Sustainable Networks of Public Spaces

1. Introduction

Considering the increasing importance of immigrants for demographic and socioeconomic sustainability of countries and regions, the research reported in this article aims at developing a methodology for the planning of public spaces, especially targeted to immigrants. It considers their specific demographic, socio-economic and professional characteristics, as well as their needs and expectations. This study is applied, as a case study, to the Oporto Metropolitan Area (Portugal).

The public spaces, where individuals interact, expose them to different types of conflicts, namely lack of safety, discomfort, and social exclusion. Thus, in the first part of the article, statistical data is collected and treated in order to identify the residential locations of immigrants in the studied territory. These locations, as well as density of land use, are cartographically displayed. Then an analysis is pursued, that relates spatial building densities with immigrants' characteristics, in order to identify trends and problems. It consists in the definition of a typology for immigrants' location, where some characteristics of immigrants (country of origin, economic activity, profession) are crossed with the places of residence, according to their morphological and typological characteristics (namely in the metropolitan core and in the suburban area).

Considering the characteristics of residential neighbourhoods, a plan for public space provision is finally proposed that stresses the need to qualify these spaces, so that they can properly receive immigrants, according to their characteristics and needs. It is hoped this proposal promotes higher sociability, mutual help and leisure levels in more sustainable outdoor places.

2. Theoretical framework

Immigrants' settlement patterns strongly depend on the characteristics of metropolitan and urban economies (Arbaci, 2008; Malheiros, 2002), and on the territorial distribution of investments (that translate job generation) (Massey, 1990). They are shaped by the presettled housing structures (Madoré, 1997, 2005; Malheiros, 2002), public spaces (Alves, 2003), infrastructures and equipments, housing characteristics and neighbourhood sociological features. They further depend on the perception that urban economies distribute resources and opportunities unevenly in space (Arbaci, 2008; Fonseca, 1999; Fonseca et al., 2002; Malheiros, 2002; Massey, 1990; Musterd and Van Kempen, 2007; Peach, 2002; Teixeira and Murdie, 1997), on the system of urban transports; on the spatial distribution of dwellings, urban infrastructures and equipments, available employments¹, labour agreements (Borjas, 1994; Pecoud, 2002), the receptivity of local economies to immigrants' academic and professional backgrounds, the relation between residential and work locations, and the ability of employers to assign posts that fit immigrants' academic background, professional skills, expectations and motivations (Benson-Rea and Rawlinson, 2003).

Social networks (Cameron, 2000; Li, 1998; Peach, 1998; Rosebaum et al., 1999; Scott, 1980; Wellman, 1988; Wyly et al., 2001), cultural norms and contextual factors (Bolt et al., 2008; Fortuijn et al., 1998; White, 1999), and spatial stratification processes (Logan et al., 1996) - that translate immigrants perception and appropriation of urban neighbourhoods - play a crucial role in their integration processes² (Fieldhouse, 1999; Pecoud, 2002; Scott, 1980; Stoll et al., 2002). Immigrants' welcome and guiding organisms³, and other people from the same ethnic-cultural communities stand out among social networks. Cultural norms and contextual factors refer to the contact between immigrants and natives (Ellis, 2001; Goering et al., 1995; Gould and Turner, 1997; Kleit, 2001; Logan, 2006; Madoré, 1997, 2005; Massey, 1990; Scott, 1980; Wellman, 1988), to the behaviours of natives and other ethnic-cultural groups⁴ (Ellis, 2001; Logan, 2006; Madoré, 1997, 2005; Massey, 1990), and to dominant social discourses⁵. Spatial stratification processes, by their turn,

usually translate socio-economic differences rather than ethnic-cultural ones, especially in southern European countries (Arbaci, 2008).

