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EUROPEAN SPATIAL RESEARCH AND POLICY
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BOOK REVIEWS

TWENTY YEARS OF *EUROPEAN SPATIAL RESEARCH AND POLICY*

The beginning of the last decade of the past century (the 1990s) brought significant changes in Europe, particularly important for the countries of Central and Eastern Europe, which regained sovereignty after half a century of being in the Soviet Union's sphere of influence and having totalitarian communist regimes. The new situation resulted, among other things, in greater opening up of societies in this part of the continent to intensive contact with the world, which meant new opportunities for international cooperation, including academic cooperation. It was made possible by elimination of various barriers, also in the sphere of publication, as control of information and censorship constituted one of the pillars of the communist system.

It is therefore not surprising that on the basis of earlier scientific contacts of geographers from the University of Łódź an initiative originated to launch, in collaboration with foreign universities, a new journal aimed at promoting integration of research conducted in different parts of formerly divided Europe. The initiative was initially undertaken by four universities acting as co-publishers: the University of Łódź, University of Groningen, Comenius University in Bratislava and University of the West of England in Bristol. During the past twenty years, the Charles University in Praque participated temporarily in this undertaking, and now the Federal Office for Building and Regional Planning in Bonn is one of the co-publishers.

Since 1994, when the first issue of the journal appeared, twenty volumes of ESR&P consisting of forty issues have been published. Authors representing 37 countries have contributed over 400 papers, review articles and book reviews.

Since 2009, ESR&P appears also in electronic version (www.versita.com/esrp), but nonetheless about four hundred paper copies of the journal are distributed in 18 countries.

The publication of ESR&P has brought together scholars engaged in spatial and environmental studies in various academic and research institutions from many countries across the world. They participate in the work of the Editorial Board, meeting every two years to exchange scientific ideas and experience and to discuss editorial policy.

Special acknowledgement is due to the persons who are actively involved in the publication of ESR&P, especially those who have for two decades continued to support this initiative. Also, an optimistic thing is that researchers representing a younger generation are joining our editorial efforts and, hopefully, will write the foreword to the next jubilee issue in another twenty years.

Tadeusz MARSZAŁ, the editor

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PART I

THE SUSTAINABLE CITY: THE CONCEPT, EUROPEAN POLICIES AND IMPLEMENTATION

Guest editor: Solange MONTAGNÉ-VILLETTE

FOREWORD

The sustainable city is a recent concept whose rapid popularization has left policy-makers and researchers little time for a full appraisal. However, the twenty or so years since the concept was first outlined do now allow for a retrospective reading of the theories that have emerged. The 1991 European Union Green Paper on the urban environment highlighted the existence of a genuine European urban culture and an Expert Group on the Urban Environment was tasked with putting forward a series of recommendations. Sustainable development became a key issue following the 1992 Rio summit, rapidly taking on a number of forms. Europe quickly embraced the concept, leading to various studies, plans of action and the implementation of funding.

The first conference on sustainable urban development in 1994 led to the Aalborg Charter, which lays out the principles of sustainability in an urban context, including undertakings to maintain biodiversity, air and water, promote community-led initiatives, strive for social equity through sustainable employment, maximize effective land use in city centres, and seek a mix of functions in urban areas. The second conference on sustainable cities, held in Lisbon in 1996, highlighted the need for action. The 1998 Vienna forum brought the environment and sustainable development into European Union policy, thereby creating a framework for action and funding. Participants exchanged ideas on best practice and their own experiences, while grants were targeted at urban networks.

The first French geography PhD thesis on the sustainable city came in 1999, when Cyria Emilianoff defined the concept through expectations combining the old and the new – the capacity to endure, a high quality of life in all areas and

Agenda 21. The sustainable city is part of the broader context of sustainable development and the specific expectations associated with urban spaces. While Europe's urban areas have been known to shrink in times of recession or destruction since the Middle Ages, they remained established poles that adapted and grew where they were. The quality of life was thought, or hoped, to be better in such urban areas than in rural areas, at least until the industrial revolution. Meanwhile, the interpretation and implementation of Agenda 21 combines innovative programmes and old projects brought up to date.

Elsewhere in Europe, other countries have developed their own sustainable city policies. The examples in these studies, drawn not only from around Europe but also from one developing country further afield, demonstrate that there is a broad gap between the concept and its implementation on the ground, even though the initial intentions may be in keeping with the ideal of sustainability. The studies show that it is difficult indeed to implement the three key tenets of sustainable development in terms of planning policy.

On an environmental level, the greenways that are such a widely praised aspect of current policy are nothing new, as Frédéric Alexandre shows. They became popular urban features as early as the 19th century, as public health approaches to town planning led to their development. Long before Agenda 21, capitals including Paris, Berlin and London made moves to protect their green spaces and build model housing for workers to safeguard the health and comfort of the population while providing a healthy, strong workforce for industry. In the first half of the 20th century, the need to control urban growth also gave rise to the 'green belt' theory, with mixed results, as is clear today. It remains to be seen whether the sustainable city that recycles such expectations, in many cases in the form of regulations, will be an improvement. The current situation is somewhat paradoxical: while environmental protection is at the top of the agenda, urban sprawl has never been so widespread in Europe, and results so far do not appear to be in line with expectations.

Boris Lebeau's article shows that when it comes to the economic and social aspects of the sustainable city, the road to hell is paved with good intentions. The ideals of social diversity and local democracy espoused by urban planning also gives mixed results, as the example of Saint-Denis, in the northern suburbs of Paris, indicates. The initial project followed the theories of urban sustainability, as Saint-Denis created an eco-district in the La Plaine neighbourhood, introducing a mix of functions and a socially diverse population by promoting first-time home ownership; however, the results proved disappointing, as the economic activity and successful creation of new jobs did not meet the needs of the local inhabitants. In an age of globalization, the mobility of inhabitants, especially employees, and of activities has had unexpected effects, not always welcome, as the gap between the local population and economic activities can prove challenging.

Marie Redon's study of Haiti reveals how difficult it is to export the model of the sustainable city wholesale, even with substantial government aid. Following

the devastating earthquake of January 2010, the local authorities stated it was their ambition to rebuild Port-au-Prince as 'a sustainable city that meets the objectives of the millennium', drawing on international aid. However, this aim is proving problematic. Attempts to export European policies to the developing country have shown the limits of such an undertaking, even before work has begun. Geographical factors, including the recent hurricane as well as the earthquake, economic under-development, social inequality and poverty, all conspire against reconstruction, making the rapid implementation of a sustainability programme highly unlikely.

What does the sustainable city have to offer planners? The concept may be attractive in political terms – as are all planning theories, such as the 1970s fashion for growth poles. However, there is a long road between consensus-based intellectual construction and practice, particularly since there will inevitably be a delay between the uptake of an idea and its implementation, and contexts evolve swiftly.

New ideas often recycle or adapt existing notions to prevailing circumstances: for geographers, issues of changes of operator and scale are particularly relevant. Planning towns and cities for new populations after the industrial revolution was mainly driven by individuals, who were often employers, philanthropists, or both. Planning sustainable cities leaves more room for local authorities and inhabitants to make their voice heard, at least in formal terms. Funding is more likely to be public than private. The ideal city, which the sustainable city aims to be, is no longer confined to a handful of fortunate sites with a new approach to planning; it has become a universal value. The final question is one of timing: what place is there for the sustainable city in a world where speed, mobility and short-term time scales are key values?

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INVITED ARTICLES

Frédéric ALEXANDRE*

THE ROLE OF VEGETATION IN THE URBAN POLICIES OF EUROPEAN CITIES IN THE AGE OF THE SUSTAINABLE CITY

Abstract. The emergence of the modern concept of the sustainable city raises afresh the long-standing issue of the place and role of vegetation in urban and peri-urban areas in Europe. The awareness of biodiversity and the exploration of the services provided by ecosystems both lead to the development of ecological networks based on green spaces in and around the city. The establishment of these networks converges with the control of urban growth and urban sprawl, with the 'green belts'.

Drawing on the development of public policy governing the place of vegetation in Berlin, London and Paris, this article seeks to show the correspondences that have developed in the discussions of urban policy carried on in the major industrialized countries, and also the conflicting goals which these policies are meant to implement.
Key words: vegetation, biodiversity, urban landscape, parks and green spaces, green belt, greenway.

1. INTRODUCTION

The area occupied by vegetation in cities is considerable: Clergeau (2007) cites approximate figures of about 15% of the surface in centre-city districts. The proportion rises to 40% in the peri-central areas, the former inner suburbs where private gardens and cemeteries are more frequent. In the outer suburbs, areas of vegetation

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occupy more than half the space and often more than two-thirds. Beyond these lie the peri-urban open areas, mainly rural (cultivated or forested) in terms of their use of space but subject to the pressures of urbanization. Some of these open areas are urbanized, constituting green spaces and gardens (public or private). The urban fabric also allows for 'rips', discontinuities through which unplanned nature – what has even been called 'the wild' (Lizet and Celecia eds., 1999) – can slip in, from abandoned farmland to urban waste ground, reaching the bases of the rows of city trees and the gaps between the cobbles.

Whatever its form, urban and peri-urban vegetation is today the subject of renewed discussion within the context of the quest for a sustainable city. The establishment of ecological networks traversing urban space and relying on the greenways is everywhere on the planning policy agenda. In Berlin after reunification, the double green belt established after the First World War has been allocated new functions; in London, the Greater London Authority has established the Strategic Open Space Network (London Plan, 2008). In France, the implementation of the *trame verte et bleue* (green-and-blue-way), that also concerns urban areas, was raised to the status of a major priority by the *Grenelle de l'Environnement*. The theme is also present in the EU-Leipzig Charter on Sustainable European Cities (Eltges, 2009).

The text adopted at the close of the *Grenelle de l'Environnement* defines the challenge of implementing the green-and-blue-way:

> The challenge goes far beyond the mere preservation of isolated natural areas and the protection of endangered species. It means establishing a coherent ecological network that allows species to move around and interact, and enables ecosystems to continue to provide services to human beings (Ministère de l'Ecologie…).

Further:

> We must henceforth think in terms of the linking and functionality of ecosystems, in terms of ecological continuity on a large geographic scale. This requires incorporating the mobility of the species concerned and to a lesser extent the movement of whole ecosystems over time. It is designed to actively renew an interest in biodiversity, which some people may view as merely 'ordinary' (Ministère de l'Ecologie…).

The goal is thus extremely ambitious, focused on the question of the management of biodiversity and the maintenance of ecosystem services. It is even more ambitious in the cities, where it has to be compatible with the functions inherited from existing parks, gardens, and green spaces designed originally with a primarily aesthetic purpose, complemented during the second half of the 19th century by the public health goal of contributing to social stability by providing the working classes with green spaces that made them stronger and healthier.

Drawing on the development of public policy governing the place of vegetation in three major European capitals, Berlin, London and Paris, this article seeks to show the correspondences that have developed in the discussions of urban policy carried on in the major industrialized countries, and also the conflicting goals which these policies are meant to implement.

2. 'PARK SYSTEMS': AN APPROACH TO SUSTAINABLE URBAN DEVELOPMENT AHEAD OF ITS TIME?

2.1. From the Invention of the Urban Park to Park Systems

Gardens and green spaces took on a new role in urban space in 18th-century England, when the public was first allowed access to gardens inspired by a landscape aesthetic derived from the rural landscape, in which the ideas of the beautiful, the sublime and the picturesque were fundamental. This original objective reappears today in the parks of British cities, most of all in the royal parks of London, such as Hyde Park, founded in 1735. It appears in a less tightly controlled form in the great peri-central green spaces, such as Hampstead Heath, located in an upscale area of north London, which combines more formal sections with others where natural processes, though still managed, are allowed more free rein: woods, areas of heath where yellow broom, gorse and purple heather grow together, and meadows dotted with clumps of trees and ancient oaks, all combine to create that pastoral effect which is so typical of the English approach to managing the green landscape in the city.

Later, during the industrial revolution, the authorities were forced to try to improve the quality of urban life in order to maintain the social order: among other initiatives, they established areas where the working class and the urban population in general could access resources for improving their health. The metaphor of green spaces as the 'lungs of the city' arose at that time, and parks and gardens thus took on an important role in the development of the public health movement, a popular element of urban planning. In the major industrial conurbations and the working-class suburbs, this new function assigned to parks and gardens was often implemented in a diminished form, as in the case of Victorian urban planners who established large grassy commons and playing-fields rather than gardens with trees and flowers.

The goal of health and social improvement was expressed especially strongly in Berlin, where industrial growth skyrocketed (*Gründerzeit*), and the city grew from 932,000 inhabitants in 1870 to 3.7 million in 1913. This industrial expansion was accompanied by planning (the Hobrecht Plan) which was thoroughgoing but

aesthetically deficient: 'rental barracks' (*Mietskaserne*) proliferated, working-class neighbourhoods were built in the suburbs, and a horseshoe-shaped boundary was created to enclose the neighbourhoods of the city centre, which were themselves barely distinct from the collection of villages that had constituted Berlin in the past. A large park, the Tiergarten, once the hunting grounds of the kings of Prussia, occupied the heart of Berlin, indicating how recent this growth had been: its transformation into an urban park by landscape gardener Carl Josef Lenne in the 1830s expressed a search for a style of landscaping that would evoke the forests of Brandenburg, and also the desire to accommodate the population more fully by planting giant expanses of grassy lawn. In the following decades, when the public-health aspect was added in, *Volksparke* were created in working-class neighbourhoods.

However, things changed substantially when urban planning as understood in democratic societies became more widespread (Le Dantec, 2003): parks and green spaces came to play a vital, central role in the designs for cities first developed in the United States, particularly under the influence of Frederick Law Olmsted. The son of a wealthy family, fascinated as much by the natural world as by the American countryside (Harper, in: Paquot ed., 2010), Olmsted was one of the main proponents of nature conservation; in 1864 he became the first director of Yosemite, the park created by the state of California, and in 1872 the planner of the first national park, Yellowstone. Simultaneously, he sought to implement a concept of the city in which the park is the centre of social life. His most famous creations are in New York – Central Park in Manhattan (from 1853) and Prospect Park in Brooklyn (1870) – where he applied his principles: firstly, secondly, aesthetic values, with a preference for the picturesquely rustic, public health concerns, and thirdly, social goals, which for him went hand in hand with a staunchly conservative outlook.

Olmsted received many commissions from cities in the United States, Canada and Europe for city parks on the model of Central Park. His wildest dreams came true when the municipal authorities of Boston and Washington permitted him to implement a 'series of parks' making a physically continuous green space in each city. For this reason, he is viewed today as a precursor of the urban greenway (Cormier *et al.*, 2010; Desvignes, in: Masboungui ed., 2011), although this judgement is questionable given how different his goals were.

The desire to build orderly 'park systems' reappears with the French landscape architect Jean-Claude-Nicolas Forestier: drawing on the concept of 'open spaces', he pondered both the hierarchical relations of urban green spaces and their place in the concentric rings that form not only the city but also the terrain lying well outside it, from 'the great nature reserves and protected areas […] right in to the avenues and promenades' (Forestier, 1906, in: Le Dantec, 2003). Once again, it is the functions assigned to these parks, as 'features conducive to health and beauty', that are stressed. This complementarity of function can be seen even today in the

traditional way that green spaces are viewed. This does not exclude a degree of diversity in the options about which planners and landscapers may disagree: different aesthetic choices are made, the local flora may be featured or exotic species introduced, and so on. But the debate has long remained confined to specialists, and physically speaking, to parks and gardens – a dual barrier that urban public policy is now seeking to overcome.

2.2. Green Urban Spaces and the Natural World

Moreover, if 'nature' was a word frequently uttered in the 19th and early 20th centuries, its meaning was very different from that assigned to it today in connection with the sustainable city. In the debate on the landscaping of public gardens, the partisans of the garden designed entirely via the selection of aesthetically pleasing species have always conflicted with those who sought to evoke natural, rustic landscapes in the English style. But Alphonse Alphand, who was given the task of designing the public gardens and promenades in Paris under Haussmann (he was responsible for the reconstruction of the old quarries that became the Parc des Buttes-Chaumont, and for the Parc Montsouris), made no concessions to emerging ecological ideas:

> When we say that a garden must maintain the appearance of nature, do not believe that this means making an exact copy of the things that surround us. A garden is a work of art. As much thought, organisation, artificial effects sought and achieved go into a picturesque composition as into a formal layout […]. Nature provides the overall outlines, but it must necessarily undergo some touching up to keep it in check and modify it. Things are not set out in some absolute order, as at the moment of the Creation, but in a purely human order […]. If we were to abandon this landscape, as pretty as it is now it would soon start to look almost desolate: the more vigorous species would smother the more delicate ones; as the air stopped circulating through the masses of greenery, the vegetation would stop growing in the excessively shady areas; and the whole garden would come to look unattractively dishevelled. So we should not take mere nature as our model, but imagine its pleasing, artificial arrangement, while yet we stray no farther from the truth than is called for by the needs of our art (1873, in: Le Dantec, 2011).

Instead, it was the ecologists who entered the domain of the landscape architects, keen to demonstrate the artistic forms present in nature's flora: Ernst Haeckel, who in 1866 coined the term *Oekologie*, went on to write *Kunstformen der Natur* (1899), a work that inspired Art Nouveau and Modernist artists.

The 20th century saw a radical break with the love of the exotic and picturesque. Le Corbusier advocated recreating 'wilderness' in the city to provide a contrast with its architecture, and viewed green spaces from a strictly functional standpoint. Article 35 of the Athens Charter (1933), a true manifesto of the ideal city of modern times, demands that 'every residential district must include the green

area necessary for the rational disposition of games and athletic sports for children, adolescents, and adults' (Le Dantec, 2003).

Following this line of thought, large parks were created in the Paris suburbs during the period of rapid urbanization that followed the end of the Second World War. One example is the Parc de la Courneuve (now the Parc Georges Valbon), comprising 415 ha of land that had formerly been abandoned as too swampy, then partly occupied by a slum. This park was created in the 1960s from the plans of landscape architect Albert Audas, to provide an equivalent of the Bois de Boulogne or Central Park in the northern suburbs. Although its social purpose has not diminished, the Parc Georges Valbon has now taken on a new function, becoming a major component of the strategy for maintaining biodiversity in the urban space of the Paris conurbation. As part of the European Natura 2000 programme, parts of it have been classified as a Special Protection Area (for the conservation of threatened bird species) and a Special Area of Conservation (because of its valuable habitats); it is now one element in a discussion initiated by the 'Nature and Landscape' administration of the General Council of Seine-Saint-Denis on the 'green linkage' in that department – meaning the continuous series of green spaces that connect centres of biodiversity and are reserved for non-motorized traffic.

3. WHAT IS THE ROLE OF THE GREEN BELT IN THE SUSTAINABLE CITY?

3.1. The Time of Garden Cities

The struggle to prevent European cities from becoming indefinitely growing and unplanned urban districts or conurbations has led to contain urban growth by creating new urban cores. This point of view has been fostered by the developing movement of city gardens, linked to utopian socialism. Ebenezer Howard, who initiated the movement in his book *To-Morrow*, *A Peaceful Path to Real Reform*, published in 1898 and later reissued in 1902 as *Garden Cities of To-Morrow*, imagined small urban units which were to accommodate the new inhabitants; he understood life with maintained links with the surrounding countryside as a means to find food supply but also well-being.

However, city gardens attempts soon differed from Howard's pattern. The first attempts, such as those carried out at Letchworth (1903) or at Welwyn Garden City (1919), were rather faithful to the theoretical concept. Contrariwise, Hampstead Garden Suburb in London, set within the urban fabric and meant for notably upper classes, seems quite remote from the initial ideals.

3.2. The Green Belt, a Primary Concept in 20th-Century Urban Planning

The establishment of ecological networks within urban areas has somewhat overshadowed the idea of the green belt, a major theme of 20th-century urban planning, as is noted by Marco Amati (2008):

> The popularity of green belts among planners during the twentieth century is due to the alignment of their attributes with some of the assumptions that underpinned modernist planning. These assumptions were that strict divisions between different land-uses could be unproblematically drawn, and that planners' actions could be justified by normative conventions and a search for universal truths.

Is the concept of the sustainable city now prompting a paradigm shift, from the green belt to the greenway?

The problem of setting the boundaries of urbanized space and limiting the space that is absorbed in the process of urbanization captured the attention of urban planners, conscious of the expansion of industrial and working-class neighbourhoods beginning in the last decades of the 19th century. Two avenues were explored: the first involved relocating recent residents and workplaces to new, smaller urban centres (garden cities or new towns), while the second led to the idea of surrounding the city with open, non-urbanized areas. The green-belt approach matched the desire to contain urbanization by introducing belts of 'open space'. The word 'green' should not be misinterpreted here: ecological concerns only appeared much later, with the increasing interest in environmental issues in Europe.

While the example of the Ring in Vienna is often cited, Paris could have pioneered the creation of a green belt in 1880, at the time of the debate about the future of the old fortifications, built by Thiers in the 1840s, and the 250-metre-wide 'non aedificandi' zone which surrounded the walls: this zone was in principle not yet used for any purpose, but in fact, slums and squatter settlements had grown up there. Several opposing plans were put forward for the development of social housing or for public-health or aesthetic improvements (Charvet, 2005): the Eugène Hénard project (1903), supported by the public health department of the Musée social, proposed nine large parks landscaped in descending steps, evenly spaced around the edge of the city, while in the project supported by the League for Open Space, Sanitation and Sport, founded in 1909 by Louis Dausset, a nationalist deputy whose concern for public health was tinged with xenophobia and anti-Semitism, the green belt was to eradicate the 'infamous slums'. The law concerning the redevelopment of the Paris fortifications was finally passed in 1919. The work began two years later, but instead of a continuous belt of green space there was a mix of public gardens, playing-fields, schools, hospitals and red-brick HBM (Habitations à bon marché or low-cost housing). The most ambitious feature

of this redevelopment was the creation of the Cité Internationale, whose buildings were spread out across a park designed by Jean-Claude-Nicolas Forestier. But by 1921 the expansion of the Paris conurbation had long since overwhelmed the line of the fortifications.

The introduction of a double belt of open space in Berlin happened more quickly and more dramatically. Relatively sparsely populated (with fewer than 4 million residents) given the area it covered (892 km²), the *Land* of Berlin was seen by developers as the model of a sustainable city because of the quantity of extremely large areas of vegetation, especially forests, dictated by the city's location in a region dominated by moraines. But the poor quality of the land around Berlin from an agricultural point of view does not explain everything: more relevant are the decisions made in the early 20th century, after a century of massive industrial and urban growth.

Urban planning in Germany, both under the Empire and in the Weimar Republic, was based on two principles: that the number of people living in cities should be restricted and that cities should include a large proportion of open space planted with vegetation. The Jansen plan, which won the competition launched in 1910 for planning the redevelopment of Greater Berlin, proposed an initial belt encircling the central districts and a second one, farther out and wider, composed of forests, meadows and fields, the two belts to be joined by green corridors. In the end, the plan was substantially accepted and implemented in the General Plan for open space developed in 1929 by the head of city planning, Martin Wagner. The complicated history of the post-World War Second period, when the city was both divided and isolated, contributed to keeping the green belt in place by curbing the growth of the Berlin conurbation.

The reunification of Germany including Berlin has not led to a real reassessment of these decisions, especially since the *Land* of Berlin, severely affected by the restructuring of the economy and an aging population, is not particularly subject to the pressures of urbanization. The green belt today seems to be well preserved, with its series of lakes and forested areas whose homogeneity is sustained by the many stands of oak and pine trees. In both west and east Berlin, the green belt continues to play a central role in city life, and benefits from substantial knowledge about the biological heritage and its conservation, influenced by the programme of landscape planning and species protection adopted in 1994 and updated regularly. Facilities for city residents (walking trails, bike paths, picnic areas, interpretive signage) are, however, more extensive in the west, for example in the Grünewald around the Wannsee, than in the east. In the former East Berlin, moorland and forest have largely been transformed into uniform plantations of conifers, more responsive to economic or military pressures than to enhancement of the landscape's natural qualities, as can be seen in the Mittelheide in the Köpenick district.

3.3. Green Belts in the UK

In London, and in Britain more generally, the green belt was a major urban planning tool whose necessity became clear in the years between the wars, when the desire to escape the somewhat depressing urban environment inherited from the 19th century had led to the growth of peri-urban development. In 1935, the Greater London Planning Committee was already proposing to create a gap in the spreading urban fabric and retain green spaces for leisure use. The Abercrombie plan (1944–1946), out of which Greater London was born, proposed a green belt 6 to 8 km wide; but in 1947, the more ambitious Town and Country Planning Act surrounded London with a green belt 30 km wide. In this belt, urban growth was to be strictly limited to new towns. This model was then transposed from London to the other major conurbations in Britain.

But the strict conditions defining the green belts in Britain produced unintended effects, as Claude Moindrot (1961) has pointed out. These included dizzying increases in housing prices and rents near the green belt, and in the villages or small-town centres where the upper classes bought and renovated property. Continuing agricultural and industrial activity became difficult, since new employees could no longer find housing near their jobs, leading to an expansion of the commuter travel that the green belt was supposed to reduce. 'It is thus not surprising that in overpopulated cities green areas get a bad press: they are seen as the expression of a static, conservative viewpoint, in which the landscape deserves more care than the people who live in it' (Moindrot, 1961).

But it was for very different reasons that the legislation applicable to green belts came to be considerably relaxed during the 1980s. The Conservative government then in power saw the green belts as one of the reprehensible survivals of the state dirigisme practised by the post-war Labour governments. In any case, the expansion of British conurbations, and of London in particular, into a multitude of secondary town centres, which had started with the establishment of New Towns under the Abercrombie plan, turned out to have spread far beyond the green belts.

For good or ill, the green belt has nonetheless survived, although under relaxed rules (Department for Communities and Local Government, 2006) and relying on the network of protected natural areas. The Colne Valley, to the west of Greater London between Heathrow Airport and the small conurbation of Slough, is an example of its relative resilience. The boundary of the green belt is clear as you leave Greater London at West Drayton, crossing the Grand Union Canal and following the Slough Arm, a secondary canal that transported bricks produced in the many factories in the region into London in the 19th century. The break is complete a few 100 m further on, as you cross the M25 orbital motorway with its four lanes in each direction. Here you enter the Colne Valley Regional Park. The park, created in 1965, was designed to protect the area from urbanization,

conserve and enhance the landscape, and provide recreational facilities for the local residents. This recreational aspect has been intensified, although the requirement of nature conservation has been retained, for example by establishing waterfowl sanctuaries. The existence of this regional park has thus helped to curtail the fragmentation of the green belt in this area and to reverse the process of urbanization.

On a more local level, the green-belt approach is complemented by officially designated areas of great diversity, such as 'common forests' and 'country parks' (Lambert, 2006). This latter designation was introduced in 1966 with the aim of preserving the landscapes of the English countryside by helping to develop them for the use and leisure pursuits of the public. Thus, in 1969, the Countryside Commission published a guide for local authorities, *Policy on Country Parks and Picnic Sites*. It specified the facilities necessary for accommodating urban audiences in a somewhat artificial rural environment. On this basis, country parks proliferated in the 1970s and 1980s, although they have not always been developed as ambitiously or monitored as closely as they might have been. Since 2004 the Countryside Commission has sought to revive a greater commitment to the country parks. Langley Country Park, located inside the Colne Valley Regional Park, exemplifies this determination: this former ducal estate is a historically significant rural landscape, once a hunting ground. A popular place for picnics and walks, Langley Country Park has begun a major rehabilitation initiative, the 'historic landscape project'.

In the East End of London, an area in the throes of reconstruction over the last twenty years (redevelopment of the docklands, installation of major sports facilities including athlete accommodation for the 2012 Olympic Games, and construction of new intra-urban, interurban, and international transport routes), more questions have been raised about the value of the green belt. A meeting-point between the conurbation and the green belt can be found in Hornchurch, part of the London Borough of Havering. This meeting-point is located in the little valley of the Ingrebourne, now a country park. The Ingrebourne Valley Country Park exemplifies a different type of English rural landscape from that mentioned above: a little river meanders through meadows surrounded by wooded hills. The green belt is still in place here. Yet near the mouth of the Ingrebourne, the effect is quite different: Rainham Marshes is a nature reserve managed by the Royal Society for the Protection of Birds. It seems to be in a very fragile situation, surrounded by power lines, motorway interchanges, warehouses and industrial zones, cut off from the town of Rainham by the new high-speed Eurostar line. The conclusion of Colin Wiles' article, 'London's Green Belt: The Forgotten Strangler of the Capital' (2012) seems to be incontrovertible: 'London cannot meet its housing needs because it is hemmed in by an outdated development policy'.

3.4. The Île-de-France Green Belt: Belated and Ill-Defined

The idea of the green belt made a belated comeback in the development of Greater Paris, through the 1976 master plan for the Île-de-France. The position chosen for it at that point may seem surprising: the green belt was deliberately located not at the limits of the conurbation, but straddling the outer ring of suburbs and the peri-urban rural areas. The project consisted of a 'variable green armature for the metropolis', including urbanized zones where new towns (themselves containing a great deal of green space) alternated with open space or woodland. It was indeed 'variable' in the absence of any binding regulation, and ended by absorbing only 27,500 ha of agricultural or undeveloped land (out of a total of 264,700 ha) between 1982 and 1999; during this period the zone acquired more than 500,000 new residents, making a total of 3,718,000 (Barbieri, 2004).

But overall the green belt has not been entirely unsuccessful: after the decentralization laws were passed, the Regional Council's policies were fairly consistent with respect to the acquisition and development of substantial woodland and forest areas for public use, the monitoring of vulnerable agricultural areas in the peri-urban zone, and the allocation of grants to departments, municipalities, and organizations to enable them to implement regional objectives consistently and on their own appropriate scale. We have to admit, though, that while urban sprawl in the Paris region has been curbed, this should not be attributed primarily to the green belt. What should rather be emphasized is the role played by the great state-owned forests managed by the National Forestry Office (first and foremost the forests of Rambouillet and Fontainebleau) as well as the establishment of the regional natural parks: in chronological order, these are the Chevreuse (1985, 63,000 ha), the Vexin français (1995, 71,100 ha), the Gâtinais français (1999, 76,600 ha) and the Oise-Pays de France (2004, 60,000 ha).

In 2005, the Île-de-France region handed the green belt a mixed, albeit diplomatically worded, report card: 'This project has demonstrated the region's ability to find, working within a framework that is not prescriptive but shared, innovative solutions tailored to reconcile regional vision and local constraints' (Barbieri, 2004). The report called for a redefinition of the green belt that would 'reinvent a true living space in the dense peri-urban areas between Paris and the country, one that will combine urban development with the preservation of open space'; this redefinition distinguished between dense peri-urban areas and more sparsely populated ones.

The interest of the planners seems since then to have switched to setting up green corridors and networks, biological and ecological continuities, via a new approach, namely the establishment of urban greenways. At the same time, breaking with decades of decentralization of activity to provincial cities in the name of 'balance' and decentralization of decision-making power to local authorities, in 2008 the then President of the Republic, Nicolas Sarkozy, launched a major national debate about

Greater Paris, with the stated objective of using the powers of the state to strengthen the status of France's capital relative to other major international cities. The law that was passed as a result of this initiative focuses on increasing the multipolar character of the Paris region (which is certainly negligible at present). This proliferation of peripheral hubs is to be encouraged by the new public transport network (the so-called 'grand huit', or roller-coaster). One of the possible consequences of this policy is a renewed growth of the conurbation, but in disconnected patches of development. Tensions may emerge, notably at the point where the 'centre of excellence' of the Plateau de Saclay meets the Chevreuse Regional National Park.

The debate about Greater Paris has also been pursued via discussions and projects requested from some major internationally famous architecture firms. From the quantity of proposals presented by so-called 'multidisciplinary' firms, only the most spectacular have been adopted, that is, those that propose some architecturally striking gesture. The proposals for green spaces and the environment seem very predictable. Some firms made mention of the green belt (e.g. Rogers Stirk Harbour and Partners), but the content of the proposals, though well-intentioned, added no specifics to the existing situation. Christian de Portzamparc's firm in effect revived the idea of the garden city, imagining an archipelago of residential 'islands'. Other proposals were more interesting, such as that of landscape architect Michel Desvigne, who was involved in the Nouvel-Duthilleul firm's project for improving 800 km on the fringe of the Paris conurbation:

> This contour seems now to be merely the point of contact between two poorly conceived boundaries; it mostly takes the physical form of a simple fence separating single-family housing developments from extensive agricultural areas. We propose to link these two worlds by introducing a special environment, making the line that separates them much thicker (Masboungi ed., 2011).

However, in the end the only part of this environmental proposal to be adopted was the creation of an additional 1000 ha of forest in the Val d'Oise.

4. DEFINING A 'STRATEGY' FOR BIODIVERSITY WITHIN THE CITY: AN OBLIGATION FOR SUSTAINABLE DEVELOPMENT POLICIES

4.1. Beyond the Traditional Public-Health and Aesthetic Perspectives

In the cities of Europe, the situation at the start of the 21st century is markedly different from that of the previous century: it is characterized by slowing urban population growth, even if some regional cities still show some momentum – such as Montpellier, whose urban population increases by an average of one thousand people a month. This reduction in the rate of growth does not halt the rapid absorption

of space by urbanization, on account of the expansion of transport infrastructure in urban areas that have grown through suburbanization, the relocation of the population and new construction due to the high demand for single-family houses, and also the relocation of industry, which results in more abandoned industrial sites in inner suburbia.

In this new situation, green spaces as conceived in the 19th and 20th centuries only accomplish part of what vegetation is now expected to contribute to the city. Traditional public-health and aesthetic perspectives have been transcended in two ways: geographically, by overstepping the boundaries of parks and gardens, and functionally, in that what is expected of vegetation in urban areas is becoming increasingly diverse both ecologically and socially.

Today, this changed situation converges with a great demand for the presence of nature in urban areas. As Le Dantec (2011) notes, this demand is accompanied by 'the desire to avert' threats to biodiversity and to respond to the urban planning 'claiming to be rational', typical in the France of the 1960s and 1970s, which reduced the goals of the Athens Charter to the Cotoneaster-Lonicera-Pyracantha trio, 'the signature species of the planted areas in social housing projects' (Blanc *et al*., 2007).

The new demand for the presence of nature cannot be separated from the new 'methods of appropriation or re-appropriation of urban public spaces' (Blanc *et al.*, 2007), which go well beyond the green spaces foreseen by urban planners. This demand also calls for abandoning the traditional binary opposition of town and country, while also erasing the distinction between native and introduced species. In a city like Paris, so powerfully constrained by the Haussmann legacy which encourages valuing what is already present over social innovation (Fleury, in: Rhein ed., 2010), many residents are unobtrusive gardeners, not only cultivating their private spaces but also, sometimes almost on the sly, sowing plants in public spaces (Blanc *et al.*, 2007).

We are also now witnessing the revival of urban ecology. This can be called a revival, given that it was an issue in the interwar period, though indeed from a very different standpoint: the Chicago school of sociology primarily viewed human ecology in terms of engagement with the urban environment. Present-day urban ecology is based especially on the readiness to recognize the uniqueness of urban biodiversity and to restore all their functions to the ecosystems present in the city (Clergeau, 2007). The interest taken by naturalists and ecologists in the city is a recent development, but their approach has been innovative: breaking with the principles of gardeners and landscape architects, they are less interested in managed gardens and green spaces than in abandoned areas and wild or half-wild species. They connect with the social demand for a greater presence of nature when urban residents conduct experiments, such as the initiative 'The wilderness in my street' in which the Muséum National d'Histoire Naturelle, in partnership with the Tela Botanica network, asked residents to participate in drawing up an inventory of urban flora (Machon ed., 2011).

At the same time, our best-known landscape architects have acquired a passion for the most modest but also most untamed kinds of vegetation in urban areas. Thus, Gilles Clément (2006), champion of the 'garden in movement', asks in one of his poems 'What about the Grass?':

> Residual spaces, empty lots, lots of exoticism, buddleia, rowan, Siberian wormwood…
> Wastelands
> Vacant lots, 'Forests of the vacant lots', natural forest, wild forest!
> 'The wilderness in the city'.

The city surprised by such love for the inconvenient excess of nature that ornaments the roadway, ruffling the tidy edges of the roundabouts and the bases of blocks of flats where the persistent grass-killing machines wear down their snouts to no avail; grids of trees with velvet collars of grass and chamomile flowers, and over there, pretending to be unobtrusive – though it is the only thing you see – that brilliant green moss, arranged between the paving-stones like the natural setting of some jewel.'

The passage is followed by an ode to dog droppings, firmly type-casting this effusion as post-modern. But public policy has been infected by this same enthusiasm: on a simple level, it has increased the quantity of vegetation in public spaces, and it takes more elaborate forms in projects for 'green neighbourhoods' or new gardens in which unplanned growth is permitted. Examples of this in Paris are the 'natural garden' adjoining the Père Lachaise cemetery, which features the ecosystems of the Paris region, and the 'wild garden' in the 18th arrondissement (Blanc *et al.*, 2007). At the same time, local authorities are also making commitments to maintain biodiversity in their areas… With some contradictions with other parts of the public policy, such as the development of eco-industries (Lebeau, 2011).

4.2. Networking: From Biological and Ecological Corridors to Greenways

One goal currently pursued in some conurbations is to build a network of links between green spaces, as in London, where in 2008 the Greater London Authority established the Strategic Open Space Network. This goal borrows its ideas from landscape ecology (Forman and Godron, 1986), even though these were designed primarily to apply to rural areas and the mosaic of ecosystems created by agriculture and animal farming. Moving from an agrarian matrix to an urban one, where 'soil sealing' dominates, somewhat changes the picture. Linear patterns take on new importance. In particular, the concept of a corridor – which can be biological when it allows one or more species to move from one patch of their habitat to another, or ecological when it reintroduces continuity of the same

type of environment – has recently become an essential element of planning. In the sustainable city perspective, these reflexions about landscape biological and ecological value are inseparable of the question of landscape aesthetic value (Kowalczyk, 2012).

These concepts of landscape ecology have led in recent years to plans for interconnecting green spaces in the city, within conurbation communities or urban departments, such as the Green Plan adopted by the Department of Val-de-Marne. These networks are now referred to as 'greenways'.

5. CONCLUSIONS

The role assigned to vegetation in sustainable cities, as they are defined and as they progress in Europe, has considerably increased and widened, well beyond the amenities that were looked for, while it was used in the 20th century's town planning policies. The new services expected from vegetation in and around the city can be defined in terms of sustaining biodiversity, reducing the carbon footprint of human beings, maintaining farmland against urban sprawl. This implies considering the green urban spaces in a much more global way, going beyond parks and green spaces and including the networking of vegetalized spaces.

However, the Paris and London case studies show that such ambitions may create conflict, even contradiction with the will to increase major European cities' attractiveness within global economy presented as a fierce competition between cities which would have no other choice than becoming bigger and bigger. Berlin, city where the spatial extension of vegetation is unequalled, seems to resolve best this contradiction, probably because it gained back late its status as a capital and because it has to share the metropolitan functions with the Rhineland cities, with Hamburg, with Munich, in the German urban system which, due to history, avoids the obligation of being huge.

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FROM INDUSTRIAL CITY TO SUSTAINABLE CITY THE NORTHERN SUBURBS OF PARIS YESTERDAY AND TODAY

Abstract. Former industrial suburbs, which are now the object of economic and functional transformations almost everywhere in Europe, are suitable testing grounds for implementing a more sustainable urban development. The case of the northern suburbs of Paris, which we will look at here, shows that there is no lack of political will or regulatory tools for imagining and planning this sustainable city. However, the social problems that affect these suburbs are a definite impediment to its realization.
Key words: sustainable city, economic changes, sustainable housing policy, sustainability and city planning, social mix policy, Paris.

1. INTRODUCTION

Heavily marked by their industrial past, the northern suburbs of Paris have been left with more scars than other areas. Here, the Fordism crisis has left behind pollution, brownfields and insalubrious housing, while plunging the area into a long period of social crisis.

Due to its many difficulties, this part of the Parisian agglomeration is now the object of various public policy interventions, which in the post-Kyoto context, all fit more or less directly in the sustainability paradigm. Whether it is a matter of former industrial sites that are cleaned up and put to other uses, of developing public transportation or of large-scale housing renovation, this part of the Parisian metropolis serves as a testing ground for different ways to build a more sustainable city.

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The significance of these experiments lies precisely in the fact that real sustainability comes from a comprehensive and systemic approach that goes far beyond only environmental aspects. Economics, social issues, housing, transportation, environment, these are the elements of an integrated urban policy which today are reflected in planning documents (territorial coherence plan,[1] Agenda 21). By drawing on a representative example of the changes taking place north of Paris, we will examine this process of the transformation of an industrial city into a more sustainable city. By paying more attention to social aspects, and less to environmental or eco-construction issues, we will address an essential, yet often neglected dimension of sustainability. In this case, we will see that due to its social characteristics, this area presents a certain resistance to sustainability. It thus calls for a critical reading of the idea of a sustainable city.

