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# Residential segregation and socio-spatial processes in Marseille. Urban social sustainability challenge

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**Abstract.** The aim of the study is to determine the scale and patterns of the social segregation of Aix-Marseille-Provence Metropolis and Marseille, in the light of the socio-spatial processes it is currently undergoing and its influence on social sustainability. In the study, quantitative measures of segregation are confronted with a qualitative interpretation of existing facts gathered during literature analysis and field observations. Population groups most subject to residential segregation are revealed, together with the areas of the greatest concentration of particular population categories. Changes of concentration pattern in the decade 2007-2017 are indicated and the role of gentrification and privatisation of land, which are all conditioned in Marseille by the city's economic restructuring, liberal housing policy and historical role of the port-industrial system.

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## 1. Introduction

Social polarisation and social segregation are two phenomena gaining more attention due to their intensification in the 21<sup>st</sup> century. Due to socio-economic processes characteristic of the period of globalisation, they are increasing in societies and areas normally considered to be coherent and heterogeneous. The dynamics of these processes are shaped by factors mentioned in the literature, such as the degree of a city's integration into the global system of world cities; social stratification; country-specific systemic features such as social and housing policy; and the institutional structure of the state, i.e. the degree of decentralisation (Musterd et al., 2017). These processes are exemplified by the economic restructuring and deindustrialisation ongoing in most European countries since the 1960s, along with increasing social polarisation, abetted by the failure of state institutions to stem the rising tide of poverty. Increased polarisation and segregation trends are also rooted in periods of economic crisis. As a result, the cities of Europe have seen an increase in social and spatial inequality (European Commission, 2010; Eurostat Regional Yearbook, 2019). Hence, their social sustainability, understood as social inclusion and cohesion, and social mixing, can decrease. The physical manifestation of these processes is the fragmentation of space, the development of fixed enclaves of poverty and wealth and the rise of gentrification. Given that planning for housing development is one of the most important parts of urban planning, economic factors such as cost of living, employment and unstable income play very important roles in housing planning. This planning is one of the priorities in urban planning (Sendich, 2006: 185).

The aim of this article is to determine the scale and patterns of social segregation in Aix-Marseille-Provence Metropolis and in Marseille, a city unique in the French urban system, which will be described in the next chapters. Thus, we may expect to find Marseille's socio-spatial pattern and processes converging with global trends, while contextual differences remain.

## 1.1 Theoretical basis

Social (or residential) segregation is the uneven distribution of social groups within city space (Oberti and Préteceille, 2016), i.e., the spatial separation of two or more population groups (Maloutas and Fujita, 2012). Four basic historical phases of research on segregation can be distinguished (Tammaru et al., 2016). The first to emerge was the ecological approach, which addressed the relationship between physical and social distance and viewed segregation as a process caused by natural forces (Massey and Denton, 1988; Park et al., 1925). Next, researchers began to focus on the relationship between social and spatial inequalities, inspired by studies on the global city thesis and how such cities influence economic restructuring and liberalisation (Hamnett, 1994; Sassen, 1991). Such a concept is nowadays supported by the conclusions of Tammaru et al. (2019) concerning a relationship between income inequality and residential segregation. The third phase was an institutional approach encompassing research into the impact of the welfare system on residential segregation (Musterd and van Gent, 2012; van Kempen and Murie, 2009; Arbaçi 2007; Musterd and Ostendorf, 1998; Rex and Moors, 1967). Changes in the housing sector, i.e., reductions in the share of social housing and increases in private ownership, have often led to rises in social polarisation and residential segregation. Hence, many researchers have pointed out that liberalisation of the housing market inevitably leads to an increase in residential segregation (van Kempen and Murie, 2009; Musterd and van Gent, 2012). The latest phase of research emphasises contextual factors (Maloutas and Fujita, 2012; Marcuse and van Kempen, 2000), and examines the interpenetration of four major spheres affecting residential segregation. These are (Maloutas and Fujita, 2012): 1. the economic sphere – labour market conditions and market access to housing, 2. the public sphere – housing redistribution, public services and local legal regulations, 3. the social sphere (reciprocity) – social and family networks etc., 4. specific and long-standing local socio-spatial structures, such as

a city's existing buildings, ownership structures, history and ideology (Maloutas and Fujita, 2012).

This study is a contribution to the fourth phase of research, thus socio-spatial structure and social processes will be interpreted in contextual terms, taking into account the specific factors shaping the conditions in Marseille. This approach should be undertaken as there is shortage of such research. Although there is an abundant literature on residential segregation, it is strictly focused on quantitative methods, neglecting the qualitative interpretation that could allow deeper insight into the mechanisms forming socio-spatial contrasts. These limitations are present in international studies either considering US cities (e.g. Louf, Barthelemy, 2016), European cities (e.g. Arbaci, 2007; Musterd, 2005) or in particular French cities (Alivon, Guillain, 2018; Schwabe, 2018; Floch, 2017; Préteceille, 2011; 2006). However, there are examples of studies showing a complex relationship between residential segregation and socio-spatial processes, which allow for an understanding of the mechanisms of segregation, such as the gentrification–segregation relationship presented by Maloutas (2017) in contextual, theoretical research, and van Gent and Hochstenbach (2019), which is an empirical study based on five Dutch cities. Other studies in Europe relate residential segregation to the institutional dimension, which is also worth mentioning here (Tammaru et al., 2016a; Maloutas and Fujita, 2012).