So urban neighbourhoods – translated through specific settlement patterns in existing urban morphologies and building typologies, resources, infrastructures and equipments - are differentially perceived and appropriated by immigrants (Cameron, 2000; Fieldhouse, 1999; Li, 1998; Peach, 1998; Pecoud, 2002; Rosebaum et al., 1999; Scott, 1980; Stoll et al., 2002; Wellman, 1988; Wyly et al., 2001). This is due to differences in demographic and socioeconomic characteristics, in assimilation levels (Alba and Logan, 1992; Logan et al., 1996), and in social and professional attainment goals. Indeed immigrants' neighbourhoods shape their social networks (Cameron, 2000; Li, 1998; Peach, 1998; Rosebaum et al., 1999; Scott, 1980; Wellman, 1988; Wyly et al., 2001) and their exposure to natives and other communities⁶ (Goering et al., 1995; Gould and Turner, 1997; Kleit, 2001; Scott, 1980; Wellman, 1988). So they condition their performance (Briggs, 1998; Goering et al., 1995; Kleit, 2001; Scott, 1980), their access to opportunities (Arbaci, 2008; Benson-Rea and Rawlinson, 2003; Bolt et al., 2008; Ellen and Turner, 1997; Fortuijn et al., 1998; Galster, 1987; Iredale, 2002; Logan, 2006; Massey, 1990; Massey and Denton, 1993; Rosebaum, 1991; Rosebaum et al., 1999; Wilson, 1986, 1996), and their socio-economic-professional performance (Briggs, 1998; Goering et al., 1995; Kleit, 2001; Scott, 1980).

Different literature approaches aim at rendering the concepts of morphological and typological land use density operational, and at integrating them in analytical frameworks, in order to evaluate their impact on immigrants' integration (Burton, 2000; Churchman, 1999; Ewing et al., 2002; Frenkel and Ashkenazi, 2008; Galster et al., 2001; Razin and Rosentraub, 2000; Rebelo, 2011). These approaches are crucial for planning strategies and policies, and for urban management, namely as far as public spaces are concerned. Some proposed measures, among others (Galster et al., 2001; Massey and Denton, 1988; Rebelo, 2011), refer to population and residential densities (that are general measures of metropolitan land use); grouping (that shows whether a certain area where ethic-cultural minorities live is contiguous or spatially aggregated in relation to other areas, testing how buildings' grouping allows the minimization of urban developed or developable land); continuity of the urban layout (that analyses the spatial distribution of buildings); exposure (that refers to the potential degree of contact, or possibility of interaction between minority members and other people in a certain geographic area); and concentration (that tests the morphological relation between the built space occupied by a certain ethnic-cultural group and their underlying land: revealing how urbanization locates proportionally or disproportionately in a certain area, instead of arranging more regularly in space). These measures may be either related to territorial areas or compared with homologous settlement patterns of other population groups (Massev and Denton, 1988).

Within this scope, the study of public spaces and their relations to settlement/neighbourhood patterns is especially outstanding for immigrants' integration, as they favour the strengthening of social capital (public spaces necessarily frame inter-cultural processes), and immigrants' sociability aspirations and expectations (public spaces represent collective entities). So outdoor public spaces should fit into the perceptions of different ethnic-cultural groups, considering their family, social and institutional interdependencies, thus providing them health and comfort as well. This should weaken the effects of different kinds of conflicts they are exposed to, namely lack of security/comfort, or social exclusion (Burton and Mitchell, 2006; Cortesão et al., 2009).

Public spaces (framed by their morphological, typological and patrimonial aspects) can specifically support the integration of different ethnic-cultural groups through concerns on the functional quality of residential and pedestrian public precincts, the suitability of urban furniture to their specific characteristics, the availability of leisure and safety devices, and the reinforcement of public spaces as collective entities. The urban design exerts a decisive influence on the micro-climates of spaces (Alves, 2003). Thus it should undertake the appropriate solar exposure in order to balance healthy exposure to solar radiation and protection mechanisms at the same time. It should further support air circulation, protecting

public spaces from undesirable winds, providing green spaces as essential thermo-regulator devices (such as barriers to wind), but sources of fresh air (Alves, 2003).

