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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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# **Your house, your car, your education The socioeconomic situation of the neighborhood and it's impact on life satisfaction in Germany**

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## **Abstract:**

This study deals with the impact of socioeconomic and social integrative conditions in the neighborhood on individual life satisfaction in Germany. While the most ecological researches are focused on single regions or districts in towns, this study contains micro geographical information of a representative sample for Germany including features of the residential environment. For this purpose data of the German Socio Economic Panel (SOEP) will be used and enriched with data of Micromarketing-Systeme and Consult GmbH (Microm) for the years 2000 to 2006. Analyses reveal neighborhood effects in different facets. Controlling for several covariates, at the household and individual level, life satisfaction increases when the 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 affect individual wellbeing.

*"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/Engels, 1849, MEW 6: 411)

## **I Introduction**

For more than three decades life satisfaction belongs to the key indicators of well being estimating 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". It is a primary cognitive evaluation of the past and current life situation including the future perspective and based on processes of social comparison (Argyle, 1987; Veenhoven, 1991). Not only has life satisfaction a cognitive but also an affective component (Bongartz, 2000). While general life satisfaction is defined as an evaluation of life in general, life satisfaction can also be measured for specific life domains like family, health and finances (Christoph/Noll, 2003). Because of its strong correlations life satisfaction is often defined as the sum of satisfactions concerning these different life domains.

Explaining life satisfaction is a heavily researched area in psychology, sociology and recently in economics (e.g. Diener et al., 1999 or Clark et al., 2008). Up to now aspects of the residential area were seldom used to explain individual life satisfaction. One's health, age, sex, the individual education and economic level and one's social life (friends, family, leisure activities) are more frequently used to explain life satisfaction. Recently, personality traits were also included as explanatory variables, since this concept is more and more available in socio-economic surveys. Controlling for living conditions and income the household and family context will sometimes be included. However, living conditions beyond the household dimension is seldom analyzed. When aspects of the social space like the socioeconomic conditions or the level of public safety were tested for well being the context often refers to much bigger units than the neighborhood area (see chapter II.1, Literature Review). Other authors use an "environmental" approach where subjective well being is explained by the perceived quality of the environment where they live, e.g. pollution with noise, air pollution or the lack of green spaces. (Rehdanz/Maddison, 2005, 2008, Luechinger, 2007)

Before we present the research design and central findings from our study we will briefly illustrate the theoretical and empirical arguments for using the neighborhood approach. Based on these explanations we conclude that the absolute quality of living conditions of the local residential area influence life satisfaction and as a point of social comparison the relative level of the neighborhood is also crucial for a person's life satisfaction.

## **II Neighborhood and Life Satisfaction**

In social sciences neighborhood is often analyzed in the context of social problems and life chances. So far, most neighborhood studies focus on the questions about the influences of former or current living conditions of the local area on the achieved education or occupation level of the residents. Other so called ecological studies often examine difficult living conditions in the neighborhood and their importance for the formation of social problems like crime, school dropouts or pregnancies of underage women (Dietz 2002).

In this study we follow a so called bottom-up approach. There are universal needs which 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 economic resources, conditions of the living standard, health and education of the person and conditions of the living space. The category “Love” refers to the need for affiliation and social contacts (family, friends, neighborhood, contacts at work etc.). It also covers activities and relations in sports 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 or insufficiently fulfilled life satisfaction will be low or decrease.

In this study neighborhood will be understood as one important locality to unfold these basic needs, and these needs basically determine the level of life satisfaction:

1. Because bad living conditions in the residential area limits the enhancement of security, people who are surrounded with buildings of bad quality, girdled by social problems like high unemployment, crime or environmental hazards (noise and pollution) are less satisfied with their life. A lack in the local infrastructure can also lead to lower life satisfaction. When doctors, schools or shopping centers are not available in the local area or public transport doesn't exist people are not or hardly able to satisfy needs and to achieve goals. Contrary to that sick people living in “good” neighborhoods may get better treatment because the general practitioner in the richer neighborhood is often better equipped with medication and health care facilities.
2. Another influential channel of neighborhood will be moderated through an increase in life satisfaction with the level of social integration in the residential area. People who cultivate social contacts and experience social care are more able to develop the need of belonging.
3. Having social relations and ties with neighbors increases the chances to participate and self-actualize in the local and political culture.

