

Theoretical and Empirical Background for a Measure Assessing Neighborhood

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Abstract

The development of a measure assessing neighborhoods is based primarily on the theory of human ecology from the Chicago school. The main insight of this theory is that social-spatial differentiation is a combination of two processes conditioning each other: first, the social differentiation of the population and second, the spatial differentiation of neighborhoods. Therefore it should be possible to make inferences from the description of the living quarter (residential area) upon inhabitants' socio-demographic characteristics being dominant in the area under consideration. However, if it is possible to predict neighborhood from socio-demographic characteristics then it should also be possible, to predict socio-demographic characteristics of non-respondents in a national survey from knowing neighborhoods with high non-response rates.

The paper presents first, the theoretical background and operationalisation of the main variables for neighborhood description. Second, from these variables indices are constructed and a typology of neighborhoods is developed. Finally, the neighborhood typologies of two different cultures - East and West Germany - are presented.

1 „Residential area“: A result of social-spatial differentiation

A city is divided into parts with differential use and differential quality of life in each part. Since Burgess developed his famous typology of the city in 1925 urban ecologists investigate the distribution of inhabitants sharing common social characteristics over the spatial structure of the city. By this means urban researchers try to explain as well as predict the segmental distribution of the population.

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The best way to answer the question which type of citizen inhabits which type of „residential area“ is to analyze census data containing many social variables within small spatial units. This can either be accomplished by the procedure of social area analysis or by factor or cluster analysis of the data. However, usually it is not easy to get the census data necessary for these analyses because they are either too old or not available on city-block level or too expensive or there are technical problems with the size of the data set. Therefore, intending to develop a description of „residential areas“, it is reasonable for a researcher to collect his own data.

The basic idea behind the description of „residential areas“ can be condensed into one statement: „tell me where you live and I tell you who you are“. This statement is based on three hypotheses:

1. A social status is ascribed to „residential areas“; it is kind of self-understood that there are good and bad addresses. The status ascribed to a quarter is relatively independent of the actual state of the buildings.
2. A city population is divided in status groups. On the one hand, persons define themselves as belonging to a certain status group by f.e. aspiring to live in a certain „residential area“. On the other hand, persons are subject to the social judgment of others allotting them to a certain social status group. This kind of status assignment by others is based on variables of socio-economic status.
3. The city population „settles“ status adequate. It is important for a person looking for an apartment to find the right (adequate) status-fitting address. The basis for this hypothesis, however, is that there actually exists the possibility of free choice on the housing market.

2 The theory of social-spatial differentiation

Social-spatial differentiation results from a process of segregation. Segregation is primarily based on the more or less distinct tendency of socio-economic or ethnic subgroups to settle together with similar people within a potential system of social contacts. Thus, segregation promotes the formation of neighborhoods or „milieus“ where certain status groups are dominant.

Segregated and status-group specific settlement is supported and controlled by a segmented housing market (Ipsen, 1980). Segmented housing market means that there is not a unique housing market for all status groups but that there are several housing markets for different status groups. Neither in the former GDR with a socialistic system (Hoffmeyer-Zlotnik, 1978, Friedrichs, 1978) nor in the former FRG with a capitalistic market economy a unique housing market ever existed. The housing market in bigger cities is divided in three to five status-group specific sub or partial housing markets each being accessible only for one defined sub-population of citizens. This principle holds, no matter whether the housing market functions by

private offers or by governmental distribution. Status-group specific settlement thus is controlled by private or governmental agencies and their offers (Kreibich, 1985).

It should be clear, however, that groups with higher status have - at least in principle - most freedom of choice on the housing market. They are practically free to rent apartments in every segment of the market - even in those sub-markets reserved for lower status groups. In contrast, with decreasing social status freedom of choice on the housing market decreases. Lower status groups are restricted to those segments of the market reserved for them. High-status housing sub-markets thus provide the possibility to keep lower status groups out.

Within this frame of reference social spatial differentiation means that in big cities persons having a specific socio-economic or ethnic status mostly try to settle under the „right“ address. The „right“ address, however, implies status-adequate settlement.

3 The central variables and indices of an instrument called „residential area description“

A „residential area description“ is based on the postulates of social-spatial differentiation and describes typical attributes of the direct neighborhood of the respondents' houses with few variables. These variables are: „location“ (3.1) „density“ (3.2) and „use“ (3.4). Assessing these variables by a questionnaire that can be fulfilled either by respondents or interviewers small segments of „residential areas“ are systematically described. In a second step this description is used to construct indices (see 3.3, 3.5 and 3.6) representing the elements of a „residential areas“ typology.

3.1 Variable: "Location"

„Residence“ is a specific utilization ascribed to an area by town planning, a „use“. A „residential area“ is mainly characterized by „location“, „density“ of housing and proximity to areas of non-residential „use“ like „commerce and industry“, „administration“, „production“ etc..

All „uses“ including the use „residence“ depend on „reachability“ (the convenience to reach them) in space and time. „Reachability“ in turn depends on the „location“ of an „use“ either within a „residential area“ or with respect to the distance to the next business district within a city area. „Reachability“ is an indicator for „centrality“ or „decentrality“.

