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Your House, Your Car, Your Education: The Socioeconomic Situation of the Neighborhood and its Impact on Life Satisfaction in Germany

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Abstract This study deals with the impact of socioeconomic conditions and social integration into a local neighborhood on individual life satisfaction in Germany. While the majority of ecological studies to date are based on very broad neighborhood concepts, using large research units for defining neighborhood the present study contains micro-geographic information on a representative sample of private households in Germany, including features of their respective residential environments. The data was derived from the German Socio-Economic Panel (SOEP) study and enriched with data from the Micromarketing-Systeme and Consult GmbH (microm) for the years 2000–2006. Our analyses reveal neighborhood effects on various facets of life satisfaction. Controlling for several covariates at the household and individual level, life satisfaction increases when a person lives in a neighborhood with a higher socioeconomic status. In addition, the individual gap between a person's economic status and the status of the neighborhood also affects individual well-being. However, when comparing with other neighborhood aspects, the strongest effects on individual life satisfaction have social networks.

Keywords Life satisfaction · Neighborhood

A house may be large or small; as long as the neighboring houses are likewise small, it satisfies all social requirements for a residence. But let there arise next to the little house a palace, and the little house shrinks to a hut.
(Marx and Engels 1849, MEW 6: 411)

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1 Introduction

For more than three decades, life satisfaction has been among the key indicators of wellbeing used to assess the welfare of societies (Zapf 1984). Veenhoven defines life satisfaction as “the degree to which an individual judges the overall quality of his life-as-a-whole favorable.” Life satisfaction is more cognitively than emotionally driven: it involves the assessment of past and present living situations and future perspectives, as well as processes of social comparison (Argyle 1987; Veenhoven 1991). While general life satisfaction is defined as an assessment of one’s life overall, life satisfaction can also be measured in specific life domains such as family, health, and finances (Christoph and Noll 2003). Because of its strong correlations, life satisfaction is also defined as the sum of satisfaction levels measured in these different life domains.

The subject of life satisfaction has been the subject of extensive research in the disciplines of psychology, sociology, and more recently, economics (e.g., Diener et al. 1999; Clark et al. 2008a). Up to now, however, aspects of the residential neighborhood have seldom been used to explain individual life satisfaction, in contrast to such individual characteristics as health, age, sex, education, income, and social life (friends, family, leisure activities). Recently, the inclusion of personality traits has become increasingly prevalent in such studies, particularly in socio-economic surveys. In some cases, when controlling for living conditions and income, the household and family context is included. Beyond the household dimension, however, living conditions are seldom analyzed. In studies investigating the relationship between aspects of the social environment—e.g., socioeconomic conditions or the level of public safety—and well-being, the context has often been defined in much larger units than the local neighborhood (see Sect. 2.1). Some authors have employed an “environmental” approach in which subjective well-being is explained by the perceived quality of the environment in which they live, taking into account such factors as noise pollution, air pollution, or lack of green spaces (Rehdanz and Maddison 2005, 2008; Luechinger 2007).

Before presenting the research design and central findings of our study, we will briefly illustrate the theoretical and empirical arguments for using the neighborhood approach. On this basis, we will demonstrate that the absolute quality of living conditions in the local residential area influences life satisfaction, and that as a point of social comparison, the relative social level of the neighborhood is also crucial for a person’s life satisfaction.

2 Neighborhood and Life Satisfaction

In the social sciences, the neighborhood is often analyzed in the context of social problems and individual life opportunities. Most neighborhood studies to date have focused on questions of how former or current neighborhood living conditions affect educational achievement and occupational status. Studies with an “ecological” focus often examine environmental problems in the neighborhood and their correlation with social problems like crime, school dropouts or pregnancies of underage women (Dietz 2002).

In this study, we follow a so-called “bottom-up” approach. We posit that there are universal needs that have to be met in order for people to be happy. Referring to the quality-of-life model by Allardt (1973), we differentiate three kinds of basic needs: having, loving, and being. “Having” addresses security aspects of wealth. This dimension of needs includes the individual’s economic resources, living standards, health and education, and the conditions of the living environment. The category “love” refers to the need for

affiliation and social contacts (family, friends, neighborhood, work contacts, etc.). It also includes activities and relationships in sports clubs and other associations. The need for “being” stands for participation and self-realization, including political and social participation, and includes options for creative and meaningful work and leisure. If these three needs are not met, or are only partially met, life satisfaction will be low or declining.

In this study, neighborhood is understood as one important locus for the fulfillment of the aforementioned basic needs, which fundamentally determine the level of life satisfaction:

1. Because bad living conditions in the local neighborhood reduce one’s sense of security, people who are surrounded by deteriorating buildings, social problems like high unemployment and crime, and environmental hazards (noise and pollution) are generally less satisfied with their lives. A lack of local infrastructure can also lead to lower life satisfaction: in areas without enough doctors, schools, shopping centers, or public transport, people are less able to meet their needs and achieve their goals. Sick people living in “good” neighborhoods, for example, may receive better treatment than those in bad areas because doctors in wealthier neighborhoods often have better medication and health care facilities at their disposal.
2. Another channel by which neighborhood affects life satisfaction is through an increase in life satisfaction corresponding to the level of social integration into one’s neighborhood. People who cultivate social contacts and experience social care are more able to fulfill their need for belonging.
3. Social relations and ties with neighbors increase opportunities for participation and self-realization in local culture and politics.

