Tourism intensity impact on satisfaction with life of German residents

Oksana Tokarchuk[1], Roberto Gabriele[2] and Oswin Maurer[3]

Abstract

Tourism researchers as well as policy makers are interested in knowing the impact of tourism on residents' life. Recent studies address this issue by looking at residents' quality of life measures. These studies, however, are based on convenience sample with investigation that is usually limited to one single destination at a given point of time. Meanwhile, tourism destination takes years to develop and residents' wellbeing is affected differently depending on the development stage of the destination (Kim et al., 2013). Socio-economic characteristics of individuals have strong effect on the perception of tourism impact (Sharpley, 2014).

In the present study we investigate the impact of tourism intensity on residents' satisfaction with life. The analysis is based on a representative socio-economic panel of German residents (SOEP) over a period from 2000 to 2011. The analysis conducted in the present paper involves the whole country distinguishing tourism destinations at administrative districts level.

Keywords: satisfaction with life, tourism impact, residents, Germany

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1 Introduction

Tourism development is a strategy being chosen by many developed countries in order to stimulate economic development and employment in the era of manufacturing relocation to cheap labor countries. Tourism development is associated with creation of new jobs, income generation, infrastructure development, and cultural life boost in the destination (Wall and Mathieson, 2006). However, tourism growth leads to costs for the local community such as traffic congestion, increase in the cost of living in the area, lost of local identity and authenticity, pollution, etc. (for a review Harril, 2004; Sharpley, 2014). Policy makers aiming at increasing of local residents' wellbeing through tourism development should conduct a careful examination of costs and benefits related with tourism expansion. The majority of studies dealing with tourism influence on life of residents investigated perception of or attitude toward tourism. These studies provide a measure of general acceptance of tourism development but fail to provide insight for decision-makers on whether tourism expansion leads to residents' wellbeing enhancement.

A possible way of studying influence of tourism on life of locals is to study the effect of tourism on subjective wellbeing measures. These measures like satisfaction with life, happiness or quality of life, received recent attention by economists for their capacity to reflect a more broader measure of individual subjective welfare than the one provided by objective measures like GDP, employment rate, crime rate and others (Kahneman and Sugden, 2005).

Recent studies on tourism impact address individual wellbeing measures of residents (i.e. Kim et al., 2012; Woo et al, 2015). These studies find positive relationship between tourism perception and residents' quality of life. However, these studies are based on limited-size convenience samples of interviewed residents in a single destination. While these studies are informative from the point of view of the destination under analysis their results cannot be extended to the whole population. Moreover, these studies are limited to observation of the tourism impact measured at a given time.

Meanwhile, tourism development is a dynamic process and residents' perception of tourism impact may vary according to a stage of tourism development.

The present study addresses these limitations present in the literature and investigates the impact of tourism on life of residents. We study influence of tourism on residents' wellbeing on the example of a whole country. Germany was chosen as a case study for the present investigation. Germany for a long period of time was the main European market of outgoing tourism. Nowadays it is gaining grounds as destination for incoming tourism. Tourism in Germany enjoyed an important growth in the last decade, which makes of Germany an interesting case study for investigating tourism development impact on residents' wellbeing. This case study corresponds to a context of developed country whose economic prosperity is not significantly dependent on tourism. The present research aims to discover whether in such context residents are affected by tourism development and whether the net effect is positive or negative.

Our investigation is based on data from German socio-economic panel database (SOEP). SOEP each year conducts interviews with a representative panel of German residents asking them to indicate their satisfaction with life in the current year together with collecting a whole range of socio-economic characteristics. In total SOEP includes around 15,000 households in the panel. The present study analyzes responses of 40,567 individuals interviewed on annual basis during a period from 2000 to 2011. Overall, the study is based on the analysis of 293,533 individual responses. Individuals included in the study are representative of German population, thus, the results of the study can be extended to the whole population of Germany. Availability of individual data on satisfaction with life and other socio-economic and demographic characteristics of surveyed individuals over 12-years period permits to investigate how residents' wellbeing evolved during this period and relate it to the development of tourism during this period. From this point of view, the present study constitutes a unique investigation of this relationship.