„Location“ is measured by distance between the respondents' housing and the next business district, where distance is not the theoretically shortest line, f.e. air line, but is the route taking least time and expense.

The question to measure „Location“ is:

- What is the distance from your house to the business district in the city?
- If you are not living in a big city give the distance from your house to the next business district.

Response categories are:

- I live within the business district of the city
- I live in a 500m distance from the business district of the city
- I live in a 500m-1000m distance to the business district of the city
- I live in about a 1-2km distance
- I live in about a 2-10km distance ...
- I live in about a 10-25km distance ...
- I live in a more than 25km distance

„Location“ of housing is associated with a certain vicinity and in this respect is related to quality of life being different for different status groups according to their needs, f.e families with children prefer housing at the periphery of the city while „yuppies“ prefer to live in the center of the city.

There is a general structure of cities in Middle Europe since cities have grown from the inside to the outer districts. Today, the ancient center of a city includes not only the „city“ but also the „central business district“ with shopping centers for consumer goods, services and regional administration. With growing industrialization during the end of the 19th century these historical city centers have being surrounded by housing for middle class people and industrial workers. This housing area is characterized by high covering with buildings consisting of a so called „front house“ having one or more „back houses“ separated by „back-yards“ (which usually are not gardens). „Front houses“ often contain big apartments for middle class people while the „back houses“ contain small, dark flats where usually industrial workers lived. The inner part of this „belt“ with a high concentration of buildings represents on the one hand an area of expansion for the service sector, on the other hand a heterogeneous housing area.

Buildings in this area are either modernized houses comprising apartments where high status groups live or houses in bad condition usually inhabited by lower status groups. Today, that part of this area being from the beginning a „residential area“ for industrial workers is still a living quarter for lower status groups. The outer part of this „belt“, the former periphery at the end of the 19th century, comprises until today „residential areas“ for high status groups. This is the area where - about the turn of the century - wealthy business people built their villas. After World War II, in the process of suburbanisation, on the one hand sky scrapers have been built at the periphery while on the other hand one-family houses have expanded into the surrounding.

3.2 Variable: "Density"

„Density“ is defined as number of apartments built above a unit of space and is indicated by different types of houses. „Density“ is measured by asking questions about the type of houses in the direct vicinity of the respondents' housing.

The question to assess „density“ is:

- „How would you characterize the type of apartment houses on the left, right, behind and vis-à-vis your house?“

To answer this question respondents get a list with photos and pictures showing 10 different types of buildings.

- „Please look at these pictures and tell me the letter of the picture that best characterizes your direct vicinity“.

Different types of buildings bring along different types of apartments resulting first, in differential „density“, second, in differential neighborhood and third, in differential forms of dwelling leading to differential life style.

3.3 Index: "Centrality"

Together with „location“, „type of building“ is an indicator for „centrality“. „Residential areas“ of big cities are ordered into „zones“ with respect to „location“ and „density“. This hypothesis is based on the „ideal-type“ city consisting of concentric circles around the central business district while different quarters build also concentric circles around smaller local centers.

The center is defined as business district. The utilization „residence“ is not excluded from this area but is subordinate among the utilization „trades and services“. A center is surrounded by a second center, providing a potential expansion area for the actual center. The utilization „residence“ still exists in this area but sooner or later will be substituted by the utilization („uses“) „trades and services“ in some parts, while other parts are - through modernization - reserved for specific groups like yuppies. These two inner zones are surrounded by further zones belonging to segmented partial housing markets consisting of „residential areas“ for workers, members of the middle and upper class.

„Centrality“ is an additive index resulting from the summation of the variables „location“ and density“. Before summation these variables are weighted according to theoretical meaning: with respect to „location“ theoretical meaning refers to spatial distance from the center; with respect to „density“ theoretical meaning refers to space units covered by apartments (see also paragraph 3.6).

3.4 Variable: „Use“

„Use“ is defined as utilization ascribed to an area by town planning: „residence“, „commerce and industry“, „administration“, „production“, „service“ and „leisure“. According to differential need of space and different economic, ecological, social and legal conditions the broad categories „production“ and „service“ have further to be divided into subcategories. Thus, „use“ is measured by the question:

„In the direct vicinity of your house are there

- only apartment houses
- or a bunch of at least four shops beneath one roof selling goods for daily needs
- or apartment houses with shops and restaurants
- or industrial plants
- or buildings being exclusively used for business, offices, public agencies
- or buildings used agriculturally f.e. stable, hayflot, machine house?“

Assessing the dominant „uses“ of that small part of the city where individual respondent lives characterizes the respondent's „residential area“. Additionally, vicinity to specific „uses“ allows inference on quality of life and life style of the „residential area's“ inhabitants.

3.5 Index: "Urbanism"

Since the index of „centrality“ cannot differentiate between „uses“ an additional index of urbanism is necessary.