It is additionally important to relate the residential segregation process to the concept of urban social sustainability and both to its non-physical and physical factors (mostly: social inclusion, social and community cohesion, mixed tenure, residential stability, decent housing) (Dempsey et al., 2009). As Vallance, Harvey and Dixon (2011) emphasise, social sustainability dimensions are important in the context of housing, which are also mentioned by Maloutas and Fujita (2012) as economic and public spheres of residential segregation investigated in our research. The evidence of growing inequalities within European cities threatening their social sustainability and stability is given in the research of Tammaru et al. (2016), and the current study refers to this challenge.

## 1.2. Local context of the city

Aix-Marseille-Provence Metropolis is located in south-eastern France, by the Mediterranean Sea. It includes 92 municipalities over an area of 3,148 km<sup>2</sup>. It is thus the largest metropolis in France, four times larger than Grand Paris. It is inhabited by 1,850,000 inhabitants and is the second most populous in France after Grand Paris (AGAM, 2017). Marseille, with 858,000 inhabitants and Aix-en-Provence with 142,000 inhabitants are the two largest cities, where 54% of the metropolitan population is concentrated. The region is very internally diverse in environmental and socio-economic terms and the two major cities are the best proof of this. 1) Converting the present decision-making matrix into a de-scaled matrix using the following equation:

The literature emphasises the strong contrasts between Marseille and other French cities. The multicultural character of Marseille as a port city is underlined by Alivon and Guillain (2018). The commercial port developed in the 19th century and it took advantage of the French colonial history. Although the city and the port suffered from decolonisation and deindustrialisation, it remains France's leading port today. According to Mitchell (2011) Marseille's uniqueness in relation to other French cities can be explained by the functioning of the city's economy, along with its contrasting socio-spatial structure and its urban policy culture. Firstly, the economy of Marseille is characterised by ethnic network connections in which business and social life meld in a "globalisation from below" to form strongly heterogeneous bonds. Secondly, Marseille's city-centre banlieues, village nuclei, small high-rise social housing estates and generally accessible public spaces play a defining role in the internal integration of the city, and Marseille's sense of identity is linked to the symbolic role of the city's multicultural roots. In Marseille, there is the practice of multiculturalism in local government, most clearly exemplified in the Marseille Espérance – a discussion group under the auspices of the town hall that brings together the mayor and a variety of religious leaders. By contrast, Aix-en-Provence developed as a residence town of Counts of Provence, a university town and an artistic town, where industrial functions did not develop. Today, the city develops advanced tertiary activities; it is attractive not

only for investors but also for inhabitants and has one of the highest housing prices in France (Alivon, Guillaïn, 2018).

Marseille is also one of the most segregated cities in France, with strong contrasts between wealthy and poor areas (Quilian, Lagrange, 2016). The authors reveal that – like Marseille – Lille and Bordeaux are other unusual cities for France in terms of socio-spatial structure (low-profile neighbourhoods more commonly found in the city than in the suburbs). Aix-en-Provence is an affluent and generally homogeneous city.

However, we need to ask whether the ongoing restructuring of Marseille's economy and the related gentrification of the port district has not called into question the Marseille myth, celebrated in cinematography and literature, of multiculturalism, small-scale colonial trade, the passenger port, crime and gangs (Peraldi et al., 2015). Is it not true that the diaspora and ethnic economy are merely elements of an “imagined city”, a legendary existence, which have begun to differ from the modern “lived-in city”? Therefore, the aim of the article is to study a social segregation phenomenon in a whole metropolitan area and in Marseille itself that is believed to be heterogeneous and internally integrated, in order to indicate the development of social segregation under globalisation forces that have been seen to undermine urban social sustainability.

## 2. Research materials and methods

In this article, social segregation is characterised by educational and socio-occupational categories as well as housing ownership types. The data is drawn from 2007, 2012 and 2017 National Censuses for IRIS units<sup>1</sup>(INSEE). In the present study, two spatial scales are used: the metropolitan area broken down by IRIS, including the city's statistical units, and, separately, Marseille city itself broken down also by IRIS. There are 776 IRIS units in Aix-Marseille-Provence Metropolis, and Marseille is divided into 393 IRIS units and into 16 *arrondissements*. Aix-en-Provence comprises of 54 IRIS units. The last decade of available census data is analysed – that is, the 2007–17 period with a check calculation in the middle of it, for 2012. It is a period of

important investments in Marseille and therefore of potential socio-spatial changes. The motor of the above socio-spatial changes was the election of Robert-Paul Vigouroux as mayor of Marseille in 1986 and the city's internationalisation policy implemented then (Peraldi et al., 2015). The new mayor initiated the development of cultural venues and events that aroused the interest of the French national media. Marseille was promoted as an edgy cultural hub with competitive property prices that it was hoped would attract artists and other middle-class representatives, much as the regenerated London docklands had. The Euroméditerranée project, with its flagship construction of the Museum of European and Mediterranean Civilisations (*Musée des civilisations de l'Europe et de la Méditerranée*, MuCEM), was opened in 2013 and it was expected to create a Bilbao effect. In the same year, Marseille was awarded the title of the European Capital of Culture. As a result of such a policy, Marseille was to become an important city on an international scale. Therefore, it is interesting to analyse whether socio-spatial changes occurred in response to the implemented policy and what their extent was.