Background

Tourism impact on residents' lives is a recurrent topic in tourism research over the last several decades, which generated a large number of studies on this topic in the literature. The study of tourism impact can be generally addressed from two points of view. On one side, tourism impact on residents has been extensively studied at individual level by interviewing residents on their perception of tourism impact on their lives. This approach generated a plethora of studies as demonstrated by a series of literature reviews (Harill, 2004; Sharpley, 2014). The main focus of these studies is to find whether local population positively perceives tourism development and will support further tourism development. A series of determinants that influence such relationship is considered. Among the most frequently observed determinants of tourism support are often found household economic dependency on tourism, proximity of residence to tourism area, property ownership, length of residence, some demographic characteristics like age, income, and education (Sharpley, 2014). However, the direction of the effect of these determinants on tourism support by residents is not homogeneous, often contradictory, among different studies (Harril, 2004; Sharpley, 2014).

On the other side, the focus of some studies is placed on the impact of tourism on the society in general addressing a question of whether tourism growth is able to generate economic growth, employment growth, and foreign exchange generation (Cárdenas-García et al, 2015). These studies consider objective measures of residents' wellbeing as income growth or generation of new jobs due to tourism development. These studies consider tourism impact on the level of separate regions or, more often, countries, and relate objective measures as tourism arrivals or presence and GDP, job creation, etc., and generally, find support for tourism-led growth (Brida and Giuliani, 2013).

However, objective measures like GDP growth or new jobs creation address only some aspects of residents' life that contribute to their wellbeing (Kahneman and Sugden, 2005). Recently, economists moved their attention to the adoption of subjective well-being measures that capture

overall welfare of individuals (Stiglitz et al., 2009). Recent studies on tourism impact consider a wider concept of residents' wellbeing as life satisfaction and quality of life (Kim et al., 2012; Woo et al, 2015). These studies focus on individual residents' perception of tourism impact on their life and aim to establish whether this perception influences their quality of life measure. The results show a positive relationship between perception of tourism development and residents' life satisfaction (Stiglitz et al., 2009).

This research is conducted by taking one single destination at a given moment of time as a case study. This analysis is informative for the analyzed destination at the moment of analysis; however, it has limited contribution to general advancement of knowledge on tourism impact. Although few studies consider several destinations within one country (Kim et al., 2013) or compare destinations in several countries (Tosun, 2002), they fail to provide a unique comparable base between analyzed destinations. As a consequence their results may not be extended to other destinations.

Tourism development implies dynamic changes in the state of tourism, while the studies investigating impact of tourism development neglect the dynamic nature embedded in tourism (Sharpley, 2014). There have been few attempts to address longitudinal nature of tourism in the literature (Huh and Vogt, 2008). However, these studies were based on observations collected with the help of similar questionnaires at two, or several, different years. This type of data permits to compare attitudes of residents with respect to tourism at two time periods but they fail to explore the dynamics between these periods.

Studies on tourism perception by residents agree on the fact that residents' attitudes toward tourism are not homogeneous with respect to their socio-economic status (Sharpley et al., 2014). Due to this particular sensibility of results with respect to the individual characteristics it is important to base this type of studies on representative sample of population. Existing studies investigating tourism impact are based on data collected prevalently with the help of convenience sampling. Some studies that tend to implement some sort of sample design, as, for example, Andereck and Nypane (2011)

or Woo et al. (2015), suffer from low response rate typical for this type of studies resulting in biased sample.