„Urbanism“ is an additive index resulting from the summation of the variables „location“ and „use“. Before summation these variables are again weighted according to theoretical meaning: theoretical meaning of „location“ is described above; with respect to „use“ theoretical meaning refers to space needed per economic unit (see also paragraph 3.6).

This index helps to detect differential „use“-structures in their distribution over the city. It is especially important in differentiating the utilizations „trades and services“ as well as „public and private administration“.

3.6 Index: „Residential area“

The index „residential area“ is the third and most important index indicating the membership of a „residential area“ to a specific segment of the housing market. This index is valid in all situations where the selective housing market is regulated by offer and demand. Knowledge of the social processes behind the „offer and demand“

mechanism admits - together with the index „residential area“ - inference on the status group being most probably dominant in a certain „residential area“. These social processes may vary somewhat in different societies but with respect to status-related allocation of housing in specific „residential areas“ they may be seen as ubiquitous.

The index is built by adding the variables „location“ (ranging from „more than 25 km distance from the central business district“ = 1 to „200-500 m distance from the central business district“ = 10), „density“ (ranging from „villa = 1 to „city-block buildings without space between them and with several backyards“ = 10) and „use“ (being categorized according to the dominant economic sector and ranging from „unique agricultural use: primary sector“ = 1 to „unique administration use: quaternary sector = 10). Thus, the values of the index describe the different areas of the city with respect to centrality, density and use.

One has, however, to be careful in distinguishing different types of settlement with respect to agglomeration of inhabitants: big cities have more than 100.000 inhabitants, middle towns have between 20.000 and 100.000 inhabitants and small cities or villages having less than 20.000 inhabitants. For the latter, the index „residential area“ makes little sense because villages usually are not structured like big cities and the social-spatial-differentiation hypothesis does not apply to this type of settlement.

4 Description of „residential area“ types in the big city

The following description of „residential area“ types results from survey data and is confined to big cities (having more than 100.000 inhabitants). The database is the Social Science Survey conducted during the summer of 1995. This survey is based on a national random sample of altogether 3000 persons; 2000 respondents in the Western part of Germany (with 1257 interviews in big cities) and 1000 respondents in the Eastern part of Germany (with 465 interviews in big cities). The population was defined as German citizens with minimum age of 18 years, living in private households.

The type of settlement of a big city is characterized by entanglement of housing, work and market.

The categories of the „residential area“-index are labeled with respect to the terminology of E.W. Burgess (1925).

1. The „main center“ in general is characterized by the central „location“, the concentration of buildings and by a high percentage of shops and offices. The „central business district“ is by definition confined to big cities; it is the „location“ with highest amount of centrality.

In the „main center“ live 3% of respondents. It is a heterogeneous „residential area“ for small households. In the East part of Germany 4.7% of respondents

living in big cities were reached in the „main center“ compared to 2.4% in the Western part of the country.

Table 1: Categories of the Index „Residential Area“

Range*)		Type of „Residential Area“
Big City	Middle Town	
10		(1) Central business district; main center
9-7	9-7	(2) Subordinate center; A- and B-centers
8	8-7	(3) "Zone in transition“, inner city areas
7-5	6-5	(4) Tenement houses
5-4	4	(5) Suburbs
5-4	4-3	(6) Residential areas of the bourgeoisie
4-2	3-2	(7) Area of better residences
2	2	(8) Area of best residences
1	1	(9) Rural periphery

*) The range results from a weighted addition of the three variables „location“ „density“ and „use“.

2. „Subordinate centers“ of second and third order are in general located within a medium distance to the „central business district“. Centers of middle and small towns are in this context also defined as „subordinate centers“ because, compared to the „central business district“, these centers execute subordinate functions for the population.

These „subordinate centers“ are „residential areas“ for about 6% of respondents living in big city regions. According to the theory of social-spatial differentiation the naturally grown and incorporated centers in big cities should be heterogeneous „residential areas“. However, with the present data no difference between B- and C-centers can be observed.

The proportion of respondents living in the „subordinate center“ of a big city region is in the Eastern part with 11% nearly three times higher than in the Western part (4%).

3. The „zone in transition“ is close to the „main“ as well as the „subordinate center“ and defines the possible expansion range of these centers. Often it is not possible to differentiate between the „zone in transition“ and the „inner city“ surrounding directly the „central business district“.

This part of the city is characterized by a high concentration of buildings and contains - besides shops and offices - types of housing differing in quality: on the one hand there is the so called „gold coast“ type of housing being the preferred „residential area“ of the „gentrifiers“ (yuppies) consisting of modernized old houses; on the other hand there are the slums, potential areas

of urban renewal and actual areas of speculation. The slums constitute that segment of the housing market with the lowest status which is reserved for people with low status and for ethnic minorities.

4. Close to or in medium distance to the centers is a „residential area“ containing a high concentration of buildings structured as city blocks with no or only small space between the houses. This type of housing applies to 79% of respondents; 17% report a space up to 50 m between the buildings and only 4% of respondents report a space of more than 50 m between buildings in their „residential area“. The concentration of buildings depends still on the extent of industrialization at the turn of the century. The main „use“ in this area consists in industrial plants and offices.

