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Commentary

Towards Local Forms of Sprawl: A Brief Reflection on Mediterranean Urbanization

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Abstract: Urban sprawl is a complex phenomenon that requires a comprehensive reflection on the most significant patterns and underlying processes. While the "sprawl" notion parallels hegemonic concepts such as economic competitiveness, social cohesion, and polycentric development, an integrated analysis of sprawl patterns and processes in paradigmatic socioeconomic contexts is increasingly required to reconcile different disciplinary visions, contributing to a holistic interpretation of metropolitan change. At the same time, sprawl is an increasingly evident product of local socioeconomic contexts all over the world. A comprehensive investigation of multifaceted, form–function relationships underlying sprawl—based on a quali-quantitative analysis of representative cases—is a crucial pre-requisite of both monitoring and policy actions at multiple spatial scales, from urban/regional to national/continental levels. The present contribution proposes a contextualization of the sprawl notion in Southern Europe—a socioeconomic context characterized by compact and continuous urbanization for a long time. An integrated approach based on a visual analysis of urban and peri-urban landscapes—integrated with an extended literature survey—allows for a definition of a specific sprawl model in Southern Europe, sharing some features with the United States ideal type of sprawl and showing peculiarities with respect to common models of urban dispersion typical of Northern and Western Europe. Policies aimed at containing urban dispersion may definitely benefit from a local-based definition of sprawl, considering the specificity of form–function relationships and the underlying socioeconomic context.

Keywords: exurban development; dispersed settlements; urban planning; urban design; population trends; Southern Europe

1. Introduction

Urban sprawl is an emblematic concept that reflects a period of economic uncertainty and social turbulence. On the one hand, sprawl is associated with well-known notions such as economic competitiveness, demographic trends, social segregation or filtering, and polycentric development [1–4]. On the other hand, sprawl is undoubtedly a complex notion requiring an in-depth reflection on both drivers and consequences [4–6]. Conceptualization is particularly relevant for socially complex processes such as sprawl [7–9]. This notion (i) may indicate a mere morphological outcome studied and interpreted by disciplines such as urban design, regional planning, and landscape ecology [10], and (ii) may be a typical result of socioeconomic processes, being an object of study for urban economics,

environmental sociology, and political geography [11–14]. However, sprawled patterns of human settlement more frequently reflect the form–function interplay at both urban and metropolitan scale; consequently, processes underlying sprawl should be holistically addressed with the aim to reconcile different disciplinary visions investigating socioeconomic phenomena in recent times [15–17].

To face an increasingly deregulated urban expansion, the quest for interpretive paradigms going beyond traditional urbanism and design approaches is becoming imperative. Integrated planning frameworks should consider together land-use policy, regional economy, and urban sociology, taking a more careful account of the economic structures, productive values, socio-demographic characteristics, and environmental features (e.g., accessibility, land availability, soil quality, and climate) of local territories [18–21]. The present commentary introduces and discusses a thorough rethinking of traditional interpretations of sprawl that use generalized paradigms and ideal-typical definitions developing a de-coupled interpretation of morphological patterns and socioeconomic processes of urban growth. By evidencing the local dimension of sprawl, our contribution specifically outlines how a qualitative (visual) investigation of representative case studies may provide the necessary knowledge base for effective assessment and informed policy actions containing dispersed urban expansion and counteracting the negative effects of sprawl.

A context-based analysis of sprawl demonstrates to be particularly appropriate in homogeneous regions—originally developed through compact and continuous urbanization. These contexts were exemplified in this commentary with a comprehensive analysis of the sprawl model in Mediterranean Europe. By focusing on operational definitions of sprawl, the notion of dispersed urban expansion is reviewed and briefly discussed in Section 2. A specific section (Section 2) is devoted to alternative interpretations of sprawl, and different disciplinary visions, from economics to sociology and from planning to ecology, are compared. Section 3 introduces a trans-disciplinary interpretation of sprawl as a local socioeconomic process, distinguishing the United States ideal type of sprawl (Section 3.1) from the less characteristic and more heterogeneous European sprawl. Basing on non-Anglophone literature, the peculiarity of urban dispersion in Southern Europe is considered in Section 3.3. In reference to urbanization patterns and processes in the European continent, a comprehensive information base identifying the peculiarities of sprawl in Mediterranean countries is provided in Section 3.3. Such discussion contributes to a more integrated interpretation of the complexity of sprawl processes. The specific contribution of a local-scale assessment of urban dispersion is extensively debated in Section 4, evidencing the limits of the actual reference frameworks and giving specific suggestions for future theoretical, and practical studies.