3. Methodology

3.1. Outline

In this article is proposed a methodology to assess and cartographically visualize specific settlement patterns of immigrants' groups in a certain metropolitan area. This methodology supports the comparison among land use forms by different population groups and the prevailing concentrated/dispersed morphologies and typologies. It further supports the subsequent definition and management of public spaces' policies that favours immigrants' integration. It is applied, as a case study, to the Oporto Metropolitan Area (Portugal).

In a first phase, this methodology aims at identifying immigrants' residential locations (according to their main ethnic-cultural groups) and the correspondent territorial characteristics (macro analysis). These locations and correspondent land-use densities are represented cartographically. In a second phase, a more focused detailed analysis is pursued, through the identification of immigrants' professional and socio-economic characteristics in this metropolitan area. This analysis leads to the definition of a typology of immigrants' location, where their characteristics (country of origin, economic activity, and professional group) are crossed with their residential locations (according to respective morphological and typological characteristics). It supports the identification of trends and problems connected to public spaces in specific locations. Finally, some building and qualification measures of public spaces are identified, that should be taken into consideration when their projects are undertaken.

This methodology is presented according to the following sequence of steps: (i) brief description and characterization of Oporto Metropolitan Area; (ii) development of a metropolitan management information system (with monitoring functionalities); (iii) statistical analysis and cartographic display of the residential distribution of the different population groups (including natives) (iv) identification of demographic, morphological and typological characteristics of this territory; (v) identification and cartographic display of immigrants' economic and professional characteristics; (vi) operationalization of some indicators of urban morphologies and building typologies; (vii) identification of the places where intervention in public spaces is primary, according to the prevailing characteristics of the different population groups; and (viii) proposal of policies and measures to reinforce the quality of urban spaces.

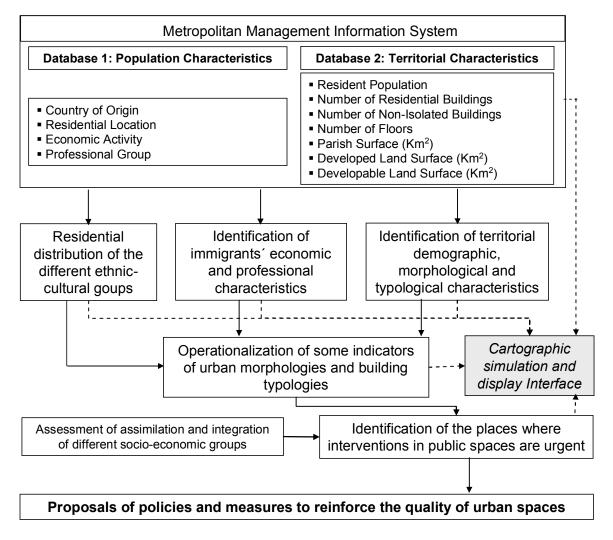


Figure 1. Outline of the research reported in this article (Source: Author)

3.2. Development of a metropolitan management information system

To build up this metropolitan management information system, data was mainly collected from population and housing censuses carried out by the Portuguese National Statistics Institute⁷, at the parish level (it was further aggregated at the municipality level). Information was grouped according to main immigrants' origin country or groups of countries: Western European Union countries, Brazil, Portuguese-speaking African countries, Eastern European countries, Venezuela and South Africa.

