

The role of cultural and creative services in the evaluation of the world urban system

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Abstract

Traditionally, academic evaluation of the world urban system has been based on economic approaches and focused on main first-level cities. However, the recent convergence between economic and cultural spheres, known in the specialist literature as ‘new economy’ or ‘cognitive–cultural capitalism’, requires the inclusion of secondary cities and cultural parameters, such as creative and cultural services, to obtain knowledge of the world urban system with greater accuracy. Accordingly, the authors have developed a Synthetic Index of Cultural Components (objective 1). Subsequent statistical treatment through a principal component analysis and a cluster analysis not only shows a representation of the multifunctional character of the world urban system (objective 2) but also the identification of the cultural specializations that urban planners use to position cities internationally (objective 3). The results demonstrate that the reputation of a city derives not only from its productive

economic character but also from other cultural services that give meaning to its multidimensional perspective. The authors conclude that these services are empirically valid when the cultural dimension is measured, as they are illustrative of the cultural mechanisms that help cities to supply symbolic, experiential, and creative capital, all of which are vital in the competitive context of globalization.

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Introduction

The study of territorial processes from a geographical perspective and on a world scale has had a major impact on the academic world, predominantly due to the acceleration of processes related to globalization (Alderson & Beckfield 2004; Taylor et al. 2012; Taylor & Derudder 2016). At present, studying the cities and their operation in the world urban system is still a complex task as a consequence of the many changes that have occurred in the context of globalization, such as the transport revolution and the tertiary society, whose impacts on the cities have been impressive (Amin 1998). These changes favoured the academic debate on the 'global cities' and other key concepts in geography such as city networks and urban hierarchies (Díez-Pisonero 2016).

Beginning with the pioneering approaches of Geddes (1915) and continuing until the present, numerous proposals have attempted not only to define what the 'global city' means but also to determine its position in a hypothetical world urban system (Hymer 1972; Reed 1981; Friedmann 1986; Sassen 1991; Castells 1996; Taylor 2004; Taylor & Derudder 2016).

Attracting goods and services of all types as well as being part of major global flows have become priority goals in recent urban planning and management, with the aim not only of increasing the socio-economic status and international scope of cities but also of improving their ranks in the world urban hierarchy (Sabate & Tironi 2007). Thus, a discourse of rivalry and competitiveness among cities has been generated, which is contributing to the proliferation of empirical studies aiming to define cities' positions according to different factors. The rankings can be considered an important instrument in research because they are useful in understanding the structuring of territory and in identifying cities that polarize all types of 'mobilities' (Gago et al. 2017). However, they are also criticized because they are being used more and more as a neoliberal discourse in which the main goal is that a particular

city has a high rank regardless of the specific conditions of the surrounding territories (Gago et al. 2017).

Beyond the above-cited positive and negative connotations, the world urban hierarchy rankings have been used to analyse, from a thematic point of view, the competitiveness of cities from two approaches (Derudder 2006). The first approach is the economic perspective, which is considered the ‘decisive outlook for all intents of academic explanation’ (Friedmann 1995, 69). This economic approach has generally stopped at the study of the headquarters of and flows between multinational and large companies, which are interpreted as the main drivers of economic globalization (Friedmann 1995; Alderson & Beckfield 2007; Csomós 2013). The second approach is the perspective of transport and communication infrastructures, and focuses on the analysis of networks in telecommunication (Faratin et al. 2008; Malecki 2012) and air transport (Derudder & Witlox 2005; Córdoba & Gago 2010).

However, today it is accepted that competitiveness does not rely solely on traditional factors such as a city’s geographical location, economic role, accessibility, and connectivity. Currently, a large number of factors are involved in cities that are competing to attract residents, tourists, investors, and researchers and in providing the elements that are essential to ensure their progress and welfare. These factors include, in particular, highly qualified and diversified human capital, emblematic symbolic capital, high quality of life, and an active, open, and tolerant cultural environment, among other ‘soft factors’ (Florida 2002; Landry 2012). Many of these factors are related to the leisure and consumer society, which prevails today and which must be contextualized, in turn, within the concepts of the ‘new economy’ (Hutton 2009; Pratt 2011) and ‘cognitive–cultural capitalism’ (Scott 2008; 2014). This perspective has assumed great theoretical weight due to the contributions of the Los Angeles school and its formulation of the concept of the ‘celebrity city’ (Scott & Soja 1998; Soja

2000), together with those who emphasize the value of creativity (Florida 2002; Landry 2012).

Thus, the study of previous factors can help to enrich our knowledge of the organization and structuring of territory on the planetary scale. In this sense, in this paper, our assumption recognizes the need to incorporate the cultural dimension (through the ‘cultural components of globalized capitalism’) into our knowledge of the world urban system. This raises the question of whether we can offer a different approach that goes beyond the traditional urban economic rankings that offer a skewed picture of reality.