2. Defining Sprawl

Urban sprawl is definitely one of the most controversial processes causing territorial reorganization of cities in both advanced economies and emerging countries [22–25]. Sprawl thus refers to an unplanned form of urban growth in which large- and medium-size cities expand into rural areas with low-density discontinuous settlements, creating mixed peri-urban landscapes [26–30]. As a result of these changes, landscape become messy and confused, characterized by fragmented and unstable uses of land [3,31,32], with a series of negative effects for the environment (e.g., the loss of natural values and the negative impact of commuting) and the social sphere (e.g., the loss of identity of the rural population, class segregation, social homogenization, and economic polarization) [33–36]. An integrated vision of sprawl processes in accordance with specific socioeconomic scenarios indicates that

> "(...) the term [urban sprawl] has variously been used to refer to: patterns of urban development; processes of extending the reach of urbanized areas; causes of particular practices of land use; and the consequences of those practices. (...) One of the advantages claimed for this definition is that it suggests and can accommodate different types of sprawl. Furthermore, it permits sprawl to be considered as a process and not merely a pattern of urbanization". [26]

A more comprehensive interpretation of multiple sprawl processes was articulated in different research dimensions [37], providing an operational definition of the phenomenon as a pattern of land-use in an urbanized area that exhibits low levels of some combination of distinct dimensions, that include (i) density, (ii) continuity, (iii) concentration, (iv) clustering, (v) centrality, (vi) nuclearity, (vii) mixed land-use, and (viii) proximity. Although much of these dimensions can be associated with population trends, socio-demographic transitions, and economic dynamics, some of these attributes are specifically linked to different typological and socio-spatial settlements [38–40].

> "Many definitions (. . .) tend to emphasize the idea of urban sprawl being a type of urban form or a pattern of urbanization, rather than a process of urban change. However, in our view, the latter may be a more useful perspective, since it is the process of sprawling that leads to undesirable side effects and it is in the process of sprawling that policy must intervene. A feature of our discussion is therefore that it concentrates on urban sprawl, not as a pattern of urbanization, as is more usual in the literature, but rather as a process of urban change". [37]

Disciplinary Perspectives on Sprawl

General definitions of sprawl reflect the difficulty of identifying and measuring this phenomenon in different urban realities. Complexity, multidimensionality, and non-linearity result from some basic characters of sprawl [26] including urban expansion rates, population density, spatial geometry of settlements, accessibility, and aesthetic traits. More specifically, sprawl has been seen as a process of uncontrolled expansion of cities into empty or rural areas [41,42], being identified in five functional traits: (i) discontinuous development leaving urban voids and fragmented cropland embedded into urban areas, (ii) the expansion of low-density residential areas, with specific landscapes constituted of homogeneous settlements organized into single-family detached houses with courtyards and private gardens, lacking open public spaces; (iii) ribbon development of industrial, service, and commercial facilities along the main transport routes; (iv) the functional specialization of urban spaces, with segregation between residential areas and other land uses; (v) low accessibility and weak transport networks, making people dependent on the use of private transport, mainly due to segregation of functional spaces [36,38].

By approaching the issue from an exquisitely morphological perspective, sprawl has been seen as a general process of urban reorganization [25]. The effects that may result from the point of view of development opportunities were analyzed, underlining the limits of a dualistic approach to territorial "metropolization," de-coupling form from functions [18]. In this regard, urban geography has focused on individual cities, emphasizing the functional approach to networks, the spatial distribution of economic functions, the local/global relationships that allow cities to grow, and the capacity for long-term development in the globalization era [21]. Analysis of this transition moves away from the hierarchy of urban networks as a typical analysis scale for natural environments and socioeconomic systems, focusing on the inherent transformation of the production base that causes, e.g., spatial shifts in service concentration [22]. With this transition in mind, there is less interest in the landscapes, settlement forms, and classical principles underlying urban growth [41], and the debate on cities as nodes of global production networks has become more important when providing refined definitions of sprawl [24]. Urban sprawl has been increasingly reflected in metropolitan forms depending on complementarity, cooperativeness, and specialized exchange [23]. In this framework, the progressive transition from compact to dispersed cities was considered appropriate to the new economic positioning of competitive cities [42]. In a closely geo-economic context, these dynamics have led to the formation and consolidation of so-called "city-regions," seen as a reference model of present (and future) urban growth [5]. Since economic scale is the necessary requisite for international competition [37], this model identifies cities consisting of urban clusters with interconnected and specialized economic nodes, leading to an extensive definition of functional polycentrism [7].

