Chapter

URBAN PLANNING: PRACTICES, CHALLENGES AND BENEFITS FOR IMMIGRANTS

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ABSTRACT

This chapter analyses the relations between the characteristics of different groups of immigrants and their integration. A decision-support system is developed that founds on a management information system, a set of integration indicators, and cartographic and simulation interfaces for the simulation of territorially-focused policies.

This research is intended to improve municipal decisions and their implementation in order to promote an effective socio-economic, professional and civic local integration of immigrants, considering their population and settlement characteristics. It is applied, as a case study, to the Oporto Metropolitan Area (Portugal), but can be easily extended to other urban and metropolitan areas.

Keywords: settlement patterns; immigrants´ integration; decision-support systems; urban policies

INTRODUCTION

Immigrants[1] are increasingly important for demographic, social and economic sustainability of developed countries, within a scope of global environments, ageing populations, and free

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circulation of people (Fortuijn et al., 1998; Ellis, 2001; Garbaye, 2002; Bolt et al., 2008). So politicians and decision-makers are required to settle integration policies that support social and economic competitiveness, cohesion and sustainability, especially in the fields of housing and neighbourhoods, labour market and involvement in local communities (Andersen and Van Kempen, 2003; Dekker and Van Kempen, 2004; Van Beckhoven and Van Kempen, 2006; Van Marissing et al., 2006; Musterd and Van Kempen, 2007; Rebelo, 2010).

Immigrants´ and integration issues have been studied since the seventies by the European Council and by the OECD Continuous Reporting System on Migration (SOPEMI). The European Commission has also sponsored since 1997 research and framework studies on migration, and several reports since the adoption of the Communication on Immigration, Integration and Employment, in 2003 (Heckmann et al., 2010). All these studies have generally encompassed the harmonization of common terms, data sources, indicators, and sustainable devices (Freeman, 1995; Borjas, 1996; Hansen, 1999; Rogers and Tillie, 2001; Entzinger and Biezveld, 2003; CNEL, 2004; Penninx, 2004; Geddes and Niessen, 2005; Di Bartolomeo and Di Bartolomeo, 2007). They subsequently have developed information and monitoring systems (Prominstat, 2012) and indexes (Mipex, 2012) to support the evaluation, measurement and comparison of integration policies´ performance among different countries, namely through the provision of data online (what have increased the visibility and awareness of national integration policies and of international trends). But these remarkable progresses in policy harmonization among different countries have not been kept up with studies focused on more specific territorial integration and on specific groups of immigrants.

Within this scope, this research complements the current state of the art, making the transition between the political and legal framework of integration (at the macro level) to the settlement of concrete policies. It begins by the analysis of the settlement patterns of different groups of immigrants considering their ethnic and socio-economic-professional characteristics. It, then, develops a set of tools to design, implement and measure more specific territorially-scoped policies (at the micro level) in order to promote their effective local integration. This strengthens cause-and-effect relations between immigrants and host-societies, thus supporting more effective integration processes.

As a brief outline, this chapter first presents the theoretical state of the art on integration. The reasons underlying settlement patterns that most strongly shape immigrants´ territorial and socio-economic-professional integration are then described. Following on, a decision-support system is proposed and applied to the Oporto Metropolitan Area that includes a set of indicators to measure their territorial and socio-economic-professional integration. These are connected upstream with a territorial management information system, and downstream with cartographic display and simulation modules. These enable interventions on relevant territorial or socio-economic-professional variables, simulating alternative hypothetical scenarios whose impacts are assessed, computed and displayed on maps. Finally results are presented and discussed, followed by a section of conclusions and recommendations.

THEORETICAL FRAMEWORK

[1] A Portuguese immigrant is every person resident in Portugal who does not have Portuguese nationality (according to the concept adopted by the Aliens and Borders Service (SEF) and by the Portuguese National Statistics Institute (INE)).

Integration consists in a set of dynamic functional processes of reciprocal adjustment between immigrants and natives within a certain host-society that ensure them equal rights, duties and responsibilities (Wellman, 1988; Goering et al., 1995; Kleit, 2001; Massey, 1990; Logan et al., 1996). This involves the participation of immigrants in key civic and socio-economic fields in host-societies. Conversely, they should respect the basic law, norms and values, without renouncing their ethnic and cultural identity and characteristics (European Commission, 2003; Heckmann et al., 2010; Mipex, 2012; Prominstat, 2012).

Most studies on integration are theoretically placed between the neoclassical theoretical view (integration as one-way assimilation processes) and more recent analyses (integration as multiculturalist processes) (Heckmann et al., 2010).

The current state of the art points out four main integration fields (Heckmann et al., 2010): structural integration (social integration in host-society's institutions); cultural integration (values, norms and language skills); interactive integration (interpersonal and transnational networks); and identificative integration (sense of belonging). These fields are assessed under three different perspectives: personal and systemic openness of the main society, immigrants´ contextual issues, and societal issues. The society's openness expresses through natives´ attitudes towards immigrants and ethnic minorities (Scott, 1980; Wellman, 1988; Massey, 1990; Goering et al., 1995; Ellis, 2001; Kleit, 2001; Madoré, 2005; Logan, 2006), including discriminating behaviours (Fonseca et al., 2002; Malheiros, 2002; Musterd et al., 2007), dominant social discourses and accessibility to key institutions. Immigrants´ contextual issues refer to their ethnic-cultural background, age, stay length, transnational networks and activities, cultural norms (Massey, 1990; Ellis, 2001; Madoré, 2005; Logan, 2006), and other immigrant-related activities (Scott, 1980; Wellman, 1988; Li, 1998; Rosebaum et al., 1999; Cameron, 2000; Wyly et al., 2001). The societal context refers to the characteristics of host-societies (Fortuijn et al., 1998; Bolt et al., 2008), to social or cultural sub-groups, and to socio-spatial criteria (namely neighbourhood composition, features and trends) (Logan et al., 1996; Arbaci, 2008; Heckmann et al., 2010).

Recent research on integration mainly focuses on national levels. About half the studies analyse structural integration (immigrants´ participation in the labour market, their educational attainments, housing situation, citizenship and access to the health system, and the consequences of integration to the host-society), and the other half covers cultural, interactive and identificative integration (Heckmann et al., 2010). Few analysis, however, are centred on host-societies´ initiatives towards integration.

Decision-makers and researchers in the bosom of the European Union have harmonized integration policies based on a thorough grasp of how immigration influence societies and vice-versa, and have developed harmonized databases. Such is the case of Promistat that renders compatible statistical (and administrative) data on immigrants among 27 European countries (UE countries + Norway and Switzerland, excluding Romania and Bulgaria) (Prominstat, 2012) in order to support comparative quantitative research. Different monitoring systems have also been implemented, based on trans-European common goals, concepts, indicators and assessment mechanisms in the wake of the adoption, in 2004, of the Common Basic Principles for Immigrant Integration Policy in the UE (see Heckmann et al., 2010). These monitoring systems interconnect data, extend it to enclose different dimensions of integration, compare results, adjust policies, monitor and measure the evolution of integration (Council of the European Union, 2004; Heckmann et al., 2010, Niessen, 2009).