The present study aims to overcome some of these limitations. First of all, it considers satisfaction with life as an overall measure of wellbeing of residents. The aim of the study is to investigate whether development of tourists' flows over years affects satisfaction with life of residents in Germany. Analysis is based on a representative sample of German residents. The present study extends analysis presented in Tokarchuk, Gabriele and Maurer (2015) conducted on a sample of 10 German cities by including all 402 German administrative districts. This allows comparing residents' wellbeing in areas characterized by intense tourism development with residents in areas that do not face tourism development. Finally, the longitudinal nature of tourism is accounted for through confronting residents' satisfaction with life and tourism flows over 12 years (from 2000 to 2011). It permits to track the changes in residents' wellbeing in relation to tourists' presence at destination accounting for its variation over years.

Conceptual model

Existing research in tourism demonstrates that tourism does have effect on quality of life (i.e. Andereck and Nypane, 2011; Kim et al., 2012; Wo et al., 2015). Previous studies on tourism impact on residents' wellbeing modeled overall individual satisfaction with life to derive from satisfaction with several life domains. For example, Kim et al. (2012) considered satisfaction with community, material, emotional and health and safety domains as the sources of overall satisfaction with life. Woo et al (2015) grouped all life domains into material and nonmaterial life domains.

In the present study we adopt a variant of life domains model of quality of life that was developed in Tokarchuk, Gabriele and Maurer (2015). This model assumes that general satisfaction with life of residents is affected by their satisfaction in eight life domains: health, work, material wellbeing, community life, personal safety, quality of the environment, emotional wellbeing, and family life

(Figure 1). According to this model tourism development influences satisfaction with life of residents as a component of community life domain.

Methodology

The dependent variable used in this study is "Current satisfaction with life" (sat), a categorical ordinal variable with 11 possible outcomes ranging from "0" (low satisfaction with life) to "10" (high satisfaction with life). The discrete nature of the dependent variable led to the choice of an ordered logistic model as suggested in econometric literature (Cameron and Trivedi, 2005). It is assumed that an underlying latent continuous variable model generates the ordered responses of the current life satisfaction:

$$sat_{it}^{*} = X_{it}^{'}\beta_1 + Z_{jt}^{'}\beta_2 + \alpha_t + \gamma_j + u_{ijt} \qquad (1)$$

where the subscript i=1,…,I refers to individuals, j=1,..J refers to the city and t=2000,…,2011 to the year of observation.

In our model, individual satisfaction with life is determined by variables measured at two levels: individual and district level. In particular, our variable of interest, tourism intensity, is measured at district level while all other variables correspond to individual level. Accordingly, we separate the independent variables used into two sets: X_{it} is a vector of individual level variables in year t, and it does not include the intercept; Z_{jt} is a district level set of variables, which includes the variable of interest, namely tourists' nights per resident in the district. In order to account for unobservable idiosyncratic effects related with time and district of residence, two sets of dummy variables are included: one for time (α_t) modeled with a series of time dummies, and another one for district level effects (γ_j), modeled with a set of district dummies.

Our investigation aims at studying the role of tourism density (represented as tourists' nights per resident at district level in Germany) on individual satisfaction with life, controlling for individual level determinants of perceived satisfaction with life. In order to reach this goal, variables observed at individual level and variables observed at an aggregate level corresponding to the district of residence of individual are included in the regression. Under these conditions, the use of a standard regression model that does not take into account such a double-level nature of variables can lead to downward biased standard errors for the estimated coefficients of the aggregate level variables, resulting in spurious findings (Moulton, 1986, 1990). Consequently, the estimators are modified so that correlation between errors of all individuals living in the same district is assumed. In particular, we assume that residents of the same district are exposed to the presence of tourism in the same way. Individuals are affected by tourism flows to their district of residence but not to other districts included in the sample.

We assume district level clustered standard errors, reflecting within group correlation. More formally, this modification leads to the introduction of an error component u_{ijt} for our benchmark model expressed by equation (1), Model 1, with the variance-covariance structure denoted by a block matrix in which the cities represent the blocks.