2. ECONOMIC CHANGES AND SOCIAL MARGINALIZATION: SUSTAINABILITY IN THE TIME OF GLOBALIZATION

Among the many industrial wastelands located in the northern suburbs of Paris, the Plaine Saint-Denis, which covers almost 800 ha and three municipalities (Aubervilliers, Saint-Denis and Saint-Ouen), is by far the largest. Having been the object of coordinated development since the end of the 1990s, in less than fifteen years this space has become the fourth economic hub of the city, after central Paris, La Défense and Roissy-Charles de Gaulle airport. It now has around 65,000 jobs and 10,000 residents.

Yet when studied in terms of sustainability, this vast undertaking of changing the uses and shape of the city appears ambiguous. Various conversions and developments of public transportation have certainly helped enhance the environment of an area once ravaged by all sorts of pollution. On the other hand, the qualitative transformation of jobs that followed was done at the expense of the insufficiently skilled local populations.

2.1. A Sustainable Development Project

When elected officials and urban planners addressed the redevelopment of this vast industrial wasteland at the end of the 1990s, they did not explicitly refer

[1] These plans (SCOT) are derived from the Solidarity and urban renewal law (SRU) of 14th December 2000, one of whose objectives was to adapt regulatory urban planning to the principles of sustainable development.

to a sustainable city.[2] However, their proposed project reflected a real impregnation of the principles of sustainable development. Since 2006, this project has been part of a territorial coherence plan (SCOT) that covers the nine municipalities of the Plaine Commune agglomeration community[3] (400,000 residents). This SCOT, which is based on a programme of planning and sustainable development (PADD)[4], is built around a local housing programme (PLH), an urban transport plan (PDU) and since 2010 an Agenda 21. The agglomeration's project has received true institutional recognition, since the Ministry of Ecology and Sustainable Development acknowledged it in 2009 as one of 12 eco-cities nationwide.[5] These planning schemes thus mark the official consideration of sustainable development in urban planning regulations. However, since the end of the 1990s, the Plaine Saint-Denis project has laid the foundations for a first prospective and systemic reflection. Three guiding principles have structured the project since its beginnings. First of all, it aimed to promote a dense urbanism to optimize the maximum occupation of space and limit urban sprawl. It then proposed a multifunctional development, mixing offices, housing and shops, to break with the damaging effects of zoning and to bring employees closer to their homes with the goal of limiting travel between metropolitan areas. There was also an effort to promote social diversity in order to balance the area's population. But the main concern of elected officials was economic. They absolutely had to attract new businesses in order to offer jobs to the population and to assure tax revenues for the agglomeration to finance projects and social benefits. So the development that was imagined had an economic, social and environmental aspect and perfectly answered the requirements of sustainable development.

At the end of the 1990s, the transformation from industrial uses required major environmental modifications. Soil remediation was undertaken at many sites, such as the Stade de France where a former gas plant had left tens of metres of significant underground chemical pollution. The development plan also envisaged the construction of roads and many green spaces to give shape to an area that had once been only a juxtaposition of factories. Green spaces played

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[2] The term was not yet common in professional urban planning circles or in the political sphere. In addition, elected Communist officials of this red suburb were, at that time, not very sensitive to environmental questions.

[3] The Plaine Commune agglomeration community was created in 2000 and acts in the name of the commune members to oversee property development, urban planning, development of the environment, social inclusion, cultural actions, road networks, transport, collection and treatment of household waste.

[4] Every SCOT must include a diagnostic, a programme of planning and sustainable development (PADD) and a cartographical volume, called the general orientation document (DOG), which is opposable to lower urban planning documents.

[5] The Ministry thus rewards agglomerations that are the most advanced in the area of sustainable development with major subsidies (40 million euros).

an important role in this quest for shaping an urban life. A three-kilometre stretch of motorway, which cut through the neighbourhood, was planted as an open garden. Public transport was developed to deal with the inconveniences of road infrastructures. When in 1996 the state decided to build the Stade de France to host the 1998 World Cup of football, the choice was made to bring the 80,000 spectators to the stadium by means of public transport. Two new stations were created on the suburban railway line and a metro station was renovated. Today these infrastructures make it possible to transport employees to the site without much difficulty. To complete this system, two new metro stations along with a tramway are planned for 2013 in the still poorly served southern part of the area, while other routes are envisaged as part of the Grand Paris express project.[6]

Densification was gradually put into place without, however, giving into the CBD model of urbanism that would have been unwelcome in this Communist Party stronghold. The desire to mix functions, which probably had more to do with a somewhat fantasized idea of the perfectly balanced city, was more difficult to accomplish. To achieve this balance, elected officials and state agencies decided to dedicate as much surface to housing as to other activities. So to complement the million-and-a-half square metres of office space, more than 15,000 new housing units were planned. Nevertheless, since the pace of office construction was much faster than that of housing, this agreement was constantly readjusted. In 2006, the state required 1.2 m² of housing for 1 m² of office space and 1.4 m² in 2011. Today, in spite of the construction of over 5,000 housing units, public facilities, squares and gardens, functional diversity is still far from being upmost in people's minds. For employees and residents, the Plaine Saint-Denis remains a workspace. The fact that almost all of the businesses are meant for employees (snack shops, sandwich bars, brasseries) is a good indicator of their main usage. Here, like elsewhere,[7] the implementation of functional diversity, which is at the heart of the sustainable city, proves to be relatively delicate. We will see that while the objectives concerning construction, although delayed, will probably be kept, these perceptions will also have an effect on the population of these units. For reasons that probably arise from the level of acceptance of nuisances, of requirements regarding quality of life and of transportation, modern cities are much more prone to functional fragmentation than industrial cities that once more easily juxtaposed workspaces and living spaces.

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[6] This is a vast automated metro project that would encircle Paris for which the financing, estimated to be over 35 billion euros, is a problem.

[7] In Paris, the 8th arrondissement had only 40,000 residents in 2009 compared to 68,000 in 1978, while the number of jobs is 163,980. Elsewhere, as in Bercy-Village, functional diversity was fiercely fought by residents who could not find the usual amenities of a residential neighbourhood.

In reality, it is the rise of a veritable business district that we have seen over the past ten years. Since 2000, no less than 5,000 companies have been established here. With 65,000 jobs, the Plaine Saint-Denis now has more jobs than at the height of the industrial era (50,000 jobs in 1968). But this development, which improves the urban environment and sustains employment, also profoundly changes the nature of that employment. Thus, these rapid changes pose a certain number of social problems.

2.2. The Progressive Disconnection of Economic and Social Factors

These economic transformations could be qualified as sustainable if they were accompanied by corresponding social changes. Yet, this is not at all the case, since as jobs became more qualified, at the same time workers were replaced by a population that was in a large part foreign born and poorly skilled. This has resulted in a profound gap between economy and society that is not very defensible.

From the early 2000s, the development of this space near the centre aroused the interest of Parisian companies in search of functional and inexpensive offices. Large groups took advantage of this new opportunity to consolidate certain business segments previously scattered around the city, for example, BNP moved its accounting services here. Then, more strategic functions quickly followed such as research and development (Saint-Gobain, SNCF), and finally head offices (e.g. Générali, Randstad, Arcelor Mittal, SFR, Veolia). These companies that were carrying out functional reorganizations within the metropolitan area, thus created very few new jobs. In addition, the jobs that were transferred here were often very highly qualified and poorly corresponded to the qualifications of the area's residents. Nearly 40% of the 400,000 residents of the agglomeration community have no diploma, while only 7.2% of them hold higher degrees (22% in metropolitan France). So in reality, the mechanisms of populating this suburb are not in tune with the economic transformations. In the Plaine Commune, between 1999 and 2006, 40% of the new arrivals in the agglomeration area were of foreign nationality. And these less-educated foreigners are often more unskilled than the French (57% against 25%).[8] Among those who arrived in Seine-Saint-Denis[9] less than five years ago, nearly one out of two is without a diploma. In addition, Seine-Saint-Denis draws the least skilled foreigners. Between 1999 and 2006, the number of young people without qualifications increased among foreigners (+ 23% at 24 years, + 15% at 29 years), while it declined in other parts of the agglomeration.

[8] INSEE (2010).

[9] Department with 1.5 million residents, that makes up the major part of the northern suburbs of Paris.

Figure 1 summarizes the gap between jobs offered in the area and the qualifications of the residents.

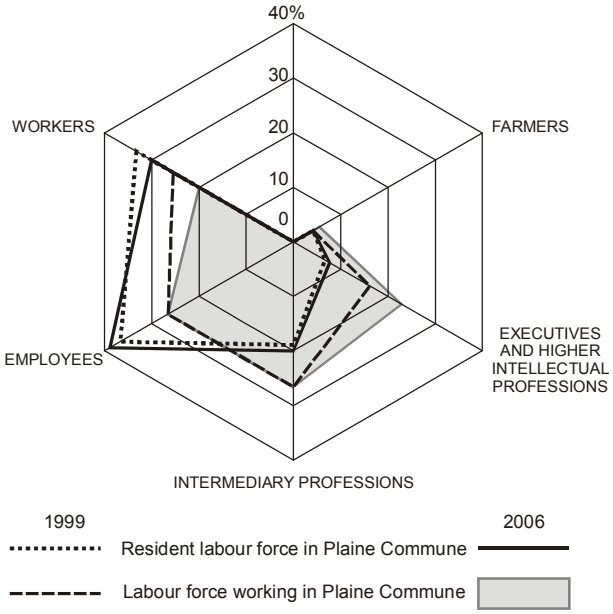

Fig. 1. Evolution of the CSP (Social Professional Categories) of resident labour force and labour force working in the Plaine Commune between 1999 and 2006

Sources: INSEE (1999, 2006)

This figure shows a growing disconnection between 1999 and 2006 of the socio-professional profile of the resident labour force and the labour force working in the agglomeration territory.[10] The proportion of qualified professionals went from 16% to 22.5%, while their proportion in the resident labour force increased by only 0.9 points, going from 6.2% to 7.1%. This resulted in significant commuting since 75% of the employees working in the Plaine Commune do not live in the agglomeration territory and conversely 75% of the labour force of Plaine Commune works outside of the agglomeration territory. The improvement of transport services has thus had unexpected damaging effects. It has placed the workers living in the territory in competition with more qualified employees from the rest of the agglomeration (Lebeau, 2010) and has also contributed to this distancing of the social territory from the economic territory.

This commuting that thwarts all of the efforts of the government to bring employees closer to their workplace is, however, of little importance when compared to the massive social exclusion that this situation reveals. For behind the undeniable contradiction of

[10] Due to lack of data, the same comparison at the level of the Plaine Saint-Denis could not be made, but it is likely that it would accentuate the phenomenon.

the flow, marked by the departure of low-skilled jobs[11] and the arrival of insufficiently trained populations, it is the conditions for large-scale economic and social marginalization that stand out. Furthermore, within the paradox of the situation that pits eco-mobility against social sustainability, it is the coherence of the government policy that is undermined by these territorial fragmentations. The mobility of jobs and people on a global scale should make us question the real room for manoeuvre available to urban authorities to build a sustainable city in a time of economic and social globalization.

3. THE PITFALLS OF A SUSTAINABLE HOUSING POLICY

For some ten years, the economic transformations of these suburbs have been accompanied by profound housing renovations. Public housing, which represents over 52% of residences, has been the object of an extensive renovation plan by the state and the agglomeration, concerning 8,000 housing units and calling for over 1.4 billion euros over ten years. But it is essentially a policy of demolition/reconstruction[12] through which elected officials intend to modify the appearance and the population of their suburbs. Thus, nearly everywhere in the northern suburbs, housing is replacing factories and old deteriorated buildings. This real estate policy responds to various objectives that are more or less coordinated by the municipalities. In Plaine Commune, the local housing programme (PLH) establishes and links these various objectives. This programme incorporates the principles of SCOT (density, functional and social diversity). It adds a component intended to limit the insalubrity that affects 20.5%[13] of private residences. Densification finds another justification in the fight against housing shortages,[14] which primarily penalize the poorest households. Finally, in terms of population, this programme recommends the construction of 2,200 housing units per year, 40% being public housing to avoid the relegation of the most modest residents to a distant periphery within the context of a sharp increase in real estate prices in the central zone. The other part (60% of new housing) is intended to house the middle and upper social categories.[15] The increase of population at the end of fifteen years is expected to be 50,000 people.

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[11] The decline in manufacturing jobs reached 26% between 1999 and 2006 in Plaine Commune. Manufacturing accounts for only 10.1% of jobs (9.1% in 2009 against 12.7% in 1999 at the scale of metropolitan Paris).

[12] Between 1999 and 2006, at the level of the Plaine Commune agglomeration, 9,741 new housing units were built and 5,766 were demolished due to their dilapidation.

[13] PLH Plaine Commune.

[14] Over 1 million housing units are lacking in the Parisian agglomeration in order to properly house the entire population.

[15] Since the mid-1990s, the French left has been very sensitive to social diversity. The socialist majority in power between 1997 and 2003 was at the origin of the 'urban renewal solidarity' law, which requires all French communes of more than 3,500 residents to build at least 20% social housing.

This housing policy, which intends to simultaneously recreate urbanity, densify the city and harmonize social balance, also fits into a sustainable perspective. Yet poorly suited to developers' business practices and out of step with the realities of the population, this policy accumulates disappointments. To the contrary of its original intentions, it generates new forms of social tension and disrupts the management of certain public services.

3.1. Sustainability and Market Logic

Developers' business logic in terms of eco-construction and breakdown of surfaces has often contributed to the evolution of the initial objectives of the housing programme.

Before 1st January 2013, when all new buildings will be limited to primary energy consumption of 50 kWhEP/m²/year,[16] all eco-construction projects were subject to a negotiation between developers and municipalities. However, the agglomeration services that wanted to develop low-energy consumption buildings often met with resistance from promoters for whom this type of product was too costly in relation to the solvency of buyers. In addition, ecological housing projects also have agglomeration population targets that have been substantially modified by promoters. The agglomeration, which wanted to balance the distribution between small (30%), medium (40%) and large surfaces (30%) to encourage sustainable population insertion, and a rotation of households in social housing, often came up against business practices of promoters who believed that smaller surfaces were more profitable and more adapted to the demand. Population objectives ended up being extensively readjusted.

A high price is being paid today for these market effects in terms of household rotation, overcrowding of units and social balance. Yet they are only a reflection of the realities of the population.

3.2. Social Mix in Relation to Local Population

In Plaine Saint-Denis, ten years after delivery of the first buildings,[17] housing supply has progressed 42% and the population has increased by 39% without significant reworking of social structures, as shown in table 1.

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[16] This is a measurement in kilowatts equivalent to square metres of oil per year. This measure has been imposed by the law known as Grenelle II of 12th July 2010.

[17] In a fifteen to twenty year period nearly 15,000 housing units were built on this former industrial wasteland.

Table 1. The limited transformation of social structures in Plaine-Saint-Denis (in %)

Specification	1999	2006
0–14 years	23.4	24.6
Unemployed	29.0	23.8
Without diploma	37.6	33.2
Single-parent families	25.4	27.8
Foreigners	40.7	40.6
Employees holding temporary jobs	22.0	19.5

Sources: INSEE (1999, 2006).

This inertia reflects the geographical origins of the neighbourhood's new residents, 2/3 of whom already resided in the agglomeration territory or in the poor northern arrondissements of Paris (18th, 19th, 20th). In the context of housing shortages and rising prices[18] throughout the metropolis, over the past years the poorest populations have tended to retreat to the most depreciated real estate zones. Plaine Commune, which gained over 33,000 residents between 1999 and 2006, after thirty eight consecutive years of population decline, has thus picked up a large part of these poor residents. The decrease in the housing vacancy rate, which went from 11% to 5.5% between 1999 and 2006, is proof of a massive return to uncomfortable living conditions in the old degraded housing stock. At the same time, the goals of social housing construction had to be scaled back in the context of the drastic reduction of public finances.[19] At the end of the five-year housing programme, the part of social housing in new construction had not exceeded 19% over the period of 2005–2009 instead of the 40% initially planned. The population which grows on an average of 1.5%/year, thus mainly concerns private residences, whether old or new.

The pace of this population growth, which far exceeds the pace of housing production, reflects a large-scale population dynamics (Seine-Saint-Denis) that is now beyond the control of local authorities. In Plaine Commune, the increase in population is 3.6 times faster than the number of housing units.

[18] Since 2000, they have increased by 114% throughout the metropolitan area.

[19] Funding for the construction of social housing comes from public financing. The central government is the major financer, but during the presidency of Nicolas Sarkozy, funding for social housing was cut way back, since he wanted to redirect households to home ownership.

Table 2. Pace of yearly population increase and number of housing units between 1999 and 2006 (in %)

Specification	Yearly population increase	Yearly increase in number of housing units
Plaine Commune Agglomeration	1.5	0.4
Seine-Saint-Denis	1.2	0.5
Metropolitan Paris	0.7	0.6

Sources: INSEE (1999, 2006).

In Saint-Denis and Aubervilliers, which have both the largest stock of deteriorated private housing and the largest number of new constructions (Plaine Saint-Denis), the differential is 1 to 7.

In this context of extreme social polarization, gentrification of part of the territory seems increasingly illusory.

3.3. From the Desired Diversity to Social Conflict

Far from promoting the social peace that all elected officials implicitly expect from diversity,[20] this policy is, on the contrary, at the origin of new types of conflict.

Among purchasers of new homes, 80% are first-time buyers with modest incomes, one quarter of them coming from social housing. It is also worth noting the small share of homeowners, which never exceeds 55% for all of the buildings constructed between 1999 and 2005.[21] In reality, this situation, which underlines the extensive presence of landlords, does not bode well for the future of the neighbourhood. Thus, in some buildings where companies promoting tax incentives[22] took over apartment sales, 70% of the owners (Plaine Commune, 2008) do not occupy their residences. Renting of the apartments is assured by these specialized

[20] Many authors (Donzelot, 2006) emphasize that this diversity policy has its roots in what was called the social question in the 19th century. According to Chevalier (1958), the working class was assimilated to the dangerous class.

[21] All of this data comes from the Plaine Commune (2005).

[22] In France, many operations called Périsol, Robien or Besson (names of the ministers who set them up) aim at using the savings of households to finance housing construction. They were given tax exemptions in return. This is a fully integrated business in which specialized companies canvass investors put together tax exemption dossiers, build the housing, rent the units (the rents collected are used to reimburse the housing costs) and subscribe to insurance to cover unpaid rent. Negotiating insurance contracts on large numbers of housing units with previously defined delinquency rates, developers are sometimes careless about the credit worthiness of the tenants.

promoters who, due to a major segmentation of the responsibilities and of the people involved, are often lax about the procedures for granting leases. This laxity inevitably leads to a proliferation of unpaid rents and cases of overcrowding, to the point that five years after their construction, some buildings already show signs of deterioration or even insalubrity, thus counteracting the initial objectives of this policy. Thefts and delinquency have also emerged, provoking the departure of many homeowners, soon replaced by poorer populations. Today, the resale price of these apartments is two-thirds or even one half the average price in Paris[23] and one third lower than in other communes bordering Paris.

In reality, these new units serve as a substitution for social housing in a context of scarcity of supply and they put together populations for whom cohabitation is a problem. These tensions are especially acute between tenants and homeowners. For the latter, of which a majority come from social housing, owning their homes was seen as insurance of distancing themselves from the poorest populations. Their anger is thus equal to their frustrations. A survey (Plaine Commune, 2008) regarding 28 co-ownerships built in Saint-Denis and in Aubervilliers between 1998 and 2007 shows that security problems and incivility are major concerns, since over one third of the residents complain of insecurity, incivility, noise, theft, and deliberate damage to buildings and vehicles. To prevent the situation from deteriorating, the city of Saint-Denis has even asked mediators to work with managers in order to pacify relations between residents. It is not impossible that some co-owned buildings will see the appearance of 'slumlords' who are already present in the agglomeration territory, especially in older run-down housing or in the large co-ownership properties from the 1970s. The development of these practices, which consist of exploiting the most needy (e.g. undocumented, temporary workers, single women with children), would be a clear sign of the failure of the intercommunal housing policy.

Thus, home ownership, which was chosen to encourage social diversity at the neighbourhood level and throughout the entire agglomeration, has proven to be much less effective than hoped for. Failing to attract the expected population, this policy does not bring home/work closer together, since less than one new resident out of four works in the community agglomeration territory. This growing maladjustment of the supply even causes totally unexpected segregating effects, not only at the level of the agglomeration or neighbourhood, but even within buildings. Conditions of being 'among one's own', which are necessary for the smooth functioning of a co-owned property, prove to be illusory in this territory where people from very different origins and cultures live together.[24] Social diversity, far from encouraging peaceful social relations, on the contrary, divides the poorer classes

[23] The most recent products sell between 3,000 euros and 4,500 euros/m² at Plaine Saint-Denis, while the average price in Paris is 8,300 euros/m² and 7,600 euros/m² in the nearby 18th arrondissement of Paris.

[24] People of over 100 different nationalities live together in Plaine Commune.

according to their occupancy status (owner/tenant) and their culture and sometimes transforms these differences into conflicts.

These methods of occupancy also pose a certain number of problems in the area of urban management.

3.4. Towards a Not Very Sustainable Management of the City

This situation poses many problems for authorities for whom it becomes increasingly difficult to adapt services to the real needs of the population. Problems arise in areas as different as the organization of street networks, garbage collection or the construction of community facilities.

Thus, the over-occupation, often evaluated[25] at one third and sometimes double the buildings' capacities, poses problems in terms of water supply and evacuation. But it is certainly in the area of waste collection that it proves the most unpleasant. The garbage storage areas are so undersized when compared to the real needs that rubbish is sometimes placed directly on the street. In the end, it is possible that the agglomeration will be forced to renegotiate contracts at a higher price with companies for the removal and treatment of waste. In general, it becomes difficult to adjust to the demand of an entire range of services. In spite of regular, sophisticated demographic projections, municipal services consistently underestimate needs. This forces them to build various facilities (nurseries, schools, sports fields) in haste and thus in poor functionality and profitability conditions. In 2010, the city of Saint-Denis had to plan the construction of several additional school complexes, each costing 13 million euros. Beyond the difficult adjustments of supply to demand that require services to work in emergency situations, the cost of these residents is also evoked by municipalities. This is especially true in cities that have inherited municipal socialism where free services for the disadvantaged (e.g. school meals, nurseries, day care, evening schools) were a built-in principle.

Over the long term, deterioration of buildings could be very expensive to the community. In fact, procedures for tearing down insalubrious housing cost much more than the maintenance and renovation of social housing stock.

Far from achieving the expected sustainability, the housing policy amplifies more than it corrects the problems related to the presence of poor populations in private housing. But what is most striking is the sometimes abysmal gap between the sophistication of the conceptual models that served for its definition and the results of their implementation.

Sustainable development, which invites us to think of the city in terms of balance and harmony, contributes to bringing back in favour ideas such as social and functional diversity; yet the doctrinal application of such principles, without taking

[25] Assessment made by waste collection companies.

into account the realities on the ground, can turn out to be largely counterproductive. The gap between the reality of the daily management of the city, which often appears erratic and disordered, and the level of conceptualization of urban policy that preceded it, is absolutely flagrant.

4. CONCLUSIONS

Sustainable development, which aims to take into account the systemic functioning of a city as well as long-term effects, brings undeniable advances in the way of setting forth and making coherent urban policies. But while planning has reached a high level of sophistication, which borders on escalation (e.g. SCOT, PLH, Agenda 21, PDU), one cannot help but noticing its disconcerting social inefficiency. In other words, in spite of its singularities, this example should make us question the ability of sustainable development to solve the problems that it sets forth.

The north-of-Paris case equally shows that while the model has some virtues, due to it is utopian and normative dimensions it can also distance decision-makers from the realities on the ground and sometimes lead to deadlock. So while repairing the excesses of a modern urbanism that was applied here to the extreme,[26] sustainable development (Emelianoff, 2007) probably marks the beginning of another cycle of urban utopia, which shows that the construction of the city is perhaps as much a matter of ideology as it was in the past.

While many authors have long emphasized the theoretical weaknesses of the concept along with the difficulty of reconciling the three aspects of sustainable development (Veyret, 2005), it is worth adding that this is also largely a matter of scale and context. After all, while here this model of metropolitan development proves to be not very sustainable, the same economic and functional changes analyzed across the western suburbs of Paris, where the population is made up of over 40% professionals, would have led to quite different conclusions. Is the sustainable city, then, only a model for the rich, which only works (if one pays attention to environmental aspects) there where everything already functions? Probably, but through this example, which focuses on social difficulties, it is less a question of the relevance of the concept that is posed, than its possible application within the context of globalization. It finally suggests that the 21st century global metropolis, certainly less polluted, but much more fragmented and unequal, is in the end not much more sustainable than the industrial city.[27]

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[26] The 8,000 social housing units undergoing renovation in the area were those built in the 1960s, a time when the principles of functional urbanism were applied almost dogmatically.

[27] We are referring to the last industrialization cycle, which in France stretched from the post-war years to the mid-1970s.

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THE MODEL'S LIMITATIONS WHAT 'URBAN SUSTAINABILITY' FOR PORT-AU-PRINCE? EUROPEAN URBAN PROJECTS PUT TO THE TEST BY THE HAITIAN CITY

Abstract. In 2010, the capital of Haiti was devastated by an earthquake that seemed to provide the opportunity for the country, as well as foreign donors, to put Port-au-Prince on the track of an ordered, planned urban policy, in line with its multi-risk context. Prior to the earthquake, the lack of a legal framework for urban planning was called into question. In its wake, speeches making the capital the emblem of a new 'sustainable' start have flourished. The European Union, the main donor of funds for Haiti, has embarked on a programme of support for reconstruction, but with what results three years later? The paper proposes to approach the limitations of the 'sustainable city' model, conditioned by spatiotemporal continuity. The systemic functioning underlying urban sustainability clashes with the context of Port-au-Prince, where spatial division and temporal discontinuity are determinant. In spite of itself, aid and its operation by projects, seems to enforce urban fragmentation and dissonance.
Key words: Port-au-Prince, Haiti, urban sustainability, state, NGO, governance, emergency, development, model, European Union.

1. INTRODUCTION

We loved her in spite of her misery. Despite death which depending on the season walks openly through the streets. Without remorse. Without even a blink of the eyes. We loved her because of her boundless energy, of her strength that could devour us, swallow us up. Because of school-children in uniforms that blazed at noon. Because of her overflowing flesh and images. Because of the mountains that seem to constantly try to advance in order to engulf her. Because of always too much. Because of the way she had of holding us and never letting us go (Lahens, 2011, p. 107).

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On 12th January 2010, the capital of the Republic of Haiti was devastated by a deadly earthquake that seemed to provide the opportunity for the country as well as foreign donors, to put Port-au-Prince[1] on the track of an ordered, planned urban policy, in line with its multi-risk context. More than 220,000 deaths were counted, with around 300,000 wounded, 1.5 million homeless, and some 660,000 people having fled the capital.[2] A large part of this disaster could have been avoided if the city had been rationally planned according to at least basic, if not sustainable, precepts of urban anticipation.

The island shared by Haiti and the Dominican Republic is, in fact, located in a seismically active area, between the North American and Caribbean tectonic plates. The country has suffered from numerous high-intensity earthquakes in the past: the historian Moreau de Saint-Méry recounted that in Port-au-Prince, in 1751, 'only one of the masonry houses was not toppled over', and in 1770, 'the entire town was knocked down'. The 2010 earthquake was caused by the rupture of a known fault (called Enriquillo), running east-west across the metropolitan area of Port-au-Prince, which in 2009, according to the estimates of the Haitian Institute of Statistics and Information Technology (IHSI), had nearly 2.3 million residents. Seismic risk was thus well identified, and its human impact would have been much less if prevention campaigns had been conducted, the population made aware, and constructions made more safe (Hou, 2011).

The historical lack of a legal framework for urban planning in Haiti was called into question prior to the earthquake. In its wake, speeches have flourished making the capital the emblem of a new start for this country that is among the world's poorest. 'We want to make Port-au-Prince a sustainable city that meets the United Nations Millennium Development Goals, that provides the necessary services and economic resources to its residents', the capital's mayor at the time Jean-Yves Jason (Allix, 2010), thus affirmed in February 2010, as did the Minister of Interior and Territorial Collectivities (MITC): 'I believe that this is an opportunity to finally have a modern city that is adapted to today's requirements' (*Haiti Libre*, 2011). These speeches about the capital largely echoed those of the international community regarding the entire country, the United Nations Secretary-General, Ban Ki-moon, thus declared in March 2010: 'Our ambition today is to rebuild the country from the bottom up' (Ban Ki-moon, 2010).

At the same time, funding for relief and reconstruction flowed in. Some 4.3 billion euros were pledged by donors for 2010 and 2011, to which was added

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[1] Founded in 1749, 'on the old Randot house, increased by that of Messieurs Morel and Breton des Chapelles […] [Port-au-Prince] owes its name to the boat Le Prince commanded by Monsieur Saint André who had anchored it in [this] port […] commonly called the Hôpital' (Mathurin, 1976, p. 17).
[2] Office for the Coordination of Humanitarian Affairs (OCHA), December 2011, www.haiti.humanitarianresponse.info.

3 billion in private donations collected worldwide after the catastrophe (Office of the United Nations Special Envoy for Haiti, Bill Clinton). In early 2012, over 50% of donations pledged for 2010 and 2011 had been disbursed by the donors (Caroit, 2012), who had also forgiven almost a billion dollars of debt owed by the country. But the Haitian authorities, NGOs and local businesses have received only a tiny part of the international aid, managed mainly by UN agencies and the major international NGOs. The mistrust of many of those involved in the reconstruction toward local authorities has transformed Haiti into a 'republic of NGOs',[3] which have taken over large parts of not only state but also urban action without any coordination.

In 2011, the European Union (EU), Haiti's main financial donor, announced a 'Support Programme for reconstruction and development of neighbourhoods to facilitate the return of affected populations'. With an amount of 33.7 million euros, the programme should permit the reconstruction of some 11,000 homes in two priority neighbourhoods of the capital.[4] 'This will be an integrated approach including the construction of urban infrastructure and the establishment of basic services such as access to drinking water, sanitation, electricity, and social services, like health and education', explained the EU representative at the project's launching (Caroit, 2012). What about the sustainability of this approach? The European Union, whether as an institution via organizations such as the European Community Humanitarian Office (ECHO), EuropeAid or through bilateral aid (French Development Agency) or else as NGOs coming from European countries (GRET for France, COOPI for Italy, CORDAID for the Netherlands etc.) is omnipresent in the country and holds a specific responsibility in an international reform effort working to make the global humanitarian aid effort, notably urban, more effective.[5]

But what does the city of Port-au-Prince have to say to us three years after the earthquake? What does the term 'sustainable city' mean in Haiti, there where the international community has been massively established for decades, and particularly since the January 2010 earthquake? Here it's a question of approaching the limitations of the precept of the sustainable city to show, by mirror effect, that the model is influenced by spatiotemporal continuity. The systemic functioning of the city underlying the idea of urban sustainability clashes with the Port-au-Prince context, where spatial division and temporal discontinuity have been determinant up until now. In spite of itself, humanitarian action and its operation by projects seems, for the time, to be further enforcing urban fragmentation and dissonance.

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[3] Already in 1997, Pierre Etienne (1997) spoke of 'the invasion of NGOs' in Haiti; these days the term 'republic of NGOs' is frequently used in the country's media.

[4] Press Release (2012).

[5] http://ec.europa.eu/echo/policies/consensus_fr.htm.

2. SPATIAL DIVISION

In Europe, the spread of the precept of 'sustainable city' incites urban actors to perform at every level of urban production in a concerted manner, from design to maintenance and management. But in a country so clearly characterized by the informal (e.g. Paul *et al.*, 2011), global operation comes up against a spatial partitioning that is a result of both property confusion and the coexistence of different levels of governance.

2.1. Property Confusion and European Judicial Influence

Haitian urban demography is set in a typical context of developing countries. The capital grew rapidly, going from 140,000 inhabitants in 1950 to nearly 2.5 million in 2010. Nationally, the rate of urbanization is about 47%, the Ouest Department, where Port-au-Prince is located, being the most urbanized with a rate of 60%. During the period 2005–2010, the average annual growth was about 1.64% and more than double that concerning the urban area (3.2%).[6] In terms of the process of urbanization, informal occupation is predominant; people settle on land without titles and build their housing by self-construction. Although the extent of these new slums or 'cities' is difficult to accurately assess, Georges Anglade refers to it as a dimension of the Haitian space 'by far the most important for our future in the 21st century'. For the year 2007, he estimates that these city spaces represented 'more than 90% of a population of 2.5 million people, thus more than 2 million slum dwellers' (Anglade, 2008).

While the affected landowners usually remain passive, the State without appropriate means of control is also unable to prevent this self-organized and illegal occupation (CIAT, 2010). The land question,[7] especially farmland, has long been a problem in the country and makes very tricky any spatial management of the whole, any policy for developing the territory. It also increases the vulnerability of the Haitian context.[8] The Haitian legal system, like that in France, is based on the Napoleonic Civil Code. Despite a 'modulated judicial creolization' (Cabanis, 1996), we find a common monistic conception of the law and of justice inseparable from the representation of state, which emerged in Europe after 1789. The erection of

[6] Data IHSI, Millenium Development Goals, State, Trends, and Perspective.

[7] Understood as 'the set of relationships between individuals, the land, and natural resources. It includes both the concepts and the rules that are applicable to them as well as the uses associated with different products and activities (crops, pastures, and buildings) that are normally attached to it' (Dorner and Oriol, 2009).

[8] Briefly recall that risk is the conjunction of hazard and vulnerability. While hazard refers to the probability of the occurrence of an event, vulnerability is a notion that refers to the fragility of societies in the face of destructive phenomena. It is thus very closely linked to a society's various characteristics, and the land situation is incontestably among them.

the modern state postulates, in fact, that there can only be one authority and therefore only one law (Pierre Louis, 2002). In the aftermath of Haitian independence (1804), in accordance with the legal positivism of the French system, customs ceased to have force of law. This has led to a double structure of the country into a legal country and a real one, into a territorial state and a segmented state, the administration and the people, the power and 'outsider country' (Barthélémy, 1990), and so on. The various existing legislative codes thus refer to French texts and this historical influence is still valid according to the professionals of the sector: 'urban planning is marked by European conceptual influence and especially French'.[9] But next to the law, customary practices exist and it is precisely this parallelism between state order and customary order that can be crippling (Pierre Louis, 2002).

Development projects, infrastructure work, strategic zoning etc. cannot be implemented without land expropriation, which means a recourse to the principle of public utility as being superior to the right of individual property rights. Article 39 of the 1987 Constitution foresaw entrusting land management to local collectivities since it was decided that 'the communal sections have a pre-emptive right for the use of private land in the state' and designates the 'communes as privileged land managers of the state's private domain situated in their local area'. But due to the vagueness concerning the cadastre, property disputes are the rule. Therefore, the slightest land transaction must be endlessly negotiated and socio-economic inequalities inevitably play in the power struggles: it is easier to pre-empt land from disadvantaged citizens.

The European influence, especially that of France, regarding property is still current in the country through a concern for property clarification, as seen in the AFD's project for establishing a cadastre. Noting that many land disputes appear in cases brought before the courts, the goal is to improve the security of land rights, as much for the population as for the investors, in order to promote sustainable development and a territorial planning policy. One of France's commitments is thus the creation of a property cadastre covering one fifth of Haiti's territory, carried out 'with the technical expertise of France along with human and material support from the Haitian National Office of Cadastre (ONACA)' and support from the Interministerial Committee for Territorial Development (CIAT).[10]

2.2. Multiples Levels of Governance, and the European Projects 'Quartier'

This land rights confusion, already crippling urban planning before the earthquake, has been further reinforced since 2010 due to the multiplication of parties involved: it is currently impossible to have an overview of ongoing projects in the metropolitan area, since at the present time there is no map that would show precisely

[9] Interview consulting firm LGL, Port-au-Prince, December 2012.
[10] See the page 'Cadastre et sécurisation foncière' on the site http://www.diplomatie.gouv.fr/.

what is happening in terms of (re)construction. Entire sections of the city are being rebuilt but without any real oversight or centralization of information, in spite of the initiatives of those involved, including Europeans.[11] Among them, following the earthquake, the Overseas Collectivity (COM) of Saint Barthélemy launched the worksite 'Bay kout men Haiti'[12] for the reconstruction of a school located in the commune of Delmas, on the property of the Congregation of the Sisters of Saint-Paul de Chartres. Finished in September 2011, the school includes twelve classes and welcomes five hundred students, a far from negligible number. This operation was financed by the Collectivity, for the amount of 160,000 euros, and conducted jointly by the Red Cross, the Lions Club and the Rotary Club of Saint Barthélemy.[13] For this project, which is intended to be 'sustainable' (use of wood materials, rainwater recuperation, solar panels etc.), an attaché from the French Embassy in Haiti was present at the inauguration, while Haitian municipal authorities were not represented. Volunteers acted rapidly and without administrative concern, 'otherwise nothing would have been done!'[14]

The more important the aid providers are, the greater is their concern to report their presence to the local authorities, but the very heterogeneous nature of the local actors of (re)construction induces a 'lack of coordination between the different international actors and the absence of interaction with the national actors [Haitians], or even the exclusion of these latter, notably due to the systematic use of English as the working language', criticized a report by the International Federation of Human Rights (FIDH, 2010). Hundreds of construction, rehabilitation and relocation projects are thus underway in the capital, but a general misunderstanding prevails, in part due to the fragmentation of the different levels of territorial management. According to the 2009 census of the IHSI (2010, p. 62), the 'Metropolitan Area' comprises the communes of Port-au-Prince, Delmas, Cité Soleil, Tabarre, Carrefour and Pétion-Ville, but this is a statistical breakdown and not a level of governance; at the end of 2012, no institution formally assembled the mayors of each of the cited communes. It can be mentioned that the fragmentation of the city of Port-au-Prince was triggered in the 1980s, with the accession of suburbs to the status of communes.[15] As for the 'Arrondissement of Port-au-Prince', it is one of the five arrondissements of Haiti's Ouest Department, established around the city

[11] A representative of the Minister of Public Health and Population (MSPP) explained: 'it's a real battle with the NGOs to get them registered [with the government]. The MSPP has said [that you ought] to register to inform them that you are in the area, but they do not do it. Imagine that you are the representative of the MSPP in the area and you notice that this person is not registered. It is then very difficult to sit down with this person!' (Martel, 2012).

[12] 'A helping hand for Haiti'.

[13] See in particular the website http://bkmhaiti.blogspot.fr and *Le Pélican* (2010).

[14] Interview BKMH, Cap-Haitien, December 2012.

[15] The creation of City Halls in Carrefour and Delmas in 1982 and those of Tabarre and Cité-Soleil in 2003 increased the number of entities, without having a decisive impact on the services provided

of Port-au-Prince, which is today the administrative seat. In 2009, it was the most populous Haitian arrondissement with a population of 2,509,939 inhabitants (with over 90% of the population in the metropolitan area of the capital), for an area of 735.78 km². This arrondissement includes eight communes, namely the six of the metropolitan area, plus Kenscoff and Gressier. Departmental representatives (representatives of executive power, Courts of Appeal and departmental ministers) serve in each of the administrative seats of the department. At the level of the arrondissements are found Executive vice-delegates, Civil Courts and District Ministries. Communes are headed by mayors and municipal councils, while each of the communal sections[16] that compose them is directed by an Administrative Council of the Communal Section (CASEC).

On top of these local actors come European actors, predominant in matters of urban planning, not only from a conceptual viewpoint but also from a practical one, via reconstruction and planning projects. The level of intervention of the projects financed by EuropeAid is the 'quartier', which does not fit within any of the cited divisions. In addition to being a social and political issue (Miller, 2002), the notion of quartier overlaps that of the lived-in space, and some projects begin with the delimitation of their quartier by the residents themselves, as in the community planning project supported by the NGO Solidarités International in the area of Christ Roi, with more than 20,000 inhabitants.[17] Among other projects supported by European Union, we can mention:

– that of Cordaid, a Dutch NGO specialized in emergency aid, which has provided permanent shelters to over a hundred vulnerable families in the Villa Rosa quartier; [18]

– the Emergency Architects project concerning the Delmas 32 quartier, which is characterized by the presence of informal housing and where 30,000 people lived before the earthquake. It proposes 'modular houses';[19]

– the project of the Haitian NGO, FOKAL, in the Martissant quartier; contracting authority delegated by the Ministry of Public Works, Transport, Communications and Energy (MTPTCE), FOKAL is working on a development plan for the Concerted Development Area of Martissant;[20]

– the project of the French NGO, GRET (Research and Technological Exchange Group) for the Baillargeau quartier. This project named AREBA (Development of the Reconstruction of Baillargeau), funded by the AFD, the Foundation de France

for citizens, the initiative having rather 'cut the means and the capacity to act of the principal mayor' (Noel, 2012).

[16] For example, the commune of Port-au-Prince includes three: Turgeau, Morne l'Hôpital and Martissant

[17] Interview, Port-au-Prince, December 2012.

[18] http://cordaidhaiti.org/.

[19] http://www.archi-urgent.com.

[20] http://www.fokal.org/.

and in negotiations with European Union, also concerns a quartier described as precarious.