Another important connection between neighborhood and life satisfaction exist because of social comparison.<sup>1</sup> For long time psychologists refers to the fact that estimations about your own depends on the comparison with others, with norms and goals and with the actual and target state (Festinger, 1954, Dermer et al. 1979; Argyle/Furnham 1983; Strack et al. 1985). One crucial question here is the choice of the reference group. To estimate aspects of “having”, “being” and “loving” one can’t process all relevant information in normal life, therefore we normally estimate these things in comparison with others (Clark 2003) and reduce existing complexity.

The choice of the reference group depends on different aspects e.g. the object to be evaluated and the situation a person is evaluating. Popular comparison groups analyzed in the “happiness” literature are the society as a whole or people from the same profession or the peer group (Michalos, 1985). Until now neighborhood was seldom used as a point of comparison to judge the own life situation. To the few studies belong Fernandez/Kulik 1981, Luttmer 2005 and Knies et al., 2007 as well as Knight et al., 2007. Under the condition that basic dimensions of evaluations are based on social comparison with people in our reach it is evident to consider the neighborhood as a point of reference. Knight et al. (2007) were able to identify the villages of their respondents from a rural Chinese sample and additionally 70% of the respondents see their village as their reference group, when asked to whom they compare themselves. Of course, the study of Knight et al. refers to rural China which is culturally and economically very different from Germany, but this demonstrates the importance of the local area for social comparisons.

From the perspective of social comparison life satisfaction increases when the comparison with the neighborhood leads to a positive result and decreases when leading to a negative result for the person who compares and evaluates. According to that we follow the relative deprivation approach (Runciman, 1966). Relative deprivation is the experience of being deprived of something to which one thinks one is entitled: People that are in relation to their neighborhood relatively deprived are unhappier. However, Senik (2007) concludes from her empirical analysis that comparisons are asymmetric, “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 the living conditions 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 that, it is not impossible that some people living in a less well neighborhood are happier than people with a better neighborhood because the latter are relative deprived to their neighborhood and the other are e.g. socioeconomically better suited than their neighbors.

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<sup>1</sup> Clark/Frijters/Shields (2008) 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.

## 1. Literature Review

Studies who consider the neighborhood context as a relevant variable in the prediction of life satisfaction are seldom and the results are ambiguous. Some studies find a positive effect others don't. One main problem to evaluate these findings is that these studies are difficult to compare. One reason is the use of very different and sometimes broad concepts of neighborhood, e.g. it is often the case that neighborhood is defined at the level of counties or zip code areas.

For the USA, Fernandez and Kulik (1981) come to the conclusion that life satisfaction decreases with the cost of living in the neighborhood, however the individual income level and the average income in the residential area do not affect subjective well being. People living in a rural area are happier with their life. The scale to measure neighborhood is based on sampling points (NORCS) covering 100 inhabitants on average. Problematic is the fact that the information about the neighborhood is not exogenous, but based on the respondent in this 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 out that stable communities with a low removal rate have a positive impact on life satisfaction only in rich residential areas. Stability in poor area 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.

Sirgy and Cornwell (2002) have researched the relationship between general satisfaction and the satisfaction in different life domains. The study shows that the physical, economical and social compositions of the residents influence one's satisfaction with housing and neighborhood and again this affects general life satisfaction. To cover local conditions the authors use subjective evaluations of the respondents about their neighborhood, keeping it to the respondents to decide what exact meaning of neighborhood matters.<sup>2</sup>

The Australian study of Evans and Kelly (2002) affirms the importance of the level of social integration for individual life satisfaction. The satisfaction level of the respondent is significantly higher in neighborhoods with more social contacts and friendships. The scale to measure neighborhood is based at a zip code level.

Also for Australia Shields and Wooden (2003) found out that the average income, the rate of unemployment and the demographic structure of the neighborhood do not influence the level of satisfaction. In this study neighborhood was defined as around 250 household per unit. The authors

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<sup>2</sup> This is the same procedure as in SOEP data we use for subjective evaluations of the neighborhood.

showed that neighborhood is mostly a homogenous unit. If individual life satisfaction was high it was also very likely that their neighbors were very happy about their life.

The U.S. study of Luttmer (2005) has proofed the importance of neighborhood as a point of social comparison. Increases of the average income and increases in the consumption of goods negatively influence life satisfaction if the individual income and the consumption habits don't change. However, with 150000 persons on average Luttmer uses a very large research unit.