With respect to the historical background of its origin as „residential area“ for industrial workers, this type of neighborhood is often described as „residence“ for workers. Today, however, this area is more and more invaded by higher status groups f.e. by students and young academicians.

34% of the respondents live in this area; 37% in the Eastern and 33% in the Western part of the country.

5. Suburb:

This is an area containing buildings with several floors up to sky-scrapers. Buildings in these areas have been built in the sixties and seventies. At that time they have been „residential areas“ for persons with middle class status. Today, however, these areas have lost attraction as „residential areas“ for the middle class with the consequence that in the Western part of the country low status groups invaded this segment of the housing market while in the Eastern part this process is not that far developed.

6. The „residential areas“ of the „bourgeoisie“ are in medium distance to the central business district. In this area one finds primarily a concentration of ribbon-buildings and multiple family houses. In general, in the majority of cases there is no space between the houses; 71% of respondents reported no space. These areas are not exclusively used for housing but are additionally used industrially.
7. The areas of „better residences“ are primarily „used“ for housing. 45% of respondents live here. This area is characterized by free-standing buildings with maximally two floors and mostly less than a 50 meter distance between the buildings.
8. The areas of „best residences“ are characterized by a peripheral „location“ and free-standing buildings with maximally two floors. Usually one or two households live in the buildings. This area is exclusively „used“ for housing with normally more than 50 meters of distance between the buildings.
9. At the periphery of big cities there is the agricultural area with low concentration of low buildings being used for housing and agriculture. Since there is still a tendency to avoid the city, commuting distances increase and

agriculturally oriented villages become new „suburbs“ dominated by middle class people from the city.

Having constructed an index of „residential area“ the main goal is now to connect this index - describing structural attributes of „residential areas“ - with individual characteristics of inhabitants, f.e. socio-demographic characteristics. The main question here is whether specific socio-demographic characteristics „cluster“ in specific „residential areas“ and thus dominate these areas. For example, are there „residential areas“ primarily inhabited by students or families or retired persons? If that can be shown empirically then, from knowing the place of a person's housing inference on the person's social status can be established with some probability.

Table 2 shows the distribution of „residential areas“ in the survey of middle and big cities in East and West Germany.

Table 2: Distribution of „Residential Areas“ Over Middle and Big Cities in East- and West-Germany (in Column-%).

Type of „Residential Area“	West-Germany		East-Germany	
	Middle Town	Big City	Middle Town	Big-City
Main Center	--+)	2,4	--+)	4,7
Subordinate Center	1,5	3,9	0,5	10,5
Zone in Transition*)	2,2	4,5	1,4	3,0
	--+)	--+)	--+)	--+)
Tenement Houses	19,3	32,3	24,5	37,4
Suburb	0,4	0,5	0,0	0,0
	--+)	--+)	--+)	--+)
Bourgeoisie	18,2	8,4	43,4	6,7
Better Residences	54,6	47,9	24,1	37,4
Best Residences	0,7	0,0	0,0	0,2
Rural Periphery	3,0	0,2	6,1	0,0
Column Total	99,9	100,1	100,0	99,9
N	269	1.257	212	465

Source: Sozialwissenschaften-Bus 2/1995

+)

*) "Zone in Transition" and the areas of the inner city are condensed into this category

5 Socio-economic status and „residential area“

The socio-economic status of respondents is assessed by an index based on the additive combination of the variables „education“, „occupational position“ and „income“. Education reflects highest accomplished degree of education and income gives the level of household income. Occupational position is a variable built according to autonomy in the job. Since this variable is considered as central with respect to socio-economic status, it was weighted by 2 before addition. The index was recoded to 5 categories indicating social class membership of respondents.

Table 3 gives the distribution of social class within „residential areas“. In this table we are interested in the dominant group within a „residential area“. One should, however, be aware of the fact, that in this table only those persons having an occupational status are considered; this follows from the logic in constructing the index.

Table 3: Distribution of Social Class within „Residential Areas“ in Big Cities; (in Column-%)

Type of „Residential Areas“	Germany West					Germany East				
	ULC	LMC	MMC	UMC	LUC	ULC	LMC	MMC	UMC	LUC
Main Center	--	4	4	1	1	7	5	4	3	8
Subordinate Centers	7	6	2	4	4	15	6	12	11	5
Zone in Transition	5	4	3	5	4	2	4	4	3	3
Tenement Houses	39	36	34	29	33	29	31	33	46	50
Bourgeoisie	17	11	9	6	6	7	7	9	5	5
Better Residences	31	40	48	53	50	39	48	39	32	30
N	88	258	208	236	90	41	84	101	94	40

Source: Sozialwissenschaften-Bus 2/1995

Missing categories of „residential area“ are those with $n \leq 10$.

ULC: upper lower class, LMC: lower middle class, MMC: middle middle class, UMC: upper middle class, LUC: lower upper class

With respect to the idea to infer SES-status characteristics of non-respondents by knowing their „residential areas“, the distributions in table 3 are not really satisfying. Some structure can, of course, be observed but it should be more differentiated between „residential areas“. Since due to SES-index construction many respondents were excluded from consideration case numbers tend to be too small to draw inferences from them. Nevertheless, they serve as demonstration material here.