Among the goals listed for this last project led by GRET, figures 'strengthening the connection between the quartier and the rest of the city'.[21] The multiplicity of projects at the quartier level in fact poses the problem of their articulation both horizontally and vertically, due to the lack of effective governance at higher levels.

> The weakening of urban management institutions has become a constant over these last decades, and seems positively correlated with the deterioration of the situation. State and territorial institutions cannot meet their missions. […] The massive influx of hundreds of organizations mainly threatens to further stifle the acting capacity of local authorities (Noel, 2012).

However, on the side of the Haitian authorities, attempts are being made to 're-assemble the levels' as with the creation in 2011 of the Unity of the Construction of Housing and Public Buildings (UCLPB), whose function is to coordinate and ensure monitoring of the various reconstruction projects. The starting point of the UCLPB is indeed to collect data from various actors in the sector with the establishment of a database divided, precisely, by quartier. We thus see the emergence of a new level of governance, spurred on by foreign donors.

The case of downtown Port-au-Prince is very symptomatic of the splitting of perspectives created by the multiplicity of actors. This part of the capital is a strong symbolic issue, as evidenced by debates on the reconstruction of the National Palace, which is at the heart of it. Demolition of the building began in September 2012, undertaken by J/P Haitian Relief Organization (J/P HRO), a humanitarian organization established by the American actor Sean Penn, Goodwill Ambassador to Haiti. As for the role of France in its reconstruction, it does not yet seem clear, in spite of the proposition of the French Ambassador, a few weeks after the earthquake, to help rebuild this seat of power… Various development projects exist for the reconstruction of the city centre, including that of the Prince's Foundation for the Built Environment founded by Prince Charles and based in London along with the Miami firm Duany Plater-Zyberk (DPZ), commissioned by the Haitian government to develop a reconstruction plan for Port-au-Prince and to make proposals for the spatial organization of the perimeter, declared to be of public utility in 2011. To this can be added the Nouvilvlea project of the Ministry of Planning and External Cooperation (MPCE), for the metropolitan area of Port-au-Prince. As for Port-au-Prince's City Hall, they have turned to a working group of the Haitian Centre for Planning and Development Research (CHRAD); a project was presented in August 2011, including a totally renovated city centre, the installation of tramways, the redevelopment of the waterfront into a tourist and recreation area etc., at a total estimated cost of

[21] Brochure presenting the project AREBA–GRET.

3.3 billion dollars (*Haiti Libre*, 2011). Jean-Yves Jason, the mayor at the time, saw in it the opportunity for a 'new Port-au-Prince', but he has since been ousted by order of the government.

Recently elected (April 2011) President Michel Martelly, in fact, appointed in February 2012 a three-member commission to administer the municipality of Port-au-Prince until the next municipal elections. In the year 2012 alone, four different municipal teams have succeeded each other; this is a telling example of spatial fragmentation combined with a phenomenon of temporal discontinuity that once again runs contrary to any 'urban sustainability'.

3. TEMPORAL DISCONTINUITY

3.1. Emergency Temporality, Development Temporalities

The Haitian political climate is broadly marked by instability, whether at the national level or for local political teams. These unstable rhythms of governance come into resonance with the temporality of emergency actions that followed the 2010 earthquake. 'We spent too much in the transitory and did not invest enough in the long term', regretted the programme coordinator of the United Nations Human Settlements Programme (PNUEH); 'in the matter of housing, there is a widespread tendency to want to do it in the place of the Haitians. We spent 500 million dollars for emergency shelters, while importing everything, without any contribution to the Haitian economy, nor to job creation' (Caroit, 2012). At first, as a stopgap measure to relocate the homeless, the international aid trend was to build standardized shelters. The earthquake had destroyed 80% to 90% of the buildings in the town of Léogâne, located some 30 km from the capital, leaving thousands homeless. In response, dozens of NGOs involved in the city's reconstruction (including CARE, Habitat for Humanity, the Spanish Red Cross) embarked on the construction of transitional shelters or 'T-shelters'. But these T-shelters, as their name suggests, are temporary structures designed to last for a limited time (three to five years). These shelters are usually designed for rural and non-urban areas, and are often too large for city plots. In addition, they are made with materials that are not easy to recycle or reuse.

Criticism focused on the construction of T-shelters is appreciable on the side of European actors, even if ECHO has also financed this type of programme. In the present patchwork of (re)construction activities, some NGOs are building permanent houses (since October 2011), while others continue to build transitional shelters. Entrepreneurs du Monde, the NGO supported by the UNDP (among others contributors), has, for example, developed a construction method based

on a wooden framework filled with masonry, which is inspired by traditional Haitian architecture and which has been approved by the Ministry of Public Works, Transport, Communications and Energy (MTPTCE). The originality of this method of construction is the reuse of rubble to fill in the walls and to produce tiles. The NGO initiated the project when they realized that, due to the short life of T-shelters, they could build permanent constructions at almost the same cost and that T-shelters did not contribute to creating long-term employment, nor to train workers in earthquake-proof techniques.

> If the money used to produce shelters had been directly allocated to sustainable construction, at the same time as the process of clearing up rubble, the investment would have had more impact in the long term. In any case, we cannot go backward, but our role is to raise the awareness of all of the actors in reconstruction, so that when the next catastrophe happens (such as a major storm), we might turn to more sustainable solutions that are available in Haiti.[22]

Here is another example of this gap between temporalities and the logic of emergency actions in relation to those of development: in one of the quartiers whose rehabilitation is now being studied by NGO and financed by EuropeAid, latrines were built by an international organization after the earthquake, but located in a place intended to be a major traffic artery in the new project. These some 200 latrines, built in a hurry, will undoubtedly be destroyed for the development. This example sadly reveals another aspect of spatiotemporal rupture: emergency constructions were momentarily allowed to respond to the problem of land ownership by ignoring it, since they were supposed to be temporary, but they have now made the property situation even more complex, since certain areas born as temporary emergency housing have lived on, *de facto*.

In the perspective, no longer of emergency relief but of development, European actors are predominant in Haiti, where the EU is the main financial backer.[23] In January 2013, ECHO posted 213 million euros of humanitarian assistance in the country since 2010, but now they have a view of linking relief, rehabilitation and development[24] to facilitate the transition between emergency aid and development. In this context, ECHO and EuropeAid fund various projects concerning quartiers (see above), but it is interesting to see how these quartiers for intervention are chosen. Whether it is the case of GRET in Baillargeau, FOKAL in Martissant, Solidarités International in Christ Roi, COOPI in Tabarre, or Emergency Architects

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[22] Interview, Port-au-Prince, December 2012.

[23] According to the Press Release (2012), overall EU aid to Haiti for the period 2008–2013 will total more than 750 millions euros. To help rebuild the country, more than 1.2 billion euros were pledged in New York during the international conference on rebuilding Haiti in March 2010. The European Commission's contribution to this commitment is 522 million euros. This makes the European Union since 2010 the largest donor in favour of Haiti.

[24] Linking Relief, Rehabilitation and Development (LRRD) programme.

in Delmas 32, these are areas where the NGOs involved were already established before the earthquake, some for a very long time. It is, in fact, easier to set up long-term projects in places where there is a pre-existing relationship, a familiarity with the presence of this foreign actor. More sustainable sections of the city are thus going to emerge in the quartiers where these European NGOs had started working long before the earthquake. Anteriority is often even highlighted by humanitarian workers as a token of seriousness: having been there for a long time leads to a better understanding of the local context, and thus of more permanent results.

The common point of all the humanitarian discourse is community outreach, valuing participatory planning. It is not possible to carry out projects over time if they come from 'above', so it has to be the inhabitants that take charge of their urban strategy. In this 'bottom up' concept (as opposed to 'top down'), the city is only 'sustainable' if the citizens are part of the decision-making. It is thus necessary to create urban citizens, and to accomplish that one can rely, for example, on a cartography also presented as 'participative', in which the mastery of the tools of city representation allows the population, in its entirety, to participate in the construction of development projects, or to oppose them, or even to resist them. But this participatory urban planning arrives here in a context of high socio-economic insecurity where the NGOs account for a significant source of income in a country whose gross domestic product (GDP) *per capita* was 672.9 dollars in 2010 (WB, 2013) with a very unequal income distribution: 'with nearly half of the national income going to the top decile of the population, while the last two deciles receive less than 2% of the national income' (Haiti PDNA, 2010, p. 30). Haitians, two-thirds of whom are unemployed or underemployed, are faced with a paltry compensation for their labour.

The minimum daily wage is about 200 gourdes (less than 5 dollars), while the country massively imports consumer goods, especially food, from the United States. The cost of living is disproportionate to the purchasing power of most people, who survive thanks to international aid, and even more so thanks to the massive transfer of income from the diaspora. When you are part of the 71% of the population living on less than 2 dollars per day, or the 50% who have less than one dollar per day (Haiti PDNA, 2010, p. 23), how can you look into the future and plan for the 'ability of future generations to meet their own needs'?[25] There is a temporality to an emergency, there are temporalities in development, but the reality for most Haitians is day-to-day survival. And among the possible sources of income are the funds of the NGOs active in reconstruction, the most obvious being the system of 'cash-for-work' (CFW) which refers to short-term employment for unskilled labour. One of its main objectives is to get money circulating in order

[25] According to the classic definition of sustainable development from the Brundtland Report, published by the World Commission on Environment and Development in 1987.

to ‘restart’ the economy with jobs like street sweeping, removing debris by hand, construction of latrines in camps and so on.

3.2. The Urban Planning of Humanitarian Projects in Question

Allowing projects to be implemented at their own temporality depends on timely funding, without long-term operational costs. However, ‘the project as urban ambition cannot lock itself into a purely functional and introverted temporality; thus in a process of ‘denial’ in relation to the long term and the future of society’ (Chesneaux, 2001). In the 1990s, the principles of ‘planning’ and of ‘strategic management’ found in all of the multinationals became prevalent in NGOs, especially Anglo-Saxon ones. The trend is, in fact, to a professionalization of structures that resemble more and more development agencies, a professionalization that brings with it new management methods in the field; mission leaders had to learn to deal with powerful decentralized regional structures ‘that manage budgets instead of just supervising projects’ (Verna, 2007, p. 30). And these budgets are allocated for set periods, and must be spent within the allocated time. One fear of those bringing participatory projects is to create the impression of waiting that only increases the discontent of the beneficiary population, with a weariness that this Haitian student voices:

> I can honestly tell you that I have no bad feelings toward foreigners [who are in my country]. However, I don’t understand it and I feel bad, when I see someone use his position to enjoy privileges at the expense of this [Haitian] people, moaning in boundless misery. As for the NGOs, I think it’s a very complex subject. Sometimes I wonder why so many NGOs work in the exact same area…[26]

Encouraging beneficiaries to express their needs, to get them involved in the reconstruction or the rehabilitation of their quartier, can become problematic when their expectations are not quickly met. There, once again, the temporalities of development actions and those of need are not necessarily congruent.

The various discrepancies mentioned sometimes lead to ‘shopping list’ behaviour by residents who have trouble understanding the ongoing actions, but who see very well that there is money, and bags of rice, tents etc. to recuperate. This instrumentalizing relationship with NGO projects is also part of perpetual local structures. Take the case of Morne à Cabri, a project financed 100% by the Haitian government and being overseen by the UCLBP (Unit for the Construction of Housing and Public Buildings), with a process that is the opposite of the participatory logic usually advocated, precisely to avoid the effects of expectation: first of all the housing is built, then in a second step creditworthy beneficiaries are looked

[26] Interview, Port-au-Prince, August 2010.

for in the hope of 'creating the urban'. At the end of 2012, the goal was to identify groups of people already accustomed to living together and moving them to Morne à Cabri, and in the long term, filling some 3,000 projected housing units, intended for about 18,000 people. To ensure regular payment of the rents, the UCLBP plans to recruit the services of a private institution or a NGO specialized in the management of rental housing, since

> […] the Public Enterprise for the Promotion of Social Housing (EPPLS), being a State service, cannot force people to pay; they say 'it's the State, we're not paying!' so it's easier to for us to go through this intermediary institution which could be a financial institution or a NGO.[27]

We see very well here that even when national and local structures exist, they outsource some of their functions and assign them to international actors, who not only know how to 'do it better' but also provide funding. The sociologist Sabine Manigat (2011, p. 60) sums it up as, 'the weak State is caught between the anvil of project economics and the hammer of electoral and legal aid'.

A common concern of governing structures and donors, however, is the visibility of actions carried out in the urban space, in a logic sometimes electoral and/or clientelist on the one side and regarding budget renewal on the other. In the case of T-shelters, mentioned earlier, a report noted that certain agencies preferred building this type of shelter rather than repairing houses or paying the rent of the homeless, because 'based on prior experience, the ease of implementation, project control, and visibility are greater'. The same concern was highlighted by the EU, whose report by a delegation of parliamentarians from the Budgetary Control Committee in February 2012 'points out the lack of visibility of EU aid in Haiti; believes that to increase visibility, not only the initials but also the name of the European Union should appear on public relation documents, rather than that of the Commission or of the DG ECHO, which are much less identifiable to the average Haitian citizen' (Feedback Report, 2012).

While one of the issues of reconstruction projects is thus visibility, a risk often mentioned is the lack of evaluation and traceability in the country for, among other projects, those of the EU. This point was raised in the above-mentioned report, which points out a lack of coordination between the EU delegation and representatives of ECHO but also among all of the EU actors in the country. The Delegation also noted, 'that the control systems for EU funds spent through government channels in Haiti are generally inadequate and that accountability for EU expenditures remains at an unacceptable level' and 'insists on the need for Haitian authorities to make significant improvements regarding the control of expenditures and their efficiency' (Feedback Report, 2012). The responsibility thus lies, in a large part, with the recipients of European aid.

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[27] Interview UCLPB, Port-au-Prince, December 2012.

4. CONCLUSIONS

There is no urban sustainability without spatiotemporal continuity. The model of the 'sustainable city' clashes with the reality of geographical fragmentation and temporal division, which by the very form of its participatory urbanism and projects, it helps to sustain. The risk highlighted by the case of Port-au-Prince is thus to end up with a cacophonous city, a dissonant city, a patchwork city – not due to lack of planning but, on the contrary, because of disjointed planning that atomizes urban space. In addition, there is a sort of forced decentralization, which then again reinforces a form of oligarchic and clientelistic centralization.

> The Haitian State has been functioning without the notion of sustainable development for over two hundred years and that's where the problem lies, since from 1986, at the moment when the international community seriously considered its standardization, the Haitian State has also been prey to lasting attacks from the population demanding participation, inclusion, and the satisfaction of its needs – its fundamental rights (Manigat, 2011).

The NGOs have come to fill the gap, but operate according to their own spatiotemporal systemic loop, their own territory and their temporality, combined with a low level of genuine decentralization, which renders municipal administrations practically inoperable in the areas of urban planning and development. This all gives way to a chaotic urbanization, driven by individual initiatives dictated by strategies either of survival or of getting rich quick. Among the private actors, a consulting firm, such as LGL, works on the development plans of almost all of the (re)construction projects funded by EuropeAid: in that, it helps to homogenize the urban cacophony.

In terms of vulnerability, the Haitian capital is as fragile now as before the earthquake. Year zero has not happened and while urban planning was lacking before 2010, it infers a spatiotemporal uniformity that cannot emerge in such a short time. The sustainable city, in the European sense of the term, is very far from Port-au-Prince, the precept is doubtlessly applicable only where state, economic and social structures pre-exist. But what Port-au-Prince reveals to us, is also what can be expected in all urban systems where the state is not able or is no longer able to supervise the process of urbanization and to coordinate numerous actors, including public ones. This example incites us to change our viewpoint when looking at the urban world from these cities of the south, which are faced with dynamics that might foreshadow what could happen in European cities. The logic of privatization, financialization, fragmentation and exclusion is at work in all of the world's cities and it is perhaps Europe and America that tend to evolve according to the logic identifiable in the cities of the south, and not the opposite (Choplin, 2012; Comaroff and Comaroff, 2011). At the same

time, the model to which the majority of the population aspires is that conveyed by the huge 4x4 vehicles that drive through the rutted and traffic-jammed streets of the capital, carrying the actors of (re)construction.

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PART II
ARTICLES

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INFORMAL HOUSING IN GREECE: A MULTINOMIAL LOGISTIC REGRESSION ANALYSIS AT THE REGIONAL LEVEL

Abstract: This paper deals with the primary causes of informal housing in Greece as well as the observed differentiations in informal housing patterns across space. The spatial level of analysis is the prefectural administrative level. The results of the multinomial logistic regression analysis indicate that Greek prefectures differ in the way they experience the informal housing phenomenon. An explanation for the observed differences may be the separate development paths followed and the diverse range of economic activities in each prefecture. The Greek state has not made provisions for creating the necessary 'urban land stock' in each prefecture, so that everyone interested can find land parcels at an affordable price. On the contrary, the state encourages the informal housing activity by legalizing large areas of such activity sporadically and by introducing legislative initiatives of limited success in dealing with the problem.
Key words: informal housing, land use changes, multinomial logistic regression, housing policy, Greece.

1. INTRODUCTION

In several countries worldwide, informal settlements represent a growing part of many metropolitan areas. Factors influencing informal housing growth and settlement formation vary amongst locations. In the literature, the investigations dealing with informal housing activity could be classified into two general categories.

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The first category comprises numerous enquires that examine illegal housing phenomenon in less developed or poor countries (Linden *et al.*, 1985; Sethuraman, 1985; Kumar, 1996; Roy, 2005; Smart, 2006; Kapoor and Blanc 2008). In the second category, the attempts on approaching informal housing activity concern developed nations. These studies have been mainly focussed on the role of the state and on policy responses to housing affordability issues (Susser, 1996; Waterson, 1998; Ward and Peters, 2007). Here, informal housing is often considered as 'hidden homelessness', which is admittedly little understood, or systematically studied, though acknowledged as a critical research priority and gap (Tanasescu *et al.*, 2010). This tendency to separately examine illegal housing in developing and developed countries by using distinct approaches is mainly due to the large differences observed in economic, social, political and environmental conditions associated with the countries of each category. Consequently, the proximate and underlying causes of illegal housing phenomenon might be fundamentally different amongst countries. This consideration has impeded our capacity for comparative and more holistic understandings of the processes that give rise to housing illegality (Tanasescu *et al.*, 2010).

The type and quality of buildings may vary considerably between countries (Kombe, 2000, 2005). Estimates based on current trends in the developing regions of the world indicate that such settlements will increase considerably providing shelter for as many as 50% of the total urban population over the next ten–twenty years (UN-Habitat, 2003, 2005). In most countries facing this problem, there is little strategic thinking about the integration of these housing clusters into the city as a whole (Abbott and Douglas, 2003). Therefore, the problem remains unresolved generating serious adverse impacts on almost all aspects of urban life (e.g. transportation, safety, social security etc.).

For Greece, informal housing constitutes a phenomenon with complex and interacting economic, social and political dimensions. It is tightly connected to the kind of management applied by the state upon urban and non-urban land. Past and current housing policies in Greece have introduced specific instruments to address informal settlements. The first targeted informal housing policy, which was launched in 1983, set up two important mechanisms to deal with the problem. However, the illegal housing phenomenon proceeded at a high pace, with about 3,000 unlicensed buildings (almost the size of a small town) being legalized and integrated into the existing urban system each year. Moreover, it is believed that the number of illegal buildings that escape the legalizing process annually is much higher (Minetos *et al.*, 2006; Polyzos and Minetos, 2007).

This situation tends to become an acute problem with serious economic, social and environmental implications. Its significant and pressing impacts include deterioration of landscape aesthetics, biodiversity loss, desertification, forest and open space loss, increased vulnerability of human settlements, local water

contamination. It is vital to understand the informal housing process in order to design and implement effective policy responses.

The present empirical research primarily aims at revealing the major underlying causes of informal housing in Greece performing a spatial analysis of the phenomenon at the prefectural administrative level (NUTS III). The focus of the study is on how certain regional economic, social and environmental characteristics influence the magnitude of informal housing across space. In doing so, we adopt a quantitative approach and construct a logistic regression model of likely explanatory variables. The choice of the variables relays on well-known theoretical perspectives on the fields land economics and housing. The remainder of the article is organized as follows: Section 2 provides a framework for the empirical analysis by dealing with the theoretical perspectives that either directly or indirectly refer to the process of informal housing. Section 3 presents the methodological approach of the study. It also gives a detailed description of the explanatory variables used in the model and comments on the merits of using multinomial logistic regression as a tool for investigating informal housing phenomenon. The overall performance of the model is discussed and the results are presented and interpreted. Finally, Section 4 formulates the conclusions drawn from the precedent investigation.

2. UNDERSTANDING INFORMAL HOUSING PATTERNS

A plethora of theoretical schemata have been developed to explain various land allocation processes. In regards to informal housing, the pertinent literature reports two major categories of theories, which offer a means of conceptualizing reality (Hall and Hay, 1980; Leontidou *et al.*, 2002; Sietchiping, 2004). The main classification criterion of these theories is the level of economic development of the country under question. The first category encompasses theories which apply to the developed countries, whereas the second category comprises theories which can better explain illegal housing patterns in the developing countries (Sietchiping, 2004).

In regards to the developed countries, three general theoretical schemata are frequently discussed in the international literature.

1. The Chicago School perspective which was formulated mainly by Burgess in the late 1920s. He considered illegal housing the result of income level differences among various ethnic groups who competed for urban land (Burgess 1925 in: UN-Habitat, 2003; Sietchiping, 2004). In an updated version of this perspective, Davis (1992) introduces the concept of 'the ecology of fear' which will probably become the natural order of the 21st-century city.

2. The neo-liberal theory of slums of Alonso. This theory suggests that illegal housing is a reaction to the housing needs of the people who cannot afford to pay

for a formal housing unit due to discriminatory urban regulations and public spending (Smith, 1980). However, Leontidou *et al.* (2002) argue that this approach as well as the urban life cycle model (according to which there is a cyclical process of urban changes encompassing the stages of urbanization, suburbanization, disurbanization or counterurbanization and reurbanization), distort the characteristics of Euro-Mediterranean urban development. Therefore, they are inappropriate for analyzing urban patterns in many Mediterranean cities.

3. Two contemporary perspectives on globalization. (a) The post-modern theory of urban landscape, which can be regarded as a continuation of the theory of factorial ecology. In the post-modern theory, informal settlements are perceived as the product of skills segregation within urban spaces and according to this approach, urban dwellers settle in regards to their profession and social status (Flood, 2000). (b) The 'global cities' concept by Sassen (1991, 2003), which refers to cities with resources that enable firms and markets to be global. This author proposed the term 'global city' to describe the impacts of globalization on city structure through the movement of labour and capital, new technologies and firm location decisions.

With regard to Greece, the building forms and driving forces of informal housing have been extraordinarily different depending on the historical context. Informal settlements in Greece are unlike such settlements in poorer countries, where the very poor people have established settlements with whatever materials may be available. The most common housing informality in Greece includes construction mainly of houses without building licenses on small, legally-owned land parcels, in areas having no formal urban plan (Potsiou and Ioannidis, 2006; Dimopoulou and Zentelis, 2008). We can roughly distinguish two periods regarding the evolution of the phenomenon, the areas mainly occurred and the causes which affect its appearance. The first period started in decade of 1950s, after the Second World War and the Civil War in Greece and ended in 1983.

In this period, the 'first generation of informal settlements' grew, while informal housing activity was associated with significant rural – urban migration movements as well as with the failure of the state to meet the widespread demand for shelter by the incoming population. Urbanization and net increases in the country's population created pressing needs for new housing units. In addition, the level of income of the newly-arrived population was relatively low at most major cities and so did their ability of acquiring a proper shelter. Increases in urban population usually fuel the demand for housing in the real estate market rising, in its turn, urban land and property prices. High land prices are a serious obstacle for acquiring a house. Increases in the available developable land through the extension of existing urban plans are a time-consuming process. Therefore, keeping urban land prices at an affordable level is difficult and requires effective monitoring procedures and adequate land use planning mechanisms. So, people coming from rural to cities did not have access to housing financing and they

could not afford to buy apartments in the city. It was affordable for them to buy land parcels mainly in the periphery of major cities or close to industrial areas, and also within the coastal zone, in areas that had no formal urban planning regulations (Potsiou and Ioannidis, 2006).

In the past, under the prevailing tight economic conditions, neither the government nor the private sector could provide the urban poor with basic shelter. Hence, informal housing activity was, in some respects, the direct result of the failure of government housing and spatial planning policies. The main reasons for this failure were: (a) the regional and economic policy pursued which fuelled rural-urban migration movements, (b) failure to design and implement urban land policy that could have provided land plots of affordable prices for the low income groups and (c) the inability of the public sector to plan strategically and to forecast urban land demand (Dimopoulou and Zentelis, 2008; ECE 2008; UN-Habitat, 2010).

The second period of the phenomenon began in 1983 and continues by our days. In 1983, a significant piece of legislation was introduced dealing with wider urban land planning and management issues as well as with the phenomenon of informal housing in Greece (Law, 1337, 1983). The law contained provisions for integrating informal settlements into the existing system of urban areas and for lowering the pace of urban sprawl through the introduction of urban land use zones. By this document, the state attempted to integrate these informal settlements into a legal status by extending the formal urban plans. In particular, the Law 1337 gave priority to the extension of existing town plans in areas on the urban fringe with unauthorized development, lacking basic urban infrastructure and implementing Zones of Urban Development Control (Giannakourou and Balla, 2006; Dimopoulou and Zentelis, 2008). As a result, a great effort was made to survey and organize unregistered urban units that had emerged since the post-war period (especially after 1955 when the Greek state introduced the building license requirement).

These legislative measures so far did not solve the problem of informal housing in Greece. By 1995, most of the 'first generation of informal settlements' had been legalized, but the 'second informal settlement generation' process had already started. Remarkable changes have also occurred in the spatial distribution of informal housing units. Whereas in the past most of the informal settlements were located in suburban areas of the great metropolitan concentrations, nowadays the majority of informal settlements are developed in distant areas of great environmental value, close to the coastal zone or in the islands. Rising living standards in large cities increased the demand for second or holiday home without a equal increase of land parcels' supply, resulting in the phenomenon of illegal housing to be transferred to areas where a wonderful natural environment was ensured. Thus, a reversal of direction for initiating the phenomenon from 'rural – urban' to 'urban – rural' is observed, but it is not eliminated from the urban areas, while in the same time the standard of living in the urban areas was improved.

We can classify the factors that have led and kept the phenomenon of illegal housing in Greece in three basic categories that concern social, economic and environmental causes. One schematic presentation, the individual factors and the interaction between them we can see in figure 1. In this scheme a conceptual framework to guide the exploration of the contemporary driving forces of informal housing in Greece is proposed, the content of which will be analyzed below.

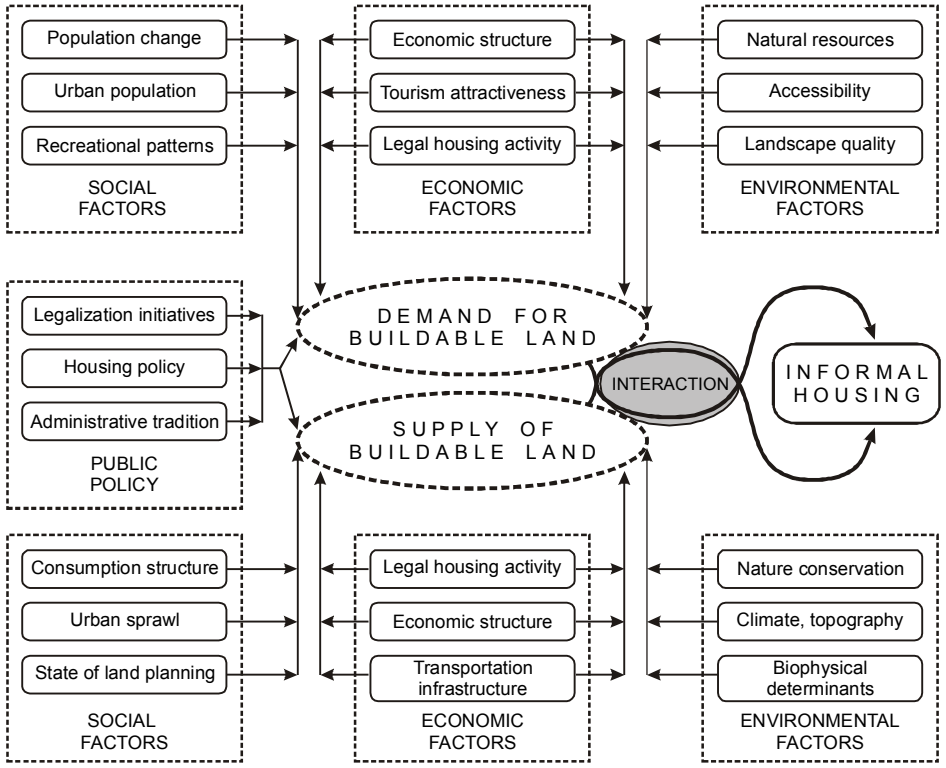


Fig. 1. A conceptual framework of informal housing phenomenon
Source: own elaboration

All categories influence both the supply and the demand of buildable land. In turn, the importance of the interaction between supply and demand determines the individual and collective land development strategies as well as residential land use patterns. Where the supply of land, in terms of quantity and quality, is insufficient in meeting the existing demand, a likely result may be informal housing. In the following, the most important factors that influence both demand and supply of buildable land are presented and the significance of their influence on the magnitude of informal housing in Greece is assessed.

3. MODELLING INFORMAL HOUSING DEVELOPMENT

3.1. Methodology

The quantitative analysis that follows has been based on a number of socio-economic and environmental explanatory variables that draw on the conceptual framework presented before. These are described shortly. This analysis involves evaluating a stock of informal housing units in Greece that entered into the legalization process during the period from 1997 to 2006 against selective economic, social and environmental factor.

1. The total population potential of each prefecture (*pot*). The concept of population potential must be understood as the force or attraction which the region *r* would exert on region *s* in geographical space and shows the influence each region exerts on all other regions or in this sense, it measures the proximity of a region to other regions. For estimating the influence of population on informal housing, we use both the 'direct' or 'self' population potential (*dpot*) and the 'indirect' population potential (*ipot*). The total population potential is a function of a prefecture's permanent population and the distances between the prefecture under investigation and the remaining prefectures and it is provided by the following formula (Clark *et al*., 1969; Keeble *et al.*, 1982; Polyzos and Arampatzis, 2006):

$$(pot)_r = (dpot)_r + (ipot)_r = \frac{M_r}{d_{rr}} + \sum_{s=1}^{n} \frac{M_s}{d_{rs}^b}, \quad (1)$$

where: M_r – a measure of the volume of population 'mass' of prefecture *r*; M_s – a measure of the volume of population 'mass' of prefecture *s*, *s* = 1, 2…, *n*; d_{rr} – the mean intra-prefectural distance of prefecture *r* (either in time or length units); d_{rs} – the distance between region *r* and the other regions *s*; *b* – an exponent which shows the 'friction of distance' between prefecture *r* and prefectures.

2. Population (*pop*) changes in each prefecture. Increases in the local population create new demand for housing and, therefore, influence both legal and informal housing activity in each prefecture. The statistical data used for this variable derive from the NSSG (2004).

3. The share of tertiary (*ter*) sector of the economy in the total production in each prefecture. Prefectures whose economy is based on the tertiary sector are expected to have higher economic growth rates compared to the remaining prefectures (Polyzos and Sofios, 2008); therefore, they would experience increased demand for housing units, because economic growth in Greece is strongly connected with building activity (Dimopoulou and Zentelis, 2008).

4. The urban population variable represents the change in urban population in each prefecture. It is the ratio of urban population in 1991 to the urban population in 2001 (NSSG, 1991, 2001). According to Zelinsky's (1971) rural-urban migration theoretical suggestion, there are certain stages in migration depending on the state that a society is. One of his suggested stages involves the emergence of considerable rural-urban migration, mostly in countries with strong economic development. In this stage, the migrant flows increase considerably the demand for urban space at the expense of other uses. This may have been the case in Greece for the period shortly after the Second World War which was characterized by massive rural-urban migration movements (Leontidou, 1989). As the country gets into the developed stage, we might have the opposite phenomenon of rural-rebound where people seek dwelling in peri-urban or even rural location despite the fact that they work in cities.

5. The length of sandy beaches (*sbeach*) in each prefecture is a measure of the total length of the coastline and to some extent indicates the existence of suitable areas in each prefecture for building vacation and holiday houses. This factor may represent better the potential in each prefecture for tourism development. The existence of extensive scenic coastal locations is a factor of attraction for tourism investments because of the economic benefits traditionally associated with tourism. Data for this variable come from the NSSG (2004).

6. The total area (*area*) added to the existing urban plans (legalized area) in each prefecture for the period 1985–2003. It is hypothesized that if the new areas that are added to the urban plans are equal to or exceed the demand for urban space, urban land in the real estate market will be of an affordable price. This is because there is a direct relationship between city growth boundaries and affordable housing. Therefore, given the availability of developable land in reasonable prices, there would hardly be scope for informal settlement construction if land price is an important determining factor of informal housing. Despite the fact that in Greece considerable experience has been possessed in applying spatial planning regulations or building permits and the existing regulations, records and registration systems offer the necessary tools to prevent informal building activity, the authorities have not been successful in keeping a balance between the demand and supply for buildable land (Dimopoulou and Zentelis, 2008). The statistical data for this factor are taken from the Ministry for Environment, Planning and Public Works (YPEHODE, 2006).

7. Legal housing *per capita* 1990–2000. Legal housing *per capita* is a measure of housing activity in each prefecture. This variable seeks to investigate whether the informal housing activity has an analogous relationship with the legal (licensed) housing activity or if they are uncorrelated. The data for this variable are taken from the NSSG (2005).

8. Urban sprawl. The data for this variable come from the NSSG (1990, 2000) and refer to the percentage of urban land outside the existing urban plans in each

prefecture for the year 2000. The indicator is the ratio of the number of buildings constructed outside the existing urban plans in a prefecture multiplied by 100 to the total number of buildings in that prefecture. This is a proxy variable for total urban sprawl in each prefecture (Minetos and Polyzos, 2010).

9. The nights spent by foreigner tourists in each prefecture (*ftour*) is a proxy variable to capture foreign tourism attractiveness of each prefecture. In turn, this may affect the total demand for accommodation. An additional variable is the nights spent by domestic tourists in each prefecture (*dtour*). This is an indicator of domestic tourism attractiveness of each prefecture as well as of secondary and vacation housing attractiveness (NSSG, 2001).

In order to study the impacts of the aforementioned variables on informal housing activity, multinomial (or polytomous) logistic regression is used which is appropriate when the dependent variable is categorical and the explanatory variables are continuous, or categorical (Norusis, 2004; Lesschen *et al.*, 2005). Multinomial Logistic Regression is useful for situations in which we want to be able to classify subjects based on values of a set of predictor variables. This type of regression is similar to logistic regression, but it is more general because the dependent variable is not restricted to two categories. The logistic regression directly estimates the probability of a certain prefecture experiencing low, medium or high illegal housing activity under the influence of a set of socio-economic and environmental factors. Thus, the technique can be used to present data of illegal housing activity and calculate the coefficients of the mathematical formula.

In this study, legalized housing units per 1,000 residents per prefecture for the period from 1997 to 2006 is taken as dependent variable in the model, using it as a proxy variable for the total illegal housing activity at the prefectural level. For a number of pragmatic reasons, actual illegal housing activity is extremely difficult to observe and count precisely. Therefore, we need an observable variable that can be safely considered as indicative of the magnitude of illegal housing activity. We set up a regression model in which one of the observed variables is a proxy for some unobserved 'true' variable. Therefore, this paper follows the alternative approach of modelling illegal housing as an unobservable variable. In order for the results to be valid, the proxy variable must have a close correlation with the inferred value. Because the legalized housing unit indicator is relatively crude, we choose the multinomial logistic model that performs well when fed with medium or even low quality data.

After transforming the continuous dependent variable into categorical with three classes, two logits are formed. The model is based on the maximum likelihood estimation and not on the least-squares method as in multiple linear regression analysis. The characteristic of multinomial logistic model is that it does not assume a linear relationship between the explanatory variables and the dependent variable (Norusis, 2004). Furthermore, it does not assume homoscedasticity nor that the dependent and independent variables or the error terms are distributed normally.

The only assumptions of the model are that the observations are independent and that the independent variables are linearly related to the logits of the dependent. The benefit of using a multinomial logistic model is that it models the odds of each subcategory relative to a baseline category as a function of covariates. It can test the equality of coefficients even if confounders are different unlike in the case of pair-wise logistics where testing equality of coefficients requires assumptions about confounder effects. Several studies in land use change literature adopted this methodology. Many other scientists (Morita *et al.*, 1997; Newburn *et al.*, 2006) used a multinomial logit model to assess changes in land use by type in various different countries. Multinomial logistic regression is also called 'baseline category', because it compares each class *y* with a reference category, often the first one (category *i*), in order to regress to the binary case.

Instead of using the legalized housing units per prefecture data as a continuous variable we transform it into a categorical variable in order to account for errors, such as undetected informal housing activity in each region and other errors involved in recording the process (Kaimowitz and Angelsen, 1998; Mahapatra and Kant, 2005). The magnitude of legalized housing units per prefecture is used as a dependent variable. Therefore, the following categories of informal housing activities are distinguished in the dependent variable:

Low: prefectures where the value of legalized housing units per 1,000 residents ranges from zero to 2 ($0 \leq$ legalized housing units per 1,000 residents ≤ 2).

Medium: prefectures where the value of legalized housing units per 1,000 residents ranges 2 to 5 ($2 <$ legalized housing units per 1,000 residents < 5).

High: prefectures where the value of legalized housing units per 1,000 residents is from 5 to the maximum value observed ($5 \leq$ legalized housing units per 1,000 residents ≤ 14.2).

The low category is the reference category. The empirical model with *j* categories of dependent variable can be expressed as:

$$\frac{prob(i-class)}{prob(j-class)} = e^{\beta_{i0}} . e^{\beta_{i1}X_1} . e^{\beta_{i2}X_2} \ldots e^{\beta_{in}X_n+\varepsilon_i} = e^{\beta_{i0}+\beta_{i1}X_1+\beta_{i2}X_2+\ldots+\beta_{in}X_n+\varepsilon_i} \quad (2)$$

$$\ln\left[\frac{prob(i-class)}{prob(j-class)}\right] = \beta_{i0} + \beta_{i1}X_1 + \beta_{i2}X_2 + \ldots + \beta_{in}X_n + \varepsilon_i, \quad (3)$$

where: $prob(i - class)$ – the likelihood the dependent variable being in the *i* category; $prob(j - class)$ – the likelihood the dependent variable being in the *j* category (the baseline category); X_n – the explanatory variables 1,…, *n*, employed by the empirical model; β_{i0} – the intercept for logit *i*; β_{in} – the regression coefficient of the variable *n* for logit *i*.

Because the dependent variable has three classes of prefectures, there are two non-redundant logits that can be expressed as following:

$$LogitA = \ln\left[\frac{prob(ILLEGAL-Medium)}{prob(ILLEGAL-Low)}\right] = \beta_{Med0} + \beta_{Med1}X_1 + \ldots + \beta_{Med10}X_{10} + \varepsilon_{Med}, \quad (4)$$

$$LogitB = \ln\left[\frac{prob(ILLEGAL-High)}{prob(ILLEGAL-Low)}\right] = \beta_{High0} + \beta_{High1}X_1 + \ldots + \beta_{High10}X_{10} + \varepsilon_{High} \quad (5)$$

Therefore, the parameter estimates for the above logits are calculated. The quantity to the left of the equal sign is called a logit. It is the log of the odds that an event occurs. The coefficients in the logistic regression model tell us how much the logit changes based on the values of the predictor variables. The first logit expresses the log of the ratio of the probability of a prefecture being in the 'medium illegal housing' category or class compared to being in the baseline category (i.e. low informal housing activity). Similarly, the second logit expresses the log of the ratio of the probability of being in the 'high illegal housing activity' category compared to being in the baseline category (i.e. low informal housing activity).

The histogram of the dependent variable in figure 2 shows that the distribution is not symmetric. There are two peaks on the left hand-side and also the distribution is skewed to the right having a tail towards larger 'illegal housing activity' values. That is why we constructed three categories of illegal housing activity prefectures. The first class represents the prefectures under the first peak that have smaller values of illegal housing activity. The cut point here is 2. The second category represents the prefectures under peak number two having a medium illegal housing activity. The cut-point here is 5. Finally, the last category represents the remaining prefectures of high illegal housing activity under the right tail of the distribution.

Examining the stem-and-leaf plot and the box-plot in figure 3(a) and 3(b) more information about the right tail of the distribution can be obtained. A stemplot or stem-and-leaf plot is a device for presenting quantitative data in a graphical format, similar to a histogram, to assist in visualizing the shape of a distribution and it is a useful tool in exploratory data analysis. Unlike histograms, stemplots retain the original data to at least two significant digits, and put the data in order, thereby easing the move to order-based inference and non-parametric statistics. A basic stemplot contains two columns separated by a vertical line. The left column contains the *stems* and the right column contains the *leaves*. The box plot is a graphical display that simultaneously describes several important features of a data set, such as centre, spread, departure from symmetry and identification of unusual observations or outliers.