The economic discipline identified the "collective costs of the dispersed city" [43] and the possible models and principles that trace urban transformations, summarizing the terms of the debate on urban

forms with respect to specific issues of sustainability and competitiveness [26]. A discussion on the actual extent to which proximity economies shape local competitiveness would also be interesting, as a phenomenon relevant not only to the economic sphere but also to the social networks that do not mechanically reproduce the result of spatial planning [36,38]. On the contrary, sociology has focused on the organizational principles of local communities, providing original contributions to analysis of new forms of spatial segregation [14,21,44]. Urban sociology also contributes to provide a "territorial vision" of sprawl, made of visual experience and field surveys rather than rational/statistical approaches [45,46]. While offering contrasting perspectives on sprawl, planning and landscape ecology indicate which models and operational approaches are appropriate to regulate the new structure that cities with low-density urban diffusion are taking [47–49]. Additionally, landscape ecology suggests indicators to implement effective land-use strategies preserving natural values in fringe districts [50].

Despite the need of complex and systemic approaches to urban studies, sprawl still remains a mixed morphological and functional issue, e.g., in terms of housing, land-use, fragmentation, and confusion of landscape characters [35,48]. At the same time, sprawl has a cognitive and operational value, representing a landmark to guide choices in land-use planning [50]. At a sub-regional scale, the identification of different types of settlement development allows for the classification of the general principles that orient metropolitan growth, making them comparable with other experiences and therefore generalizable. Sprawled settlement trends are peculiar because of the critical elements of this process, policy directions, and more consistent planning models [51]. In this regard, peri-urban morphologies reveal new mechanisms of sustainable development, the concept of a "non-city" based on individual economic functions [52–54]. At the same time, the quest for social cohesion and improved quality of life identifies new priorities, clarifying original production mechanisms. Even in a critical and innovative perspective, the stakeholders are still the institutions and policy makers [55]. There is a strong need for analysis tools that support institutional choices in a context of uncertainty, going beyond a strictly "economistic" approach to local development [56].

3. Urban Sprawl as a Local Process: A Trans-Disciplinary Perspective

While the term "sprawl" was explicitly used, for the first time, in the late 1930s by E. Draper [3,26,41,42], and was subsequently spread to social and environmental sciences, common and universally agreed definitions are still lacking [57]. This issue is largely due to the fact that sprawled settlements are particularly heterogeneous across continents and even individual countries. Sprawl types diversify in relation with local specificities in the metropolitan spatial structure, its dynamics, and socioeconomic and environmental contexts [11]. While being a semantically clear and concise notion, Galster et al. [26] criticized the terminological ambiguity of sprawl, pointing out that a significant part of the scientific literature has been "lost in the semantic wilderness." Without strong definitions based on local experience, the concept remained vague for a long time; in some cases, scholars were said to "recognize the matter when they see it." In this ambit, discussions on sprawl were carried out without any definition of the essence of this issue [57]. Based on these premises, an integrated rethinking of the issue seems to be appropriate, searching for new definitions and interpretations, and especially proposing scientific frames that analyze sprawl in a wider sense. Evidencing the role of local contexts is an important requisite in any definition of sprawl as a peculiar type of space, settlement, or landscape.

3.1. The United States Ideal-Type of Sprawl

The discussion on sprawl dynamics was (and still is) particularly rich and articulated in North America. At the turn of the mid-nineteenth century, American cities began to develop along a different path from the traditional European model of urban expansion grounded on radio-centric development. When talking about the urban fringe in the United States for the first time [58], more than 10 million inhabitants depended exclusively on private mobility, and the 92 largest cities gained more than 1.5 million inhabitants between 1930 and 1940 (about as much as the rest of the country). The annual population increase was 4% in central cities and 14% in the suburbs. Based on

this evidence, sprawl in the United States was a rather mixed phenomenon; planning choices and peculiar residential models consolidated after World War II, sometimes leading to very homogeneous districts. This settlement pattern, constituted of detached houses (or villas) with backyards, small private gardens, swimming pools, and parking sites, was the core of a new way of living, reflecting a generalized idea that was later referred to as "suburban utopia." Suburban districts of Los Angeles were frequently taken as typical examples of this type of residential sprawl (Figure 1), being representative of well-known settlement characteristics (the so-called "US sprawl ideal-type"), which are now relatively common outside the country's boundaries. Based on these premises, the ideal type of sprawl in the United States was sometimes regarded as an essentially negative phenomenon, being associated with dispersed metropolises, land take, oil/energy consumption, suburban congestion, and air pollution [41]: "Urban sprawl is a pattern of urban and metropolitan growth that reflects low-density, automobile-dependent, [and] exclusionary new development on the fringe of settled areas often surrounding a deteriorating city."