The main data sources are census data, counts, registers and surveys. Census data are systematically and exhaustively collected, covers all the individuals that live in a certain area and allow the identification of specific groups, is reliable, and enables cross-section and longitudinal analysis. They are, nevertheless, quite expensive, data are only collected each ten years, and undercounts illegal immigrants[2]. Counts are regular and involve low costs (as they found on administrative data), but often mismatch theoretical concepts, and are more focused on specific social fields, cover more limited periods, and may concern cases or individuals. Registers are longitudinal in scope, focused on strict themes, don'ts usually keep historical data over long periods, and results may be biased because they mainly refer either to those recently arrived or to long-term residents. Surveys provide additional background qualitative data, support longitudinal and either multi-thematic or more detailed analysis, but often questions are left without answers. The main data troubles of these data sources arise because data aren't always compatible neither with theoretical concepts nor with other data, and the periods covered are often mismatched.

Decision support systems (DSS's) get ahead of monitoring systems, as they extend their functionalities, and render operational socio-economic, territorial and civic integration policies. Indeed they are flexible interactive computational systems that support the resolution of non-structured or semi-structured problems[3]. They resort to analytical models, spatial databases, decision maker's wisdom, and to an interactive interface. Besides, they are conceived as ad hoc systems, started and controlled by decision-makers, and able to point out quick responses. Geographic information systems are specific decision-support systems that use geographic databases to build up and display maps and other graphs, stressing patterns and connections. These DSS's systematize and treat data (collected at regular intervals) so to figure out reality and respective evolution, thus supporting better decisions. For these reasons, they should be used by administrators and policy-makers both in strategic and in operational decisions.

The indicators used both by monitoring and decision-support systems may split into two different kinds: contextual or input indicators (that measure governmental policies and integration tools in quantitative and qualitative terms), and performance, output or results indicators (that refer to the situation effectively achieved by key-groups) (Huddleston 2009).

The current most representative input indicator is the Migrant Integration Policy Index (MIPEX), adopted by the whole EU members, as well as by Norway, Switzerland, Canada, USA, Australia and Japan. It quantifies the opinion of national academics and top institutions concerning immigration law and public policies, in seven different political fields (mobility in the labour market, family rejoin, education, political participation, long-term residence, access to nationality, and anti-discrimination) (Mipex, 2012) and, as a result, settles a quantified scale (index) to measure global integration. This index enables the measurement, ordering and comparison of policy performance towards integration goals – equal rights, responsibilities and opportunities -, as well as cross section comparative analysis; and longitudinal studies. It also supports the design of new laws, regulations and policies (Mipex, 2012).

[2] Data on illegal immigrants is very difficult to collect and probably only specific surveys could give some insights. CLANDESTINO - the current database on irregular migration (http://irregular-migration.net/) - doesn't provide statistical data for Portugal.

[3] Structured decisions refer to situations where the course of action can be specified beforehand. Semi-structured decisions further depend on other factors.

At the operational level, the "EU Blue Card System" is a tool that supports the implementation of the European common integration policies aimed at the attraction of high skilled immigrants into EU countries (providing them the same residential and economic rights as natives). It promotes the economic development of Europe and its competitiveness as compared to the USA, Canada, Australia or New Zealand. However, it is criticized as it distinguishes between immigrants (Bluecard, 2012).

Governmental policies are obviously prominent as they settle the legal and political framework for integration (Mipex, 2012). And the inclusion of different integration policies within a sole index is interesting from a theoretical international standpoint, as it gauges the absolute and relative performance of integration policies (Di Bartolomeo and Di Bartolomeo, 2007). Besides, it underlies governmental strategic guidelines and their inclusion in law. However, this assessment is general for each country as it assesses integration for the whole relevant political fields, and for the whole immigrants (regardless their inherent ethnic features), so it hampers a detailed micro analysis of the different integration sides (especially those that impact territory the most). In order to define concrete planning and management measures targeted to immigrants, it is important that specific facets of integration are easily displayed, perceived and quantified, and that specific groups of immigrants are studied in more detail (INTI, 2006) as they hold human, socio-economic and professional features that distinguish them. So reconciled and longitudinal data and results indicators (Niessen, 2009; Heckmann et al., 2010) should be used to describe the whole dimensions of integration (and the complex underling reasons), and should clearly identify and describe the target groups or subgroups, as well as natives.

Despite every effort of European countries to promote integration (especially the structural one), the identification of labour, housing and civic opportunities and their implementation in local economies encompass the development of attractive neighbourhoods. These should be able to engender proper conditions to immigrants´ personal, socio-economic and professional development, encouraging their local involvement and participation (cultural, interative and identificative integration) (Mipex, 2012).

Thus the definition of local policies require a deeper assessment of the reasons underlying immigrants settlement patterns[4] that mostly shape their socio-economic and territorial integration, considering their contextual features (Massey, 1990; Fonseca, 1999; Fonseca et al., 2002; Malheiros, 2002; Peach, 2002; Musterd and Van Kempen, 2007): territorial characteristics; socio-spatial differentiation; performance of housing and labour markets; and spatial and socio-economic-professional mobility. These reasons condition immigrants´ perception and appropriation of neighbourhoods (Scott, 1980; Fieldhouse, 1999) that exert different impacts on their spatial, social and economic-professional integration (Fortuijn et al., 1998; Iredale, 2002; Benson-Rea and Rawlinson, 2003; Logan, 2006; Bolt et al., 2008). Thus computation and display of the settlement patterns of different groups of immigrants provide for the analysis of their integration. Next is presented a brief description and justification of the importance of each of these reasons to explain immigrants´ settlement patterns, and how they shape their integration.

Immigrants settle in a pre-existent physical environment, characterised by certain urban morphologies and building typologies, and by certain sociological neighbourhoods (Wellman,

[4] Settlement processes should, therefore, ensure that immigrants stay in the host-society and support their participation and integration in its social and economic structures.

1988; Li, 1998; Rosebaum et al., 1999; Cameron, 2000; Wyly et al., 2001). Their settlements are conditioned by the personal and systemic openness of the host-society, that marks their exposition to native population and to other communities (Goering et al., 1995; Gould and Turner, 1997; Kleit, 2001), their socio-economic performance (Goering et al., 1995; Kleit, 2001), and their access to social, economic and professional opportunities (Galster, 1987; Massey, 1990; Ellen and Turner, 1997; Fortuijn et al., 1998; Rosebaum et al., 1999; Iredale, 2002; Benson-Rea and Rawlinson, 2003; Logan, 2006; Bolt et al., 2008). Immigrants develop their interpersonal networks, either with natives or with immigrants (cultural and interactive integration), and develop their sense of belonging (identificative integration) within their neighbourhoods, what guides both their socio-economic performance and their access to key-institutions. Land use density (Frenkel and Ashkenazi, 2008) and the spatial distribution of buildings may be easily rendered operational (Galster et al., 2001; Ewing et al, 2002).

Urban and housing policies, housing markets´ structures, access to home and to urban facilities, and the public transports system (Ewing et al., 2002) strongly shape immigrants´ residential and work locations and, consequently, their socio-economic and professional structural integration (Wellman, 1988; Massey, 1990; Goering et al., 1995; Rosebaum et al., 1999; Kleit, 2001; Malheiros, 2002; Peach, 2002; Musterd and Van Kempen, 2007), thus being essential in the social reproduction of individuals (identificative integration) (Massey, 1990; Fonseca et al., 2002; Malheiros, 2002; Peach, 2002; Musterd and Van Kempen, 2007).