For Germany Knies et al. (2007) have tested the impact of neighborhood's income on people life satisfaction. The analyses show that individual life satisfaction increase with the spending power in the neighborhood. This effect is not very strong and not significant when controlling for East and West Germany. A lower income relative to the neighborhood doesn't decrease individual well being. With SOEP the authors use the same data set that we will use in our study. Different to our data Knies et al. research are 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 (they use) covers 9000 inhabitants in average, and this size is maybe to large to identify a comparison effect. Differently to Knies et al. we will measure neighborhood characteristics on by far smaller scale than on a zip code level, using data on street section or building level.

As already noted, studies about well being and neighborhood are based on different neighborhood concepts. The bigger the neighborhood units are and the more space and inhabitants these units cover the bigger will be the risk to underestimate context effects. Nonnenmacher (2007) finds out 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, using data on three German cities (Hamburg, Kiel and Munich). Apart from the availability of data, these results also affirm our decision to apply a very local scale to measure neighborhood in our study.

### **III. Study**

#### **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 households (for details see Wagner et al. 2007 or Goebel et al. 2008). 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 Old and New German States (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 feature<sup>3</sup> of SOEP, this data is linked to the normal SOEP panel data at the level of the proper addresses of every single household in SOEP since 2000. The MOSAIC data system contains more than 75 characteristics mostly 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 (at least five households, because of necessary 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 to the specific household within the SOEP sample.

We make use of data on building or street section level, the building level covers on average 8 households and the street section level on average 25 households. It is very seldom that these local units contain more than one household from SOEP.<sup>4</sup> For the year 2004 97% of all 11796 SOEP-Household (22012 Persons) could be enriched with data of Microm. However, the microm data is based on very different sources which are available at different territorial levels and is not always documented transparently as Microm normally provides their data for commercial purposes (Goebel et al. 2007).

In this study we make use of the microm variable "socioeconomic status of the neighborhood" in our analysis. This index classifies household social status into an equally distributed 9-point scale variable and is mainly based 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.<sup>5</sup>

The impact of neighborhood characteristic 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' neighborhood. However, the panel approach provides the possibility to control for individual fixed traits (Ferrer-i-Carbonell/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.

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

<sup>4</sup> The average number of households in SOEP located at the same street section is 1.4 and within a building is 1.02.

<sup>5</sup> The difficulty is that neighborhood effects could be overestimated (unobserved characteristics of the neighborhood). One might argue that it is upward-biased because we do not control for other things that are correlated with on-average higher neighborhood incomes. Residents in these richer neighborhoods may have access to institutions to which the residents of poorer neighborhoods do not have access, or the quality of the institutions may be better.



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

## 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).<sup>6</sup> Although single studies show variations in follow ups within a short period (Krueger/Skade, 2007) many other studies proof high reliability and temporary constancy for indicators with similar scales (Diener et al. 1985, 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 9-scale index cover household and individual information about the level of occupation, the rate of self-employed, purchasing power, registered car etc. The hypothesis is that persons who live in neighborhoods with a higher socioeconomic status are more satisfied with their life. Neighbors differently benefit from good living conditions: higher socioeconomic status means or implies

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

According to the social comparison approach we assume that people with higher status than their neighbors are happier with their life than persons who are relative deprived to the neighborhood. The social gap within the neighborhood will be measured with *status differences* between the respondent and the neighborhood. It is the difference between the respondent’s equalized<sup>7</sup> household income of the previous year, recoded to cover 9 quantiles, and the neighborhood status, which also describes 9 quantiles. The resulting variable has a range from -8 to 8 and was splitted into two variables covering the negative or positive values, with the respective other values recoded to zero.

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<sup>6</sup> The original version of the question (apart from a translation into English) can be found in the appendix in figure A.1.

<sup>7</sup>We applying the modified OECD scale, assigning 1 to the first person in the household and .5 to every other person aged older than 14 and .3 to all children under the age of 15.

To test the influence of social ties and stability in the neighborhood we make use of the rate of removals. According to 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 poor area implies helplessness to cope with difficult living conditions and diminishes well being.

### ***Additional variables in the 2004 cross-section***

The cross-sectional analysis for the year 2004 allows us to measure social problems in the neighborhood indirectly by the subjective *perception of crime* in the local area. People who are worried about crime in their neighborhood should feel less secure and less happy.