In Model 1, the probability of being in a particular satisfaction with life category h for an individual i in time t is given by:

$$Prob(sat_{it}=h)=Prob(cut_{h-1}< sat_{it}^{*}<cut_{h})=$$

$$=F(cut_{h}- X_{it}^{'}\beta_1 - Z_{jt}^{'}\beta_2 -\alpha_t-\gamma_j)- F(cut_{h-1}- X_{it}^{'}\beta_1 - Z_{jt}^{'}\beta_2 -\alpha_t-\gamma_j) \quad (2)$$

where F(.) is the cumulative logistic distribution. In such model, we are interested in assessing how changes in the predictors, in particular tourism density, lead to changes in the probability of observing a particular ordinal outcome for satisfaction with life. The estimated coefficients β_1 and β_2 provide information about the sign and the intensity of the relationship between the latent

dependent variable sat* and the regressors.

Data and variables

The present study is based on data retrieved from German Socio-Economic Panel (SOEP). SOEP is a wide-ranging representative and longitudinal study of private households in Germany, administrated by the German Institute for Economic Research, DIW Berlin (Wagner et al., 2007). Every year, nearly 15,000 households, and about 25,000 persons were sampled through a fieldwork organization. SOEP was started in 1984 and the data provides information on all German resident members of the households surveyed.

In the present investigation we include responses of all individual members of the panel annually interviewed during the period from 2000 to 2011. These individuals reside in one of 402 German administrative districts (corresponding to NUTS 3 level).

The sample of German individuals was complemented with data on the intensity of tourism at district level[1], obtained from INKAR (BBR, 2015), which comprises a wide range of official regional data, indicators and maps for Germany containing information on the regional structure and distribution of population, employment, industry sectors, levels of education, production, and wages. In the present study INKAR information on the number of tourist nights per resident was used.

The resulting database (SOEPGER, henceforth) consists of 40,567 individuals observed for different periods within the time period from 2000 to 2011. The overall number of observations, i.e. individual and year, is 239,533[2]. This database includes observations on a representative sample of German residents and tourism intensity at NUTS3 level.

INSERT TABLE 1 HERE

[1] Districts' level is the most detailed level at which statistical data on tourism is available for the whole country of Germany

2 SOEP implements rotating panel methodology according to which individuals are involved into the survey for several years and then are substituted by other respondents (Wagner et al., 2007).

Table 1 provides temporal distribution of SOEPGER database.

Descriptive statistics

Table 2 presents correspondence of variables chosen from the SOEP dataset to represent each life domain considered in the model presented in Figure 1 to form SOEPGER dataset as well as descriptive statistics for these variables.

INSERT TABLE 2 HERE

Individual satisfaction with life is measured annually. It is a categorical variable that takes values from 0 to 11 (0 corresponds to the lowest satisfaction with life, 10 to the highest). Average satisfaction with life of components of the sample corresponds to 6.99.

Our variable of interest, tourism impact, is tourism intensity at the district level. This variable is measured as number of tourists' nights per resident in the district. Tourism intensity was chosen as a proxy of tourism impact due to the availability of the data from INKAR database (BBR, 2015) for the whole period under analysis. Average tourism intensity during the analyzed period corresponds to 3.96 tourists' nights per resident. However, tourism intensity in Germany present considerable variation between districts and within time. For example, in 2011 Ostholstein, district with the highest tourism intensity, faced tourism intensity as high as 44.1 tourists' nights per resident, while in 2000 it corresponded to 38.4 tourists' nights per resident. The district with lowest tourism intensity in the sample is Aichach-Friedberg district. In 2000 its tourism intensity was as low as 0.2 tourists' nights per resident, while in 2011 it corresponded to 0.5 tourists' nights per resident.

A second variable that measures community life corresponds to the type of area of residence of the individual and is measured at individual level. 6% of individuals in the dataset reside in the old residential area.

Satisfaction with health domain is assessed with variable satisfaction with health. This variable is a categorical variable ranging from 0 to 10 (0 corresponds to the lowest satisfaction with health, 10 to the highest). Average satisfaction with health of individuals in the sample corresponds to 6.64.