Another important connection between neighborhood and life satisfaction results from processes of social comparison.¹ Psychologists have long argued that individual self-image and self-assessments depend on a variety of comparisons: with others, with personal norms and goals, and with the actual and target state (Festinger 1954; Dermer et al. 1979; Argyle and Furnham 1983; Strack et al. 1985). One crucial question here is the choice of reference group. To estimate aspects of “having,” “being,” and “loving,” one cannot process all relevant information in everyday life; therefore, we normally evaluate these needs in comparison with others (Clark 2003) and reduce existing complexity.

The choice of reference group depends on a variety of factors, including the object of evaluation and its context. Popular comparison groups analyzed in the “happiness” literature are the society as a whole, and people from the same profession or peer group (Michalos 1985). Until now, however, the neighborhood has seldom been analyzed as a point of comparison by which people assess their living situations. The few studies that do exist include those by Fernandez and Kulik (1981), Luttmer (2005), Knies et al. (2007), Knight et al. 2007 and Clark et al. (2008a). Under the condition that basic dimensions of these evaluations are based on social comparisons with people in the individual’s immediate social environment, it appears logical that the neighborhood be considered as a point of reference. In a rural Chinese sample, Knight et al. (2007) were able to identify the villages of their respondents, and 70% of the respondents also stated viewing their village as reference group when asked to whom they compare themselves. Of course, the study by Knight et al. refers to rural China, which is culturally and economically very different from Germany, but it nevertheless demonstrates the importance of the local area for social comparisons.

¹ Clark et al. (2008b) suggest that social comparison or relative income modeled within a utility function could overcome the Easterlin Paradox on the one hand and the typically found positive relationship between income and happiness at the micro level.

From the perspective of social comparison, life satisfaction increases when the comparison with individuals in the neighborhood leads to a positive result and decreases when leading to a negative result for the person making the comparison. Following this idea, we take the so-called relative deprivation approach (Runciman 1966). Relative deprivation is the experience of being deprived of something to which one thinks one is entitled: people who are “relatively deprived” in relation to their neighborhood are thus unhappier. However, Senik (2007) concludes from her empirical analysis that comparisons are asymmetrical, such that “under-performing one’s benchmark, whether internal or external is always more important than out-performing it.”

We assume therefore that neighborhood has an absolute and relative effect on well-being. People are more satisfied if their own living conditions are better than those in the surrounding area (absolute effect). But if a person is deprived relatively to the neighborhood, his or her life satisfaction is lower (relative effect). Because of this, it is possible that people living in a worse neighborhood are happier than those in a better neighborhood, because the latter are deprived relative to their neighborhood, and the former are socio-economically better-off than their neighbors.

2.1 Literature Review

There have been very different studies considering the neighborhood context as a relevant variable in the prediction of life satisfaction, and their results are ambiguous: some find a positive effect and others do not. A central problem in evaluating these findings is that the studies are difficult to compare, particularly due to the use of very different concepts of neighborhood. Neighborhood is sometimes defined empirically at the level of counties; in other cases by zip code areas or sampling points.

For the USA, Fernandez and Kulik (1981) come to the conclusion that life satisfaction decreases with the cost of living in the neighborhood, but that the individual income level and the average income in the residential area do not affect subjective well-being. In fact, they find that people living in rural areas are generally happier with their lives. The scale used to measure neighborhood is based on sampling points (NORCS) covering 100 inhabitants on average. One problematic aspect is that the information about the neighborhood is not exogenous, but based on the respondents in the particular local area—13 people on average.

For Illinois, USA, Ross et al. (2000) analyzed the influence of fluctuation and stability in the residential area on individual well-being. They found that stable communities with a low rate of moves into and out of the area have a positive impact on life satisfaction only in rich residential areas. Stability in poor areas decreases well-being. This could be an indication that low mobility in poor districts implies helplessness to cope with difficult living conditions. Neighborhood was measured at the level of census tract, zip code, or city level, using the most local level of detail possible.

For Virginia, USA, Sirgy and Cornwell (2002) studied the relationship between general satisfaction and the satisfaction in different life domains. Their study shows that the physical (upkeep of homes, street lighting, crowding and noise level etc.), economic, and social composition of the neighborhood influence personal satisfaction with housing and neighborhood, and that this again affects general life satisfaction. To cover local conditions, the authors use respondents’ subjective evaluations of their neighborhoods, leaving it to them to decide how exactly they define the concept of “neighborhood.”