Figure 1. Homogeneous, low-density settlements reflecting residential sprawl in Los Angeles (source: Google Earth imagery, 2018).

3.2. The European Perspective on Urban Sprawl

Although sprawl has been considered a traditional urban manifestation in the Anglo-Saxon context and is still largely dominant in the United States [26,41–43], urban dispersion has been increasingly observed in Europe [14,59–63]. In this continent, research has focused on theoretical and empirical dimensions of sprawl, moving sometimes towards a simplistic (or more articulated) modeling of the underlying socioeconomic processes. A European Environment Agency report [27] indicates the following:

> "Urban sprawl is synonymous with unplanned incremental urban development, characterized by a low-density mix of land uses on the urban fringe. (. . .) Urban sprawl is commonly used to describe physically expanding urban areas. The European Environment Agency (EEA) has described sprawl as the physical pattern of low-density expansion of large urban areas, under market conditions, mainly into the surrounding agricultural areas. Sprawl is the leading edge of urban growth and implies little planning control of land subdivision. Development is patchy, scattered and strung out, with a tendency for discontinuity. It leap-frogs over areas, leaving agricultural enclaves. Sprawling cities are the opposite of compact cities—full of empty spaces that indicate the inefficiencies in development and highlight the consequences of uncontrolled growth."

Assuming that the Anglo-phone interpretation of sprawl may simplify the inherent complexity of urban landscapes [64], research on the European patterns of sprawl—especially in French-speaking,

Teutonic, and Mediterranean contexts—has led to new interpretative approaches, referring to specific processes that are physically distinct from the US ideal type of sprawl [33,60–62]. Such approaches take account of processes of revitalization that improve commuting spaces in response to accelerated demographic dynamics in enlarged metropolitan regions. In this regard, peri-urbanization is a notion specifically adopted by French geographers and forms the background of a multifaceted (positive and normative) debate on the recent evolution of metropolitan systems and its governance [63]. Since the 1970s, the Francophone geography outlined such confused development between cities and the surrounding countryside, where population and urban activities are chaotically scattered in rural areas, with low settlement density [65–67]. Peri-urbanization was therefore a neologism proposed to define a migration out of the center of medium-large urban areas, and suburban locations were interpreted as the space resulting from such transformations [68,69].

Sprawl in the European continent was accompanied by a turnaround process, implying a "change of scale" within metropolitan regions [70–72]. This process was interpreted assuming that cities expanded following a general "urban life cycle" based on different phases of growth, from urbanization to suburbanization and from counter-urbanization to re-urbanization (Figure 2). Peri-urbanization becomes one of the processes investigated as part of a more general framework exploring logic and effects of the territorial reorganization of cities. Accordingly, peri-urbanization is not defined as the space resulting from such transformations, but the process itself, whose interpretation should consider together socio-demographic, economic, and territorial dimensions of change [16,73,74]. In this ambit, an "economistic" vision of the relationship between cities and the surrounding territory was developed, and this became a distinctive point of view of the sprawl literature in Europe [75–77]. Morphological dimensions were integrated in this perspective, enriching mainstream and alternative visions of regional planning and landscape ecology [78–80]. The specific demographic profiles that characterize European peri-urban areas, the main differences with well-known American stereotypes, or how much class segregation is observed in planned areas compared to informal ones are issues that should be better investigated in future studies [81,82].

