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A global index for measuring socio-spatial segregation versus integration

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ABSTRACT

The article suggests a global index that measures segregation/integration in social space on one continuum. We assume that social space is the context of human agency, stimulating some modes of action and turning down other modes of action, but still leaving a room for active agency. Accordingly, we introduce the concept of socio-spatial lifestyle and we define segregation/integration as one aspect of socio-spatial lifestyle. The index is multidimensional relating to residential and activity spaces and to the sources of recruiting social, cultural and emotional capitals in either intra or inter ethnic sources.

A case study of Arabs in Israel is tested showing the relatively high segregation of Arabs in terms of accumulating social capital even when Arabs commute to Jewish spaces and live in Jewish neighborhoods or mixed cities.

Introduction

Socio-spatial segregation is one of the most intensively studied issues in social and urban geography. It characterizes most modern cities and is widely perceived to be a social problem. It is argued that segregation denies social groups from access to infrastructure and services, and reduces job opportunities and social contacts; and also exposes segregated groups to stereotypes, marginalization, deprivation, violence, exclusion, and isolation (Caldeira, 2000; Massey & Denton, 1988). Segregation studies became major sources of information for the formulation of social integration policies based on the assumption of direct and simple associations between the spatial and the social dimensions of segregation. Accordingly, a multitude of studies called for the dispersal of members of segregated groups in space as a mean to enhance social integration (Mustard and Ostendorf, 2014). This assumption is rooted in Durkheim's positivist legacy, which views the spatial dimension as a concrete manifestation of abstract social structure.

Much of the literature on measuring segregation articulates simple aggregate indices that allow for a worldwide comparative analysis of levels of spatial segregation in different places (Bell, 1954; Duncan & Duncan, 1955; Liberson, 1981; Massey & Denton, 1988; Morgan, 1975; Morrill, 1991; Reardon and O'Sullivan, 2004; Wong, 1993). Global indices characterize residential patterns of the population divided into several social groups in a city or city region by means of one number; local indices process a residential pattern by means that describe the segregation of locality in regards to its adjacent space. Historically, segregation indices were developed in several stages, starting from simple ones that describe uneven distributions of social groups in space to more complex ones that consider more than two social groups, vary in conceptualization of space, account for hierarchy of spatial units, and characterize segregation on different scales.

Critical discussion led to improvements in the accuracy of the indices (Reardon and O'Sullivan, 2004; Wong, 2005), and also to questioning the indices' basic assumptions (Harvey, 1989a, 1989b; Kwan, 2009, 2013; Ruiz-Tagle, 2012; Schnell, 2002). The paradigmatic critique of segregation models questions the isomorphism between society and space, and calls for a multidimensional approach to socio-spatial segregation. The latter considers residential distribution, social networks, activity schedules, and other social and cultural aspects of daily life as loosely-correlated aspects of an individual's life that, in the time-space of highly mobile modern urban life, are weakly, if ever determined by the individual's residential location.

In this paper, we suggest an alternative model for characterizing segregation of a social group, in an attempt to develop a novel approach to identifying social segregation and integration as two poles of one continuum. The paper starts with the characterization of the traditional indices as a basis for their critique, followed by the

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suggestion of an alternative index of spatio-temporal segregation versus integration, and a demonstration of the operation of the proposed index in the case of Arabs in Israel.

Segregation indices

Segregation indices have been developed in three main stages. At the first stage, dissimilarity (Duncan & Duncan, 1955) and exposure/isolation (Bell, 1954) indices were developed, presenting two complementary aspects of the residential distributions of particular social groups. These indices were extended to estimate segregation of several social groups that differ from each other on a nominal scale, like the case of ethnic and racial segregation, or that differ from each other on an interval scale, like the cases of socio-economic groups (Jargowsky, 1996; Morgan, 1975). Dissimilarity indices, popular in 50s and 60s, have been criticized as over-simplified. White (1983) was the first to raise the checkerboard problem, according to which the distribution of segregated areas in space was not considered.

The second generation of indices took into account the distribution of members of segregated groups in space, and the probability for them to encounter either members of their own group or members of other groups in spatial units other than their own ones, based on a distance decay function (Jakubs, 1981; Morgan, 1983; Morrill, 1991; Wong, 1993, 1998). Scholars like Jakubs (1981) and Morgan (1983) developed segregation indices that measure the distances that residents would have to move in order to reach equal spatial distribution to one of the majority. Scholars like Morrill (1991) and Wong (1993) further diversified segregation indices by taking into consideration the characteristics of the areal unit, and accounting for the ratio between perimeter and area and length of common boundaries between neighboring census tracts.