In order to quantify the extent of residential segregation we have calculated the dissimilarity index ( $D$ ) – the most commonly used measure of segregation – in order to measure the unevenness dimension of segregation and to indicate groups of people who are most segregated (Massey and Denton, 1988). Then, the modified location quotient  $LQ_p$  was calculated in order to measure the spatial dimension of segregation and to reveal the most homogeneous areas and the areas with the most dynamic social changes (Węclawowicz, 1992). This choice of method was made after the first stage of the research, i.e. an extensive review of the literature concerning measures of segregation, a comparison of first-, second- and third-generation measures and a preliminary analysis and evaluation of the method presented in the article (Grzegorzczuk and Jaczewska, 2015). The segregation indices' wide comparison is presented also by Fossett (2017). The quantitative research was further interpreted by a qualitative approach, namely analysis of existing facts gathered after literature analysis and during observations carried out in Marseille and Aix-en-Provence in May 2018. They allowed current processes shaping the

<sup>1</sup>IRIS (Ilots Regroupés pour l'Information Statistique – Aggregated Units for Statistical Information) – statistical units of equal size. These units must respect geographic and demographic criteria and have borders that are clearly identifiable and stable in the long term. Towns with more than 10,000 inhabitants, and a large proportion of towns with between 5,000 and 10,000 inhabitants, are divided into several IRIS units. All towns not divided into IRIS units constitute IRIS units in themselves. (INSEE)

cities' socio-spatial structures to be identified in order to study the changes in segregation.

The study first analyses the measures of residential segregation for social variables and indicates population categories most affected by segregation in Aix-Marseille-Provence Metropolis and Marseille. Then, the most homogeneous areas are described in the metropolitan area and the city and areas, where changes in the concentrations of population groups are greatest. The second part of the article presents the most important socio-spatial processes currently responsible for shaping the structure of residential segregation in Marseille, i.e. gentrification and the privatisation of land. These processes are analysed in the context of the city's current housing policy.

### 3. Research results

At first, the dissimilarity indexes (D) were calculated on IRIS level for three social variables: education, socio-occupational categories and housing ownership types, for the years 2007, 2012 and 2017, for the Aix-Marseille-Provence Metropolis and for Marseille. The formula for the dissimilarity index is:

$$D = \frac{1}{2} \sum_{i=1}^n \left| \frac{x_i}{X} - \frac{y_i}{Y} \right|$$

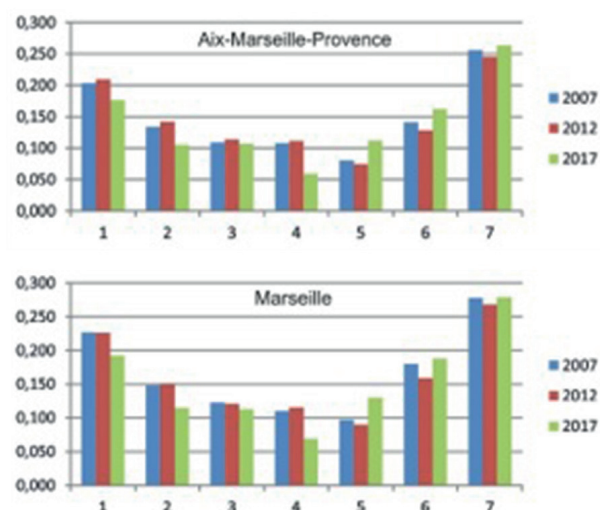
where:  $x_i$  and  $y_i$  – the number of members in the analysed groups in  $i$  area unit;  $X$  and  $Y$  – the groups' population number in the whole city subdivided into  $n$  area units.

In the Aix-Marseille-Provence Metropolis in 2017, segregation most strongly characterised people living in social housing ( $D=0.516$ ) and then people with higher education ( $D=0.263$ )<sup>2</sup> (Graphs 1, 3). This means that over 50% of the population living in social housing estates and around a quarter of highly educated persons should change their place of living to achieve a perfectly equal distribution of population in the area. Such an ideal distribution is not desirable, but is treated as a theoretical point of reference. In Marseille, too, the highest levels of segregation in 2017 existed for people living in social housing ( $D=0.479$ ) and for people with higher education ( $D=0.279$ ) (Graphs 1, 3). Both in the metropolitan area and in the city there was also high segregation of executives, higher public offi-

cials and senior intellectual workers, and of people who had not received any diploma (Graphs 1, 2).