The socio-spatial differentiation mainly results from the characteristics of the urban local economies (Malheiros, 2002; Arbaci, 2008), the territorial distribution of investments (which engender jobs) (Massey, 1990); the system of urban transports (and the mobility it implies), and the existence of housing and urban infrastructures and equipments near the main employment poles. The inter-relations between the socio-economic territorial context of the host-society and immigrants´ demographic, economic and professional features also explain settlement patterns, as they identify the activities most responsible for the attraction of immigrant labour, and of their homes´ location and accessibility (Massey, 1990; Fonseca, 1999; Fonseca et al., 2002; Malheiros, 2002).

Within a global environment, firms increasingly adopt internationalization, outsourcing, and specialization strategies; choose flexible organizational structures; resort to varying and diverse raw material and labour sources; serve a wide range of markets; pursue swift relocation and labour recruitment policies; spread throughout huge territories, and connect different functional poles with varying territorial cover (Salt and Findlay, 1989). These characteristics influence labour markets and, subsequently, immigrants´ settlement patterns, as firms cease to keep their own permanent workers, and resort to diversified, temporary and flexible labour instead. This reflects on the kinds of available employments, on the importance immigrants attach to work, on the relative location of home and work, on the spatial mobility and turnover of work posts, and on local economies´ receptivity to their academic backgrounds, professional skills and entrepreneurial abilities (Benson-Rea and Rawlinson, 2003).

The evolution of immigrants' locations throughout time reflects respective spatial mobility. It depends on the distances to the main and secondary centres where most firms and services locate (Alonso, 1964), and is also conditioned by family budgets assigned to home, transports and other expenses, by home-work relative locations, and by the morphological and typological characteristics of alternative locations (Crone and Voith, 1999). Socio-economic and professional mobility, by its turn, depends on the perception that urban economies

distribute resources and opportunities unevenly in space, so immigrants move in order to reach the highest social and professional levels they manage to (Massey, 1990; Alba and Logan, 1992; Logan et al., 1996; Fonseca, 1999; Fonseca et al., 2002; Malheiros, 2002; Peach, 2002; Musterd and Van Kempen, 2007; Arbaci, 2008).

The attraction exerted on immigrants by territorial socio-economic and professional characteristics depends on their contextual features, namely their motivations, academic qualifications, and professional skills (Logan, 2006), on the trade-off between professional and family/community reasons, on labour agreements, and on their employment expectations (Borjas, 1994). Immigrants respond to labour supply either taking jobs not searched for by natives, or searching for more qualified jobs (Massey, 1990; Altonji and Card, 1991; LaLonde and Topel, 1991; Borjas et al., 1996; Ellen and Turner, 1997; Fieldhouse, 1999; Rosebaum et al., 1999). The interaction among all those reasons explains differences among immigrants' socio-economic-professional mobility patterns (Massey, 1990; Rosebaum et al., 1999). Within this background, each immigrant should pursue his own cognitive, social and cultural skills in order to attain higher socio-economic positions in host-societies (Heckmann et al., 2010).

METHODS

Methodological outline

The research reported in this chapter aims at supporting immigrants´ integration planning and management, based on its relation to respective land use patterns. So a decision-support system was developed in order to render operational the links between settlement patterns and the reasons that underlie them (Figure 1). This system assesses integration and monitors its evolution under the spatial and the socio-economic-professional perspectives. Besides, as it includes upstream a huge metropolitan management information system and downstream a display and simulation interface, it renders especially flexible the study of integration along time, and the comparison among different urban and metropolitan realities.

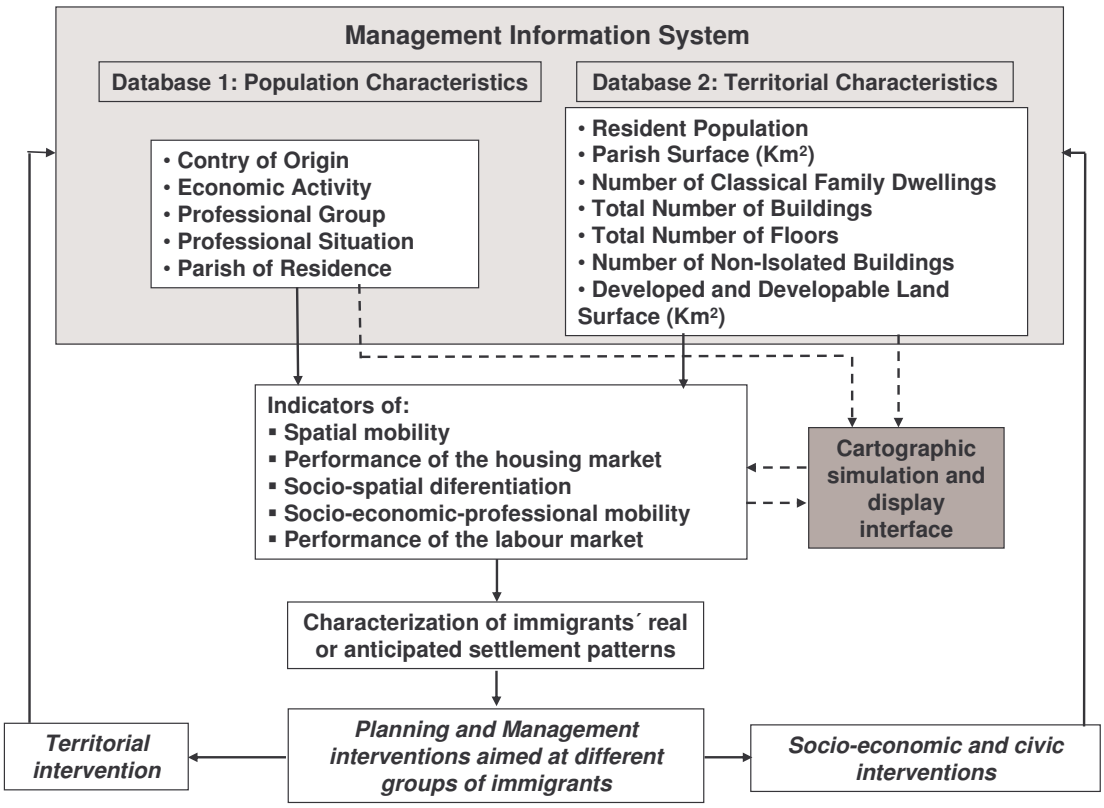

Figure 1. Outline of the proposed decision-support system.

The proposed management information system is made of two databases, developed at the parish level. The former assembles exhaustive data on each individual's demographic, economic and professional characteristics, thus covering the whole population living in the studied metropolitan area. The latter assembles data on the territorial characteristics. These databases should be upgraded on regular intervals.

The decision-support system includes this data (Chart 1) into a set of indicators that support the identification, quantification and display of the influence exerted on immigrants´ integration by the socio-spatial differentiation, the performance of the housing and labour markets; and their spatial and socio-economic-professional mobility. The socio-spatial differentiation due to the characteristics of the urban economies is expressed by the relative distribution of each group of immigrants according to his professional (or economic) features in relation to natives´. It may be then cartographically compared with the distribution of the main economic activities or investments (that approach the territorial distribution of employment opportunities). The performance of the housing market in relation to a certain group may be approached from the comparison of respective distribution with the density of construction (Rebelo, 2010). The performance of the labour market is assessed through the computation of the proportion of immigrants that hold certain professional (or economic) characteristics in the homologous total active population. The spatial mobility is computed as the territorial distribution of a certain group of immigrants throughout different moments in time. Finally, the socio-economic-professional mobility is appraised from the territorial distribution of career advancements towards certain professional target-groups.