The Australian study by Evans and Kelly (2002) affirms the importance of the level of social integration for individual life satisfaction. The satisfaction level of respondents is

significantly higher in neighborhoods with more social contacts and friendships. The scale for measuring neighborhood is based at a zip code level.

Also for Australia, Shields and Wooden (2003) found that the average income, rate of unemployment, and demographic structure of the neighborhood do not influence the level of satisfaction. In this study, neighborhood was defined as around 250 households per unit. The authors showed that neighborhood was generally a homogenous unit. If individual life satisfaction was high, it was also very likely that people's neighbors were very happy about their life.

The US study by Luttmer (2005) has proven the importance of neighborhood as a point of social comparison. In it, the author showed that increases in average income and in the consumption of goods negatively influence life satisfaction if individual income and the consumption habits do not change. However, with 150,000 persons on average, Luttmer used a very large research unit for defining neighborhood.

For Germany, Knies et al. (2007) tested the impact of neighborhood income on personal life satisfaction. Their analyses show that individual life satisfaction increases with the spending power in the neighborhood. This effect is not very strong, however, and not significant when controlling for East and West Germany. A lower income relative to the neighborhood does not decrease individual well-being. With SOEP, the authors use the same data set that we use in the present study. In contrast to ours, the study by Knies et al. is based on older data covering the years 1994 and 1999 and using broader neighborhood units. Knies et al. rightly point out that the zip code level used in their study covers 9,000 inhabitants on average, and that this size may be too large to identify a comparison effect. In contrast to Knies et al., we will measure neighborhood characteristics on a far smaller scale than on the zip code level, using data on street sections or building levels.

The longitudinal study by Clark et al. (2008c) showed for Denmark that respondents report higher satisfaction levels when their neighbors are richer. However, according to this study the Danish are rank sensitive, the respondents are more satisfied as their individual neighborhood ranking improves. In this study Denmark was divided up into 9,000 neighborhoods which cover a minimum of 150 households and a maximum of 600 households per unit.

As already noted, studies on well-being and neighborhood employ a variety of neighborhood concepts. We apply a very local scale to measure neighborhood in our study giving people theoretically the chance for face-to-face interactions among members. Empirical evidence suggests the larger the neighborhood units and the more space and inhabitants these units cover, the higher the risk of underestimating context effects (Nonnenmacher 2007).² Apart from the availability of data, these results also affirm our decision to apply a very local scale to measure neighborhood in our study.

3 Study

3.1 Data Base and Method

This study is based on data from the German Socio-Economic Panel (SOEP) for the years 2000–2006. The SOEP is a wide-ranging representative longitudinal study of private

² Nonnenmacher (2007), using data on three German cities (Hamburg, Kiel and Munich), finds that mean neighborhood disorder only increases the fear of crime if this effect is tested for small neighborhoods of less than six to eight square kilometers.

households (for details, see Wagner et al. 2007). This survey provides information on all household members, because all household members aged 17 or older will be interviewed every year. The sample consists of Germans living in the federal states of both the former East and West Germany (since 1990), foreigners, and recent immigrants to Germany.

To describe the neighborhoods of the respondents' households, we make use of additional commercial micro-geographic data on the households' immediate neighborhoods from the MOSAIC data system from the company Micromarketing-Systeme and Consult GmbH (microm). As a new feature³ of SOEP, this data is linked to the normal SOEP panel data at the level of the proper addresses of each individual private household in SOEP since 2000. The MOSAIC data system contains more than 75 of the characteristics most frequently used to analyze and describe customer databases or markets. This information is available at the address level and contains approximately 17.8 million buildings in Germany. The building level covers seven or eight households on average (with a minimum of at least five households due to data protection regulations). Buildings with less than five households are pooled with households in the neighborhood that are similar in structure. This means that the linked information from microm to SOEP is exogenous for the observed household, and can of course differ from the specific household within the SOEP sample.

We make use of data on the building or street section level; the building level covers eight households on average and the street section level 25 households on average. It is very rare for these local units to contain more than one household from SOEP.⁴ For the year 2004, data on 97% of all 11.796 SOEP households (22.012 persons) was enriched with data from microm. However, the microm data are based on very different sources available at different territorial levels, and are not always thoroughly documented, since microm normally provides their data for commercial purposes (Goebel et al. 2007).

In our analysis, we use the microm variable "socioeconomic status of the neighborhood." This index classifies household social status into an equally distributed nine-point scale variable based mainly on education and income. A band value of one identifies the households with the lowest social status, while a value of nine identifies households with the highest social status.

The impact of neighborhood characteristics on life satisfaction will be tested both cross-sectionally and longitudinally. The cross-sectional analyses allow us to test the impact of neighborhood aspects on life satisfaction, controlling for more aspects relevant to life satisfaction and the inclusion of subjective indicators on the respondents' neighborhoods. However, the panel approach provides the possibility to control for individual fixed traits (Ferrer-i-Carbonell and Frijters 2004). It allows us to estimate how a change in the neighborhood status over time leads to a change in the level of life satisfaction using a fixed effects model.