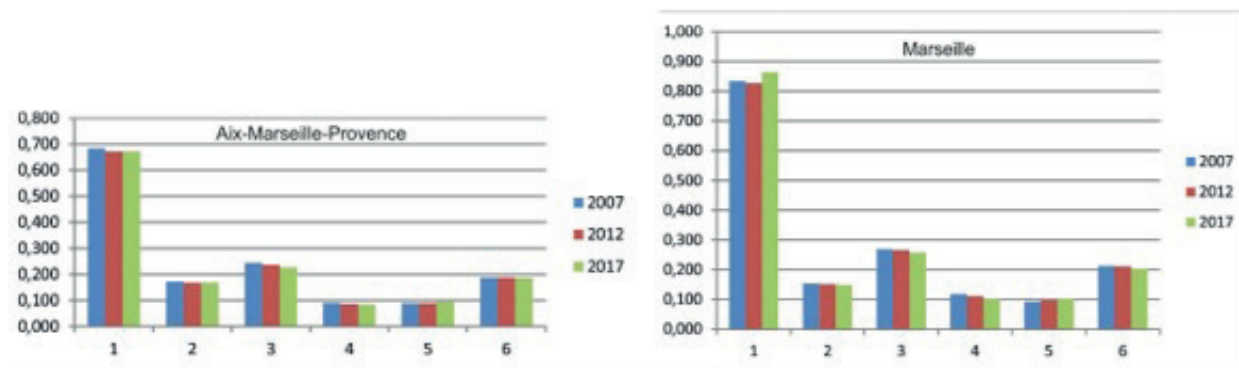
The segregation trends of changes during the 2007–17 period were similar for the metropolitan area and for Marseille. At first (2007–12) dissimilarity indexes increased for people with lower education and decreased for people with higher education, but between 2012 and 2017 the trends were reverse, and indexes reached the lowest values for the lower education groups and the highest values for the higher education groups in 2017 (Graph 1). Segregation measures for all socio-occupational categories slightly decreased during the decade and the same is for housing owners and tenants in private and social housing sectors (Graphs 2, 3).

Secondly, the modified location quotients were calculated for all variables, years and IRIS units of the whole metropolitan area, including Marseille. The quotient measures a concentration of particular population categories in relation to a population composition of the whole region, so it presents units' uniqueness in comparison to the region average. Scores greater than 1 for particular units indicate overrepresentation of population categories in



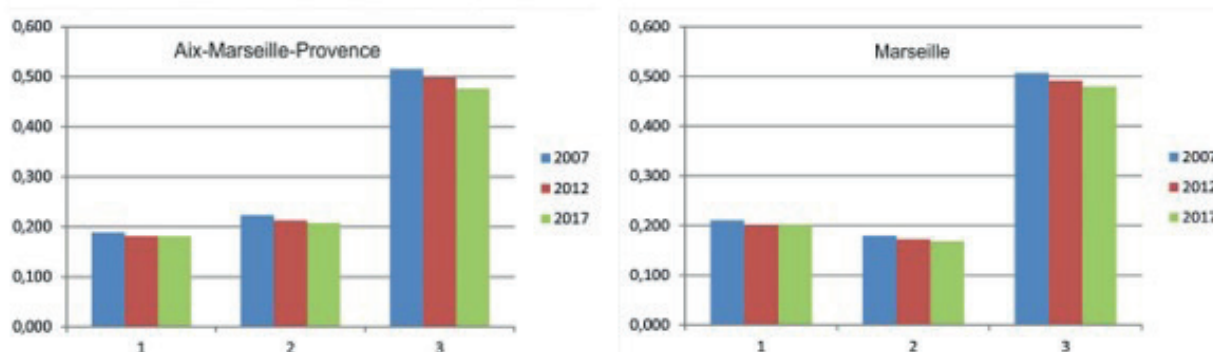
**Fig. 1.** Dissimilarity indexes for education in Aix-Marseille-Provence Metropolis and in Marseille, in the years 2007, 1 – people without diploma, 2 – Certificate of Primary Education (CEP), 3 – lower secondary school (BEPC), 4 – basic vocational school (CAP and BEP), 5 – upper secondary school (baccalaureate and BP), 6 – short higher education, 7 – long higher education

Source: Own author's draft basing on data from INSEE 2012 and 2017



**Fig. 2.** Dissimilarity indexes for socio-professional categories in Aix-Marseille-Provence Metropolis and in Marseille, in the years 2007, 2012 and 2017 1 – farmers, 2 – craftsmen, shopkeepers and managers, 3 – executives, senior intellectual workers, 4 – middle-ranking professions, 5 – employees, 6 – blue-collar workers

Source: Own author's draft basing on data from INSEE



**Fig. 3.** Dissimilarity indexes for types of housing ownership in Aix-Marseille-Provence Metropolis and in Marseille, in the years 2007, 2012 and 2017, 1 – property owners, 2 – tenants in private sector, 3 – tenants in social sector

Source: Own author's draft basing on data from INSEE

these units, and scores below 1 indicate underrepresentation.

The formula for modified location quotient is:

$$LQ_p = \frac{{}_k x_i / y_i'}{{}_k X / Y'}$$

where:  ${}_k x_i$  – the number of members of  $k$  category in  $i$  spatial unit,  $y_i'$  – population number of a spatial unit  $i$  reduced by the number of population of category  $k$ ,  ${}_k X$  – the number of members of  $k$  category in a city,  $Y'$  – population number of a city reduced by the number of population of category  $k$  in a city.