Work domain is evaluated by several variables. For working individuals they include satisfaction

with work, weekly work time and a dummy variable "commuting to work". For nonworking individuals dummies "Being retired" and "Being unemployed" provide assessment of work domain. On average working individuals report satisfaction with work at 6.93 measured on a scale from 0 to 10 (0 corresponds to the lowest satisfaction with work, 10 to the highest). On average they work 38.86 hours per week. 29% of individuals report that their commute to work takes longer than 45 minutes. 5% of the individuals in the sample are unemployed while 19% are retired. 81% of individuals constitute active working force.

Material domain is assessed by individual net labor income and ownership of the dwelling. Average net labor income corresponds to 1,602.80 euro per month. 53% of individuals in the sample own their dwelling of residence.

Personal security domain is evaluated by variables measuring concerns with job security and worries about crime. Both variables are categorical ranging from 1 to 3 (1 – not worried at all, 3 – very concerned). Individuals in the sample express some concern about their job, with average response of 2.31. There is less concern about crime with average reported worry about crime corresponding to 1.86.

Environment domain is assessed by variable "worries about environment". It is a categorical variable ranging from 1 to 3 (1 – not worried at all, 3 – very concerned). Average response of individuals for this variable corresponds to 1.87.

Emotional domain is assessed by variable "Satisfaction with leisure life". It is a categorical variable ranging from 0 to 10 (0 corresponds to the lowest satisfaction with health, 10 to the highest). Average satisfaction with leisure life of individuals in the sample corresponds to 7.05.

Family life domain is evaluated by a set of variables. Among them composition of the household, on average household of individuals in the sample is composed of 2.71 persons. 61% of individuals live with a steady partner. 16% of families have one child, 11% have two children, 4% have more than two children.

Germany as tourism destination

The empirical analysis conducted in the present paper is based on a case of Germany. The choice of Germany is dictated by the availability of data obtained from German Socio-Economic Panel. Moreover, Germany is a developed country, which results to be the seventh most visited country in the world. Since 1993 the annual overnight stays by international visitors in Germany grew by 80% resulting in 68.8 million overnight stays in 2012. Destination Germany is the second, after Spain, most popular destination for Europeans with 45.8 million stays in 2012, resulting top-business and top-cultural destination. 75% of visitors from abroad stayed in hotel type of accommodation. Domestic tourism accounts for 338.4 million overnight stays (GNTB, 2013).

In 2010 direct tourism expenditure accounted for 4.4% of the destination's GDP and 7% of total employment. Including indirect and induced effects tourism impact on GDP increases to 9.7% (DIWecon, 2012).

Results

Table 3 presents the estimation results of the model and table 4 reports the estimated corresponding cutoff points[3]. The model presents estimated cutoff points that are ordered, significant and not overlapping. This fact ensures positive probabilities of belonging to one of the categories, concluding that the model's fit is good.

INSERT TABLE 3 HERE

INSERT TABLE 4 HERE

[3] In our empirical investigation we tried also to implement the random effect panel data model. However, it was not possible to reach convergence of the algorithm independently of employed functional form. This problem arises due to a large sample size corresponding to 239,533 observations and to the complexity of underlying theoretical model.

Empirical estimation reported in Table 3 provides support for our theoretical model. All domains are significantly correlated with general satisfaction with life. In line with existing literature satisfaction with health presents strong positive relationship with satisfaction with life (Van Praag et al, 2003). Individuals who are more satisfied with their work are also more satisfied with life in general. At the same time commuting to work negatively affects satisfaction with life. Being retired boosts the levels of satisfaction with life as widely demonstrated in literature (Hetschko et al., 2014). The material domain, represented by "Individual net labor income" and "Homeowner" contributes positively and in a significant way to overall life satisfaction similar to results in Ferrer-i Carbonell (2005) and Deaton (2008). Concerns about environment quality negatively affect satisfaction with life. Individuals' satisfaction with amount of leisure time is positively related with general level of wellbeing as is reported in Nawijn and Veenhoven (2011). Finally, in family life domain the number of household members and presence of steady partner positively affect life satisfaction. Presence of children has negative effect on life satisfaction.