Neighborhood determinants of life satisfaction will be estimated separately for East and West Germany. Separate estimations can be explained (1) *systemically*, by the former different political systems and cultures, (2) *empirically*, by the current differences in living conditions and because of different neighborhood structures, and finally (3) by the very different levels of life satisfaction.

³ The data is available to all researchers, but can only analyzed within the DIW Berlin due to data security regulations.

⁴ The average number of households in SOEP located at the same street section is 1.4, and within one building is 1.02.

3.2 Variable Description

Life Satisfaction will be measured by the standard 11-point scale using the question “How satisfied are you with your life in general” (0 completely dissatisfied, 10 completely satisfied).⁵ Although some individual studies show variations in follow-ups within a short period (Krueger and Schkade 2008), many other studies demonstrate high reliability and temporary consistency for indicators with similar scales (Diener et al. 1999; Pavot et al. 1991).

The quality of the residential area will be measured by an exogenous microm variable on the *socioeconomic status of the neighborhood*. This nine-scale index cover household and individual information about the level of occupation, the rate of self-employment, purchasing power, registered car etc.⁶ The hypothesis is that persons who live in neighborhoods with a higher socioeconomic status are more satisfied with their lives. Neighbors benefit to different degrees from good living conditions: higher socioeconomic status means or implies.

- (a) better living conditions;
- (b) better infrastructure (access to facilities, doctors, transport etc.) and less social exclusion and
- (c) better environmental quality (less noise, less air pollution and more green spaces).

According to the social comparison approach, we assume that people with a higher status than their neighbors are happier with their lives than people who are relatively deprived in comparison to the neighborhood. The social gap within the neighborhood will be measured by *status differences* between the respondent and the neighborhood. These are measured as the difference between the respondent’s equalized⁷ household income from the previous year, recoded to cover nine quantiles, and the neighborhood status, which also describes nine quantiles. The resulting variable has a range from -8 to 8 and was split into two variables covering the negative or positive values, with the respective other values recoded to zero.

To test the influence of social ties and stability in the neighborhood, we make use of the rate of households leaving the neighborhood. Following the approach of Ross et al. (2000), we assume that especially rich residential areas with high fluctuation have a negative impact on life satisfaction. On the other hand, stability in a poor area implies an inability to cope with difficult living conditions and diminished well-being.

3.3 Additional Variables in the 2004 Cross-Section

The cross-sectional analysis for the year 2004 allows us to enhance our description of the neighborhood by subjective evaluations of the respondents. However, this subjective neighborhood concept is not identical to the concept used in the microm variables, as the definition of “neighborhood” is made by the respondents.

⁵ The original version of the question (apart from a translation into English) can be found in the “Appendix” in Fig. 2.

⁶ As microm provides data for commercial purposes the data documentation is not on a scientific level, i.e., we can not reproduce in detail the variables provided by microm. However, we have—as far as possible—done extensive data checks (e.g., correlation of purchasing power and household income, or number of foreigners in a neighborhood and nationality) and only plausible associations observed.

⁷ We apply the modified OECD scale, assigning 1 to the first person in the household and 0.5 to every other person aged older than 14 and 0.3 to all children under the age of 15.

We measure social problems in the neighborhood indirectly, by studying the subjective *perception of crime* in the local area. The need for security is not supplied when people are worried about crime in their neighborhood. Thus they will feel less secure and less happy.

For 2004, we are also able to consider the influence of *social ties in the neighborhood*. Here, we expect that people with more contacts to their neighbors will be happier with their lives because of their better social integration.

The cross-sectional model will be enlarged to include many other variables that have been shown in other research to influence happiness. We control for socio-demographics (*age, sex and Non-German nationality*), *health* (subjective and objective indicators), *education, current net household income and family status* (single, married, children and divorced).

3.4 Personality Traits and Locus of Control

In addition, the SOEP data allow us to include *personality traits* as explanatory variables. With reference to what are known as “bottom-up” approaches, we test how strong personality traits affect life satisfaction, using the so-called “Big Five” personality traits (Goldberg 1990) and variables describing the *locus of control* (Rotter 1966) of the respondents. The thesis is that global personality dimensions indirectly affect life satisfaction through their effects on the interpretation of life circumstances (Brief et al. 1993). The variables used to measure both concepts are derived from the SOEP Variables available in the 2005 data using a factor analysis with orthogonal varimax rotation (see Gerlitz and Schupp 2005; Dehne and Schupp 2007).⁸

The Big Five are: openness, conscientiousness, extraversion, agreeableness, and neuroticism. “Openness” is characterized by an appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience. People with high values for “conscientiousness” have the tendency to show self-discipline, act dutifully, and aim for achievement; they show planned rather than spontaneous behavior. Symptomatic for “extraversion” is a high energy level and expressions of positive emotions, people with high values for extraversion have the tendency to seek stimulation and stimulate others. People with a distinctive “agreeableness” have the tendency to be compassionate and cooperative rather than suspicious and antagonistic towards others. “Neuroticism” is the tendency to experience unpleasant emotions easily, such as anger, anxiety, depression, or vulnerability.