For 2004 we are also able to consider the influence of *social ties in the neighborhood*. Persons with more and close contacts with neighbors should be happier with their life because of their better social integration.

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

### ***Personality traits and locus of control***

In addition the SOEP data allows us to include *personality traits* as explanatory variables. Referring to the so called bottom up approaches we will test how strong personality traits affect life satisfaction. We therefore use 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 to measure these both concepts are derived from the SOEP Variables available in the 2005 data using a factor analysis with orthogonal varimax rotation (see Gerlitz/Schupp, 2005 and Dehne/Schupp, 2007).<sup>8</sup>

The “Big Five” are “Openness”, “Conscientiousness”, “Extraversion”, “Agreeableness” and “Neuroticism”: “Openness“ is characterized by the appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience. People with high on “Conscientiousness” have the tendency to show self-discipline, act dutifully, and aim for achievement; they show planned rather than spontaneous behavior. Symptomatic for

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<sup>8</sup> 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.

“Extraversion” is a high energy level and expressions of positive emotions, people with high on “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 .38 with well being at the zero order level. Furthermore when multiple diverse method of measurement were used to model the association between extraversion and well being the correlation often approached .80. The analysis of De Nevo and Cooper (1998) show that big five dimensions of agreeableness and conscientiousness correlated approximately .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/Schupp 2005).

Locus of control (Rotter, 1966) can either be internal or external. Internals tend to attribute outcomes of events to their own control. Externally controlled people tend to believe that their lives are strongly influenced by powerful others (external locus). There is also empirical evidence that internal locus of control is significantly high correlated with life satisfaction (Diener et al. 1999). Internals more believe they could control their own destiny. Therefore they are more active and try to take control over events in contrast to individuals with external locus of control. Contrary to that individuals with external locus of control feel more powerless in terms of controlling their success or failure (DeNeve/Cooper, 1998).<sup>9</sup> Locus of Control was measured in SOEP in 2005 with the scale developed for German language used by Krampen (1981).

### **3. Empirical Results**

#### **3.1 Descriptive Results**

Graph 1 shows the distribution of differences between the income status of a person<sup>10</sup> and the neighborhood status provided by microm. The empirical distribution follows quite closely a normal distribution. The graph indicates that the most densely populated category is zero; “no difference” between ones one status and the status of the neighborhood, i.e. 14% of our population live in a neighborhood with the same individual economic status On the other side this

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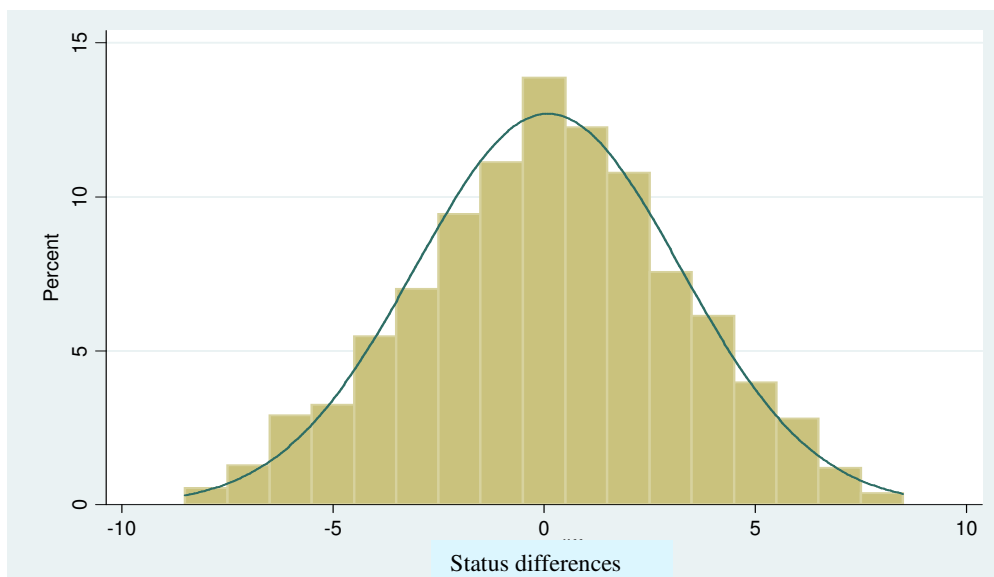
<sup>9</sup> Conversely, studies about well being of elderly people have indicated that older adults who show a tendency towards internal locus of control have lower life satisfaction than those with an external locus of control (Rogers, 1999). It may be that older individuals who are externally focused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

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

does also show that we have for the majority of our sample (86%) differences between own 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 market this is very comprehensible. 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.