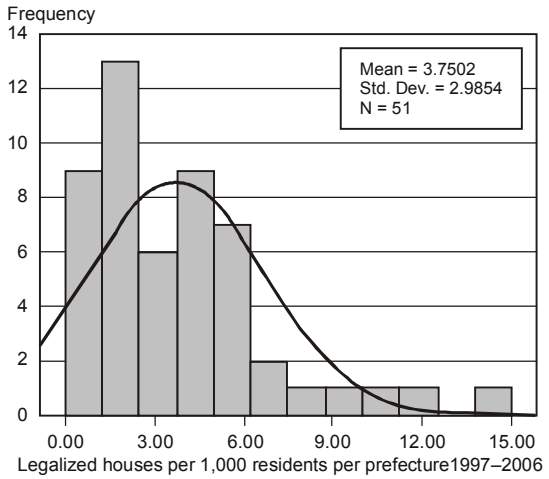


Fig. 2. Histogramic representation of the distribution of the dependent variable
Source: own elaboration

The stem-and-leaf plot shows that there are two prefectures with 7.6 and 8.8 values of illegal housing activity (high values) and 3 outliers lying above 10.9. In the box-plot, the whiskers that extend from the top and bottom of the box represent the smaller and largest values that are not extreme values. The prefectures outside the whiskers are the outliers and they are between 1.5 and 3 box lengths from the edge of the box. These prefectures have the highest illegal housing activity and they are (a) the insular prefecture of Chios (14.17) in the Aegean Sea, (b) the insular prefecture of Euboea (11.95) close to the metropolitan area of Athens and (c) the mainland coastal prefecture of Laconia (10.89) in the south part of Peloponnese.

Fig. 3. Stem-and-leaf plot and box-plot of dependent variable
Source: own elaboration

Figure 4 presents the geographic distribution of informal housing activity for the prefectures classified in the high informal housing activity category. Most of the east coast of the country is designated as high informal housing activity area. There are also two important rings of informal housing activity. The first is located around the great metropolitan area of Athens consisting of the prefectures Euboea, Argolis and Boeotia. The other ring of informal housing activity is located around the second largest metropolitan area of Greece, the city of Thessaloniki. This ring consists of the coastal prefectures of Pieria, Imathia, Chalkidiki and Kavala as well as the hinterland prefecture of Kilkis.

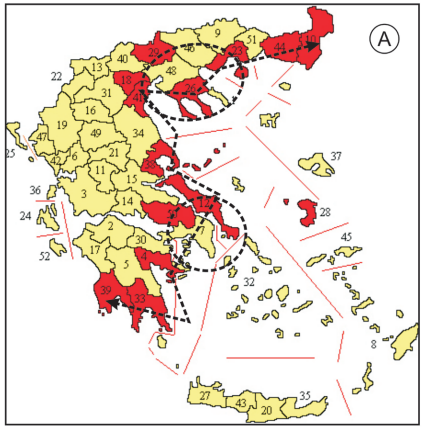
The hypothesis here is that proximity to large urban concentrations results in high informal housing activity in the neighbouring prefectures. Being a coastal prefecture is also an additional significant factor of high informal housing activity.

Figure 5 depicts the geographical distribution of prefectures with medium illegal housing activity. Given the mechanisms of informal housing activity cannot be observed and reliable past data are missing, it cannot be easily determined whether the prefectures on this category are at the risk of climbing to the high category of informal housing activity or at a state that any adverse effect will be less likely in the future. Most of the west coast of the country as well as Peloponnese and Crete belong to this category.

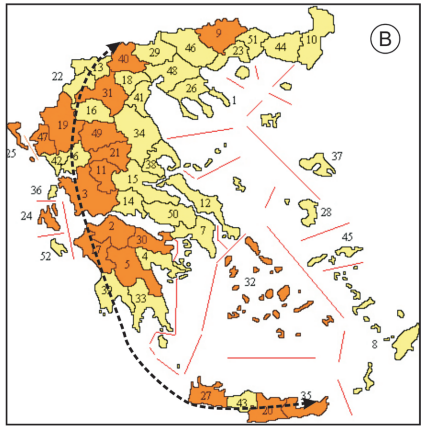
Finally, figure 6 presents the prefectures that belong to the 'low informal housing activity' category. The metropolitan areas of Athens and Thessaloniki belong to this group. In the 1960s and 1970s, these two areas used to be the hot-spots of informal housing activity in Greece. Historically, shortly after the Second World War, there was a rapid increase in migration of rural population to major Greek cities seeking employment or due to political reasons. The flows of new residents towards the cities were of such a magnitude that the state authorities were unable to cope with the demand for residential land (Leontidou, 1995; Maloutas, 2000). The lack of available plots in the central areas of cities meant that the population had to be accommodated elsewhere.

Nowadays, it seems that the pace of informal housing activity has lowered in the periphery of large urban concentrations. The new generations of informal settlements are not the homes of the poor, as they were in the 1960s and 1970s (Potsiou and Ioannidis, 2006), but the result of land speculation activity by an amalgam of actors, such as middle class individual land owners, land investors, building societies, investors in tourism infrastructure and upper and middle class owners of luxury vacation houses. This shows that the informal settlement phenomenon has been transformed from an 'obtaining a shelter' issue to an act of land speculation.

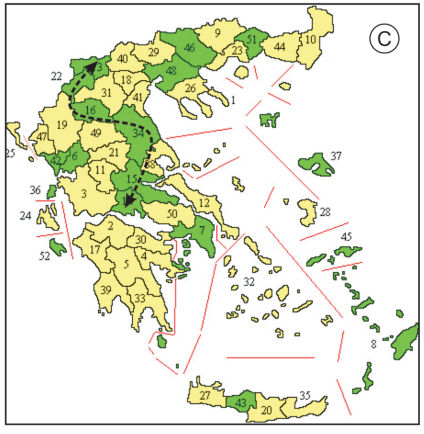
Areas of high informal housing activity. The legalized housing units/1000 residents are between 5.00 and 14.17



Areas of medium informal housing activity. The legalized housing units /1000 residents are between 2.00–5.00



Areas of low informal housing activity. The legalized housing units/1000 residents are between 0.00 and 2.00



1. Mount Athos (a)
2. Achaia
3. Aetolia-Acarnania
4. Argolis
5. Arcadia
6. Arta
7. Attica
8. Dodecanese
9. Drama
10. Evros
11. Evrytania
12. Euboea
13. Florina
14. Phocis
15. Phthiotis
16. Grevena
17. Ilia
18. Imathia
19. Ioannina
20. Heraklion
21. Karditsa
22. Kastoria
23. Kavala
24. Kefalonia
25. Corfu
26. Chalkidiki
27. Chania
28. Chios
29. Kilkis
30. Corinthia
31. Kozani
32. Cyclades
33. Laconia
34. Larissa
35. Lasithi
36. Lefkada
37. Lesbos
38. Magnesia
39. Messenia
40. Pella
41. Pieria
42. Preveza
43. Rethymno
44. Rhodope
45. Samos
46. Serres
47. Thesprotia
48. Thessaloniki
49. Trikala
50. Boeotia
51. Xanthi
52. Zakynthos

(a) This area has been excluded from the analysis

A				B				C			
Athens Ring		**Thessaloniki Ring**		**Aegean Sea and Sea of Crete**		**West Peloponnese & Corinthian Channel**		**The S-shaped line Of Central Greece**		**North and South Aegean Sea and Grete**	
Prefecture	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**
Euboea	11.95	Pieria	8.83	Cyclades	4.29	Achaia	4.61	Larissa	1.92	Lesbos	1.88
Argolis	5.75	Imathia	7.63	Chania	4.24	Arcadia	4.59	Phocis	1.57	Rethymno	1.05
Boeotia	5.09	Chalkidiki	6.72	Heraklion	2.84	Korinthia	4.25	Phthiotis	1.44	Doodecanese	0.51
–	–	Kilkis	5.38	Lasithi	2.41	Ilia	2.40	Kastoria	0.36	Samos	0.09
–	–	Kavala	5.00	–	–	–	–	Grevena	0.16	–	–
–	–	–	–	–	–	–	–	Florina	0.09	–	–
Peloponnese South Coast		**Thessali Coast**		**Ionian Islands**		**West Greece**		**Metropolitan Areas**		**West Greece**	
Prefecture	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**
Laconia	10.89	Magnesia	5.99	Corfu	3.50	Thesprotia	4.42	Thessaloniki	1.85	Preveza	1.25
Messenia	5.06	–	–	Kefalonia	2.53	Ioannina	4.23	Attica	1.18	Arta	1.09
–	–	–	–	–	–	Aetolia-Acarnania	3.98	–	–	–	–
Trace Coast		**Aegean Sea**		**Sterea Ellada and Thessaly**		**Aegean Sea**		**Ionian Islands**		**North Greece**	
Prefecture	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**	**Prefecture**	**Value**
Evros	5.09	Chios	14.17	Trikala	3.57	Kozani	2.74	Lefkada	1.91	Serres	1.99
Rhodope	6.28	–	–	Evrytania	2.56	Drama	2.04	Zakynthos	1.11	Xanthi	1.90
–	–	–	–	Karditsa	2.16	–	–	–	–	–	–

Fig. 4. The geographic distribution of informal housing activity
Source: own elaboration

3.2. Empirical Results

The likelihood-ratio test for the overall model is shown in table 1. This measure tests the null hypothesis that all coefficients in the logistic model are 0. Because the observed significance level is small (0.035), the null hypothesis can be rejected. Therefore, it is concluded that the final model is significantly better than the intercept-only model. The variation in the values of the dependent variable that is explained by the independent variables cannot be measured directly in logistic regression models, as it can be in multiple linear regression ones with R^2. However, the pseudo r-square statistics can provide an indication of explained variation in the values of the dependent variable, similar to the R^2 in multiple linear regression models. These approximations are presented in table 1. Larger pseudo r-square statistics indicate that more of the variation in the values of the dependent variable is explained by the model, to a maximum of 1. The Cox and Snell R^2 and the Negelkerke R^2 are large enough. The Negelkerke R^2 indicates that 54% of the variation in the illegal housing activity is explained by the model. This percentage is satisfactory as the values of logistic regression measures are almost always much smaller than the corresponding ones for a linear model (Norusis, 2005).

Table 1. Case processing summary, model fitting information and pseudo-R^2

Case processing summary				Model fitting information						
		N	Marginal %	Model	Model fitting criteria			Likelihood-ratio tests		
Illegal housing activity	0 = Low	18	35.3		AIC	BIC	-2 log likelihood	chi-square	df	Sig.
	1 = Medium	19	37.3	Intercept only	115.211	119.074	111.211			
	2 = High	14	27.5	Final	126.421	172.784	78.421	32.790	22	0.035
Valid		51	100.0	Pseudo R-square			Goodness-of-fit			
Missing		0						Chi^2	df	Sig.
				Cox and Snell	0.474		Pearson	72.769	78	0.646
Total		51		Nagelkerke	0.535		Deviance	78.421	78	0.465
				McFadden	0.295					

Source: own elaboration.

The null hypothesis that the model adequately fits the data can be examined by the Pearson and Deviance tests in the Goodness-of-fit part of table 1. Because the significance level is much greater that 0.05, the null hypothesis that the model does not adequately fit the data is rejected. The likelihood-ratio tests presented

in table 2 evaluates the contribution of each variable to the model. It is a test for the individual coefficients and tests the hypothesis that the coefficients are 0. The -2 log-likelihood is computed for the reduced model; that is, a model without the variable. If the significance of the test is small (less than 0.05 or 0.10), then the effect contributes to the model. This test can be used instead of Wald test presented in table 4. The Wald test sometimes fails to correctly reject the null hypothesis when coefficients are large. The Wald test performs well with large sample sizes. The significance values of the test for the variables 'total population potential', 'indirect population potential', 'gross domestic product in the tertiary sector', 'percentage of urban population' and 'length of sandy beaches' are lower than 0,05. Therefore, it can be concluded that they are important factors in the formation of illegal housing activity. All other variables have large values of significance (more than 0.10), meaning that they are not important factors. Finally, the Akaike information criterion (AIC) and the Bayesian information criterion (BIC) are measures of how 'good' a model is compared to other models with different number of variables. The model with the smallest value of Akaike criterion or, alternatively, Bayesian criterion is better. As it can be seen, the model that includes all variables has the smallest AIC (123.139) as well as the smallest BIC (165.639).

Table 2. Model fitting criteria and likelihood ratio tests for the individual logistic regression coefficients

Effect	Model fitting criteria			Likelihood ratio tests		
	AIC of reduced model	BIC of reduced model	-2 log likelihood of reduced model	chi-square[a]	df	Sig.
1	2	3	4	5	6	7
Intercept	124.662	167.162	80.662	2.241	2	0.326
Total population potential	131.725	174.225	87.725	9.304	2	0.010
Indirect population potential	129.547	172.047	85.547	7.126	2	0.028
Change in population 1991–2001	124.740	167.240	80.740	2.319	2	0.314
Gross domestic product in the tertiary sector	128.493	170.993	84.493	6.072	2	0.048
Percentage of urban population	129.862	172.362	85.862	7.441	2	0.024
Length of sandy beaches	131.280	173.780	87.280	8.859	2	0.012
Legalized area per 100 residents	125.160	167.660	81.160	2.739	2	0.254
New legal housing area per resident	125.308	167.808	81.308	2.887	2	0.236
Urban sprawl	123.730	166.231	79.730	1.310	2	0.520

Table 2 (cont.)

1	2	3	4	5	6	7
Foreign tourists overnight stays per resident	123.350	165.850	79.350	0.929	2	0.628
Domestic tourists overnight stays per resident	123.139	165.639	79.139	0.719	2	0.698

[a] The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

Source: own elaboration.

The classification table 3 shows that the model does very well in identifying the prefectures that experience high illegal housing activity. Almost 65% of them are classified correctly. In addition, the model classifies relatively well the prefectures with low informal housing activity. Approximately 56% of the prefectures are correctly assigned. The model does poorly in identifying prefectures with medium informal housing activity.

Table 3. Classification table

Observed	Predicted			
	1	2	3	Percent correct
1	10	6	2	55.6
2	7	8	4	42.1
3	2	3	9	64.3
Overall Percentage	37.3	33.3	29.4	52.9

Source: own elaboration.

3.3. Discussion and Explanation

The parameter estimates table 4 summarizes the effect of each independent variable for the two logits. The squared ratio of the coefficients to its standard error, squared, equals the Wald statistic. Alternatively, the likelihood-ratio tests can be used for the individual logistic regression coefficients (table 2).

The analysis starts by investigating the type, magnitude and significance of the relationship between current demographic patterns as well as development processes in Greek prefectures and the spatial distribution of informal housing. Among the explanatory variables of the model, 'total population potential'

(TPP) has a negative coefficient for both logits. However, the relationship between TPP and informal housing activity is statistically significant only in the second logits. As mentioned, the TPP is an indicator of population agglomerations in each prefecture and of the total accessibility of each prefecture in relation to the other prefectures. It seems that population agglomerations do not necessarily increase the probability of a prefecture experiencing high informal housing activity. Therefore, the most heavily populated prefectures have less chances of getting informal housing activity. As the analysis of the rest of the variables shows, prefectures with large permanent population choose neighbouring prefectures for the construction of vacation or secondary housing units, which in many cases might be illegal construction. This is probably a kind of rural rebound process where urban populations construct informal settlements in rural areas.

A second population-related variable is 'indirect population potential' (IPP). Its coefficient has a positive sign and it is significant in logit 2 and not significant in logit 1. The effects of the variable are roughly similar in both categories of prefectures, as regards informal housing activity (namely Medium and High). However, the effects are more acute in the High/Low logit. With 1% rise in IPP, the likelihood of a prefecture being in the category of medium informal housing activity increases by a factor of 1.063, whereas being in the category of high informal housing activity increases by a factor of 1.202. Hence, in both categories of prefectures, improved accessibility increases the likelihood of informal housing activity. These results strengthen the initial expectation that the informal housing phenomenon has undergone significant transformations in Greece. Figure 4 indicates that two distinctive rings of informal housing activity have formed around the metropolitan areas of Athens and Thessaloniki.

For further understanding the population-related effects, the variable 'population change' is examined for the 1991–2001 period. The coefficient of the variable has a positive sign for the first logit and a negative one for the second. This means that an increase in population increases the likelihood for a prefecture being in the medium informal housing category than in the low one, but decreases the likelihood of a prefecture being in high informal housing activity category. However, the level of statistical significance is not satisfactory in both logits, which does not allow drawing any firm inferences.

The coefficients of the share of the tertiary sector in the GDP show the relationship between the logits and the level of specialization in the service sector. For both logits, the coefficients are negative, but statistically different from 0 only for the second logits. These results indicate that the specialization of regional economy in the tertiary sector appears to be negatively related to high illegal housing activity. Namely, the prefectures whose economy mainly relies on the service sector do not suffer great informal housing activity, as in other study has pointed out (Dimopoulou and Zentelis, 2008).

Table 4. Parameter estimates

Legalized houses per 1,000 residents per prefecture 1997–2006[a]		B	Std. error	Wald	Sig.	Exp(B)	95% confidence interval for Exp(B)	
							lower bound	upper bound
Logit 1: The probability of having medium informal housing activity to the probability of having low activity	Intercept	-9.059	9.066	0.999	0.318			
	Total population potential	-0.025	0.020	1.655	0.198	0.975	0.938	1.013
	Indirect population potential	0.061	0.047	1.694	0.193	1.063	0.969	1.166
	Change in population 1991–2001	7.138	8.149	0.767	0.381	1258.345	0.000	10869468617
	Gross Domestic Product (GDP) in the tertiary sector	-0.041	0.051	0.650	0.420	0.959	0.868	1.061
	Percentage of urban population	0.042	0.033	1.680	0.195	1.043	0.979	1.112
	Length of sandy beaches	0.482	0.363	1.765	0.184	1.620	0.795	3.299
	Legalized area per 100 residents	0.184	0.239	0.592	0.442	1.202	0.752	1.922
	New legal housing area per resident	0.009	0.079	0.012	0.914	1.009	0.863	1.178
	Urban Sprawl	0.253	0.230	1.212	0.271	1.288	0.821	2.022
	Foreign tourists overnight stays per resident	-0.036	0.067	0.283	0.595	0.965	0.847	1.100
	Domestic tourists overnight stays per resident	0.039	0.634	0.004	0.952	0.962	0.278	3.334

Logit 2: The probability of having high informal housing activity to the probability of having low activity	Intercept	7.468	15.702	0.226	0.634			
	Total population potential	-0.117	0.055	4.539	0.033	0.890	0.799	0.991
	Indirect population potential	0.184	0.083	4.940	0.026	1.202	1.022	1.414
	Change in population 1991–2001	-9.852	14.371	.470	0.493	5.27E-005	3.08E-017	89973224
	Gross domestic product (GDP) in the tertiary sector	-0.173	0.081	4.571	0.033	0.841	0.718	0.986
	Percentage of urban population	0.138	0.060	5.348	0.021	1.148	1.021	1.290
	Length of sandy beaches	1.157	0.474	5.964	0.015	3.180	1.257	8.045
	Legalized area per 100 residents	0.461	0.297	2.419	0.120	1.586	0.887	2.838
	New legal housing area per resident	0.194	0.138	1.974	0.160	1.215	0.926	1.593
	Urban sprawl	0.268	0.320	0.700	0.108	1.307	0.698	2.446
	Foreign tourists overnight stays per resident	0.255	0.376	0.461	0.497	0.775	0.371	1.619
	Domestic tourists overnight stays per resident	0.726	1.001	0.526	0.112	2.067	0.291	14.700

[a] The reference category is ‘low informal housing activity’.
Source: own elaboration.

The coefficient β of 'percentage of urban population' has positive sign in both logits, but it is not statistically different from 0 for the first logit, whereas it is statistically different for the second. This indicates that urbanization is not significantly related to the separation of the medium and low informal housing activity prefectures. However, it appears to be related to high informal housing activity prefectures. Two possible explanations of this outcome is that (a) high urbanization rates in a prefecture induce informal housing activity regarding mainly secondary housing and (b) the magnitude of urbanization influences the real estate market by increasing land prices.

The length of sandy beaches indicates the existence of suitable areas in each prefecture for building vacation and holiday houses. The positive and significant parameter estimate in High/Low logit denotes that there is a positive relationship between natural amenities and informal housing activity. This is reasonable since as the length of sandy beaches increases so does the relative attractiveness of an area for secondary and vacation housing. As regards the Medium/Low logit, even though the relationship is positive, it seems that there does not exist a strong association.

The total land surface added into the existing urban plans for the period 1985–2003 is a measure of the available developable land. For the first logit, the null hypothesis that the coefficient is the zero can not be rejected because of the high significance arising from the *p*-values testing. However, in the second logit, the significance level is below 0.05. This indicates that probability of a prefecture being in the high informal housing category increases by a factor of 1.58 with 1% increase in the legalized area per 100 residents.

From the observed significance index for both logits, the variable of 'new legal housing areas per resident' does not appear to be related to the medium or high level of informal housing activity in relation to the low level because its coefficients are not significantly different from zero. In other words, the construction of new building units for residential use does not seem to halt (or fuel) the phenomenon of informal housing activity.

Urban sprawl shows a positive relationship with the dependent variable in both groups of prefectures. The parameter estimate is not statistically significant in the first logit; it is significant in the second at approximately 10% level of significance. This result leads to the conclusion that in prefectures of 'high informal housing activity' there is an association between the response and the estimated variable. Urban sprawl brings basic infrastructure to ex-urban areas that may attract informal housing.

Foreign tourism shows a negative association with informal housing in both logits. However, the null hypothesis that the coefficient of the variable is significantly different from zero cannot be rejected due to the observed significance

index. Even though we cannot be sure whether there is a negative relation in place or no relation at all, we can say that foreign tourism activity does not seem to produce informal housing activity. A possible explanation of this result relies on the fact that, as the statistical data shows, foreigner tourists usual accommodate in hotels, while domestic tourists use rented rooms, furnished suites etc. Furthermore, the majority of foreigner tourism, that is characterized as mass tourism, is concentrated in some prefectures (Crete, Rhodes, Corfu), in contrast to domestic tourism that is expanded in the whole country (NSSG, 1996).

On the other hand, the domestic tourism variable has a positive relationship with informal housing in both logits, although it is statistically significant only in the second logit at approximately 11% in significance index. The positive relationship can be interpreted that, unlike foreign tourism, the domestic tourism activity fuels illegal housing, because regions that are attractive to domestic tourists are also attractive to illegal housing if this housing mainly concerns vacation and secondary units. This is further justified when bearing in mind that the prefectures of 'high informal housing activity' are situating close to great metropolitan areas and, therefore, they have large indirect population potential.

Following, a further analysis and evaluation of the results concerning some specific variables are carried out in order that more complex or hidden associations can be uncovered. Figure 5(a) shows the box plots of the overnight stays of domestic tourists per resident in relation to the magnitude of informal housing in each prefecture. A box plot displays the three quartiles, the minimum and the maximum of the data on a rectangular box. The box encloses the quartile range with the lower edge at the first quartile, and the upper edge at the third quartile. A line is drawn through the box at the second quartile, which is the 50th percentile or the median. A line extends from each end of the box. The lower whisker is a line from the first quartile to the smallest data point within 1.5 interquartile ranges from, the first quartile. The upper whisker is a line from the third quartile to the largest data point within 1.5 interquartile ranges from the third quartile. The box plots are panelled by the variable 'length of sandy beaches', which has two categories, the first being non coastal areas or areas with small total length of sandy beaches and the second encompassing the areas with large stretches of sandy beaches. The medians of the 'per resident overnight stays by domestic holidaymakers' in non-coastal areas or areas with small sandy beach stretches are around 1, regardless if the area has low, medium or high informal housing activity. However, in prefectures possessing extensive sandy beaches as the number of the 'per resident overnight stays by domestic holidaymakers' increases so does the magnitude of informal housing. Therefore, increased informal housing activity is more likely in coastal or insular areas.

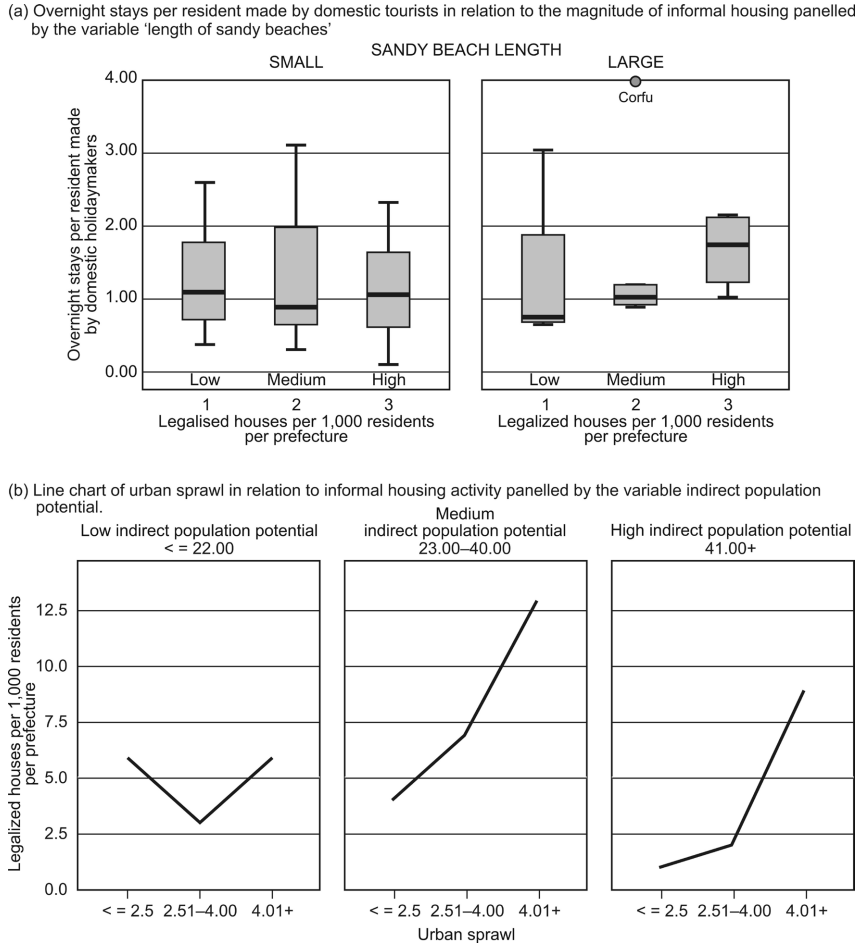


Fig. 5. Hidden associations
Source: own elaboration

Following, a line chart will be made, in order to depict the relationship between 'urban sprawl' and 'indirect population potential', since a line chart works well as a visual summery of categorical values. Figure 5(b) presents a line chart of that relation, which is panelled by the variable IPP. In particular, the prefectures have been classified in three groups in terms of IPP. The first group includes 15 prefectures and refers to areas with low population potential. The second group refers to areas of medium population potential and consists of 24 prefectures. Finally, the third group incorporates the remaining 12 prefectures of high population potential. The first sub-chart indicates that in remote areas with low population potential there is not a clear (positive or negative) relationship between urban sprawl and informal housing. Therefore, in these areas urban sprawl may represent legal construction activity for housing or other purposes.

However, in the other two line sub-charts, a positive relationship appears between the two variables. More specifically, the second and third sub-charts which represent areas with medium and high population potential indicate that informal housing is positively connected to urban sprawl. Furthermore, the magnitude of informal housing activity is larger in medium population potential areas than in high ones as the pace of urban sprawl increases. This also indicates that the initial process of constructing informal housing units in the periphery of large cities during the 1960s and 1970s firstly moved to the neighbouring prefectures and at a second stage diffused further to the prefectures which are at a distance of about 100–150 km from Athens and Thessaloniki.

Figure 6 is an interactive graph consisting of the scatter plot between informal housing activity and urban plan expansion (in km^2) per 100 residents and the box plots of each of the three categories of informal housing. It has been constructed in order to investigate the relationship between informal housing activity and the state policy of expanding the existing urban plans of large and medium size towns and cities in Greece during the period from 1985 to 2003.

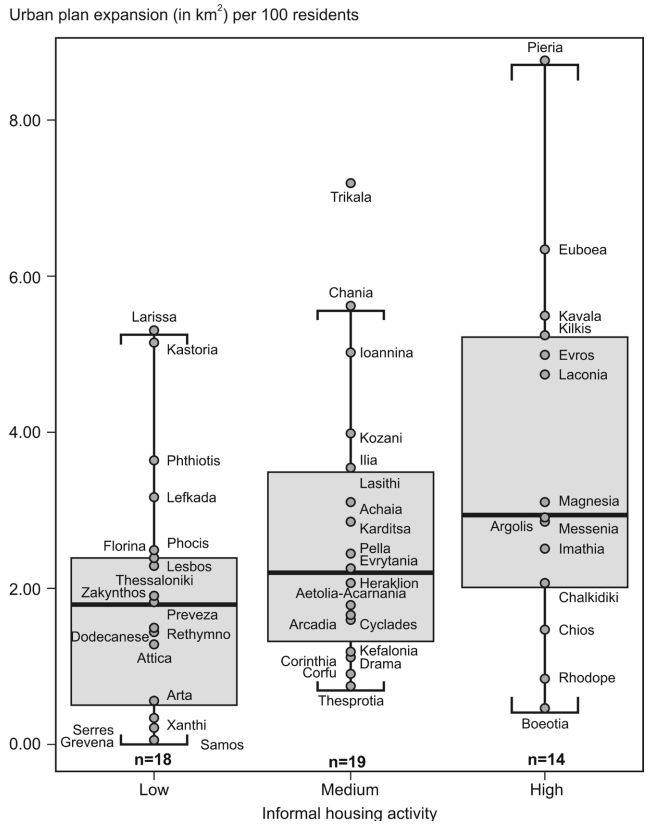


Fig. 6. The relationship between informal housing activity and the urban land policy in Greece
Source: own elaboration

Some obvious differences are immediately apparent. This indicates that as the supply of urban land by the state increases through the incorporation of new areas into the existing urban plans, so does informal housing activity. This seems odd because the provision of new developable land we would expect to lower the pace of informal housing activity. A possible explanation to the above pattern is that the state land planning policy follows informal building activity by legalizing areas of informal housing sporadically without making provisions for creating the necessary 'urban land stock' in each prefecture in time, so that everyone can find land parcels in an affordable price.

4. CONCLUSIONS

Several conclusions can be drawn on the basis of the empirical analysis presented in this paper. First, informal settlements in Greece seem to be different from those in the countries of the Third World as reported by the relevant international literature. The geographic distribution of illegal housing has changed. Whereas in the past, most informal settlements were located in peri-urban areas close to the major urban centres of the country, nowadays their majority develops in distant areas with large indirect population potential, great environmental value, close to the coastal zone or in islands.

Secondly, in spite of the numerous legislative reforms, informal housing continues to develop. For instance, the legalization initiatives of the 1980s and 1990s added considerable land into the existing urban plans and solved pressuring social and environmental problems. However, all these legalizative initiatives as well as the updating and restructuring of building-related procedures and the reform of land use planning policy did not succeed to tackle the problem. In most cases, state intervention regarding the integration of new space into the existing urban plans virtually followed the informal housing process instead of the other way around. Hence, the increase in urban space did not precede but followed the demand already met by the process of illegal housing.

In Greece, the problem of informal settlements that lasts for over eighty years is tightly connected with adopted unrealistic regulations and centralized and mainly bureaucratic procedures in land management. As a result informal housing activity had taken place in all the prefectures, both within planned and non-planned areas, while the intense of the phenomenon is influenced by the determinant factors that have been analyzed in this work. Informal housing in Greece has different characteristics than in other poorer countries, where this building activity is connected with very poor people, and the specific features of Greek informal buildings differ from what has been found elsewhere. So, it is

difficult to be interpreted in the frame of the existence approaches that have been analyzed previously.

In conclusion, the general lesson learned from the above analysis is that informal housing in Greece is a problem coming from the status quo in land market and an irrational situation in land management issues. The state has a responsibility for the applied urban and environmental policy, the illegal housing development and the lack of a central intervention in order to deal with planning development. It should make efforts to improve the situation in land markets through a better land administration system. Containing or eliminating informal housing activity presupposes the formulation of a sustainable, integrated land use policy and the establishment of effective regional and urban land use planning mechanisms. Major issues that need to be tackled include the complex and insufficient legal framework, the inappropriate planning and land use allocation provisions and procedures, the shortage of available well planned and organised land for vacation housing, insufficient control mechanisms, low political will and commitment, and land speculation.

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Nader ZALI*

DECONSTRUCTION OF THE PLANNING PROCESS IN THE 21ST CENTURY

Abstract. By increasing the changes in the last years of the second millennium, relying on the planning methods, which are based on forecasting, cannot meet the needs of management of countries at large scale. The heavy burden of uncertainties and emergence of interrupted and wild card events have changed the conditions in a way that future forecasting is not possible for planners. On the other hand, in regional and urban planning it is necessary to change the attitude from forecasting to foresight. Considering this, the paper attempts to introduce the approach of foresight as well as having a critical view of the current process of planning in foreseeing and future studies. Moreover, this study emphasizes the necessity of employing the foresight approach in the process of urban and regional studies.
Key words: foresight, planning process, processes re-engineering.

1. INTRODUCTION

Current world is the field of wonderful transitions with increasing dynamics. The changes emerge so surprising that even a little neglect may result in the costly strategic negligence in fields such as politics, economics, sociology, and even culture. Future formation is the approach and policy that is likely to obtain more success in this environment where plenty of alterations, instabilities and uncertainties are present. Although the effort has always been accompanied by taking high risks, it is more advisable to take such risks instead of just observing future changes (Khazaee, 2007).

Other than paying serious attention to current challenges and offering strategies, mission and planning in developed countries is nowadays devoted to considering future challenges and methods for encountering them and gaining power in such

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scopes. Promoting its role, planning now attempts to conquer future, play a significant role and partake in future.

Due to intrinsic desire, man has always been fond of discovering the future and decoding it. Questions such as 'how is future predictable?', 'will future be the continuation of present and past?', 'what events are likely to happen in future?' (Schwartz, 2008) and so on, have been so far the main mental challenges for planners and managers. The planners have therefore taken various approaches for encountering future problems chiefly based on analyzing previous procedures and extending them to future. However, in order to achieve comprehensiveness in planning in the beginning of third millennium, future study has unified the diffused field of planning for future and has converted it into an organized science whose function is to discover, invent, and evaluate the possible, probable and preferable futures, together with analyzing previous procedures (Myer, Kitsuse, 2000).

2. STATEMENT OF THE PROBLEM

In current changing conditions, some issues in development planning, such as information technology and its development, promotion of hygienic and educational indexes, forming infrastructure networks and improving social services, should not be considered as potential scopes for future development, rather as the prerequisites and preliminaries of development in future world. The actual development in future world originates from progress in fields such as space contest, artificial intelligence, genetic engineering, the wonderful virtual world and so on, whereas this superb world will occur in less than three decades, as most researchers in future study believe. Indeed, planning for future based upon present requirements or current service insufficiencies would not be an appropriate national capital for being successful in future world. For playing a major role in future, it is therefore necessary to rely on latest planning approaches and make scenarios for development and future alterations based on megatrends and discrete procedures, while analyzing present and future challenges and planning to be successful in future in accordance with society potentials and capabilities. In other words, modern planning has passed concepts such as prediction and discovering future, and has reached the scopes of future study and foresight whose duty is to map future and form it.

In fact, existing problems in human society originate from two main factors; the former is not to gain a smart realization of future in past time episodes, while the latter pertains to marvellous changes in technologies together with globalization. As a result, it is considered necessary and a major priority to identify future alterations with a foresight approach.

Great deals of future events are predictable and can be subjugated, so it is possible to make favourable changes. In most cases, however, being engaged in present time and trying to solve existing problems prevents managers and decision-makers from contemplating future. It is noteworthy that alongside active participation in the process of future transitions, decreasing threats and increasing opportunities and choices require a future study approach which facilitates to show an active performance in future events (Khazaee, 2007).

Not gaining a smart realization of future in past time episodes is caused by planning tools and how they are utilized in process of planning (Myer, Kitsuse, 2000). These tools and techniques are indeed the executive cover of planning process and in some cases, either an incorrect selection of executive covers or a wrong choice of planning process itself due to following the routine steps causes numerous problems in the society under planning. So far, in evaluating these cases, the fundamental problems in planning process framework have not been mentioned and governors together with executors of plans have been known to be responsible for the resultant undesirable society. Nevertheless, the main responsibility for programmes to be successful or unsuccessful is better to be attributed to planners, especially the ones dealing with future study of the programs.

Based upon these facts, it is nowadays necessary to apply reengineering to planning process and change the fundamental theory of planning steps. Furthermore, recent conditions of world society, the influence of scientific and technological transitions on creating new problems, and solving a great deal of problems in present society have made it inevitable to consider the topic of changing the planning frameworks.

In the 1970s, the science and art of foresight was officially used as a tool for making policy in a limited number of countries, especially Japan. This method, however, was employed extensively in the 1990s with collaboration of international institutions in order to empower the countries, and it has become the dominant approach of planning in most developed countries (Nazemi-Ghadiri, 2006).

3. ANALYSIS OF MACRO APPROACHES IN PLANNING

Planning is man's tendency towards future, solving future problems, forecasting and hope in future (Faludi, 1970). In the scope of planning for future, two major paradigms exist, namely exploratory and normative paradigms, each of them having its specific viewpoint to the concept of future and how to reach it (Twiss, 1992).

Exploratory paradigm. According to this paradigm, future is the cause and effect result of past, thus a kind of determinism is hidden in it. The result of this

viewpoint towards future is an obligatory and invariable future and based on history rules, present episode will lead to it. In this paradigm, man is just an external observer who can merely explore that obligatory future. It is based on prediction, and exploring the future is the only rational result of it. For instance, 'how much will Iran's population be in year 2026?' or 'how much will non-oil export of Iran be in the next 20 years?', which are mainly based upon analyzing previous procedures and maintaining them in oncoming years (Twiss, 1992).

Normative paradigm. This paradigm considers man's power in constructing the future, so a change is made in man's role as an external observer and we encounter the concept of shaping the future. According to this paradigm, man comes across a wide range of futures, including possible futures, probable futures and plausible futures, thus reaching each of them depends on the level and quality of man's will, i.e., man's favourable future. In contrast to exploratory paradigm, no hidden determinism exists in this paradigm and man is entirely free to choose his life pathway. As implied before, man deals with three main questions in this paradigm: 'which futures are possible to happen?', 'the occurrence of which futures is probable?', and 'which futures are preferable to occur?' (Khazaee, 2007; Vahidi-Motlagh, 2007).

Briefly speaking, the prediction approach in planning encountered a substantial challenge in last years of the second millennium, first of all because of considering future in a rigid way, and secondly due to insufficient accuracy (Nazemi, 2007).

Comparing these two paradigms indicates considerable differences between their planning methods for future. Planning process in exploratory paradigm begins from present time and directs toward future, i.e., it is outward bound and seeks to discover under different conditions which future will occur. So, the start point is often in present time. Conversely, normative paradigm makes use of an inward bound planning and its planning process begins from future. In other words, the start point here is in future and planning continues from future to present time using back-casting (Schwartz, 2008).

The two mentioned approaches contain furthermore the concepts of 'cause and effect' and 'long view'. Utilizing the principle of 'cause and effect', it is possible to explain what has taken place in past and predict what will occur in future. This principle is more similar to exploratory paradigm whose most significant tool is prediction. On the other hand, according to 'long view' principle, people's behaviour in future cannot be elucidated by reference to 'cause and effect' laws and in future, singularities may happen in procedures, which are called the wonders of science and technology. Hence, foresight and future study are its main planning tools. It should also be noticed that the 'cause and effect' approach is the traditional methodology towards planning, while 'long view' approach is the modern one used in planning.

In traditional approaches of planning, the programmer initially makes the required prediction by asking the question 'what will occur in far future?' and then

considers these predictions as the basis for decision-making and policy-making and eventually proceeds (Foren, 2001). In other words, the programmer starts from current conditions and goes into future. Nevertheless, in modern viewpoint towards planning, the programmer at first goes into future and by monitoring present and past time determines the specific paths for development architecture from future to present time (Mobini-Dehkordi, 2008).

4. PLANNING PROCESS

In opinion of researchers, planning is a conscious process with the aim of solving existing problems and reaching a pathway for making changes in social system, which predicts a series of arranged executive operations considering the priorities (Masumi-Ashkevari, 2008). Most planning researchers agree with this definition of planning process, which has the following six key characteristics: being a process, being conscious, emphasis on problem solving, emphasis on priorities, objective determination and policy-making.

The reason why planning is defined as a process is to facilitate complete and better definition of problems, limitations and facilities, finding the optimum alternatives, rational decision-making based upon principles and feedback and revision capabilities. In traditional approach towards planning, this process consists of the following six main stages (figure 1).

In this approach, planning process has a linear flow and makes use of feedback subsequent to execution. The most significant part is determining the main goals, in which the future conditions are predicted and the main goals are determined by means of exploratory approach and primarily based on analyzing previous procedures. As was mentioned in preceding sections, in this viewpoint of planning, future alterations have specific connections and relationships with the transitions in past and present time, and no issue is considered about discontinuities and wild cards of science and technology when predicting the future world.