The meta-analyses of Lucas and Fujita (2000) show that on average, extraversion correlated 0.38 with well-being at the zero order level. Furthermore when multiple diverse methods of measurement were used to model the association between extraversion and well-being, the correlation often approached 0.80. The analysis of De Nevo and Cooper (1998) showed that the Big Five dimensions of agreeableness and conscientiousness correlated approximately 0.20 with subjective well-being measures including life satisfaction.

The Big Five personality traits were measured in SOEP in 2005 by 15 questions which are reported to be satisfactorily correlated with the much longer versions developed by psychologists (Gerlitz and Schupp 2005).

Locus of control (Rotter 1966) can be either internal or external. “Internals” tend to attribute outcomes of events to their own control. “Externals” tend to believe that their

⁸ We assume that personality is relatively stable (at least what is measured by these concepts) and therefore assign the 2005 personality variables as time-invariant variables to all persons available in 2004.

lives are strongly influenced by powerful others (external locus). There is also empirical evidence that internal locus of control is significantly highly correlated with life satisfaction (Diener et al. 1999). People with an internal locus of control tend to believe that they can control their own destinies and are therefore more active in trying to take control of events. People with an external locus of control, in contrast, feel more powerless in determining their own success or failure (De Nevo and Cooper 1998).⁹ Locus of control was measured in SOEP in 2005 with the scale in German developed and used by Krampen (1981).

4 Empirical Results

4.1 Descriptive Results

Figure 1 shows the distribution of differences between the income status of a person¹⁰ and the neighborhood status provided by microm. The empirical distribution follows a normal distribution quite closely. The graph indicates that the most densely populated category is zero, meaning “no difference” between personal status and neighborhood status, i.e., 14% of our population live in a neighborhood with the same economic status as the individuals themselves. On the other hand, this also shows that for the majority of our sample (86%), we do have differences between personal and neighborhood status.

This distribution also shows that poor people rarely live in areas with high socioeconomic status, and vice versa. From perspective of local housing markets this is understandable. The income position of all people with a demand for land and property in the city or town determine who gets what and how much it costs to get the best spot.

Table 1 shows the mean of individual life satisfaction in different neighborhoods and according to the observed status differences.¹¹ Under the condition that there is no difference between people’s income status and their socioeconomic status, individual life satisfaction increases with neighborhood status. People who live in neighborhoods with good educational and economic conditions are happier than people who live in areas with bad socioeconomic conditions.

Comparing people living in neighborhoods with the same status but with a different status than their neighborhood, we see that people who have a higher status than their neighbors (positive difference) are more satisfied with their lives. The highest score of life satisfaction (within the 0–10 scale) is in the group of people who live in neighborhoods with an average status and positive status difference (7.5). We find the people with the lowest score (5.8) on the life satisfaction scale also in the group of people living in an average neighborhood but with a worse economic situation than those around them (negative status difference). But since it may be that these differences only occur due to the

⁹ Conversely, studies about the wellbeing of elderly people have indicated that older adults who show a tendency towards internal locus of control have lower life satisfaction than those with an external locus of control (Rogers 1999). It may be that older individuals who are externally focused easily develop trust in others, e.g., in their health care provider, and that this ability helps them to better cope with age-specific restrictions.

¹⁰ Measured by the nine quantiles of the net equivalence household income of the previous year, see previous section.

¹¹ The satisfaction means by neighborhood status and household income quantiles can be found in the “Appendix” in Table 4.

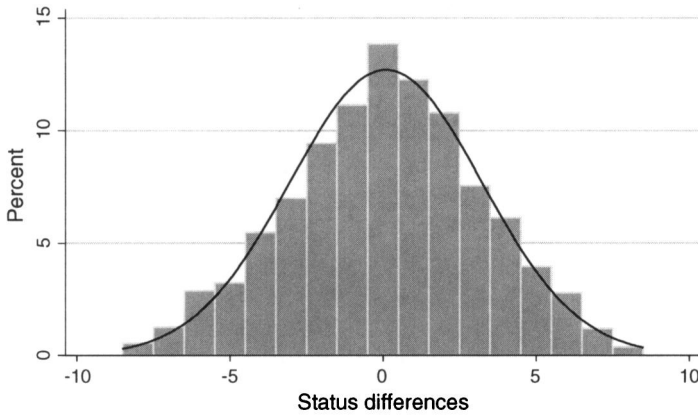


Fig. 1 Status differences within the neighborhood. *Source* SOEP/microm 2006, authors' calculations

Table 1 Mean of individual life satisfaction in the contexts of different neighborhoods—2004

Neighborhood status	Status difference	Negative	Positive
	No		
Lowest status	6.2		6.7
Considerably below the average	6.2		7.1
Below the average	6.4		6.8
Slightly below the average	6.4		7.1
Average status	6.7	5.8	7.5
Slightly above the average	6.8	6.1	
Above the average	6.9	6.3	
Considerably above the average	6.8	6.4	
Highest status	7.2	6.6	

Source SOEP/microm 2006, authors calculations

personal income situation or other individual characteristics, we apply multivariate methods in the next step.