Due to the abundance of outcomes, not all of them are included in the article. The most distinct concentrations (the highest and the most common) were observed for population extreme categories, i.e. for education: people without diploma, and people with longer higher education (then shorter higher education, and CEP, BEPC diplomas); for socio-professional categories: executives, senior intellectual

workers, blue-collar workers (then craftsmen, shopkeepers and managers, and employees) and all three categories for people with different housing ownership. Therefore, only these most distinct variables were selected for further analysis. The values were divided into five categories: high overrepresentation, overrepresentation, no concentration, underrepresentation and high underrepresentation. The same ranges for all variables were established for the no-concentration category : 0.900–1.100. Ranges for the remaining categories were determined by establishing the arithmetic mean of the values as the border value. Then units were counted for all five categories (Tables 1, 2, 3).

Two major cities were distinguished from the whole metropolitan area, because IRIS units with the highest population concentration focused mainly in these cities. Around 90% of all metropolitan units with high overrepresentation of people with longer higher education and over 80% units with high overrepresentation of executives and senior

**Table 1.** Modified location quotients for people with longer higher education (A) and people without any diploma (B) in Aix-Marseille-Provence Metropolis, in the years 2007, 2012 and 2017

A	LQ2017		LQ2012		LQ2007	
	interval	no. of units	interval	no. of units	interval	no. of units
high overrepresentation	2.090-10.205	99	2.005-5.695	111	2.037-6.308	103
overrepresentation	1.101-2.085	183	1.101-1.974	179	1.101-2.028	172
no concentration	0.900-1.100	63	0.900-1.100	63	0.900-1.100	69
underrepresentation	0.463-0.899	207	0.474-0.899	195	0.466-0.899	198
high underrepresentation	0.023-0.458	204	0.018-0.473	205	0.010-0.465	208

Source: Own author's draft basing on data from INSEE

B	LQ2017		LQ2012		LQ2007	
	interval	no. of units	interval	no. of units	interval	no. of units
high overrepresentation	2.081-6.950	93	2.394-10.790	92	2.513-47.092	76
overrepresentation	1.101-2.062	181	1.101-2.357	170	1.01-2.504	196
no concentration	0.900-1.100	107	0.900-1.100	90	0.900-1.100	78
underrepresentation	0.615-0.899	195	0.577-0.899	197	0.595-0.899	204
high underrepresentation	0.203-0.613	182	0.123-0.573	208	0.168-0.593	207

Source: Own author's draft basing on data from INSEE

**Table 2.** Modified location quotients for executives and senior intellectual workers (A) and for blue collar workers (B) in Aix-Marseille-Provence Metropolis, in the years 2007, 2012 and 2017

A	LQ2017		LQ2012		LQ2007	
	interval	no. of units	interval	no. of units	interval	no. of units
high overrepresentation	1.888-15.307	106	1.883-5.210	124	1.884-8.760	103
overrepresentation	1.101-1.868	201	1.101-1.865	187	1.101-1.878	200
no concentration	0.900-1.100	56	0.900-1.100	58	0.900-1.100	62
underrepresentation	0.466-0.899	193	0.452-0.899	187	0.449-0.899	191
high underrepresentation	0.030-0.464	194	0.005-0.449	194	0.010-0.445	193

Source: Own author's draft basing on data from INSEE

B	LQ2017		LQ2012		LQ2007	
	interval	no. of units	interval	no. of units	interval	no. of units
high overrepresentation	1.926-11.460	107	1.862-5.207	111	1.828-4.791	121
overrepresentation	1.101-1.914	196	1.101-1.857	193	1.101-1.817	190
no concentration	0.900-1.100	102	0.900-1.100	88	0.900-1.100	93
underrepresentation	0.583-0.899	190	0.584-0.899	188	0.580-0.899	188
high underrepresentation	0.089-0.581	165	0.072-0.581	173	0.075-0.573	164

Source: Own author's draft basing on data from INSEE

intellectual workers were located in Marseille and Aix-en-Provence. These figures were lower for lower-profile population, but still important: 79% of all metropolitan units for high overrepresentation of people without any diploma, 56% for people living in social housing and 54% of units with high concentration of blue-collar workers occurred in these cities. This also means that blue-collar workers were dispersed in other industrial towns, where they formed strong concentrations (over 10% of town's

units with high overrepresentation of blue-collar workers): Miramas, Vitrolles, Marignage, Istres and Martigue. Aix-en-Provence was heavily dominated by areas with high-profile population concentration (63% of units witnessed high overrepresentation of people with longer higher education and 54% of units – high overrepresentation of executives and senior intellectual workers). In Aix-en-Provence only two IRIS units had a high concentration of lower-profile categories – in Jas-de-Bouffan and En-

**Table 3.** Modified location quotients for property owners (A) and for tenants in social sector (B) in Aix-Marseille-Provence Metropolis, in the years 2007, 2012 and 2017

