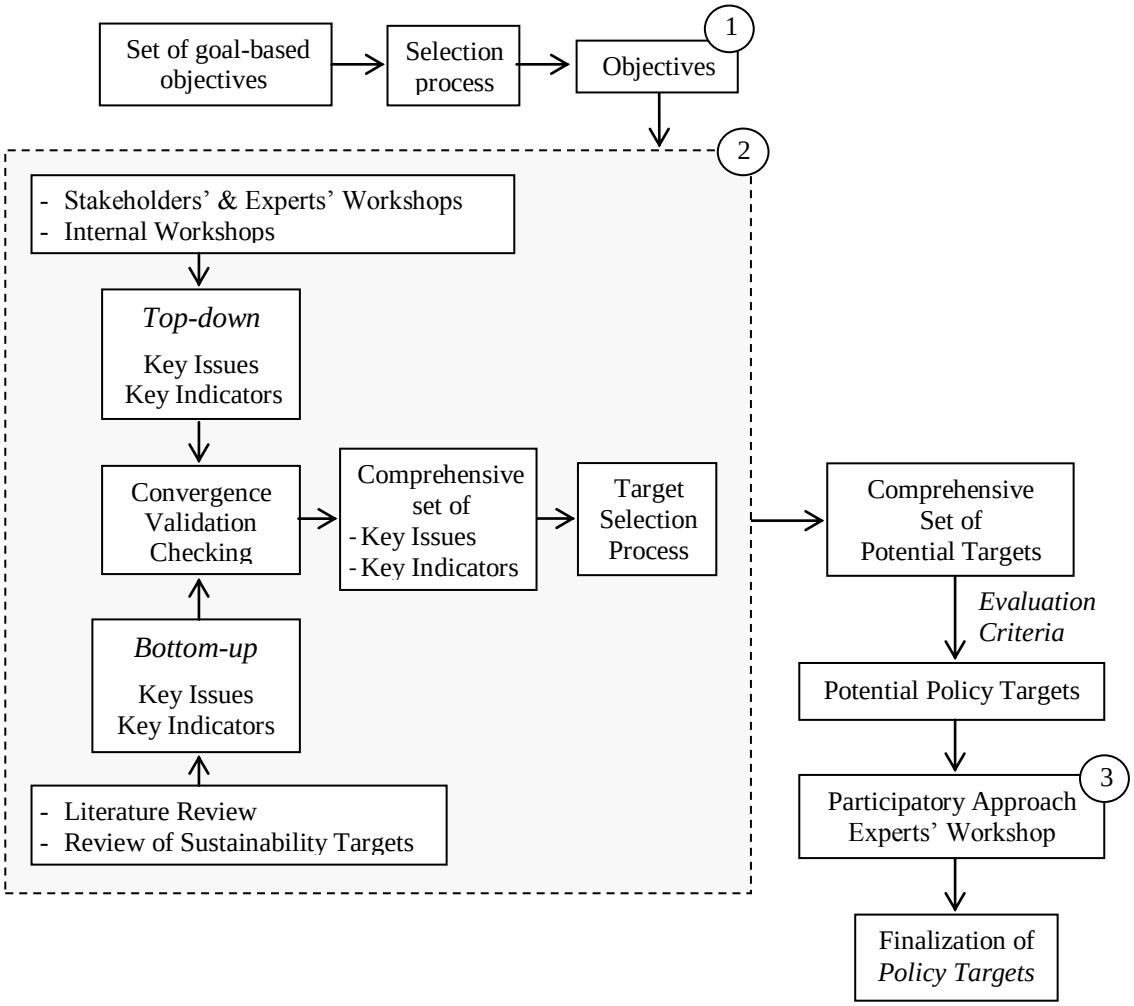
- *Internal workshops*: identifying important issues for future policy on the issue at hand (hotspots), emerging or likely to emerge till target year.
- *Stakeholders' and experts' workshops*: where intelligence is gathered from experts and stakeholders in respect to strategic policy issues of relevance in building future policy scenarios.

The *'bottom-up'* approach is considered as an inductive, knowledge-based strategy, involving:

- *Literature review*: various important issues for the potential future of the issue at hand (agricultural policy in this exercise) searched in the literature.
- *Review of sustainability targets*: where are collected a range of sustainability targets relating to the issue at study (agricultural sector in this exercise).

The outcomes of both the 'top-down' and 'bottom-up' approaches allow for checking that all key issues are considered, leading to a *comprehensive set of potential targets* for further elaboration (Figure 3). Potential policy targets are identified by both: *direct* elaboration, e.g. in the case of literature review or review of sustainability issues; and *indirect* elaboration, e.g. in the case of internal workshops or the stakeholders/experts workshops for gathering a range of different opinions on strategic policy issues.

Figure 3: The steps carried out for setting policy targets in AG2020



Moreover, as every study theme (e.g. agriculture, transport, urban development) has significant impacts on the social, economic as well as the environmental *domain*, targets should be considered within each of these policy domains. This implies the need for elaborating on key issues and respective key indicators in each specific domain considered by means of 'top-down' and 'bottom-up' approaches. Each domain thus comprises a set of potential key issues, along with potential key indicators to be used for the development of targets (Table 1). Key issues and key indicators are expressing the basis for defining sustainability targets in the different domains.

Table 1: Key domains, issues and indicators

Domains	Key Issues	Potential Indicators
Social	e.g. employment	e.g. number of new jobs
	…	…
Economic	e.g. competitiveness	… …
	…	…
Environmental etc.	e.g. preservation of biodiversity	e.g. number of hectares cultivated
	…	…

Finally, it is of importance to take into consideration the context of the specific theme under study in order to be able to clarify implications at the different *spatial scales*, which need to be taken into account in the target definition process. For example, speaking of the agricultural sector implies the need to consider aspects of the global (WTO regulations), the European (CAP), but also the national/regional spatial scale.

In conclusion, targets are defined on the basis of a range of approaches, which run in parallel in order to handle disadvantages of each specific approach and incorporate:

- 'Top-down' and 'bottom-up' approaches used for monitoring, converging and validating targets, so that no important aspects of the study theme are left out;
- Domain-based and issue-based approaches; and
- Issues at a variety of spatial scales e.g. international, national and regional/local, corresponding to respective spatially referred targets.

The comprehensive set of potential targets identified by applying the above set of approaches needs to be further evaluated, before it is used in a specific study context. In searching the literature, two sets of evaluation criteria can be encountered.

The first set is defined by Maclaren [13], who presents a commonly used list of eleven (11) *evaluation criteria* to support the evaluation process of potential targets, i.e. provide a relevant and sound set of targets. These have as follows:

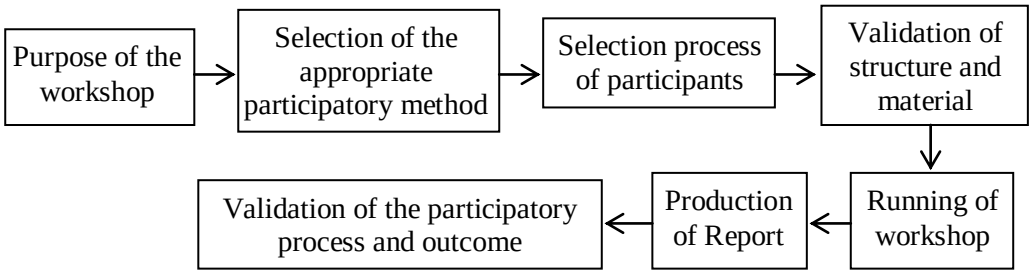
- Scientific validation: targets should be valid in scientific terms;
- Representativeness of a broad range of conditions: targets should be relevant in various contexts e.g. different geographical areas;
- Responsiveness to change: they should be capable of incorporating changes;
- Relevance to the needs of potential users: targets should be of relevance to the specific needs of potential users;
- Availability of accurate accessible data**:** reflects accuracy and accessibility of data;
- Availability of historical data: several time series should be available, in order to discern trends, evolution patterns etc.;
- Comprehensibility by potential users: targets should be easily and clearly grasped by users;
- Comparability with targets developed in other jurisdictions: targets developed within different jurisdictions should be comparable;
- Cost-effectiveness to collection: collection of the necessary data on targets shouldn't be a very costly process;
- Attractiveness to the media: reflecting the power of the targets for communication purposes; and
- Unambiguity: refers to the quite clear picture reflected by a certain target.

The second group of evaluation criteria is set by the EU {COM(2001)144 final, [14]}, expressing mainly the policy point of view in the evaluation process, where potential targets are evaluated on the basis of the following criteria:

- Policy-relevance: referring to the capability of addressing key policy issues;
- Responsiveness: stressing the need for sufficient changes in response to enforced actions;
- Analytical soundness: reflecting scientific soundness;
- Measurability: focusing on feasibility in terms of current or planned data availability;
- Ease of interpretation: in terms of power to communicate essential information in a way that is unambiguous and easy to understand;
- Cost effectiveness: focusing on costs in respect to the value of the information derived.

Finally, one more selection criterion in the target identification process is the potential for setting *threshold values*, relating to the desired and acceptable conditions for each target. If target and threshold values cannot be defined for a specific target, the specific target should be avoided, although threshold values could be replaced by the desired trend direction (Mitchell et al., [15]).

Figure 4: Planning and implementing participatory workshops



5. Application Of The Methodological Framework - The AG2020 Example

For applying the previously presented framework in the agricultural sector, it should be kept in mind that, based on the three pillar model (environment, society, economy), sustainability in agriculture can be translated into 'produce more, distribute justly and preserve the nature' (Keiner, [16]). Of course such 'ideal solutions' within closed systems are doubted, since sustained solutions for one dimension are often incompatible with the sustainability of the rest of the two (Stimson et al., [17]; Keiner, [16]). Opposing to that, some others state that a sort of compromise among the objectives of the three pillar model could be accomplished in future development, mainly based on technological advances (Keiner, [16]). Or stated different, a 'trade-off approach' between the targets of the three pillar model needs to be adopted, seeking for a targets' setting approach that will assure a complementary perspective of the main aspects in respect to agricultural policy, being the approach adopted in the present section.

The application of the proposed methodological approach is presented in the following, aiming to conclude with a properly defined and validated set of objectives and targets to be used for building policy scenarios for the future of EU agriculture in 2020.

5.1. Setting The AG2020 Objectives

The objectives selected in AG2020 are expressing sustainability in the agricultural sector, from the point of view of AG2020, and are encompassing (Giaoutzi and Stratigea, [4] and [18]):

- environmental protection, aiming at the preservation of the ecological balance of physical and biological systems, for present and future generations;
- economic efficiency, based on the concept of *"... attaining the maximum flow of income that can be created, while at least maintaining the renewable stocks or assets that yield these benefits"* (Stimson et al., [17]:40);
- regional development, aiming at the reduction of disparities in rural areas and the equal access to opportunities e.g. employment, income, services;
- food quality and safety that aim to promote food safety and trust in agricultural qualitative products for consumers, a trend that will continue receiving attention in both industrialized and in less developed countries (Unnevehr and Roberts, [19]);
- social cohesion, aspiring to maintain the stability of social and cultural systems, by pursuing a healthy and productive life in harmony with the environment; and
- energy production that aims at reaching the EU climate change target of reducing 20% GHG emissions compared to 1990. For this objective, EU has planned its long term energy policy up to 2020.

The objective of *environmental protection* is of the most impelling, since it associates with both: the long term survival of a society, in today's times, characterized by considerable environmental degradation and high risks; and the long term survival of agriculture. Future sustainable agricultural development involves the establishment of a new relationship between agriculture and the environment, building upon a new perspective of preserving the overall balance and value of the natural capital stock, based on a long-term view of the real environmental costs and benefits of agricultural production {COM(2000)20 final, [20]}. It is

also an objective, which may mobilize new solutions, involving structural changes and technological innovations in agricultural production.

The objective of *economic efficiency* is associated with the attainment of optimal and effective use of scarce resources. Efficiency is of relevance for agriculture, since it contributes to the overall efficiency of the system, by acting as a driving force for the restructuring of activities, technology developments for a more effective use of resources, changing life-styles and consumption patterns, etc.

Regional development is another very important objective, especially in the context of the EU enlargement process. Development of rural regions can be based not only on the agricultural sector, but also on complementary activities, triggering their competitive advantages and encouraging diversification of activities and innovation. These may largely contribute to the territorial, social and economic cohesion of the European rural regions. Rural development may result into a higher value-added production and a stronger economic basis, by increasing competitiveness, growth and job creation, in line with the Lisbon Strategy. This concern is reflected in the last CAP reform through the second pillar for the adoption of a coherent integrated rural development policy {COM(1999)22 final, [21]}.

The objective of *health and food safety* is of enormous relevance for consumers in the last decade. 'Food scare' has caused an increase in consumers' awareness in terms of food health and safety, which in turn has strengthened demand for qualitative and safe food (Buller and Hoggart, [22]). Growing concern for health and well-being has influenced the patterns of consumers' demand towards healthy food and 'natural' products as well as 'functional'[3] products. The above trend has specific impacts on the production patterns in agriculture, as for example the increasing emphasis on specific types of production (e.g. organic production). As the share of well informed and aware consumers seeking for healthier and qualitative food grows, relevant adjustments of agricultural production in terms of agricultural practices adopted should be of increasing importance in Europe, driven by 'food scare', health and environmental concerns (EEA, [23]).

Finally, *social cohesion* as well as *energy production* is added to the set of the AG2020 objectives, as these constitute long range objectives of the EU, already expressed in various policy documents.

5.2. Defining Of AG2020 Targets

The focus of this section is on the identification of *targets* for the sustainable development of agriculture in Europe 2020, on the basis of the above presented objectives.

Defining targets, in this respect, is a process that starts with the identification of a pool of key issues within each objective, together with potential indicators. These are the outcome of the top-down and bottom-up as well as domain-based search, while issues arising at various spatial scales are also considered (see Figure 3 - section 4.2). Moreover, targets relating to the above issues are set, reflecting also EU's objectives (if any) (see Table 2 below). The outcome of this step is a comprehensive set of potential targets, which is further elaborated by taking into consideration the sets of evaluation criteria previously presented (section 4.2). 'Filtering' the pool of targets through the predetermined evaluation criteria leads to a final potential set of targets to be used in the specific study. Work at this step is carried out at the project level (partners of the consortium).