In the Western part of the country, „centers“ (main center and subordinate centers of second and third order: B- and C-centers) are primarily inhabited by status groups corresponding to lower middle and middle middle class. Groups of higher status are not encountered in this „residential areas“.

In the Eastern part „centers“ are not primarily inhabited by a specific SES-status group. However, members of the lower class as well as the upper class live in the „main“ and the „subordinate center“.

The „subordinate centers“ of second and third order (B- and C-centers) are inhabited by lower middle and upper middle class (West) or by middle middle and upper middle class (East). Subordinate centers seem to be middle class dominated. Thus, if non-response occurs especially in subordinate centers, one can infer that at least every second non-respondent belongs to a middle class status-group.

The „zone in transition“ cannot easily be classified with respect to status groups because all status groups are represented here in nearly equal proportions. Again, the middle class as a whole is represented but since lower as well as upper middle class are also present in equal amounts, inferences might be difficult.

In East- and West-Germany many people live in the belt of tenement houses around the inner city: lower middle class members are strongest represented in the West compared to upper middle and upper class members in the East. The probability to reach persons with higher SES-index values in these „residential areas“ is considerably higher in the Eastern than in the Western part of the country (72% vs. 58%).

„Residential areas“ with more-family and ribbon houses surrounded by small gardens are inhabited in the Western part mainly by lower middle class persons while in the Eastern part this area is dominated by middle middle class persons. In the Western part higher status groups can be met primarily in areas where one-family houses prevail and concentration of buildings is low, while in the Eastern part these low density areas seem to be dominated by middle and lower middle status-groups.

Altogether, however, the characterization of „residential areas“ by SES-index groups is not very straightforward. All status-groups are to a considerable extent present in all „residential areas“. Can this indicate that SES is no longer a characteristic controlling settlement?

Before trying to answer this question additional socio-demographic variables are taken into account to describe the inhabitants of „residential areas“.

6 Socio-demographic characteristics and „residential areas“

6.1 Size of household

In the Western part one-person households live primarily in the „centers“ or the „zone in transition“ while bigger households live primarily more distant to the „central business district“ (table 4). However, these more peripheral „residential areas“ are not primarily inhabited by families with children but also by couples: this is obvious from the high percentage of 2-person households in „residential areas“ of the „bourgeoisie“ and of „better residences“. In the Eastern part big households are

observed primarily in the inner city areas („centers“) and also in tenement houses while the more peripheral areas are dominated by couples (45% and 44%).

From table 5 it will become apparent that these are young people in their thirties as well as retired people.

Table 4: Distribution of Respondents by Household Size (Row-%)

„Residential Area“	Germany West Persons per Household				Germany East Persons per Household			
	1	2	3	N	1	2	3	N
Main Center	50	27	10	30	41	27	9	22
B-Centers	51	27	10	49	33	25	20	49
Zone in Transition	39	38	9	56	43	29	7	14
Tenement Houses	37	34	17	412	23	39	20	174
Bourgeoisie	20	48	18	105	23	45	19	31
Better Residences	19	41	20	602	23	44	17	175
	1254				465			

Source: Sozialwissenschaften-Bus 2/95;

Missing categories of „residential area“ are those with $n \leq 10$.

6.2 Age

In the Western part young people dominate the „main center“ (18-29) and the „subordinate center“ (30-44) while „Zone in Transition“ and the areas with fewer buildings and less density are dominated by persons between 45 and 60. Areas in the inner city without center-functions („Tenement Houses“) are inhabited by all age groups equally.

Table 5: Distribution of Respondents by Age (Row-%)

„Residential Area“	Germany West Age					Germany East Age				
	18-29	30-44	45-60	61 +	N	18-29	30-44	45-60	61 +	N
Main Center	43	23	20	13	30	18	41	5	36	22
B-Centers	27	35	16	22	49	18	37	25	20	49
Zone in Transition	25	27	21	27	56	14	21	36	29	14
Tenement Houses	26	33	22	19	412	18	31	25	26	174
Bourgeoisie	14	31	25	31	105	10	16	52	23	31
Better Residences	19	26	27	27	602	12	25	31	31	175
	1254					465				

Source: Sozialwissenschaften-Bus 2/95

Missing categories of „residential area“ are those with $n \leq 10$.

In the Eastern part the „centers“ are clearly dominated by people between 30 and 45 but also the cohort of the mature is represented in these „residential areas“. The middle cohort is strongest in the „residential area“ with less density where more-family and ribbon houses prevail. Persons above 45 clearly dominate the peripheral areas with one-family houses and villas.

6.3 Education

„Residential areas“ and education are not specifically connected. In all „residential areas“ people with low educational degree are the dominant group and people with higher education have minority status. In the East the overall picture is different. Persons with a medium educational level are dominant in the „centers“ as well as in the inner city without center functions („tenement houses“). Persons with low educational level are the dominant group in the low density peripheral one-family „residential areas“.