Additionally, most studies of urban issues, conducted from a scalar perspective, have focused exclusively on the most illustrative cities in the world urban hierarchy. However, following the idea of Marcuse & Kempen (2000), namely that globalization is a process that manifests itself in different ways and intensities, our study is intended not only to identify those global cities, which are almost always multifunctional in nature, but also to evaluate cities for which certain uniquenesses determine broad areas of influence, even though such areas are much more specialized. In accordance with these ideas, the main objective of this paper is to analyse the organization of the world urban system based on the creative and cultural services available in global and secondary cities. To that end, three specific objectives are proposed:

1. to develop a Synthetic Index of Cultural Components to show the role of the creative and cultural services in the current territorial organization resulting from the new economy
2. to identify the organization of the world urban system through large sets of cities according to economic and cultural roles as well as specializations. For this, two rankings are compared using a cluster analysis, one based on the cultural theme developed in this paper (Objective 1) and another based on an economic theme, which

has been developed by the Globalization and World City Research Group (GaWC), whose results have been applied directly

3. to determine more specifically the functional specialization of cities from the perspective of creative and cultural services through a principal component analysis and a second cluster analysis.

Creative and cultural services as factors in urban competitiveness

Cultural production and consumption of cities in the 'new economy'

Traditionally, globalization research has given greater weight to the economic approach when analysing urban competitiveness (Alderson & Beckfield 2007; Rozenblat & Pumain 2007). However, we argue that this is a much more complex issue than previously recognized and that many types of evidence have a place. In our view, the cultural dimension of cities is of particular importance, given the remarkable convergence between economic and cultural spheres. In the specialist literature this dimension is called the 'new economy' (Amin & Thrift 2007) or 'cognitive-cultural capitalism' (Scott 2008; 2014), according to which, competent mechanisms of the industrial city are replaced by others of intangible nature, such as knowledge, innovation and creativity, which are considered the new driving forces of territorial development in the post-industrial city.

Different names are used to refer to sites where the driving forces dominate, such as 'knowledge cities' or 'knowledge corridors' (Dvir & Pasher 2004). Regardless of their denomination, the sites are significant in urban development because they are designed to stimulate production and circulation of intangible capital, feed the renewal of cities and their economies, attract talent and innovation flows to and from the city, and participate in the 'knowledge economy', with the aim of projecting economic growth and post-industrial development (Yigitcanlar et al. 2011; Edvardsson et al. 2016).

Until recently, cultural variables have not been included in measurements of the world characters of cities. However, some authors in geography in particular, and the social sciences in general, have proclaimed their prominence because, although culture has appeared as a minor component of the concept of ‘global city’ in recent years (Pratt 2011), the growing prominence of creative and cultural services in the economy is surprising (Howkins 2007). It is generally accepted that these services refer to sectors in which the objective of organized activity is the production, promotion, diffusion, and commercialization of goods, services, and activities of cultural, artistic, or patrimonial content (UNESCO 2013). Other official definitions are used by, for example, UNESCO (2005) and the European Commission (2010), but in all of them there is an evident lack of agreement on the definition, since the inclusion or exclusion of certain sectors (on the borders between culture and industry) depends on multiple factors (Power 2011). However, our aim in this paper is not to focus on the theoretical debate but rather to develop a broad understanding of the concept that allows us not only to analyse the positions of cities within the cultural and creative sectors but also their roles in development mechanisms.

Today, the creative and cultural services take on a special significance in the world urban system, as urban centres are the best examples of the practices of cultural production and consumption, and therefore they are elements that encourage the development of cultural globalization (Margulies 2016). Given the mutual dependence among these activities and the places where they are implemented, many cities emphasize their cultural offerings when pursuing better positions with regard to this type of activity. Thus, cultural services become the heart of urban activity (Andersson et al. 2011) and the fundamental elements of urban competitiveness (Méndez & Sánchez Moral 2011).

Thus, the growing renown of the creative and cultural dimensions of cities (specially in the Global North) has encouraged urban planners to think not only in terms of the locations

of manufacturing and the competitive conditions of production (e.g. cheap land, labour and energy, and good communication) but also to consider the cultural evidence of the global order that encourages urban thematization. For example, note should be taken of leisure and recreational activities, creative and innovative dynamics, the location of companies and institutions at the vanguard of research, knowledge and technology, and the hosting of cultural events and/or festivals (Musterd & Gritsai 2013; Thiel 2017). Today, there is growing competition among cities to host such activities, especially among those considered first-level cities, which ‘struggle’ to ascend to and stay on top of the world urban hierarchy. These activities now play an important role in urban planning, not only from a material point of view (e.g. the attraction of foreign currencies, investments, and tourists) but also because of their power of persuasion, the image they project, and the symbolic and intangible values they convey, which are recognized in the leisure and consumer society (Urry 1995; Ritzer 2006; Bauman 2007).

For some authors, the above-mentioned types of evidence have become indispensable catalysts, not only of socio-economic development (e.g. stimulation of economic growth, diversification of tourism products, and promotion of social cohesion) but also of the organization and development of the entire urban concept (e.g. infrastructures and strengthening of the city’s image), thus facilitating the inclusion of cities in the logic of cultural services (Power 2011). Thus, creative and cultural services have attracted great interest, not only for their inherited potential but for their creative value, which is used by authorities as a strategy for urban branding (Rehan 2014), and to project new factors of urban differentiation (Evans 2009). In turn, these are manifested as symbols, images, and identities that allow the differentiation and particularization of the meaning of cities on the world scale, beyond a traditional economic perspective. This is considered particularly relevant in the current competition among cities on the world scene; they are not only trying to create an

identity that promotes their urban image of prestige but also to distinguish themselves with respect to other cities in a context of global homogenization (Chu-Shore 2010).