[3] Foods which are intended to be consumed as part of the normal diet and that contain biologically active components, which offer the potential of enhanced health or reduced risk of disease. Examples of functional foods include foods that contain specific minerals, vitamins, fatty acids or dietary fibre, foods with added biologically active substances (European Food Information Council - EUFIC).

In a second step, the previously defined key issues and respective indicators as well as the set of potential targets are subject to further elaboration, carried out in an experts' workshop. For this purpose, five experts and professionals are involved in a *focus group discussion*.

The *scope* of this step is to conclude with a smaller, more relevant, set of targets by further elaborating the set of potential targets.

The *participatory method* used in this workshop is the *focus groups methodology*. The method was selected on the basis of its capacity to create synergies among scientific specializations, which in combination with the expertise of the participants would reach to the desired end.

The *selection of experts* was based on a set of evaluation criteria, out of which the most relevant experts from a pool of potential candidates were selected. The profile of those involved in the focus group discussion is presented in Table 3 below.

The work undertaken in the focus groups workshop has as follows**:**

- it started with the presentation of the broader context of the AG2020 methodological framework;
- then discussion was stimulated among participants on the issues raised by the previous presentation, with emphasis on the objectives and targets defined so far;
- it follows the writing of a short report by each participant;
- the reports were distributed among participants, where questions are raising on the written positions;
- a new round of discussion followed, in which many points were clarified and better understood; and finally
- certain revisions in the content of the individual reports is taking place, where opinions expressed in the second round exhibit in many cases convergence.

Based on a deliberately presented input of the A2020 project, the focus groups discussion produced collective judgments in respective issues, building upon already existing knowledge and information created within the AG2020 consortium. So the output of the experts' discussions has led considerations on key issues and respective targets to a more mature stage, incorporating a more elaborated and reduced number of key issues, selected on the basis of their *relevance* to the specific goal of the foresight study (see Table 4).

Table 2: Comprehensive set of policy targets in AG2020

OBJECTIVES	**Key Issues**	**Potential Indicators**	**EU Target Year 2020** (agriculture-related)	**Source: EU or other Document**
Environmental protection	GHG Emissions	Emissions of CO2 from agriculture, including soil C storage	GHG emissions decrease (CO2 equivalents) of xx % compared to 1990 emissions	Kyoto and later agreements
		Emissions of N2O from agriculture (in CO2 equiv.)	GHG emissions decrease (CO2 equivalents) of xx % compared to 1990 emissions	Kyoto and later agreements
		CH4 emissions from agriculture (in CO2 equiv.)	GHG emissions decrease (CO2 equivalents) of xx % compared to 1990 emissions	Kyoto and later agreements
	Nutrient surplus	N surplus	Decrease %	Water Framework Directive
		P surplus	Decrease %	Water Framework Directive; upcoming Soil Protection Framework Directive
		Nitrate leaching	Decrease %	Water Framework Directive; Groundwater Directive
	Eutrophication and acidification	NH3 emissions	Decrease %	The Thematic Strategy on Air Pollution; NEC Directive
	Pesticide use – Water pollution	Pesticide application rates	Decrease %	Water Framework Directive; Groundwater Directive; Pesticides Directive
		Share of organic farming	Increase %	
	Biodiversity and Landscape	Arable land as share of total land use	Regional and territorial development benefiting	COM/2006/0216 final: Communica-tion from

OBJECTIVES	Key Issues	Potential Indicators	EU Target Year 2020 (agriculture-related)	Source: EU or other Document
	quality	Biodiversity index	biodiversity	the Commission - Halting the loss of biodiversity by 2010 and beyond - Sustaining ecosystem services for human well-being. {SEC(2006) 621} Technical Annexes to COM/2006/216: EU Action Plan to 2010 and beyond and indicators
		Share of terrestrial NATURA 2000 areas	Increase	Habitats Directive; Bird's Directive; NATURA 2000 Network
		Share of aquatic NATURA 2000 areas	Increase	Habitats Directive; Birds' Directive; NATURA 2000 Network
Economic efficiency	Reducing support	EU subsidies as fraction of farm income	Market oriented agriculture	CAP
	Competitive advantage	Agricultural structure		
		Productivity		
		Crop production	Improve competitive advantage of farming activity in the EU	COM(2005) 304 final
		Animal production		
		Production systems		
		Farm income		
		Farm costs		
		Investments		
		Research expenditure		
Regional Development	Socioeconomic conditions (disparities / distributional aspects)	Household income		
		Educational level		
		Employment		
	Agricultural situation	Share of employees in agriculture as fraction of total economically active population in region		Agenda 2000 - a comprehensive rural development policy CAP – integrated rural development
		Income from non-agri activities as share of total income in agri-sector in region		
		Level of multifunctionality		
	Accessibility and land use patterns			
	Rural population		Retain agricultural labour force	Agenda 2000, A CAP for the Future
Social cohesion	Social cohesion	Combating poverty and social exclusion	Increase social cohesion of European territory	EU Regional Policy objective (economic and social cohesion); Lisbon Strategy; COM(2001)264 final, 15.5.2001
Food quality and safety	Consumer information and awareness	Demand for diversified food		COM(2001)264 final, 15.5.2001 12.1.2000 COM (1999) 719 final, White Paper on Food Safety
		Food safety issue		
		Consumer concern		
		Share of products labelled with national or European quality labels		
	Sustainable food production - Health standards	Pesticide use	High level of human health and consumers' protection	
		GMO crops		
		Pharmaceutical use		
		Share of organic farming		
	Food traceability		Traceability of feed and food and their ingredients	COM (1999) 719 final, White Paper on Food Safety
	Animal welfare	Share of organic farming	Protection of animal health and welfare	

OBJECTIVES	Key Issues	Potential Indicators	EU Target Year 2020 (agriculture-related)	Source: EU or other Document
Energy	Energy consumption of agriculture	Farm energy consumption		
	Biofuel production	Agricultural area used for bio-energy crops	10% biofuels share in overall EU road transport fuel consumption	Biofuel Directive
	Biomass production			
	Use of waste	Amount of energy produced from waste & biomass waste products for biofuel		
		Amount of energy produced from waste & biomass waste products for electricity and heat		

Table 3: Profile of experts involved in the participatory workshop

a/a	Title	Name	Organization
1	Professor	S1	Athens Agricultural University – Dept. of Agricultural Economy and Development
2	Professor	S2	Athens Agricultural University – Dept. of Agricultural Economy and Development
3	Assistant Professor	S3	Athens Agricultural University – Dept. of Agricultural Economy and Development
4	Chairman of the Institute	S4	Institute of Forest Research
5	Head of Section	S5	Ministry of Agriculture

The key issues and respective targets delivered by the experts' focus groups discussions were subject to subsequent discussions within the AG2020 consortium, in which they were further refined by partners, in order to be finalized and be used in the backcasting approach for building policy scenarios for the EU agriculture in 2020. Out of this step comes out the final set of objectives and targets, which are presented in Table 5.

Table 4: Sustainability Targets in AG2020 resulting from the focus groups discussion

Objectives	Key Issue	EU Target Year 2020 (agriculture-related)
Environmental protection	NOx Emissions (in CO_2 equivalents) (GHG)	20% Decrease of GHG emissions by 2020 compared to 1990 emissions
	Nitrate leaching	Decrease nitrate leaching %
	Pesticide use	Decrease pesticide application rates
	Biodiversity and landscape quality	Regional and territorial development benefiting biodiversity (Share of terrestrial/aquatic NATURA 2000 areas, share of arable land etc.)
Economic efficiency	Gradual abolishment of subsidies Increasing competitive advantage	Market oriented agriculture - Improve competitive advantage of farming activity in the EU – Increase product mix
Regional Development	Multifunctionality	Integrated development of agricultural regions (Increasing level of multifunctionality of agricultural regions)
	Accessibility	Improve accessibility of agricultural regions
	Land use patterns	
Social cohesion	Combating poverty and social exclusion	Increase social cohesion of European territory
Food quality and safety	GMOs	No GMOs
	Share of organic farming	Increase market share of organic farming
	Product labelling	High level of product labelling

	Sustainable food production - Health standards	High level of human health and consumers' protection
	Food traceability	Traceability of feed and food and their ingredients
	Animal welfare	Protection of animal health and welfare
Energy	Farm energy consumption	Decrease
	Biofuel production	+10% (2020)
	Biomass production	+8.5 % (2010)
	Use of waste	Increase

6. Conclusions

In the present paper the focus is on the development of a methodological framework for setting objectives and targets in a foresight study, while it also presents the application of this framework in a specific foresight exercise at the EU level (AG2020 project) for setting objectives and targets for the structuring of backcasting policy scenarios, aiming at the sustainable development of agriculture in EU by 2020.

Table 5: AG2020 proposed targets

Targets	EU Target Year 2020	AG2020 Targets	Source
GHG Emissions (in CO_2 equiv.)	20% decrease of GHG emissions by 2020 compared to 1990 emissions	N_2O and CH_4 in CO_2 equivalents	EU
Biodiversity	Halt loss of biodiversity (Set in 2001 for 2010)	Halting the loss of biodiversity by 2020 – High rate of halting	Council of the European Union [24], EURURALIS [25]
Competitiveness / Efficiency	Economically viable regions	Strong competitiveness / efficiency in the agri-food sector	EU – Lisbon Agenda
Multifunctionality	Increase the level of multifunctionality of agricultural regions	Multifunctionality of rural regions – High level	EU
Food and Feed traceability	Traceability of feed and food	Food and feed traceability – High rate	EU
Biobased economy	Blending targets: in transportation fuel 10% (2020)	Blending targets in 2020 transportation fuel 10% electricity 7% chemicals 10%	EU

Source: Giaoutzi et al., [5]; Giaoutzi and Stratigea [2] and [3]

It should be noted that the stage of formulating objectives and targets is a critical one in policy exercises as, to a large extent, it determines both the process and the final outcome (policy) of the foresight exercise. Moreover, the setting of objectives and targets in a certain policy study needs to reflect, in the best possible way, visions and expectations of the society, but also the technological and other potential needed for reaching desired ends. Finally, in a backasting policy scenario framework, adopted in the context of the AG2020 project, objectives and targets are of crucial importance as they can shed light and in a way define the desired ends of a specific study.

It should be noted that assigning targets in a foresight exercise is fraught with certain difficulties. As such, can be indicatively referred the following:

- Targets may not refer to the same *time frame*. Some targets may refer to 2010 others to 2020.
- The *nature* of targets can differ. For example some targets are *hard* (EU energy targets for 2020), while other are *indicative* or *aspirational targets* e.g. the 'Lisbon target' of 'making EU the most competitive economy in the world'.

- Certain targets refer to a more *general objective* e.g. GHG 20% decrease until the year 2020, referring to all sources of GHG emissions. Speaking of a specific sectoral foresight study, e.g. agriculture, there is a need for a certain reduction of GHG to the share of the agricultural sector, which is far from an easy task to carry out.
- Certain targets are defined at a different *spatial scale*, e.g. globally defined targets that need to be reduced to the EU level.
- Finally, in almost all *non-quantifiable targets* is not given a clear-cut quantitative target value. Instead they are presented in a rather vague form.

The methodological framework for setting objectives and targets, proposed in the present paper, aims to overcome those difficulties by building upon a variety of approaches that run in parallel. In this respect, it combines a top-down with a bottom-up approach, together with a domain-based searching for key issues, indicators and targets, while it also takes into account specificities relating to different spatial scales. Moreover, at the final stages, it takes also advantage of experts' knowledge. In this respect, the proposed framework can largely assure that all important issues of the problem at hand are taken into consideration in a proper way, while it leads to objectives and targets that are more mature and validated.

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THE QUALITY OF LIFE AND REGIONAL CONVERGENCE IN IRANIAN PROVINCES

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Abstract

Regional disparities are one of the main problems in developing countries and Iranian provinces suffer from such disparities. Balanced growth of all provinces of the country has been considered essential for sustainable development. By constructing Human Development Index (HDI) over the period 1996, 2006 and 2011 and four indicators included access to clean water, employment rate, economic participation and average urban income, the main purpose of this paper is to investigate the situation and tendencies in the field of quality of life in Iran based on comparison, convergence and investigates whether there exits convergence in human development indicators.

The results of this study reveal that, within the analyzed period, generally the order of provinces in terms of quality of life has not changed, but HDI, access to clean water and average income levels have been increased and the relative convergence with both in unconditional β-convergence and σ-convergence analyses has been occurred. Moreover, the results of this study imply that the convergence of economic indicators is most important issue and economic indicators than other indicators is more consistent.

Keywords: Quality of life, Human Development Indices, Regional Convergence, Iran Provinces

JEL classification:

1. Introduction

The empirical literature on inequality among economies and its temporal evolution has mainly focused on the use of indicators such as per capita income. The global nature of an indicator like per capita income and its capacity to capture, in a simple but reasonably approximate manner, the relative standard of living of economies has made it the most widely used conventional variable in this type of studies. In addition, given that the theory of economic growth deals precisely with the long term evolution of this variable, this indicator has the added advantage of enabling us to analyze the sources of the inequality that we are measuring, as well as their possible future evolution. Furthermore, it helps us to propose economic policies to correct inequality (Pastor et al., 2008). Although this methodology provides useful information, this approach could be enriched with a methodology that also takes into account the whole life cycle dimension (Ibid, 2008).

The variations in regions' economic performance has fueled the debate on convergence in their growth rates to determine if initially disparate regions are converging to common steady-state levels. The literature on economic growth provides mixed evidence on this, and many studies point toward the widening income gap between rich

and poor. In the development literature, a broader range of national welfare indicators beyond income per capita—health and education in particular—are considered key instruments for measuring progress in human development index since it is pertinent to ask whether such divergence is also occurring in the different aspects of human development(Afzal, 2012).