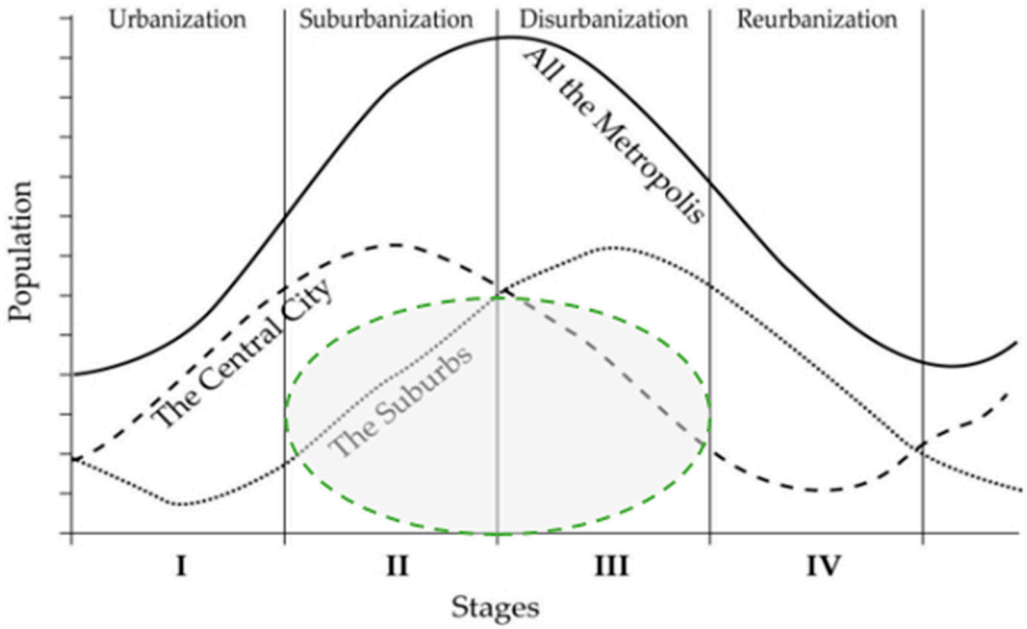

Figure 2. A schematic representation of the "urban life cycle" model (redrawn from [68]). Stages I, II, III, and IV, respectively, indicate urbanization, suburbanization, counter-urbanization, and re-urbanization; the dashed circle indicates the stages with the highest probability of sprawl.

3.3. Defining and Characterizing Sprawl in Southern Europe

Sprawl in Mediterranean Europe coincides with a relatively new process of territorial reorganization in cities moving rapidly to counter-urbanization and de-concentration [83]. The spreading of low-density settlements is considered a synonym of peculiar urban morphologies, mixing residential and productive characters. In these cases, sprawl patterns evoke a Mediterranean style of urban growth, represented by the coexistence of traditional, multiple arrays of rural, low-density settlements (Figure 3) with a new, discontinuous urban fabric, making the spatial interpretation of landscapes even more difficult and less linear [84].

Figure 3. Established forms of urban diffusion in Mediterranean rural areas: (**left**) low-density traditional settlements along the road network in coastal Veneto, Northern Italy; (**right**) the polycentric settlement system of rural Apulia, Southern Italy (source: Google Earth imagery, 2018).

The most evident transformation in Southern European cities involves peripheral districts (Figure 4), spreading chaotically into rural and empty spaces as a result of both planned and spontaneous urban practices [3,85–88]. Suburbs have invaded natural landscapes through spatially extensive and discontinuous settlements, often following road and railway infrastructures [89–92]. These settlements are thus functionally and morphologically distinct from the more compact settlements growing radio-centrically in the outskirts of the largest Mediterranean cities [19,48,93–97].

Figure 4. Evolution of dispersed settlements in Mediterranean city outskirts: (**left**) the pre-existing rural settlement leaving empty spaces and relict natural areas; (**right**) isolated and spatially uncoordinated buildings occupying green voids and further fragmenting peri-urban areas, creating a fractal landscape with a discontinuous and low-density urban fabric (source: elaboration on Google Earth imagery, rural land south of Rome, Italy, 2006–2008).

A narrative about Barcelona's sprawl after the 1992 Olympic Games focused on suburban places transforming the city landscape, altering its charm of complexity, unpredictability, and settlement compactness [60]. Rome was another example of an originally semi-compact city undergoing settlement fragmentation, dispersion, and "insularization" [83]. By creating a fractal landscape [30,35,88],

discontinuous settlements had progressively developed following some axes radiating from the historical center that coincides with the core of the ancient city two millennia ago. The transition from compact to dispersed settlements involved a larger area encompassing the boundaries of the capital city, and impairing the distinctive features of the Agro Romano landscape, one of the most characteristic rural landscapes in Central Italy (Figure 5).

Figure 5. A traditional rural district (Agro Romano) surrounding a large Mediterranean city (Rome, Italy) and invaded by discontinuous residential settlements: (**left**) aerial view; (**right**) landscape (source: elaboration on Google Earth imagery, 2016, and authors' photographic archive).

More generally, two urban typologies were identified in the Northern Mediterranean region [37]. The first model includes (evident or latent) polycentric regions, where the traditional urban fabric evolved through the differential growth of large urban centers, medium-sized towns, and the connecting parts in between. This development concerns economically mature regions, without a clear urban hierarchy. For instance, such development was observed along the Po Valley in Italy and along the coastal arc from Valencia to Genoa, encompassing Mediterranean Spain, Southern France, and Northern Italy.