Community life domain presents positive and significant relationship with life satisfaction. Tourism intensity in the community measured at district level affects satisfaction with life in a positive and strongly significant way. It means that increase in the presence of tourists with respect to residents in the district on average positively contributes to the overall satisfaction with life of residents. At the same time this results suggests that individuals living in districts with higher tourism intensity one average are more satisfied with their lives.

In order to check whether this relationship has non-linear nature we included tourism intensity squared term into the regression. The coefficient related to this variable is negative but not significant. If the coefficient were significant data would indicate that there exists an upper limit on the growth in tourism intensity that leads to positive effect on life satisfaction. Given that the coefficient is not significant we can conclude that there is a tendency for the presence of an upper limit but it is not present in the data in a strong way.

Discussion and Conclusions

The present study addresses the impact of tourism development on residents' wellbeing. The originality of our research lies in the fact that it is conducted on a representative sample of German residents included in SOEP. The representativeness of the sample ensures that individuals residing in all districts in Germany as well as of all socio-demographic strata are included in the analysis. As a consequence, our result can be extended to the whole German population.

The previous studies on the impact of tourism on residents' quality of life analyzed responses from individuals collected with convenience sampling technique or some more appropriate sampling but limited to one or few tourism destinations (i.e. Kim et al, 2012; Woo et al, 2015). In these studies only residents in tourism areas are considered. By considering residents in the whole country the present investigation permits to confront the levels of life satisfaction of individuals living in traditional tourism destinations as well as in areas, which cannot be classified as touristic attractions. Inclusion of non-touristic areas allows providing a benchmark with respect to which the level of wellbeing of individuals residing in tourism destinations is confronted.

Representativeness of SOEP sample ensures that all socio-economic classes of residents in Germany are included. Previous research demonstrated that socio-economic characteristics affect individuals' perception of tourism impact and support for its further development (Sharpley, 2014).

Moreover, the present study investigates individual satisfaction with life over 12 years and relates it to corresponding tourism development in the area of residence. This permits to analyze relationship between wellbeing and tourism flows in dynamics observing the changes in the respecting levels.

Given these premises observed positive relationship between residents' life satisfaction and tourism intensity in the district of residence is of particular importance. It implies that overall utility of residents approximated by the measure of quality of life is significantly and positively affected by the presence of tourists in their district of residence. Tokarchuk, Gabriele and Maurer (2015) demonstrated this relationship for a subset of residents in urban tourism centers in Germany. The

fact that this result is robust when the analysis is extended to the whole population has very strong implications. In the case of Germany it was demonstrated that tourism has effect on GDP and job creation (DIWecon, 2012). Our study demonstrates that tourism has a more profound effect on residents' welfare as it affects their overall quality of life measured by satisfaction with life. The fact that the effect is linear and positive shows that considered at the level of the whole Germany tourism can be further developed and it will lead to positive impact on residents' quality of life.

The results of the present study should be taken with caution for developing policy implications for single destinations in Germany. Comparison between results for urban tourism reported in Tokarchuk, Gabriele and Maurer (2015) and results of the present study suggests that different destinations can experience tourism differently. In the former study the effect of tourism on residents' satisfaction with life is twice as large as the effect of tourism observed in the present study. Further investigation of different tourism destinations based on the nature of tourism, its seasonality, degree of interaction between tourists and residents at destination, etc., is needed to identify how tourism affects residents' lives.

The strength of this study represents also its weakness. Most of existing research into tourism impact on residents' quality of life is built on ad hoc surveys of residents (Sharpley, 2014). On one hand, these surveys permit to better account for underlying theoretical model and use more appropriate econometric techniques to test hypothesis. The choice of empirical estimation model in the present study is dictated by the structure of the data. Although structural equation model would be more appropriate to test the proposed theoretical model, available data does not allow for this empirical strategy.

