PAST, PRESENT AND FUTURE: EXPANSION WITH (AND WITHOUT) GROWTH IN URBAN SYSTEMS UNDER A STRUCTURAL CRISIS

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Abstract
By reviewing long-term dynamics of urban expansion in a representative southern European city, this study proposes a long-term interpretation of Mediterranean urbanization as a result of a structural socioeconomic ‘crisis’ related to ineffective local governance, weak regional planning and peculiar demographic structures. Athens’ expansion exemplifies the difficult transition of many southern European cities into a new and more convoluted urban arrangement depending on the intimate relationship between urban structure, urban planning, social attributes, cultural aspects and economic factors. The article concludes with a discussion on future development paths of the Mediterranean cities, identifying informality, non-linearity and unpredictability of expansion path as important traits for reconversion of ‘crisis’ cities towards more sustainable and competitive growth models.

Keywords: Regional planning, Sustainability, Urban sprawl, Local competitiveness, Southern Europe.

1. INTRODUCTION
The rapid growth of urban population - often without industrialization or service-oriented economic growth - has been a key trait of metropolitan development in economically-disadvantaged countries (Pacione 1987, Leontidou 1990, Mattina 2007). Urbanization, driven by rural transformations and powered by land development policies, has determined the disproportionate growth of urban areas (Ludlow 1994, Florida 2004, Bruegmann 2005). Population growth has placed Europe, and especially Mediterranean urban regions, in front of new crucial issues, including the socio-environmental implications of this massive rural exodus (King et al. 2001, Kasanko et al. 2006, Salvati et al. 2013). Combined with the demographic transition and the undeniable cultural change, the shift of production from industrial economy to the tertiary
sector is another typical feature of Mediterranean urban evolution (Mudu 2006, Fabre and Sant-Cassia 2007, Viganoni 2007). The decline of centrality observed for some southern European cities since the sixteenth century was driven by the progressive shifting of commercial, productive, social and cultural networks towards north America, northern Europe and the middle East (Mazzeo 2009). Nonetheless, the uneven centrality of the Mediterranean region resists the onslaught of time in specific sectors e.g. as a global tourism attractor, being sometimes affected by structural gaps in infrastructure and accommodation (Minca 2003).

Empirical studies re-contextualized the multifaceted urban paths suspended between planning and informality in southern Europe (Economou et al. 1997, Coccossis et al. 2005, Giannakourou 2005). Spontaneity, planning deregulation, and the informal economy are candidate symptoms of a 'locked' system, incapable of progressing towards mature urban models (Vaiou 1997). The partial failure of development policies towards modernization, competitiveness and the revitalization of the Central Business District, played sometimes a key role in spontaneous urban growth (Kourliouros 1997). The late industrialization highlights the absence of a 'bourgeois hegemony', but also the diversity, versatility and uniqueness of Mediterranean societies (Leontidou 1996). Planning de-regulation and settlement informality are the most significant elements of urban mosaics where the boundaries between law and spontaneity assume jagged shapes and in which the connection between formal and informal activities is almost ubiquitous, fronting the particular interest to the common good (Tsoulouvis 1996).

Mediterranean cities have undergone important and contradictory transformations, grounded in the socioeconomic contradictions typical of the region: (i) settlement informality, with urban deregulation and policy inaction (Leontidou 1990, 1993, 1995, 1996), (ii) attractive economic sectors mixed with largely expanding traditional activities, producing social diversification and poverty at the same time (Maloutas and Karadimitriou 2001, Rossi 2004a, Mazzeo 2009), and, finally, (iii) a complex interplay between territorial, social and economic factors that jointly influence metropolitan structures and functions (Viganoni 2007). An interpretive key to investigating the new forms of urban expansion in southern Europe has been recently proposed by introducing the ‘crisis city’ archetype (Salvati et al. 2016). The ‘crisis city’ is a typical condition of metropolitan systems evolving through non-linear paths, whose intimate organization is complicated by a wealth of interlinked factors (Salvati and Gargiulo Morelli 2014). In a ‘crisis city’, individual actors emerge as stronger than common needs, promoting disordered urban configurations that often lack collective perspectives (Le Gales et al. 1998, King et al. 2001, Giannakourou 2005).