What are nowadays observed in urban and regional studies, especially in comprehensive plans and also national and regional macro plans, and their execution results confirm it, are the exploratory approach and its characteristics in predicting the future. Neglecting the capacities and capabilities of science and technology and their influence and application in solving present problems, i.e., resolving current challenges only by relying on potency of today's science and technology, would lead to inappropriate or false predictions for long periods in future. This will consequently cause numerous problems in execution time for managers and planners due to unprecedented changes.

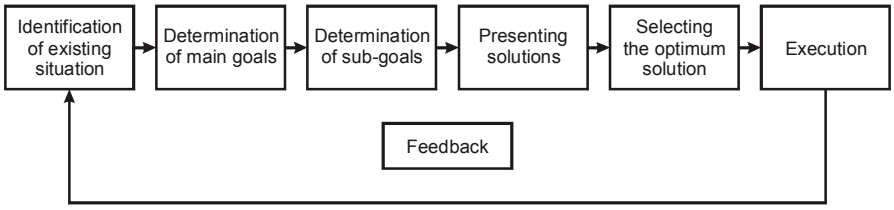

Fig. 1. Traditional planning process
Source: own elaboration based on Masumi-Ashkevari (2008)

5. RE-ENGINEERING OF PLANNING PROCESS

In the case of regarding planning as a move for reaching a preferable point and preparation for solving new world's problems, its process should as well be revised and mapped appropriate to new world's conditions. Reengineering is a methodology for rearranging the organization and management, and has attracted serious attention since the 1990s from planners owing to its novel style in investigating and modification of processes. Policy-making and -planning in traditional theories are accomplished based upon linear models (ERA, 2002), the linear planning based on prediction cannot, however, satisfy the necessities of planning in current and future world of changes. Due to scientific and technological advances, the transitions in present society are so accelerating and fast that reaching success in future would be impossible by merely relying on traditional planning, thus the modern approach of future study has been applied in scopes of management and planning. Instead of predicting the procedures and macro-procedures, the emphasis in this approach is on finding appropriate scopes in future world and considering the influence power of scientific and technological transitions in resolving challenges and problems of planning society. It emphasizes, other than evaluating the influence of continuing present procedures, the effects of initiating discrete procedures which possibly start in future.

6. PRESENTING THE NEW PROCESS OF PLANNING

The suggested process of planning, especially in urban and regional level, is based on normative approach. In this process, the basic step is to identify present state and then on the basis of this identification, the province key issues including its points of strength and weakness, capabilities and limitations are extracted. Subsequently,

in the third step, overall and appropriate foresight at national and global level is done for key issues of the studied region. In the next stage vision and goals are defined. Defining the goals makes the development of pool of scenarios and choosing appropriate scenario possible for the programmer. This will provide a suitable background and framework for qualitative and quantitative goal setting, policy-making and finally executing. Our suggested planning process is fulfilled in the following ten stages (figure 2).

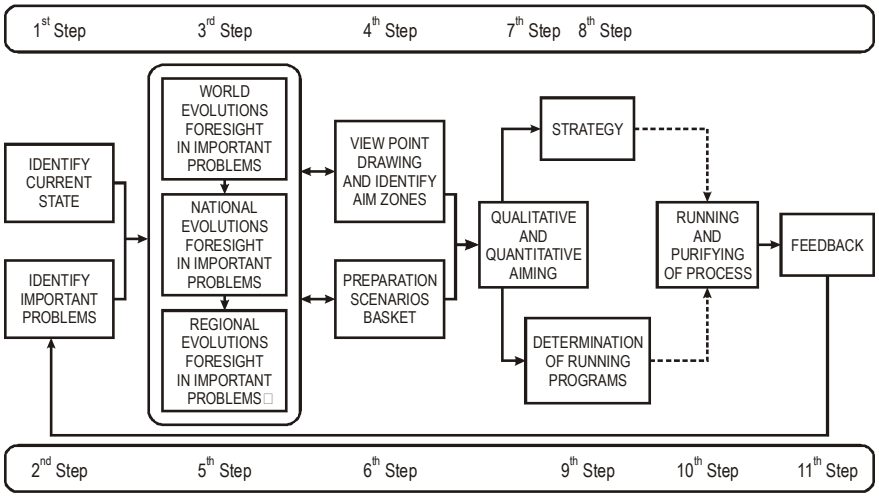

Fig. 2. New planning process from foresight view
Source: own elaboration

Stage 1: identification of present state. In this stage, the regional state from past to present is studied. The data of limitations, capabilities and natural, economic, social and cultural resources are collected, categorized and then analyzed.

Stage 2: determining the key issues. On the base of outputs of 'identification of present state', regional key issues are extracted in different aspects and points of strength and weakness of the region in key issues are discussed. For instance, the key issues of a region for future twenty years may be as follows: providing drinking water, production efficacy in agriculture sector, providing clean energy for industries, concentration in metropolitans, emergence of a new generation of young elites, possibility of utilizing new energies (geothermal, solar etc.) and innovation in industrial technologies.

It should be mentioned that key issues are not only related to problems of a society or region. This issue can also include capabilities and probable and determined strengths of a region.

Stage 3: foresight. It is one of the most important steps of modern planning process which should be done essentially after identification of present state and

determining regional key issues. In this step, foresight of global and national changes in the framework of key issues of studied region is discussed. For example, suppose there is the possibility of development of new strategies to use clean energies and use drinking water more effectively by use of new technologies. Being aware of these possibilities enables us to programme more effectively. So, this stage of the process is a bridge between regional key issues and determination of future goals and vision.

Stage 4: drawing the vision and determining goals. Besides defining programme horizons, in this stage the ideal goals for regional planning relative to the characteristics and strengths are determined and the aims in future horizon are also clearly defined. Outputs of stages 1–3 including identification of key issues and foresight are the raw inputs of drawing the vision and determining the aim. In other words, identification of current state as well as recognizing possible, plausible and probable future for provincial key issues are three key elements which make drawing the vision or the preferable future possible. Drawing the preferable future is the turning point of planning for past and future of the region, from this stage; planning is based on future formation.

To draw the vision, three levels of possible, plausible and probable future are evaluated (Twiss, 1992; Porter, 1991).

Possible futures include all possible states which can occur in future. These spectrums of futures consist of a set of images the individual has for his/her future which are mainly imaginary and result from mind imagination beyond the current human knowledge.

Plausible futures include the futures which are possible to occur in future, based on human current knowledge. Contrary to possible future which is in contrast with current human knowledge, this type of future is compatible with these concepts. Plausible futures are a subset of possible futures.

Probable futures point to the futures that will probably occur. These futures are a subset of plausible futures. In future scenario making, a combination of possible, plausible and probable futures draws the preferable future. To achieve that future, various scenarios are prepared, which makes the basket of contrast, relative, different and similar scenarios (Voros, 2003).

Stage 5: preparing basket of scenarios. To act in a world full of uncertainty, managers and planners should challenge their suppositions by questions such as ‘what if this happens?’ to have a clear vision of the future world. The goal of scenario making in planning is to help leaders and managers in changing their attitude toward their supposed reality and making their view closer to present or forming reality. The final result of scenario making is not drawing a correct map of the future, but its goals is to systematically modify and improve decision-making in fields related to goals of future.

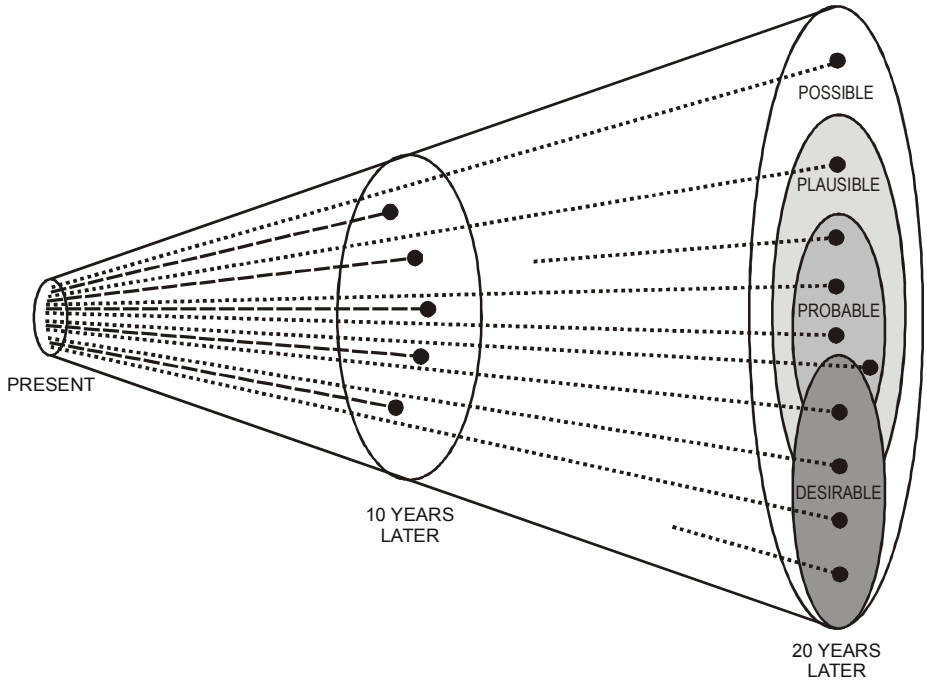

Fig. 3. Domain of futures in planning horizon
Source: Lingren (2003)

Stage 6: selection of preferable scenario. Among the large number of prepared scenarios in the previous stage, preferable scenario which is designed appropriately for preferable future should be selected. Then, the effectiveness of science and technology changes on flexibility of selected scenario should be re-evaluated.

Stage 7: qualitative and quantitative goal making. The large scale strategies to give executive cover to the preferable scenario are defined in this stage. Beside the qualitative large scale goals, quantitative large scale goals are also defined in this step to determine the planning pathway precisely.

Stage 8: policy-making. In this stage, policies about the methods of putting the optimum scenario into action to achieve the preferable future are made.

Now, the ways of achieving qualitative and quantitative goals are defined in an absolutely executive manner.

Stage 9: preparing executive programmes. They are a set of economic and social projects which play a stimulating role for a region. Executive programmes are usually presented as a comprehensive package. For example, to develop a large factory of copper production, only the plan of developing the factory is not presented. But in the framework of a complex, various elements, such as sales market,

transportation network, providing energy, accommodation of population and all issues related to the project are noted in a package and then would be listed according to their priority.

Stage 10: implementation and monitoring the process. This stage is in fact the objective presentation of attempts of the planning team to draw the preferable future and goal making for it. In this stage, other than the problems of execution, environmental changes are monitored and necessary changes are applied to different stages of planning.

Stage 11: feedback. This stage concludes work process evaluation and its positive/negative output, in fact. Positive or negative output can have important effect on process correction, impediments, problems or possibly deficiency of planning process.

7. CONCLUSIONS

In this current world which is full of changes, knowledgeable managers and planners, instead of waiting for the future in their working environment and then making decision while encountering it, have shifted their planning thoughts into future. Then, by supposing themselves in preferable future and having a retrospective approach from future to present, they label the development routes and subsequently define the policies to achieve the preferable future. Among the three stage of time: past, present and future, the most important one is future, as it draws the human life and motivates people to work. Past is not accessible and only its memories have remained and present is passing rapidly and cannot be influenced easily. Future is the only time we can plan for it to live in and with. Urban and regional planning, as a main branch of social planning, because of its close ties with organizations, people and executive organizations and rapid reflection of its performance, can offer great help in modification and improvement of planning processes and their re-engineering.

As it was mentioned, there are two basic approaches in planning: Explorative approach as an approach to discover the future and normative approach for future formation. It seems that the explorative approach has been widely used in planning for future in urban and regional planning. Considering the rapid changes in societies and the influence of science and technology on fast development and solving the problems of societies, many problems occur in fulfillment of such plans. As a result, these programmes undergo essential changes or in other words, a chaos has happened in these programmes.

So, it seems necessary to change our attitude from explorative approach to normative approach in future study. This article tries to criticize the traditional planning

process which is based on the discovery of future. Moreover, here we present the idea of re-engineering the process of planning as well as desired modification of planning process based on future formation. These changes are all around the employment of foresight and its methods, rather than forecasting the future. Results of this article can be summarized as follows:

1. The philosophy of foresight has originated from the human and social sciences concepts, but human sciences suffer from a theoretical weakness in this field in a way that contrary to the developed countries, in Iran technical and engineering sciences are the founders and directors of foresight. Considering the nature of these sciences, it is not possible to comprehensively conduct foresight on the basis of national values by these sciences. So, it is essential to activate this dialogue in the field of social and human sciences to reinforce the philosophical basis of foresight on the foundation of national values.

2. Foresight in Iran is just an incomplete copy of European samples which is usually related to the technical and engineering sector.

3. Current problems of human societies have resulted from the imprecise identification of future. If today's society status is a result of forecasting in the past, so there were major problems in planning and our understanding of future.

4. The explorative paradigm in planning is trying to discover future in the world which is full of changes. This paradigm is only waiting for future and the necessity to change the approach in institutions responsible for planning to achieve success in future is obvious.

5. The effectiveness of normative approach in planning, which is trying to form the future, is in reduction and limitation of domain of uncertainties in future. However, employing foresight and evaluating the effect of all variables and key issues in future is necessary.

6. The process of traditional planning is linear and consists of six general stages. This process is centred around the forecasting of past trends in future without any emphasis on interrupted trends which may occur in future. So, it contains many shortcomings in foresight as it does not evaluate all characteristics of future.

7. Emergence of wild card interruptions in the era of information and communication, and also rapid globalization of changes in less than few years makes the re-engineering of the planning process to eliminate the forecasting approach and substitute it with foresight approach inevitable.

8. Determination of key issues and foresight of global and national changes is the most important stage which should be added to the planning process in the new approach.

9. Scenario making for future and making a basket of scenarios on the basis of effective variables on future society is another important stage in the new planning approach. It is necessary to be prepared to encounter any probable future in future world.

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Luca SALVATI*

LAND QUALITY, DEVELOPMENT AND SPACE: DOES SCALE MATTER?

Abstract: This study analyzes empirically the relationship between land quality decline and the spatial distribution of *per capita* income observed in Italy at different spatial scales and geographical divisions. The aim of this contribution is to verify if a decline in land quality has higher probability to occur in economically disadvantaged areas and if scale may influence this relationship. *Per capita* income was considered a proxy indicator for the level of socio-economic development and life quality in the investigated area. Changes over time (1990–2000) of a composite index of land quality and *per capita* income in Italy were regressed at four spatial scales: (i) 20 NUTS-2 regions, (ii) 103 NUTS-3 prefectures, (iii) 784 local districts designed as Local Labour Market Areas (LLMAs), and (iv) 8,101 LAU-1 municipalities. Different specifications were tested, including first, second and third order polynomial equations. Linear models allowed the best fit for data examined at all spatial scales. However, elasticity of the dependent variable to *per capita* income varied considerably according to scale suggesting that developmental policies may have a limited impact on land quality in vulnerable southern Italian areas compared to northern and central Italy. This study suggests that geographically disaggregated data simulating different spatial levels of governance may offer further insights compared to cross-country datasets indicating targets for multi-scale policies possibly preventing a poverty-desertification spiral.
Key words: land degradation, income distribution, spatial scale, Italy.

1. INTRODUCTION

The rise of economic and social disparities in developed countries coupled with increasing spatial polarization of natural capital causes alterations in the distribution of ecosystem services between healthy and economically-disadvantaged regions with a growing concern in sustainable development matters (Dasgupta

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et al., 2006; Kahuthu, 2006; Galeotti, 2007; Zuindeau, 2007). One of the most important questions in ecological economics is if a continued economic growth is a sufficient precondition for reducing the pressures on the environment, maybe even without policy intervention (Spangenberg, 2001; Stern, 2004; Mukherjee and Kathuria, 2006). This point is particularly tricky to ascertain, since several environmental degradation processes are the result of multi-scale interactions between the socio-economic systems – growing at a reduced pace compared to the past, but changing dramatically in structure and functions – and the ecosystems experiencing high anthropogenic pressures at the local scale (Chowdhury and Moran, 2012).

While economic growth can effectively promote environmental conservation policies, this effect was observed for defined environmental issues only and the geographical implications of this process are still poorly explored (Franceschi and Kahn, 2003). Although scholars continue disputing on such issues, indicators of 'de-coupling' and 're-linking' between income and environmental degradation became increasingly popular to detect and measure improvements in natural resource efficiency with respect to the socio-economic context (Cavlovic *et al.*, 2000; Deacon and Norman, 2006; Mukherjee and Kathuria, 2006; Papyrakis and Gerlach, 2007; Caviglia-Harris *et al.*, 2009).

The hypothesis of an U-shaped relationship between environmental degradation and the level of income was developed to answer such complex questions. As a natural extension of de-coupling analysis, the so-called Environmental Kuznets Curve (EKC), arose increasing interest for scientists and politicians for the (supposed) beneficial role of a rising income on the environmental quality at large. Studies on EKC tried to disentangle this topic from a development perspective (Dasgupta *et al.*, 2002, 2006; Dinda, 2004; Stern, 2004; Kahuthu, 2006 and references therein) and recent contributions have started showing how it may be included in formalized economic models (Andreoni and Levinson, 2001; Hill and Magnani, 2002; Bruvoll *et al.*, 2003). According to the EKC hypothesis, accelerated wealth creation by economic growth is a precondition for the technological progress that in turn would provide a better environment (Magnani, 2001; Bimonte, 2002; Dinda, 2004; Aldy, 2005; but see also Jha and Murthy, 2003). Unfortunately, EKC studies concentrated on air pollution (Dinda, 2004; Stern, 2004; Galeotti, 2007 for reviews). Relatively few studies concern deforestation (Koop and Tole, 1999), clearcutting (Lantz, 2002), water pollution (Paudel *et al.*, 2005), hazardous waste sites (Wang *et al.*, 1998), and farmland conversion (James, 1999). Finally, only a restricted number of papers addressed the relationship between composite indexes of environmental quality and the income level. Examples of such studies have been provided by Zaim and Taskin (2000), Mukherjee and Kathuria (2006) and Caviglia-Harris *et al.* (2009), but see also a recently published special issue on EKC (e.g. Chowdhury and Moran, 2012).

Since EKC has received critical responses (Heerink *et al.*, 2001; Spangerberg 2001; Harbaugh *et al.*, 2002; Chimeli, 2007; Müller-Furstenberger and Wagner 2007), its contribution to the ecological economics debate should be seen just to underline the role of the public policies, that are usually more ambitious in high-income contexts. In other words, the inverted-U relationship is only indirectly linked to income through an 'induced policy response' (Munasinghe, 1999; Dinda, 2004; Stern, 2004). Unfortunately, few papers have dealt extensively with the geographical scale in EKC relationships. On the contrary, it was widely assumed that similar rules apply irrespective of the spatial scale, leading to the use of the same framework to explore (and sometimes of the same model to explain) spatial agglomeration, territorial specialization, and the negative externalities of the production processes impacting the environment at different scales.

As a global phenomenon induced by joint bio-physical and socio-economic drivers, land quality depletion is an interesting environmental issue to be examined in terms of EKC relationships at various geographical scales. This process limits soil fertility and produces worse environmental conditions reducing landscape, vegetation, and water quality, inducing habitat and land fragmentation and sometimes evolving in irreversible phenomena of desertification (Salvati and Zitti, 2008). The economic impact of this process is being increased in the developed regions of the world (Salvati and Zitti, 2007). The Mediterranean basin is an example of this pattern since it is becoming 'hot spot' for land quality depletion because of growing human pressures, climate change, and land consumption. Apart from the contribution from Salvati *et al.* (2011), no studies verify in the Mediterranean basin the EKC relationship for land quality depletion.

The problem is multifaceted since it can be interpreted within three lines of arguments: (i) the normative sphere (e.g. verifying the impact of various territorial organization levels on land quality depletion and the potential effect of multi-scale policies mitigating land degradation), (ii) the information sphere (e.g. identifying the indicators more suited to describe the socio-economic context responsible for land quality depletion) and (iii) the technical sphere (e.g. testing the stability of the EKC relationship at different spatial scales in the light of the Modifiable Area Unit Problem, MAUP).

With a focus on scalar effects, this paper examines the relationship between land quality depletion and the *per capita* income level taken as a *proxy* of socio-economic development. The study was carried out in Italy, a southern European country with wide regional disparities in the level of land vulnerability to degradation and socio-economic development. The effect of the spatial scale was addressed by simulating the impact of four institutional levels progressively (Yamamoto, 2008), moving from a centralized level (the administrative region, the province) to decentralized environmental-economic interactions involving the local sphere (and observable at the district and municipal scales).

While regions and provinces are the administrative decentralized units mainly responsible for environmental policies in Italy, local districts and municipalities play an important role in urban planning and economic development policies and represent also the highest resolution scale suitable to contrast environmental indicators and economic variables (e.g. income) estimated from the national accounting system and from the population census (Istat, 2006). Since land quality depletion is an 'on-site' process of environmental degradation which is determined by territorial disparities, the difference in the level of local and regional *per capita* income seems an appropriate *proxy* for processes depending on the geographical scale (Salvati *et al.*, 2011). The performed analysis should therefore capture the major changes of the localized relationship that have occurred over time.

2. METHODS

2.1. Logical Framework

According to the EKC hypothesis, land quality depletion should be associated to increasing income, having a peak at intermediate (country/regional) income levels. This is likely due to increasing human pressure on the environment when income rises due to the effect of crop intensification, population growth, urban sprawl, forest conversion to agricultural and urban land uses, industrial and tourism concentration, and other minor factors (Salvati *et al.*, 2009). However, at higher income levels, land quality depletion could decrease, as the economy itself change (increasing share of services in total product with a consequent reduction in agricultural and industrial impacts on the environment). Site-specific determinants generally complicate the evaluation at the local scale (Wilson and Juntti, 2005). In this context, geographical scale may also represents a proxy of the scale of production, especially in the agricultural and tourism sectors, traditionally associated to land quality and possible degradation (Briassoulis, 2005).

Such a relation could be linear (de-coupling hypothesis) or polynomial (re-linking hypothesis). In the former case, economic growth has beneficial effects on land quality depletion over the entire range of possible income. In the latter case, economic growth shows a beneficial effects on land quality depletion at lower/intermediate income levels, then a 're-linking' process is expected at higher income. In this case, income shows a two-fold effects: it is associated with an increase in land quality over time at lower levels, whereas at higher levels it could indirectly cause a significant decrease in the same variable. More complex patterns (e.g. third or

higher order polynomials) may highlight site-specific responses of land quality, as income rises (Galeotti, 2007).

Since mechanisms through which development and wealth acts (positively or negatively, directly or indirectly) are not completely clear by now, *per capita* income has selected as a proxy for the level of socio-economic development measured at different scales (Salvati *et al.*, 2011). In the present study, different specifications are estimated for *per capita* income, including linear income descriptor only (de-coupling baseline case), linear and squared income terms (EKC most usual case), and finally, linear, squared and cubic income terms (Dinda, 2004; Mukherjee and Kathuria, 2006; Maddison, 2006). The best form was chosen checking for standard diagnostics, including R^2, *F*-test, and *t*-tests on equation coefficients.

2.2. Study Area

Italy (301,330 km^2 with coastline extending for 7,375 km) is an intriguing case study from both the environmental and socio-economic perspectives, as it shows a complex spatial distribution of natural and economic capital. This partly reflects on social inequalities and territorial polarization between northern and southern areas (Salvati and Zitti, 2008). Particularly southern Italy shows low income levels and a higher share of agriculture in total product compared to the European average. From the administrative point of view, the country is divided (in 2000) into three geographical divisions (table 1): twenty NUTS-2 administrative regions, 103 NUTS-3 provinces, 784 local districts (conceptually similar to the Travel to Work Areas, LLMAs) and 8,101 NUTS-5 municipalities (Istat, 2006).

Table 1. Classification and number of spatial units by scale and geographical area in Italy

Spatial level	Italy	Geographical divisions
NUTS-2 regions	20	–
NUTS-3 provinces	103	North + centre: 67; South: 36
TTWA districts	784	North + centre: 419; South: 365
LAU-1 municipalities	8,101	North + centre: 4,556; South: 2,606

Source: own elaboration.

2.3. Data and Indicators

The four geographical partitions considered in this paper represent economically- and institutionally-relevant spatial units suited to relate environmental

indicators with socio-economic variables estimated from statistical sources. These partitions also reflect the availability of economic (disaggregated) data provided from national accounts. The chosen spatial domains have economic meaning, but indicate also the possible impact of environmental policies carried out at both regional and local levels. As scale may be interpreted as a crucial variable in both monitoring programs and policy strategies, its influence on EKC relationship may contribute to cost-benefits analysis in environmental assessment.

A standard, composite index estimating the potential land quality depletion (Land Vulnerability Index: LVI) was considered in this study as dependent variable. While land quality depletion regards environmental management, the endowments of land resources are mostly driven by geographical location and prevailing territorial and ecological context (Salvati and Zitti, 2008). Therefore, the percent change in the LVI over time was computed in order to infer about land quality depletion, land degradation processes and their possible impact on land conservation practices. The LVI, originally proposed by Salvati *et al.* (2009) and based on integrated information about climate, soil vegetation, and land-use, is suitable to account for some peculiar characteristics of the Italian landscape and circumvents data limitations at high-resolution scales. The LVI ranges from 0 (the highest land quality) to 1 (the lowest land quality) and can be easily calculated at different spatial scales using geographic information system tools. In this study, LVI was computed for two time slices (1990 and 2000) and the score difference was used as the dependent variable (LQD).

Per capita income was derived at the four selected scales from national accounting statistics provided by the Italian National Institute of Statistics (Istat 2006) and from further estimations carried out by Istituto Guglielmo Tagliacarne and CENSIS referring to years 2000 or 2001. This scale specification appears suitable in high heterogeneity datasets (like that used here) in order to analyze possible decentralized, local-level interactions between environment and economic drivers and related policy strategies (Briassoulis, 2005).

2.4. Statistical Analyzes

EKC hypothesis was tested here by specifying different (reduced) forms which include, in its simplest form, (i) change in LVI over the investigated period as dependent variable (LQD) and (ii) district *per capita* value added (or its logarithm) as the main economic driver (GDP). This selection was in accordance with the results found by Salvati *et al.* (2011) in the same study area. Table 2 reports the possible hypotheses on the form of the relationship depicted in figure 1. At the first stage, the following equations were estimated:

$$\mathrm{LQD} = b_0 + b_1(\mathrm{GDP}) + \mathbf{e} \quad (1)$$

$$\mathrm{LQD} = b_0 + b_1(\mathrm{GDP}) + b_2(\mathrm{GDP})^2 + \mathbf{e} \quad (2)$$

$$\mathrm{LQD} = b_0 + b_1(\mathrm{GDP}) + b_2(\mathrm{GDP})^2 + b_3(\mathrm{GDP})^3 + \mathbf{e} \quad (3)$$

where the first term (b_0) is an intercept parameter and $b_{(1)} \ldots b_{(n)}$ are the coefficient terms. In order to reduce the possible departure from normality, *per capita* income was transformed using logarithmic function before entering the regression model. The most significant form was chosen among equations (1–3) based on diagnostic statistics (R^2, *F*-test). Collinearity among variables was checked throughout by the way of variance inflation factor and condition index. Durbin-Watson test was applied to the series observed in order to detect serial autocorrelation in the data. Outputs report variables entered each model with significant coefficients and standard errors.

Elasticity of LQD to GDP was calculated, based on the linear form:

$$\mathrm{LQD} = b_0 + b_1(\mathrm{GDP}) \quad (4)$$

taken the first derivative of LQD term, which is:

$$\frac{\partial LQD}{\partial GDP} = \frac{b_1}{GDP} \quad (5)$$

by substitution, the elasticity of LQD to GDP (ηLQD/GDP) was derived by substitution in (5) as:

$$\eta_{ld\,/\,gdp} = \frac{\dfrac{\partial LQD}{\partial GDP}}{\dfrac{LQD}{GDP}} = \frac{b_1}{GDP} \bullet \frac{GDP}{D} = \frac{b_1}{b_0 + b_1 GDP} \quad (6)$$

and calculated at three levels (high, intermediate, low) of income. High, intermediate and lower income coincide with the average *per capita* income respectively observed in northern/central area (nearly 18,500 euros), the whole Italy (nearly 14,500 euros), and southern area (nearly 9,500 euros). Income figures referring to 2000 are computed as *per capita*, logarithmic values.

NUTS-2 regions (n = 20)

NUTS-3 prefectures (n = 103)

Local districts (n = 784)

LAU-1 municipalities (n = 8,101)

Fig. 1. The four geographical divisions of Italy
Source: own elaboration

3. RESULTS

The relationship between land quality depletion (LQD) and *per capita* income (GDP) in Italy was described in table 2 by using different specifications and spatial scales of analysis. Based on log-income, squared and third-order polynomial regressions between LQD and GDP gave a goodness of fit comparable to (or lower than) the linear form. Lower values of *per capita* income were negatively associated to a higher land quality depletion rate with a coefficient ranging from –0.066 to –0.028, according to the tested scales. The ratio of b_0 to GDP coefficient ranged from 0.204 at region level to 0.173 at municipal level.

The coefficient estimates for the same equations applied to the different geographical divisions of Italy are presented in table 3. An inverse, linear relationship between GDP and LQD was observed at all explored scales. On average, high-income districts experienced lower rates of land quality depletion. Income coefficients are relatively stable in all spatial aggregations considered, ranging from –0.067 to –0.021 in northern/central Italy and from –0.048 to –0.025 in southern Italy.

Elasticity of LQD to GDP ranged from 1.35 to 0.61 in Italy, according to the scale considered (table 4), being higher, on average, in northern/central Italy than in southern regions. However, the ratio in elasticity ratio between northern/central and southern regions declines moving from centralized scales (i.e. provinces) to decentralized scales (i.e. municipalities). The ratio between elasticity observed at the provincial and municipal level is also higher in northern/central (2.54) than in southern Italy (1.87).

Table 4. Elasticity of LQD to GDP in Italy based on the linear regression models reported in tables 2 and 3 by geographical division

Spatial scale	Italy	Northern-central Italy	Southern Italy
Nuts-2 regions	–1.35	–	–
Nuts-3 provinces	–1.24	–1.32	–0.99
TTWA districts	–0.88	–0.73	–0.60
Nuts-5 municipalities	–0.61	–0.52	–0.53

Source: own elaboration.

Table 2. Results of the regression analysis among Land Quality Depletion (LQD) and income (GDP) by different spatial scales in Italy

Variable	Linear				Squared				Cubic			
	NUTS-2	NUTS-3	TTWA	NUTS-5	NUTS-2	NUTS-3	TTWA	NUTS-5	NUTS-2	NUTS-3	TTWA	NUTS-5
b_o	0.323(0.065)**	0.283(0.035)**	0.201(0.031)**	0.162(0.005)**	0.184(0.033)**	–0.882(1.425)	0.104(0.011)*	4.291(0.991)	–0.091(2.504)	–0.483(0.948)	–3.571(0.850)	4.282(2.363)
GDP	–0.066(0.015)**	–0.057(0.008)**	–0.038(0.002)**	–0.028(0.001)**		0.497(0.678)	0.009(0.002)*	–3.004(0.817)	0.081(0.891)	0.216(0.338)	2.725(0.795)	–1.069(0.526)
GDP^2					–0.008(0.002)**	–0.066(0.081)	–0.005(0.002)	2.654(0.799)			–0.673(0.315)	–54.69(9.4)
GDP^3									–0.003(0.017)	–0.005(0.006)	0.054	418.7(97.2)
Adj-R^2	0.480	0.312	0.263	0.079	0.481	0.309	0.263	0.078	0.451	0.309	0.263	0.081
F	18.6**	47.2**	278.0**	692.3**	18.6**	23.8**	277.0*	689.1*	8.8*	23.8**	276.8*	691.2*
df	1,19	1,101	1,782	1,8099	1,19	2,100	2,781	2,8098	2,18	2,100	3,780	3,8097

Note: in brackets, the probability level of *t* and *F* test associated to each regression coefficient was reported: * $0.01 < p < 0.001$, ** $p < 0.001$.
Source: own elaboration.

Table 3. Results of the regression analysis among LQD and GDP by sing different spatial scales in Italy

Variable	Northern/Central Italy			Southern Italy		
	NUTS-3	TTWA	NUTS-5	NUTS-3	TTWA	NUTS-5
b_o	0.329(0.094)*	0.161(0.042)*	0.128(0.007)**	0.248(0.106)*	0.154(0.035)*	0.151(0.009)**
GDP	–0.067(0.022)*	–0.029(0.009)*	–0.021(0.002)**	–0.048(0.026)*	–0.026(0.007)*	–0.025(0.002)**
Adj-R^2	0.114	0.061	0.032	0.067	0.100	0.047
F	9.5*	26.7*	181.1**	3.5*	40.2*	128.9**
df	1,65	1,414	1,5491	1,34	1,362	1,2606

Note: in brackets, the probability level of *t* and *F* test associated to each regression coefficient was reported: * $0.01 < p < 0.001$, ** $p < 0.001$.
Source: own elaboration.

4. DISCUSSION

The present study analyzes the EKC relationship in land quality depletion at different spatial scales, from regional to local levels. Although related to the EKC literature, the illustrated approach differs from previous studies concentrating on the spatial dimension of development-environment relationship. Investigating the role of geographical scale could contribute to clarify (i) the impact of socio-economic and environmental gradients on land quality depletion, (ii) the role of economic polarization and territorial disparities on the environment, (iii) the importance of the production scale seen from a spatial perspective, and (iv) the potential role of decentralized multi-scale and multi-tasking policies possibly mitigating the risk of desertification. In this study, the relation is exemplified by a complex process of environmental degradation which is influenced by country- and regional-wide determinants and relevant local dynamics. The aim of the paper is thus to test a 'spatially' adapted environment-development hypothesis at four scales simulating a set of governance levels ranging from a centralized level (administrative regions) to a decentralized level (municipalities).

Results indicate that a relationship exists among land quality depletion and economic growth, providing indirect evidences in favour of EKC. The best fit was a linear form where GDP result is associated to decreasing LVI over time. The second order polynomial form, traditionally used in EKC studies, does not increase significantly the goodness of fit. Changing geographical partition of analysis have only limited influence on regression coefficients indicating stability in the general form of the relationship between LCQ and GDP. Interestingly, LCQ-GDP relationship seems to be not complicated by 're-linking' process observed at higher income levels as observed for other similar environmental problems. This appears particularly important in the policy perspective, as the results are obtained through a regional cross-section analysis of a developed country rather than a cross country analysis, confirming that a disaggregated within country analysis is meaningful in economic terms, and also provide a robust statistical ground (North, 2005; Papyrakis and Gerlagh, 2007; Auffhammer and Carson, 2008; Ordas Criado, 2008).

Using regression coefficient, the analysis of elasticity also provides original insights in the study of LCQ-GDP relationship. While an induced policy response could be possible at the income levels observed in Italy, the different elasticity of the EKC relationship observed in northern and southern Italy suggests that the environmental measures impact variously on land quality and vulnerability in the two areas. This is likely due to the different development paths which have characterized the two regions in the past and corroborates previous findings proposed by Salvati and Zitti (2008). In fact, externalities play crucial, but quite differentiated, roles at regional and local scales (Khanna and Plassmann, 2004). The structure of underlying production system, the interaction itself between drivers acting at

different geographical scales, and the differentiated policy responses carried out by regional governments account for such differences and claim for further work going on this direction. While tending to be more innovative in terms of new institutional settings and policy approaches, richest districts – especially in northern Italy – could experience more land degradation due to the higher feedback effects of the economic drivers (Salvati *et al.*, 2009). However, due to higher elasticity to income, these areas could benefit more from developmental policies in terms of land quality improvements. The opposite pattern was observed in southern Italy, a vulnerable area to desertification and a traditional targets for both socio-economic and environmental policies.

As a conclusion, while structural changes reflected in higher income positively affect land quality (Neumayer, 2001; Rupasingha *et al.*, 2004; Dasgupta *et al.*, 2006), developmental policies alone cannot be considered as sufficient to mitigate desertification processes, as additional drivers act to reverse the positive effect of income rise. Implementing the coordination of specific measures (e.g. environmental, social, economic) at different governance scales with the final aim to avoid a downward spiral between environmental degradation and (lower) income or rural poverty may correctly address the problem in drylands.

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REVIEW ARTICLES AND REPORTS

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HYDROLOGICAL EFFECTS OF URBANIZATION: THE EXPERIENCE FROM THE SOKOŁÓWKA CATCHMENT (ŁÓDŹ)

1. INTRODUCTION

The urbanization in the contemporary meaning of this word is a specific sign of the transformations that have taken place since the beginning of the 19th century and which are related with industrialization (Liszewski and Maik, 2000). It constitutes a universal process, both in terms of time and space. At the same time it is multi-directional in nature due to the changes it causes in the natural and cultural environment.

It is estimated that by the year 2030, more than 60% of the world population will have lived in urban areas (Paul and Meyer, 2001). Currently, the urban areas occupy only approximately 2% of the land surface, however, they significantly impact the natural environment. The city centres themselves generate more than 78% of all greenhouse gases (Grimm *et al.*, 2000). Modified properties of the surface of large cities cause a whole range of climatic changes. These changes affect temperature, atmospheric precipitation and cloudiness. High-rise buildings modify the flow of air and the level of its pollution, and supply of artificial heat contributes to formation of a climate with individual characteristics, which is different from the climate appropriate to rural areas.

The phenomenon of the so-called 'urban heat island', which is an effect of the city impact on climate, is most commonly discussed (Gaston, 2010). It involves

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absorption of short wave solar radiation by an increased field of the absorbing surfaces (not only flat surfaces, such as roofs and streets, but also walls of buildings), greater thermal capacity of building materials and smaller albedo of the surface. Energy absorbed by buildings is retained in the 'urban tissue' for longer periods due to the so-called 'urban canyons', i.e. streets cutting through high-rise buildings. Urban built-in areas and varied height of the buildings also impact the increase of aerodynamic roughness of the surface, which results in a reduced wind speed and additionally contributes to formation of the urban heat islands.

The urbanization also causes other climatic effects, such as greater cloudiness (by 5% to 10% greater in the cities than in other areas), greater precipitation (5–15%), increased frequency of occurrence of torrential rainfalls and storms, including storms with lightening (10–15% more) and hail, reduced frequency of snowfall and shorter time of snow cover, increasingly high frequency of fog occurrence (even by 100% during winter season) and reduced humidity of near-ground air layers (by approximately 6%).

Air pollution is a key factor in climate formation. Its impact is significant in urban areas in particular as most of the various types of emission sources are found in cities. It decreases the clarity of air, constitutes numerous condensation nuclei (up to 10 times more in urban areas than in other areas) and impacts the balance of radiation (up to 20% lower in urban areas) and heat (Gaston, 2010).

Urbanization also contributes to changes in water circulation. Replacing green areas (forests and meadows) with housing, industrial and transport development contributes to increased impervious surface, which then significantly limits absorption of rainwater and accelerates surface discharge. Consequently, during intensive precipitation, a great majority of water very quickly and directly goes into rivers, through the sewage system, which results in a shorter time of run-off concentration and increased culmination thereof. The following dependence is clearly noticeable: the more built-up areas there are in a city and the denser they are, the higher and the more frequent the flood waves are. The water that runs off from the city is very muddy and carries a huge load of various types of contamination.

A decreased recharge of water-bearing levels is another key consequence of increased impervious surfaces. Instead of getting infiltered, the rainwater gathers on the impervious surfaces, from which it is then drained by the stormwater drainage system. The water that stays in the detention zone evaporates back to the atmosphere much faster than in the areas overgrown with plants. It should also be emphasized that in case of such areas as forests an interception reservoir may be emptied due to water dripping off or being blown off by the wind from leaves, while in case of anthropogenic surfaces this phenomenon never occurs.

The phenomenon of soil settlement is equally important as decreasing ground water resources. In some cases it may reach several metres (e.g. Figueroa, 1984). This process directly affects stability of buildings. However, in some cases exfiltration of water from the city water supply network may partly balance the

rainwater deficit. For instance, in an agglomeration with an area of 50 km^2 and water consumption at the level of 100,000 m^3 per day, the losses of the water supply network at the level of 20% are equivalent to 300 mm of rainwater p.a. (Marsalek *et al.*, 2008).

According to an idea that has led engineers for many years, the key task of urban rivers is to drain water from urban areas as soon as possible and in a safe manner. Due to this, the streams that have originally meandered, have been connected to the sewer system by straightening their course. Artificial deepening of the beds causes drying of the river valleys, while the sites where the sewer system ends (usually outside of the city) often suffer from overflows and inundations, as these rivers beds are not adapted to receive such large quantities of water (the problem of the so-called 'end of pipe'). Due to the lowering of the ground water level caused by sealing of the surface, rivers usually lose their hydrological connection with waters in their valley. Therefore, in order to ensure that they will function as rainwater collector, their beds are sealed, which changes their morphology and significantly affects the speed of flow. Small streams are either covered gradually, or covered completely, and larger and more important streams are sheltered with high embankments which completely isolate them from the city. Ultimately, residents only notice negative features of the rivers, while the rivers themselves being 'imprisoned' in their concrete channels very often cause flood or sanitary risks.