This apparent difference between East- and West-Germany is not a real one. The category labeled here „low“ education is the regular educational level in the Western part, while the educational level labeled „medium“ has been the regular educational level in the Eastern part of the country. Thus, there is no difference. In contrast, in East- as well as West-Germany it is obvious that one cannot infer educational level from knowing the „residential area“ of a person.

Table 6: Distribution of Respondents by Education (Row-%)

Residential Area	Germany West					Germany East				
	Level of Education				N	Level of Education				N
	low	2	3	high		low	2	3	high	
Main Center	33	30	27	10	30	27	23	36	14	22
B-Centers	53	20	16	10	49	20	29	37	12	49
Zone in Transition	45	27	21	7	56	14	29	43	14	14
Tenement Houses	44	26	18	9	412	29	17	41	12	174
Bourgeoisie	58	25	11	5	105	39	16	36	10	31
Middle Classes	41	36	12	8	602	47	15	33	5	175
					1254					465

Source: Sozialwissenschaften-Bus 2/95

Missing categories of „residential area“ are those with $n \leq 10$.

1: Secondary School lowest degree; 2: Secondary School medium degree; 3: secondary School highest degree; 4: university degree

6.4 Status in occupational life

As one would expect, employed persons are dominant in all „residential areas“, with one exception: the „main center“ in the Eastern part: here retired people dominate with 43%. but there are too few cases to go into deeper interpretation of the figures.

In East-Germany there are no housewives because women usually were employed and now, after having lost their jobs describe their occupational status not as „housewife“ but as „unemployed“ instead. The category of women staying at home, caring for housework as well as child rearing is much more common in the Western part of the country than in the Eastern part. From table 7 one can also infer that the unemployment rate in the Eastern part is much higher than in the Western part.

Table 7: Distribution of Respondents by Status in Occupational Life (Row-%)

Type of Residential Area	Germany West Status in Occupational Life					N
	student	employed	unemployed	pensioner	housewife.	
Main Center	23	60	--	10	3	30
B- Centers	6	46	8	21	17	48
Zone in Transition	2	53	6	22	18	55
Tenement Houses	8	54	6	18	11	406
Bourgeoisie.	--	48	8	25	16	103
Better Residences	4	44	2	25	19	590
						1232

Type of Residential Area	Germany East Status in Occupational Life					N
	student	employed	unemployed	pensioner	housewife	
Main Center	5	24	24	43	--	21
B-Centers	2	60	4	29	--	48
Zone in Transition	14	36	--	29	14	14
Tenement Houses	1	49	10	33	4	171
Bourgeoisie	--	42	13	42	--	31
Better Residences	--	45	10	39	3	178
						458

Source: Sozialwissenschaften-Bus 2/95

Missing categories of „residential area“ are those with $n \leq 10$.

However, with respect to the central question of this paper: to which extent can we infer socio-demographic characteristics of non-respondents from knowing their „residential area“ we can get no information from the occupational status in life because each „residential area“ is dominated by the employed persons.

7 Description of „residential areas“ by socio-demographic types of persons

The goal of cluster analysis in the context of this paper is to identify „types“ of persons sharing a specific socio-demographic profile. How does the structure of

respondents living in a specific „residential area“ look like according to their socio-demographic characteristics? To find subgroups of respondents with a similar socio-demographic profile a cluster analysis was done. Since the sample contains 3000 respondents the appropriate clustering algorithm is the one known as K-Means or Leader algorithm. The analysis was done with the package for cluster analysis CLUSE PC using procedure Leader (Batagelj, 1990).

The leader algorithm requires that the number of clusters has to be defined in advance. Thus, analyses were repeated for 2 to 10 clusters. For each number of clusters the best clustering solution was obtained and the Ward criterion function was computed. Inspection of the values of the criterion function reveals which number of clusters is most typical for the observed data.

7.1 Description of clusters

According to theoretical considerations selected socio-demographic variables have been cluster-analyzed. The most important theoretical concepts with respect to housing are socio-economic status variables and life-cycle variables. Therefore we cluster-analyzed two sets of variables, one related to SES and the other related to life-cycle variables (as age, having children or not, being retired or not, living alone or not).

7.1.1 Description of the SES-clusters

First, SES-variables „education“, „occupational position“ and „income“ (those variables constituting the former SES-index) were cluster-analyzed. Selection of these variables is deduced from social-spatial theory, postulating that, according to money and social status, the housing market is partitioned into segments. Individuals looking for housing have differential access to this market. This differential access can be expressed as combination of SES-variables constituting different status „types“.

The cluster analysis with SES-variables defining the clusters gave 4 clusters („types“) as optimal solution. These four types have been cross-tabulated with demographic variables (not included in the cluster-analysis) to get better information about the „SES-types“. These tables are not presented here but are indirectly included by describing the clusters. Table 8 gives a scheme of cluster-characteristics (the „+“ and „-“ signs giving the significant deviations in upper or lower direction from the cluster-centroid).