At the same time, the ‘crisis city’ may express a ‘reaction to modernity’, leading to a cultural alternative to the traditional modernism, reflected in the criticism to the European centralism and the ‘one-way’ vision
typical of the ‘northern’, ‘developed’ world (Minca 2003). The complexity of the territorial processes that drive urban expansion and functional changes was analyzed, focusing on socio-spatial structures, economic configurations and entropic morphologies that qualify Athens, the capital of Greece, as a reliable example of the ‘crisis city’ in continuous transition (Salvati 2014). The resulting landscape looks inhomogeneous and can be interpreted through diverse urban ‘faces’ that rarely reflect traditional socioeconomic gradients (Sassen 1991). The analysis proposed in this study contributes in the understanding of long-term urban expansion with (and without) economic growth (Longhi and Musolesi 2007, Vicino et al. 2007, Schneider and Woodcock 2008), debating on past, present and future development of contemporary cities under structural crisis.

2. A REPRESENTATIVE MEDITERRANEAN ‘CRISIS’ CITY

The area of study that is considered here is Attica, a region of Greece located in the central-southern part of the country. The urban area of Athens (also referred as greater Athens), almost entirely located on the plain of Attica (Lekanopedio Attikis) surrounded by various mounts (Figure 1), contains more than 50 municipalities of which Athens (that includes only the central area of the city, completely urbanized) hosted approximately 700,000 inhabitants in 2011, for a total surface of 40 km2. Along the West coast of the prefecture of Athens is located the urban centre of Piraeus (also referred as greater Piraeus), one of the oldest industrial sites of the region containing 7 municipalities. Long-term Athens’ development, has been strongly influenced by the morphological characteristics of the territory (Chorianopoulos et al. 2010). The modalities with which the growth of the main urban centre (greater Athens and Piraeus) has occurred until now are, to a great extent, determined by the four large mountains of the region surrounding the plain of Attica (Mount Aegaleo, Mount Parnitha, Mount Penteli and Mount Hymettus).

Figure 1 - A map of Attica region showing elevation and the main mountain chains in the area (1: greater Athens; 2. Messogia; 3. Thriasio; 4. Marathon).
3. HETEROGENEOUS URBAN TRANSFORMATIONS: ATHENS DEMOGRAPHIC AND ECONOMIC EXPANSION ALONG THE 20TH CENTURY

Amongst the direct causes, the demographic evolution of Attica has been crucial in determining the urban development of the region. Therefore, an analysis of the population throughout the last century will provide useful information for understanding the evolution of the regional spatial patterns of urbanization. According to Salvati (2014), four homogeneous phases of urban development were observed and discussed in this study (Figure 2).

![Figure 2 - Demographic Evolution by District in the Athens Metropolitan Region](image)

Legend of demographic processes: moderate increase (white), fast increase (orange), stability (red), decline (blue).

3.1. Steady demographic growth and urban-rural balance before the 1900s

Throughout most of the 19th century, there has been a moderate almost equal demographic growth between the urban and rural areas of Attica, with low levels of urbanization in the city. As at that time there was not yet an appreciable economic advantage of the city over agricultural land, the distribution of population over the region was approximately balanced (Leontidou 1990). This homogeneous distribution started to change towards the 1860s, when growth rates of Athens urban area started to increase more rapidly than the ones of the entire region and country. Since then, urban growth has mainly concentrated in the urban areas of Athens and Piraeus. Consequently, a poly-centric compact configuration of the region has been developing through the majority of the 19th century (Salvati 2014).