The second model was basically characterized by traditionally mono-centric and hierarchical districts, usually dominated by a medium-large city, with originally compact settlements and a net density gradient [28,89,90]. In this model, central areas—experiencing a rapid population growth after World War II—dominated the surrounding region, expanding in more recent times under demographic stability or decline [91]. In these cities, population de-concentration paralleled a (more or less) pronounced industrial decentralization, reflecting a spatial relocation of services and commercial space along the fringe. This process mostly involved the first peripheral ring; population relocation in suburban locations searching for a better life quality has consolidated sprawled settlements. Such typology was found in mono-centric Rome and Naples, Italy, and in compact cities of Spain and Portugal, such as Barcelona and Lisbon (Figure 6).

Distinctive Patterns of Mediterranean Sprawl

Despite the inherent heterogeneity of urban contexts, an attempt to contextualize urban sprawl in the Mediterranean region can refer to socioeconomic contexts typical of the largest metropolitan areas, trying to identify the most significant differences with processes observed in the North-European and North American cities [59]. These differences are mainly found at the regional scale, within an integrated morphological and socioeconomic interpretation [8,14–16,32]. Its effects can be also considered through a vision that interprets sprawl in order to identify the ecological consequences in terms of land consumption and soil sealing, landscape fragmentation, loss of biodiversity, and typical local culture [35,36,94]. Some classifications of the most relevant factors underlying sprawl were more recently proposed [93], discriminating dynamics into systematic repertories of local contexts and demonstrating new cases of urban dispersion. Compared with the Anglo-Saxon experience, sprawl appeared quite late in the Mediterranean urban literature [14,33,34,69,81], revealing three synergistic features: (i) the impact of diversified urban forms, (ii) the "hesitant" role of territorial planning, and

(iii) the conflicting relationship between population and urbanity. Most of the greatest Mediterranean cities had compactness as a distinctive feature of their urban landscapes [91]. Even some traditionally branched cities grown in the last century have kept characters of hyper-compactness and population density in central cores [72]. The compact shape has influenced urban growth in a period of strong demographic increase encompassing the second half of the last century [30]. This growth, especially in cities with million(s) inhabitants, has found a quite varied population response to different urban settings. The common features of this response can be identified in the combination of public–private intervention under a specific radio-centric growth path, being structurally additive to original core settlements [95]. In such a context, the ambiguous role of planning and the increasing (public) space granted to private interventions have weakened policy and control instruments [96], causing horizontal segregation, an unequal distribution of public services, and heterogeneous accessibility to transportation [37,97].