4.2 Cross-Sectional Regression Model

The regression results for West Germany show that life satisfaction increases slightly but significantly with neighborhood status using cross-sectional data for 2004. The same is true for people in the former East Germany who live in neighborhoods with better socioeconomic conditions: they too are happier with their lives than those living in neighborhoods with worse conditions. However, this absolute neighborhood status effect for East Germany is very slight and not significant when controlling for personality.

One remarkable effect of neighborhood is seen in regard to the safety of the residential area. The analysis shows for the states of both former East and West Germany that people who feel unsafe because of the level of local crime in their neighborhood are less satisfied with their lives. The effect of this subjective indicator on local safety is strong and significant in both parts of the country. Because the subjective perception of crime is often not

identical with the objective crime situation in a particular area, it is not possible to deduce objective measures from the subjective ones. However, these results show that the perception of safety, and especially the fear of crime, must be considered in quality-of-life research and life satisfaction.

Our analysis partially confirms the relative effect of neighborhood status. The regression results show that people in West Germany are significantly more satisfied when their personal status is higher than their neighborhood's status, even when controlling for current personal income. In East Germany, however, this effect is not significant. A negative status difference between oneself and one's neighborhood has a negative impact on life satisfaction, but this effect is only significant for East Germany.

Social neighborhood networks have the strongest effects in comparison with other neighborhood aspects in both East and West. Life satisfaction is higher for people who visit (or are visited by) their neighbors more often. These results confirm the great importance of social cohesion at the local level for happiness. The rate of households moving out of the area has a slight negative effect on life satisfaction, but is significant only for East Germany. There is no remarkable interaction effect between neighborhood status and the rate of moves as it was found by Ross et al. (2000) for the USA. Stability in poor areas (neighborhoods with the lowest status) does not have a negative impact on life satisfaction, and high fluctuations in rich neighborhoods have no distinct negative effects on subjective well-being.

We also tested whether the neighborhood as a point of social comparison is more important in some groups than in others. The idea was that people who socialize more with their neighbors also compare themselves more with them. Analyses with an interaction term between social contacts and status difference show that the status difference does not have a greater impact on life satisfaction in the group with more social contacts with neighbors.

What about the relevance of other variables? The estimation of the personality coefficients reveals that an external locus of control is more important than the Big Five. People who tend to attribute outcomes of events to others are significantly less satisfied with their lives. In contrast, people with an internal locus of control are more satisfied. However, the effect of internal locus of control is weaker than that of external locus, and has a significant effect for individual well-being only for West Germany.

According to many findings in empirical psychological research, people who have the tendency to experience negative emotional states are less satisfied with their lives. However, in our study, this effect of "neuroticism" is significant only for West Germany. Individuals who have an appreciation for art, emotion, adventure, etc., and therefore score higher on "openness" are happier in both parts of Germany. People with a distinct tendency to be compassionate and cooperative, and thus a high level of "agreeableness," are significantly less satisfied with their lives (only for West Germany). Only for East Germany does the "conscientiousness" dimension of personality (high level of self-discipline) significantly decrease the level of life satisfaction.

As expected, subjective and objective health indicators have the strongest effect on life satisfaction. People with lower levels of mental and physical health and with a negative estimation of their health have considerably lower life satisfaction. Life satisfaction rises with the level of income and education. Women are more satisfied with their lives than men, and there is a negative relationship between age and well-being. Singles, divorced, and separated people, widows and widowers are all less happy than people living together with a partner. Having children increases life satisfaction significantly, but only in East Germany.

The OLS Model explains a large portion of the variance in life satisfaction. For West Germans 38% and for East Germans 36% of life satisfaction can be explained by the determinants selected (Table 2).

Table 2 Regression of life satisfaction for West and East Germany (2004)