In Iran such as many developing countries, regional disparities is one of major problems leading to serious problems including migration with its associated difficulties including provinces with lower HDI to the more developed ones (Noorbakhsh, 2002). The Human Development Report for Iran in 1999 reflects such disparities and reiterates. One of the goals Iran has set up in addition progress in human development, is convergence of regions that have been developed less if compared to the development level of the regions with more standard living. Hence the purpose of this paper is at first, if HDI and other indicators in Iranian provinces have been changed and been improved and then relationship convergence between provinces are investigated. Patterns of convergence in GDP per-capita and HDI are studied from a large cross-regional data set covering the period 1996, 2006 and 2011 and unconditional β-convergence patterns are consistent with σ-convergence scenarios.

2. Literature Review

The notion of wealth as the only indicator of welfare was contested centuries ago, and is still a matter of debate in some scopes. Over the years, development researchers produced studies exploring the importance of education and health in region development. For most of them, the quality of life is better determined by human and social capital rather than by simple measures such as per capita income/GDP. In studying this income–quality of life relationship, a number of researchers have found that conventional wisdom does not hold true. Some studies have shown that income can account for a very small percentage of increase in people's social wellbeing (see Easterly, 1999; Preston, 1975) and numerous studies also confirm the significance of education and health in the development process (Khan, 1991; Nordhaus, Tobin, 1972; Sen, 1985; Boldrin, Canova, 2001).

Ingram (1992) looks at a large sample of developed and developing countries and finds that the gaps in per capita GDP have increased among low, middle and high income countries. The author finds evidence of strong convergence across the sample for most social indicators in the analysis—life expectancy, caloric intake, primary enrolment ratio, and urbanization. Sab and Smith (2002) with using data from 84 countries for 1970–1990, ask whether health and education levels are converging across countries. They conclude that investments in education and health are closely linked, and that there is unconditional convergence for life expectancy, infant survival, and average levels of schooling in the adult population. Neumayer (2003) pointed out Hobijn and Franse's (2001) study that has provided an interesting discussion of many aspects related to convergence in living standards, tests convergence over the period 1960- 1999 in a wide range of fundamental aspects of living standards, including life expectancy, infant survival, educational enrolment, literacy as well as telephone and television availability and finally have found strong evidence for convergence in the aspects of living standards that stands in stark contrast to the conclusions of the article by Hobijn and Franses (2001). In line with these studies, Mazumdar (2002); Sutcliffe (2004) and Noorbakhsh (2006) study convergence by measuring standard of living with the human development index instead of per-capita GDP or labor productivity. Mrchante and Ortega (2006) in the work of quality of life and economic convergence across Spanish regions, attempts to refer again the regional welfare issue by using alternative composite indicators in the context and that to what extent such alternative measures of living standards are converging. Their empirical analysis suggest that whereas regional GVA per-capita disparities have remained constant, convergence was achieved in five quality of life indicators (AHDI, infant survival rate, adult literacy rate, mean schooling years, and 100 minus the rate of long-term unemployment) and in two alternative economic measures (total personal income less current grants and gross personal disposable income). Laszlo and Maria-Carmen (2008) seek to find out whether there existed an empirically discernable and robust tendency in the world for countries to converge in terms of human development over the last three decades. They perform similar analyses on those countries

that joined the European Union before its 2004 enlargement and on all current members of the EU too. Their results indicate convergence for all three groups of countries, they consider, that is relatively backward countries managed to increase their HDI more than developed countries. Pastor and others (2010) in order to analyze inequality and convergence among Spanish regions have suggested using a measure of permanent income that takes into account the entire life cycle dimension. The results indicate that inequality in permanent income is clearly lower than that observed when the full life cycle of individuals is not taken into account. Finally Afzal (2012) examines human capital convergence to determine if there has been unconditional and conditional convergence across the districts of Pakistani Punjab over the period 1961–2008. The results of his empirical analysis show that both unconditional and conditional convergence has taken place in literacy rates across Punjab and that this has been accompanied by increased gender parity in educational enrolment levels and improved housing conditions.

3. Materials And Method

The basic idea of this study is to examine human development indicators—GDP per-capita, education, health, access to clean water, employment rate, economic participation and average income in rural and urban regions — across the Iranian provinces over the periods 1996, 2006, 2011 and also focuses on convergence in HDI and GDP per-capita to determine if the gaps between poor and rich regions have changed over the last decades.

The timeframe covered starts with 1996 and due to the extremely poor quality of data only three periods was chosen: 1996, 2006 and 2011. Human development is measured by the Human Development Index after 2010 and using raw data employment, Status of activities, clean water and average urban income between provinces is examined other indicators. Convergence across provinces is tested by the conventional cross-regional methods of β- and σ-convergence.

Accordingly the paper is organized as following. The second section presents brief description of HDI and the method used to implement the Human Development Index (HDI) and then investigates regional inequality in Iran base on levels and trends for GDP per-capita and achievements and improvements for the HDI during the last 15 years. The third section puts forward a theoretical understanding of the concept and types of convergence and provides the empirical results obtained from β- and σ-convergences in Iran regions. Finally, some final considerations are presented in last section.

The primary data has been used the study collected from different resources. The primary data for related educational, clean water, employment and average income indicators used in the analysis was obtained from the province detail results of the population and housing censuses 1996, 2006 and 2011. For GDP per-capita, available data in regional accounts and the province public revenues in appendix 2 Provincial budgets were used and for life expectancy, indicators of health aspects in Islamic republic of Iran have been applied.

4. Human Development Index (Hdi)

Human development is an expansion of the real freedoms of people to pursue lives that they value and have reason to value. The Human Development Index (HDI), launched in 1990, was a pioneering measure that went beyond income to reflect health and education (UNDP, 2010). Its emergence, and that of other composite measures of human development, was motivated by the discontent with income as a single measure of well-being (Laszlo and Maria-Carmen, 2008. see e.g. Crafts, 1999). It has been since then the basis of UN Human Development Report. The primary goal of the Report and of the index is calling attention to dimensions such as health and education that may not be correctly appraised in the ranking of the countries by traditional production and income indices (Sant'Anna, 2011).

For the last 20 years, the HDI has been employed to monitor and demonstrate the multiple dimensions of human elements necessary for a dignified life attained through enlarging people's choices (Fukuda-Parr, 2001). This index aims to promote a summary measurement strategy in the analysis of human welfare. The most basic human elements are identified as adequate nutrition, clean water, housing, healthcare, and educational attainability (McGillivray and White, 1992). Advancement of these elements is recognized through three

fundamental dimensions: (1) access to knowledge, (2) longevity, and (3) a decent standard of living (Fukuda-Parr, 2001). The initial intention of the HDI evaluation was to indicate the average citizen's access to these dimensions, however, its impact has expanded to demonstrate that by ensuring such human elements, a nation-state provides opportunity and encourages the discussion of rights (Bloom and Cohen, 2002 see also Habashi et al., 2012). Although since its introduction in the first Human Development Report in 1990, the Human Development Index (HDI) has attracted great interest in policy and academic circles, as well as in the media and national audiences around the world. Its popularity can be attributed to the simplicity of its characterization of development - an average of achievements in health, education and income – and to its underlying message that development is much more than economic growth. Yet the HDI's very simplicity prompted critiques from the start, while others who accepted its self -imposed limitations still questioned its choice of indicators and its computational methodology. In 2010, for the twentieth anniversary edition of the Human Development Report, a comprehensive review of these critiques was undertaken and several major changes to the HDI were introduced. Though this is not the first time that the HDI has been modified, it is the first time that major changes have been simultaneously introduced to the indicators used to measure progress and the functional form used to convert them to a single measure of progress (Klugman, 2011).

According to this new method that allows a better depiction of the nature of the inequality, this paper has attempted to evaluate HDI at province level in Iran, which provides a fresh look at the existing regional development differences (For more information about the rationale the introduction of new indicators; see Klugman, 2011). The new formula is:

$$HDI = (H_{Health} * H_{Education} * H_{Living\ standard})^{1/3}$$

The indices H_i are still normalized indicators of achievements. Life expectancy (le) remains the indicator for the health dimension, while Gross National Income (GNI) replaces GDP as the measure for living standards (Unfortunately, instead of GNI data at the regional level in Iran which were unavailable, GDP per capita was used), and while mean years of schooling (mys) and expected years of schooling (eys) now make up the education dimension:

$$H_h = (le - le_{min}) / (le_{max} - le_{min}),$$

$$H_e = [((mys - mys_{min}) / (mys_{max} - mys_{min})) * ((eys - eys_{min}) / (eys_{max} - eys_{min}))]^{½} \quad 1$$

And

$$H_{ls} = (\ln(gni) - \ln(gni_{min})) / (\ln(gni_{max}) - \ln(gni_{min}))$$

As seen in above, the first step is to create sub-indices for each dimension that in sum, this form retains the same three-dimensional structure with equal weights and several key changes. It replaces the indicators for income and education. Minimum and maximum values (goalposts) need to be set in order to transform the indicators into indices between 0 and 1. Because the geometric mean is used for aggregation, the maximum value does not affect the relative comparison (in percentage terms) between any two regions or periods of time (HDR, 2010). In this research, following Mazumdar (1999), the maximum and minimum values (goalposts) selected from the observed values in the data-base being used; as seen in the following:

{LEmin,LEmax} = {62.8: Kurdestan, 1996, 76.5: Tehran, 2011}

{MYSmin, MYSmax} = {2.9: Sistan and Baluchistan, 1996, 9.9: Tehran, 2011}

{EYSmin, EYSmax} = {7.7: Kurdestan, 1996), 16.04: Qom, 2011}

{GDPmin, GDPmax((2000 constant $))}= {348: Sistan and Baluchistan, 1996, 9339.2: Tehran, 2011}

Table 1 shows the overall results of HDI and GDP per-capita in Iran where provinces have been sorted according to their rank in the HDI and GDP per-capita and in appendix 1 has been shown results of other indicators.

Table 1. The Human Development Index and GDP per-capita across Iran provinces

Provinces	GDP per-capita						HDI					
	1996	**R**	**2006**	**R**	**2011**	**R**	**1996**	**R**	**2006**	**R**	**2011**	**R**
Ardabil	62.2	22	191.0	23	261.5	25	76.4	24	173.3	23	210.9	23
Azerbaijan, East	94.3	14	217.1	14	286.0	13	97.2	17	193.1	13	236.8	13
Azerbaijan,West	60.5	23	180.4	28	242.2	29	69.4	25	166.4	27	203.9	27
Bushehr	107.0	11	307.7	3	364.4	4	114.0	12	214.2	8	260.7	7
Chahar Mahaal	50.3	26	184.9	26	264.2	24	86.2	20	178.6	20	218.0	20
Esfahan	120.6	7	249.7	8	320.8	9	143.0	3	230.9	2	271.9	4
Fars	81.8	16	216.1	15	280.8	15	120.7	9	199.6	12	245.3	11
Gilan	87.5	15	205.1	18	279.7	16	110.0	15	186.2	16	234.3	14
Golestan	74.7	19	189.3	25	259.0	26	122.8	8	184.2	18	223.2	17
Hamadan	62.2	21	196.6	21	270.0	21	85.4	21	173.5	22	211.3	22
Hormozgān	128.2	5	244.0	10	308.2	12	100.5	16	171.8	25	210.8	24
Ilam	100.4	13	296.8	4	359.0	5	89.1	18	191.4	14	224.3	15
Kerman	116.0	8	229.3	13	285.5	14	112.9	13	188.7	15	224.2	16
Kermanshah	50.8	25	190.1	24	276.1	20	82.9	23	175.1	21	212.7	21
Khorasan,Razvia	76.0	18	205.4	17	279.2	17	88.1	19	182.5	19	221.7	18
Khorasan, South[a]	-	-	193.1	22	267.5	22	-	-	166.3	28	198.8	28
Khorasan,North[a]	-	-	199.8	20	264.9	23	-	-	172.1	24	209.5	25
Khuzestan	216.5	2	356.5	2	406.1	2	143.2	2	225.6	4	263.6	6
Kohgiluyeh	158.4	3	286.1	5	365.3	3	133.9	6	227.3	3	265.7	5
Kurdistan	39.4	27	174.8	29	246.7	28	21.4	27	134.2	29	181.1	29
Lorestan	55.7	24	181.7	27	250.4	27	54.3	26	170.6	26	205.6	26
Markazi	136.7	4	265.8	6	323.1	8	120.5	10	210.2	9	244.2	12
Mazandaran	105.4	12	229.3	12	309.2	10	117.8	11	200.8	11	254.5	9
Qazvin	124.9	6	239.6	11	308.7	11	110.1	14	202.3	10	245.7	10
Qom	79.8	17	204.4	19	278.8	18	129.5	7	221.0	6	257.2	8
Semnan	114.7	9	250.8	7	325.9	6	141.4	4	219.7	7	275.5	3
Sistanbaluchistan	16.2	28	124.2	30	201.0	30	17.0	28	116.6	30	143.9	30
Tehran	311.6	1	410.4	1	429.1	1	146.4	1	248.7	1	301.8	1
Yazd	107.2	10	247.2	9	325.3	7	135.5	5	225.1	5	278.0	2
Zanjan	74.3	20	211.5	16	278.1	19	83.6	22	184.8	17	221.0	19
Iran	100	-	229	-	297	-	100	-	191	-	231	-

Notes: [a] South, North & Razavi Khorasan to 2006 was one province by name Khorasan that after 2006, were separated. After their separation, inequality among these regions obviously became apparent.
Source: Statistical Center of Iran & authors' own work.

Regional inequality in Iran

It is clear that during the study period as shown in Table 1, the average HDI across Iran provinces have increased, implying that although still inequality remains but the quality of life also has risen. To some extent it can be claimed that total order between provinces both in GDP per-capita and HDI has remained constant; in the considered years, among 30 provinces of Iran, in all periods Tehran has been found at a very high level of development; five provinces including Esfahan, Khuzestan, kohgiluyeh and Boyer Ahmad, Semnan and Yazd have presented levels above the Iran average both in GDP per- capita and the HDI, and provinces including Sistan and Baluchistan, Kurdestan, Lorestan, West Azerbaijan, Kermanshah, Ardabil, Illam, South and North Khorasan are very low level both in HDI and GDP per-capita and suffer from lower human development compared with other parts of Iran and all of them located in border parts of Iran. Other 15 provinces lie at the levels of medium-high, medium, low-medium, respectively.