Transport corridors (motorway, railway etc.) constitute another consequence of the urbanization. Their construction often involves extensive ground works which significantly transform the surface and, as a result, significantly affect the characteristics of run-off and river drainage. Where a linear infrastructure is developed perpendicularly to the slope and direction of water run-off, bridges and culverts which are required in such circumstances may significantly modify water regime of the catchment. When the infrastructure is developed along the valley, river-banks are usually built over, and even special two-staged channels are established, whose upper sections may serve as river embankments or/and recreational areas.

Apart from the above-mentioned factors, the consequences of urbanization for the processes of erosion, transport and sedimentation of substances in the lower stretches of rivers are also of importance. The soil erosion is increased, in urban areas in particular, due to removing the topsoil. Intensified urbanization processes increase production of sediments by 100-times in comparison to natural areas (Wolman and Schick, 1962). Excessive erosion contributes to an increased concentration of material suspended in water, which subsequently results in less light reaching plants, filling up the bed where organisms live, and damaging fish gills (Horner *et al.*, 1994; Marsalek *et al.*, 2008).

Urban environment also significantly impacts the temperature of water discharged. Its increase is particularly noticeable during summer months, when precipitation water becomes significantly warmer following its contact with heated surfaces (roofs and pavements) (van Buren *et al.*, 2000). As a result, water running

off from these areas may be warmer even by 10°C (Schueler, 1987). When the heated precipitation water gets into a river, in many cases it may contribute to occurrence of irreversible changes in aquatic ecosystems which house organisms of a specific thermal tolerance. In consequence, this phenomenon may contribute to a complete change in the species living in a given habitat (Galli, 1991).

Hydrochemical consequences of urbanization constitute a separate category. They include an increased mobility of heavy metals, a significant share of chlorides, eutrophic processes caused by compounds of nitrogen and phosphorus, increased deficiency of dissolved oxygen accompanied by biomass accumulation, increased concentration of ammonia, chlorine, cyanides, sulphides, phenols and surfactants that impact the general toxicity of sewage drained to urban rivers (Chambers *et al.*, 1997; Marsalek *et al.*, 2008).

Microbiological contamination of urban water is one of the key consequences of metropolitan development, as it directly affects health of city inhabitants. Four groups of aquatic organisms that affect human health have been identified: viruses, bacteria, protozoans and parasites (Marsalek *et al.*, 2008). The type and size of contamination are often related with the standard of waste management and sanitary conditions in a given area. Nevertheless, the microbiological contamination may occur even in highly developed areas following torrential rains, on beaches by city swimming pools in particular.

Anthropogenic effects are so large now that they may be compared to the changes caused by large-scale natural processes. In case of urban areas, interference in the natural environment is to improve the quality of human life, while it often leads to undesired, incidental and irreversible changes. In the context of water circulation, sealing of surfaces is of the greatest importance. It controls movement of precipitation water through the routes that are different from the natural ones. It seems that we partly know how to deal with this issue. Development of technologies and innovation have enabled us to manufacture permeable materials and construct local automatic systems that pre-treat this water, however, their implementation and control by integrated management, which covers not only engineering elements but also the processes that recognize capacity of the environment and control it, will become the greatest challenge in the near future.

2. METHODOLOGICAL BACKGROUND

The investigations included two small river beds draining the western part of the Wzniesienia Łódzkie (Łódź Hills): Sokołówka and Dzierżązna (figure 1). The catchments of both rivers are built of drift tills and fluvioglacial deposits, however, they differ in land uses and bed characteristics. To the cross-section in Sokołów, the

Sokołówka river basin has an elongated shape and is almost fully located within administrative boundaries of Łódź, in the north of the city. It covers an area of 19.2 km^2 and it is a typical urban basin. The Sokołówka river valley is visibly incised, the average basin slope equals to 17.5‰, while its denivelation exceeds 80 m. Poorly permeable deposits are mainly in its central and upper parts, while in the lower part predominate sand deposits. The length of the main course is 11.8 km and its average slope is equal to 6.01‰. The Sokołówka river bed of average water table width of 1.4 m was strengthened and concretened at substantial length and its embankments have a regular shape (slope 1:1.5) (Bartnik and Moniewski, 2010).

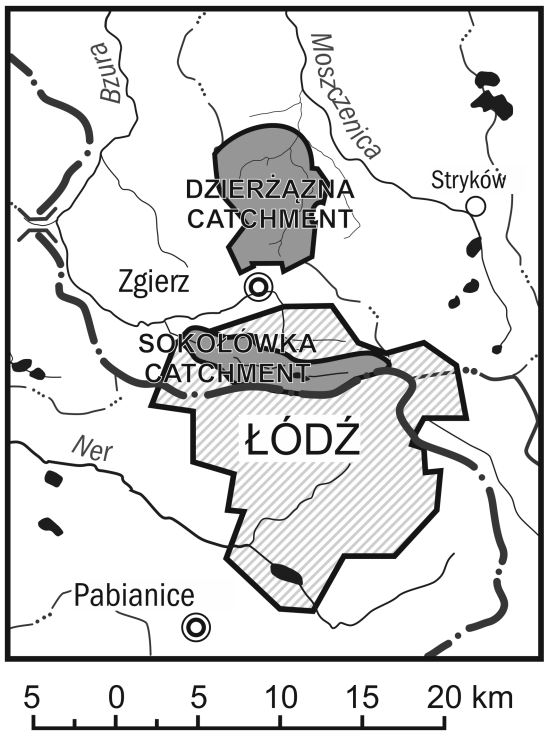


Fig. 1. Localization of the investigated catchments
Source: own elaboration

Establishing a reference catchment was also required. The Dzierżązna river, which is located several kilometres away, was selected for this purpose. Originally, both the hydrographic units located in the basin of the Bzura were characterized by similar physic-geographical conditions. Today, however, they differ significantly due to the way of using their surface, i.e. due to the intensity of anthropopressure.

Dzierżązna catchment (A = 25.1 km^2), located in the north of Zgierz, may be regarded as a suburban basin. Its area is formed mainly by arable lands and forests.

The area of Dzierżązna basin is relatively slightly transformed by humans and to a great extent it preserved its natural characteristics strictly combined with the physiogeographical features of the region. Very permeable sand-gravel deposits of Grotnicki-Lućmierski sandur are of great importance for infiltration conditions. Low permeable deposits and anthropogenic surfaces are relatively rare. The average slope of the main river course is 7.1‰ with length of 9.5 km. Some sections of the Dzierżązna river bed are straightened and strengthened with fascines, while others have preserved their natural meandering pattern. The river's average width is 2 m. Few retention reservoirs were built on the river; they play the role of fish or recreation ponds. Rain gutters draining water from A2 railway and an interceptor sewer carrying rainfall water from Zgierz area (Jokiel ed., 2002) should be included into the artificial drainage network.

In the Sokołówka catchment, human interference with the environment extensively transformed its original features in a short time. The basins of the Sokołówka and of its single tributary, i.e. Brzoza, were turned into concrete troughs, which were partly closed and connected with the rainwater drainage system. Within this area, the river is more than three times longer than the length of a natural river network. In the upper part of the catchment, there is a dense residential estate of single-family buildings, and industrial development dominates in its middle section. Natural sediments, which are usually characterized by good infiltration, were covered by a layer of anthropogenic cover (such as debris, slag, asphalt and concrete) of variable filtration conditions. Only the lower part of the catchment has maintained a suburban character, with a significant share of arable land (figure 2).

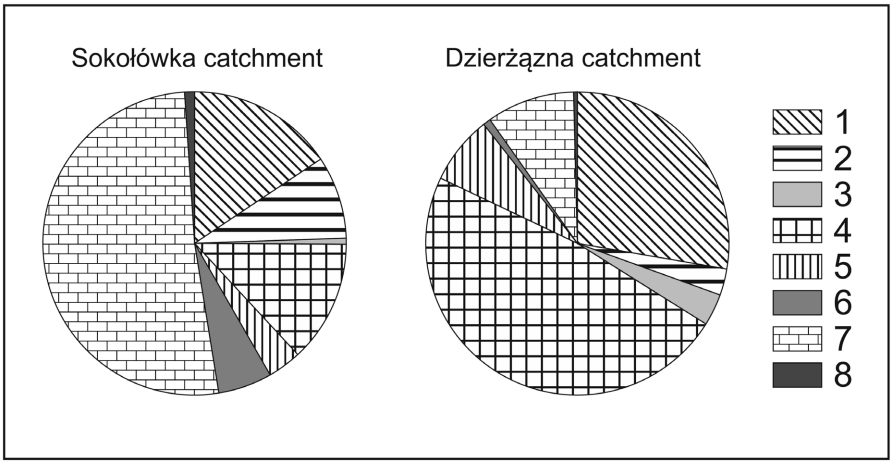


Fig. 2. The structure of the use of the areas in the catchments studied
1 – forests, 2 – green areas, 3 – orchards, allotment gardens, 4 – arable land, 5 – meadows, pastures, 6 – wasteland, 7 – housing and industrial development, 8 – water resources
Sources: own elaboration

3. ASSESSMENT OF THE EXTENT OF THE SOKOŁÓWKA CATCHMENT TRANSFORMATION

The project objective was to identify the impacts of urbanization of the Sokołówka river catchment on the course of various types of flood waves. In order to compare the conditions of shaping the run-off in both catchments, a SCS (Soil Conservation Service) method has been used (Ozga-Zielińska and Brzeziński, 1994; Jaworski and Szkutnicki, 1999; Viessman and Lewis, 2003). This method was developed in the USA and it enables calculation of effective precipitation in uncontrolled catchments. According to this method, the effective precipitation depends on the type of soil, type of land use and characteristics of forested areas. Tabular values provide the basis to calculate a non-dimensional CN parameter, which adopts theoretical values from 0 (for the catchment with unlimited absorptive capacity) to 100 (for the catchment which has been saturated with water to the maximum level).

Discrete maps of the catchments were used to present the results (figures 3 and 4). The area of both catchments was covered with grids of 250 m^2 whose colour indicates a weighted average value of the CN parameter (Bartnik *et al.*, 2008). A share of a given form of the land use in the surface of the relevant square constitutes the weight.

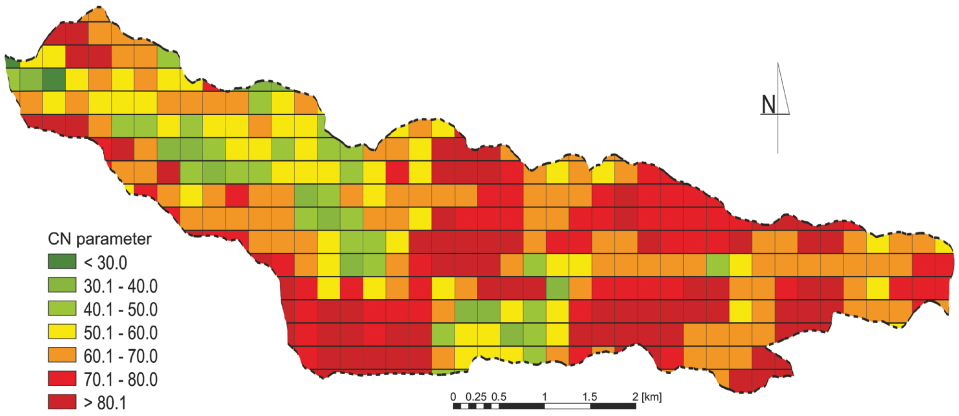


Fig. 3. Spatial distribution of the CN parameter in the Sokołówka catchment. Noticeable strong transformation of this area caused by urbanization
Source: own elaboration

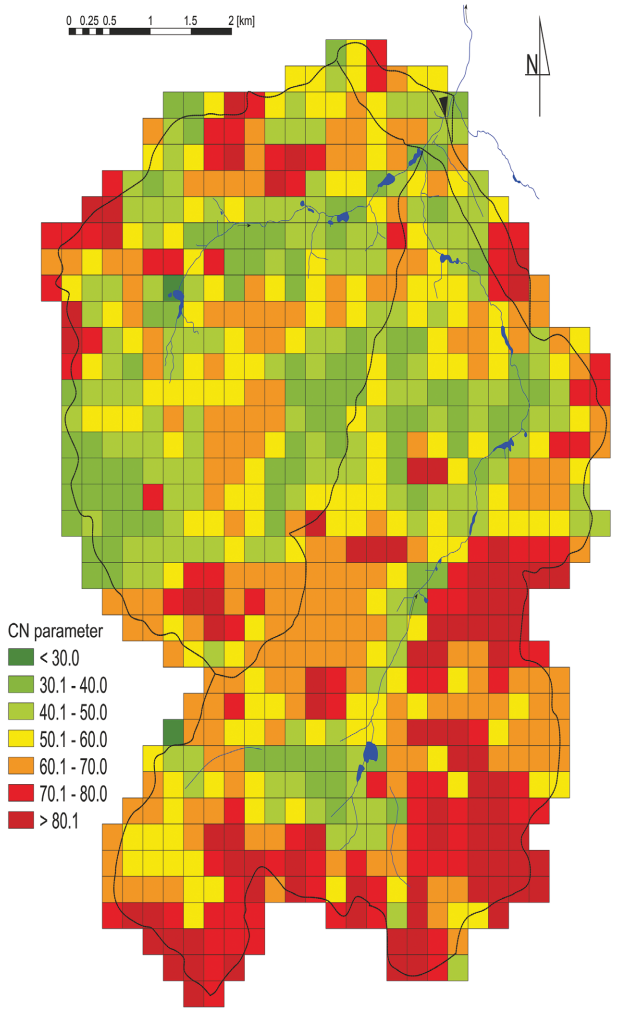


Fig. 4. Spatial distribution of the CN parameter in the Dzierżązna catchment. Urban areas are only found in the southern borders of the catchment (the area of the city of Zgierz and a large village of Dąbrówka)
Source: own elaboration

The spatial distribution of the CN parameter indicates significant differences in the area of two catchments. Low CN values characterize the sand and gravel bed of the river valley in the Sokołówka catchment, in the stretches where it has not been sealed (figure 3). High CN values, which clearly dominate in comparison to the reference catchment, overlap with the areas that have undergone the strongest urbanization, industrial areas in particular, where the degree of imperviousness of the bed is very high, and a significant share of precipitation water is intercepted

by the rainwater drainage system. The upper catchment of the Sokołówka, which is made of drift clay, also holds a high CN value.

The average value of the CN parameter calculated for the Sokołówka catchment reaches 67 and it is only slightly higher than in the case of the Dzierżązna catchment, which reaches 59. Major differences may be found in the structure of this parameter (figure 5). Although in both these cases most raster cells hold the values within the range of 60 to 70, the Sokołówka catchment is characterized by a higher number of high CN and a smaller number of low CN. The variability coefficient c_v of the CN parameter reaches 0.21. In the Dzierżązna catchment, the size of intervals is more even, the CN values > 90 are rare (in 3 cases) and they do not impact the average value. In the case of the Dzierżązna, differentiation of this parameter is slightly greater: $c_v = 0.26$. The analysis of the CN parameter values indicates that, although the two catchments are close to each other, a potential capacity of forming direct run-off is greater in the Sokołówka catchment than in the Dzierżązna catchment.

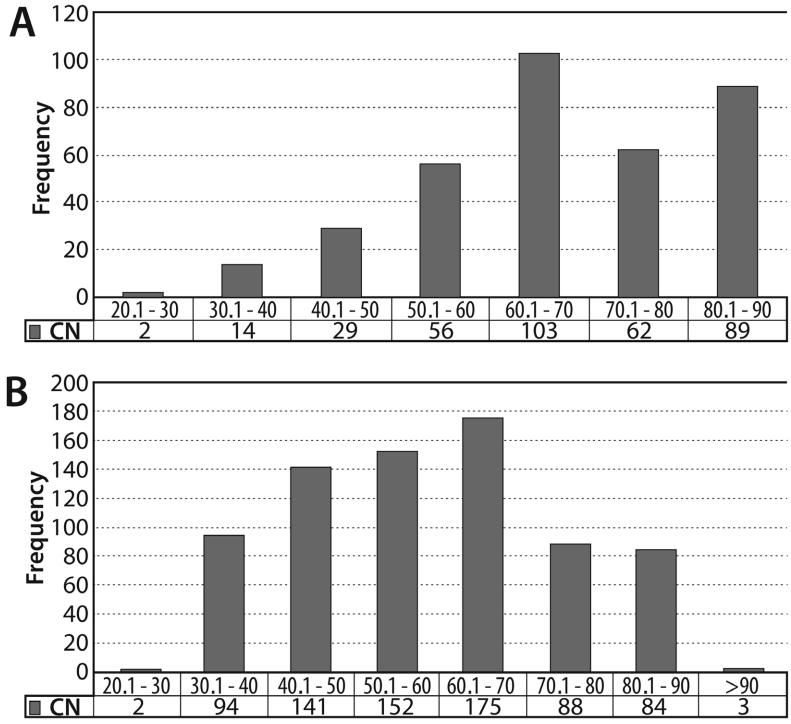


Fig. 5. The structure of the size of CN parameter:
A – in the Sokołówka catchment; B – in the Dzierżązna catchment
Source: own elaboration

It is confirmed by the value of effective precipitation in both catchments (figure 6). The difference in the P_e value is already noticeable at the average daily totals of precipitation that are higher than approximately 20 mm and it grows with their increase. However, the SCS method used in this case does not take into account formation of flood waves, so the indicators obtained should be perceived as indicative.

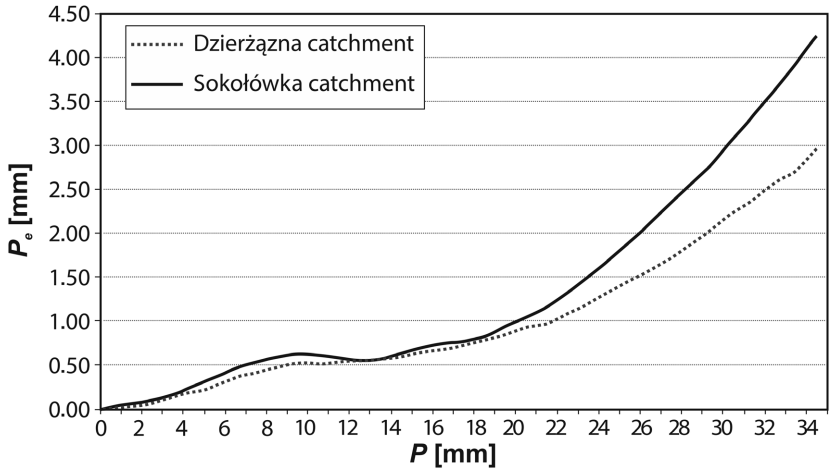


Fig. 6. Effective precipitation (P_e) in the function of the total precipitation (P)
The average humidity level has been adopted
Source: own elaboration

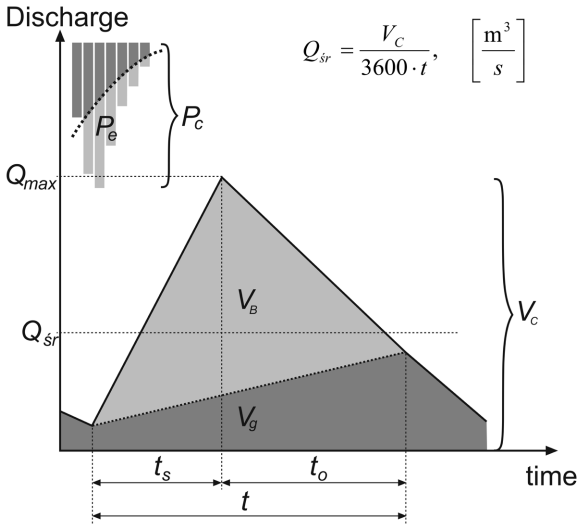
It is worth emphasising that the surface of the Sokołówka catchment facilitates infiltration to a lesser extent than the Dzierżązna catchment, and that is why it may absorb less precipitation or snow-melt water. On the basis of the dependence (Pociask-Karteczka ed., 2003):

$$RS = 24.5 \bullet \frac{1000}{CN} - 10$$

in both catchments it is possible to calculate a theoretical value of the so-called potential retention, i.e. the maximum layer of water that may be retained in the conditions of a given catchment, with an assumption that the precipitation will last for unlimited time. According to this formula, the quantity of the precipitation retained in the Sokołówka catchment may be estimated to reach the level of approximately 356 mm, while for the Dzierżązna catchment, on average, it could reach as much as approximately 405 mm.

The actual conditions of water circulation will cause a different response to the alimentation by the catchment, which is indicated by the measurement data derived.

The analysis of flood waves enables identification of these elements of the geographical environment of the catchment that determine the conditions of the run-off formation. Next to meteorological factors, the shape and size of the catchment, its inclination, a degree of ground permeability and land cover are also of importance to the course of flood. They impact both the flood duration, its volume, peak discharge and the time needed to reach it. Parameters of the theoretical run-off hydrograph and the method of establishing or calculating them are presented in figure 7.



$$Q_{śr} = \frac{V_C}{3600 \cdot t}, \quad \left[\frac{\mathrm{m}^3}{s}\right]$$

$$q_{\max} = \frac{1000 \cdot Q_{\max}}{A}, \quad \left[\frac{dm^3}{s \cdot km^2}\right]$$

$$q_{śr} = \frac{1000 \cdot Q_{śr}}{A}, \quad \left[\frac{dm^3}{s \cdot km^2}\right]$$

$$C_B = \frac{V_B}{1000 \cdot A \cdot P_C} \cdot 100, \quad [\%]$$

$$C_C = \frac{V_C}{1000 \cdot A \cdot P_C} \cdot 100, \quad [\%]$$

$$W_g = \left(1 - \frac{V_B}{V_C}\right) \cdot 100, \quad [\%]$$

Fig. 7. Characteristics of the flood waves

A – catchment surface [km^2]; P_c – total precipitation prior to the flood waves (including snow coverage); P_e – effective precipitation; t – duration of the flood waves; t_s – wave rising time; t_o – wave falling time; Q_{max} – peak discharge; $Q_{śr}$ – average discharge of the flood wave; q_{max} – maximum unit discharge of the flood wave; $q_{śr}$ – average unit discharge of the flood wave; V_B – direct discharge volume; C_B – coefficient of the quick discharge of the flood wave; V_C – total run-off volume; C_C – coefficient of the total run-off of the flood wave; W_g – coefficient of the underground flood wave recharge

Source: Ciepielowski (1987), Ozga-Zielińska and Brzeziński (1994), Byczkowski (1996)

4. ASSESSMENT OF THE IMPACTS OF URBANIZATION ON THE COURSE OF RIVER FLOOD WAVES

In order to assess the impact of urbanization on the river run-off, a comparative analysis of several flood waves that simultaneously occurred in the two catchments in 2009 has been conducted. Intensity and duration of precipitation plays

an important part in flood wave formation. That is why only these flood wave episodes have been selected that were characterized by clearly identified genesis and similar total precipitation (figure 8 illustrates intensity of precipitation in the Sokołówka catchment). The key parameters of the flood waves calculated for each episode are compiled in table 1. Maximum and average unit precipitation, direct and total run-off coefficient and baseflow index in the course of flood waves have also been derived.

In order to identify similarities and differences in the response of both catchments to alimentation, four cases of flood wave have been analyzed. An example of a winter flood wave covers two consecutive episodes that took place in mid-February (figure 8A). The first one occurred between 22nd and 25th February and it was a snow-melt flood wave (OR) caused by fast temperature rise above zero, which initiated reduction of almost a twenty centimetre thick snow cover. Precipitation that took place during the night of 22nd and 23rd February accelerated this process even more. The snow-melt arrival was synchronous in nature, however, the flood wave occurrence was different in each catchment. In the Sokołów section, two waves whose culminations were moved by approximately 10 hours in relation to the daily maximum temperature were observed. The concentration time of the first one was very brief and took just over an hour, while in the Dzierżązna catchment the increase in discharge was slow and lasted 75 hours. The temperature rose, which took place on 26th February, stimulated another spell of small rain and the other snow-melt and precipitation flood wave (RO). It is worth noting that in the Sokołówka catchment it was a separate flood wave, while in the Dzierżązna catchment both flood waves overlapped. Their total duration was twice as long as the time of the flood wave in the Sokołówka catchment and it took 8.5 days.

The snow-melt and precipitation flood wave (RO) was characterized by the highest volume and the greatest average discharge ($Q_{śr}$) of all the flood waves covered by the study. The average Sokołówka's discharge reached 0.259 $m^3 \cdot s^{-1}$, while the Dzierżązna's 0.387 $m^3 \cdot s^{-1}$. Due to a large share of snow-melt water in the total run-off, the direct run-off coefficient (C_B) also reached maximum values and in the two catchments it reached 70% and 38% respectively. At that time, the total discharge coefficient (C_C) in the Sokołówka catchment exceeded 137% (table 1).

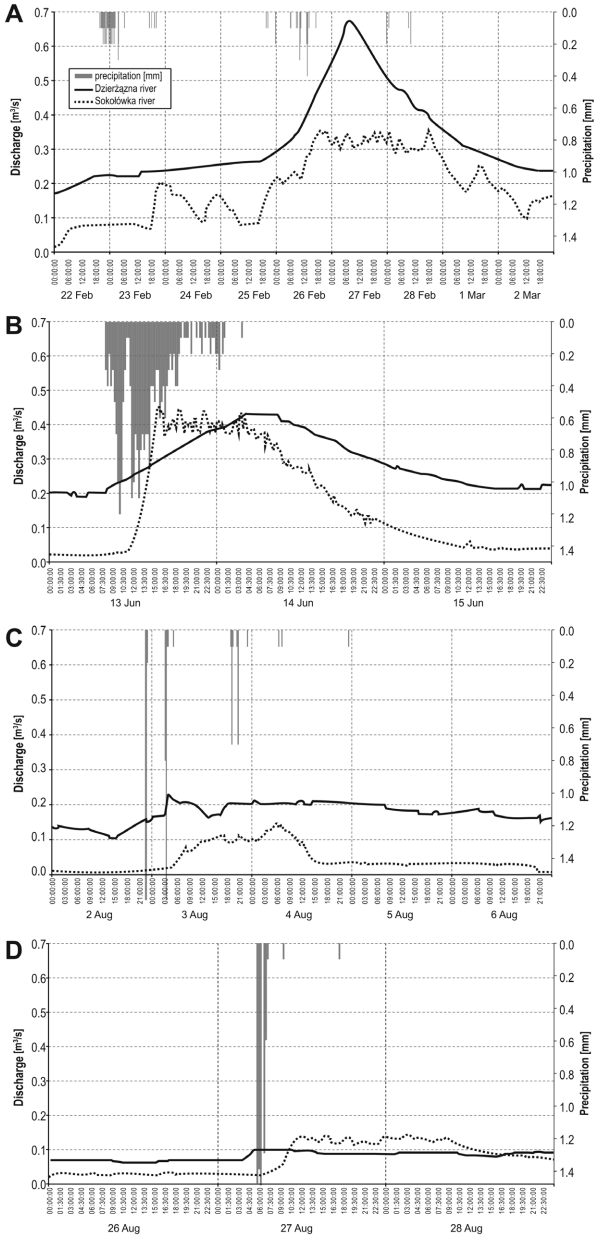


Fig. 8. The examples of various types of flood waves that occurred in the Sokołówka and the Dzierżązna in 2009

A – snow-melt precipitation; B – related with the passage of warm front; C – induced by torrential rain; D – related with the passage of cold front

Source: own elaboration

Table 1. The parameters of selected flood waves in the catchments of the Sokołówka and Dzierżązna in the hydrological year of 2009

River – section	Sokołówka – Sokołów (19.21 km^2)					Dzierżązna – Swoboda (42.9 km^2)				
Date	23–24.02	25.02–1.03	13–15.06	2–4.08	27–28.08	22–25.02	25.02–2.03	13–15.06	2–5.08	27–28.08
Type of flood wave	OR	RO	O-c	ON	O-ch	OR[a]	RO	O-c	ON	O-ch
P_c [mm]	18.1	3.0	25.8	13.3	15.9	29.5	4.6	13.9	13.4	15.9
P_e [mm]	0.41	2.10	1.82	0.46	0.67	0.32	1.75	0.53	0.31	0.09
t [h]	21.50	84.75	58.50	44.25	34.75	82.75	122.50	56.25	72.75	36.00
t_s [h]	4.25	27.00	6.75	32.75	18.75	75.00	42.50	20.25	13.00	3.00
t_O [h]	17.25	57.75	51.75	11.50	16.00	7.75	80.00	36.00	59.75	33.00
Q_{max} [m^3·s^{-1}]	0.195	0.337	0.441	0.147	0.243	0.261	0.656	0.420	0.231	0.174
$Q_{śr}$ [m^3·s^{-1}]	0.137	0.259	0.189	0.075	0.186	0.232	0.387	0.310	0.188	0.153
q_{max} [dm^3·s^{-1}·km^{-2}]	10.17	17.55	22.94	7.66	12.64	6.08	15.29	9.79	5.38	4.07
$q_{śr}$ [dm^3·s^{-1}·km^{-2}]	7.13	13.48	9.82	3.89	9.70	5.41	9.03	7.23	4.38	3.58
V_B [thousand m^3]	7.95	40.37	34.93	8.81	12.83	13.91	75.20	22.57	13.38	3.78
C_B [%]	2.29	70.05	7.05	3.45	4.20	1.10	38.10	3.78	2.33	0.55
V_C [thousand m^3]	10.60	79.02	39.73	11.91	23.31	68.99	170.76	62.78	49.26	19.89
C_C [%]	3.05	137.12	8.02	4.66	7.63	5.45	86.53	10.53	8.57	2.92
W_g [%]	25.03	48.91	12.08	26.01	44.97	79.83	55.96	64.06	72.83	81.00

Explanations: OR – precipitation and snow-melt flood wave; RO – snow-melt and precipitation flood wave; O-c – precipitation flood wave (warm front); ON – precipitation and torrential rain flood wave; O-ch – precipitation flood wave (cool front); symbols of flood wave characteristics are the same as in figure 7.

[a] Estimated parameters due to overlapping of a subsequent flood wave in the Dzierżązna catchment.

Source: own elaboration.

The next flood wave studied took place in mid-June 2009, and was caused by the passing of a warm front (O-c) (figure 8B). Frontal precipitation occurred simultaneously in both catchments, however, its total in the Sokołówka catchment (25.8 mm) was almost twice as high as it was in the Dzierżązna catchment (13.9 mm). In the Sokołów section, the highest culmination discharge (*Qmax*) – 0.441 m^3·s^{-1} was recorded at that time, which was even higher than the Dzierżązna discharge. Its duration (*ts*) was short and lasted less than 7 hours, while in the Dzierżązna catchment

– over 20 hours. The maximum unit run-off (*qmax*) from the Sokołówka catchment reached 22.94 $dm^3 \cdot s^{-1} \cdot km^{-2}$ at that time and was twice as high as discharge in the Dzierżązna catchment.

A precipitation and torrential flood wave (ON) took place in early August. It was induced by convection rain exceeding 13 mm. This is illustrated in the hydrograph of the discharge in the form of two overlapping flood waves (figure 8C). On that occasion, the time necessary to reach the flood culmination point (*ts*) in the Sokołówka catchment was much longer than in the case of the Dzierżązna and reached almost 33 hours. The duration of the flood wave falling (*to*) was only 11.5 hours and was over 5 times shorter than its equivalent in the Dzierżązna catchment.

The last of the flood waves presented (O-ch) was due to precipitation that accompanied the arrival of cool front. The total of short but intensive torrential rains reached just under 16 mm in two catchments. In the Sokołówka catchment, the volume of direct run-off (*VB*) was significantly larger during this flood wave (12.8 thousand m^3) than in the Dzierżązna catchment (3.8 thousand m^3). The discharges: the culmination ($Qmax$ = 0.243 $m^3 \cdot s^{-1}$) and the average one ($Qśr$ = 0.186 $m^3 \cdot s^{-1}$) were higher than the respective discharges of the Dzierżązna. Although the Dzierżązna flood wave rising time demonstrated in table 1 was short (*ts* = 3 h), the dynamics of increase in the Sokołówka discharges was clearly higher (figure 7D). The average unit run-off of this catchment during the flood wave (*qśr*) was significantly higher and it reached 9.7 $dm^3 \cdot s^{-1} \cdot km^{-2}$.

These hydrographs and characteristics derived indicate a different course of flood waves in each river. Only precipitation flood waves induced by arrival of atmospheric fronts: warm (O-c) and cool (O-ch) were characterized by similar duration as precipitation of similar intensity occurred synchronously in the two catchments. The remaining flood wave parameters indicate significant differences between these catchments.

The different course of the flood waves recorded to a certain extent resulted from different shapes and sizes of the catchments, however, their response to alimentation was mainly due to the structure of land use. It has been observed that during the culmination waves the unit discharges in the section closing the Sokołówka urbanized catchments were always higher (even 3 times) than in the Swoboda section, which closes the Dzierżązna catchment. The difference also covers average unit discharges during the flood waves. In the Sokołówka catchment they reached 13.5 $dm^3 \cdot s^{-1} \cdot km^{-2}$, while in the Dzierżązna catchment they hardly ever exceeded 9 $dm^3 \cdot s^{-1} \cdot km^{-2}$. It is worth reminding that the rainwater drainage system, which drains rainwater from in-built areas that occupy more than half of its surface, plays a key role in the increase of the Sokołówka flood discharges (figure 2). A large share of impervious surfaces and sealing of the bed that covered a long stretch contributed to the fact that the infiltration coefficient calculated for the Sokołówka catchment reached only 31.4% on average, while for the Dzierżązna catchment 70.7%.

The other indicators also determine the scale of anthropogenic transformations of run-off of the Sokołówka catchment. The effective precipitation (*Pe*) calculated for three summer flood waves covered by the analysis of this catchment reached 4.9% of the total precipitation (*Pc*) on average. Thus, it was twice as high as the value recorded for the Dzierżązna catchment (2.2%). These values correspond with the relation identified by Ciupa (2009) in the urbanized catchment of the Silnica (Kielce region). The total precipitation was the same, however, the effective precipitation in the urbanized catchment was twice as high as in the catchments that have been covered by anthropopressure to a lesser extent. The direct discharge coefficient calculated for the flood waves analyzed was larger by 1.5 to 7.6 times in the Sokołówka catchment than in the Dzierżązna.

According to Ciepielowski (1987), the shape of flood wave hydrographs for small catchments may be determined by anthropogenic factors. It is a well-known fact that hydrographs of catchments covered with forests or arable land are flatter than the hydrographs of urban catchments. Nevertheless, the urbanization effects in the Sokołówka catchment also result from meteorological factors, which determine the course of snow-melt flood waves, too. Duration of these waves was also shorter due to a thinner snow cover in the city and higher air temperature than the temperature in the Dzierżązna catchment, which was due to increased albedo and higher emission of artificial heat.

5. CONCLUSIONS

The run-off process is more dynamic in urban catchments than in the ones that are less transformed due to anthropopressure, as transformation of precipitation into run-off occurs much faster in the urban catchments. Increased dynamics of discharge in small urban streams is due to two reasons. Concrete reinforcement of the river bed and banks results in an almost complete separation of the stream from groundwater alimentation, which then causes decreasing of low discharges. Sealing of a large part of the catchment surface also leads to the situation where only small quantities of water permeate to supply ground water reservoirs. As a result, during dry periods, the groundwater level falls down fast within its drainage, which causes long periods without run-off. The Sokołówka, which from a constantly flowing river turned into a periodical stream within the period of several decades, is a clear example. During dry periods and winter, the run-off of the upper part of the catchment ceases completely, and the unit run-off for the whole surface of the catchment (Sokołów section) does not exceed 0.5 $dm^3 \cdot s^{-1} \cdot km^{-2}$.

On the other hand, reconstruction of beds of urban streams is designed to adapt them to episodic drainage of water from the rainwater drainage system, as small

streams have to collect water from vast impervious land whose surface increases as a result of urban spatial development or intensification of other urban processes. A very small retention capacity of urban catchment contributes to the situation where the run-off dynamics in urban conditions may be compared to the regime of a mountain stream. As a result, the maximum unit run-offs reaching 103 $dm^3 \cdot s^{-1} \cdot km^{-2}$ and 176 $dm^3 \cdot s^{-1} \cdot km^{-2}$ were recorded in the upper and most urbanized section of the Sokołówka catchment during the above summer flood waves taken into account of this analysis. In this context, it is worth emphasizing that these values were not the highest, as within Łódź territory there had already been precipitation reaching several dozen millimetres within several hours, which contributed to much higher flood waves and even flash floods (recently on three occasions in May and June 2007). Straightening and concrete reinforcement of the Łódź stream beds have not significantly impacted the size of the culmination discharge, however, it accelerated the arrival of the culmination wave. That is why flood waves in the Sokołówka catchment occasionally are very violent in nature (discharge may increase even to 1.5 $m^3 \cdot s^{-1}$ in 15 minutes). It leads to inundations of large areas holding dense road infrastructure, which also constitute a risk to residential buildings. Sudden snowmelt flood waves that supply surface water with a large load of contamination are equally dangerous.

In peripheral districts of Łódź, also in the Sokołówka catchment, large-scale development of sanitary and rainwater drainage system is taking place. If this investment does not include systemic solutions and the integrated rainwater management which uses the BMPs solutions, it will induce vast modifications that will impact the directions and dynamics of this catchment's discharge in long-term perspective, such as increased maximum discharges, intensified erosion processes in the river beds and further modifications in the underground retention. Such problems are particularly severe in small catchments, as they have a limited capacity to compensate negative effects of anthropopressure. That is why it is necessary to change rainwater management policy to adopt decentralized solutions that will improve retention capacity in the catchment and slow down its run-off.

A fast progressing development in Łódź, in Bałuty, its northern district in particular, has already facilitated a drastic change of conditions of the river run-off in the watershed zone. Similar phenomena occur in all urban river catchments whose natural streams are turned into rainwater collectors. Due to the specificity of urban space, including a large share of isolating surfaces, changes in the run-off formation are unavoidable. In the future, however, such solutions should be applied that will compensate for the limited infiltration, slower run-off and increased retention. The run-off from large impervious surfaces (hypermarkets, industrial facilities, car parks and residential estates) should be retained for the sake of landscape and treated with the aid of ecosystem-based biotechnologies instead of being directly drained through stormwater drainage system, and where possible, the surfaces should be unsealed with the aid of the BMPs under the

rainwater management. Appropriate management of river valleys as urban green areas and ecological corridors may also impact the shape and speed of the flood wave movement. Construction of retention reservoirs and polders will contribute to decreasing the height of the wave, and de-sealing of the beds and urban surfaces will favourably impact low discharges.

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IMPACT OF THE EUROPEAN UNION ON THE METHOD OF DEMARCATING THE BENEFICIARY REGIONS IN HUNGARY

1. INTRODUCTION

One of the most important tasks of the regional policy is the demarcation of the beneficiary regions; that is, the designation of those regions whose development is regarded as a primary task by the central government and it supports the development of the settlements and enterprises located there with the help of different financial instruments. In the spirit of this, it is not surprising that the designation of such regions has already appeared in the first real act on the regional development of Europe (United Kingdom, 1934 – Special Areas Act) (Thomas, 1975), and the legislations brought in the Western European countries after the Second World War also dealt with this issue in detail (e.g. Blacksell, 1975; King, 1975).

The less-favoured situation of certain regions, nevertheless, may be due to various reasons and in light of this, it is not surprising that the backward regions also had various subtypes (Artobolevskiy, 1997; Balchin *et al.*, 1999), which required different approach. Some of the *old industrial areas* earlier used to be the centre of the economic life of a country, though from the 1950s some of them had to face the problem of crisis, and in the 1970s this phenomenon further intensified and became spatially extended (Hassink, 2005). In the course of the development of these regions, several kinds of methods were applied. Firstly, in many cases endeavours

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were made to preserve the relics of the industrial past and to use it in tourism within the framework of heritage planning (Jonsen-Verbeke, 1999; Hospers, 2002; Xie, 2006). Secondly, in the spirit of the total break with the past, the production sites were liquidated in certain regions and the focus shifted to the high-tech sectors (Birch *et al.*, 2010).

Usually two groups are differentiated for the *underdeveloped regions*. The agro-industrial regions are mainly located in the peripheries of the countries. Within the framework of their development the most important task is to create a diversified economic structure (Briedenhann and Wickens, 2004; Sharpley, 2007) and the creation of agriculture for producing specialized local products (Libery and Kneafsey, 1998).

The *regions with extreme natural conditions* are located especially in the northern parts of the continents, while they can be found in patches in the high mountains as well. Important conditions for their emergence from the backward situation include the development of infrastructure and the provision of high quality services (Doloreux and Shearmur, 2006). In the course of this, however, endeavours must be made so that the investments should not cause major environmental damages.