Table 8: Cluster Patterns "Socio-Economic Status"

Cluster	1	2	3	4
Education	--	--	++	++
Income	--	+	-	++
Prestige	--			+++

- SES 1: low socio-economic status; this type is dominated by small households of the elderly, retired people (this information comes from the cross-tabulation)
- SES 2: low level of education but income above average; this type is dominated by persons being close to the „blue collar“ status, especially with respect to occupational autonomy (prestige).
- SES 3: education significantly above average but income below average; dominant in this type are student-households in the West but households of the unemployed and the very few housewives (showing up here completely) - that is, the households of the „losers of the change“.
- SES 4: high socio-economic status; this type is dominated by academicians.

7.1.2 Description of the life-cycle clusters

With respect to housing and „residential area“ life cycle is at least as central as socio-economic status. Thus, variables indicating a specific station in the life cycle have also been cluster analyzed. Cluster defining variables are:

- age: measured by respondents' year of birth
- living alone: measured by self-report
- retired: measured by self-report
- presence of children: measured by number of children under 18 living still in household

The combination of these variables gives, at least with the data available, the best information about stations of respondents in the life-cycle. Life-cycle determines to a considerable extent the decision where people want to live, what they can afford for housing, which „residential area“ is best for their needs etc.

The cluster-analysis with life-cycle-variables defining the clusters gave 5 clusters as optimal solution. Table 9 presents a schematic overview over the variable patterns characterizing the life-cycle clusters.

Table 9: Cluster Patterns "Life Cycle"

Cluster	1	2	3	4	5
Age	--	+++			+++
Single	+++	--	--	-	+++
Pensioner	-	+++	-	-	+++
Children	-	-	-	+++	-

- LC 1: low age, high percentage of 1-person households and low percentage of retired people as well as children; This type is dominated by young academicians and students
- LC 2: high age and consequently high percentage of retired people but low (lower than average) percentage of 1-person households and low percentage of children; this type is made up of mature couples
- LC 3: low percentage of 1-person households, retired people and children; this type reflects the couples of average age
- LC 4: high percentage of young children living in household, low age and low percentage of 1-person households; this type is dominated by families with children
- LC 5: high age, high percentage of 1-person households, high percentage of retired people and less than average children; this type is dominated by mature singles.

7.2 Distribution of clusters in „residential areas“

Do the data justify a concluding statement like: „tell me where you live and I tell you who you are“? From the results displayed in table 10 it can be concluded that „residential areas“ are not homogeneous with respect to socio-economic or demographic characteristics. Nevertheless, within types of „residential areas“ there are specific dominant or „visible“ groups of inhabitants. With respect to their characteristics, these groups are different in East and West Germany. This difference consists mainly in a more heterogeneous population structure within the „residential areas“ in the Eastern part of the country resulting as a consequence of the socialist system of the former German Democratic Republic: the housing market was characterized by an extreme shortage of housing as well as a state regulation and distribution of housing. Free choice of „residential area“ and housing was not possible under the socialist system but nevertheless, people in big cities in the Eastern part of the country had differential access to the housing market.

Table 10: Dominant Types of Respondents Within „Residential Areas“

Type of „Residential Area“	Country	Type of Respondents
Central Business District: Main Center	West	Students and young academicians
	East	Job-looser, students
Subordinate Centers: B-Centers	West	small households of pensioners, young academicians
	East	1-pers.-hh of pensioners, families with children, families of academicians
Zone in academicians Transition	West	small households of pensioners, families of
	East	families with children, job-looser
Areas of Tenement Houses	West	Academicians
	East	Academicians, families with children
Residential Areas of the Bourgeoisie	West	small households of pensioners, married couples, families with children
	East	household of pensioners, families with children
Areas of Better Residences	West	families of blue collar persons, families with children
	East	<u>small households of pensioners, families with children</u>

As is apparent from table 10 the „Main Center“ of big cities is primarily inhabited by a heterogeneous population of medium status in small households: in the Western as well as in the Eastern part this population is made up of young academicians and students looking for cheap housing. However, while in the Western part of the country academicians living in the main center usually are employed and have a job, academicians in the Eastern part of the country often belong to the category of „job losers“ (people who lost their job after the unification of the two parts of the country).

In the Eastern part of the country next to students older people living in small households are a dominant group in the „Main Center“ (see Table 5).

Also the „Subordinate Center“ does not have a dominant social stratification pattern but rather shows a pattern of dominant household structure: in East- as well as in West-Germany the small household prevails in this type of „residential area“.

In West-Germany the „Zone in Transition“ is „slum“ as well as „gold coast“. This part of big cities has been part of town planning modernization activities during the 70ies and 80ies. These parts can be labeled „gold coast“. Those parts of the „Zone in Transition“ that have not experienced modernization can be labeled as „slum“. Altogether, the „zone in Transition“ is the primary „residential area“ for the „guest-workers“. Since, however, the definition of the population from which the sample was drawn did not include this population group, the sample does not contain any

information on this segment of the population. Therefore, according to sample data, this „residential area“ is primarily inhabited by academicians and older people.