Also it can be mentioned that the order between GDP per-capita and HDI to some degree is different although can be seen a direct relationship but having higher HDI does not necessarily imply upper GDP per-capita, there is some substitutability between provinces depending on the measure used to investigate quality of life; for example, the HDI values of Qom is higher than the values of many provinces such as Razavi Khorasan, Mazandaran, East Azerbaijan, Kerman, Semnan and Khuzestan but its GDP per-capita is lower. This province showed remarkable progress since 1996 especially in education and life expectancy indicators. After two decades of high and sustained development in education index, Qom graduated to highest level the index in 2011 and catching up with Tehran and other very high education regions.

Consequently since that in these years provinces achieved upper HDI and GDP per capita but have not changed totally ranks between provinces, the question arises that if during this period convergence between provinces have been occurred. The following section analyses the convergence process.

5. Regional Convergence Analyses

Ever since the emergence of the convergence debate in the late 1980s, a number of methods are discussed in the literature, which are used to test for the presence or absence of convergence (see, for example, Armstrong, 1995, Salai-Martin, 1996; O'leary, 2003) in the section with using cross-sectional analysis that concerning to β-convergence and σ -convergence, have been investigated regional convergence trend in Iran between 1996, 2006 and 2011.

Cross-Sectional Analysis

This approach posits that convergence exists if a poor economy tends to grow at a faster rate than a rich one such that the poor region tends to catch up in terms of per capita income or product. This property corresponds to the concepts known as β -convergence and σ-convergence (Barro and Sala-i-Martin, 1991, 1992; Boyle, McCarthy, 1997).

β-convergence to understanding whether the gap between the rich and poor regions is closing, implies that the variable increases at a slower rate in regionals with high values and at a higher rate in regionals with low values (Mohammadi, Ram, 2012); While σ-convergence relates to whether the cross- regional distribution of national income shrinks over time (see Lsazlo and Maria Carmen, 2008; Marchante, Ortega, 2006; Wu, 2008). The two concepts of convergence are related, but not identical. The former analyses intra-distributional movement, whereas the latter analyses changes in the distributional spread. Logically, β-convergence is a necessary, but not sufficient condition for σ -convergence. It is a necessary condition since without the catching up of the past poor performers the spread of the distribution cannot shrink, but it is not a sufficient condition since theoretically it is possible that the once poor performers overtake the once strong performers to an extent that the spread of the distribution increases (Neumayer, 2003; Kumar , Managi, 2009).

β-convergence

β-convergence has two forms: (i) conditional, and (ii) unconditional/absolute. A stronger kind of convergence takes place unconditionally or absolutely when initially poorer states grow faster, albeit under different initial conditions. The assumptions behind

unconditional convergence, however, might better fit regional datasets where different regions within a country are more similar than different countries with respect to technology and preferences (Barro , Sala-i-Martin, 1995). Accordingly due to the nature of our data, the study is limited to unconditional convergence and are followed methodology suggested by Marchante and Ortega (2006), Trivedi (2002), who essentially adapt the basic frameworks laid down by Baumol (1986), Mankiw et al. (1992) and Barro and Sala-i-Martin(1999):

$$\Delta \ln x_{it} = \gamma \ln x_{it-1} + \sum_{t=1}^{T-1} d_t + u_i + \varepsilon_{it} \qquad (1)$$

Where x_{it}, is the HDI or real per capita income and another economic, social or quality of life indicator in region i at time t. Parameter u_i is the specific fixed effect across regions; and ε_{it} is an error term for region i at time t, T is the length of the period analyzed and $\sum d_t$ is a set of dummy variables representing each year (i.e. 1, ..., T – 1 to avoid singularity) and and γ is the convergence effect.

A negative and significant value for γ implies unconditional β convergence (positive sign if there is divergence) to a common steady state. β-convergence requires that β<0(statistically significant). In other words the finding of β<0 means that poor regionals grew on average faster than rich regionals (Steger, 2009).

The speed of convergence, ƛ, of a given variable is calculated by taking the negative of the natural log of 1 plus the coefficient of the lagged dependent variable divided by the period under observation. Thus (Sab, Smith, 2002):

$$ƛ = -\ln (1 + b)/\tau$$

where τ is the period under analysis. The half-life, t, is the solution to:

$$e^{-ƛt} = 0.5.$$

Taking logs of both sides,

$$t = -\ln (0.5)/ƛ$$

Table 2 presents the convergence coefficient and speed of convergence and p-value results about GDP per-capita, the HDI and education and health indicators.

Table 2. Analysis of the unconditional β-Convergence across the Iran provinces, 1996, 2006 & 2011

Dependent Variable: DLGDPP						
Method: Least Squares. Included observations: 90						
White Heteroskedasticity -Consistent Standard Errors & Covariance						
variables	Coefficient	Std. Error	t -Statistic	Prob.	half-life	ƛ
C LGDP(-1)	-0.355011 -0.295493	0.117745 0.078905	-.015072 -3.744937	0.0034 0.0003	29.7	 0.0233
C LGDPP (-1) LHDI	-0.139113 -0.811942 0.962849	0.084619 0.076546 0.099859	-1.643995 -10.60725 9.642057	0.1039 0.0000 0.0000	8.35	0.083
C LGDPP(-1) LEducation	-10.39769 -0.694612 0.403399	1.604962 0.106752 0.107360	-6.478468 -6.506775 3.757432	0.0000 0.0000 0.0003	11.66	0.0594
C LGDP(-1) LLife Expectancy	-8.284863 -0.543312 0.300361	1.514523 0.098771 0.138172	-5.470280 -5.500714 2.173820	0.0000 0.0000 0.0325	17.7	0.0391
C LGDPP (-1) Ltotal water	-6.581985 -0.393214 1.016853	1.856884 0.078141 0.412718	-3.54464 -5.03212 3.384523	0.0006 0.0000 0.0011	21	0.033
C LGDPP(-1) Lurban water	-5.620701 -0.331054 1.005477	2.987295 0.081818 0.660156	-1.88153 -4.04623 1.780604	0.0633 0.0001 0.0785	15	0.0446
C LGDP(-1) L rural water	-4.770790 -0.447035 1.006895	1.150364 0.079523 0.258627	-4.14720 -5.6215 3.89322	0.0001 0.0000 0.0002	17	0.0394
C LGDPP(-1) Lemployment rate	3.72014 -0.38609 -0.907978	3.32091 0.08574 0.749065	1.12022 -4.50289 -1.212147	0.2657 0.0000 0.2288	21.32	0.0325
C LGDPP (-1) LUrban income	-4.002808 -0.682489 0.200017	0.710094 0.095162 0.038163	-5.637012 -7.171871 5.241149	0.0000 0.0000 0.0000	9.1	0.0763
C LGDPP (-1) Leconomic participation	-4.42646 -0.41943 1.122167	2.38406 0.08925 0.648489	-1.85668 -4.69918 1.730433	0.0668 0.0000 0.0471	19	0.0363

Source: authors' own work

According to table 2, one finds statistically significant and negative values for parameter β. we can see that all the variables have significant negative coefficients and a negative coefficient on a lagged dependent variable infers that a province with initial lower level, will experience higher growth in that variable, and a negative coefficient between variables means that there is a negative correlation between the HDI and other considered indicator with the initial ratio of the regions' per capita GDP to the Iran level and its sub period average yearly growth rate.

Our approximations the HDI rate for the period 1996, 2006 and 2011 indicate very encouraging results. The backward provinces seem to close the gap between the more HDI provinces.

Meanwhile although the construction of a composite index of human development allows for direct comparison across regions, their use involves some drawbacks (for example, combining a wide variety of indicators, each one measured in different units, makes the composite index difficult to interpret.) (Saisana et al., 2005), hence some previous research like Hobjin and Franses (2001), Mazumdar(2003) and Marchante and Ortega(2006) has emphasized the need to analyses convergence for the raw data of each socio-economic indicator that was combined in the construction of the HDI. Hence we also consider other used indicators in human development index that giving in Table 2.

The results for the education index show high unconditional β-Convergence, the speed of convergence is -0.0594, which appear not only a positive impact on economic growth but strongly point toward a converging provinces in educational indicators where educational levels in lowly regions are catching up with the more developed and also implying that it would take 12 years for this variable to move halfway to the steady state. And similarly same finding obtained for life expectancy with the speed of convergence of -0.0391 and giving a half-life on the order of 15 years.

According to obtained results, economic indicators namely average income, economic participation and employment rate have a crucial role thus income increasing and economic participation could be lead both improvements in per-capita income and more convergence between provinces in terms of economic status. unconditional convergence rate in GDP per-capita, with an average speed of convergence of 0.0233 and moves halfway to the steady state in about 30 years, remains lower than other indicator that reveal that the convergence process, while gentle, has not stopped; employment rate variable shows an irregular trend and a negative effect in model estimation can be explained that because of no-increase in employment regularly between provinces(see appendix 1, Table A2), production level and economic growth have not been increased significantly while the trend is consistent with the economic participation. Therefore no growth suitable capacities and non-optimal use of labor capacity have been led to decrease production level and convergence across provinces.

In relation to clean water, results are statistically significant and obtained values for β stay negative. We can also observe that provinces in considered years move toward convergence and a negative coefficient on a GDP per-capita indicate that a province with initial lower level of GDP per-capita will experience higher growth in clean water. Convergence speed is satisfactory and also implying that it would take 15 to 17 years for this variable to move halfway to the steady state.

σ-convergence.

The σ -convergence occurs when the dispersion of real GDP per capita or other standard living indicators among different regions tend to decrease over time. The dispersion is typically measured through the standard deviation of the regional distribution of variables. Regions are said to be σ-converging if (Kumo, 2011):

$$Q_{t+T}<Q_t$$

Table 3 gives the results of the analysis of σ-convergence.

The computed standard deviations for indexes was clearly smaller than the dispersion in the initial level of them in 1996 excluding employment rates thus during the process of growth, the quality of life levels of the regions have become more equal and the variation between their quality of life levels have decreased (see Table 3).

With regard to social indicators, the high rates of σ -convergence of the HDI, education and life expectancy is noteworthy. The high rate of σ −convergence of the education index reveals a high degree of homogeneity reached in social performance across Iran regions but this increased has not been accompanied by increasing employment rate and economic participation.

Table 3. σ-convergence across Iran provinces, 1996, 2006 & 2011

σ −convergence			
indicators	**1996**	**2006**	**2011**
GDPP	0.5414	0.2430	0.1642
HDI	0.4925	0.1592	0.1476
Education	0.6104	0.1366	0.1594
Life expectancy	0.5312	0.2361	0.1982
total water	0.1395	0.1046	0.1032
urban water	0.0669	0.0770	0.0877
rural water	0.2416	0.1505	0.1287
Employment Rate	0.0440	0.0834	0.0677
Average Urban income	1.4978	0.1609	0.1485
Economic participation	0.077088	0.06288	0.072194

Source: authors' own work

Moreover, we observe a continuous decrease in standard deviation until 2011, from 0.5 to 0.15 for HDI, from 0.54 to 0.16 for GDP and from 1.5 to 0.14. This implies that the disparities in HDI, GDP per-capita and average income have decreased. This is a sign of σ – convergence and in line with that obtained above from the perspective of unconditional β-Convergence.

Finally, the empirical results can be summarized as follows:

1- We conclude that over the last two decades there has been unconditional convergence and the rates of convergence are acceptable although is very different with highest β-convergence belong to HDI= -0.811942 and least to GDP per-capita= -0.295493.

2- Both β-convergence and σ-convergence confirm the existence of process of convergence between 1996, 2006 and 2011.

3- Disparities in all indicators excluding employment rate and economic participation have indeed decreased during these periods.

6. Conclusions

In this study, we have adopted a complementary approach to the usual one to analyze the problem of inequality and convergence among Iran provinces.

The review of regional planning in Iranian economy shows that the regional planning in last decades based on the reduction of regional inequalities between provinces. The statistics of regional inequality indicate that before the 1990, the inequalities between provinces has not reduced significantly (see Amir Ahmadi, 1986; Noorbakhsh, 2002 and etc.).

Keeping in mind the common perception that provinces in Iran have undergone both inequitable growth and division of national resources and uneven development across different regions is observed, based on the results of this study, the average HDI across Iran provinces have increased but the order of provinces in terms of achievement has not changed, implying that although still inequality remains but the quality of life also has risen and Iran's regional policy based on reducing the development gap between different regions and creating a relative balance in regional development has been partially successful and the relative convergence has been observed. The results also show that although all indicators have a β-convergence but with different rates. Considering these factors and obtained results, it seems to reason that the speed of convergence is slower in the GDP per-capita regression than in the HDI regression; This might be explained by the fact that as early as 1990, most regions hadn't yet reached high values of HDI (as seen in table 1) and any investment could have a significant impact whereas the planning of the national economy still according to centralized nature is done.

β-convergence and σ-convergence also implies that the convergence of economic indicators is most important issue and β-convergence and σ-convergence in relation to economic indicators than other indicators is more consistent. Income increasing and production levels between provinces could be caused increasing production growth and finally a decrease in income dispersion across provinces. The paper is consistent with eric Hanushek (2013) that much of the motivation for human capital policies in developing

countries is the possibility of providing economic growth that will raise the levels of incomes in these countries. The focus on alleviating poverty in developing countries relates directly to economic growth because of the realization that simply redistributing incomes and resources will not lead to long run solutions to poverty.

Base on the results it can be suggested increasing labor participation rate and investments in manpower training could be lead increasing convergence between provinces because base on economic theories, human capital have crucial role in economic growth. Since planners can consider to role of labors and their active participation and devote part of the production capacity to boost labor productivity and empower them. Of course the focus on human capital as a driver of economic growth for provinces should not be led to undue attention on school attainment. According to eric Hanushek(2013) developing countries have made considerable progress in closing the gap with developed countries in terms of school attainment, but recent research has underscored the importance of cognitive skills for economic growth. Also the increase in income in urban areas could contribution in addition to decrease income inequality also increase economic growth and production level across provinces.

The most important policy recommendations of the study are that regional planners provide production growth across provinces with emphasis on economic indicators namely average urban income, economic participation and employment rates. Therefore, the policy makers should be adopting the best policies such as competitive policies along with regional development policies to improve the growth of GDP per capita and redistribution of income between provinces.