	West Germany controlling for personality		East Germany controlling for personality	
<i>Neighborhood</i>				
Living conditions				
Neighborhood status	0.04**	0.04**	0.05*	0.02
Fear of local crime (dich.)	-0.27**	-0.25**	-0.24**	-0.21*
Social comparison				
Positive status difference	0.06**	0.05**	-0.02	-0.03
Negative status difference	-0.02	-0.02	-0.07**	-0.06*
Social cohesiveness				
Urbanization	-0.04	-0.06	0.02	-0.01
Visits to/from neighbors (dich.)	0.17**	0.15**	0.17**	0.18**
Close contacts with neighbors	0.13**	0.12**	-0.03	-0.01
Rate of removals	0.00	0.00	-0.02*	-0.01
<i>Personality</i>				
Openness		0.05**		0.11**
Conscientious		0.02		-0.07*
Extraversion		-0.01		-0.04
Agreeableness		0.06**		-0.02
Neuroticism		-0.06**		0.02
External locus of control		-0.20**		-0.23**
Internal locus of control		0.07**		0.02
<i>Other control variables</i>				
Sex: male	-0.26**	-0.25**	-0.18**	-0.20**
Nationality: not German	-0.05	0.07	0.58	0.70
Age	-0.06**	-0.05**	-0.07**	-0.06**
Age (age ²)	0.001**	0.001**	0.001**	0.001**
Income (equivalent household income)	0.0001**	0.0001**	0.0006**	0.0006**
Education (years of education)	0.03**	0.02**	0.05**	0.03*
Marital Status (Ref.: married)				
Single	-0.35**	-0.36**	-0.06	-0.01
Divorced/separated	-0.37**	-0.39**	-0.23**	-0.27**
Widowed	-0.28**	-0.31**	-0.18	-0.16
Having children	0.01	0.00	0.17**	0.16**
Subjective health state (Ref: very good)				
Good	-0.47**	-0.44**	-0.31**	-0.33**
Satisfactory	-0.94**	-0.92**	-0.74**	-0.73**
Poor	-1.51**	-1.49**	-1.30**	-1.30**
Bad	-2.55**	-2.55**	-2.41**	-2.19**
Mental health	0.07**	0.06**	0.05**	0.05**
Physical health	0.01	0.00	0.01**	0.01**
Constant	4.70**	5.25**	3.79**	3.79**
Observations	10,944	10,446	3,719	3,610
R ²	0.36	0.38	0.35	0.36

Source SOEP/microm 2006, authors calculations

Absolute value of *t* statistics in parentheses

* Significant at 5%; ** Significant at 1%

4.3 Neighborhood Effects When Controlling for Individual Fixed Effects

In the following, we test whether neighborhood effects remain stable when controlling for individual fixed effects. The panel model for the period 2000–2006 reconfirms the absolute and relative effects of the neighborhood for life satisfaction. Life satisfaction is enhanced when the neighborhood status increases (Table 3). The panel regressions also reveal an effect of status differences for West and East Germany: people who improve their income status and therefore enhance their positive status difference (or whose neighborhood status drops) significantly improve their life satisfaction, and vice versa.

However, there are some differences when comparing the results of the cross-sectional regression with the estimated coefficients of the panel model. Most striking is the fact that the effect size of all neighborhood-status-related variables has decreased. The absolute effect is reduced from 0.04 in West Germany to 0.026, but this absolute effect is now also significant for East Germany. The same is true for the relative effects. Both status differences (positive and negative) are now significant in both parts of Germany, with a slightly stronger effect for a negative status difference. This finding is in line with the results by Senik (2007).

Education, as measured by years of education, is no longer significant when controlling for individual fixed traits, whereas the effects of marital status and subjective health conditions on life satisfaction are still significant. The latter is by far the strongest predictor in the models estimated. The time dummies show a trend of declining life satisfaction in Germany (with the exception of the year 2005), which is compatible with the low performance of the German labor market and the rise in income inequality and income poverty within this period.

Although the prediction of changes in life satisfaction (fixed effects models) is overall only 9% (East Germany: 8%), the panel estimations validate the robustness of our findings in OLS Regressions (Tables 2, 3).¹²

5 Summary

The aim of this study was to examine the relevance of neighborhood aspects for life satisfaction in Germany. The neighborhood approach was empirically tested with representative household panel data for Germany (SOEP) and data about the neighborhood at the level of street sections or buildings (microm). The two datasets were combined with the help of the exact addresses of the SOEP households.

Our analyses reveal various neighborhood effects for life satisfaction in Germany. Within our cross-sectional analysis for the year 2004 the perception of safety in the neighborhood is highly relevant for subjective well-being. People who feel unsafe in their area due to crime have a significantly lower level of satisfaction. We find empirical evidence that the living conditions in the residential area remarkably influence subjective well-being in both models (cross-sectional analysis and panel analysis, controlling for individual fixed effects). We were able to disentangle an absolute effect of neighborhood status on life satisfaction from a relative effect of social comparison, as measured by the difference between the status of the individual and his/her immediate neighborhood.

Life satisfaction is lower when the person lives in a neighborhood with a higher socioeconomic status than his or her own. These results are also found when controlling for

¹² We have to bear in mind that changes in life satisfaction also depend on other aspects not considered in this study, for example marital transitions, divorces, loss of partner, or loss of job (Lucas et al. 2003; Clark et al. 2008a).