A	LQ2017		LQ2012		LQ2007	
	interval	no. of units	interval	no. of units	interval	no. of units
high overrepresentation	2.650-184.662	131	2.668-20.053	128	2.837-27.213	125
overrepresentation	1.101-2.644	240	1.001-2.648	247	1.001-2.825	252
no concentration	0.900-1.100	45	0.900-1.100	43	0.900-1.100	36
underrepresentation	0.440-0.899	165	0.439-0.899	164	0.899	167
high underrepresentation	0.001-0.438	173	0.001-0.434	171		166

Source: Own author's draft basing on data from INSEE

B	LQ2017		LQ2012		LQ2007	
	interval	no. of units	interval	no. of units	interval	no. of units
high overrepresentation	17.592-597.338	36	18.347-636.542	39	15.685-318.430	40
overrepresentation	1.001-17.473	206	1.001-17.137	190	1.001-14.603	198
no concentration	0.900-1.100	27	0.900-1.100	26	0.900-1.100	36
underrepresentation	0.272-0.899	163	0.284-0.899	142	0.899-0.258	155
high underrepresentation	0.002-0.267	227	0.002-0.277	235	0.001-0.255	210

Source: Own author's draft basing on data from INSEE

cagnane housing estates in the east of the city. These were the estates with the highest overrepresentation of people living in social housing. By contrast, Marseille was segregated in a different way. There were vast areas of concentration of high- and low-profile population: 20% of the city's units presented high overrepresentation of people living in social housing, 18% of units – high overrepresentation of people without any diploma, 15% of units – high overrepresentation of blue collar workers, 15% of units – high overrepresentation of executives and senior intellectual workers, and 14% – high overrepresentation of people with longer higher education. That makes Marseille a true city of contrasts, with a high concentration of different population categories. In Marseille, professionals (executives, higher public officials and senior intellectual workers) were concentrated in the IRIS units of the southern 6th, 7th, 8th *arrondissements*, which have sea views, and the 9th *arrondissement* and there was a similar distribution of people with longer higher education. A high concentration of professionals is also noticeable in the 1st *arrondissement* and the eastern 5th and 12th *arrondissements*. Blue-collar workers concentrated in the north and north-west of the city (the 14th and 15th *arrondissements*, and the 3rd *arrondissement*). In the centre, in the 3rd *arrondissement* and in the northern 13th, 14th

and 15th *arrondissements* there is the highest concentration of people living in rented social housing. In the central *arrondissements* there is no high concentration of people living in their own housing: they are concentrated on the southern hills and in estates on the peripheries.

In order to analyse the change in population concentration, the trend for the period 2007–17 was calculated for the whole metropolitan area, including Marseille. The most common change for all  $LQ_p$  pairs of all IRIS units was a weak increase in concentration of population categories under analysis in IRIS units, then a weak decrease and then strong decrease. Units with high overrepresentation most commonly witnessed an increasing trend, which is especially true for units with high overrepresentation of blue-collar workers; for 79% of units the  $LQ_p$  values increased between 2007 and 2017. These concentration changes are further discussed in the context of socio-spatial processes.

#### 4. Discussion

The research outcomes were further confronted with existing facts gathered during the literature analysis and observations carried out in Marseille

and Aix-en-Provence in May 2018. At that time, visits were made to central Marseille's *arrondissements*, namely the 1st, 2nd, 6th and 7th *arrondissements* and, in Aix-en-Provence, to central areas and the Jas-de-Bouffan neighbourhood, in order to observe the most important socio-spatial processes that most affect residential segregation. These are: gentrification and the privatisation of space, which are influenced by the city's current housing policy. In this section, the processes are mostly discussed for Marseille, to keep this section compact.

#### 4.1. Gentrification

The process of gentrification in Marseille, which started in the 1970s, has been of a different character than in other French cities and according to the research conducted in this article is currently gaining in importance. However, Peraldi et al. (2015) describe the paradox of gentrification and the absence of gentrification in its classical variant in Marseille. They argue that once middle- and upper-class residents have left the city centre for the more attractive suburbs and towns of the metropolitan area, they do not return, and so enclaves of poverty become effective areas of resistance to gentrification. They describe the process of gentrification in Aix-en-Provence, which has been underway since the 1980s, as much more advanced than in Marseille itself. Indeed, Aix-en-Provence and the surrounding rural areas are marked by considerable attractiveness (the Mediterranean and the Provençal *terroir*), as recognised on a national and international scale, and compete with Marseille for wealthy residents. Additionally, the centre of Marseille has never been the place of residence of *la grande bourgeoisie*. Since the eighteenth century, the affluent have preferred the southern areas of the city, towards the luxurious Côte d'Azur. Also, today, the rich and newly wealthy aspire to live in these areas, drawn by homes overlooking the sea and the presence of the traditional wealthy elite. In contrast, port-dominated central Marseille has always attracted immigrants and illegal trade (Peraldi et al., 2015). Delayed gentrification is also indicated by Escobar (2017) and Jourdan (2006). However, gentrifiers called *néo-Marseillais* arrive in the city centre and they belong above all

to upper socio-professional categories (executives and senior intellectual workers); they are highly educated or students. According to Gasquet-Cyrus, Trimaille (2017), they are attracted by the Mediterranean lifestyle, social and cultural diversity and cultural development of the city.