Measuring cities through creative and cultural rankings

The theoretical considerations presented above have favoured the development of creative and cultural services in the literature, opening the door in the last two decades to the proposition of new urban hierarchies whose axis of activity is not only in the manufacturing sector but also in the production of intangible ideas and services, linked to the ‘new economy’ or ‘cognitive–cultural capitalism’ (e.g. PricewaterhouseCoopers International 2014; Mori Memorial Foundation 2015; Reputation Institute 2015). Although each hierarchy is produced by a particular organization or institution and therefore has a certain methodology and purpose, collectively the hierarchies reflect the recent interest in evaluating cities, not only based on their traditional resources such as their economies, finances, and connectivity but also on more abstract questions based on social, political, and cultural components.

Given the progress of the above described contributions, due to the multidimensional nature of the hierarchies’ works, the results of such works should still be interpreted with caution because of at least three shortcomings, which in our view must be taken into consideration for the results to be applicable to scientific purposes and not just to the needs of city marketers or the institutions that produce multidimensional rankings. The shortcomings are: (1) the selection of indicators, as they should be as many, varied, and objective as possible; (2) the weight given to the different cultural indicators in the final results, as it is still quite low in most of these rankings, and (3) the number of cities included in the analysis since the fewer the cities, the more the comparability of results is affected (Gago & Díez-Pisonero 2013). The latter point is especially interesting in our work, as we agree with

Marcuse & Kempen (2000), who consider globalization to be a process that manifests itself in different ways and intensities.

Thus, studies of urban issues should not focus exclusively on the most illustrative cities in the world urban hierarchy but also on secondary cities characterized by their more functional specialization. Such cities, which are slightly more distant from the concept of the global city accepted in the academic world, also contribute to the organization of territory. Accordingly, we have developed the Synthetic Index of Cultural Components (SICC) for assessing the creative and cultural services of the global and secondary cities in the world urban system through the cultural components of globalized capitalism. The index incorporates alternatives to the above-mentioned shortcomings in the literature. In particular, it offers the convenience of incorporating a sufficient number of cities to produce results beyond the numerous and repetitive ‘top 10’ lists of cities and the use of quantifiable indicators, which do not depend on the subjectivity of producers. Unlike other respected studies (Mayor of London 2012; Skórska & Kloosterman 2012), The SICC does not select any city in advance. Rather, it expands the ranking in relation to the appearance of the variable, and the selection of indicators depends on their availability in contrasting sources.

In recognizing in advance the impossibility of measuring a cultural phenomenon due to its intangible nature and, given the definition of what, from an anthropological and sociological perspective, can be considered as culture, it should be clarified that the cultural components in the SICC do not measure culture but rather a specific type of creative and cultural services linked to the current phase of capitalism (Amin & Thrift 2007). They are illustrative of the expansion of industrialized activities (Horkheimer & Adorno 1998) and commercialized cultural activities (Bauman 2007) and are quantifiable and measurable parameters in terms of supply and demand, as well as services offered in very uniform formats that are consumed worldwide. The selection of indicators can be criticized because a

large amount of considered evidence is linked to practices of Western culture (e.g. music, cinema, sports, exhibitions, and museums), which is a controversial issue within the social sciences (Nederveen Pieterse 1994). The criticisms are predominantly associated with ‘urban entrepreneurialism’ (Harvey 1989) or the ‘commercialization of culture’ (Bauman 2007). At this point, it is also necessary to mention the existing critical literature on the ‘creative’ thesis. Instead of focusing on economic growth and urban competition as is usual in neoliberal agendas, some authors prioritise dealing with social and economic inequalities, and highlighting the importance of public space and cultural diversity, among other issues (Moulaert et al. 2010). However, the limitations of their analyses are accepted and these indicators are considered illustrative, not only because Westernized cultural evidence is predominant on the global scale, especially in quantifiable terms, but also because these indicators are widely accepted in some statistical systems. This is the case for UNESCO’s Framework for Cultural Statistics (FCS) (UNESCO 2009), which serves as a key reference in the empirical part of this paper. These indicators are very helpful in showing how the world urban hierarchy is being modelled by other functions beyond the productive economic approach.

Methodology

Broadly speaking, two synthetic indices are used to perform our evaluation of cities in relation to their functions, the GaWC Synthetic Index (SIGaWC) and the SICC:³

1. The SIGaWC is an economic approach. The ranking was created by the GaWC and is based on what it has called an ‘interlocking model’ (Taylor et al. 2002), which means that cities are assessed in terms of their advanced producer flows because these are considered one of the most important vectors of economic globalization (Sassen 1991; Taylor 2004). Despite the criticisms received as a result of ‘economic reductionism’ in

their analysis (Nissel 2004; Robinson 2002; 2005; 2016), the assumption that there are perfect and multidirectional connections within each company, and exclusive consideration of advanced services versus the great variety of types of economic dedication of companies (Nordlund 2004), the interlocking model's proposed world urban hierarchy has been widely recognized and cited by researchers (e.g. Sánchez Moral 2008; Díez-Pisonero 2016). The results used in this paper have been taken directly from the GaWC's web pages (GaWC 2014).