These indicators are computed at the parish level, and then grouped by municipality. The analysis is carried out comparing the values of the indicators between two or more distinct moments, in order to assess their evolution in-between.

Indicators	Computation of the Indicators
Spatial mobility	Parish of residence of each immigrant or group of immigrants
Performance of the housing market*	$\frac{\text{Total number of buildings}}{\text{Developed and developable urban area}}$
Socio-spatial differentiation*	$\frac{\frac{\text{Nº of immigrants that belong to a certain professional group *}}{\text{Total number of immigrants that belong to all professional groups *}}}{\frac{\text{Total nº of people that belong to the studied professional group * in the Oporto M. Area}}{\text{Total nº of people that belong to all professional groups * in the Oporto M. Area}}}$
Socio-economic-professional mobility*	$\frac{\text{Nº of immigrants that ascended to a certain professional group *}}{\text{Total nº of immigrants that belong to this professional group *}}$
Performance of the labour market*	$\frac{\text{Nº of immigrants that belong to a certain professional group *}}{\text{Total number of people that belong to the studied professional group *}}$

* Despite in this example the indicators are computed according to immigrants´ professional group, the same computation method may be applied considering immigrants´ economic activity or professional situation instead.

Chart 1. Indicators of immigrants´ integration used in this research.

Finally, the simulation and display interface supports the test of alternative decision scenarios that result from changes in the factors that underlie the territorial patterns. The effect of these hypothetical decisions on immigrants´ integration may be assessed accordingly (Rebelo, 2010), namely through the cartographic display of cross-section data and indicators, the comparison among different groups of immigrants, and the comparison of homologous groups among distinct urban/metropolitan areas

The overlapping of maps with different territorial, socio-economic or professional data clearly points out areas where territorial intervention should be pursued, according to local-settled goals. So this decision-support system supports the design of integration strategies and policies in housing and labour markets and sociological fields, and the subsequent design of implementation measures. These interventions may occur whether at strategic or at operational levels: in the former through the provision of housing, employments, and access to equipments, and in the latter through the access to specific working posts, or through civic or political participation in communities

Analysis of immigrants´ integration in the Oporto Metropolitan Area

In the next section is depicted the planning perspective that results from the application of the proposed methodology to the Oporto Metropolitan Area[5]. Some hints are further provided in order to extend its application to management purposes.

The Oporto Metropolitan Area locates in the north of Portugal and is made of nine municipalities (Espinho, Gondomar, Maia, Matosinhos, Porto, Póvoa de Varzim, Valongo, Vila do Conde and Vila Nova de Gaia) and a hundred and thirty parishes (Figure 2). According to the population census (INE, 2001), in this metropolitan area lived 1 208 026 natives and 52 654 immigrants (that amounted to about 4,2% of total population).

Figure 2. Municipalities and parishes of the Oporto metropolitan area.

Working immigrants that live in this metropolitan area came from West European countries (19,9%), Brazil (11,1%), East European countries (1,9%), Portuguese-speaking African countries (53%), and other foreign countries (14,1%) (Rebelo, 2010) (Chart 2).

[5] As this analysis mainly centres in planning purposes, it resorts to data collected and treated from population censuses (despite I tried to apply the methodology to the recent census carried out in 2011, the results weren't yet available). The classes of data used for each variable conform to the notation adopted by the Portuguese National Statistics Institute (INE).

		West Europe (%)	Brazil (%)	East Europe (%)	Portuguese-speaking African countries (%)	Other foreign countries (%)	Total immigrants (%)	Total natives (%)
Academic Background	Without academic degree	0,2	0,3	1,2	0,5	1,6	0,6	0,9
	Basic Education	28,2	25,7	26,7	27,5	28,0	27,5	57,5
	Secondary Education	31,2	32,0	34,0	31,7	32,8	31,8	22,5
	Middle or higher education	40,4	42,0	38,1	40,3	37,6	40,1	19,1
Sector pf economic activity	Primary sector	1,0	0,0	1,0	0,2	1,6	0,6	1,8
	Secondary sector	31,8	16,6	64,0	20,7	38,5	26,3	36,2
	Tertiary sector	67,2	83,4	35,0	79,1	59,9	73,1	62,0
Professional Group	Army	0,4	0,1	0,0	0,4	0,3	0,3	0,3
	Public administration, directors and firms' upper staff	9,1	13,1	2,6	8,6	10,3	9,3	7,4
	Intellectual and scientific experts	18,7	19,2	12,8	20,5	17,5	19,5	9,5
	Intermediate level technicians and professionals	14,6	17,6	9,4	17,1	15,5	16,3	10,8
	Administrative staff and similar	12,9	10,4	2,7	16,4	13,1	14,3	12,5
	Service staff and sellers	15,3	20,0	6,6	14,0	17,1	15,2	14,3
	Farmers and qualified workers of agriculture and fishery	0,7	0,2	0,4	0,3	0,5	0,4	1,4
	Workmen, craftsmen and similar workers	14,3	8,2	35,8	9,2	12,0	11,0	21,3
	Operator of plants and engines and assembly workers	5,7	2,6	6,2	4,1	4,9	4,4	8,4
	Non-qualified workers	8,3	8,6	23,5	9,4	8,8	9,3	14,1
Professional Situation	Employers	9,3	15,6	3,9	8,7	12,8	10,1	9,2
	Self Employed workers	3,5	4,1	1,0	3,2	5,5	3,7	4,7
	Workers for somebody else	84,9	78,0	92,9	86,3	79,6	84,2	84,7
	Other professional situations	2,3	2,3	2,2	1,8	2,1	2,0	1,4
Location of work in relation to residence	In the same parish	25,2	27,2	41,8	21,9	27,8	24,4	29,0
	In a different parish in the same municipality	31,2	31,3	26,5	30,3	30,5	30,5	32,6
	In another municipality	41,8	40,2	31,4	46,5	40,6	43,8	37,1
	Abroad	1,8	1,3	0,3	1,3	1,1	1,3	1,3

Chart 2. Distribution of the academic qualifications, economic activity, professional group, professional situation, and work-residence relative locations of the working population of the main groups of immigrants that lived in the Oporto Metropolitan Area in 2001 (source: INE).

About 72% of working Portuguese-speaking African immigrants holds secondary, middle or high education studies (against only 41,6% of working natives). They are, further, the ones that mostly work in the tertiary sector of the economy (79,1% versus 62% of natives), after the Brazilian immigrants (83,4%). About 46,2% of those immigrants work in upper professional groups (public administration, directors and firms´ upper staff; intellectual and scientific experts; and intermediate level technicians and professionals) (versus 27,7% of natives), only surpassed by Brazilian immigrants (49,9%). Additionally, they are the second ethnic-cultural group with higher percentage of workers for somebody else (86,3%, after 92,9% of East European immigrants). Finally, Portuguese-speaking African workers are the ones whose parishes of work most diverge from the parishes of residence (78,1% versus 71% of natives).

Application of the methodology and obtained results

This section reports the application of the developed methodology to study the integration of Portuguese-speaking African immigrants that work in upper professional groups (Chart 3)[6].

[6] Despite this analysis was carried out at the parish level, the obtained results are herein assembled by municipality in order to organize data and display it cartographically, thus favouring both the discussion and the conclusions.