In the current study, it is revealed that the last decade witnessed the strongest socio-spatial change in the 2nd *arrondissement* and to a lesser extent in the 5th and 3rd *arrondissements*. In the 2nd *arrondissement* the greatest increase in high-profile population and decrease in low-profile population was observed in Montolieu quarter, in the north-eastern direction from the pioneer enclave of gentrification in Panier. Near Panier the greatest change was noticed in République Street and L'Évêché-Les Docks quarter. These are all the enclaves of gentrification. Therefore, in Marseille, a classic form of gentrification is seen in its early stage, together with two other forms of this process described by Peraldi et al. (2015): first, hidden gentrification – the social composition of the centre remains the same while its character changes (a process also described by Governa [2016]); and, second, liquid gentrification – a process that does not require residential anchorage. The TGV effect means that gentrifiers regularly come into the city, where they work and participate in cultural events but acquire neither a permanent nor secondary residence.

#### 4.2. Privatisation of space: gated neighbourhoods

The second important contemporary socio-spatial process is the privatisation of space. The first gated communities were created in the second half of the nineteenth century, by the parcelling out of former landed estates and the emergence of luxury coastal settlements (Dorier-Aprill et al., 2012; Le Goix, 2003). They were gated in order to emphasise the fact that they were privately owned and, consequently, to maintain and protect their value. Contemporary gated estates built by property developers are becoming increasingly popular, which reflects a global trend. However, gating is also common in social housing estates, where it is intended to enhance neighbourhood security.

Marseille is distinguished by its high proportion of gated communities, which accounted for 19% of all the city's buildings (8% by area), and in affluent southern districts 90% of all buildings (48% by area) (Dorier-Aprill et al., 2012). The current surge in gated communities in Marseille means that they are becoming the city's urbanistic norm. They are diverse in character and include luxurious villa neighbourhoods, as well as smaller estates of single-family houses and large estates of multi-family dwellings, both private and social. The degree of gating also varies. The increase in the construction of gated communities in the 21st century, often as part of public development projects, has been accompanied by a derivative rise in the gating of other neighbourhoods and the closing off of roads. The local authorities are playing both a passive and active role (abdicating their responsibility for urban planning) in the process of gated communities spreading in socially diverse districts of Marseille, which flows out of the strategy of internationalising and gentrifying the city. The current housing market is dominated by foreign property developers whose speculative strategy is to increase the supply of a new product, namely gated communities with houses of a specific architecture, both in Marseille's traditional and picturesque districts as well as in the northern districts that offer tax exemptions and environmental advantages.

In the current study, it was revealed that dissimilarity indexes calculated both for property owners and for social housing tenants decreased in Marseille during the last decade, which means that new developments aimed at property owners occur in neighbourhoods of a different social profile, and geographical distance between housing owners and tenants decreases. However, segregation of tenants in the social sector still remains very high. It should also be underlined that the decreased physical distance does not lead to decreased social distance and higher social integration, especially in the context of the development of gated estates. The role of global property developers building such estates is supported by the local authorities, whose priority is to promote the construction of high-quality housing in order to attract the middle class to Marseille. The research also proved that the greatest increase in upper-profile population categories was seen in the 16th arrondissement and then in the

15th, 14th, 13th and 11th arrondissements, which have low-profile characters. In these areas, the increase in lower-profile population categories is lower or similar to that in upper-profile categories.

Such a change could not be possible without the active role of Marseille's local authorities in creating gated estates attractive to the new middle class. Local authorities actions relate to the global urban strategy described by Smith (2007) and implemented in the city since the 1980s – the aspired-to economic, financial and social revival of the city through the attraction of professionals and the development of Marseille as a key European metropolis on the Mediterranean arc. Therefore, city authorities support the construction of gated communities through public–private partnership programmes, the sale of municipal plots (wasteland and abandoned), and through instruments of urban policy being introduced into high-rise social housing in areas designated by the authorities: public ZAC projects (*Zones d'aménagement concerté*), OPAH (*Opération programmée d'amélioration de l'habitat*), ZUS (*Zone urbaine sensibles*, since 2014 QPV – *quartiers prioritaires de la ville*). Such developments attract the middle class to peripheral areas. Consequently, the city authorities use such instruments of the national social mix paradigm (*mixité sociale*) to promote the gating of communities within poor districts, which is a paradox, as this policy does not result in areas becoming more cohesive but rather suffering even greater social and spatial fragmentation (and the same paradigm is not being used to justify the creation of housing estates for the poor in affluent districts). This may be the reason why these estates are poorly integrated and rife with tensions (Dorier-Aprill et al., 2012). Gating in social housing estates is intended to provide security and prevent antisocial behaviour, but also to increase the value of property in these areas, or neighbouring ones (especially those with a sea view). So, the gating of neighbourhoods is seen as a tool to achieve urban renewal and the creation of a social mix in rundown estates, and, as a result, the problems associated with gating (accessibility problems, social conflicts and limited integration) are downplayed.