2. The SICCC is a cultural approach and has been initiated as part of the research on which this paper is based. An open perspective (without preselected cities) that combines eight major cultural and quantifiable dimensions, as suggested by UNESCO (2009), has been used (Table 1). All indicators (collected mostly in 2008–2012) were subject to statistical treatment based on a normalization process and an assignment of discriminant weights. Regarding the normalization, the data were expressed as a proportion (or %) of the total value, since all indicators are considered in different units that make comparison difficult. As for the weights, all indicators were weighted equally, except tourism, which was slightly overweighted as a way of emphasizing its relevance in the current society, both from the point of view of number of tourists around the world and the territorial and social repercussions of tourism. Finally, the obtained values were ordered from highest to lowest and were converted to discrete (ordinal) data to obtain the SICCC. This index shows an urban hierarchy in relation to the creative and cultural services that urban nodes include. SPSS Statistics 19.9 was used to elaborate this synthetic index.

Once the rankings are completed, the next step is to perform a crossed analysis of the two available hierarchical indices to evaluate the functionality of urban nodes, by evaluating their

multifunctional and/or specialized character and the rank reached in the different rankings. We used a cluster analysis (k-means clustering) to classify the sample of cities into different groups with similar statistical behaviour. This cross-index approach has the distinction of identifying cities that stand out because they offer and demand cultural services and we therefore used it in attempt to validate our initial assumption that the world urban hierarchy is being modelled by cultural functions, thus creating a more complex world urban system.

After identifying which economic and/or cultural cities to include, the second part of the investigation focuses on the functional specializations of cities, exclusively from the cultural point of view, by analysing the selected creative and cultural services. First, the differential behaviour of the considered cultural services is analysed to assess their magnitude and importance. For this, a principal component analysis simplifies a battery of original cultural indicators into a low number that are the principal components.⁴ Second, cities' specialization in relation to the supply and demand of cultural services is analysed. Using the weighted values E_{ij} obtained from every city in every cultural component, the degree of specialization of cities is evaluated using Sargent-Florence's Location Coefficient (Sargent-Florence 1948):

$$LC = (E_{ij}/E_i) / (E_j/E_t)$$

where E_{ij} is the weighted value that represents a particular cultural service in a city (%), E_j is the total value that a certain city reaches in all cultural services; E_i is the total value that represents a particular cultural service in all cities considered, and E_t is total value that all analysed cultural services reach in all considered cities (i.e. the value = 1). In cases when the coefficient shows values LC above 1, the city in question is considered to specialize in the hosting and development of a particular creative and cultural service, which plays a key role in the identity of the city and especially in its international scope as well as from a cultural perspective contextualized in the new economy. Such coefficients are subjected to a new

cluster analysis in order to group cities according to their functional specialization. The results are shown by sets of cities.

The world urban system from the perspective of creative and cultural services: the SICC

The top-20 cities of the SICC at a glance

In absolute terms, the first 20 cities in the Synthetic Index of Cultural Components (SICC) are located predominantly in Western Europe and North America, followed by other global regions such as Asia and Oceania (Fig. 1). Early evidence can be observed by jointly analysing the top-20 cities of both the SICC and the SIGaWC.

First, New York, London, Paris, and Tokyo lead the rankings on both indices, although with slight rank variations of around one or two positions. They constitute the major global cities par excellence, with widespread agreement in the academic literature regarding their presence in the highest positions of almost all urban rankings (Sassen 1991; Friedmann 1995).

Second, some cities show large increases in their cultural rankings with respect to the SIGaWC (an increase of more than 20 positions). This is the case for Berlin (+50), Barcelona (+33), Vienna (+30), Rome (+40), and Montreal (+36). With the exception of Barcelona, these are secondary cities from an economic point of view (Beta according to GaWC classification (Taylor & Derudder 2016)), which are experiencing positive changes from a cultural perspective. By simply considering this difference in ranks, it is clear how the cultural dimension strengthens the positioning and projection of certain cities in the world arena and thus enriches our understanding of the world urban system from this point of view, in line with our initial assumption.

Additionally, there are cities that are very relevant to the economic approach (Alfa in the GaWC classification), but are even better positioned from the cultural services standpoint. Their good positions in both indices make variations less evident than in the previous case: Washington DC (+15), Amsterdam (+14), Munich (+14), Los Angeles (+12), Madrid (+5) and, to a lesser extent, Moscow (+1) and Milan (+1).

In other cases, the cultural approach plays a very important role in addition to the economic one, although the cultural ranks are lower than the economic ranks (the difference in ranking between the SICC and the SIGaWC is negative). These cities are the economic centres in their respective countries and in the world regions of which they are part: Singapore (-9) and Hong Kong (-16) in Asia, Toronto (-3) in North America, and Sydney (-8) in Oceania.