With respect to the results of this study and the importance of convergence in Iranian provinces, we can suggest that in the next empirical studies researches should be emphasis on the determinants of centralization policies and its nexus with convergence in Iran's provinces. And on the base of neoclassical growth model, if Differences in economic growth across provinces are closely related to cognitive skills as measured by achievement on international assessments of mathematics and science.

7. Notes

1. This index is then normalized using observed minimum and the maximum value of the composite education index.

2. In this paper, the moving average has been calculated by using of 3 provinces mean.

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Appendix A - Tables for the Regional rural and urban water, Employmet rate, Economic participation, average urban income across 1996, 2006, 2011.

Table A1 – provincial access to clean water (percent)

provinces	Total			Urban			Rural		
	1996	2006	2011	1996	2006	2011	1996	2006	2011
Ardabil	71.5	88.07	89.82	90	91.46	91.84	51.9	82.85	86.14
Azerbaijan, East	81.6	93.15	94.75	91.9	97.65	98.54	63.2	82.79	85.62
Azerbaijan,West	78.1	89.54	92.97	92.1	94.29	96.69	59.1	80.94	86.02
Bushehr	84.7	84.52	80.2	97.1	88.51	81.18	68.8	76.11	78.08
Chahar Mahaal	92.9	96	97.1	99.1	99.46	99.38	87.4	91.92	93.64
Esfahan	96.6	96.45	98.01	98.4	97.36	98.71	90.9	91.75	93.92
Fars	98.4	90	89.56	99	93.79	93.53	92.3	83.44	80.79
Gilan	52	62.34	65.25	73.9	76.19	71.2	31.2	45.41	56.11
Golestan		92.5	92.68		97.88	96.42		86.74	88.55
Hamadan	82.8	92.47	95.36	90	95.31	97.1	75	88.23	92.68
Hormozgān	78.8	73.88	71.24	95.2	83.52	77.75	64.8	64.47	64.31
Ilam	92.2	96.11	95.7	98.8	98.41	96.1	83.6	92.16	94.94
Kerman	86.8	86.21	88.03	98.4	97.77	98.19	72	68.98	74.28
Kermanshah	84.9	93.65	95.37	95.5	99.1	99.12	65	81.21	85.92
Khorasan, South	86.9	77.66	84.23	98.2	87.09	92.82	71.7	67.95	74.16
Khorasan,North	86.9	87.5	92.44	98.2	93.09	95.42	71.7	82.06	89.21
Khorasan,Razvi	86.9	92.64	95.84	98.2	95.25	97.31	71.7	86.8	92.01
Khuzestan	89.5	84.83	80.73	99	86.78	85.41	70.3	80.08	67.84
Kohgiluyeh	74	88.72	93.69	98.4	96.6	95.76	57.7	81.38	91.37
Kurdistan	81.9	88.22	92.23	88.2	91.76	95.25	73.9	82.42	85.98
Lorestan	84.2	92.8	94.16	97.7	99.39	99.3	66.2	82.05	85.32
Markazi	91.6	91.47	95.77	98.9	90.37	96.2	81.7	93.93	94.57
Mazandaran	82.5	89.61	92.58	97.1	96.64	96.32	69.9	81.3	88
Qazvin		96.47	97.94		98.98	99.4		90.86	94.03
Qom	94.5	89.2	94.27	98.9	89.06	94.81	87.8	91.46	83.51
Semnan	97.4	89.28	92.13	99.2	90.61	93.67	90.6	85.15	87.05
Sistanbaluchistan	58.9	65.97	70.48	81	71.87	75.11	38	60.47	65.96
Tehran	97.9	94.6	95.63	98.2	95.66	96.31	93.2	81.84	85.49
Yazd	94.6	94.07	96.83	99.1	96.01	98.68	81.6	86.26	87.85
Zanjan	86.2	93.03	92.25	99.4	98.5	98.79	73	84.64	81.08

Source: Statistical Center of Iran.

Table A2 –Participation Rates & Employment Rates across provinces in Iran(percent)

Provinces	Participation Rate			Employment Rates		
	1996	2006	2011	1996	2006	2011
Ardabil	35.08	39.27	39.39	89.37	88.73	85.36
Azerbaijan, East	37.72	41.44	39.59	93.85	90.38	90.04
Azerbaijan,West	38.14	39.33	37.48	90.63	91.17	87.85
Bushehr	30.95	39.95	43.65	92.9	90.88	89.2
Chahar Mahaal	36.23	39.89	38.62	92.5	81.82	84.1
Esfahan	36.73	39.98	38.45	92.03	89.48	86.68
Fars	34.55	37.25	37.85	89.73	88.7	83.11
Gilan	40.91	41.42	40.87	86.69	85.07	84.91
Golestan	-	41.19	38.65	#DIV/0!	87.59	87.11
Hamadan	35.67	38.46	38.09	91.05	87.74	86.59
Hormozgān	30.4	37.15	37.61	91.67	87.83	84.7
Ilam	32	39.14	40.11	83.04	72.53	77.25
Kerman	33.51	40.11	38.35	91.53	79	81.86
Kermanshah	35.95	38.23	37.51	81.55	76.82	75.4
Khorasan, South	37.11	44.34	41.66	93.07	83.55	93.29
Khorasan,North	37.11	41.77	40.32	93.07	91.76	89.96
Khorasan,Razvi	37.11	40.91	38.62	93.07	91.77	90.59
Khuzestan	32.48	34.82	34.64	83.81	80.72	74.3
Kohgiluyeh	30.5	33.33	35.09	85.22	80	78.71
Kurdistan	36.96	40.33	39.43	90.83	79.88	84.62
Lorestan	32.84	40.19	37.86	81.48	70.89	76.08
Markazi	35.88	37.98	38.38	92.6	89.57	88.1
Mazandaran	35.6	40.01	40.01	90.28	89.16	88.59
Qazvin	#DIV/0!	37.47	38.27	#DIV/0!	89.32	87.18
Qom	32.45	36.44	33.71	94.2	92.11	88.4
Semnan	35.03	38.22	37.29	94.93	91.71	90.08
Sistanbaluchistan	29.91	34.98	29.33	90.78	68.54	70.83
Tehran	34.38	40.5	38.23	93.98	91.6	86.89
Yazd	39.03	43.39	40.67	94.69	92.24	89.47
Zanjan	35.08	40.73	40.11	93.28	90.72	89.11

Source: Statistical Center of Iran & authors' own work.

Table A3 – Average Urban & Rural Income across provinces in Iran between 1996, 2006, 2011.

Provinces	Average Urban Income			Average Rural Income		
	1996	2006	2011	1996	2006	2011
Ardabil	307.0722	2981.823	3809.766	325.4815	2028.655	2530.785
Azerbaijan, East	350.9428	2072.819	3411.854	271.5098	1556.934	2261.486
Azerbaijan,West	310.7256	2626.774	3474.689	252.9493	2098.864	2710.898
Bushehr	290.8024	2442.039	3211.947	221.9379	2287.876	2935.235
Chahar Mahaal	271.6157	2273.859	3421.046	179.0657	1429.554	2039.655
Esfahan	320.4557	2202.14	3726.497	259.7472	1741.142	2555.602
Fars	384.955	2947.489	4367.774	279.1397	2274.64	2845.334
Gilan	0.4707	2196.235	4346.512	194.5103	1391.442	2279.011
Golestan	0	2356.656	3962.876	0	1678.015	2041.509
Hamadan	317.8386	2239.587	3730.503	242.1134	1775.189	2192.375
Hormozgān	388.2576	3243.548	4260.534	191.0218	1910.843	1769.903
Ilam	258.5165	2578.072	3778.614	212.5164	1775.735	2610.705
Kerman	297.48	2565.274	3482.814	246.0436	1513.499	1936.514
Kermanshah	247.096	2237.873	3551.482	122.9045	1615.691	2203.739
Khorasan, South	290.669	1814.47	2924.659	163.6913	1015.783	1260.005
Khorasan,North	290.669	1857.053	3752.121	163.6913	1211.16	1907.57
Khorasan,Razvi	290.669	2257.541	4149.047	163.6913	1128.532	1847.122
Khuzestan	418.5245	2777.349	4690.156	329.2069	2098.836	2939.36
Kohgiluyeh	364.8815	2864.459	3818.566	175.0864	1612.772	1807.51
Kurdistan	265.3206	2386.885	3526.035	176.2796	1862.806	2385.197
Lorestan	255.6955	2182.498	3432.825	242.6471	1657.184	2355.593
Markazi	7.0828	2236.288	3396.38	195.1447	1354.978	1809.873
Mazandaran	322.6343	3329.119	5068.295	239.1276	2570.476	3825.704
Qazvin	0	2768.953	4421.559	0	1786.412	2823.288
Qom	0	2239.425	3242.16	0	1644.137	2183.47
Semnan	271.7208	2177.66	3413.424	153.5289	1225.631	1859.535
Sistan & baluchistan	386.5004	2138.61	3136.675	145.3005	1216.429	1562.519
Tehran	462.8204	3332.036	5796.636	276.659	1879.115	3384.635
Yazd	314.5424	2026.282	3450.767	186.791	1681.954	2628.997
Zanjan	287.9224	2319.053	3738.84	180.5097	1391.2	2088.349

Source: Statistical Center of Iran & authors' own work.

NEW URBAN SPACE OF MIGRANTS: GEOGRAPHICAL AND ECONOMICS IMPACTS

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Abstract

The paper focuses on the human mobility in Mediterranean cities. This stream of immigrants change to the space of urban life for the historical, geographical and cultural factors leaded to themselves. The paper'll analyse two cities, Naples and Valencia, because both are very interested of this phenomenon, that changing the articulation of metropolitan areas.The methodology used to compare the different way of new territorialisation based on some indicators: density for districts, the distribution of non EU immigrants in districts, the population pyramid of the non Eu immigrants living in that cities and the place of worship. Starting of this comparison it is possible to understand which is the city, between Naples or Valencia, highlights more integration and new form of territorialisation than the other.

Keywords: Human Mobility, Mediterranean Migrations, Urban Space, Multicultural Integration, Management of Immigration, New Territorialisation

JEL classification:

1. Features of Multicultural Cities in Mediterranean Basin

In this moment, most of the Mediterranean cities are affected by the phenomena of migration and immigration. "In general, larger cities have higher rates of immigration than in smaller cities, which attract newcomers mainly from the surrounding areas. About three-quarters of migrations take place within national boundaries. However, the percentage of non-national migration is increasing, particularly in larger cities, especially in Spain, Greece and North Italy "(EU 2009) on average, in the Mediterranean countries, each year more than one million people migrate. The countries with the highest emigration rates are Turkey, Morocco and Albania.

In 2011 emigrated more than 2 million people. "Globalization, the increasing mobility and significant growth and continued population in the immediate vicinity of Europe, especially in Africa, combined with poor economic performance and political instability, may fuel further immigration." (EC, 2007c).

The high growth rates of migration, occurred during the past decade, will have a deep impact, according to some scholars, in the cities profoundly, altering the urban population in the coming era. The massive presence of immigrants is the basis of a multi-racial society in which they mix traditions, culture and history. The Mediterranean cities become a melting pot, where the present merges with the past, giving rise to new and different form of territorialisation, what is created is similar to the Chinese boxes, where the city centre is the smallest box where you rest and inhere all other boxes, or the peripheries. Each box has its own form, its own top, and exists as there is one in the other larger or smaller, the next and previous. The suburbs are like those boxes, with their own autonomy and self-reference, united by the same container that constitutes a single whole, form the network of urban system open to new ideas and innovations.

In these suburbs multiculturalism generates a flux of new economic activities, new community centres, new centres of worship and new forms of housing. This human dynamism and then space projects the Mediterranean cities in new urban forms "modelled as those of the third generation," in which there is an increased mobility and "further dispersion of assets and people over large urban areas" (Borlini B., Memo, F., 2009, p.4).

The processes of urban evolution described are accompanied by the modification of the territorial and organizational social activities - housing, employment, service, study, consumption, relax - that today are dispersed in a regional network that connects and

combines different forms of settlement (the central areas, suburban areas, suburbs, urban decadent).

According Admin and Thrift (2005, p. 26: Borlini B., Memo, F., 2009, p.3) "certainly cities today are not equipped with systems of internal consistency" (Borlini B., F. Memo, op. cit. p.4).

"In these urban areas, the main protagonists of change are: residents, migrants and tourists, who come to a growing weakening of their ties with the territory." (Borlini B., Memo F., op.cit. P.5).

The separation from the roots has been felt particularly by the community of residents who can not withdraw into an isolated system, has been forced to open up, so that the continuous mobility and new relational dynamics, have forced not only new opportunities of social relations, but also innovative spatial links.

Within the urban environment, however, the spaces "tell the activities of those who occupies it, consumes it, transforms it, lives it" (Cristaldi, 2012, p. 17), reflecting the needs of divergent and even opposite to each social group. The conflicts, in fact, develop within the same group, horizontally and between different groups, vertically. Consequently, the urban space becomes limited in comparison to the needs of the community, also because of the increasing number of functions that cities develop. Nevertheless the Mediterranean cities have expanded beyond their natural borders and incorporated those areas that until now have constituted the marginal suburbs, taken out from the urban context.

The enlargement of the cities along with the "gentrification" - the process of mobility of "marginal segments of the population (elderly and immigrants) replaced by other upper-middle-income population that prefers to return to the city centre, as the centre of the culture that animates the city itself "(Cristaldi, 2012, p. 23) - have contributed to produce unlimited use of natural resources in the area, causing a lot of pressure on them. The new requirements overlap with those of the original residents. Consequently the natural resources reach very quickly to the limit of the carry capacity for the increased mobility of people, which makes them more polluted and congested, and for new technologies, which makes it relatively more accessible than ever before.

As regard this, in particular in the Mediterranean cities of the south the relative scarcity of water and the poverty of the soil are a heavy factor of conflict between the different communities. These factors result in degraded areas, whereas in the past, the historical city centres have been abandoned by the residents.

