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Segregation

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Contents

Spatial segregation can be understood as the disproportionate distribution of various elements or types across individual parts of a larger area. It is said to be disproportionate because the spatial distribution of a group (or the use of a resource) does not correspond to that of another group. The elements and types in question can encompass social classes, ethnic groups, religious groups or indeed doctors with different specialisations or different types of housing; it can also refer to the use of resources.

1 Measurement

Segregation is a multi-dimensional concept. According to Massey and Denton (1988), there are five different dimensions:

1) Evenness: the even or uneven spatial distribution of groups
2) Exposure: potential contacts between members of different groups
3) Concentration: the extent to which a group is spatially concentrated in a few small areas
4) Centralisation: the concentration of a group near the city centre
5) Clustering: the extent to which a group is overrepresented in adjoining areas

Accordingly, different indices are used for each dimension (Blasius 1998 among others), as shown by Iceland, Weinberg and Steinmetz (2002) using the example of segregation in North American cities. *Evenness* is the most frequently measured dimension; for the most part, two indices proposed by Duncan and Duncan (1955) are usually internationally: the index of dissimilarity (ID) is used to compare two groups (types), e.g. Germans and Turks, while the index of segregation (IS) is used to compare one group to all of the other groups in a city. The IS describes the extent of a group's socio-spatial isolation, whereas the ID describes the socio-spatial distance between two social groups.

$$ID = \frac{1}{2}\sum_{i=1}^{k}\left|\frac{a_i}{A} - \frac{b_i}{B}\right|$$

where:

a_i, b_i = population of group A, B in area i,

A, B = total size of group A, B in the city,

i_1, i_2, ... k = urban areas.

The IS is calculated the same way except that the rest of the population, in other words all of the other groups, is used as b_i. The values of the two indices can fluctuate between 0 (no dissimilarity or no segregation) and 100 (complete dissimilarity or segregation). The index values can be interpreted as the percentage of those people from both groups that would have to move in order to achieve an equal distribution of both groups.

Although not used as frequently as ID and IS, the P* index is more suitable for making statements about each group. It is defined as the probability of members of group A in a given area meeting members of their own group or members of group B.

Unlike ID, P* is asymmetrical, i.e. the probabilities are different for each of the groups observed. If A is the minority and B the majority, index aP*b indicates the extent to which members of minority A are 'exposed' to members of majority B.

$$aP * b = \sum_{i=1}^{k} \left[\frac{ai}{A}\right]\left[\frac{bi}{Ti}\right]$$

where:

a_i, b_i, = population of group A, B in area i,

A, B = total size of group A, B in the city,

T_i = total population in the area,

i_1, i_2, ... k = urban areas.

2 Explanations for segregation

There are two different explanations for segregation that are not mutually exclusive: a micro-sociological explanation and a macro-sociological explanation. The micro-sociological hypotheses focus on ascertaining how households select their residential location in an urban region (core city and suburbs). Here, a dual filter can be applied to the hypothesis: initially, the residential location is selected based on income and then narrowed down based on preferences related to the household members' stage in life and their lifestyle, where a strong correlation between the two characteristics can be assumed. The higher the household income, the greater the options on the housing market. If a household has access to certain residential areas due to its ability or willingness to pay a certain level of rent, the household then decides to what extent the lifestyle of the residents in that area or their stage in life correspond to their own preferences, e.g. whether or not there are families with small children in the residential area. A large portion of the variance when selecting residential locations can be explained using these two characteristics. However, there are other conditions, such as the extent to which estate agents and landlords discriminate against individual groups or types of households, e.g. their rejection of an ethnic group.

The macro-sociological explanations focus on the opportunity structure of a city, which is associated with the following assumptions:

a) The degree of income disparity increases the degree of segregation.

b) The proportion of an ethnic minority reinforces ethnic segregation up to a certain threshold and decreases it at high proportions.

c) The scarcer the available housing in individual segments of the housing market, the greater the segregation.

The macro-sociological conditions also include both state and municipal regulations of the housing market.