Collected data was grouped into two main databases. The former assembles information on economic and professional characteristics of the different ethnic-cultural groups: country of origin, residential location, economic activity, and professional group. The latter refers to the morphological and typological territorial characteristics: total population; number of buildings; number of non-isolated buildings; number of floors, and developed and developable areas. Some indicators of urban morphologies and building typologies (that basically represent metropolitan land use densities) are, then, rendered operational and computed: population density; residential density; urban concentration; continuity of the urban layout; and grouping. The population density is given by the quotient between resident population and respective parish' surface (expressed in Km²); the residential density is given by the quotient between the number of residential buildings and the area of respective parish (expressed in Km²); the continuity of the urban layout is reckoned through the quotient between non-isolated buildings and the total number of buildings; the concentration is computed by the quotient

between the total number of buildings and the developed and developable area; and the grouping is given by the quotient between the total number of floors and the developed and developable area.

4. Case study: Oporto Metropolitan Area

4.1. Brief description of the Oporto Metropolitan Area

Oporto Metropolitan Area locates in the North of Portugal, and is set up by nine municipalities: Espinho, Gondomar, Maia, Matosinhos, Porto, Póvoa de Varzim, Valongo, Vila do Conde and Vila Nova de Gaia, and by a hundred and thirty parishes (Figure 2):



Figure 2: Municipalities and parishes in the Oporto Metropolitan Area. (Source: Author)

According to Census Data (Portuguese Statistics Institute – INE, 2001), in Oporto Metropolitan Area inhabited, in 2001, 1.260.680 individuals, including about 4,2% of immigrants. Immigrants from African countries with Portuguese official language (Angola, Mozambique, Cabo Verde, Guiné Bissau and S. Tomé e Príncipe) amounted to 53 %, whereas 19,9 % came from Western European Union countries (mainly France, Germany, Spain and Italy), 14,1% from other foreign countries (particularly 5,3% from Venezuela and 3,2% from South Africa), 11,1% from Brazil, and 1,9 % from Eastern European countries (mainly Ucrania and Russia) (Rebelo and Paiva, 2006).

4.2. Obtained results

The statistical analysis and cartographic visualization of the residential location of the main ethnic-cultural groups that live in the Oporto Metropolitan Area is then confronted with the main characteristics of respective land use that reflect their morphological and typological characteristics (population and residential densities, concentration, continuity of the urban layout, and grouping). A set of analytical and cartographic tools was then developed in order

to study the settlement patterns of different ethnic-cultural groups (extensively exposed in Rebelo, 2010a, 2010b and 2011). The developed cartographic interface supports the display of the attained results (Figure 3):

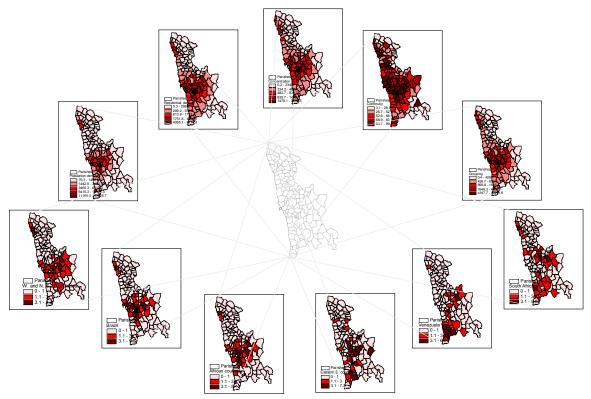


Figure 3: Confrontation of the indicators of urban morphologies and building typologies with the territorial distribution of the main ethnic-cultural groups in the Oporto Metropolitan Area. (Source: Author)

The territorial distribution of immigrants from Western and North European Union countries, from Brazil and from African countries with Portuguese official language resemble the Portuguese one, despite these immigrants show an even higher preference for central metropolitan locations. The territorial distribution of immigrants from Eastern European countries is very fragmented, scattered, and highly dense⁸. Immigrants from Venezuela and South Africa display a strong bipolarized distribution centred in the Municipalities of Maia/Valongo and Vila Nova de Gaia/Espinho.

The results obtained in the second phase of the research correspond to the analysis of immigrants' residential locations according not only to their country of origin but also to specific economic and professional characteristics (for instance, immigrants belonging to upper professional groups – that include public administration, directors and firms' upper staff intellectual and scientific experts; intermediate level technicians and professionals; and administrative staff and similar (Figure 4)).