The ancient Mediterranean cities - like Naples - try to contain the abandonment of the centre, primarily through the recovery of the historical centre, with social and rank higher functions: government facilities, museums and palaces of historic-artistic are all located on the city center; their restructuring has two functions: the first is to instil in migrants and residents the importance of governmental authority, as a balance for the conflicts and the second, not least, is that to steal the valuable buildings in degrading situations.

The remaining parts of city centre, although central, are left to the initiative of private individuals: the degradation becomes inversely proportional to the level of welfare of the residents. In places where the middle-income citizens or upper-commerce companies and services are residents, there is the high level of care to such that these places are almost foreclosed - even for its high prices - to those who would bring social and material degradation. If the renovation of buildings takes a lot of benefits, this investment takes high costs for the fixed cost of property management. Generally they derive from the continuous renovations to restore the houses to the quality standards of the past, thereby an escape of the original residents. If such houses are left to degradation, they become a privileged place for those immigrants who have reached a certain income to afford such rental payments relatively high.

However, the poor population inhabits - including immigrants of different ethnicities – in the suburbs more or less distant from the centre but gravitate in the centre urban because they have a job in the centre or near the centre. This exchange between centre and suburbs forms a spatial and functional continuity, that is not good for the meeting both citizens and immigrants. The expression of the conflict between immigrant communities and residents in fact, is expressed most often in the “ghetto”: to remain on the margins of society and

immigrants in the suburbs means exclusion from citizens, detachment from all welfare services state and dignified living conditions and working.

The newest and deep restructuring mediterranean cities, indeed, as Valencia (Scarpelli L., 2000, pag.425), have created new territorialisation processes, restructuring the suburbs provided with all the necessary services, thanks to which it is possible to find in them a centre in which are contained the main functions as well as in the old city centre. In these modern urban forms, resources are made available and accessible to the entire population and are used according to the demand of the various communities. In these cities, recently renovated, for example, for both public and private, such as waste disposal and public transport services are efficient thanks to the use of new technologies that improve their environmental impact.

Despite this new way of managing resources, it continues to be unresolved, even in these cities renovated, many issues related to the high spatial dynamism of the suburbs.

In this perspective, old and new cities do not have big differences: both Naples and Valencia, currently have a high population density with a propensity for enlargement of the inland periphery rather than toward the coastal area. In that cities in 2011 there has been an income per capita (Naples is around € 18,000 per year and about to Valencia € 23,000 per year) less than in the large urban areas of the respective countries.

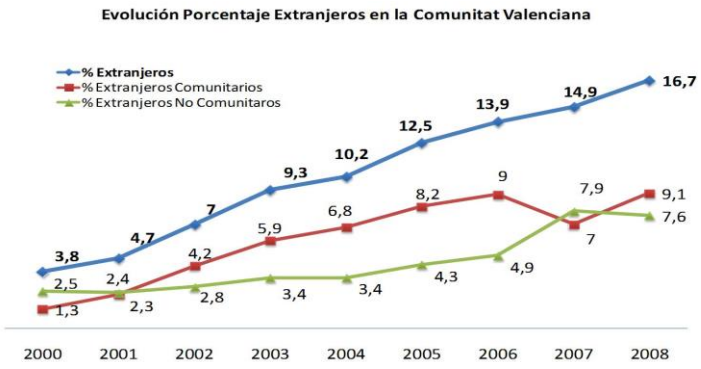
2. Demographic Aspect of Immigrants in Naples and Valencia

At this stage the Mediterranean cities represent the synthesis of the processes of territorialisation of new people who insist and live in the city. It should be noted that if residents are generally conservative and habitual behaviours, immigrants, with their diversity and their new requirements, can help give new form to the spaces innovating the urban fabric. This transformation is not immediate and it is said that it is better or worse than in the past, but it is useful verify and describe the change. The speed in which these changes occur, however, arise very often the type of immigrants there are in fact, those who have long-term projects to remain and settle, other medium and other short-term. It will be the long-term immigrants that by making that difficult "path of integration that includes the rights and duties" (speech of Pope Benedict XVI, 2012, on the occasion of the Day of Migrants) will contribute to the renewal of the urban system. It came also loosening his tie between origins and destinations - for colonial ties or geographical proximity - which in the past had characterized international migration. At the same time, the processes of globalization, marked by complex dynamics of "de-territorialisation" and "re-territorialisation", contributed to the development of a network of lines migratory more composite than in the past. (Russian Krauss D., C. Schmoll, 2006 pg.699).

In the Spanish city of Valencia, for example, the growth rate of immigrants living in the past ten years has been exponential (see table 1 - the percentage of non-EU foreign immigrants increased in the period 2000-2012 from 2.5% to 6 , 7%) to the point of inducing the local government to plan for integration policies that mean the knowledge of the laws and the Spanish language and Valencia idiom, contributing to a greater spread of immigrants even in residential settings.

Figure 1: Evolution of Foreigners in Valencia -www.valencia.es

Tab.1 Evoluzione della percentuale degli stranieri a Valencia, 2000-2008



The high increase of migration flows, as was the case for Valencia, is also found in Naples. For Naples, as well as Valencia, this phenomenon is very recent, since both cities, in ages past, were places of emigration rather than immigration. The flow of migrants has registered in Naples, however, had a very strong growth rate (see table 2), which was not matched by an organic intervention to achieve full integration with the urban reality, as the contrary was the case for Valencia. The migration management in Naples triggered a mechanism of aggregation among countrymen and the different ethnic groups involved with forms of spatial segregation present in the central area. The different ways of integration are certainly derived from a series of difficult conditions already present in Naples unlike those of the Spanish city. In Valencia the wave of migration has taken advantage of major structural changes (City of Science and Technology and the entire park renovated River), which have permeated the city during the late 90s with great economic expansion (Scarpelli L., 2000, p. 452). This development has, however, seen the end with the advent of the global crisis of recent years.

Figure 2: Evolution of Foreigners in Naples

The role of immigrants in the urban system depends on many factors not easily attributable to well-defined categories, even if the main are: the city's history, the social status of residents, labor policy pursued both by the national government that the local purposes of inclusion in the working world.

The phenomenon of migration both in Naples and Valencia is process relatively recent historical periods prior to our own, both of these cities have seen the emigration rather than immigration. The current phenomenon of migration starts the 80s of last century, but has grown exponentially in the last ten years, so that "have been expanded considerably the areas of origin of migrants" (Russian Krauss D., C. Schmoll, 2006 , p. 699)

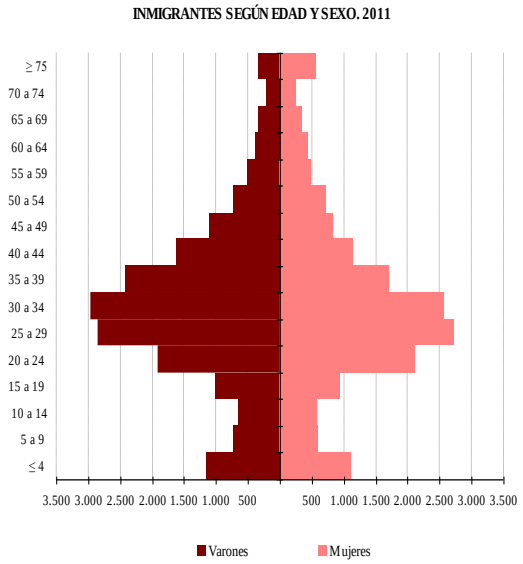
In both cities, the movement of goods and people, is characterized by the "provisional" and the idea of the passage in other cities, so that the local economy is not centred on the value added by the port. The spatial separation of the port has consequently had a negative impact on the inclusion of migrants into the urban system, triggering a substantial mobility and a growing dynamism between the different areas of the city (port-centre).

In particular, Garibaldi Station of Naples has become "a laboratory for new forms of commercial circulation," a poor example of internationalization that has as its protagonists migrants (F. Amato, P. Coppola, 2009, page 141).

The continuous flow of goods and people in both cities has given rise to a reticular pattern between port and central areas so that both can be defined as the "turntables" (C. Schmoll, 2004) in the Mediterranean area.

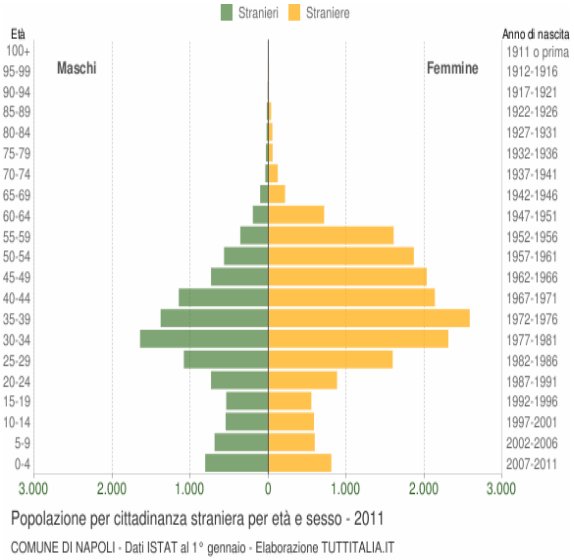
"Although the commercial sector accounts for many immigrants the gap more accessible" (F. Amato, P. Coppola, 2009, page 139) to the world of work, in Naples the tertiary sector absorbs more workers than other economic sectors. As noted in the age pyramid, to date the presence of women is the predominant workforce, such as domestic workers and careers is the sector in which there is still a high rate of employment. Contrary to what is recorded in Naples, in Valencia there is more balance between men and women. This diversity suggests a great opportunity to work in Valencia for both genders. The different structure of the population pyramid between the two cities also highlights the nature of the stability of foreign families living in Valencia, contrary to Naples, where the imbalance of women, implies greater "temporariness" of the migration plan to return to countries of origin. The Neapolitan pyramid structure is also synonym of the difficulties of integration with the citizens: a great part of the retire immigrants returns to their countries of origin.

Figure 3: Age Pyramid of Immigrants in Valencia



www.valencia.es

Figure 4: Age Pyramid of Immigrants in Naples



The age pyramid, in summary, suggests the difficult process of integration of foreign immigrants in Naples, while in the Valencia indicates a relative easier integration into the urban system. In the urban Naples are evident, however, the Push and Pull dynamics that do not allow real integration only in the residential system and increase the formation of enclaves between different ethnic groups. Ukraine community, although the most populous in Naples, was affected to own land thanks for more accessible and more near than the others, but also to the attractions of the cities more developed than Naples. For this reason the migration project of the Ukraine immigrants isn't in its initial phase, for a long-term or for stabilization. The return to the Ukraine land is always a powerful reminder and for this reason Ukraine immigrants do not have much interest to integrate, since their goal is to return to the homeland. Othewise, the data evidenced that "in 2002 the top three nationalities residents are migrants Sri Lankans, Filipinos and Cape Verdeans and are not the Ukrainians" (E. De Filippo, A. Spano, 2004 pag.361).

3. The New Urban Space of Immigrants in Naples and Valencia

The settlement of immigrants in the two urban systems, Naples and Valencia, goes to engage with the concomitant material and symbolic transformations of the territories and "emerging structures that you can not contain rigid and fixed" (L'altrove tra noi, 2003 page 35.)

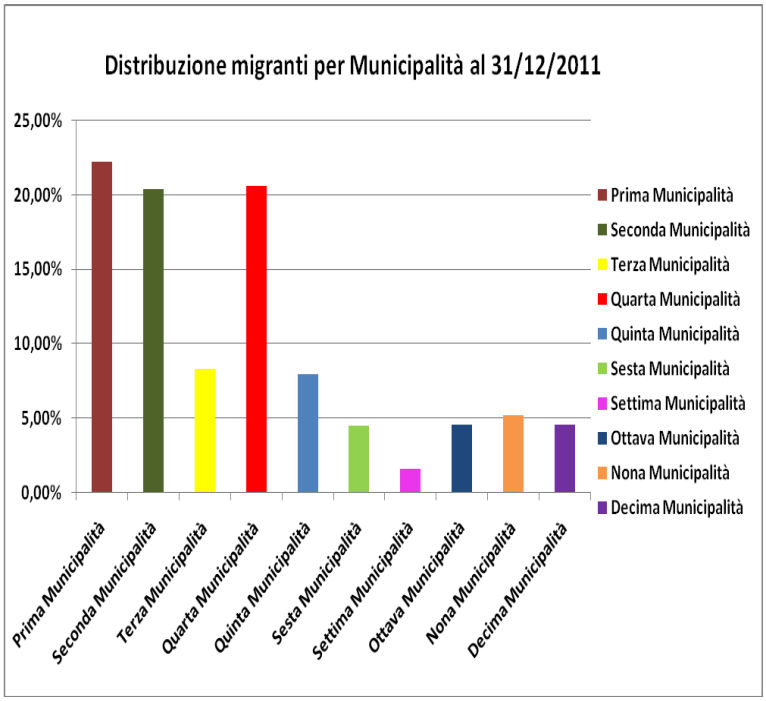
The immigrant presence, however, helps to characterize and redevelop certain areas of reproduction and adaptation in settlement sites of the practices of their countries of origin, with the material transformation of some neighbourhoods. (L'altrove tra noi, 2003, p. 56). To interpret the rooting process of foreign immigrants in Naples and in Valencia, it is useful to identify three different phases of territorialisation, or three different forms that modify the urban system determined by the reification and the organizational model space of the city.

1 - Concentration: During this initial phase immigrant communities recognize the privileged place in the centre to accommodate the new arrivals and to start businesses, especially of goods and services from their countries. This phase, surpassed by Valencia but still present in Naples, is characterized by a kind of "siege" of the old town as urban areas are becoming privileged meeting between the communities. The main train station in Naples is a clear example of how the public space is not the same for everyone, as well as would like the utopia of "'agora", and how urban space is present as a highly dynamic process, often

temporary and linked to the practice of mobility, so the idea of a "weak territorialisation" of urban spaces is particularly effective tool for understanding these phenomena: "weak" because they often temporary and fluid, why not institutionalized (Russian Krauss D., C. Schmoll, 2006 p. 715). Each ethnic group has its own space within the large area of the central station, where not only commercial activities are initiated, they exchange goods, is offered and demand work and above all a meeting place and hangout among immigrants. This type of urban space becomes a place not only intentionally multi-ethnic but also multi-functional, giving rise to a complex system of ethnic economies, although marginal, very often the residents of Naples.The high number of hawkers at the station as well as warehouses, certainly reveals the centrality of Naples in the context of the globalization of trade, while at the local level you can certainly say that such migrations are cause for urban revitalization in terms of social inclusion in a area in decline.