The conditions above can also be found in two theories of ethnic segregation: the spatial attainment theory (Massey/Denton 1985) is based on the assumption that the economic rise of members of an ethnic group correlates with their move into higher status areas with a higher proportion of the majority. The place stratification theory, on the other hand, (Logan/Molochs 1987),

claims that such a rise on the part of the minority is not possible due to discrimination in the housing market; the minority remains 'stuck' in their given residential area (cf. e.g. Pais/South/Crowder 2012).

3 Results

Socio-economic and ethnic segregation can essentially be discerned, while religious segregation or age-based segregation are studied much less frequently. Income and, less often, education are indicators used for socio-economic segregation. Unlike in the Scandinavian countries or the US, it is not possible to calculate segregation based on income, education or professional group in Germany as the relevant local data is not available. For this reason, socio-economic segregation can only be calculated using the number of recipients of social assistance and, starting in 2005, the number of recipients of unemployment benefits *(ALG II)*, however the values cannot be compared. Table 1 displays the segregation values (IS) for the socio-economic and ethnic segregation in five large German cities. When the number of recipients of unemployment benefits for 2005 and 2010 is used as the basis, segregation in Cologne, for example, rises from 27.1 to 28.2.

In the majority of the large cities studied, socio-economic segregation has increased.

The values (here: the proportion of social assistance recipients) are similarly high for social assistance recipients, those on very low incomes or the unemployed in other European cities in the 1990s: the majority ranges from IS = 15 to 25. The ethnic segregation values have decreased in most large German cities, which can be interpreted as an indicator of increasing integration. The figures in Table 1 refer to foreign nationals. If the segregation for people with a migrant background – as opposed to foreign nationals – is calculated, the values are lower.

The greater the social distance to a group, the higher the segregation of this social group. Social distance is usually measured using a scale that takes into account the spatial proximity to a member of the minority. The scale ranges from 'Would you be willing to sit next to someone from minority X in the bus?' to 'Would you be willing for your daughter to marry someone from minority X?'. Social distance from a minority translates into socio-spatial distance; this applies in particular to ethnic segregation. Christopher (1994) reported extreme segregation values for the dissimilarity between black and white people in South Africa during apartheid; the degree of segregation of white people in many cities was IS > 95. The segregation of black people in North American cities is also surprisingly high: in the 1990s, values of ID = 70 for white people – black people were reported in many cities, prompting Massey and Denton (1993) to speak of 'American Apartheid'. Segregation has only decreased slightly: on average for 84 North American cities from 1990 to 2000, it dropped from IS = 71 to 67 for all black people, for Hispanics from 51 to 49 and for Asians it remained at 43 (Iceland/Scopilitti 2008).

Table 1: Indices of socio-economic and ethnic segregation (IS), 1990 and 2005

City	Socio-economic		Ethnic	
	1990	2005	1990	2005
Bremen	15.1	17.1	12.5	13.0
Düsseldorf	18.8	24.0	16.5	18.8
Frankfurt	21.1	16.2	13.0	11.7
Hamburg	20.9*	22.6	24.1	18.8
Cologne	22.4*	27.0	22.3	19.3
Stuttgart	13.5	12.0	14.0	11.2

Source: *1995
Friedrichs/Triemer 2009

In European cities, the segregation of ethnic minorities is much lower than in North American cities. The segregation of all migrants is IS = 18 in Frankfurt, IS = 20 in Düsseldorf, IS = 31 in Amsterdam, IS = 37 in London and IS = 42 in Brussels (Musterd/Ostendorf/Breebaart 1998: 183). The only available data refers to the distribution of foreign nationals or residents according to nationality. Table 2 shows the degree of segregation of different migrants in Cologne: it is highest for Greeks and Turks but has decreased (except for migrants from former Yugoslavia). The dissimilarity between Germans and Greeks is the most pronounced, even more so than between Turks and Greeks. What is striking is that dissimilarity between Germans and migrant groups has decreased, which can be attributed, among other things, to the high number of naturalisations. On the other hand, the dissimilarity between the migrant groups has increased (Friedrichs 1998: 1756; Friedrichs 2008). Further, the data for Cologne in 2012 shows that single parents are equally as isolated as foreign nationals (IS = 21.8) and that the socio-spatial distance between Catholics and Protestants is very low (ID = 13.7).