3.2. Compact expansion of the two main urban polarities

Athens role as the capital city and its economic growth started to have direct consequences on urbanization within the area and its surrounding by the beginning of the 20th century. The industrialization process of the country mainly concentrated in the nearby areas of the capital, especially in the neighborhood located along the occidental coast of Attica (Faliro, Tavros, Kallithea, Moschato). All of this triggered the exponential demographic growth in the urban centre of Athens and Piraeus that occurred during the first half of the 20th century (1900s-1940s). For example, between 1920 and 1928, Athens
population almost doubled, passing from 453,000 to 802,000 inhabitants. The demographic growth in those years was principally determined by the arrival of refugees from Asia Minor during the inter-war period which triggered the construction of spontaneous suburbs (Leontidou 1990). They occupied large portions of land surrounding the city, first with the initiative of the League of Nations, then by popular land invasions and illegal housing, regardless of the available infrastructure in these areas (Couch et al. 2007). As a result, an intense process of unplanned urbanization concentrated in the urban areas of Athens and Piraeus was taking place, which further fuelled successive waves of immigration.

All of this combined with the slow demographic increase in the traditional agricultural areas of Attica (Messoghia, Thriassio, Megara, Marathon, Lavreotiki) contributed to the creation of several urban clusters around greater Athens (Chorianopoulos et al. 2010). The polycentric asset of the region that initiated at the end of the first phase of urban development was consolidating. During this phase, the city has also manifested early signs of growth in the Northern areas of the region, given birth to small independent settlements that will be later included in Athens urban area. These settlements, mostly constructed spontaneously without permission, did not possess the typical Mediterranean characteristic of compactness while diverging also from the usual low-density agricultural settlements. With some approximation, these small urban nuclei around Athens can be considered as the first sign of urban sprawl in the area (Delladetsima 2006).

3.3. Spontaneous urban growth and urban-rural depolarization

The compact expansion of the central cities of Athens and Piraeus has slowed down by the half of the 20th century. Early processes of urban dispersion have been fuelled by workers and popular strata during the inter-war period seeking affordable housing as close as possible to industry and urban infrastructure, originally located in the centers of Piraeus and Athens (Leontidou 1990, Kourliouros 1997, Maloutas and Karadimitriou 2001). An intense process of illegal building began in many areas surrounding these two urban centers and lasted until the end of the 1980s when political forces started fighting the phenomenon. Most of these newcomers refugees settled in urban outskirts and along the coast where land-use had not been defined, giving birth to various workers neighborhoods (Peristeri, Aegaleo, Agios Dimitrios, Zografos, Galatsi, Nea Filadelfia). Only after several years these spontaneous developed areas were incorporated into official statutory town plans (Salvati 2014).

During this period, even if Athens population kept growing, the urban centre of Piraeus started losing inhabitants while Messoginia, Thriassio, Northern Attica and Salamina districts were growing extensively. The urbanization process of these zones is particularly significant as the Messoginia and Thriassio plain have historically always been destined to agricultural practices due to their morphological characteristics (e.g. soil fertility, water availability, accessibility).
Growing housing demands and a “permissive” urban policy which was not able to control illegal building activities played key roles in the process of urban-rural depolarization (Economou et al. 1997). Consequently, around the central municipalities of Athens and Piraeus new residential clusters begin to acquire progressively more strength, further reinforcing discontinuous urbanization. This process had been further scaled up by the infrastructural development of those years that allowed easier access to the city from rural areas, where the availability of vast surfaces appropriate for construction activities were located (Vaiou 1997). For these reasons, areas such as Ano Liossia, Acharnes, Eleusi, Megara and Messoghia experienced intense urbanization towards the end of the 1970s, determining the definitive transition from compact to dispersed development.

3.4. Abandoning a compact tradition in urban expansion

Sprawl in Athens began through the progressive growth of various residential and commercial clusters surrounding urban areas, with lower residential densities than the ones of the urban centers (Delladetsima 2006). The process was further increased by a wave of middle class and elite suburbanization that began during the 1990s, due to the unsustainable congestion that was growing in the cities. Many residents of the city centre, unsatisfied with the quality of life, decided to move to suburbs within commuting distance from their job places located in the centre (Leontidou 1995). Also the decline of traditional industries and restrictions on the construction of new buildings owing to the need to preserve archaeological ruins further increased the demographic shrinkage of Athens and other major urban centers (Figure 3). Consequently, municipalities of Athens periphery (Acharnes, Ano Liossia and Filis) and of the rest of Attica (Messoghia, Thriassio and Marathon), all connected to the urban centre of the region, experienced a rapid growth towards the end of the 20th century. Urban development occurred also in areas along the coast favored by infrastructural development and relatively low land costs, such as Rafina, Nea Makri and Anavyssos (Arapoglou and Sayas 2009). Since the end of the 1970s building activities have principally concentrated in the available spaces located in the land plains of the region and Athens urban area.