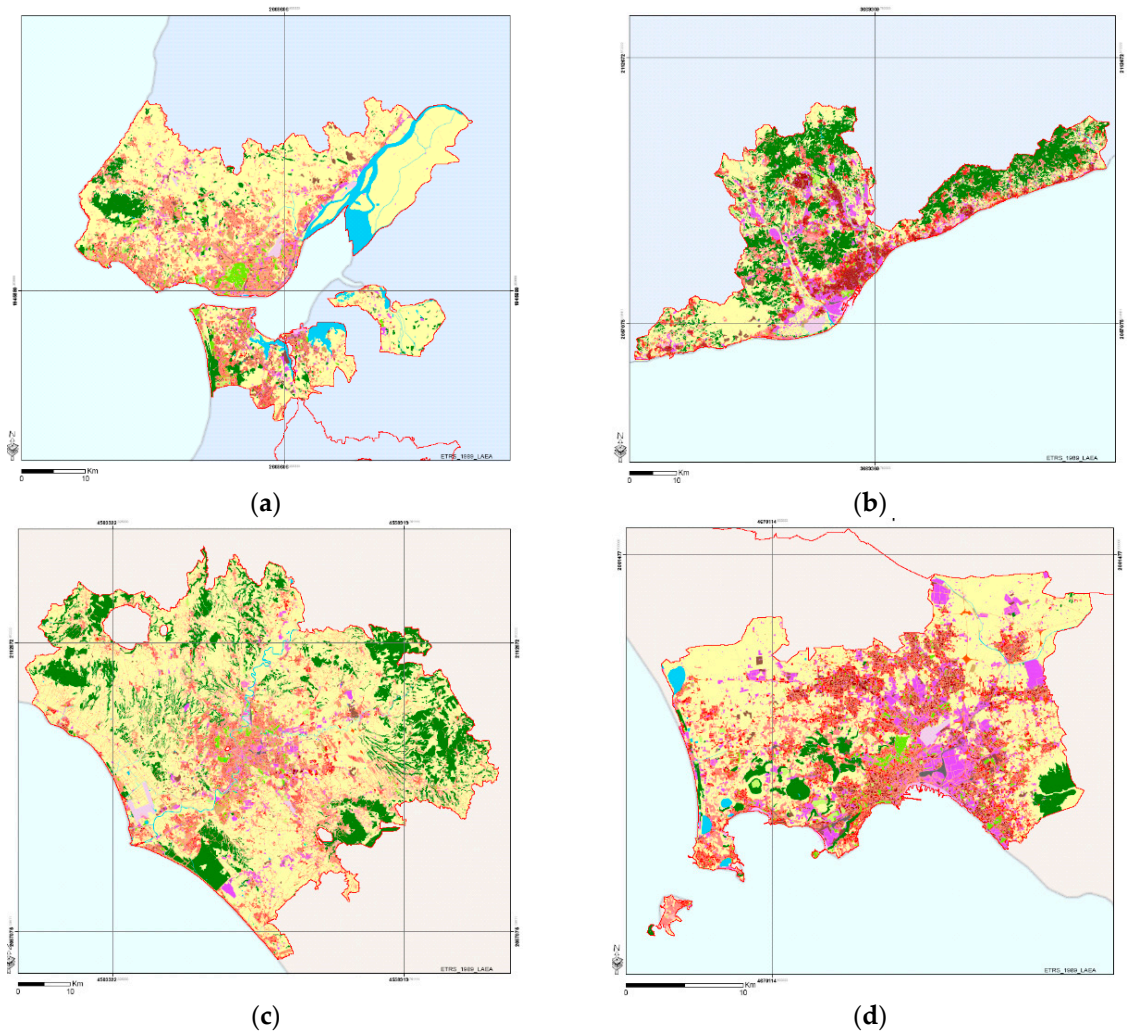

Figure 6. Land-use maps (**left**) of selected Mediterranean cities: (**a**) Lisbon, (**b**) Barcelona, (**c**) Rome, and (**d**) Naples (elaboration on Urban Atlas Land Copernicus maps, 2012).

From an ecological point of view, against the environmental problems associated with high population density, the advantage of compact growth has been related to moderate land consumption, mainly concentrated along the fringe [98]. The most important factor that has allowed such growth, at least until the 1980s, was an ever-growing urban demand, which perpetuated a message communicating big cities as the "promised land," free of economic restrictions and without the "cultural

poverty" typical of the countryside. Urban growth in Greece, Italy, and Spain has involved populations inspired by geographical imaginations of urbanity rather than any sort of rural idyll, as is typical in North America [13,16,23,28,32,99]. As a matter of fact, rurality in a great part of Mediterranean Europe has been said to be

> "(...) synonymous with economic backwardness, migration, poverty and insecurity; whereas urbanity, on the contrary, has been synonymous with economic prosperity, better job opportunities, and social amenities or infrastructure linked to a higher quality of life. (...) [L] arge masses of rural populations moved to cities (...). Migrants could not afford to inhabit the central city, but they tried to build their settlements as close as possible to it. Their astyphilia was pragmatic and related to survival strategy. They followed infrastructural development and sought employment in the urban community, entering the informal sector". [62]

The widespread ecosystem vulnerability to environmental pressure (e.g., climate aridity, drought, soil characteristics, susceptibility to hydrological risks and earthquakes, and water and air contamination), more recently observed in the region, is clearly a by-product of Mediterranean sprawl [68,87,94], since de-regulated and unplanned urban dispersion appears to be mainly responsible for the critical ecological conditions in peri-urban districts [99]. In this regard, the concept of peri-urbanization has proposed new analysis perspectives [100–102], interpreting urban dispersion as a sort of new lifestyle that indirectly promotes different forms of spatial organization compared with traditional city models [92].

By encompassing a continuous socioeconomic transition, Mediterranean cities have sometimes developed a sort of "lock living" style, promoting a specific typology of low-density building [103]. A landscape with dispersed residential settlements, dominated by villas with swimming pools surrounded by hyper-controlled and almost fortified green areas, reflects the homogenization of fringe districts, with widespread low-density settlements physically disconnected from inner cities [14,60,61, 67–70]. For instance, Athens (Greece) has experienced sprawl processes outside the boundaries of the compact city in a mixture of motivations and social tensions after the 2004 Olympic Games [62]. This mixture of socioeconomic factors distinguishes Mediterranean cities from other territorial contexts [104]. Many Southern European cities, in recent years, have revealed signs of convergence to such settlement types [105,106]: Barcelona's suburbs were progressively polarized into unplanned peripheral districts (built-up in the first wave of suburbanization during the 1960s and 1970s with medium-low settlement density and social class composition) and planned low-density settlements (built-up in the Olympic decade of the 1990s) mostly inhabited by rich people. Recent urban dynamics in Rome, Italy, resemble those observed in Athens and Barcelona (Figure 7).