				Espinho	Gondomar	Maia	Matosinhos	Porto	Póvoa de Varzim	Valongo	Vila do Conde	Vila Nova de Gaia	Oporto Metropolitan Area
Indicator of Spatial Mobility	1991	Number of active Portuguese-speaking African immigrants	(1)	505	985	1034	1543	3992	698	857	458	2288	12360
		Percentage of active Portuguese-speaking African immigrants	(2)=(1)/[Total (1)]*100	4,1	8,0	8,4	12,5	32,3	5,6	6,9	3,7	18,5	100,0
	2001	Number of active Portuguese-speaking African immigrants	(3)	539	1874	2196	2342	4588	1061	1392	822	4310	19124
		Percentage of active Portuguese-speaking African immigrants	(4)=(3)/[Total (3)]*100	2,8	9,8	11,5	12,2	24,0	5,5	7,3	4,3	22,5	100,0
	Percentage variation of the indicator of spatial mobility (1991-2001)		(5)=[(4)-(2)/(2)]*100	-31,0	23,0	37,3	-1,9	-25,7	-1,8	5,0	16,0	21,7	0,0
Indicator of Performance of the Housing Market	1991	Number of buildings	(1)	7885	45519	25527	45205	92392	15957	17173	18862	69669	338189
		Developed and developable area (Km^2)	(2)	25,26	110,95	3097,2	47,73	41,65	52,98	61,61	94,28	147,38	3679,1
		Indicator of performance of the housing market	(3)=(1)/(2)	312,2	410,3	8,2	947,1	2218,3	301,2	278,7	200,1	472,7	91,9
	2001	Number of buildings	(4)	8307	62060	36908	55356	94758	20632	23618	25995	93780	421414
		Developed and developable area (Km^2)	(5)	25,26	110,95	90,59	47,73	41,65	52,98	61,61	94,28	147,38	672,43
		Indicator of performance of the housing market	(6)=(4)/(5)	328,9	559,4	407,4	1159,8	2275,1	389,4	383,3	275,7	636,3	626,7
	Variation of the indicator of performance of the housing market (1991-2001) (%)		(7)=[(6)-(3)]/[3]*100	5,4	36,3	4843,2	22,5	2,6	29,3	37,5	37,8	34,6	581,8
Indicator of Socio-Spatial Differentiation	1991	Number of active P-s African immigrants that belong to upper professional groups	(1)	157	318	351	552	1745	203	249	99	779	4453
		Number of active P-s African immigrants that belong to all professional groups	(2)	505	985	1034	1543	3992	698	857	458	2288	12360
		Total active population that belong to upper professional groups	(3)	3261	10584	8468	14892	43339	3513	5386	3631	21089	114163
		Total active population that belong to all professional groups	(4)	16608	68465	46926	75221	141597	26001	36453	32012	121483	564766
		Indicator of socio-spatial differentiation (1991)	(5)=(1)/(2)	0,31	0,32	0,34	0,36	0,44	0,29	0,29	0,22	0,34	0,36
			(6)=(3)/(4)	0,20	0,15	0,18	0,20	0,31	0,14	0,15	0,11	0,17	0,20
			(7)=(5)/(6)	1,58	2,09	1,88	1,81	1,43	2,15	1,97	1,91	1,96	1,78
	2001	Number of active P-s African immigrants that belong to upper professional groups	(8)	222	737	1094	1146	2403	441	580	334	1885	8842
		Number of active P-s African immigrants that belong to all professional groups	(9)	539	1874	2196	2342	4588	1061	1392	822	4310	19124
		Total active population that belong to upper professional groups	(10)	4115	19108	20294	25467	50063	6860	9986	7410	39305	182608
		Total active population that belong to all Professional Groups	(11)	16471	83376	64839	84696	124067	31988	44585	37390	150365	637777
		Indicator of socio-spatial differentiation (2001)	(12)=(8)/(9)	0,41	0,39	0,50	0,49	0,52	0,42	0,42	0,41	0,44	0,46
			(13)=(10)/(11)	0,25	0,23	0,31	0,30	0,40	0,21	0,22	0,20	0,26	0,29
			(14)=(12)]/(13)	1,65	1,72	1,59	1,63	1,30	1,94	1,86	2,05	1,67	1,61
	Variation of the indicator of socio-spatial differentiation (1991-2001) (%)		(15)=[(14)-(7)/(7)]*100	4,1	-17,8	-15,4	-9,9	-9,1	-10,0	-5,4	7,6	-14,7	-9,4
Indicator of Socio-Economic-Professional Mobility	1991	Number of active P-s African immigrants that belong to upper professional groups	(1)	157	318	351	552	1745	203	249	99	779	4453
		Number of active P-s African immigrants that belong to all professional groups	(2)	505	985	1034	1543	3992	698	857	458	2288	12360
		Percentage of active P-s African immigrants that belong to upper professional groups	(3)=[(1)/(2)]*100	31,09	32,28	33,95	35,77	43,71	29,08	29,05	21,62	34,05	36,03
	2001	Number of active P-s African immigrants that belong to upper professional groups	(4)	222	737	1094	1146	2403	441	580	334	1885	8842
		Number of active P-s African immigrants that belong to all professional groups	(5)	539	1874	2196	2342	4588	1061	1392	822	4310	19124
		Percentage of active P-s African immigrants that belong to upper professional groups	(6)=[(4)/(5)]*100	41,19	39,33	49,82	48,93	52,38	41,56	41,67	40,63	43,74	46,24
	1991-2001	Number of new entries of active P-s African immigrants to upper professional groups	(7)=(3)/100*(5)	168	605	745	838	2006	309	404	178	1467	6890
		Professional advancement of active P-s African immigrants to upper professional groups	(8)=(4)-(7)	54	132	349	308	397	132	176	156	418	1952
		Indicator of Socio-Economic-Professional Mobility (1991-2001) (%)	(9)=[(8)/(4)]*100	24,52	17,91	31,86	26,89	16,54	30,03	30,27	46,80	22,15	22,08
Indicator of Performance of the Labour Market	1991	Number of active P-s African immigrants that belong to upper professional groups	(1)	157	318	351	552	1745	203	249	99	779	4453
		Total active population that belong to upper professional groups	(2)	3261	10584	8468	14892	43339	3513	5386	3631	21089	114163
		Indicator of performance of p-S African immigrants in the labour market (%)	(3)=[(1)/(2)]*100	4,81	3,00	4,15	3,71	4,03	5,78	4,62	2,73	3,69	3,90
	2001	Number of active P-s African immigrants that belong to upper professional groups	(4)	222	737	1094	1146	2403	441	580	334	1885	8842
		Total active population that belong to upper Professional Groups	(5)	4115	19108	20294	25467	50063	6860	9986	7410	39305	182608
		Indicator of performance of p-S African immigrants in the labour market (%)	(6)=[(4)/(5)]*100	5,39	3,86	5,39	4,50	4,80	6,43	5,81	4,51	4,80	4,84
	Variation of the indicator of performance of the labour market (1991-2001)		(7)=[(6)-(3)]/[3]*100	12,1	28,4	30,1	21,4	19,2	11,2	25,6	65,3	29,8	24,1

Chart 3. Computation of the indicators of spatial mobility, socio-spatial differentiation, socio-economic-professional mobility, performance in the housing market and performance in the labour market for Portuguese-speaking African immigrants, in 1991 and 2001, and respective evolution (Source: INE, author).