Compared analysis of the SICC and the SIGaWC: multifunctional character versus specialization

Although there are variations in the top-20 cities, the highest differences begin to generalize farther down the scale. Most authors do not agree upon the global urban hierarchy except in relation to cities that are very well defined as being at the top (Beaverstock et al. 1999). The problem appears when determining which low ranking cities are included on the indices because there is variability in which cities will appear, depending on the criteria taken into consideration.

To assess the differences between the rankings in the two indexes (i.e. the SICC and the SIGaWC), both Fig. 1 and a graphical representation using the Cartesian axis (Fig. 2) are used, in which the SICC (x-axis) and the SIGaWC (y-axis) are analysed through the absolute ranks in which cities are positioned. The main groups of cities are also marked on this graph, after the cluster analysis has been used in both rankings. The results are as follows.

Group 1. This group is composed of 35 cities located mainly in Europe, North America, and Asia. The cities are positioned in the highest ranks in both indices (within the top 50). They are considered global cities that not only lead the governments of their respective countries but also transcend borders to act in the international arena, where they are exposed to intense competition. Because of their reputations, much of the scientific literature views them as strongly and constantly competitive, as they aim to maintain their positions (Taylor 2004; Alderson & Beckfield 2007; Taylor & Derudder 2016). Normally, there is agreement about these cities in the academic literature because they match cities that lead in other urban rankings. As global cities, the difference in their positions is quite low because they are perceived as pre-eminent in the globalization of their multifunctional character. These few changes are what Duarte & Ultramari (2007) call ‘urban inflections’. The difference is less than 10 positions in the following cases: Milan (+1 positions), New York (+1), Paris (+1), Moscow (+1), London (-1), Tokyo (+2), Istanbul (+3), Brussels (-3), Miami (+4), Buenos Aires (-4), Madrid (+5), San Francisco (+5), Sydney (-8), and Singapore (-9).

Within this large group, two subgroups can be differentiated: the first is integrated by cities that achieve a higher SICC rank with respect to the SIGaWC. They are important urban nodes with great potential for cultural production and consumption. As noted above, significant cumulative effects are suspected; the cities are taking advantage of economies of scale, and benefitting from their adequate accessibility, from the human capital that resides in them, and from having large populations. This is especially the case in cities that are considered creative, which are most notably consumers of culture (Florida 2005). The most important differences are in Barcelona (+33), Vienna (+30), Stockholm (+26), Washington DC (+15), Lisbon (+14), Munich (+14), Amsterdam (+14), Los Angeles (+12), and Melbourne (+10).

By contrast, there are important cities in the world sphere that the productive economic approach puts in higher positions than does the SICC. All of them coincide with the primary cities of the SIGaWC, which, as defined by the GaWC (Taylor 2004; Taylor & Derudder 2016), are home to a large number of advanced services headquarters. In addition to highlighting some of the most important economic nodes in North America (e.g. Chicago) and Latin America (e.g. Sao Paulo and Mexico City), the analysis shows the manufacturing emergence of some countries in Asian and the transfer of some economic and productive power to the East. The SIGaWC increases with respect to the SICC should be noted for Beijing (-25), Kuala Lumpur (-18), Shanghai (-17), Hong Kong (-16) and Seoul (-12), among other cities.

Group 2. In this group, a greater degree of specialization among member cities is evidently beginnings to emerge. Cities in Group 2 include some nodes of global significance because in the two analysed approaches they are relatively well positioned, although significant specialization in cultural services is evident. Europe and North America remain the most prevalent regions; Latin America, Asia, and Oceania appear anecdotally, represented by Rio de Janeiro, Osaka, and Brisbane, respectively. In some cases, the level of cultural specialization is so high that the member cities are among the most important cultural exponents of their respective world regions. Their world reach is observed especially in the cases of Berlin, Montreal, Rome, Rio de Janeiro, Osaka, Brisbane, Stuttgart, and Helsinki (all in the SICC top 50 and with a difference between both indices that is greater than 20 positions). Additionally, San Diego, Manchester, Birmingham, and Seattle should be highlighted (although they are below the top 50, they show large variations between the two indices). Therefore, in Group 2, some of the urban nodes where the supply of cultural services

confers a privileged status on the world cultural scenario are identified, due to established patterns of cultural production and consumption in contemporary society.

Group 3. A third group of cities is characterized by its high degree of specialization in cultural services as an urban revitalization and identity strategy. Unlike the cities in Group 2, the degree of specialization in cities is higher in Group 3 because the variations are very significant in absolute terms. Cultural interest is very significant, not only for the cities' positions in the cultural ranking but also because they do not appear in the economic ranking (or they are ranked very low). The majority are regional nodes and are not present in the more traditional urban rankings of the economic approach. In most cases, these cities have a more limited reach than those in Groups 1 and 2 and a very marked level of functional specialization in world dynamics. The differences between positions are very high, showing a high degree of cultural excellence.

The most illustrative cases appear where the position difference between the two indices is more than 50 positions and the city also enjoys a privileged position in the SICC. This group includes New Orleans (#38), Nice and Cannes (#39), Las Vegas (#42), Bern (#52), Genoa (#53), Seville (#57), Nagoya (#60), Orlando (#62), San Antonio (#69), Florence (#78), Venice (#86), Salzburg (#88), and Macao (#93), among others. In our research, the importance of these cities lies in their invisibility in other rankings, either because the rankings have been made with 'closed' methodologies based on a shortlist of cities or because they have predominantly been made with economic indicators. These cities, which have the highest degree of variation, show a higher level of functional specialization and therefore highlight the need to evaluate globalization from a multidimensional perspective.