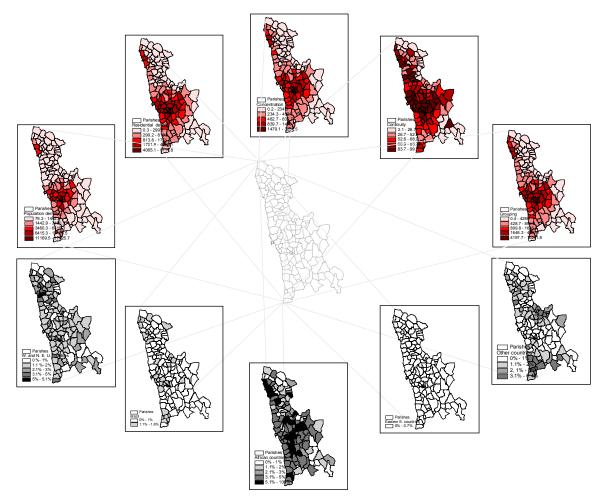


Figure 4: Confrontation of the indicators of urban morphologies and building typologies with the territorial distribution of the main ethnic-cultural groups' upper professional holders in the Oporto Metropolitan Area.

(Source: Author)

This project aims at proposing metropolitan and urban policies and management tools that jointly develop sustainable public spaces and promote immigrants' integration. Despite this final phase of the project is still taking place, it already enables the identification of some issues that should be considered in the projects for the qualification of public spaces (that fit immigrants' settlement patterns and the characteristics of different ethnic-cultural groups). Considering the increasing metropolitan and urban requirement on low carbon levels, these issues mainly focus upon solar exposure; wind exposure; air quality; temperature; and relative humidity (Alves, 2003).

5. Conclusions

The main goals of the project here reported consist in the qualification of public spaces, in order to properly welcome immigrants, considering their own characteristics and the territorial characteristics.

A methodology and an urban management information system is herein proposed and developed for the identification and display of residential patterns of different ethnic-cultural groups that provides the required framework for the establishment of public spaces' policies. Despite this research is still going on, it is expected it will provide accurate socio-professional and technical data for planners and decision-makers to ensure the quality of public spaces and people's well-being, based on project sustainability. Thus it should favour a better social, economic, and professional integration of immigrants, through the enhancement of sociability, mutual help and leisure in healthier outdoor sustainable spaces.

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Endnotes

- 1 These are employments in domestic or social services, construction or industry seldom searched for by natives, or more qualified posts in the scope of the tertiary sector.
- 2. Integration refers to social, economic, professional and territorial longstanding processes through which a person or a group fit a new society and/or a different culture and remain there (Goering et al., 1995; Kleit, 2001; Logan et al., 1996; Massey, 1990; Wellman, 1988).
- 3 Immigrants' welcome and guiding organisms include official or informal public and private associations, religious entities, trade unions, and non-profit organizations.
- 4 These behaviours may imply whether integration or segregation in housing, socio-economic and professional issues.
- 5 Social discourses translate the relation between immigrants and their host-countries, reinforced by the symbolic imagination underlying their representations by natives and vice versa (Arbaci, 2008).
- 6 Exposure refers to the potential degree of contact or possibility of interaction, between members of the minority and majority groups within a certain geographical area (Massey and Denton, 1988).
- 7 The main advantages that arise from the use of census data are, namely: (i) information covers in a systematic and exhaustive way all population groups (natives and immigrants), and is spatially disaggregated at the level of parishes and municipalities, (ii) this information is reliable, as it is validated by an institution that pertains to the state, and (iii) it allows the comparison among different parishes and zones in the studied area, among the values of each indicator collected at different moments, as well as among the values concerning natives and the different groups of immigrants.
- 8 They reach high population percentages in the same parishes.

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