In conclusion, the concentration of the station area is quite natural in the first phase of the migration process. But if such centralization lasts over time, as has happened in the urban context of Naples, "gives rise to segregation in ghettos low standard of living" to the point that they become places of activities designed to respond exclusively to the needs of immigrants so as to make decoy for others in similar situations. "This chain of settlements often cause a certain degradation of the neighbourhoods" (Turco in L'altrove tra noi, p. 35) of the second and fourth municipality of Naples as Montecalvario, Pendino, Porto, San Lorenzo and Poggioreale.

Figure 5 - Naples: Immigrants for Municipalities, 2011



At this stage in Naples the new territorialisation, derived from the presence of migrants from central places, is made evident by the variegated colours of races and ethnicities, the presence of a large number of street vendors, the street that expose all their merchandise, goods and goods their country of origin and the presence of warehouses, mostly Chinese, filled with products of various nature. The latter are particularly different from the traditional settlement of shops, characterized by bright shop windows and signs and a different merchandise, contrary to what happens in the Chinese bazaar where there is a promiscuity of goods coming out of the shops, no signs and no special showcases. The station area can, however, find shops, phone centres, centres for sending money and restaurants run by Africans, Pakistanis, North Africans themselves to the needs of foreigners.

The existence of trade vendors and ethnic markets in the centre are the result of a process of grounding and stabilization of some communities established within the metropolitan area migrants who work and can then buy goods from their countries of origin and consider the centre as a meeting place, each in his own ethnic group.

In addition to businesses, meeting places for foreign immigrants are also the areas intended for the religious sphere: the geographical literature is very rich in contributions aimed to highlight the role of the religious centres as spatial aggregation point not only social, but also as a potential scale of change in the urban landscape. The latter characteristic is most noticeable for those religions where buildings, such as the mosque or the Christian churches, which are structurally very different from Catholic, then become symbols of change of the urban landscape. In Naples, as well as Mosques (Via Corso Lucci and Conrad of Swabia), many other centres Muslims (P.za Largo Market) and the churches greek-orthodox (Via Tommaso D'Aquino, c/o Cemetery Naples), or the Christian churches (Via dei Cimbri and Via Vaccaro) or Buddhist centres (Corso Vittorio Emanuele) communicate not only the strong presence of various religious entities, but emphasize the articulated structural change that the city lives daily. These centres have, however, also a great attraction for immigrants, that by practicing these religions are induced in meeting in these areas while residing throughout the metropolitan area and provincial level.

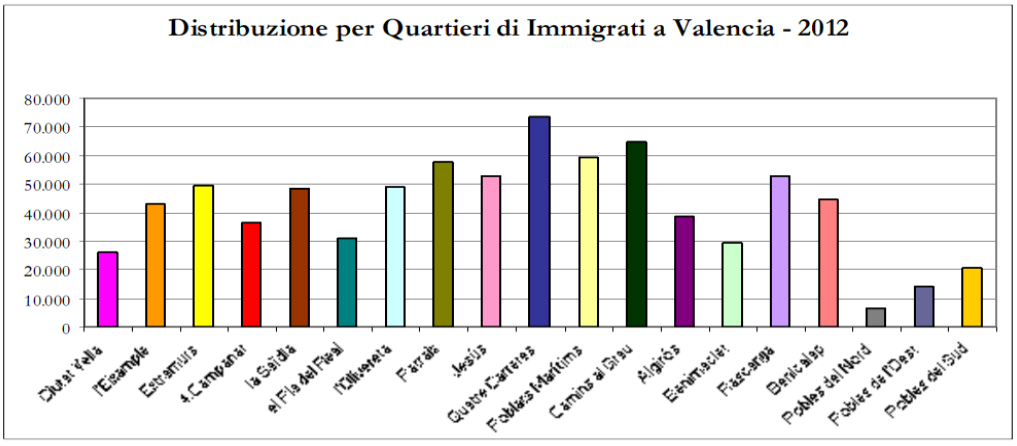
2 - Phase Diffusion: As anticipated the first phase of territorialisation derived from multiculturalism in the central area, does not exclude, nor does it affect the formation of a new phase, which among other things can be considered a continuation of that before.

These different ways of articulating the urban system, determined by the process of "de-structuring of the rural economy" (Fuschi M., 2008, p.60), is derived from the complex relationship between the city and migrations that transforms the urban organization in time and space. However re-symbolization and re-use of these spaces occur in everyday life, especially when the identity of individuals is mixed with that of the city. This is the second phase in which we can place Valencia, as the entire metropolitan area is pervaded by the presence of massive stable and migrants, as shown by the graph.

Valencia, unlike many cities in Spain, has had a very recent migration, but the policies implemented have had a strong influence on the stabilization of migrants in the city. The renewal of the urban structure which occurred at the end of the nineties and the beginning of the millennium, however, resulted to find among migrants working conditions and a better life in their countries of origin.

The settlement of migrants in Valencia is very heterogeneous among other things, as there are mono-ethnic neighbourhoods and there was a very strong and dynamic migration - as demonstrated by the data of the municipality of Valencia - year to year there is a shift very strong among the same suburbs.

Figure 6: Valencia: Immigrants for Municipalities, 2012-www.valencia.es



The presence of the mixing of ethnic groups in the city centre and suburbs can be easily deduced not only from Table 4, but above all by the fact that in Valencia centre a lot of these immigrants have become entrepreneurs and managers of stores dedicated not only to immigrants but also to Valencia residents. You can find immigrants who sell fruits, vegetables, household products, small craftsmen.

In Valencia the arrival of foreigners had not consequences for urban or infrastructure: the centre of Valencia today presents those features of immigrants in particular and confined public spaces, such as on the contrary it was reported in the municipality Naples.

The melting of cultures and ethnicities is very present and spread throughout the urban area and there are areas "reserved" to particular ethnic groups, although the marginal part of the port el barrio Cabayal remains the prerogative of the Romans You can definitely say that in Valencia both the city centre, is an expression of the whole urban area are progressive and dynamic interplay of multi- ethnicity so that for example the Chinese themselves, who despite massively present in the central area with their restaurants and shops, reside in different districts. This mixing and also the foreign presence in residential neighbourhoods have allowed the involvement of residents in integration policies, helping immigrants to integrate into society Valencia. Foreign immigrants themselves, they felt welcomed and this has allowed them to enter into the fabric of the city without much difficulty.

One of the signs that highlights the inclusion of foreign immigrants in the social structure of Valencia is the presence of the entire urban area of diverse places of worship. The latter, as we have said before, are the tangible expression of the new territorialisation of foreigners since the need to practice a religion, they anchored in a different place than the original, is the manifestation of the community to settlement in this area. In the religious structures, in fact, a permanent and stable community meets and becomes stronger. In the city of Valencia in 2011 there were, according to the Observatory of religious pluralism, in addition to the different parishes of the Roman Catholic Church: 262 Protestant Churches, 164 Islamic Centres, 81 Evangelical Churches, 15 Orthodox churches, 15 Buddhist centres, 14 centres of the Adventist Church and a large amount of places to pray other minority religions.

The great religious diversity implies, however, the gradual adaptation and tolerance of Valencian to the various communities in the area impacting very positively on their integration. It should be noted that the history of our city of Valencia is characterized by a blending of different cultures and different cultures that have made the Valencia over time a people very open to cultural diversity. (Scarpelli, L., 2000, pag.434)

3 - Phase Dispersion: The third form of territorialisation for integration, it is named "dispersion phase". It starts when immigrants already have some knowledge of the land and settle in areas far from the centre where not only the rents are lower, but where it is easier to find above all the unskilled labor in agriculture and industry. This occurred both in Naples and in Valencia, in the areas around airports and in those areas where there is intensive agriculture or the small and medium industry. It 's the case of Marcianise, Marano di Napoli, Giugliano in Naples and Castel Volturno, while in Valencia in West and northwest as el barrio de la Luz, La Font Santa and La Coma, marginal areas compared to the urban and areas in which, having been abandoned by residents for lack of work, are becoming hospitable to all those immigrants who fail to pay little with very low rents for the degradation of existing homes. In Naples, in particular, there was such a phenomenon in the crown north – north- west where reside the increase of the population is on average higher than in the last thirty years at 50% (Amato p. 161).

In these areas, immigrants are as the residents and start individual businesses by themselves. These shops are in most cases of low rank, such as greengrocers or hairdresser and are functional to all citizens regardless of gender or ethnicity. In these peri-urban areas of the integration process is not as simple as if on the one hand form of enclave within these areas isolated from the centres, the other the continuous contact with the local poor people can become ruling of a conflict between poor or otherwise of a full share of what little there is for everyone.

Phenomena of conflict, in the past, have been recorded with regard to both Naples Castel Volturno in Marcianise that, with regard to Valencia, in the port district and in other districts that are located in the surrounding peri-urban area, such as de la Luz. For some years these phenomena are less present on the one hand thanks to the natural acceptance by the residents of the presence of these people and the other to the will of foreigners to integrate. The cohabitation has become a target easily accessible thanks largely to those foreigners who, having a migration project lasting and stable, wants to remain in that place where he seeks more decent housing and a job in the suburbs to raise a family. Some Chinese families, for example, as well as some Africans have become in the outskirts of Valencia managers of

restaurants and bars, but also artisans and small traders. The selection of products and foods, contrary to what happened in the past, where the Chinese restaurants had only typical menu of their countries, have added the typical Valencian food. This kind of respect is very significant as we see the efforts of foreigners to abide by and to appropriate the Spanish culture without putting in any way that of their country of origin. In addition, to maintain the dishes, foreign managers have had to learn both the language that the traditional Valencian and Spanish, as well as stock up on the same premises.

In this stage, "the transformation of the district (or part of them) is visible through the testimony which expresses the complexity of relations with the society, which ranks as the expression of a renewed relationship between local and global (Russo D. Krauss, C. Schmoll, 2006, pp.. 701).

4. Conclusions

Human mobility in the Mediterranean and has had no apparent effect on the organization of urban spaces, helping to make the dynamic range of goods and services and creating socio-spatial relations entirely new, originally non-existent. These changes have, therefore, initiated new territorialisation processes both in Naples and in Valencia. In particular, as has been pointed out, the central station of Naples is not only the central place of the historic part of the city, but also the centre of a commercial system of the entire metropolitan area.

The consequences of this amplification of commercial space on the basis of informal relationships can form the basis on which a profound effect on the integration of immigrants and foreign residents. Valencia, as has been shown, thanks to the full consciousness of the new informal and formal ways of entire urban area, has shown a greater degree of integration than that of Naples. The attention to the new demands of civil society and social change is also derived from the implementation of the reform at the local level in the Fourth Section of Organic Law 4/2000, on the rights and freedoms of foreigners in Spain and their integration social. In this reform, in fact, states that "the public authorities'll promote the full integration of foreigners in the Spanish company" (Felip the Sardà JM, 2011)promoting the learning of the official languages Castilian and ensuring, through training, knowledge and respect for constitutional values of Spain and European Union and human rights, civil liberties, democracy, tolerance and equality between men and women.

The government authorities of the city of Valencia has also taken steps to ensure the integration of immigrants in Valencia with the Plan Director de Inmigración y Convivencia 2008-2011. In this plan, the government has started:

a) Courses on civil society and Valencian culture in which were taught the language Valencia, Valencian and Spanish laws and the procedure of public and private funding to start a business

b) Activities on civic education on a voluntary system

c) Financial support for a short time and training of immigrants to enter the labor market

d) Free access to health care and education - education

e) A number of measures in the fields of social participation and the housing system

f) Awareness of diversity

The Valencia model, therefore, has led to greater integration and a more harmonious territoriality of foreign immigrants in Valencia than Naples. In Naples, in fact, there are also phenomena enclave to the point that some foreign immigrants prefer to consider the city of Naples as a place to start for a new migration project. Naples has also been reported the fragmentary territorialisation of immigrants due to incoherent policies alternated over the years. In fact, apart from the pilot projects, such as the linguistic mediator, has not been made a general plan that could include the integration of immigrants not only as a social phenomenon, but also as a territorial phenomenon.

To conclude the integration Valencian model is valid and can be replicable to entire Europe, as this policy is based on the bidirectional respect of all persons, of the local law, of local language skill and above all on the commitment by the host host society.

Caption of Figure:

Figure 1: Of. Estadisdica, Ayuntamiento di Valencia, 2012, www.valencia.es

Figure 2: wwww.tuttitalia.it

Figure 3: Of. Estadisdica, Ayuntamiento di Valencia, 2012, www.valencia.es

Figure 4: wwww.tuttitalia.it

Figure 5: Trani G., 2013, Campania: i profili del disagio e dell'esclusione sociale tra i migranti in AA.VV: Dossier Regionale sulle povertà 2012 ,Delegazione Regionale Caritas della Campania (gennaio 2013, pp.117 - 123).

Figure 6: Of. Estadisdica, Ayuntamiento di Valencia, 2012, www.valencia.es

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Announcements, Conferences, News

Socio-Economic Sustainability, Regional Development and Spatial Planning: European and International Dimensions & Perspectives

Conference Overview[1]

The Lesvos Conference 2014 is held by the Laboratory of Economic Geography, Regional Development and Territorial Planning, Department of Geography, University of the Aegean "Ergaxia", Sociology of Labor Academic Laboratory, Department of Sociology, University of the Aegean and International Sociological Association (ISA), Research Committee on Sociotechnics /Sociological Practice (RC26), in Mytilene, Lesvos, Greece on July 4 – 7, 2014. The Conference entitled "Socio-Economic Sustainability, Regional Development and Spatial Planning: European and International Dimensions & Perspectives" hosted in the Department of Geography, University of the Aegean and summarized the debate for the future and prospects of socio-economic and territorial development of the European Union. The agenda of conference included the fields of European, Economic-Geography, Sociology, Regional Development and Spatial Planning studies. Also issues as empowerment and citizens' participation presented and debated.