The *agglomerations of the metropolises*, and within them mainly the city centres, appeared as regions in crisis among the objective areas of regional policy during the 1970s (O'Hanlon and Hamnett, 2009; Lange *et al.*, 2010). The quarters concerned in most cases created attractive investment opportunities even for the private capital, and therefore the central government – besides the implementation of certain investments (e.g. public transport development) – mainly endeavoured to improve their situation by the modification of the legal environment.

The European Economic Community founded in 1957 initially paid only a little attention to regional policy, and a slow change could be observed only from the beginning of the 1970s. The difficulties of the new member states and the increasing regional differences made it necessary to increase the amounts of the financial instruments with this aim and to demarcate the regions eligible for aid at the Community level. In the spirit of this, in 1973, the Thompson Report proposing the creation of a fund for the financing of regional policy defined the eligible areas in a very detailed manner (Clout, 1975): those regions belonged to that category where the value of the GDP *per capita* was lower than the Community average and fulfilled at least one of the following conditions:

– more workers in farming than the Community average;

– at least 20% of the workforce in declining industry (coal mining and/or textile manufacture);

– persistently high unemployment or annual out-migration in excess of 1% over a long period.

The debates accompanying the establishment of the European Regional Development Fund, however, resulted in the reduction of the available sources, and as

a consequence of this the definition of the eligible areas was essentially also transferred to the competencies of the Member States: 'Regions and areas which may benefit from the Fund shall be limited to those aided areas established by member states in applying their systems of regional aids and in which state aids are granted which qualify for Fund assistance' (EEC, 1975, p. 73/2).

Nevertheless, the enlargement of the European Communities and the sharpening of the economic problems from the mid-1980s made it necessary to increase the financial resources dedicated to regional policy and to modernize the applied methods, which was finally implemented in the budgetary period starting in 1989.

In Hungary, during the socialist decades, the regional inequalities decreased at the higher regional levels, while the differences between the towns and villages significantly increased and this was especially felt with respect to the infrastructural supply. The researchers have already warned of the problems of the rural regions in the 1970s, though actual steps by the government – mainly for ideological reasons – were taken only in the 1980s. The group of regions eligible for aids was first defined in 1985, when 573 settlements of the country got into this category.

The political change of regime and the transformation to market economy, however, resulted in a profound change in the conditions of regional development. The collapse of the COMECOM and the loss of the eastern markets caused several, earlier only hardly observable or not existing, socio-economic problems simultaneously. In a few years the Hungarian GDP decreased by 30%, and as a result of this the earlier hardly existing unemployment increased explosively (Nemes Nagy, 2001). The processes taking place, of course, had pronounced effects on the state of regional differences which can be summed up as it follows (Nemes Nagy, 1998). At first the development level of Budapest spectacularly moved above the other parts of the country and then, similarly to the other former socialist countries, the west-east development slope also appeared in Hungary and became more and more powerful. The third aspect of the regional differences is meant by the urban-rural dichotomy, though these differences are not significant in the more developed parts of the country, while they are very spectacular in the more backward regions.

These processes and problems confronted the decision-makers and the actors in regional development with considerable challenges, and appreciated the surveys focusing on the demarcation of beneficiary regions. Besides, after the change of regime – as a consequence of the endeavours to access the European Union – the influence of the Union became stronger in this area as well, and the legislators in Hungary were increasingly striving to take into consideration the methods applied by the European Union in the process of the demarcation of the regions to be supported by regional policy within the country.

The beneficiary status of certain regions was favourable for Hungary – similarly to the other European countries – primarily in two aspects:

– in the given period there existed subsidies which were available only in the given region for the local governments and ventures;

– in another part of the subsidies the intensity was bigger in the beneficiary regions than in any other regions in the country.

In the spirit of the above, the aim of this study is to demonstrate how the actual regional policy of the European Union and the demarcation method applied for the beneficiary regions in the European Union influenced the practice applied for the national sources in Hungary.

The basis of the research is partly constituted by the relevant Community and Hungarian legislations concerning spatial demarcation. Secondly – especially when studying the Hungarian situation – in the presentation of the development process of the territorial units the literature on this subject was also processed.

2. BUDGETARY PERIOD 1989–1999

Within the framework of the reform of the regional policy of the European Communities, the system of Objectives was introduced in 1989, and in the period between 1989 and 1999, the designation of the eligible areas was completed for Objective 1, Objective 2, Objective 5b and Objective 6 (EEC, 1988, 1993). Although a new budgetary period began in the European Union in 1994, hardly any significant changes were made to the demarcation.

The priority of Objective 1 was to promote the development and structural adjustment of regions whose development is lagging behind, mainly including those NUTS 2 areas whose *per capita* GDP, on the basis of the figures for the last three years, was less than 75% of the Community average.

Objective 2 covered the declining industrial areas, and those NUTS 3 regions were eligible to met the following conditions (EEC, 1988, p. 185/14; EEC, 1993, p. 193/11):

– the average rate of unemployment recorded over the last three years was above the Community average;

– the percentage share of industrial employment in total employment was equalled or exceeded the Community average in any reference year from 1975 onwards;

– there was an observable fall in industrial employment compared with the reference year chosen in accordance with the above condition.

In the budgetary period starting in 1994, certain changes could be observed in the case of Objective 5b in comparison with the 1989–1993 budgetary period (EEC, 1993). The most important one is that while between 1989 and 1993 the criteria for this Objective were not defined strictly (the following factors had to be considered inter alia: the number of persons occupied in agriculture, the level to which an area is peripheral and its sensitivity to changes in the agricultural

sector etc.), then in the period between 1994 and 1999 a definite progress could be observed. As a consequence of that, those regions received support from this source which had a low level of socio-economic development based on the GDP *per capita* and fulfilled minimum two of the following three conditions (EEC, 1993, p. 193/14):

– high share of agricultural employment in total employment;

– low level of agricultural income, in particular as expressed in terms of agricultural value added per agricultural work unit (AWU);

– low population density and/or a significant depopulation trend.

As a result of the enlargement of the European Union, Objective 6 was created in 1995 to handle the special problems of the new accession states (development of areas with a very low population density and promotion of their structural transformation) having NUTS 2 regions with a population density of 8 inhabitants per km^2 or less.

In Hungary, after the change of regime (in 1991 and 1992), two types of beneficiary regions were distinguished in the regional development support system (Government Decree 75/1991, 13th June) on the provision of state grants for regional development and for the creation of new jobs (Government Decree 75/1991) on regional development supports for job creation and development of backward areas). Firstly, the socially and economically backward settlements were defined taking into consideration nine indicators; and secondly, the employment districts (these districts constituted the territorial basis of the evolving labour administration) with high unemployment rate (double of the national average).

The first considerable change came in 1993 when even the Hungarian Parliament also addressed the topic (Parliamentary Resolution No. 84/1993, 11th November) on the guidelines of the subsidization of regional development and the conditions of the classification of favoured areas) and distinguished three types of beneficiary regions:

– socially and economically backward regions (here 11 indicators were taken into consideration) where the region meant the employment districts (their number at that time was 176);

– settlements in a socially and economically backward situation based on the above indicators;

– those employment districts where the unemployment rate significantly exceeded the national average in December of the year preceding the year concerned.

In Hungary, the first comprehensive reform of the beneficiary system was carried out in the mid-1990s. First of all, the statistical microregion (catchment area) defined by the Central Statistical Office was declared as the basic unit for the demarcation of beneficiary regions which correspond to the LAU-1 (former NUTS 4) category in accordance with the European Union system (the expressions *statistical microregions* and *regions* are used as synonyms from this point on). Secondly, four types of backward regions were distinguished (Parliamentary Resolution

No. 30/1997, 18th April) on the principles of regional development policies and decentralization, on the criterion system of the classification of beneficiary regions):

– those statistical microregions were classified as socially-economically backward, where the complex value calculated with the help of 28 indicators did not reach the national average;

– the regions affected by industrial structural transformation included those statistical microregions where the ratio of industrial employees in 1990 exceeded the double of the national average, and where the decrease in the ratio of employees in industry between 1900 and 1995 and the unemployment rate on 20 June 1996 exceeded the national average;

– those statistical microregions had to be listed in the category of rural development regions where the rurality/urbanity index was low, the employment rate in agriculture exceeded the national rural average at the time of the census of 1990, the personal income tax basis *per capita* was below the national average (in 1998 this was changed to 'below 90%'), and the unemployment rate exceeded the national average (in 1998 it was changed to 1.33 times of the value of the national average);

– those statistical microregions had to be classified as regions stricken by long-term unemployment where the rate of long-term unemployed in 1994, 1995 and 1996 exceeded the national average for at least two years (in 1998 it was changed to the following: the given index must be 1.33 more than the national average in all three years).

Besides – having regard to that possibility that as a result of a bigger settlement with more favourable conditions all the other settlements of a microregion might also be rejected from the category of beneficiary regions – the socially, economically and infrastructurally backward settlements, and the settlements with an unemployment rate significantly exceeding the national average were defined, and they also became regarded as beneficiary.

3. BUDGETARY PERIOD 2000–2006

During this period, the Objectives were aggregated in the spirit of concentration, and territorial demarcation could be observed only in the case of Objective 1 and Objective 2. The Objective 1 comprised the following regions (EC, 1999, p. 161/8):

– regions corresponding to NUTS level II whose *per capita* GDP, measured in purchasing power parities and calculated on the basis of Community figures for the last three years available on 26th March 1999, was less than 75% of the Community average;

– the outermost regions, which were all below the 75% threshold;

– the areas eligible under Objective 6 for the period 1995 to 1999.

The new Objective 2 brought together the former Objective 2 and Objective 5b, and as a consequence of the aggregation, the spatial demarcation of the Objective became extremely complex. Firstly, those NUTS 3 level regions belonged to this Objective where the 'average rate of unemployment over the last three years was above the Community average, a percentage share of industrial employment in total employment was equal to or greater than the Community average in any reference year from 1985 onwards and an observable fall in industrial employment compared with the reference year chosen in accordance with the former condition' (EC, 1999, p. 161/9).

Secondly, within the frames of Objective 2 those NUTS 3 level rural regions were supported which fulfilled at least one-one condition of the below listed condition pairs (EC, 1999, p. 161/9):

– 'either a population density was less than 100 people per km^2, or a percentage share of agricultural employment in total employment which was equal to, or higher than, twice the Community average in any reference year from 1985;

– either an average unemployment rate over the last three years was above the Community average, or a decline in population since 1985'.

The third group of the regions belonging to Objective 2 was constituted by the urban regions facing different problems (e.g. high crime and delinquency rate, particularly damaged environment) and having high population density, while the fourth group consisted of the depressed coastal areas dependent on fisheries.

The European Union, nevertheless, was also aware of the fact that the sudden termination of the subsidies might cause serious problems for the individual regions, and as a consequence of that, those regions which used to belong to Objective 1 or Objective 2 between 1994 and 1999, but fell from these categories between 2000–2006 as a result of their development, received temporary subsidies until 31st December 2005.

In the first half of the new millennium, no major modifications like the former classification could be observed in the Hungarian regional policy with regard to the beneficiary areas. The only more significant change was meant by the fact that the former four types of beneficiary regions were reduced to three in the spirit of concentration (Parliamentary Resolution No. 24/2001, 20th April) on the principles of regional development subsidies and decentralization, and on the criteria system of the classification of beneficiary regions) since the category of regions stricken by long-term unemployment has ceased to exist (this was partly also the consequence of the microregions of this category belonging to another category as well according to the calculations made in 1997 – Nagy, 2011). Besides, the category of temporarily (for 2001 and 2002) beneficiary regions was also introduced, which included the beneficiary regions of the former categorization, but not beneficiary statistical microregions according to the new categorization.

The following should be mentioned as minor changes:

– In the course of the demarcation of the socially-economically lagging behind regions only 19 indicators were taken into consideration instead of the former 28 indicators;

– In the case of the regions affected by structural transformation, the condition with regard to the industrial employees in 1990 lowered to one and a half times of the national average;

– Those regions where less than 50% of the population of the given area live on settlements with a population density over 120 people per km^2, the ratio of agricultural employees exceeded the national rural average at the time of the 1990 census, the personal income tax basis *per capita* was below the national average, and the unemployment rate exceeded the national average had to be listed among the rural development regions (in this case, therefore, the state of 1997 basically returned).

Similarly to the method applied during the second half of the 1990s, in the first half of the new millennium it prevailed as a requirement that the settlements which were lagging behind from a social-economic and infrastructural point of view, and are stricken by significant unemployment, must be regarded beneficiary from the aspect of regional development.

4. BUDGETARY PERIOD 2007–2013

During the 2007–2013 budgetary period, the regional policy of the European Union is basically grouped around three objectives (EC, 2006). In the case of the Convergence objective, four types were distinguished in the case of the areas belonging there.

Firstly, within the framework of the convergence objective mainly those NUTS 2 regions got access to support, whose GDP *per capita*, measured in purchasing power parities and calculated on the basis of Community figures for the period 2000 to 2002, is less than 75% of the average GDP of the EU25. Secondly, this priority also includes the so-called Cohesion Countries where the value of the GNI, measured in purchasing power parities and calculated for the period 2001 and 2003, is less than 90% of the European Union average for the same reference period. Thirdly, support is given for the NUTS 2 regions affected by the so-called statistical effect. Fourthly, this group also includes those former Cohesion Countries (meaning Spain) which cannot be later listed in this category, as a result of the lower European Union average GNI *per capita* value.

In the case of the *Regional competitiveness and employment* objective, two types of regions were supported:

– the NUTS 2 regions totally covered by Objective 1 between 2000 and 2006 whose nominal GDP level *per capita* will exceed 75% of the average GDP of the EU15, that is they are not omitted from Objective 1 due to the statistical effect (these are the so-called 'phasing-in' regions);

– those regions which belong neither to the new Convergence objective nor to the 'phasing-in' regions.

The *European territorial cooperation* objective is primarily intended to build on the experiences of the INTERREG Community Initiative, and aims at the harmonized and balanced development of the European Union. The objective – in line with the former INTERREG regulations – consists of three key areas.

Firstly, in the *cross-border cooperation* the NUTS 3 regions of the European Union along all internal and certain external land borders, and maritime borders participate. Secondly, the European Union finds it important to continue the *transnational cooperation* within the framework of which 13 cooperation zones designated by the European Commission are eligible for support. Thirdly, with respect to the *interregional cooperation* the Commission still found it important to establish relations and exchange experiences between regions in the different Member States.

The Hungarian classification system created in the second half of the decade terminated the formerly used sector-related beneficiary region types. Pursuant to the new regulation (Parliamentary Resolution No. 67/2007, 28th June) on the regional development subsidies and the principles of decentralization, and classification criteria for beneficiary regions), the microregions were ranked with the help of a complex indicator based on 32 indicators, and the regions below the microregional average got to the category of the disadvantaged microregions (94 microregions in total). From among the regions, those with the lowest indicator, which represented 15% of the total population of Hungary, became the most disadvantaged microregions (47 microregions in total). In the course of the further categorization, a decision was brought that those microregions which had the lowest indicator within the latter group, which represented 10% of the population of the country, had to be listed in a separate category, and a complex programme needed to be developed for them (33 microregions in total) and their development must be given high priority in the support.

Similarly to the former regulation, the category of beneficiary settlements still remained (including those settlements which were not located in the in beneficiary microregions, but were disadvantaged from social, economic and infrastructural points of view, and had an unemployment rate above the national average), and the category of the temporarily (until 31st December 2008) beneficiary microregions.

5. COMPARISON OF EUROPEAN UNION AND HUNGARIAN DEMARCATION METHODS

The analysis of the impacts of the demarcation methods used in the regional policy of the European Union can be made from several aspects.

It may be essentially established that Hungary endeavoured at taking into consideration the methods applied in the European Union during the elaboration of its national level regional policy, and in the spirit of this it modified the criteria system of the demarcation several times. These modifications were made in increasingly shorter periods relative to the entry into force of the new European Union specifications (1994 → 1997; 2000 → 2001; 2007 → 2007), which actually reflects the development of the adaptation ability of the country.

Similarly to the European Union, Hungary also endeavoured at creating a coherent system as a spatial background for the demarcation. As a consequence of the lack of the appropriate background, the process – like the European Union trends (difficulties in the creation of the NUTS system) – progressed slowly in the first years (years after the transition), and such a system, the level of microregions (the present LAU 1 level), was created only by the mid-1990s which later also provided a basis for the classification of beneficiary regions.

In Hungary, in addition to the microregions – similarly to the European Union (see European territorial cooperation – NUTS 3 level) – another territorial level was also used for establishing the beneficiary status (settlements – LAU 2): however, as opposed to the European Union, here the aim was to manage the problems resulting from the system of microregions and not to set up a separate support category.

Regarding the types of beneficiary status, significant differences may be still observed between the European Union and Hungary during the first half of the 1990s, which may be mainly traced back to the fact that the actors of the regional policy in Hungary did not have enough experience in this field, and as a consequence of this only the social-economic backwardness and the unemployment were set into the focus. From the mid-1990s, nevertheless, it was more and more realized that the backwardness could have various types, and – following the categorization applied in the European Union – besides the general social-economic backwardness the category of the regions stricken by industrial structural transformation and the category of rural development regions were also introduced.

Unemployment constituted one of the most significant problems in Hungary, and in the spirit of this, it is not surprising that for a certain amount of time this category also used to be a category forming factor, though – as we have already referred to that above – did not result in assigning beneficiary status for newer regions.

In the case of the three (four) categories concerned, however, it may be regarded as a Hungarian peculiarity that a microregion – as opposed to the European Union requirements – may be beneficiary for several reasons (table 1), and

the microregions belonging here were given supplementary financial allowances. It may be also regarded as a Hungarian peculiarity that from 2002 the category of the most disadvantaged microregions was introduced within the category of beneficiary microregions (from 2007 it was supplemented by the group of the most disadvantaged regions to be assisted by the complex programme), and the microregions belonging to this category also enjoyed further financial allowances.

Table 1. Changes in the most important data related to the category of beneficiary microregions in Hungary between 1997 and 2007

Year	A	B	C
1997	76	17	32
1998	88	9	36
2001	94	69	–
2004	95	77	–
2007	94	–	–

Explanations: A – number of microregions belonging to the category of beneficiary regions, B – number of microregions which are regarded beneficiary from two aspects, C – number of microregions which are regarded beneficiary from three aspects.

Sources: Government Decree No. 106/1997 (18th June) on the registry of beneficiary regions of regional development, Government Decree No. 19/1998 (4th February) on the register for the beneficiary areas of the regional development, Government Decree No. 91/2001 (15th June) on the list of beneficiary microregions of regional development, Government Decree No. 64/2004 (15th April) on the list of regions benefitting from regional development, Government Decree No. 311/2007 (17th November) on the classification of beneficiary regions.

Nevertheless, in Hungary the urban settlements were mostly characterized by a development level above the average, and as a consequence of that they never belonged to the category of beneficiary regions on subjective rights. In the European Union budgetary period starting in 2007 – following the trend beginning in 2000 – the system of sector-related classification ceased to exist, and the Hungarian system entering into force in that year also followed that.

Similarly to the European Union, Hungary was also aware of the fact that the abrupt termination of the beneficiary position might cause significant problems, and in the spirit of that, from 2001 onwards the category of temporarily beneficiary regions was created for the microregions that fall from that status (this happened only a little more than a year after a similar step was taken by the Union).

With regard to the indicators used for the demarcation of the regions belonging to the category of beneficiary regions it meant an essential difference that on the level of microregions there was no possibility to calculate the gross domestic product, and as a consequence of that, endeavours were made to develop a system relying on several indicators to calculate the general social-economic backwardness (table 1).

In the case of the other two categories of beneficiary regions, however, considerable similarities could be observed regarding the concrete indicators. In the case of the regions affected by industrial structural transformation, both in the European Union and in Hungary, the ratio of industrial employees within the total number of employees, the changes in the ratio of the industrial employees, and the unemployment rate were applied, although of course the concrete reference values and time intervals differed.

In the course of the definition of the rural development regions both in the European Union and in Hungary the ratio of agricultural employees and the population of the area concerned were taken into consideration. Nevertheless, it may be regarded as a difference that in the Union the low income referred only to agriculture (being valid until 1999), while in Hungary to the total income. Besides, in the European Union the depopulation of the rural areas was taken as a serious problem, and therefore their depopulation was regarded as an indicator, while this indicator in Hungary played an important role in the demarcation of the socially-economically lagging regions. It may be regarded as an interesting fact, however, that the unemployment rate, as an indicator used for demarcation in the case of this type of region in Hungary was introduced already in 1997, while in the European Union it was first taken into consideration only in the budgetary period starting in 2000.

6. CONCLUSIONS

As a conclusion, it may be established that the actors of the Hungarian regional policy endeavoured to take into consideration the European Union trends during the demarcation of eligible areas in the course of the elaboration of the national level regional policy. This phenomenon may be observed especially from the second half of the 1990s, and can be regarded very remarkable with respect to the designation of the types of beneficiary regions, and the indicators used during the demarcation. From among the differences, most of all the bigger weight of unemployment in Hungary, the application of different beneficiary stages (for example, microregions being beneficiary for three reasons, most disadvantaged microregions) and the neglecting of urban areas in Hungary must be mentioned.

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DECENTRALIZATION OF ECONOMIC ACTIVITIES IN THE METROPOLITAN AREA OF SPLIT

1. INTRODUCTION

It appears that the spatial structure of metropolitan areas across the world is undergoing substantial changes. To a large extent, those changes in the structural evolution of metropolitan areas are driven by the fact that central cities are expanding their footprint into their surrounding areas. Large metropolitan areas, according to Ingram (1998), are converging to more similar decentralized structures with multiple sub-centres, decentralized manufacturing and services employment. Similarly, Hoover and Giarratani (1999) point to the rapid sprawl and coalescence of originally discrete cities and towns into larger metropolitan complexes. Metropolitan areas typically have a number of sub-centres which combine to form a polycentric development pattern. It seems that decentralized multinuclear aspect is becoming a basic characteristic of the urban development pattern.

The location of economic activity has preoccupied economists' minds for a very long time. The phenomenon of increased concentration has been examined thoroughly during the last decennia both in the US and in Europe. The New Economy is focused on the appearance of an explanation for increased agglomeration, since many studies have suggested that companies tend to locate closer to each other. The process of decentralization, on the other hand, has been somewhat less studied. However, in recent years, some empirical studies have showed that economic activities (even typically central ones) have been decentralizing, i.e. gradually shifting from central urban areas to the suburbs. Due to this phenomenon some

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of the classical stylized facts of urban economics based on the monocentric city structure may no longer hold.

This paper is organized as follows. The subsequent section gives an overview of factors that might have an influence on the (de)centralization of economic activities within metropolitan area. The third section presents Split metropolitan area and methodological issues encountered in defining its boundaries. Different parameters of the decentralization of economic activities in Split metropolitan area are presented and discussed in the fourth section. In the final section, we conclude and discuss the implications of our findings and the limitation of the study.

2. THEORETICAL PERSPECTIVES ON (DE)CENTRALIZATION OF ECONOMIC ACTIVITIES

The attractiveness of central urban areas for the location of industry and services stems from different locational factors. The concentration of economic activities, its causes and consequences, has been the central issue of spatial economics. Prior to the establishment of the New Economic Geography, the location of economic activities has been exogenously treated, across given spatial distribution of natural endowments and/or technologies. This strand of literature holds that economic activity will be spread or concentrated over space according to the spread or concentration of these underlying features. However, along with the advances in analytical tools in economics in past three decades there has been a revival of spatial issues in economics. Much of this is due to establishment of the New Economic Geography. Within this strand of literature location is endogenous, determined by a combination of decreasing trade costs and increasing returns to scale combined with the spillovers stemming from the proximity to other economic agents. Access to markets for goods becomes an important determinant of the location of economic activities. Indeed, this approach to economic location and agglomeration has been used to explain the growth of cities around the world. According to Krugman (1995), production is concentrated in the city largely because high transportation costs to city from elsewhere in the country push people to the city as consumers and push firms there as producers. More precisely, certain centripetal forces tend to pull population and production into agglomerations. Among those forces, he points to natural advantages of particular sites, market-size external economies (access to markets – backward linkages, access to products – forwards linkages and thick labour markets) and pure external economies (knowledge spillovers). Hence, factors contributing to the attractiveness of central areas, such as possibility of face-to-face contacts, backward and forwards linkages, experience and idea sharing, realization of agglomeration

economies etc., all work as concentration-enhancing factors. Glaeser and Kahn (2001) argue that the primary force enhancing centralization in central areas seems to be the urban advantage in speeding the flow of ideas.

Recent trends, however, indicate that much of the inherently centralized economic activities have started to re-locate into suburban areas. It seems that deconcentration-enhancing factors pull people and economic activities from the centre concentration to low-density surrounding areas. Krugman (1995) refers to those factors as centrifugal forces (market forces: commuting costs, urban land rent, pull of dispersed resources, and nonmarket forces: congestion, pollution). Jensen (1996) particularly points to market forces, arguing that metropolitan decentralization is a natural outcome of the spatial market in operation where the concept of resource migration becomes a basic and natural part of the dynamics of the space-economy. Higher costs associated with congestion, higher rents and wage costs drive basic and manufacturing industry away from the most congested areas and high land value areas (Jones, 2000). Hence, economic activities, foremost manufacturing industry, might have strong motives to decentralize their industrial units and buildings to metropolitan hinterlands.

In this paper we do not analyze the location decisions of households. Instead, we focus on the location of economic activities within the metropolitan area. However, in a model with centralized employment, we might argue that the suburbs would be attractive choice for those households that prefer more affordable larger homes and other suburban amenities. Households' preferences are nowadays more inclined towards more spacious residence units. Further, the households' disposable incomes and automobile usage rates have been increasing. Additionally, hinterland is more environmentally preserved and healthier area to live in compared to the core of the city. Indeed, many empirical studies document a substantial suburbanization of the households. This phenomenon can be also seen as a factor contributing to decentralization of economic activities. In this story, job decentralization occurs when the benefits of being near decentralized labour force are sufficiently high compared to the benefits of being located in urban centres. The endogeneity between the location of workers and jobs makes it difficult to hypothesise on the causation direction between the two, i.e. whether jobs follow workers or vice versa. Some authors argue that it is much more likely for economic activities to follow the locational preferences of their workers than to determine them. Population and employment track each other well, and according to Glaeser and Kahn (2001) workers' residential preferences appear to be extremely important for the locational decisions of economic activities.

In their paper, Donghwan *et al.* (2002) show that most firms no longer have to seek locations in traditional high-density centres to achieve agglomeration economies; they can either do without them or find them in low-density regions. There are other possible benefits to firms of decentralization, including underused local transportation capacity in outlying areas, better access to key transport nodes

to external markets, reduced parcel assembly and demolition costs, lower labour unionization rates, lower taxes, and proximity to other suburbanizing firms and residents. Additionally, the benefits of deconcentration are expanded by increased connectivity and technological progress, including transportation and telecommunication developments. Access to and from hinterland is nowadays facilitated by the development of transport networks, which are intrinsic causes of expanding cities. New transportation investments, in particular motorway construction, can be a powerful stimulant for new development and deconcentration. The de-coupling of back-office from headquarters operations made possible by low-cost communications makes it possible for some firms to co-locate in core areas and in the periphery. Further, the congestion confronted in accessing the dense concentration has also contributed to decreased attractiveness of central locations.

Among other factors that can have an effect on firm's decision to decentralize are local governments' (business-friendly) policies. It is not yet obvious if central cities are more business friendly, compared to adjacent peripheral municipalities. However, it seems that it is small peripheral municipalities that undertake more business friendly policies, given that they have administrative power to carry out such policies (or that they are supported by the central government). Namely, many of those traditionally agricultural and underdeveloped municipalities have been tempted to relax controls on the development of agricultural land and offer tax benefits to commercial and industrial enterprises to invest and locate in the municipality. This has increased the supply of land in the surrounding areas, making it easier for investors and households to find the desirable parcel. Moreover, to increase the availability of the land for business purposes, many countries, Croatia in particular, have proclaimed the beneficial effects of business zones located at the outskirts of large cities. By different policy instruments, national governments have stimulated the establishment of such zones. Glaeser and Kahn (2001) find that political boundaries do impact employment density, which suggests that local government policies significantly influence the location of industry. Some firms might decentralize to receive a different bundle of public goods.

Mainly due to data unavailability, fewer studies have examined the spatial distribution of employment than the spatial distribution of population in cities. However, those studies that have been carried out in the past three decades indicate that there is a marked tendency for employment to decentralize – the proportion of jobs in the centre falls over time and most new growth in employment is located out of the centre (Ingram, 1998). Glaeser and Kahn (2001) examine the decentralization of employment using zip code data on employment by industry. The central finding is that most American cities are decentralized, with on average less than 16% of employment in metropolitan areas being located within a three mile radius of the city centre. They analyze factors that drive the suburbanization of industry, such as land costs, access to ideas, access to workers and transport savings for inputs and outputs. Their findings indicate that predicted

worker suburbanization is the best predictor of industry suburbanization. On the other hand, De Bruyne (2002) finds that in Belgium employment decreases as one moves away from the centre, which is in line with the predictions of the New Economic Geography literature.

3. THE METROPOLITAN AREA OF SPLIT – DEFINITION AND SPECIFICATION

Most developing countries, including Croatia, are undergoing major demographic transition, with economic, social and technological modernization leading to falling death rates and rapid population growth, this all fuelling the urbanization process. Also the largest Croatian coastal city, the city of Split, has been undergoing major transformations, particularly during the last two decades. These changes encompass all the spheres of the socio-economic reality, with the most important being the transition from centralized to market-oriented economy. The process of transition in the 1990s to a large extent has rendered most of the Croatian cities in institutional vacuum without any clear vision and strategic plan of development. This has given rise to somewhat destructive and impeding processes, particularly in the urban spatial development and planning sphere. However, in recent years, some institutional and political attempts from central and, in some cases, local governments were made to reverse these negative trends.

When addressing issues of the urban development of the city of Split, we believe that it is of major importance to consider its metropolitan, rather than administrative boundary (figure 1). Namely, in reality cities flow imperceptibly across administrative boundaries and there are strong multidimensional links between the centre and adjacent municipalities. The establishment of metropolitan area is an important prerequisite for an analysis of urban trends, since statistics based on administrative boundaries will not reflect, in most cases, the actual role played by a city. Unfortunately, the existing regional and local spatial plans are ignorant of the ongoing process of metropolitanization and even more of metropolitan decentralization. At the same time, the responsibility for land use management remains divided between different administrations and this fragmentation of management, frequently exacerbated by the political tensions of neighbouring administrations, may lead to incoherent and uncoordinated land use management. There is no all-embracing and comprehensive spatial plan of the whole metropolitan area, which is an essential precondition for the analysis of the urban dynamics and coherent strategic planning.

For the purpose of this study we define ‘imaginary’ boundaries of the metropolitan area of Split. The establishment of metropolitan area boundaries, however,

is a subject of many debates. There is no universal definition of the metropolitan area. For that matter, there is no strict definition of a city or city centre, which complicates the attempts to define the metropolitan area properly. Here, we adopt the common practice of drawing the boundary around area in which people daily commute. More precisely, a simplified model of distance related to travel time is employed. Using a travel time of 60 minutes, a radius from the central city can be drawn, which varies according to mode and efficiency of transport, but which for the purposes of this study is defined as 40 km.[1] The further away from the centre we go, the less strong and frequent are links and daily communication between the centre and periphery. No matter how good the transport connections, travel time places absolute constraints on how far people will travel on a regular basis (Jones, 2000). All people ultimately have time constraint beyond which commuting is not viable. Hence, a larger radius would make less sense.

This results in functional urban area where the core of the metropolitan area (the centre of urban region) and the peripheral areas (the adjacent municipalities) are closely interwoven. Instead of 188,000 inhabitants of the administrative central area, metropolitan area is populated by 348,288 inhabitants (*Statistical Yearbook*, 2001). Geography of the metropolitan area of Split makes sprawl somewhat difficult. It consists of three 'belts': inland, coastal zone and islands. These belts are separated by mountainous barriers and sea, which created climate differences, influenced communication channels and the way of living.

As for the location of economic activities, up to the end of the 1990s there was aggregation of businesses, workplaces and functions in the very centre of the metropolitan area. This pressure has resulted in congestion and deterioration of living conditions in the city of Split. On the other hand, abandoned peripheral areas have been characterized by low economic activity, but healthy and unspoiled environment. This dichotomy has contributed to creation of inequality and imbalance, which resulted in deep disparities between the centre of the metropolitan area and its hinterland. Due to lack of integrative spatial and economic planning of the metropolitan area, entrepreneurs willing to relocate their business in the hinterland were often faced with administrative obstacles, poor regulatory environment, unsolved claims of ownership and reluctance of local authorities to cooperate. However, over time and particularly in the last ten years, there have been some changes that have enabled important economic activities to migrate to the edge of the agglomeration. A major precondition and strongest factor that contributed to revitalization of the hinterland is the new infrastructure, notably a motorway that was built in 2005.

[1] As a basis for our analysis we use an hour public-transport driving distance from the city centre to establish the metropolitan boundary. The rationale behind this method is the assumption that people living in the peripheral areas daily use public transport to commute to the city centre.

Fig. 1. The metropolitan area of Split
Source: Šimunović *et al.* (2003), pp. 97–109

4. THE METROPOLITAN AREA OF SPLIT – DECENTRALIZATION OF ECONOMIC ACTIVITIES

In what follows we analyze the extent of decentralization of economic activities in the metropolitan area of Split. Ideally, to arrive at a measure of decentralization, we would use data on employment of each economic unit located at different points within the metropolitan area and calculate the proportion of those located outside the central city. Unfortunately, such data do not exist for the metropolitan area of Split. The non-availability and poor quality of statistical and spatial data restrict our ability to investigate this issue more thoroughly. We are left with no other choice, but to employ alternative indicators, which are, admittedly, only a crude measure

of the extent of the decentralization of economic activities, but still show the basic pattern of declining centralization.

We divide the metropolitan area in the central core area and peripheral surrounding area and look at the number of registered firms and their revenues within those two fractions of the metropolitan area. Given that such data are not available for the time period prior to year 2002, we are not encouraged to do more rigorous time series analysis due to too few observations. In 2002, 70% of total active firms in the metropolitan area were located in the central area. Correspondingly, 74% of all metropolitan firms' revenue was earned in this fraction of the metropolitan area. Those figures indicate centrality of economic activities and the prevalence of the central fraction of the metropolitan area. However, by the end of 2007, the number of firms located in the surrounding area increased significantly. Namely, in the period 2002–2007, total number of active firms in the central area increased by 51%, while the respective increase in the peripheral area amounted to 71%. More precisely, in 17 out of 23 peripheral municipalities that the metropolitan area is consisted of, the increase in the number of active firms was larger compared to the respective increase in the number of firms located in the central area. In some municipalities, for instance, the number of registered firms increased by 460% (Sutivan) or 635% (Okrug). Those figures suggest that the growth of the number of firms and their revenues was faster and larger in the peripheral fraction of the metropolitan area (surrounding area had 38.7% higher rate of growth of the number of firms and 97% higher rate of growth of the total revenues of the firms).

To summarize, while the total number of registered firms in the metropolitan area increased in the whole metropolitan area, this increase was larger in the peripheral than in the central area. Although a very high proportion of the total number of firms is still located in the centre (67%), there is an important indication that the decentralization process of economic activities within the metropolitan area of Split has been started (table 1).

Table 1. The number and the revenue of the firms in the core, peripheral and metropolitan area of Split

Year	Core area	
	total number of active firms	total revenue of firms (M kn)
2002	5,597	20,025
2007	8,467	28,581
Relative change (02–07)	+ 51%	+ 43%
	Peripheral area	
	total number of active firms	total revenue of firms (M kn)
2002	2,393	6,600
2007	4,091	12,154
Relative change (02–07)	+ 71%	+ 84%

Table 1 (cont.)

Year	Metropolitan area	
	total number of active firms	total revenue of firms (M kn)
2002	7 990	26 625
2007	12 558	40 735
Relative change (02–07)	+ 57%	+ 53%

Source: FINA (2004, 2009).

5. CONCLUSIONS

We assume that analysis of decentralization of economic activities (relocation of the economic activities from central areas to periphery) is one major source contributing to the urban decentralization and sprawl. This important issue is, however, largely ignored in the economic and spatial planning of Croatian cities. This paper aims at clarifying and exploring the decentralization of economic activities in one of the largest metropolitan areas in Croatia; namely, the metropolitan area of Split. Using data on the total number of firms that are located in the central and peripheral fraction of the metropolitan area of Split, we have demonstrated that there are some indications of the process of decentralization; despite as yet predominant role of the centre.

In order to accomplish more compact city policies, some relocation of centrally located economic activities, in response to land market forces and life stage demands, and to relieve central overcrowding is inevitable. Thus, spatial development policies at the metropolitan regional scale that effectively contain urban sprawl are necessary. An improved understanding of metropolitan development continues to be critical to urban policy-making, particularly in low-income countries. One important implication of the decentralization of population and economic activities is, for instance, that increases reliance on road-based transport for both passengers and freight.

Although only highlights of this complex topic are discussed in this paper, they are revealing. Many loose ends remain, suggesting numerous ways to refine and extend our understanding of the relationships between city centre and peripheral surrounding areas. Further research should extend the analysis by the consideration of job location patterns by type of industry as well as by size, since we may expect, for instance, the large manufacturing plants to be more decentralized. On the other hand, certain types of skill-intensive and idea-intensive economic activities, such as finance, law and other activities which require good communication and face-to-face contact, are expected to be more centralized. In light of this argument, Kolko

(1999) argues that cities that specialize in services are relatively centralized, while cities that specialize in manufacturing tend to sprawl.

Finally, we would like to point to certain side-effects of the decentralization of economic activities. Namely, it is typically abandoned or idle agricultural land adjacent to existing urban areas that is ideal for urban expansion. Of course, the loss of agricultural land has major adverse impacts on biodiversity. Increasingly urban sprawl has come under criticism from a myriad of groups for the environmental, economic, and social problems associated with its unregulated and unrestrained growth. Leading scholars also argue that suburbs leave their residents isolated and alienated, in part as lengthening commutes leave less time and energy for social interaction.

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AGE MANAGEMENT – A REMEDY FOR POPULATION AGEING?

1. INTRODUCTION

Population ageing is one of the major challenges of modern Europe. This necessitates a greater inclusion of people aged 50+ in the labour market. In this context, very low economic activity of Poles (especially women) nearing retirement is a huge challenge faced by the Polish economy and Polish enterprises. One of the main directions of supporting economic activity of senior people is age management.

The subject of this study is the evaluation of efforts to promote maintenance of senior people in employment. The authors refer to empirical studies on the labour activity of people at pre-retirement stage. The aim of this study is to present instruments of age management and their use by Polish enterprises.

The paper was prepared within the project *Equalisation of Opportunities in the Labour Market for People Aged 50+*, conducted by the Human Resource Development Centre partnered by the University of Łódź, co-financed by the European Union within the European Social Fund.

2. GENERATION 50+ ON THE LABOUR MARKET – POLAND VS. OTHER EUROPEAN UNION COUNTRIES

A rapid process of population ageing can be observed in Europe over the last three decades. In 2010, 17.4% of the EU-27 was aged at least 65, while in Germany and Italy this percentage was over 20%. Polish society is relatively young – the

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percentage of people aged 65+ in 2010 was 13.5%, while the median age reached 37.7 years (compared to EU median 40.9 years) (Demography Report 2010, p. 63). However, even in Poland, unfavourable demographic trends can be observed. In 1995–2010, the number of working age people increased by over 1.8 million. The group which grew most from 2000 to 2010 (by 15.4%) was composed of people of immobile working age (see table 1).

Table 1. Trends of changes in Polish population by economic age groups in 1995–2035

Population	1995	2000	2004	2010	2010–2015	2015–2020	2020–2025	2025–2030	2030–2035
	number of people (thousand)				predicted changes in the number of people (thousand)				
Total	38,284	38,254	38,174	38,200	–75.9	–186.2	–391.8	–642.1	–803.0
at:									
Pre-working age	10,180	9,333	8,087	7,140	–189.5	41.5	–143.0	–563.9	–620.5
Working age	22,809	23,261	24,240	24,615	–852.8	–1215.2	–877.6	–370.6	–515.0
Mobile (18–44)	15,307	15,281	15,257	15,334	–288.7	–933.0	–1249.5	–1198.4	–789.9
Inmobile (45–59/64)	7,503	8,043	8,983	9,281	–564.1	–282.1	371.9	827.8	274.9
Post-working age	5,295	5,660	5,847	6,445	966.4	987.5	628.8	292.4	332.6

Source: Local Data Bank and *Demographic Yearbook of Poland* (2011), p. 153.

Eurostat's population projections foresee that the ageing process will continue in future decades. According to Eurostat, in non-immigration variant, by 2060 the size of EU-27 working age population (aged 15–64) will decrease by 33%, while the number of people aged at least 65 will increase by 64.3%. The median age in UE-27 is projected to rise to 47.9 years by 2060, and the age dependency ratio – to 95.5% in 2060 (Demography Report 2010, p. 65). In Poland, a quick increase in the levels of dependency ratio, predicted to start in the next decade, will result from the increase in the number of post working age people (in 2035, the dependency ratio is estimated to be 74; there will be 46 people of post productive age and 28 people of pre productive age per 100 people of productive age). This significant increase of demographic burden with subpopulation in post-productive age determines the need for action aimed at delaying the exit from the labour market (at present the average age of exit from the labour market and starting retirement or disability benefit by men and women is around 59 years compared to the EU-27 average – 61.4 years according to Eurostat).