**Graph 1: Status differences within the neighborhood**



Source: SOEP/microm 2006, Authors calculations

Table 1 shows the mean of individual life satisfaction in different neighborhoods and according to the observed status differences.<sup>11</sup> Under the condition that there is no difference between people's income status and the socioeconomic status the individual life satisfaction increases with the level of neighborhood status. People who live in a neighborhood characterized by high levels of education and economics are happier than people who live in areas with bad socioeconomic conditions around.

Comparing people living in neighborhoods with the same status but with a different position compared to their neighborhood we'll see that people who have a higher status than their neighbours (positive difference) are more satisfied with their life. 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

<sup>11</sup> The satisfaction means by neighborhood status and household income quantils could be found in the appendix in table A.1.

averaged neighborhood but with a worse economic situation than in the neighborhood where they live (negative status difference). However, one explanation for could be that that these differences occur only due to the personal income situation or other individual characteristics, therefore we will apply in the next step multivariate methods.

**Table 1: Mean of Individual Life Satisfaction in the contexts of different neighborhoods – 2004**

Neighborhood status	Status difference		
	no	negative	positive
Lowest status	6.2		6.7
Quite below the average	6.2		7.1
Below the average status	6.4		6.8
Slight below the average status	6.4		7.1
Average status	6.7	5.8	7.5
Slight above the average status	6.8	6.1	
Above the average status	6.9	6.3	
Quite above the average status	6.8	6.4	
Highest status	7.2	6.6	

Source: SOEP/microm 2006, Authors calculations

### 3.2 Cross-Sectional Regression Model

The regression results for West Germany show that life satisfaction slightly but significantly increase with the level of the neighborhood status using cross-sectional data for 2004. The same is true for people in the old member states who live in neighborhoods with better socioeconomic conditions, they are also happier with their life. However, this absolute neighborhood status effect for East Germany is very slight and not significant when controlling for personality.

A remarkable effect of the neighborhood refers to the safety of the residential area. The analysis show for the old and new member states of Germany that people who feel unsafe because of the level of local crime in their residential area are less satisfied with their life. 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 the local area it's not possible to deduce from the subjective to objective measures. However, these results show that the perception of safety

especially the fear of crime has to be considered in quality of life research and life satisfaction.

Our analysis so far also confirms in part the relative effect of the neighborhood status. The regressions results show that people in West Germany are significantly more satisfied when their status level is higher than the status level in their neighborhood, even when controlling for own current income, in East Germany this effect is not significant. A negative status difference towards the neighborhood has a negative impact on life satisfaction but this effect is not significant for West-Germany.

Social neighborhood networks have the strongest effects in comparison with other neighborhood aspects in both country sides. Life satisfaction is higher for people receiving more visits or often visits their neighbors. These results confirm the great importance of social cohesion at the local level for happiness. The rate of removals in the residential area has a slight negative effect for life satisfaction, but is significant only for East Germany. There is no remarkable interaction effect between the neighborhood status and the rate of removals. Stability in poor area (neighborhood with the lowest status) doesn't 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 if the neighborhood as a point of social comparison is more relevant in different groups. The idea was that people who socialize with their neighbors compare more with them. Analyses with an interaction term between social contacts and status difference show that the status difference has no 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 of more importance than the big five. People who tend to attribute outcomes of events to their own control are more satisfied with their life and contrary to that people with an external locus of control are significantly less satisfied. The internal locus of control 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 life. However, in our study this effect of “Neuroticism” is significant only for West Germany. Individuals who have an appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and variety of experience and therefore score highly on “Openness” are happier in both parts of Germany. People with a distinct tendency to be compassionate and cooperative with a high level of “Agreeableness” are significantly less satisfied with their life (only for West Germany). Only for East Germany the “Conscientiousness” dimension of personality (high level of self-discipline) significantly decreases the level of life satisfaction.

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

The OLS Model considerably explains the variance of life satisfaction. 38% for the West Germans life satisfaction and respectively 36% for the East Germans life satisfaction can be explained by the selected determinants.