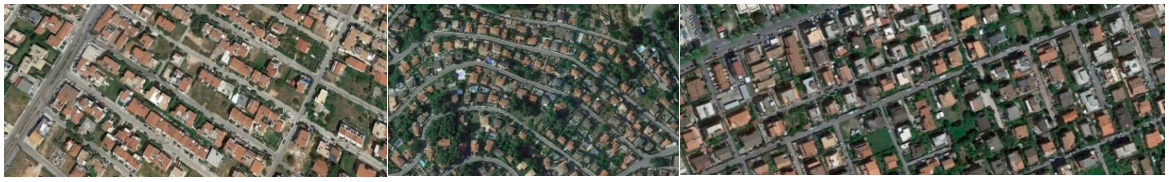

Figure 7. Morphological profile of recently built-up Mediterranean suburbs reflecting a "lock living" form of urban sprawl in Athens (**left**), Barcelona (**middle**), and Rome (**right**), based on aerial photographs (Google Earth imagery, 2018).

4. Discussion and Conclusions

Analysis of different cases allows for identification of the most important dimensions illustrating peculiarities of Mediterranean sprawl [37]: (i) Sprawl is a relatively recent phenomenon in Southern Europe, potentially more rapid and intense than in Western, Central, and Northern Europe. (ii) It took place at the end of the demographic growth typical of the 1960s and the 1970s, which corresponded

to compact (or semi-dense) urban development. (iii) Sprawl is undoubtedly a multidimensional phenomenon crossing the three dimensions of sustainability: (a) from an economic point of view, urban dispersion was part of a context when building activity (planned and/or deregulated) still represented an important factor at the local scale; (b) from a social perspective, sprawl influenced both horizontal and vertical social segregation typical of Mediterranean cities [101]; (c) from an environmental perspective, sprawl reflects the ecological fragility of rural areas, the economic weakness of the agricultural sector, a diffused socio-ecological permeability of fringe land, and the functional dependence of suburbs from the central cities. Rural areas were converted to low-density residential settlements in socioeconomic contexts where the quality of life does not seem to be the main objective of planners called to design or redevelop organized spaces grown (more or less) spontaneously in the past [35].

This transition reflects the possible future of the Mediterranean city. Will the major urban areas of Southern Europe contain the extensive land consumption and keep the specific traits of their past development? Will the historic centers maintain their distinctive characteristics, continuing to intercept the flow of tourists and attracting new flows of residents, or lose population, still recalling new commuter and migration flows? Will Mediterranean cities converge to a common planning scheme or will they retain their typical appearance, with distinctive socioeconomic features and polarization between downtowns and peripheries? Will they maintain the exchange relations with the surrounding area or will they continue to invade free areas, considered as "urban voids" or "empty space" despite the presence of historical cultural emergencies and valuable environmental coexistences? For a long time, the partial failure of urban planning has entrenched the economic backwardness and cultural marginalization of the Mediterranean basin [62]. A form of interpretive elitism, a sort of convergence towards shapes, structures, and functions, has sometimes permeated projects and urban plans [53].

In such a context, interpreting spontaneity has been suggested as key to understanding landscapes and simultaneously as a space of economic production [31]. Functional processes of Mediterranean sprawl recognize the importance of pre-existing settlement layouts in the current growth path. The consolidation of a medium-small network of cities has been associated with low-density settlements and service areas embedded in a reticular model. This phenomenon has definitely been seen as a "weak" form of urbanization, developing new interstitial spaces [77], breaking social patterns, and impacting local economic structures [93]. Regulating sprawl means finding new forms of territorial governance, overcoming the traditional opposition between spatial planning and settlement spontaneity, and re-establishing more traditional linkages between humans and the environment.

Based on these premises, further studies should focus on what sprawl and compactness effectively represent for Mediterranean cities [34,76,107–109]. Are they a strength or a weakness? What are the advantages of sprawl? Which negative feedbacks can reduce a system's cohesion? Answers to such questions may confirm the importance of a comparative analysis of sprawl in local contexts. In the Mediterranean case, major urban regions and the surrounding rural territories seem to be significant cases for the reasons given above. The peculiarities of different sprawl types must be identified, and the overall vision—both functionally and morphologically—must satisfy the stringent need for practical solutions to such a latent, yet impactful, process [40,97,110]. Bearing in mind the assumptions discussed in this study, planners and local authorities should promote urban design with effective measures addressing sprawl and settlement containment towards a more responsible and sustainable urbanization strategy.

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