Other clusters. The remaining groups of cities are not analysed in depth because they do not stand out in the cultural perspective where the economic index is higher than the cultural services index (Groups 4 and 5) or where both indicators are positioned in low ranks below the top-100 cities threshold (Group 6). Further information about these cities can be found in literature about the GaWC research group (Taylor 2004; Taylor & Derudder 2016). In our view, the first three groups best illustrate the initial assumption: the multifunctional character of global cities (Group 1) and the more specialized character of cultural services in secondary cities beyond the economic outlook (Groups 2 and 3).

From the geographical point of view, the above description sheds light on how the distribution of creative and cultural services attracts special interest in developed regions, predominantly in the Western world, following the distribution pattern of advanced services. Conceivably, and according to what methodology is used, cultural trends with an Anglo-Saxon and/or Western character appear to extend like some worldwide cultural practices. However, the shift in economic power that is taking place in the Asia–Pacific Region does not translate into the development of mechanisms associated with cultural services, at least not with such intensity that advanced services are represented in ‘emerging countries’. Many Asian cities, especially in China and India, seem to prioritize economic criteria over cultural criteria in their positioning in the world urban hierarchy.

Functional specialization of cities from the perspective of creative and cultural services

In our comparative analysis of the SIGaWC and the SICC indices, we have not only differentiated large sets of cities based on their behaviour with regard to the overall functioning of both indices (i.e. the economic productive components and the cultural

components), but, above all, the results of our analysis serve to validate our initial assumption that the world urban hierarchy is being modelled by cultural functions, thus creating a more complex ‘archipelago’. Because of their pre-eminence, two key objectives became the foci of the research on which this paper is based: (1) to analyse the differential behaviour of 13 considered creative and cultural services to assess their magnitude and importance; and (2) to focus on the specializations of cities in relation to the supply of services and/or activities they host. We assumed that this second focus would determine the mechanisms in which cities are specializing and which cities are the most successful in a highly competitive urban context.

Differential behaviour of creative and cultural services as mechanisms to position and project cities

The differential behaviour of creative and cultural services are shown in two correlation matrices: a ‘simple’ matrix showing the correlation between pairs of indicators (Table 2); and a ‘factorial’ matrix, which indicates the degree of correlation of each indicator with extracted components in operation (Table 3*). In this case, six components or factors have been extracted, which explain 76% of the variance. As shown, the 13 categories of creative and cultural services are summarized in three main of components or groups of components.

Component 1 (Table 3) includes four groups of variables relating to knowledge-creative activities (publishing, education, media and fashion). This component alone explains 34% of the variance. As mentioned in the Introduction, increasing globalization and the tertiarization of society have led to the establishment of new patterns of production and consumption, in which culture, creativity and knowledge are consolidated as the key factors in the promotion of competitiveness, innovation, and regional development in the ‘knowledge and creative economy’ (European Commission 2006; TERA Consultants 2010; Bagautdinova et al. 2015). Currently, knowledge-based urban development is a development approach that

aims to offer citizens opportunities to foster knowledge creation, knowledge exchange, and innovation by providing enabling conditions for cities in global competition (Ergazakis et al. 2004). These conditions include knowledge infrastructure (e.g. universities, and research and development institutes), technological infrastructure (e.g. information and communication technologies), connections to the global economy (e.g. international companies and finance institutions), and concentrations of well-educated and creative people (e.g. knowledge and creative workers) (Yigitcanlar 2011), which become indispensable tools in the policies of territories that are committed to intangible capital (Krätke 2012).

Components 2, 3, and 4 (Table 3) include five dimensions that are associated with leisure-recreational activities. Component 2 (tourism, congresses, heritage, and museums) assumes great representativeness because it explains 10.5% of the variance. Components 3 and 4 (casinos and theme parks) are included, too, and respectively encompass 8.6% and 6.7% of the variance. Tourist activity plays a crucial role in the context of globalization, especially because of the crosswise demand for cultural services that develops. Due to its popularization, tourist activity has become not only one of the best expressions of the ways in which entertainment is consumed today (Mansvelt 2008) but also a basic resource that certain localities and regions use to project themselves beyond their traditional territories (Córdoba & Gago 2010). For the first time in history, 1000 million tourists crossed borders in 2012, and this activity is considered one of the main economic engines in many countries around the world (World Tourism Organization (UNWTO) 2016).

Components 5 and 6 (Table 3) are shown together because they all relate to the same category: sport events and/or festivals (mega-events, sport events other than mega-events, film festivals, and music concerts), which represent 8.8% and 7.9% of the variance, respectively. There is extensive literature about the meaning of events for the cities that host them because they are used as measures of socio-economic revitalization and urban

regeneration, as well as mechanisms for ensuring a prestigious urban image to distinguish the city from other cities (Maening & Zimbalist 2012; Getz & Page 2016).