Table 2: Indices of Segregation (IS), Cologne in 2000 and 2012

Nationality	2000	2012
Foreign nationals	23.8	22.5
Italy	25.6	20.2
Greece	30.9	22.6
Turkey	35.3	33.6

Source: Author's calculations based on ILS/ Strohmeier/Häußermann 2003: 97; City of Cologne 2012

Cities in East Germany are an important example for testing segregation hypotheses. The general hypothesis was: as the socio-economic conditions in East Germany approached those of West Germany, the degree of social unevenness would also increase there, resulting in an increase in segregation as well. The few empirical studies that have been conducted are proof of very low social segregation (Harth/Herlyn/Scheller 1998), whereby it should be borne in mind that there are no comparable values from before 1990. These findings can be explained by way of the macro-sociological hypothesis that the income differentiation is (still) too low and as a result there has been only limited segregation. In general, there is a correlation between social unevenness, rising income disparity and segregation, as the papers in Berger, Keller, Klärner et al. (2014) document.

The values of the indices depend on how many spatial units are taken into consideration, i.e. how many smaller areas is the city divided into: the larger the number of spatial units, the lower its internal heterogeneity and thus the higher the segregation values. In addition, the spatial units should have the same number of inhabitants to the greatest extent possible. Ultimately, the index values – especially when the number of spatial units considered is low – do not correlate with the spatial concentrations of individual groups.

Concentration is an important index for socio-spatial unevenness. In 2012, the number of people with a migrant background in 86 urban boroughs in Cologne ranged from 13.8% to 76.8% (average: 34.5%), while the number of recipients of unemployment benefits ranged from 0.7% to 42.3% (average: 13.2%).

4 Planning significance

The literature assumes that segregation is seen as predominantly negative – both in terms of socio-economics and ethnicity. For ethnic segregation, the advantage that is often cited is that urban areas with a high concentration of a given minority would be able to develop their own ethnic infrastructure, e.g. places of worship, butcher shops, banks, travel agencies. These residential areas could then serve as destination areas for new migrants of that ethnic group. A sound socio-spatial distribution and social mixing are generally seen as desirable. Mixing enables contact, encourages mutual respect and tolerance and leads to better quality infrastructure (such as schools and businesses). However, this planning objective has seldom been attained (cf. Arthurson 2012 and others; the papers in Manley/van Ham/Bailey et al. 2013).

The problem lies in how to achieve these goals in terms of planning. Segregation is the interplay of uneven spatial distribution (topography, proximity to the city centre, etc.), different types of accommodation (type and condition of building, etc.) and how much rent a household can afford to pay, i.e. income. Urban ▷ *Planning* cannot influence how much rent a household can afford to pay (or only indirectly at most through the available jobs), but it can influence the spatial aspects – for example, through changes in the supply of publicly subsidised housing and its distribution across urban areas. Attempts can also be made through the occupancy policy to control the proportion of foreign nationals in certain areas – if only to a limited extent. Such measures require assumptions about the appropriate social mix of an area's inhabitants – a question that sociologists have yet to resolve (Friedrichs 2010). What mix of population groups in

a residential area leads to relative stability, i.e. a low incidence of a given group leaving the area? This can be a mix in terms of social status, the proportion of ethnic groups or the number of poorer households (in disadvantaged residential areas). According to the contact sympathy hypothesis, in relation to ethnic mixing, the opinions of the majority vis-à-vis the minority develop positively with increased contact (Pettigrew/Tropp 2006). However, no percent value is available as to what represents successful mixing in this regard. The value depends on the social status of the residents and on the number of different minorities in the urban borough. More precise information arising from empirical research would be of significant importance for planning.

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