In contrary, the Eastern big cities are still heading for modernization in the „Zone in Transition“ of the big cities. The quality of apartments is at a lower level and according to this, prices for housing are low (still). Thus, this „residential area“ is primarily inhabited by people with lower socio-economic status.

In West-Germany, the „Area of Tenement Houses“ has faced an intensive urban renewal phase. In this „residential area“ now the process of gentrification is quite well observable. Groups moving into this area are typically those with higher education and higher income, often academicians with university degree.

In East-Germany, however, „residential areas“ at the periphery of the inner city center are primarily inhabited by families with children. In 1995, the year of the survey, there was still an extreme shortage of apartments in East-Germany holding people back from moving to other „residential areas“. In the Western part of the country, families with children have already moved to „Better Residential Areas“ where houses are lower in height. In West-Germany holds the rule: the further from the center of big cities, i.e. the more heading to the periphery the lower the buildings and the higher the status of the inhabitants.

In the Eastern part, however, old people are concentrated in the lower buildings at the periphery of big cities. People with high status from socialist times are living in the „suburbs“. Since this „residential area“ is underrepresented in the sample of the 1995 Social Science Survey it will not be considered further.

Summarizing the findings one can conclude that the index „Residential Area“ gives a good picture of preferences for neighborhoods of SES- and life-cycle-groups. However, interpretation of the data presented here requires knowing the processes of offer and demand regulating the housing market in the society under consideration. These processes differ from society to society, differ in different regions within a society as well as in different times according to social change.

Knowing these processes in any society the here presented index „Residential Area“ will contribute in predicting the spatial distribution of urban population in the sense of: „tell me where you live and I tell you who you are“. Thus, prediction of socio-demographic characteristics of non-respondents in specific „residential areas“ is possible and the index „Residential Area“ is a valuable measure in this context.

References

- [1] Batagelj V. (1990): *CLUSE PC Manual*. Ljubljana
- [2] Burgess E.W. (1925): The Growth of the City: An Introduction to a Research Project; in: Park, R.E., E.W. Burgess and R.D. McKenzie (Eds.): *The City*. Chicago: The University of Chicago Press: 47-62
- [3] Burgess E.W. (1929): Urban Areas; in: Smith T.V. and L.D. White (Eds.): *Chicago. An Experiment in Social Science Research*. Chicago: The University of Chicago Press: 113-138
- [4] Duncan O.D. and B. Duncan (1955): Residential Distribution and Occupational Stratification. *American Journal of Sociology* 60: 493-503
- [5] Friedrichs J. (1977): *Stadtanalyse. Soziale und räumliche Organisation der Gesellschaft*. Reinbek: Rowohlt
- [6] Friedrichs J. (Ed.) (1978): *Stadtentwicklungen in kapitalistischen und sozialistischen Ländern*. Reinbek: Rowohlt
- [7] Friedrichs J. (1995): *Stadtsoziologie*. Opladen: Leske + Budrich
- [8] Hoffmeyer-Zlotnik J. H.P. (1978): Berlin (Ost); in: Friedrichs J. (Ed.) (1978): *Stadtentwicklungen in kapitalistischen und sozialistischen Ländern*. Reinbek: Rowohlt: 140-183
- [9] Hoffmeyer-Zlotnik J. H.P. (1984): *Zur Beschreibung von Wohnquartieren - Die Entwicklung eines Instruments*. Mannheim: ZUMA-Arbeitsbericht 84/05
- [10] Hoffmeyer-Zlotnik J. H.P. (1994): Regionalisierung von Umfragen. *ZUMA-Nachrichten* 34: 35-57
- [11] Hoffmeyer-Zlotnik J. H.P. (1995a): Der Einfluß des städtischen Wohnquartiers auf das soziale Milieu in den alten und neuen Bundesländern - dargestellt anhand der Daten des DJI-Jugendsurveys. *SWS-Rundschau* 3/1995: 271-294
- [12] Hoffmeyer-Zlotnik J. H.P. (1995b): Welcher Typ Stadtbewohner dominiert welchen Typ Wohnquartier? Merkmale des Wohnquartiers als Hintergrundmerkmale zur Regionalisierung von Umfragen. *ZUMA-Nachrichten* 37: 35-62
- [13] Hoyt, H. (1939): *The Structure and Growth of Residential Neighborhoods in American Cities*. Washington, D.C.: Federal Housing Administration
- [14] Ipsen D. (1980): *Wohnungsteilmärkte*. Kassel: Gesamthochschule Kassel
- [15] Kreibich V. (1985): Wohnversorgung und Wohnstandortverhalten; in: Friedrichs J. (Ed.): *Die Städte in den 80er Jahren. Demographische, ökonomische und technologische Entwicklungen*. Opladen: Westdeutscher Verlag: 181-195
- [16] Shevky E. and W. Bell (1955): *Social Area Analysis*. Stanford: The Stanford University Press
- [17] Zorbaugh H.W. (1926): The Natural Area of the City. *Publications of the American Sociological Society* 20: 188-197