In many cases, the impacts of events on the cities that host them are widely questioned by those who consider them gross developments of neoliberal urbanism, which implies an important gentrification of certain areas of the cities and the displacement of less-favoured social groups (Gaffney 2010). Their development is adapted to the scale and possibilities of each city, ranging from mega-events (Olympic Games, universal exhibitions, or a World Cup final) in cities with a higher degree of international influence to more modest regional fairs or film festivals in smaller cities (Bradley & Hall 2006).

The results of the principal component analysis indicate that the specialization of cities from the point of view of creative and cultural services can be classified into three main groups: knowledge-creative activities, leisure tourism activities, and events and festivals. Undoubtedly, these three categories are the main mechanisms used by cities to position and project themselves in the world sphere. The activities should not only be seen as survival or competition measures, but also as territorial adaptations to socio-economic, technological, and political conditions imposed by globalization, although they are also subject to urban criticism that considers that neoliberal urbanization favours competitiveness rather than the ideals of socio-spatial equity (Moulaert et al. 2010).

Additionally, our comparison of the main component values (Table 2) shows that the degree of correlation between knowledge-creative activities (Component 1) and leisure tourism activities (Component 2) is higher than events and festivals (Component 3). The data therefore enable us to suppose how the first two groups of activities work as localization economies, whereby the appearance of one of them usually implies the development of the other, thus generating multiplier effects. However, the behaviour described for the first two groups of activities cannot be extrapolated to the events and festivals measure. As evidenced

in the matrix of components, the events work more or less independently. In this regard, it should be understood that the implementation of these acts is, in many cases, related to political, business, or economic decisions, whose development is not linked to the location economies but rather to other agglomeration economies, such as urbanization or diversification.

Functional specialization of cities based on the type of creative and cultural services

Once the behaviour of the three identified cultural mechanisms is known, the next step is to analyse in depth the functional specialization of cities, in large sets, based on the type of creative and cultural services they use to foster their identities and to project themselves internationally. In total, 11 city clusters are obtained based on the creative and cultural services used by the cities that make up the SICC. The first group has been called ‘multiservices group’ (Group A), in the sense that no specialization is identified because all or almost all categories analysed show high values. Group A is the most important group because it covers the most relevant cultural nodes, most of which coincide with the highest positions in the SICC (included in the top 100). We suspect that the degree of competition in these cities is very pronounced because they are not only present in all categories considered but also their ranks are very high. The ‘multiservices character’ in these nodes is one of the essential factors that enable them to reach and remain at the top of the SICC. This wide variety of creative and cultural services is due to the multiple hard and soft factors (or attractions) by which cities are characterized (Musterd & Murie 2010; Pratt 2011). We suspect there are significant cumulative effects, since the cities in Group A take advantage of economies of scale, their rich heritage, adequate accessibility, and the human capital that resides in them, as well as their high population volume, which means potential consumers, within which the creative class is highlighted (Florida 2002).⁵

The remaining groups of cities derived from the cluster analysis (Groups B–K) (Fig. 3) include those that are usually of lower rank and, unlike those in Group A, are characterized by a higher level of functional specialization. Although some cities may reach high values in two or three categories, usually only one category stands out, which undoubtedly contributes to defining the ‘cultural’ image of the city. This strong specialization also enables cities in many cases to extend their areas of influence and project themselves beyond their immediate hinterlands. This is the case for Las Vegas and Macau (gambling industry and casinos), Orlando and Osaka (theme parks), Venice and Cannes (film festivals), Salzburg and Stuttgart (opera concerts), Bilbao and Florence (art exhibitions), Catania, Cairo, Edinburgh, and Porto (heritage), Bali, Pattaya, and Phuket (tourism), Oxford (universities), and Doha (media), among other examples. The results reflect the arguments raised by some authors who consider that globalization is not a state but a process, or in other words ‘a dynamic that has affected every city in the world, albeit in different form and intensity, and not just some cities at the top of the hierarchy’ (Marcuse & Kempen 2000, p XVII.).

In summary, the specialization in different groups of creative and cultural services highlights the complex combination of mechanisms and measures that cities develop. Whereas primary cities acquire great interest in many creative and cultural services, in which significant cumulative effects are expected, cultural specialization is more pronounced farther down the SICC index. In these cases, the city’s cultural image is founded on more specific aspects, the development of which does not have to involve the development of other activities.

Discussion

In our theoretical discourse in this paper, we have argued that the functional components of cultural nuance, represented through the cultural components of globalized capitalism,

constitute new bases of urban competition and they are necessary for a complete understanding of globalization. Although the methodological limitations of quantifying cultural services during a specific period (2008–2012) are recognized, and it is recognized that the results could vary, depending on the type of parameters considered, we have validated empirically our initial assumption by demonstrating that the reputation of a city derives not only from its strictly economic character but also from the actions of other parallel functions that give meaning to the multidimensional perspective. Although the ‘economic reductionism’ has been repeatedly criticized in GaWC works by many authors (e.g. Nissel 2004; Robinson 2002; 2005; 2016), we have introduced a complementary perspective that might enrich existing knowledge of the organization of the world urban system.