The debate over the spatial meanings of segregation led Massey and Denton (1988) to conclude that five dimensions complement each other in characterizing socio-spatial segregation: evenness, exposure, concentration, centralization, and clustering. Reardon and O'Sullivan (2004) and Brown and Chung (2006) showed that these dimensions should be reduced to two poles, one calculating residential distribution between evenness and clustering, and the other one calculating the probability for interactions with members of other groups between isolation and exposure.

Local segregation indices measure individuals' segregation at various spatial resolutions. Every segregation index can be localized (Benenson & Omer, 2002; Omer & Benenson, 2002). In this way, the series of local indices of “spatial association” that reflect segregation in respect to the hierarchy of areas from the individual building through the urban and census block and to the region can be obtained, (see Anselin, 1995 for review). Based on these indices, Reardon and O'Sullivan (2004) and Wong (2005) tried to deduce from aggregate data about personal behavior by using different kinds of techniques to model human spatial interactions across boundaries by different weighted formulas. The indices of spatial association are expected to solve the problem of the impact of the basic areal unit of the analysis, and expose the impacts of different ecological niches on segregation (Wong, 2002). Extending our understanding of the residential pattern, they, however, limit segregation phenomena to the residential pattern, just as the global indices do.

Residential-based models are heavily criticized for lacking theoretical associations between the spatial and the social (Harvey, 1989a) and for taking for granted that space has the power to determine social behavior. In this respect, segregation indices that measure isolation versus exposure can be seen as a first step towards the understanding of the impact of space on social behavior. An assumption that social encounters depend on distance and the use of the distance decay function reflects a higher probability to interact at short distances over longer ones, regardless of the social identities of the others in the encounters.

We argue that isolation-exposure indices still ignore the heavy behavioral component of socio-spatial segregation. As a hypothetical example, let us consider two immediate neighbors who live in the same mixed city. These individuals may develop very different segregation behaviors. The first may exclusively encounter members of his or her ethnic group dispersed all over the city. The second may encounter members of both the same and other ethnic groups within the same daily activity spaces. The residence-based unevenness and exposure measurements for these two individuals may be the same. A second example may be two individuals who live in a mixed neighborhood. The first one moves all over the globe in order to meet only people of his or her own religion or ethnicity. The other spends most of his or her life in the mixed neighborhood encountering members of all religions and ethnicities. Based on these and similar examples, we claim that the focus of segregation studies should be shifted from residential location as determining social behavior to space as a facilitator of social agency. The above-mentioned shifts demand a new approach to measuring segregation versus integration. We detect four attempts to overcome these limitations of the classical models in recent years. The first one focuses on the effects of interethnic encounters in heterogenous communities on inclusion versus exclusion (Valentine 2008). Such studies inspired by contact theory show how interethnic encounters may lead either to racialization of the others or to integration (Leitner, 2012; Valentine and Sadgrove, 2012). The second one focuses on calculating Liberson's dissimilarity index on spaces of everyday life rather than of residence (Wong and Show, 2011). The third one focuses on describing individuals' activities in the context of time space and society (Kwan, 2009, 2013). The forth one focuses on analyzing segregation in aspects of residential and activity spaces and social networks as separate dimensions of socio-spatial lifestyles (Schnell & Benjamini, 2001, 2005).

Following our former approach we define socio-spatial lifestyle by agents' forms of using everyday life spaces while performing social projects/activities associated with standard life routines, or, as we call this by “agents' socio-spatial patterns of everyday life”. These routines are based on agents' decisions and choices. The basis for the concept of socio-spatial lifestyle comes from Hagerstrand's (1975) suggestion that associates “social projects” with “spatial paths” and is extended by scholars like Buttimer (1981) who distinguished between Urbanite and Localist socio-spatial lifestyles in Dublin, and by Shapcott and Steadman (1978) who showed that agents perform many of their activities habitually, out of long-term commitments they make within certain cultural milieus. Pred (1989) and Giddens (1991) bridged the gap between human identity and socio-spatial lifestyle by setting a dialectical framework of human inside-outside, present and past-future, and individual and societal aspects of life. Kwan (2009, 2013) followed this conceptual framework in developing her method of measuring socio-spatial segregation.

Giddens' (1984) approach that considers everyday life spaces as the arenas in which the double structuration of agency and structure takes place, set up a theoretical foundation for the paradigmatic shift in segregation studies. From this standpoint, segregation studies should start with the agent embedded in social practices at the meso-level, and in social structure at the macro-level. Giddens (1991) as well as Bauman (1995) and Castells (1996) identified the new spatialities that are restructured in the era of globalization: they show that agents are increasingly exposed to long distance encounters and this causes infiltration of the local and the global into each other, blurring scalar orders and