The high population densities reached in the central urban areas (around 20,000 inhabitants per km²) has brought to the necessity of reorganizing the structure of the metropolitan city and its relationship with surrounding areas of the region (Salvati et al. 2013). The increasing demand for construction sites of the last decades, destined to commercial, industrial, residential and recreational activities is leading to an inevitable expansion of the urban area beyond its traditional boundaries. The areas which are being targeted by this expansion are those with easiest access to the major cities of the region (where economic activities are concentrated), the morphological features appropriate for construction activities and the lowest land costs. The most evident areas presenting these characteristics are Messoghia and Thriasio,
and for this reason they have turned out to be the preferred localities for the spillover of Athens urban centre (Coccossis et al. 2005).

4. POST-WAR URBAN DEVELOPMENT TRAJECTORIES IN ATHENS: A GRAPHICAL SYNTHESIS

By combining the outcomes of the analysis proposed in section 3, it has been possible to define the spatial trajectories of the most recent urban development of the region since the 1960s (Figure 4), as follows: (i) 1960 - 1980 (intense urban growth and population/activity concentration in the areas of greater Athens and Piraeus). The urban centre of Attica grows radio-centrally over the territory with compact and high density characteristics; (ii) 1980 - 1990 (suburbanization). The areas of the peripheral ring of greater Athens start expanding through building typologies that determine intermediate residential densities; (iii) 1990 - 2000 (consolidation of a mixed dense and discontinuous pattern of growth). The expansion of greater Athens has reached areas further away from its territorial boundaries (e.g. Messoghia, Thrissio and Marathon); (iv) 2000 - 2010 (densification and diversification of previously sprawled areas outside greater Athens). As new “subordinate small centers” develop outside greater Athens, they begin their own process of sprawl on the surrounding areas.
Since the first years of the 1990s sprawl has become always more the dominant urban trend throughout Attica. Today, the result of the expansion process of the central city is the establishment of various new medium and small urban agglomerations characterized by intermediate density values. These new centers could mistakenly be considered as a growth of the region caused by an increase of population. As a matter of fact, these new urbanities not only present a structure which is typical of leapfrog and ribbon sprawl areas but they remain highly dependent on the inner city (Chorianopoulos et al. 2014). In other words, the restricted mix in land-uses observed in these new small centers evidence how these are far from being new independent cities. Therefore, these can be considered as satellite extensions of the dominant urban centre of the region.

5. SPONTANEOUS GROWTH, CALL FOR COMPETITIVENESS OR AUSTERTY URBANISM? FORECASTING AN URBAN FUTURE FOR ATHENS

Predicting the future development of Attica is a complicated task that relies on few certainties and many doubts. Before the advent of the economic crisis in Greece, the country was boosting up major infrastructure and urban development projects since a few years before the 2004 Olympic Games. The
final picture evidences a persistent intermediate profile density growth in the peripheral ring of greater Athens and in the rest of Attica. This indicates that a mixed dense and discontinuous urban growth is still developing in the region, accompanied by a marked increase in the gap between Athens' metropolitan area and the rest of Greece. Such a polarization adds to the already complex mix of factors shaping socioeconomic disparities between urban and rural areas, possibly as a result of the long-established Athens' primacy on the Greek metropolitan hierarchy (Chorianopoulos et al. 2010). As a matter of fact, in the last decade the capital region became the most advanced area in Greece for high-return economic sectors such as real estate, telecommunications, banking and financial services (Souliotis 2013).