Additionally, the results of our investigation have highlighted the need to focus not only on global cities (coinciding mostly with state capitals or others with world scope) but also on other secondary cities that are characterized by a greater degree of functional specialization, which facilitates their performance in the world arena. The latter cities, despite their smaller scope than global cities, help to shape a world urban system that is more complex and varied than might initially be expected.

Global and secondary cities show how their scope in the world arena is adapted to their respective scales and potential. However, cities of greater international influence compete for larger and more general impact services (i.e. mega-events, first-class knowledge-creative activities, major tourist capitals) than do cities of less international influence. On the other hand, cities with less scope have to resign themselves to more modest creative and cultural services such as local and/or regional creative activities and cultural events that sometimes have a great global significance. This is the case for Las Vegas and Macau (gambling industry and casinos), Orlando and Osaka (theme parks), Venice and Cannes (film festivals), Salzburg and Stuttgart (opera concerts), Bilbao and Florence (art exhibitions),

Catania, Cairo, Edinburgh, and Porto (heritage), Bali, Pattaya, and Phuket (tourism), Oxford (universities) and Doha (media), among other examples.

The cultural services have been grouped into three major cultural mechanisms (reflected in the shaded groups of activities in Table 3), interpreted as broad categories that identify the main cultural evidence that appears in cities, rather than as projects defined by politicians and urban planners (although both perspectives coincide in some circumstances). Whereas recreational tourism activities and knowledge-creative activities work as localization economies, events and festivals respond to a greater extent to initiatives that are loaded with high political influence, in which economic profitability or media impact are decisive.

In addition, the geographical distribution of creative and cultural services has shown how these services predominate in cities located in the developed and/or Western world. This does not mean that their performance is focused exclusively on these services, but their focus is quite strong in this respect. In this regard, it is noteworthy how the movement of economic power to the East is not indicating the development of cultural mechanisms in the cities there, at least compared with advanced services (except in large Asian capitals). However, it should be recognized that the development of cultural activities is beginning to be slightly applicable to emerging and developing areas, where creative and cultural services are expected to boost their economies and their symbolic projections in the world sphere.

Conclusions

The activities associated with the creative and cultural services clearly contribute to raising the profiles of host cities internationally as they seek to attract all types of mobility (e.g. immigrants, tourists, skilled workers, investments, and ideas) as well as to develop their internal dynamics, which are strongly related to demands for leisure, tourism, and mass consumption. Therefore, although in some ways the distribution of these activities reinforces

the reputation of the northern cities, it is necessary to continue to invest in them for the purpose of revitalization, city marketing, and urban branding. This would help to open new opportunities for other cities in the world urban system, either as secondary cities (from the scale point of view) or as cities of the South (from the geographical point of view).

In conclusion, we consider that creative and cultural services have become an important factor in the process of the cultural globalization of cities, as they stimulate the production and circulation of intangible capital, feed the renewal of cities and their economies, attract talent and innovation flows to and from the cities, and participate in the ‘new economy’, with the aim of projecting economic growth and post-industrial development. Therefore, we consider the creative and cultural services are empirically valid when measuring the cultural dimension in the urban system because they are illustrative of the cultural, creative, and leisure mechanisms that help cities to supply symbolic, experiential, and cultural capital, all of which are vital in the competitive context of globalization.

Notes

1. These factors should be nuanced in developing countries because the reasons for their growing competitiveness contrast with corresponding reasons in the Global North. We refer, for example, to the levels of salaries (much smaller) or to environmental conditions (sometimes without any legislation). For a more detailed study of this ‘Other’ competitiveness, see Shatkin (2007).
2. The results of the first urban studies to use cultural variables were published in the 1990s (e.g. Comedia 1991; Kennedy & London Planning Advisory Committee 1991), but their academic impact was limited.
3. Although economic biases are identified in the two indices implicitly, they are differentiated thematically to better understand the proposed approaches.

4. A Principal component analysis (PCA) is a statistical procedure that converts a set of observations of possibly correlated variables into a minor set of values. One of the most used criteria to determine the number of factors that explain a model is to observe the percentage of total variance explained by each component or factor. When it reaches a high value (usually close to 70–75%), it means that the number of factors is sufficient (Bernal et al. 2004).
5. Pratt (2011) establishes the difference between cultural supply factors and cultural demand factors. However, our empirical approach does not discern both profiles as the further availability of the former factors could overstate their role to the detriment of the latter factors

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Figure captions

Fig. 1. Top-150 cities ranked in the Synthetic Index of Cultural Components (SICC) and variations of positions of the SICC in relation to the GaWC Synthetic Index (SIGaWC): 1a Europe and Middle East; 1b North America; 1c Asia; 1d Oceania; 1e Latina America and South Africa

Fig. 2. Distribution of cities according to their position in both the Synthetic Index of Cultural Components (SICC) and the GaWC Synthetic Index (ISGaWC); the three-letter codes correspond to IATA abbreviations (Appendix 1)

Fig. 3. Functional characterization of specialized cities in particular cultural services (average values of Sargent-Florence's location coefficient (LC) for each set of cities are represented); LC higher than 1 means that a city (or set of cities) is specialized in the development of a certain cultural service