The indicator of spatial mobility - approached by the spatial distribution of these active immigrants - shows their expressive residential spread to the whole suburban area (especially towards Maia, Gondomar, and Vila Nova de Gaia) and its strengthening along the coast (Vila Nova de Gaia and Vila do Conde municipalities), opposite to its substantial reduction in the metropolitan core (Porto municipality) (Figure 3):

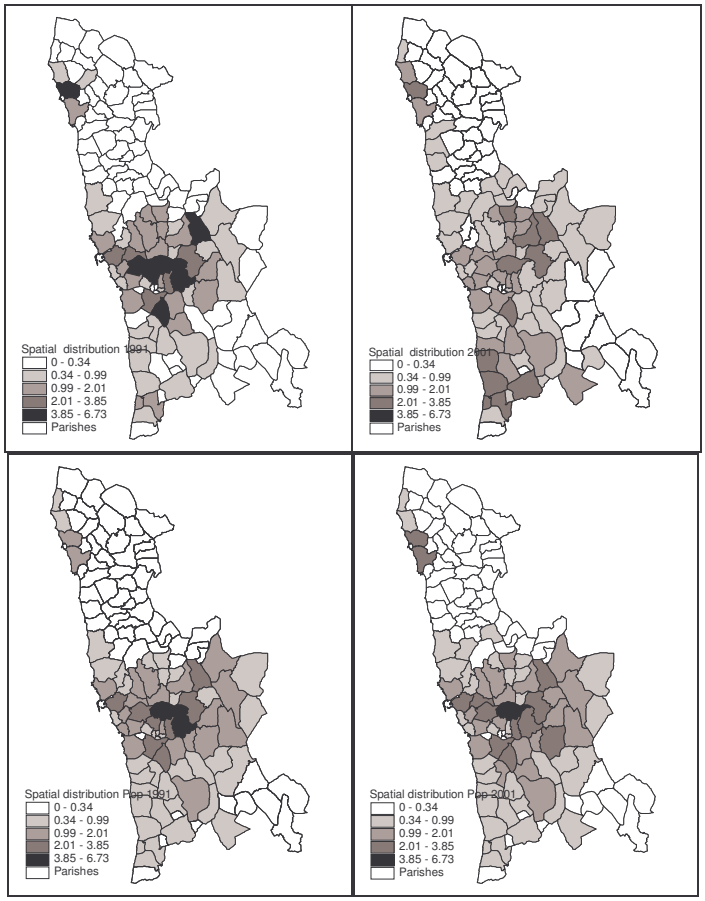

Figure 3. Spatial distribution of Portuguese-speaking African immigrants (above) and of total population (underneath) in 1991 and 2001 (in percentage)

The integration of a certain group of immigrants in the housing market is assessed by the comparison of the indicator of housing performance with the spatial distribution of that group. A building densification process took place between 1991 and 2001, as pointed out by the rise in that indicator (that passed from 91,9 to 626,7 buildings/km^2 on average). This market dynamics favoured the spread of Portuguese-speaking African immigrants to Maia municipality, the suburban zone (Valongo, Gondomar and Vila Nova de Gaia municipalities), and the urban cores of Vila do Conde and Póvoa de Varzim. In 2001 the prominent building

concentrations occurred in Porto, Matosinhos, Vila Nova de Gaia and Gondomar municipalities (Figure 4).

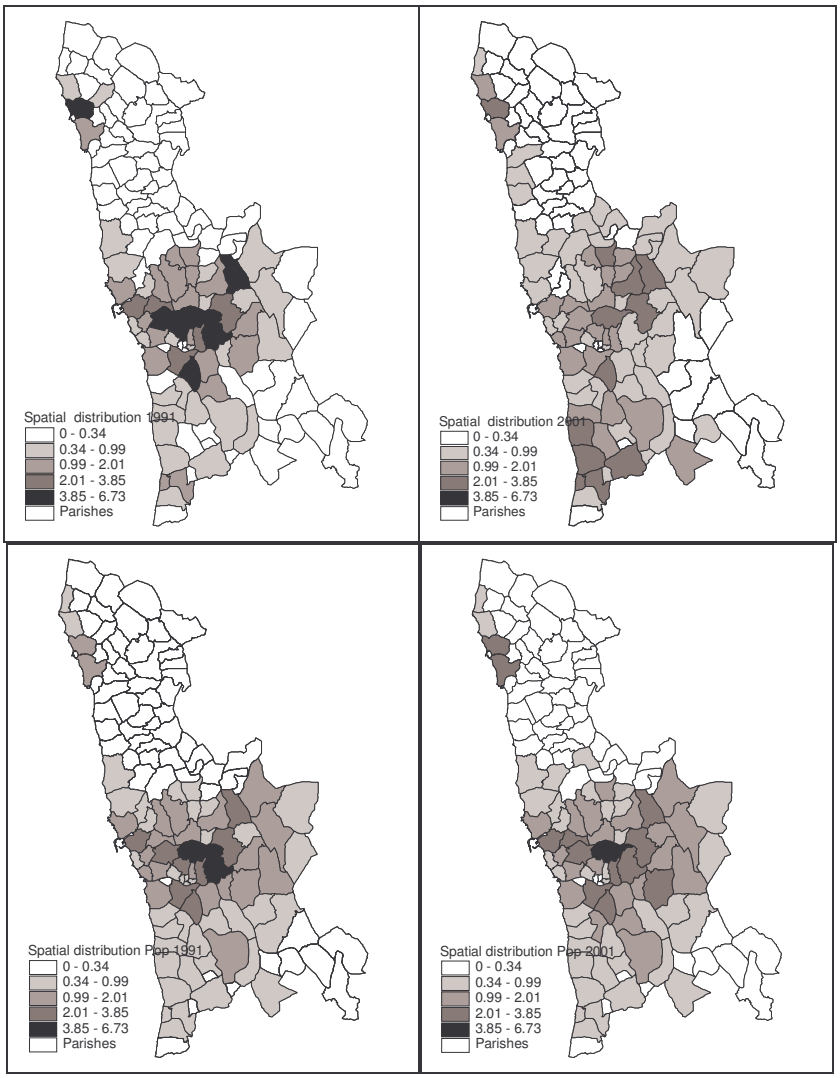

Figure 4. Indicator of performance of Portuguese speaking African immigrants in the housing market in the Oporto metropolitan area, in 1991 and 2001.

Despite Portuguese-speaking African immigrants that belong to upper professional groups generally decreased their percentage in relation to the homologous population, they still keep high values for their indicator of socio-spatial differentiation throughout the whole metropolitan area (it passed from 1,78 in 1991 to 1,61 in 2001), except for Vila do Conde and Espinho municipalities (Figure 5).