The progressing ageing of labour force is currently one of the most important determinants of the situation on the labour market. As table 2 shows, Poland – together with Hungary, Latvia, Portugal and Malta – is among the countries

with the most difficult situation of people approaching senior age in the labour market.[1]

Table 2. Classification of the European Union countries – qualitative and quantitative approach

Classification by social capital level		Classification by synthetic coefficient	
Group I	Denmark, Finland, Sweden	Group I. The best situation of people aged 45+	Denmark, Netherlands, Sweden, United Kingdom
Group II	Austria, Belgium, France, Germany, Ireland, Luxembourg, Netherlands, United Kingdom	Group II. Good situation of people aged 45+	Austria, Czech Republic, Cyprus, Finland, Germany, Ireland, Luxembourg,
Group III	Cyprus, Greece, Italy, Malta, Portugal, Spain	Group III. Rather poor situation of people aged 45+	Belgium, Bulgaria, Estonia, France, Greece, Italy, Lithuania, Romania, Slovakia, Slovenia, Spain,
Group IV	Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia	Group IV. Difficult situation of people aged 45+	Hungary, Latvia, Malta, Poland, Portugal

Source: own elaboration on the basis Szukalski and Wiktorowicz (2011).

The low position of Poland in the ranking presented in table 2 results from particularly low economic activity rates of people in pre-retirement age group – only 49.2%. In the age group 55–64 in the EU-27 this ratio is 49.7% (58.9% for men and 41.1% for women). In Poland, the rates are much lower – 36.7%, including 48.9%

[1] This classification was based on a synthetic ratio, developed according to the methodology proposed by J. Drewnowski (OECD 2008). As diagnostic variables the following indicators were adopted (for 2008–2009): economic activity rate at the age of 50–64 (in %), average labour market exit age, long-term unemployment in the age group 55–64 (% of those unemployed in a given age group who have been out of work for more than 12 months), the unemployment rate at the age 50–64 (% of active population), the employment rate 50–64 years (% of people in that age group), people with secondary or higher education aged 55–64 (as % of people in this age group), participation in any form of education claimed by people aged 55–64 (% of participants), participation in formal education by people aged 55–64 (% of participants among total number of people in this age group), self-assessment of health condition by people aged 55–64 in 2008 (% of total 'good' and 'very good' responses), people with chronic diseases or health problems as % of employees aged 55–64 (% of total employed at this age), the ratio of median income at the age 50–64 to the median income for total population, at risk of poverty rate of people aged 60+ (% of people with income below 60% of median income), risk of poverty rate of employees aged 55–64 in 2008 (% of people with income below 60% of median income). The list of variables was proposed by Szukalski and Wiktorowicz (2011).

for men and only 25.9% for women (for women aged 55–59 – 36.3%, according to BAEL 2011). This places Poland at the bottom of the ranking (only Malta, and from 2010 Slovenia are lower ranked). Still less favourable is Poland's position in terms of employment among the population aged 55–64. The employment rate in this age group has reached the median of 34%, of which only 24.2% for women (compared to the average 46.3% for EU-27, of which the rate for women is 38.6%). It should be noted though that positive trends have been observed in the EU-27 as well as in Poland, which is reflected in the increase of both these indicators.

It should also be noted that in terms of social capital, which provides the social, cultural and institutional context for the situation of people nearing senior age in the labour market, Poland is similar to other countries in our region, and also to the countries of Southern Europe, while the largest distance divides Poland from the Scandinavian countries. Looking for patterns in the field of age management in enterprises, one can therefore expect that the most adequate to the Polish conditions are the solutions proposed by companies in the countries of Central, Eastern and Southern Europe.

3. MEASURES TO MAINTAIN SENIOR WORKERS IN EMPLOYMENT – THE ROLE OF AGE MANAGEMENT

The issue of active ageing is widely addressed by EU institutions. The desired directions of measures to improve the disadvantaged situation of population nearing senior age include maintaining economic activity of employed people. According to Europe 2020 Strategy, the employment rate of people aged 20–64 years should increase to at least 75%, also due to increasing the number of working senior people (Europe 2020, 2010). In light of the recent findings, the most effective strategy for solving the problem of ageing population in Europe is considered to be the widest possible use of existing employment potential, which in turn requires common implementation of policy for creating opportunities for participation in the labour market. This policy covers shaping of work conditions adjusted to the needs of senior workers, developing professional education, training and development plans, creation of high-quality and high-efficiency jobs, providing effective social security systems and adoption of multifaceted measures for reconciliation of professional and family life etc. (European Economic and Social Committee, 2011). Activities in this field have also been included in the 'Solidarity of the Generations' programme implemented in Poland (since 2008), focusing on measures to increase the work activity of people aged 50+. The programme provides multifaceted support for the economic activity of people of pre-retirement age, so that by 2020 the

employment rate for people aged 55–64 reaches 50%. One of the directions of the actions taken is age management.

Age management is an approach to personnel management in the organization, taking into account age, the ageing process and life cycle of individuals, in order to create a working environment favourable to employees of all ages, allowing the use of their capabilities and satisfaction of their needs (Walker, 1998, 2005; Eurofound, 2006b, 2011; OECD, 2006; Urbaniak, 2007; Silverstein 2008). It involves a set of activities within the company which allow rational and efficient use of available human resources, including senior workers (Litwiński and Sztanderska, 2010, p. 7). Age management can also be defined as part of personnel policy which covers activities and practices addressed primarily at older workers (Mól, 2008, p. 5). The challenge for enterprises in their human resources management consists of shifting from management by age to a management where all generations work together and learn from each other. Enterprises must be attractive for older workers, so that they see the extension of their professional life as a fulfilling opportunity that adds value to their skills rather than as an obligation. If a business can offer its employees a satisfying career regardless of their age, if it is able to invest in their training and in the development of their skills at any age and until the end of their career, employees will find the motivation to stay committed to their work for a longer period of time (Descamps, 2011, p. 21). What is more, employment of representatives of different generations, aiming for a balanced age structure, enables organisations to respond better to changing market conditions and adapt products to the customers of different ages (Liwiński and Sztanderska, 2010). It should be remembered that the average age of the clients of our services and products is steadily growing. This lays foundations for a more dynamic development of the so-called silver economy. Teams consisting of members in diverse ages are more productive and creative, solve problems faster, and working in them prevents routine.

Age management also allows reduction of costs associated with additional labour costs being the consequence of unbalanced age structure of the staff. This implies increasing both older and younger employees' motivation to work due to good working atmosphere and reducing inter-generation conflicts as well as reduction of labour costs, for example, by lower absence of senior workers, obtained due to health prevention and adaptation of working time to the needs of workers aged 50+, reducing business costs through transfer of knowledge and experience to younger workers from their older colleagues (ARF, 2010, pp. 49–50).

The combination of experience and competence of the seniors and enthusiasm and new skills (e.g. in IT) of younger workers brings the effect of synergy – solutions worked out together are more innovative, while productivity also increases (Jaros *et al.*, 2011, p. 203). Moreover, in some cases, older workers, precisely because of their age are more desirable employees. It is crucial to retain in a company invaluable pragmatic knowledge of older workers, which is the result of theoretical

knowledge filtered through years of practical experience and the possibility of its transmission to younger generations.

What action then should be taken by companies that want to introduce age management? Age management involves recruitment and education, training, development and professional-work advancement, promotion and internal transfers among positions, payment policy, health prevention, ergonomics and work organisation, flexible forms of employment, termination of employment policy, and changing attitudes towards elderly employees (see: Litwiński and Sztanderska, 2010, pp. 23–25).

Falling worker efficiency can be partially balanced by modifications in work organisation, proper training, action in the field of health prevention and more effective use of technologies related to a job position. Main age management tools include customised to the needs of mature workers way of work organisation and its management by employers. Companies must introduce innovative forms of work organization to retain valuable employees and prevent them from early leaving, and also use other measures to enable older workers to work efficiently. Increase in employment opportunities through the use of flexible forms of work organization – such mobile and remote working, job sharing, part-time and telework – can and should translate into a more flexible approach to retirement. Another aspect, whereby the employability of workers may be preserved, is raising the skill level through education and training.

Investment in lifelong education and training cannot only help fill gaps resulting from leaving of older workers, but also – by increasing workers' flexibility – provide them with protection against the risks of potential job loss. These activities are usually associated with the use of solutions, such as mentoring, tutoring or coaching. In case of senior workers, not only investing in their education is particularly important, but also using their knowledge and experience in training of their younger colleagues, which contributes to intra-organisational learning, thereby increasing business competitiveness. Intergenerational transfer of knowledge should be followed by: (1) mentoring and coaching by employees, (2) job sharing between employees who may be staying and those who may be leaving, (3) job rotations and shadowing, (4) handovers through planned arrangements, such as phased retirement, and (5) team-based approaches to managing long-term projects (Greenes and Piktialis, 2008).

4. AGE MANAGEMENT – EXPERIENCES OF POLISH ENTERPRISES

Age management is still a novelty in Polish conditions. As results from the few national-level studies on this issue (ASPA employer survey, 2011), only 7% of companies (including 10% of the public sector and 5% of the private sector)

assessed the rules of age management as very clearly defined (the remaining 17% indicated the answer 'rather yes'). What is important, as many as 20% of enterprises do not implement age management at all. Moreover, the repertoire of age management tools used by Polish companies is limited. Every third company implements ergonomic solutions for senior workers, one in three directs 50+ employees to trainings. It is also worth noting that 29% of companies use flexible working hours, and 26% – support mobility within the enterprise. The solution with the greatest potential seems to be supporting mobility of workers aged 50+ within the organization – half of the companies indicated that it may be applied in the future.

It is also worth noting that it is difficult to talk about a comprehensive approach to age management in Poland – more than half of the companies have at most one solution, while only 14% of companies use at least four. Research shows clearly the lack of age-management culture in Polish organizations. Comparing the results of a survey conducted in the framework of ASPA in Poland with other countries (see table 3), it is clear that the situation in this area is highly diversified.

Table 3. Age management measures used by enterprises, by country (in %)

Specification	Denmark (n = 609)	France (n = 500)	Germany (n = 892)	Italy (n = 770)	Netherlands (n = 1077)	Poland (n = 1037)	Sweden (n = 525)	UK (n = 875)	Total (n = 6285)
Development									
Continuous career development	27	36	35	9	25	22	23	8	21
Training plans for older workers	7	46	18	2	8	37	7	44	20
Utilization									
Promoting internal job mobility	20	38	13	13	16	27	29	27	21
Maintenance									
Flexible working hours	–	25	45	12	32	29	42	–	30
Ergonomic measures	28	28	20	5	28	38	32	31	26

Source: ASPA (2011).

In all researched countries employers most frequently implemented flexible working hours as a measure intended to accommodate older workers (Poland is

a little below the mean). Among the age management tools, training plans for older workers, ergonomic measures and promoting internal job mobility are clearly more frequently used in Poland. It is worth pointing to a high rate of early retirement or part-time retirement in comparison to other countries (especially in comparison to the UK and Denmark).

The research carried out several years earlier shows that every third company does not use any solutions in this field. Only about 10% of employers use strategies to keep older workers, and less than 5% – strategies of their recruitment (Ageing Workforce Conference, 2011). Many employers do not monitor the age structure of their staff – they do not know the number of people who retired over the last three years, nor how many people are in the pre-retirement age (MPiPS, 2008).

As mentioned earlier, Poland lacks comprehensive studies on age management. It is, however, worth relying on partial results of studies covering this issue to a minor extent. They lead to the following conclusions:

1. Work Ability Index – WAI is significantly higher if the organization implements varied age management tools (project *Labour Market and Unemployed People Aged 50+. Opportunities and Barriers*, Operational Programme Human Resource Development – OP HC).

2. Employees aged 45+ who are most often involved in trainings are those who are better educated and possess relatively high qualifications; they are mostly the younger individuals from the age group 45+ (project *Older People on the Labour Market in Kujawsko-Pomorskie. Development Trends and Activation Opportunities*, OP HC).

3. People aged 45+ significantly less often than younger people feel the need for further professional development, their expectations for flexible working time and working from home are similar, however, they value to a larger degree independence and adaptation of work to their professional skills (project *Social Diagnosis*, OP HC).

4. Senior workers are not discriminated in the area of training, however, they take part in them relatively rarely (just as representatives of other age groups) (project *Opportunities and Barriers to Employment of People Aged 45+ in Pomorskie Province*, OP HC).

5. Career development of employees aged 45+ significantly benefits from cooperation with job coach – individual job counsellor who together with the employee develops individual career plan and support the employee during its realization; job coaching brings particularly good results when the job coach comes from the same enterprise (e.g. a person aged 45+ who acquired new qualifications when endangered with losing the job) (project *Alliance for Work,* EQUAL Community Initiative Programme).

6. Companies lose much the moment older employees retire – no transfer of knowledge can lead to disorganization of the company, destabilise business

processes and extend the process of introducing new/younger employees; companies lose much of the accumulated knowledge and lose role models. The most common form of knowledge transfer is tutoring and trainings, only one fifth of the companies has implemented mentoring (project *SISC-Senior Intergenerational Social Capital*, LLP).

7. Age management is the area of management very poorly recognized, especially by smaller enterprises (project *Age Management Methodology as an Innovative Way Contributing to the Economic Activity of Employees Aged 50+*, OP HC),

8. Older and younger workers should be integrated, because this brings benefits for both workers and the enterprise – seniors share with their younger colleagues their professional and life experience, bring in calmness and distance, while the young provide help for older people in tasks requiring physical effort, contribute to freshness of view and bring creativity to cooperation, distract the elders from the routine course of action (project *Comprehensive programme of activation of the people aged 50+*, OP HC).

9. Older workers in most companies transfer professional skills to younger people, but they are rarely interested in participating in the training process, mainly due to negative opinion about their effectiveness (for 2/3 trainings failed to improve working conditions, for more than 80% – they did not result in pay rise or promotion) (project *Age Management and Counteracting Age Discrimination of People over 45 as a Response to the Problem of Ageing of Human Resources in Lubelskie Province*, OP HC).

10. People isolate themselves in their own age group, while employees aged 50+ feel the need to get closer to and support younger colleagues; intergenerational integration, improvement of psychosocial skills can solve problems of barriers and prejudice among generations, and open opportunities for mutual learning (project *Dynamism and Experience – Common Change Management*, EQUAL Community Initiative Programme).

11. Lack of knowledge transfer makes the young, less experienced employees continue business activity often committing errors that have occurred in the past and could be eliminated provided there existed a corresponding transfer of knowledge (project *Mentoring 50+. Innovative Use of Potential of Mature Workers for Human Resource Development*, OP HC).

12. More and more companies implement mechanisms for transmission of knowledge by older workers. Most often it is a system of internal training and mentoring in which newly hired workers are introduced to the functioning of the company by older workers. Some companies create multigenerational teams, which encourages the exchange of knowledge and information, an even smaller percentage keeps work archives and the projects of each employee (project *People Aged 50+ on Mazovia Region Labour Market*, OP HC).

5. CONCLUSIONS

Poland, like other European Union countries, faces a serious problem of ageing labour force, which requires longer remaining in employment. The action currently undertaken in Poland to shift the statutory retirement age to 67 years (from the current 65 years for men and 60 for women) is certainly an important step in this direction. In parallel, however, there must be implemented modern standards for managing diversity – also in terms of age. This is particularly important on the Polish labour market, where the situation of people of pre-retirement age is one of the worst in Europe. This requires multifaceted actions targeted at employees, but also at the unemployed and economically inactive. The programme currently implemented in Poland 'Solidarity of generations' takes into account all these dimensions.

The analysis of the projects conducted in Poland under the European Social Fund and addressed at 50+ issues showed that compared to the group aged 45/50+, issues related to the development of staff competencies were implemented earliest and in the widest range (Urbaniak and Wiktorowicz, 2011). However, age management still appears rather an innovative subject. In the context of the quoted results of empirical analyzes, it is not surprising at all. Based on the quoted studies, there emerges a picture of initial development phase of this area of management in the Polish enterprises. Therefore, there still remains a lot of room for continuation of analyzes in the field of age management. Given the challenges of the development of knowledge-based economy, it seems particularly important to conduct studies on the transfer of knowledge between older and younger employees. This will, on the one hand, help to preserve employability of older workers, and on the other – provide a more sustainable organization development. Age management seems to be really a remedy for poor employability of older workers and should constitute an important element of active ageing. This cannot obviously be a solution to population ageing in Europe, however, it may be an important way to mitigate its effects. As is well known, economic and social activity go hand in hand, preventing social exclusion of senior social groups.

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BOOK REVIEWS

Sarah ATKINSON, Sara FULLER, Joe PAINTER (eds.), *Wellbeing and Place*, Ashgate, Farnham 2012, 254 pp.

In this edited volume two concepts – wellbeing and place – which are inextricably linked are explored. The volume emerged from an international conference organized in 2009 by a team at Durham University UK, where the editors Sarah Atkinson, Sara Fuller and Joe Painter are based. The contributors have been written by social scientists from a range of disciplines, some of whom are able to draw on practical experience as policy-makers or practitioners. The chapters fall into two broad categories, those determining wellbeing's relationship to place and those contesting the definitions and relationships of wellbeing and place.

The book is composed of fifteen chapters and brings together a range of perspectives on wellbeing across different disciplines including those addressing immediate applied policy concerns and these offering more critical academic engagements. The chapters mostly engage with wellbeing as a personal, individual attribute and largely address health and psychological dimensions of wellbeing. The majority of chapters relate to high income and Anglophone settings, particularly, but not exclusively, to the United Kingdom. But in some chapters wellbeing is examined beyond Europe, including Thailand and Bolivia. The chapters can be grouped into two sections, those that explore the dynamics that determine wellbeing in relation to place and those in which authors explore contested understandings if wellbeing both empirically and theoretically.

The first two chapters offer readers an overview of wellbeing and place. In the Introductory chapter the editors provide a useful context for the book, noting that the processes of wellbeing or becoming are deeply spatial, and they can be linked to a sense of community. Wellbeing, they highlight, is conceptualized and defined in different ways, and is used by public policy-makers in contested ways. In chapter 2, 'Wellbeing: reflections on geographical engagements', David Conradson with a presentation of the historical trajectories of different conceptual engagements with geographies of health and wellbeing. These range from more collective welfare understandings through to current interest in personal subjective assessments.

Helen Beck in her chapter 'Understanding the impact of urban green space on health and wellbeing' reports on research undertaken in the UK to build an evidence base on the state of urban green space and its role in enhancing health and wellbeing. The focus switches to rural England in the following chapter when Mylène Riva and Sarah Curtis provide a quantitative analysis of the issues affecting wellbeing, defined as positive and

self-reported health. They highlight issues of concern centring on employment and aspects of the life-course. The theme of the life-course is picked up in the next two chapters, the first with regard to older adults. In her chapter, Rose Gilroy looks at the spatial and social challenges of wellbeing and ageing within an examination of current public policy measures in the UK. Gilroy highlights the importance of the local to older adults, with the home and neighbourhood having strong affective attachment. In his chapter 'The role of place attachments in wellbeing', Gordon Jack takes the theme of attachment to place as his central focus, and demonstrates the significance of this for children's wellbeing and the development of identity in the UK. He presents identity and wellbeing as dynamic processes.

In a chapter entitled 'Am I an eco-warrior now? Place, wellbeing and the pedagogies of connection', Andrea Wheeler examines initiatives for more sustainable living in schools located in the English Midlands and northern England. In the following chapter, 'Is "modern culture" bad for our wellbeing? Views from "elite" and "excluded" Scotland', Sandra Carlisle, Phil Hanlon, David Reilly, Andrew Lyon and Gregor Henderson examine particular values that characterize modern culture, such as individualism, which may impact on personal, subjective wellbeing, with particular reference to life in urban Scotland. This chapter concludes the cluster of chapters that form the first section of the book.

Section one looked at relationships between wellbeing and place in ways that speak directly to the concerns of policy-makers, looking at wellbeing as an outcome, and some chapters highlighted issues sometimes overlooked by policy-makers, such as the contribution of green spaces to wellbeing. The second cluster of chapters in the book explores the tensions in situated experiences of wellbeing, and begins to contest the mobilization of place as a contextual backdrop. The second section of the book starts with Stuart Muirhead's chapter, 'Exploring embodied and emotional experiences within the landscapes of environmental volunteering'. Muirhead examines the connections between environmental volunteering, green spaces and personal wellbeing in Scotland, through volunteering, giving time and energy volunteers contribute to a wider environmental goal.

In the next two chapters the authors allow the reader to reflect on wellbeing and place beyond the shores of the United Kingdom. In 'Place matters: aspirations and experiences of wellbeing in Northeast Thailand', Rebecca Schaaf highlights competing visions of wellbeing emerging in Thailand in relation to national and global modernization forces, while the global forces promote individualized aspirations, the national forces value more traditional forms of community cohesion and unity. These tensions are also explored in the following chapter by Melania Calestani in the context of urban and peri-urban Bolivia. The focus returns to the UK in the next chapter when Karen Scott in 'A 21st century sustainable community: discourses of local wellbeing' analyzes the planning and implementation processes of a place-shaping intervention in a deprived area in the UK. The theme of multiple meanings within social and cultural spaces links Calestani's and Scott's chapter. In the following chapter Lorraine Gibson focuses on contested meanings of wellbeing between Aboriginal and non-Aboriginal residents in a community in Australia. In the penultimate chapter, Jo Little focuses on personal wellbeing in the UK in the form of the spa, presented as a new therapeutic space. This is a fascinating examination of the spa in terms of gender, the body and identity. In the final, more theoretical chapter entitled 'Place, place-making and planning: an integral perspective with wellbeing in (body) mind (and spirit)', Ian Wight attempts to bring the edited collection to a close through highlighting the fact that wellbeing

and place transcend individual disciplines and professions, they are about integrations. He therefore concludes the book by suggesting a more integral approach, through the application of integral theory developed by Ken Wilber.

This book is very accessible and the chapters are clearly written, but there is a very strong empirical bias to work undertaken in the UK. That said, the book does address very topical issues, and while the focus is on wellbeing and place largely from the perspective of one advanced capitalist economy, the UK, the issues raised will be of interest to the wider readership of the *European Spatial Research and Policy*. The book could have been strengthened by the editors writing a concluding chapter, bringing together the themes of the book and pointing to future research.

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Marco BONTJE, Sako MUSTERD, Peter PELZER, *Inventive City-Regions: Path Dependence and Creative Knowledge Strategies*, Ashgate, Farnham 2011, 270 pp.

In an increasingly competitive global knowledge-based economy, urban planners and policy-makers face the challenge of building and sustaining their cities' competitive base. But this competitive challenge brings with it a conundrum. In the age of the Networked Society, building competitive strengths means mobilising coalitions, building networks and actively leading change. But once these communities of change-leaders are mobilized, they acquire a life of their own, and can be overtaken by complacency. Whilst Dublin might have been lionized in the 1990s as an example of a city that had built new knowledge-intensive industries, the nemesis of the global crash and the complete collapse of the Irish property sector swiftly dealt with that hubris and its attendant complacency. More generally, cities' long-term health lies in their capacity to continually reinvent networks and coalitions, as well as their competitive strengths, to continually re-position and re-adjust themselves effectively within global circuits of capital.

Many of the studies of recent years that have attempted to understand this process have suffered slightly from the Dublin syndrome. Most cities have tended to do well because of the long global credit boom. The easy option has been to give the credit for that success to urban governance coalitions in line with the theoretical expectations from urban planning theory. But with cities now facing genuinely problematic times, and successes being much harder to book, it is much fairer to be able to assign success to place specific urban governance particularities. So the time is certainly ripe for a volume that explores these issues in more detail, and in particular, what is the 'alchemists stone' of urban governance that can allow places to create coalitions that bring success, and then dissolve or transform them when they reach the end of their life.

This is the academic conversation in which Marco Bontje *et al*. have found themselves participating, and their ambition in the volume is to identify the urban governance

conditions under which cities can transform themselves to specialize in knowledge and creativity, something they expect will only ever apply to a very limited number of cities. Given the importance of the subject and the timeliness of the analysis, the theme clearly has the opportunity to make a substantive contribution to a pressing academic debate which at the same time has significant policy implications. The volume carries endorsements from both Sir Peter Hall and Allan Scott on the rear cover. Promising 'a uniquely well-researched and informative analysis of a key contemporary issues' and that 'It will become essential reading', this sets the expectations high for what readers can expect in the volume in return for their £65.

The book is structured around a series of seven case studies of cities that have been engaged in attempting to make the switch towards knowledge-based creative cities, and in which those transformative change processes are charted. The seven cities, in five countries, are Amsterdam, Munich, Barcelona, Helsinki, Birmingham, Manchester and Leipzig, and were chosen because they were case studies in a research project undertaken by the authors: there is otherwise no intrinsic logic apparent in their selection. Each empirical chapter has a common structure, providing some background to the city, its long-term developments, more recent trends, its unique position, current urban policies, urban co-operation and competition, and the current policy debate. Each chapter concludes with a format SWOT (Strengths, Weaknesses, Opportunities & Threats) analysis for the respective city.

At approximately 25 pages each, these empirical chapters form the bulk of the book's contribution. They are framed by a set of extremely brief complementary chapters, covering introduction (6 pages), literature review (10 pages) methodology (8 pages), case study overview (14 pages) and conclusion (12 pages). And the suspicion that this immediately raises is justified – there is no way possible in the very limited space available to actually do anything comparative or constructive with all of that material. All the conclusion is able to achieve is to list the pathways, strengths and strategies of each of the cities, and then in *one page* to try and draw some more general lessons for the wider academic and policy debates about urban strategies and policy-making for knowledge based urban development. Likewise, the literature review is an extremely rapid and superficial skim through a fruit salad of concepts that really just sketch out 'some theoretical ideas about the essential conditions for economic development, in particular in the spheres of knowledge intensive and creative industries' (p. 14).

In the absence of a particularly strong theoretical framework, the empirical chapters are immediately disadvantaged regarding what they can offer. These seven chapters do at least provide interesting insights into what is underway in the seven European cities. For someone researching one or more of those cities, there might be empirical nuggets that can be extracted and used to build bigger and more theoretically satisfying stories of urban change. These empirical chapters paint a highly recognizable picture of the cities for those that know something of them, and this means that these chapters in themselves have some kind of research value. But at the same time, they read as the first drafts of research reports, the kinds of things that can typically be downloaded freely from project websites, rather than the polished contents of a volume that makes a contribution that justifies its rather high price.

There is a way to write a book like this on the basis of a fissiparous research project, and that is exemplified by Martinelli *et al.* (2012). The key to success is dialectic

integration – developing a theoretically rich framework which guides the case study development, and a case study analysis that, in turn, generates further theoretical insights. Even Martinelli *et al.* are not beyond reproach, but they at least set a standard for what such a volume from a research project has to achieve before it can 'become essential reading', as claimed on the cover endorsements.

The various elements are not themselves weak, and indeed, the empirical evidence is interesting and could contribute to others' research on these cities. But that alone is not enough to justify its assembly and publication as a high-priced book: the conceptual and concluding material also falls well short of making that justification. The publishers, Ashgate, must take a considerable element of the blame in not pushing the authors beyond their comfort zone, and they should ensure that this does not become a regular occurrence or their imprint will certainly suffer. In conclusion, the best that can be said about this book is that it seems a staging point on an interesting intellectual journey concerning debates about knowledge-based urban development, and I hope eventually to read elsewhere what the authors make of it all.

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Alessandro SORRENTINO, Roberto HENKE, Simone SEVERINI (eds.), *The Common Agricultural Policy after the Fischler Reform: National Implementations, Impact Assessment and the Agenda for Future Reforms*, Ashgate, Farnham 2011, 522 pp.

In the foreword of this volume, the former EU Commissioner in charge of the CAP, Franz Fischler, warns that food, rural and environmental security are at risk of becoming a market failure, not only in poor countries but also in many parts of Europe. The adjustment of the post-war CAP to the 21st century circumstances must proceed with no hesitation; however, such a transition requires a better understanding of post-2003 CAP and of its possible reform paths. Avoiding fruitless reflections about the European Model Agriculture, this book invites scholars to focus on the reality checks of the multi-functionality concept. In doing so, it insightfully looks at the multi-faceted impacts of the Fischler Reform as well as at possible future developments, whose discussion is symbolically situated both at the very beginning and at the very end of the book.

In chapter 1, the editors set the background of the volume, briefly addressing both the achievements and the shortcomings of the 2003 reform and then discussing the new conditions in which further reforms might occur. In short, their view is that the Fischler Reform represented a turning point for the CAP, but also that its widely acknowledged merits should not prevent us from seeing the serious perils that it might imply. On the one hand, in fact, the reform has offered a chance to redesign an agricultural support consistent with the new demands expressed by the society. On the other hand, however, the paradoxical result is that the more European agricultural policies have become transparent, the more it becomes difficult to properly legitimize them. By dismissing the traditional model of coupled support once and for all, Fischler has thus opened a new transition period whose outcomes are difficult to foresee, as CAP budget is entering into the 'stormy ocean' of political and financial bargaining, in which the risk to throw out the baby with the bath water is more concrete than ever.

After this introduction, a selection of twenty-nine papers – presented at the 2008 European Association of Agricultural Economists (EAAE) seminar concerning the future developments of the Fischler Reform – is articulated into nine parts, which provide a vast, albeit not systematic, information on national implementation strategies, methodologies to assess CAP impacts and prospects for future reforms. Parts I, VIII and IX represent the core effort of the book, namely the analysis of the future scenarios for the never-ending reform of European agriculture. The specific goals of these sections are, however, rather different. In Part I, Esposti suggests some policy developments that might address the concerns of the Sapir Report – i.e. that CAP contribution to EU growth is lower than what targeted for other policies within the Lisbon strategy – while Haniotis observes the multiple issues emerged in the post-2013 debate and reasserts that a broad range of instruments will be necessary to ensure the joint delivery of private and public goods. Parts VIII and IX are instead more limited in scope and focus on the future of specific instruments, respectively market measures and direct payments, with regard to different sectors of EU agriculture. In between these prospective sections, the remaining papers are dedicated to the analysis of the Fischler Reform impacts on EU agriculture. More specifically, Part II examines the political economy of the reform, with special reference to its roots, its financial implications and the reformed policy-making processes upon which it rests. Parts III and Part IV then discuss the impact of CAP reform on EU agriculture and on its different branches, while Parts V and VI look at crucial and innovative aspects of the Fischler Reform, like the greening of farming and the implementation of cross-compliance and of agro-environmental measures. Finally, Part VII deals with another key features of the new CAP, that is the restructuring of the second pillar and the multiple and even contradictory meanings attached to the notion of rural development.

To what extent does this volume really contribute to the ongoing debates on CAP reform? The recurring attention paid to methodological issues is, in my opinion, by far the most interesting aspect emerging from the book. Despite my education as a political scientist and my lack of confidence with quantitative analysis, I nonetheless fully agree on that new analytical tools are needed to cope properly with the broadened objectives of the CAP and the increased number of instruments at its disposal. Improving existing indicators, assessment procedures and modelling approaches is, indeed, a crucial condition to have a sound and evidence-based CAP debate. A second remarkable aspect of the book,

in addition, is the wide range of issues and case-studies covered in detail by the papers. Even if most of them have a rather specific focus and do not aim at making generalizations, they nevertheless convey a clear message: CAP complexity is growing together with the reform process, and scholars must avoid simplifications and pay due attention to the different implementation strategies pursued by Member States as well as to the regional peculiarities that strongly affect the results of the 2003 reform.

Conversely, however, I feel that the book failed to address the key point raised in the introductory chapter, i.e. the need to find new and empirically grounded justifications for the high rate of expenditure of the CAP in the total EU budget. On the one hand, its very nature – a collection of papers dealing with varied issues – prevents this volume from providing useful inputs for policy-makers engaged in CAP reform. Although I have indicated this variety as one of the main strengths of the book, most of the presented results are explicitly context-bound, and thus, they do not offer European-wide reality checks. On the other hand, in spite of the remarks made in chapter 1 by the editors themselves about the saliency of political and financial settings, these aspects have not been satisfactorily examined in the volume. Even the four papers composing the political economy section pay indeed little attention to many of the post-2003 developments, missing to take into serious consideration the implications of the rise into the policy-making arena of new actors – such as the EP and the civil society – whose role is mentioned, but not adequately investigated. This flaw is relevant not only in that, as recent events show, the Parliament will sharply influence the decision-making processes (see Crombez and Swinnen, 2011), but also because a stable CAP must be supported and legitimized by European public opinion (see Cooper *et al.*, 2009).

To conclude, this fine book is recommended to anyone interested in agricultural economics. Above all, most of its papers are methodologically innovative and the volume might thus be an extremely valuable resource for scholars seeking inspiration for quantitative research. In expanding the geographical focus of the analysis presented in this book, they would find an excellent subject for their study and simultaneously contribute to the CAP reform debate by extending the existing body of knowledge. At the same time, however, in two aspects I would hesitate to suggest this book to academic students lacking solid skills in quantitative analysis or modelling approaches as well as to those who are primarily interested in the political aspects of the CAP. First of all, they might have some problems in fully understanding methodological discussions, as it was in my case, and would thus fail to appreciate the most remarkable side of the book. Second, even if they may enjoy the political economy section and the convincing analysis proposed in chapter 1 by the authors, they could nonetheless find elsewhere more detailed and up-to-date accounts of the Fischler Reform and of the prospects for its further evolution (see Bureau and Mahé, 2008; Cunha and Swinbank, 2011; Zahrnt, 2011).

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Thōmas MALOUTAS, Kuniko FUJITA, *Residential Segregation in Comparative Perspective: Making Sense of Contextual Diversity,* Ashgate, Farnham 2012, 329 pp.

The attempts to explain the drivers and describe the changing patterns of residential segregation, made by different researchers, are mainly based on the Anglo-Saxon concepts. Thōmas Maloutas and Kuniko Fujita highlight important limitations and misunderstandings derived from Anglophone visions and interpretations of socio-economic structures adopted to provide the knowledge about segregation in different cities around the world. Hence, they argue that the existing discrepancies between the processes of segregation in the North American and European cities are undeniable (e.g. in US metropolises, residential segregation concerns mainly racial and ethnic groups, whereas social class is treated as the prime identifier for residential segregation in Europe; suburbanization is the main driver for residential segregation in the US, while this process is less influential in European cases).

One of the authors' central arguments is that segregation is considered as context-bound concept, having few different spheres (p. 3): economic (mainly labour market conditions and market access to housing), state (local regulations and housing and public services allocation), social (social and family networks, churches, local voluntary organizations) as well as specific and durable shape of local socio-spatial realities (built environment, social relations, urban histories and ideologies). Simultaneously, the authors claimed that varied urban settings produce multiple versions of segregation in terms of processes, patterns and impact. They put special emphasis on divergent residential segregation patterns that are sustained by the aforementioned contextual differences. Considering this assumption, a question is raised whether those divergent patterns are linked to one of the major factors leading to class inequality in the same way as the American patterns do.

The main aim of the book edited by Maloutas and Fujita is to explain the patterns and trends of social and ethnic segregation in metropolitan areas adopting the eleven examples of cities from around the world, gathered in eleven separate chapters elaborated by different authors. The patterns and trends of segregation are presented at city-wide scale rather than adopting studies at neighbourhood level. The book is focused on quantitative research and encompasses a set of different measures adopted in order to calculate the level of segregation (e.g. classic indices and multivariate statistical techniques, including factors and clustering techniques).

The book is divided in thirteen chapters, including eleven case study chapters which constitute the core of the book. As the comparative approach to residential segregation is the cornerstone of this book, I focus my attention in this review on the elements that contributed to elaboration of this comparative perspective.

The theoretical context is set in chapter 1 (written by Maloutas), presenting the definition, methodological issues as well as contextual differences. Despite the common fact that the global factors are the drivers for increasing inequality and segregation, it is claimed that they may often bring alternative outcomes which are in turn affected by national and local policies. The level of state intervention from *laissez-faire* to explicit social and political objective can influence the reproduction of residential segregation. Hence, institutional intervention may mitigate or exacerbate residential segregation. Maloutas demonstrates that the process of reproduction of residential segregation is driven by three casual mechanisms derived from labour market, unequal distribution of wealth and consolidated ethno-racial hierarchies (cf. the scheme, p. 12). In addition, the patterns of segregation are impacted by several filters occurring within the process of housing allocation (such as: household needs and preferences, diversity and spatial distribution of housing quality, accessibility restrictions, spatial pattern of social networks and tenure options together with property rights).

Chapter 1 concludes with the statement that segregation in the eleven cities investigated usually contradicts the vision of dual/divided city. What is more, as socio-spatial separation is often more intricate as well as social distances are more complex, adopting the traditional definition of segregation (based on ethno-racial segregation in the US metropolises in the 1920s) often produces more complex structures than assumed. Chapter 1 also summarizes the most crucial points, concerning the eleven city studies in terms of the main drivers for segregation, relations between the level of inequality and segregation, influence of state policies on segregation, primacy axis of segregation etc. By providing the basic assumptions and general results derived from case study chapters, this introduction is very useful for the reader and makes the whole book more coherent, despite the fact that each chapter has been written by a different author.

The consecutive eleven chapters dedicated to the case studies include an introduction, situating the analysis mainly in national context and offering background information on previous research in this domain. In some cases, this structure of chapter is blurred and theoretical implications appear more or less in the following sections, which is sometimes confusing. Considering the geographical location of the selected case studies, there are four Asian cities (Tokyo, Beijing, Hong Kong and Taipei), one from South America (São Paulo) and a set of European examples (Paris, Copenhagen, Budapest, Madrid, Istanbul, Athens). On the one hand, this diversity of case studies should be seen as an advantage of the book, because it does not limit the comparison only to European cases, but on the other hand, the

selection of cities is sometimes not clearly justified (especially in the case of São Paulo). The eleven chapters refer to different: contextual features, combination of inequality and discriminations, strong or weak public intervention as well as to strong or weak social networks. These issues might have been developed in a more detailed manner in certain chapters, to enrich the knowledge of the reader. The weakness of these chapters concerns mainly technical aspects. Sometimes the illustrations (maps) are not clearly understandable due to black and white colour scale – in some cases the shades are poorly differentiated to distinguish properly each category on the map.

The concluding chapter 13 (prepared by Fujita) merged the results of the case study chapters using a comparative approach. In addition, it is highlighted that residential segregation has a profound meaning only in some cities as well as residential segregation and class inequality are highly correlated only in selected cases.

The author raised a question whether the existing strategies of the welfare state, social inclusion and multiculturalism are adequate today. Fujita states that welfare state approach to residential segregation needs more discriminatory approach to welfare state institutions that may intensify or counteract residential segregation than the general approach so far adopted.

Perhaps the most important comparative aspect of the book is the framework for comparison of the American separate and unequal pattern of segregation to the divergent residential segregation patterns of the eleven cities and among themselves. To this end, several theoretical concepts were adopted, namely the concept of various forms of capitalism (Hall and Soskice, 2001), the notion of social systems of production (Hollingsworth and Boyer, 1997) and regionalism. The objective was to address the three following questions (p. 289): How institutions shape or dampen residential segregation? How residential segregation is one of the major factors that produce class inequality? How institutions intensify and counteract the effects of residential segregation?

Comparative institutional perspective focused on forces and institutions that intensify or counteract residential segregation and class inequality. Although the author claims that the contextual focus is not new in cross-national residential segregation studies, he emphasises that institutional differences are rarely analyzed as context is usually linked to national or regional differences. According to the author, this comparative institutional perspective is particularly important in understanding the eleven city cases. The comparison of forces, institutions and the level of American separate and unequal pattern was presented in a table with cities grouped by the levels of residential segregation and class inequality (pp. 292–293). These references for contextual difference allowed grouping the eleven cities into five categories: highly separate and unequal (Beijing, Istanbul, São Paulo), moderately separate and unequal (Budapest, Paris), separate but equal (Copenhagen), together but unequal (Athens, Hong Kong, Madrid), together and equal (Taipei, Tokyo). This typology attempts to indicate which cities are close to American separate and unequal model. Then, the author analyzes each type and provides additional information derived from the case study chapters. Fujita concludes that 'the forces and counteracting forces that shape or dampen residential segregation are embedded in particular institutions – household registration policy, communist legacy, the historical legacy of religious divide, the emerging capitalist economy, the combination of the colonial legacy and the state policy of metropolitan development, the historical legacy of class divide, the combination of the welfare

state and coordinated capitalism, Mediterranean familism, urban planning and state housing policies, and the developmental state' (p. 303).

The authors describe the institutional changes as slow, evolutionary and path dependent. An interesting point was made also in the conclusion, as in Fujita's opinion, the eleven case studies showed that the patterns of residential segregation did not change dramatically over the last three decades, which threw into question the urban convergence and metropolitan polarization theories.

On the whole, the book provides an interesting insight into the explanation of residential segregation in various institutional contexts and is highly recommended for both students and scholars of urban studies, and particularly for those specializing in residential segregation.

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