Table 3 Fixed-effect panel model of life satisfaction for West and East Germany (2000–2006)

	West Germany	East Germany
Neighborhood status	0.026 (4.38)**	0.031 (2.84)**
Positive status difference	0.018 (3.29)**	0.02 (2.21)*
Negative status difference	-0.026 (4.98)**	-0.026 (2.46)*
Moves out of neighborhood	0.011 (3.12)**	-0.005 (-0.81)
Nationality: not German	0.023 (-0.31)	-1.55 (-1.98)
Age	-0.078 (10.41)**	-0.074 (5.70)**
Age ²	0.0002 (2.49)*	0.0001 (-0.85)
Income (equivalent household income)	0.0001 (10.84)**	0.002 (8.67)**
Education (years of education)	0.004 (0.30)	-0.022 (-0.88)
Marital status (Ref.: married)		
Separated	-0.487 (10.32)**	0.008 (-0.09)
Single	-0.196 (4.60)**	0.1 (-1.17)
Divorced	-0.061 (-1.37)	0.162 (-1.96)
Widowed	-0.591 (9.32)**	-0.464 (4.41)**
Having children	0.057 (4.01)**	0.094 (3.62)**
Subjective health state (Ref: very good)		
Good	-0.312 (16.51)**	-0.268 (6.89)**
Satisfactory	-0.691 (32.14)**	-0.646 (15.02)**
Poor	-1.251 (49.24)**	-1.108 (22.54)**
Bad	-2.201 (59.68)**	-2.117 (31.80)**
City size (Ref.: less than 100,000 inhabitants)		
>100t to ≤200t	-0.037 (-0.53)	-0.024 (-0.14)
>200t to ≤300t	0.216 (2.45)*	0.524 (2.74)**
>300t	-0.045 (-0.97)	-0.034 (-0.34)
Year (Ref: 2000)		
2001	0.076 (5.75)**	0.088 (3.84)**
2002	-0.047 (3.61)**	-0.045 (2.01)*
2003	-0.046 (3.53)**	-0.047 (2.05)*
2004	-0.159 (11.69)**	-0.160 (6.73)**
2005	0.033 (2.26)*	0.037 (-1.44)
Constant	10.59 (45.85)**	10.124 (24.43)**
Observations	93,437	31,779
Number of persons	20,598	6,651
R ² (within)	0.09	0.08
F statistic	270.47	83.63

Source SOEP/microm 2006, authors calculations

Absolute value of *t* statistics in parentheses

* Significant at 5%; ** Significant at 1%

several covariates at the household and individual level including personality traits, health, household income, education, age, sex, marital status, etc. This absolute effect of neighborhood status is stable even when controlling for individual fixed effects. However, the effect size decreases when controlling for personality traits in the cross-sectional model and when controlling for individual fixed effects in the panel regression.

Our results support the hypothesis that not only an absolute but also a relative effect of neighborhood status exists, and underscore the importance of neighborhood as a point of social comparison and as determinant of life satisfaction. People are less satisfied when living in a neighborhood that is better off than they are themselves and vice versa. According to the longitudinal results for the period 2000–2006, we find a (slight) asymmetric effect of comparisons, with a stronger effect if underperforming one’s benchmark, which is in line with the findings of Senik (2007) for 25 transition countries. Additionally to the empirical findings that neighborhood functions as a point of comparison to judge one’s own life situation, we find support for the social cohesion function of the neighborhood and its relevance for happiness. People who are in closer contact with their neighbors are more satisfied with their lives. In fact, social networks have the strongest effects in comparison with other neighborhood aspects in both East and West Germany.

Appendix

See Table 4 and Fig. 2.

Table 4 Mean of satisfaction by neighborhood status and income quantile

Neighborhood status	Income quantile ^a									Total
	1	2	3	4	5	6	7	8	9	
Lowest status	5.8	6.2	6.5	6.6	6.8	6.8	7.0	7.2	7.3	6.5
Considerably below the average	6.0	6.2	6.6	6.8	6.8	6.9	7.1	7.2	7.5	6.7
Below the average	6.3	6.5	6.6	6.8	6.9	6.9	7.1	7.2	7.0	6.8
Slightly below the average	6.2	6.5	6.7	6.8	6.8	6.9	6.9	7.2	7.4	6.8
Average status	6.0	6.6	6.7	6.8	6.8	7.0	7.0	7.2	7.5	6.8
Slightly above the average	6.4	6.5	6.7	6.9	7.0	7.2	7.2	7.0	7.5	7.0
Above the average	6.3	6.8	7.1	7.0	7.0	7.1	7.1	7.2	7.4	7.0
Considerably above the average	6.4	6.7	6.9	6.9	6.6	7.0	7.2	7.3	7.2	7.0
Highest status	6.4	6.8	7.0	7.1	7.4	7.1	7.2	7.3	7.6	7.2
Total	6.2	6.5	6.7	6.8	6.9	7.0	7.1	7.2	7.4	6.9

Source SOEP 2000–2006, pooled cross-sections, weighted estimations

^a Annual equivalized net household income of previous year

145. In conclusion, we would like to ask you about your satisfaction with your life in general.

Please answer according to the following scale:
"0" means completely dissatisfied, "10" means completely satisfied.

How satisfied are you with your life, all things considered?

0 1 2 3 4 5 6 7 8 9 10

completely dissatisfied completely satisfied

Fig. 2 Measuring life satisfaction, SOEP 1984–2007

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