These evidence, however, cannot shade the fact that Athens has facing, at least since 2008, a period of austerity urbanism due to shrinking monetary resources, high rates of unemployment and negative effects on social cohesion, with rising economic inequalities (Kaika 2012, Tsilimpoundi 2012, Vradis 2014). In a recent study, Gkartios (2013) pointed out the existence of a "crisis counter-urbanisation triggered largely by unemployment at origin, rather than pro-rural motivations and idyllic constructions of rurality". However, while becoming anything but sporadic phenomena, counter-urbanization does not seem to contribute in a decisive way in (re)balancing the polarized context that still characterizes Greece and Attica. Based on these premises, and without giving predictions on the urban spatial asset of Attica in the distant future, it is relatively possible to foresee the consolidating structure of the region for the next few years. This scenario is resumed in a map presented in Figure 5. Future urban growth in the nine districts illustrated in Figure 5 is briefly commented in the follows.

1. The historical hyper-compact centre of Athens and Piraeus. The first densely inhabited nuclei of Attica were Athens and Piraeus are located. Characterized by very high residential density levels, today these two areas represent the historical core of the region where commercial activities related to tourism and the central business district are located.

2. The consolidated compact city. The expansion of Athens and Piraeus that began in the first years of the 20th century occurred through compaction and growth. Consequently, the areas surrounding the two historical cores have developed through high population density levels. Today, this area located in the plain of Athens represents the economic centre and fully consolidated compact city of the region.

3. The urban addendum of mixed intermediate and high-density levels. The first peripheral ring of the consolidated city began developing rapidly towards the end of the 1970s through building typologies which differ from the compact city. This is the first area of greater Athens to experience a sprawl process of the consolidated compact city and has now established itself as an intermediate density level agglomeration.
4. Diffused rural areas. A district dominated by diffused rural plots of land, characterized by demographic stability and low urbanization rates favored by the development of railway lines and road infrastructure. The area presents a few urban settlements of low density located mainly along the coast, which have created a strong gradient between the internal and lowland areas. A mild urbanization process is possible in this area, mainly as a consequence of the development of the Corinth hub.

5. Industrial-driven ribbon sprawl. The Thriasio plain, a traditional agricultural area with very low levels of population density, transformed through the industrialization process of Attica in the 1950s. The central city has sprawled to the Thriasio in response to the contemporary industrial and infrastructure development of the plain of the last 20 years or so. However, even if the area has gained population together with industrial and commercial activities, the Thriasio still remains highly dependent on Piraeus and Athens. The growth of the plain as a residential area is still limited by the low real estate values of the area and poor environmental conditions. Today, the Thriasio mainly develops through industrial-driven ribbon sprawl.

6. Mixed industrial and residential diffused settlements. The north of Attica has transformed from being a location with few industrial clusters to an area displaying diffused factories, industrial compounds and residential settlements. This transformation is causing the development of some medium density residential clusters (e.g. Afidnes, Avlón, Malakasa and Oropos) mainly along the coast and the Attica road highway connecting the region with the North of the country.

7. Coastalization and sprawl related to conversion of second homes to main ones. Residential area mainly developed through the construction of second homes (which determine medium-low and
medium density levels) of the high and middle class population of greater Athens. With the development of road infrastructure, the area has been targeted by the sprawl process of greater Athens mainly through the phenomenon of the conversion of second homes to permanent ones. Far from being an autonomous urban agglomeration, the area remains very highly dependent on the central city.

8. The “spillover-mirror city”. The Messoghia plain has transformed from a traditional agricultural area to the “spillover mirror city” of Athens. Mount Hymettus represents an axis that divides the traditional compact city of greater Athens with its possible future image, characterized by a lower degree of compactness and population density. The sprawl process in the Messoghia is giving birth to a potentially new independent nucleus with different morphological and socioeconomic characteristics from the central city (lower levels of population density).

9. The new Messoghia sprawl. After several years of intense infrastructure development and sprawl in the Messoghia, the plain is starting to establish itself as the future city image of greater Athens. If this scenario will be revealed correct, then it is possible to hypothes is a future sprawl process that will originate from the future urban centre of Messoghia and proceed towards the extreme South of the region (Keratea and Lavrio).