**Table 2:** Regression of Life Satisfaction for West and East Germany (2004)

	West Germany		East Germany	
		Controlling for Personality		Controlling for Personality
<b>NEIGHBORHOOD</b>				
<b>Living Conditions</b>				
Neighborhood status	0,04**	0,04**	0,05*	0,02
Fear of local crime (dich.)	-0,27**	-0,25**	-0,24**	-0,21*
<b>Social Comparison</b>				
Positive status difference	0,06**	0,05**	-0,02	-0,03
Negative status difference	-0,02	-0,02	-0,07**	-0,06*
<b>Social Cohesiveness</b>				
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
<b>Personality</b>				
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
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 <sup>2</sup> )	0,00**	0,00**	0,00**	0,00**
Income (equivalent household income)	0,00**	0,00**	0,00**	0,00**
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	10944	10446	3719	3610
R-squared	0,36	0,38	0,35	0,36

Absolute value of t statistics in parentheses, \* significant at 5%; \*\* significant at 1%



### 3.3 Neighborhood effects when controlling for individual fixed effects

In the following we will test if neighborhood effects remain stable when controlling for individual fixed effects. Although the prediction of changes in life satisfaction (fixed effects models) is overall only nine percent (East Germany: eight), the panel estimations validate the robustness of our findings in OLS Regressions (Table 3).<sup>12</sup>

The panel model for the period 2000-2006 shows that both effects of the neighborhood (absolute and relative) are stable. Life satisfaction enhances when the neighborhood status increases. The panel regressions also reveal an effect of status difference for West- and East Germany. People who improve their income status and therefore enhance their positive status difference (or respectively a change in the neighborhood status) 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 .04 in West Germany to .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 inline 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. Especially 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 to the low performance of the German labor market and the raise in income inequality and income poverty within this period.

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

**Table 3:** Fixed effect Panel Model of Life Satisfaction for West and East Germany (2000-2006)

	<b>West Germany</b>	<b>East Germany</b>
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)*
Removals	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 sq.	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)
<i>Marital Status (Ref.: married)</i>		
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)**
<i>Subjective health state (Ref: very good)</i>		
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)**
<i>City Size (Ref.: Less than 100,000 Inhabitants)</i>		
>100t - <=200t	-0,037 (-0,53)	-0,024 (-0,14)
>200t - <=300t	0,216 (2.45)*	0,524 (2.74)**
>300t	-0,045 (-0,97)	-0,034 (-0,34)
<i>Year (Ref: 2000)</i>		
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	93437	31779
Number of Persons	20598	6651
R-sq (within)	0.09	0.08
F statistic	270.47	83.63

#### 4. 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 (Microm). Both 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 the perception of safety in the neighborhood is highly relevant for subjective well being. People who feel unsafe in their residential area because of 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 with controlling for individual fixed effects). We could 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 close neighborhood.

Life satisfaction is higher when the person lives in a neighborhood with a higher socioeconomic status. These results also maintains when controlling for 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 or 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 the neighborhood status exist and this implicates the relevance 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 their own status and vice versa. According to the longitudinal results we find (a slight) asymmetric effect of comparisons with a stronger effect if under-performing one's benchmark which is inline with findings of Senik (2007) for 25 transition countries. Additionally to the empirical findings that neighborhood functions as a point of comparison to judge the own life situation we find support for the social cohesion function of the neighborhood and it's relevance for happiness. People who are more in touch with their neighbors are more satisfied with their life.

## 5. References

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## 5. Appendix

**Table A.1:** Mean of satisfaction by neighborhood status and income quantile


Neighborhood Status	Income quantile <sup>a</sup>									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
Quite 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 status	6.3	6.5	6.6	6.8	6.9	6.9	7.1	7.2	7.0	6.8
Slight below the average status	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
Slight above the average status	6.4	6.5	6.7	6.9	7.0	7.2	7.2	7.0	7.5	7.0
Above the average status	6.3	6.8	7.1	7.0	7.0	7.1	7.1	7.2	7.4	7.0
Quite above the average status	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
<b>Total</b>	<b>6.2</b>	<b>6.5</b>	<b>6.7</b>	<b>6.8</b>	<b>6.9</b>	<b>7.0</b>	<b>7.1</b>	<b>7.2</b>	<b>7.4</b>	<b>6.9</b>

Source: SOEP 2000-2006, pooled cross-sections, weighted estimations.

<sup>a</sup> Annual equivalized net household income of previous year.

**Figure A.1:** Measuring Life Satisfaction, SOEP 1984-2007

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