The Organizing Committee – Chairmen of the Conference were Dr. Carayannis Elias, Professor George Washington University, Dr. Korres George and Dr. Kourliouros Elias, Professors of the Aegean University, Dr. Tsartas Paris, Rector, University of the Aegean University, Dr. Tsobanoglou George, Associate Professor of the Aegean University, and the members of the Scientific Committee who have contributed and participated were Dr. Briassoulis Helen, Dr. Anagnostou Spyros, Dr. Andreopoulou Zacharoula, Dr. Artavani Maria-Athina, Dr. Botsaris Akis, Dr. Chorianopoulos Ioannis, Dr. Frangos Christos, Dr. Fotis Georgios, Dr. Gavalas Vasilis, Dr. Gavrilakis Kostas, Dr. Georgiou Myria, Dr. Giannakopoulos Athanasios, Dr. Gkantzias George, Dr. Grigoriou Panagiotis, Dr. Harris Richard, Dr. Halkos George, Dr. Hazakis Konstantinos, Dr. Iosifides Theodoros, Dr. Kizos Athanasios, Dr. Kitsos Christos, Dr. Kokkinou Aikaterini, Dr. Klonari Aikaterini, Dr. Koukoulas Sotiris, Dr. Kurashima Akira, Dr. Ladias Christos, Dr. Lagos Dimitris, Dr. Gertrud Lenzer, Dr. Leontidou Lila, Dr. Liargovas Panagiotis, Dr. Louca Charalambos, Dr. Manolas Evagelos, Dr. Marmaras Emmanuel, Dr. Michaelidou Maria, Dr. Papadaki Olga, Dr. Papadaskalopoulos Athanasios, Dr. Petrakou Ilektra, Dr. Petropoulou Christi, Dr. Psycharis Yannis, Dr. Polychronopoulos George, Dr. Nikita Pokrovsky, Dr. Prasad Kiran, Dr. Flaminia Sacca, r. Sandberg Åke, Dr. Salomone, Mario, Dr. Sidiropoulos George, Dr. Skuras Dimitris, Dr. Stratigea Anastasia, Dr. Symeonakis Elias, Dr. Terkenli Theano, Dr. Tsamadias Konstantinos, Dr. Tsilimigkas George. The Conference is separated into 19 special sessions:

- Urban and Regional Development the in European Union and planning Policies for Sustainable Growth
- Macro-Economic Policies and Regional Development
- Micro-Policies and Sustainable Growth
- European Cooperatives and Socio-Economic Growth
- Social Economy Innovations and Sustainable Communities
- Inclusive Recovery and Local City Employment Governance
- Public Administration and Sustainable Development
- Local Government Role and Responses to Sustainable Development
- Cellular Globalization in between Local and Global social dimensions
- Empowerment of Citizens/Workers/Minorities/Youth
- Innovative Community, Social Development and Education
- Territorial Innovation in the European Union and Planning Policies
- New Forms of Territorial Governance in Europe
- Migration, new forms of inequality and social exclusion in Europe
- Social Policies and Social cohesion in Europe
- Entrepreneurship, SMEs and Local Development
- Cultural Management, Local Heritage and Local Development
- Tourism Development, Policy and Planning

1 Conference overview by Antonia Obaidou, Aristotle University of Thessaloniki, Greece

Regional development and globalization: Best practices

Conference Overview[1]

The 54th ERSA congress 2014 is held by the European Regional Science Association (ERSA) under the leadership of the St Petersburg Local Organising Committee and the Scientific Committee 2014 in St Petersburg, Russia, on August 26 –29, 2014. The Conference entitled "Regional development and globalisation: Best practices" hosted in the the Smolny convent, 1/3 Smolny str and featured "benchmarking issues in regional policy and planning as well as Arctic issues in the regional development".

The Organizing Committee – Chairmen of the Conference were Igor Gorlinskii (St Petersburg State University), Victor Razbegin (SOPS) Alexander Pelyasov (Chief Scientific Secretary), Andrey Zynovyevn (St Petersburg State University), Asya Gilmanova (Monomax), Elena Margulis (Monomax) and the members of the Scientific Committee who have contributed and participated were Peter Batey, Roberta Capello, Paul Cheshire, Daniela Constantin, Juan Cuadrado Roura, Jouke van Dijk, Manfred Fischer, Henri de Groot, Geoffrey Hewings, Gunther Maier, Peter Nijkamp, Yannis Psycharis, Laura Resmini, Andres Rodriguez-Pose, Andre Torre, Attila Varga, Hans Westlund.

The Conference was separated into 22 special sessions:

- New frontiers in Regional science
- Regional economic growth and development
- Urban sprawl and shrinkage
- Regional and urban labor markets
- Regional and urban policy, planning and governance. Best practices
- Location of economic activity
- Entrepreneurship, small business and regional diversity
- Multinational corporations, social embeddedness/alienation
- Institutional factors in regional and urban development
- Migrations, diasporas, and aging in the regions
- Spatial econometrics and regional economic modelling
- Spatial agglomerations - economic clusters and metropolitan areas
- Innovations in space
- Tourism and regional experience economy
- Realty and housing markets
- Arctic and Northern frontier regions
- Natural environment, resources, and sustainable development
- Infrastructure, transport, communications for mobile regions
- Social segregation, poverty, and social policy in space
- Regional finances, investments and capital markets
- Transitional economies
- Regional cooperation and competition

1 Conference overview by Nicolaos Hasanagas

Academic Profiles

Professor Ioannis Th. Mazis

National & Kapodistrian University of Athens

Ioannis Mazis is Professor of Economic Geography and Geopolitics, at the School of Economics and Political Sciences and Chair of the Dpt of Modern Turkish and Modern Asian Studies, National & Kapodistrian University of Athens. He is graduated from the National Technical University of Athens (Ε.Μ.Π), Faculty of Rural and Surveying Engineering. The subject area of his thesis is Geography and Space Analysis. He holds a Doctorat D'État in Geography, following a 4-year period of studies in Economic Geography (Geography of Freight Transports and Spatial Organisation) at the Postgraduate Institute of Geography, University of Aix-Marseille II in Aix-en-Provence, France. Ioannis Mazis is one of the Founders of Ionian University (Founded in 1984) and he was the founder and Director (period: 2002-2010) of the first in Greece Laboratory of Geocultural Analyses (Geolab) at Ionian University, Corfu, Greece. Prof. Mazis specialises in Geopolitics of the Middle East and the South Eastern/SE Mediterranean. He is the author of many books and articles on the Middle East, the Islamist Movement and the water issue in the Middle East, the epistemology and the theory and practice of Geopolitics, and the Secret Islamic Orders in relation to the economic and political Islam in Modern Turkey. From July 2004 until July 2008, Ioannis Mazis was the Chairman of the Academic Board of the Defence Analyses Institute (IAA), a research institution under the umbrella of the Greek Ministry of National Defence. He was in charge of four IAA publications, including the "Defensor Pacis," an English publication with international recognition (period: 2004-2008). He is founder and Managing Director of the french language scientific revue "Géographies, Géopolitiques et Géostratégies Régionales".

Ioannis Mazis introduced to the international academic community the geographic analytical method of Systemic Geopolitics and to the greek academic community the theoretical geopolitical approach of the Islamist movement. He is honored by the French Republic as *Chevalier de L' Ordre des Palmes Académiques*.

His most recent publications include:

1. China Institute for International Strategic Studies (C.I.I.S.S.)/ Defence Analyses Institute (D.A.I.), I. Th. Mazis, "Geopolitical and Geostrategic Analysis of the Israel – Hezbollah Assymetric War (12 July - 11 August 2006)", C.I.I.S.S. / I.A.A.: Cooperation on Defence Diplomacy, Athens/ Beijing in November 2006, Defensor Pacis (Special Issue I.A.A./C.I.I.S.S.), Vol. 19, January 2007, pp.: 28-37.
2. China Institute for International Strategic Studies (C.I.I.S.S.)/ Defence Analyses Institute (D.A.I.), I. Th. Mazis, "The Situation in the Middle East: The EU perspective and the role the EU can play", C.I.I.S.S. / I.A.A.: Cooperation on Defence Diplomacy, Athens/ Beijing in November 2006, Defensor Pacis (Special Issue I.A.A./C.I.I.S.S.).
3. I. Th. Mazis, "Critique de la Geopolitique Critique ou bien ≪Qui a peur de l'analyse geopolitique moderne ?", Etudes Internationales, vol. no. 106, (1/2008), 1SSN 03308758, Association of International Studies, Tunis/Tunisie, Imp. La Kasbah-Tunis, p.p. 140-153.
4. I. Th. Mazis (Professor University of Athens)-Dr George Sgouros (Recherche Fellow-University of Athens): Geopolitics of Energy in the Kastelorizo - Cyprus – Middle East Complex. (Based on the existing geophysical and geological indications of hydrocarbon deposits), IENE-Congress, November 9-1/2010, Hellenic Ministry of Foreign Affair, Athens.
5. I. Th. Mazis, "Geopolitical Analysis of the Greater Middle East System in the Present Juncture", *Regional Science Inquiry Journal*, Vol. V, (1), 2013, pp. 163-171, The RSI Journal is included in the Reference List of EconLit (3/2011), RSA I, EconPapers, RePEc, Ideas IM.
6. I. Th. Mazis, "The Geostrategic Axis between Israel, Cyprus and Greece: Turkey's Planning in the Region", *Civitas Gentium*, Section C, 3:1 (2013) 59-71
7. I. Th. Mazis, *"L'effet syrien et l'analyse géopolitique et géostratégique du moyen Orient actuel*", *Civitas Gentium* 2:1 (2012) 59-7734.α.

By Dr. Dr. Aikaterini Kokkinou, University of the Aegean

Professor George Prevelakis

Panthéon-Sorbonne University

Professor George Prevelakis teaches geopolitics at the Panthéon-Sorbonne University in Paris. He has also taught at Technical University of Athens, SciencesPo in Paris and the Fletcher School (Tufts University – Medford, Massachusetts).

Georges Prevelakis studied Architecture at the Athens Technical University and Geography and Planning at the Sorbonne.Between 1978 and 1984, he served as an Urban Planner at the Greek Ministry of Physical Planning and taught at the TechnicalUniversity and at Panteion University in Athens. In France since 1984, he has taught at the Sorbonne and at Sciences Po in Paris. His courses cover a large field, ranging from Greek Physical Planning to the Geopolitics of Europe through the History of Modern Architecture and Urban Planning, the Theory of Political and Cultural Geography and Balkan Geopolitics.

He has also taught in the USA: at the Johns Hopkins University, at Boston University and, during two academic years, at Tufts University where he occupied the Constantine Karamanlis Chair in Hellenic and Southeastern European Studies (2003-2005). His research focuses on Political and Cultural Geography theory, Urban Planning, Diasporas, European and Eastern Mediterranean Geopolitics.

His most recent publications include:

1. Athènes, urbanisme, culture et politique, L'Harmattan, 2000.
2. Les réseaux des diasporas, L'Harmattan, 1996.
3. Géopolitique de la Grèce, Complexe, 1997 - 2006.
4. "Les grandes métropoles comme carrefour des diasporas", Cybergéo, 1999.
5. "Querelle byzantine, à propos du contentieux gréco-macédonien", Le Monde diplomatique, janvier 1999.
6. "Les Balkans, poudrière ou thermomètre de l'Europe ?", Confluence Méditerranée, automne 1993.

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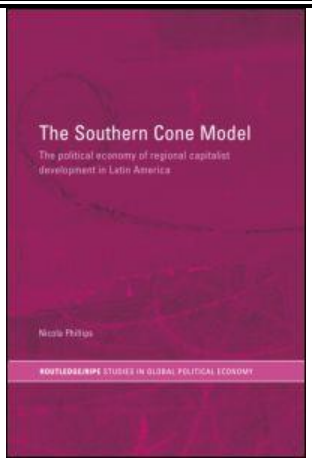
Book Reviews



The Southern Cone Model

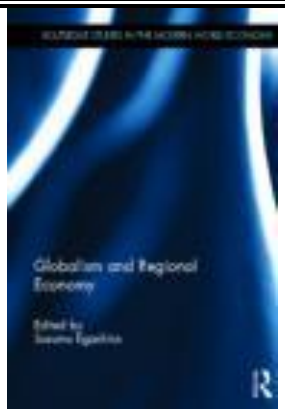
The Political Economy of Regional Capitalist Development in Latin America

By Nicola Phillips

Routledge, 2004

Developing an original blend of perspectives from the fields of international and comparative political economy, this book presents an innovative and in-depth account of the contemporary political economy of the southern cone of Latin America: Argentina, Brazil, Chile, Paraguay and Uruguay. It identifies a new and distinctive model of regional capitalist development emerging in the southern cone and a complex relationship with both the global political economy and the five distinctive national political economies in the region. Ranging across the contours of labour, business, states and regionalist processes, Phillips assesses the significance of the Southern Cone Model for the ways in which we understand contemporary capitalist development at both national and trans-national levels.

Book review by Dr. Aikaterini Kokkinou, University of the Aegean



Globalism and Regional Economy
Edited by Susumu Egashiru
Routledge, 2013

The book covers the results of trial and error of regional economies in Japan, Korea, Austria, New Zealand, and the UK over the past two decades. Since the end of the cold war, regional economies have been struggling to meet the demands of global change, and are trying to find a new approach based on "inter-regional cooperation" to survive and develop further. This book focuses on the circumstances of regional economies worldwide as well as three important issues of concern: commercial and policy issues, international trade, and promoting a regional approach in international tourism. The book presents case studies of five countries and examines the possibility of application to other regions. Although every region has suffered from the decline of traditional industries in the face of international competition, academic analysis of successful cases are particularly useful and relevant to the reforms of regional economies and their development. This book also discusses the current problems of FTAs, tourism, medical management, and regional management and suggests possible short-term development strategies. Regional economies have begun a number of initiatives in these fields in the globalized world. The book demonstrates the current results of such initiatives. The book also explores new patterns of collaboration between regions of different countries following their recent initiatives.

Book review by Dr. Aikaterini Kokkinou, University of the Aegean