6. DISCUSSIONS AND CONCLUSIONS

The renewed interest for Mediterranean urbanities has been crystallized in an increased number of scientific contributions from different disciplinary and cultural perspectives, reconsidering southern European cities as paradigmatic cases due to their morphological and functional uniqueness in the continental panorama (Garcia 2010). In this direction, the ‘Mediterranean urban paradigm’ developed in a variety of combinations of tradition and post-modernism (Giaccaria and Minca 2011) distanced from a linear interpretation of the relationship between northern and southern urbanities (Leontidou 1996). While Mediterranean cities cannot be interpreted using a formalized and common paradigm of analysis, a necessary point of distinction in the comparative analysis of different urban trajectories can be proposed in a context of regional heterogeneity and urban specificity (Beriatos and Gospodini 2004, Maloutas 2007, Chorianopoulos et al. 2010). This clearly passes through a range of possible alternative trajectories, based on theoretical and empirical criteria grounded on both quantitative and qualitative assets (Dura-Guimera 2003, Delladetsima 2006, Terzi and Bolen 2009, Salvati 2016). Economic polarization and the abnormal concentration of activities in urban areas, combined with rapid population growth, have caused significant disparities with the inner regions that revealed not capable to adapt to these transitions (Vicari 2001, Catalán et al. 2008, De Muro et al. 2011). With this line of thinking, analysis of urban and demographic development of Attica since the late 1800s has provided a useful information on the
modalities with which the region is transforming. The most important lesson that can be learned from this analysis is that throughout the 20th century the traditional relationship between the urban and rural areas in Attica has rapidly changed. This transformation, provoked by the capital's economic development, its morphological characteristics, significant waves of immigration, a weak planning system combined with a “permissive” building code and the infrastructural development of the region, have modified the spatial asset of Attica, resulting in a progressive urbanization of the surrounding areas of greater Athens, as clearly highlighted in the recently approved Strategic Master Plan of the Athens' metropolitan region (Figure 6).

Urban centralities around Athens and Piraeus will be progressively saturated and new urban centers and development nodes will emerge, in full accordance with the analysis proposed in section 5. Consequently, we are assisting to a gradual death of the city-countryside polarization typical of the Mediterranean tradition. The classical compact polycentric asset of the territory, based on the predominance of few compact centers, is being transformed by the continuous urbanization of rural areas (Hall and Pain 2006). In this light, polycentric compactness is being abandoned and urbanization of land is invading the rest of Attica. At the present moment, the traditional urban asset of the region is radically changing. The new transforming territorial organization of Attica requires the urging necessity to re-think the roles played by metropolitan areas and the spillover region (see also Hall 1997a, 1997b). In this way, post-crisis economic scenarios and the global geo-political uncertainty may contribute to the redefinition of Mediterranean urban centrality (Florida 2011). Some regions, especially those most open to trade, have strengthen the productive network and increase competitiveness in the international arena (Chambers 2008). At the same time, economic recession in southern Europe has influenced these patterns considerably by
reducing competitiveness and depressing the economic performance of several metropolitan systems (Clough Marinaro and Thomassen 2014).

Going beyond the 'Mediterranean city' archetype, Athens' expansion pattern exemplifies the difficult transition of many southern European cities into a new urban arrangement depending on the intimate relationship between urban structure, regional planning, social attributes, cultural aspects and economic factors (Rossi 2004b). Athens' growth adds to the analysis of socioeconomic transformations in large Mediterranean cities, with spontaneity and informality embedded in the city's roots and the lack of evident readjustments with crisis (Tsilimpounidi 2012, Leontidou 2014, Vradis 2014). The present condition is a summary of relevant factors entering the debate on the supposed 'late modernity' of the Mediterranean (Minca 2003, Rossi 2004a, Giaccaria and Minca 2010). In this line of thinking, according to De Rosa and Salvati (2016), informality, non-linearity and unpredictability of growth path should be increasingly regarded as pivotal traits for reconverting 'crisis' cities towards more sustainable and competitive models.

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