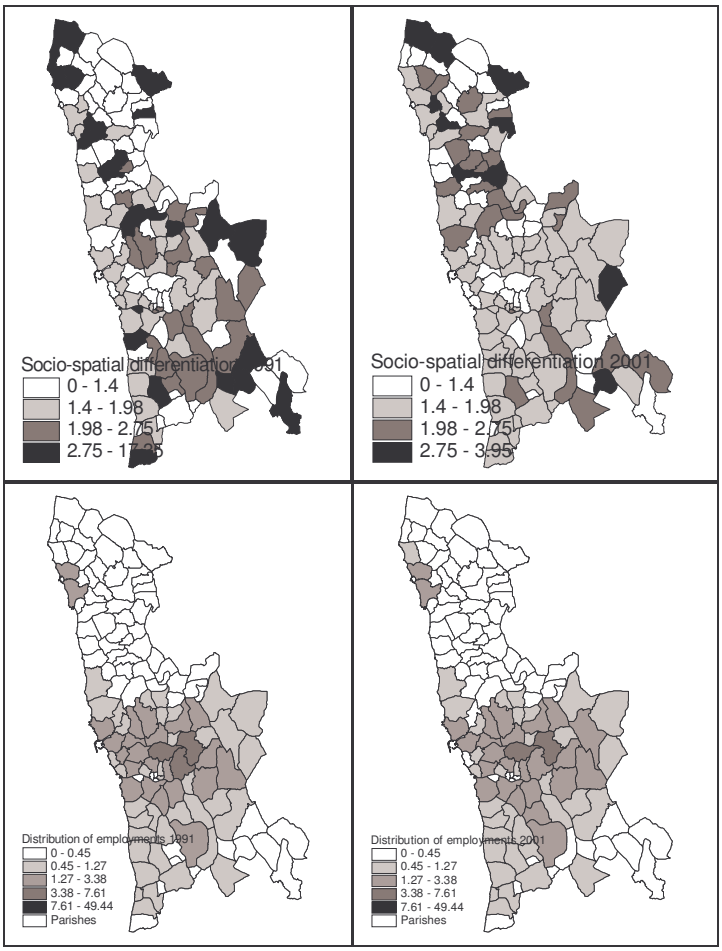

Figure 5. Indicator of socio-spatial differentiation of upper professional groups of Portuguese-speaking African immigrants (above) and distribution of employments (underneath) in 1991 and 2001.

The reinforcement of the presence of upper professional-holders within this population group is explained by the increasing arrival of high-qualified immigrants, on the one hand, and by career advancements, on the other (tested ahead by the indicator of socio-economic-professional mobility). The former is computed by the product between the percentage of immigrants in upper professional groups – this percentage is supposed to remain equal to its 1991´s value – and the total number of immigrants in 2001. The latter is given by the difference between the total number of immigrants belonging to upper professional groups in 2001 and the number of new entries in these professional groups from outside that took place in the meantime. The values of this indicator (given by the percentage of career advancement to upper professional groups in relation to the total number of immigrants in these groups) show that Portuguese-speaking African immigrants belonging to the upper professional groups passed from 36,03% in 1991 to 46,24% in 2001; and about 22,1% of the latter (1952 in 8842) were promoted, what amounts to approximately 2,26% promotions in a ten-year period. Their presence was strengthened in the urban cores of Vila do Conde and Póvoa de Varzim, in the suburban area (Maia, Valongo, Matosinhos, Vila Nova de Gaia and Gondomar

municipalities), as well as in the metropolitan core (Porto), (note that Figure 6 shows the indicator of socio-economic-professional mobility in relation to the base-year of 1991).

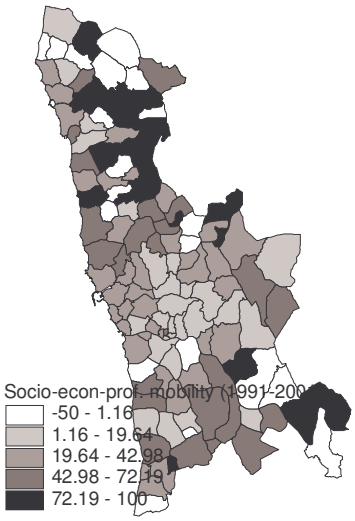

Figure 6. Indicator of socio-economic-professional mobility of Portuguese-speaking African immigrants that climbed to upper professional groups between 1991 and 2001.

The indicator of the performance in the labour market of Portuguese-speaking African immigrants that belong to upper professional groups has increased, on average, from 3,90% in 1991 to 4,84% in 2001. Indeed, whereas the number of working Portuguese-speaking African immigrants increased 54,7% during the decade, the corresponding increase in their upper professional groups went up to 98,6%. The cartographic analysis stresses the significant strengthening of the weight of these upper skilled professionals in total population throughout the whole suburban area (especially in Maia; Gondomar, Vila Nova de Gaia, and Valongo municipalities), and also along the coast (especially in Vila do Conde municipality) (Figure 7).

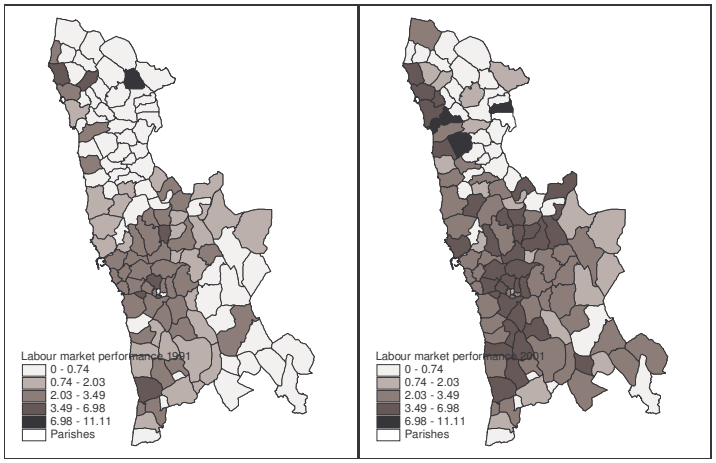

Figure 7. Indicator of the labour performance of Portuguese-speaking African upper professionals in the Oporto metropolitan area, in 1991 and 2001.

During the implementation phase, the results obtained from this model are overlapped – in different layers – with cartographic displays of urban morphologies and building typologies (an example is presented in Figure 8; see Rebelo, 2010). This procedure enables the identification and test – through the introduction in the simulation and display interface of fictitious data – of alternative location scenarios as a response to business, regional or urban initiatives, considering whether immigrants´ characteristics or territorial characteristics, and the reasons underlying settlement patterns

Figure 8. Overlapping of different territorial characteristics with the spatial distribution of Portuguese-speaking African immigrants, their socio-spatial differentiation, socio-economic-professional mobility, and performance in the labour market (example).

This methodology may be further applied to management-focused goals. For such purposes, the metropolitan management information system should be supplied and updated with proper data at shorter regular intervals[7] – on an annual or even six-monthly basis.

[7] So the highest management potential of this system (the highest accurate results) directs to the countries that replaced the Census approach by a continuous record system of resident population and its main features, as is the case of some Scandinavian countries (where the most reliable and complete data on population is continuously updated).

Discussion of Results

Settlement patterns of Portuguese-speaking African immigrants - shaped by their socio-spatial differentiation, spatial and socio-economic-professional mobility, and by their performance in housing and labour markets –, together with some issues on the personal and systemic openness of the host-society, immigrants´ contextual facets, and societal issues condition immigrants´ spatial, socio-economic and professional integration.

As far as the spatial mobility of working Portuguese-speaking African immigrants is concerned, they strongly settle in the metropolitan centre and suburban area, favoured by their spatial diffusion and continuous spread. This is highlighted by their immigration share in this metropolitan area (53%), and by their territorial distribution and average population density similar to natives´. Their increasing exposure to local population - shaped by suburbanization processes, by housing and labour characteristics (Malheiros, 2002; Arbaci, 2008), and by their academic and professional backgrounds - strengthen both their spatial and socio-economic-professional integration.