**Table 4.** Share of social housing in Marseille and its change in 2007–2017 period

<i>arrondissement</i>	total number of units (2017)	social sector units (2017)	share of social sector (2017)	total number of units (2007)	social sector units (2007)	share of social sector (2007)
1	20,912	745	4	20,003	1,140	6
2	11,903	1,965	17	12,114	1,007	8
3	20,857	3,691	18	18,679	3,495	19
4	25,099	2,277	9	24,093	1,966	8
5	26,064	1,214	5	25,109	1,498	6
6	23,195	725	3	23,338	597	3
7	19,235	979	5	19,251	639	3
8	40,444	3,615	9	38,317	3,787	10
9	33,129	4,041	12	32,188	4,310	13
10	25,757	3,464	13	23,179	3,411	15
11	23,029	6,012	26	22,055	6,145	28
12	27,175	3,271	12	25,165	4,123	16

### 4.3. Housing policy in Marseille

In addition to the practice of using the instruments of urban policy to attract middle class inhabitants in low-profile districts described in the previous section, the instruments of housing policy are neglected. The French policy paradigm of building social housing in order to achieve a social mix is limited in Marseille. Despite foreseeing the construction of 1,500 social housing units in PLH 2012 (*Programme local de l'habitat*) for Marseille, the city authorities financed fewer than 500 units, leaving the remaining central housing policy funds unused (Lacoste, Donzel, 2012; Lacoste, 2013). In 2017, only four northern *arrondissements* achieved the threshold of 25% of social housing required by the SRU law since 2014<sup>3</sup> (Table 4). In these *arrondissements*, too, the share of social housing slightly decreased in the last decade. In most of the other *arrondissements* the share of social housing is very low. In the whole city, 2,536 units in a social housing sector were completed and 2,668 were withdrawn from use in the years 2007–2017. As a result of this limit-

ed housing policy, which contrasts with the French government's priorities (Pittini et al., 2017), Marseille has the highest proportion of housing in private ownership among the largest French cities.

Since 2016, housing policy has become a competence of local authorities at the metropolitan level, that is Aix-Marseille-Provence Metropolis. According to metropolitan PLH, the Aix-Marseille-Provence Metropolis plans to produce nearly 29,000 social housing units over the period 2017–2022 and there are 12,300 new units produced on average every year (Aix-Marseille-Provence Metropolis, 2021). Currently, there are 159,000 social housing units in Aix-Marseille-Provence Metropolis, which is 19.3 % of all principal housing units, and 40% of them are in Marseille.

## 5. Conclusion

In Aix-Marseille-Provence Metropolis and in Marseille, residential segregation slightly decreased during the decade 2007–17 for most of the dissimilarity

<sup>3</sup>Solidarité et Renouvellement Urbain – the law introduced in 2000 – applies to communes of 3,500 inhabitants forming part of an agglomeration of more than 50,000 inhabitants. It defines rules in terms of social mix and town planning (Local Urban Planning Plan).

indexes. However, the whole region is still characterised by strong social contrasts between the wealthy Aix-en-Provence and some cities with blue-collar population concentrations: Miramas, Vitrolles, Marignage, Istres and Martigue. Although residential segregation also decreased in Marseille, the city remains both the richest and poorest city of the region – a city of many speeds (Lacoste, 2013). The reasons for these contrasts are the historical conditions of the city's development, namely its heritage in the form of a port-industrial system and then the collapse of this system in the 1970s. The study showed that important socio-spatial changes were noticed during the last decade. Firstly, the increase in concentration of high-profile population and decrease in low-profile population in the city centre (2nd, 5th and 3rd *arrondissements*) proved the appearance of a classic gentrification that develops in enclaves in these areas, parallel to hidden and liquid forms of gentrification, which are described in the literature. Secondly, the increase in concentration of high-profile population and lower or similar increase in low-profile population in northern *arrondissements* (14th and 15th) proved that these areas, too, are becoming socially diverse and attractive to the middle class (by means of the creation of gated estates), according to the will and policy of the local authorities. However, in both examples social tensions or lack of social integration are seen to appear with the introduction of such social mix (gentrification – Gasquet-Cyrus, Trimaille, 2017; and privatisation of land – Dorier-Aprill et al., 2012). Therefore, neither residential segregation nor its decrease through the first stage of gentrification or the introduction of gated estates contributes to urban social sustainability. The described socio-spatial processes, together with the city's development strategy and housing policy, influence the social segregation process in Marseille and lead to its fragmentation at the microscale.

Gentrification and privatisation of land are enforced by the city's liberal housing policy (neglecting social housing sector development despite the national paradigm) and the city's urban development strategy adopted in the 1980s (the strategy of internationalising, economic, financial and social revival of the city through the attraction of professionals and the development of Marseille as a key European metropolis on the Mediterranean

arc). For these reasons, Marseille does not take advantage of the full potential of French state housing policy and so has high segregation rates, strong social polarisation and micro-scale urban fragmentation. Enclaves of poverty are becoming increasingly contrastive in relation to the surrounding space, consequently decreasing urban social sustainability. In the city, a convergence of socio-spatial processes to global trends is seen (gentrification as an urban development strategy, privatisation of land, the role of foreign property developers and their cooperation with local authorities). Therefore, both segregation and the associated socio-spatial processes lead to undermining urban social sustainability, which becomes ever more challenging.

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