The remaining Portuguese-speaking African immigrants settle in inland sparsely populated metropolitan areas, responding to specific labour requirements (especially in health and high-technology fields) natives aren't able to, considering that most belong to upper professional groups (46,2%), mainly work in the tertiary sector (79,1%) and work for somebody else (86,3%). The official recognition of academic and professional qualifications has further supported the articulation between labour requirements and immigrants´ skills, and has played an important role in their integration.

The attained results show that firms and services located in the metropolitan core and in the urban centres of the metropolitan area exert a strong attraction on public administrators, directors and firms´ upper staff; intellectual and scientific experts; and intermediate level technicians and professionals that came from Portuguese-speaking African countries (Rebelo, 2010). This socio-spatial differentiation results from the conjunction of labour opportunities, immigrants´ closeness to respective ethnic-cultural communities, and the performance of their welcome and guiding networks, considering that their academic levels and professional skills are generally higher than natives´. The recent development of local economies (especially in the inland metropolitan southeast), the implementation of strong public investments (mainly in transport infrastructure) and private investments (at the industrial level), the housing supply in excess of demand, and the increase in housing construction has favoured the suburban location of most immigrants. Besides, considering the tradeoffs among house, transports and other expenses, that they most work in the tertiary sector (79,1%), and the well-structured network of public transports, suburbanization processes support higher home-work mobility levels (78,1% of these immigrants live and work in different parishes and/or municipalities). Many other immigrants´ contextual issues have additionally favoured the success of their socio-spatial integration in urban and suburban fabrics, such as their longstanding migratory flows, their multiculturalist standing (they share culture and language with natives), their high exposure to natives, and the importance they attach to family and friendship ties. Societal issues, including suburbanization processes, urban dynamics and policies, housing provision, and access to credit or to rental markets also shape considerably the settlement patterns of

Portuguese-speaking African immigrants (including their neighbourhoods and social networks) (Malheiros, 2002; Arbaci, 2008). On the one hand, urban policies currently carried out by some municipalities in this metropolitan area engendered spatial stratification processes that have guided wealthier families to more central locations or to coastal areas and lower-income families to suburban areas. On the other hand, the characteristics and motivations that underlie the migratory flows have conveyed specific housing concerns. Thus Portuguese-speaking African immigrants – that exhibit longstanding staying perspectives, and culturally favour home acquisition – easily access home loans because their families or friends stand surety for them. Lower-income immigrants, by their turn, have taken advantage from housing succession and filtering processes, from second-hand and renting markets, as well as from lodging policies aimed at lower social classes that allow immigrants to temporarily occupy, rent or sub-rent older buildings.

The analysis of the spatial distribution of Portuguese-speaking African immigrants that climbed to upper professional groups further stresses the importance of suburbanization processes that (considering their high share in total population and their longstanding migratory inflow) fostered the attraction of new generations of immigrants. These new generations have progressively integrated into the suburban socio-economic fabric what, together with other good professional opportunities, has favoured their spatial mobility, and their economic, social and professional ascent.

Despite the prevailing multiculturalist social discourses, as the metropolitan local economies mainly found on traditional activities´ small and medium-sized firms, most employers can't realize the important role immigrants deserve in new businesses´ creation. Due to their general high academic and professional levels and their previous experience in different economies, they hold great flexibility to fit new labour requirements, usually exceeding the professional immobility of most natives, scarcely prepared to respond to new professional challenges.

CONCLUSION

A better awareness of integration policies and of their implementation tools, and the assessment and comparison of their performance in the course of time will certainly contribute to their improvement. Within the European context, Portugal ranks second (after Sweden) in the immigrants´ global integration index (Mipex, 2012), and ranks first in the group of recent labour migration countries, namely in what concerns the access to the labour market, and the recognition of qualifications and skills obtained abroad (Mipex, 2012). The current environment of economic crisis and the social changes, however, neither decreased immigration requirements, nor turned native population against immigrants or called their integration into question[8] (Mipex, 2012).

But national policies assess integration for immigrants in all. And despite Portugal grants equal working conditions, it often ignores the specific challenges they face, what requests concrete integration policies at the local level, and more focused on specific groups.

[8] On the contrary, this support was even strengthened considering the high solidarity levels among the whole population, especially found on the strong multiculturalist tradition of good acquaintanceship among different peoples.

The decision-support system herein presented fits into the perspectives of different groups of immigrants that should benefit from integration policies, as it founds on concrete data on their features and settlement patterns, and uses results indicators to compare them with natives´. It further monitors integration from different views, as it relates it with many socio-economic and professional attributes that underlie immigrants´ settlement patterns, considering the characteristics of host-societies, their personal and systemic openness and immigrants´ contextual factors. So it supports a systematized analysis of the integration process over time, and the comparison among different groups of immigrants, even if they inhabit distinct urban or metropolitan areas. Its ability to monitor land use patterns settles a platform for the harmonization of different strategies, policies and measures within the scope of different institutional and legal frameworks, as well as the conciliation of economic and territorial strategies and policies with immigrants´ integration ones. Additionally, its cartographic and display interfaces enable the test of alternative scenarios for policy design and implementation. This proposal also provides for the reinforcement of immigrants´ attraction devices (similar to the EU Bluecard system), aimed to attach skilled labour to local economies.

This system should become even more effective either in cross-section or longitudinal analysis if, in the wake of the international data reconciling efforts (and its extension to regional/local levels), registers are linked together through identifiers, such as personal identification numbers (despite this system already exists in some countries, such as Norway, these numbers aren't clearly assigned in all UE members) (Heckmann et al., 2010). This better organization of data should be able to cover a larger diversity of thematic fields and immigrants´ features, also providing greater effectiveness to monitor integration and respective evolution. Longitudinal analyses require historical registers for longer terms, and the extension of measurements into the future, thus showing the long-range inter-gerational character of integration (Heckmann et al., 2010)[9].

Strategies, policies and measures aimed at the integration of immigrants - founded on this analysis – may split into three distinct groups concerning: the housing market, the labour market, and citizenship/governance participation. As far as the provision of suitable housing, infrastructures and equipments is concerned, some concrete interventions may consist of (Fonseca, 2007): access to own or rented home; strengthening of accessibility from residential areas to main employment, trade and services centres; qualification of neighbourhoods and provision of suitable public spaces, infrastructure and equipments; support to family rejoin; and involvement of economic agents, non-governmental agencies, and general population in planning processes. Some possible measures to favour the assignment of proper employments to immigrants are: better integration of the different economic functions and sectors; prevention of employment discrimination; support to along-life learning and professional retraining; and stimulus to trade initiatives led or shared by immigrants. The involvement and participation of all citizens may be encouraged through the articulation of governance tools (Fonseca, 2007), including a better coordination of policies at central, metropolitan and municipal levels; the promotion of cultural, interactive and integrative planning involving economic agents, non-governmental agencies and general population; responses targeted to specific ethnic-cultural needs; the reinforcement of territorially-scoped institutions; and the involvement of all citizens in problem solving.

[9] Integration processes reflect in structural, social and emotional changes that keep up with cohort development.

ACKNOWLEDGMENTS

The author acknowledges the Portuguese Science and Technology Foundation (FCT), the Portuguese National Statistics Institute (INE) and the High Commissariat for Immigration and Intercultural Dialogue (ACIDI) for all the given support.

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