However, theoretical and empirical model introduced in the present study can be adapted to similar type of data from other countries. This type of research can constitute a comparable basis in order to confront tourism development and understand which strategies of tourism development are more successful in different countries.

References

Andereck, K.L., and Nyapane, G.P., (2011), 'Exploring the Nature of Tourism and Quality of Life Perceptions among Residents', *Journal of Travel Research*, Vol 50, No 3, pp 248-260.

Brida, J. G., and Giuliani, D., (2013), 'Empirical assessment of the tourism-led growth hypothesis: the case of the Tirol–Südtirol–Trentino Europaregion', *Tourism Economics* Vol 19 No 4 , pp 745-760.

Bundesamt für Bauwesen und Raumordnung (BBR) (2015), 'Indikatoren und Karten zur Raumentwicklung (INKAR)', Bundesinstitut für Bau-, Stadt-, und Raumforschung, Bonn.

Cameron, A.C. and Trivedi, P.K. (2005), 'Microeconometrics: Methods and Applications', Cambridge University Press.

Cárdenas-García, P. J., Sánchez-Rivero, M., and Pulido-Fernández, J. I., (2015), 'Does Tourism Growth Influence Economic Development?', *Journal of Travel Research*, Vol 54, No 2, pp 206-221.

Deaton, A., 2008. 'Income, health, and well-being around the world: Evidence from the Gallup World Poll'. *Journal of Economic Perspectives,* Vol 22, No 2, 53–72.

DIW econ (2012), 'The economic impact of Germany's tourism industry', Federal Ministry of Economics and Technology (BMWi), Public Relations Division/L2

Ferrer-i Carbonell, A. (2005), 'Income and well-being: An empirical analysis of the comparison income effect', *Journal of Public Economics,* Vol 89, No 5–6, pp 997–1019.

GNTB (2012) '*2011 Annual Report'*, German National Tourism Board, Frankfurt.

Harrill, R. (2004), 'Residents' attitudes toward tourism development: a literature review with implications for tourism planning', *Journal of Planning Literature*, Vol 18, No 3, pp 251-266.

Hetschko, C., Knabe, A., and Schoeb, R., (2014), 'Changing Identity: Retiring From Unemployment', *The Economic Journal*, Vol 124, No 575, pp 149-166.

Huh, C., and Vogt, C. A. (2008), 'Changes in Residents' Attitudes toward Tourism over Time: A Cohort Analytical Approach', *Journal of Travel Research,* Vol 46, No 4, pp. 446-455.

Kahneman, D. and Sugden, R. (2005), 'Experienced utility as a standard of policy evaluation', *Environmental and resource economics,* Vol 32, No 1, pp 161–181.

Kim, K., Uysal, M., and Sirgy, J. (2013), 'How does tourism in a community impact the quality of life of community residents?', *Tourism Management*, Vol 36, pp 527-540.

Moulton, B. R., (1986) 'Random group effects and the precision of regression estimates', *Journal of Econometrics*, Vol 32, No 8, pp 385-397.

Moulton, B.R. (1990), 'An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units', The Review of Economics and Statistics, Vol 72, No 2, pp 334-338.

Nawijn, J., and Mitas, O. (2012), 'Resident Attitudes to Tourism and Their Effect on Subjective Well-Being: The Case of Palma de Mallorca,', *Journal of Travel Research*, Vol 51, No 5, pp 531-541.

Sharpley, R. (2014), 'Host perceptions of tourism: A review of the research', *Tourism Management*, Vol 42, No 6, pp 37-49.

Stiglitz, J., Sen, A., and Fitoussi, J. (2009), 'Report by the commission on the measurement of economic performance and social progress', http://www.stiglitz-sen- toussi.fr/en/index.htm.

Tokarchuk, O., Gabriele, R., and Maurer, O. (2015) 'Development of city tourism and wellbeing of urban residents: a case of German Magic cities', Unpublished manuscript

Tosun, C. (2002), 'Host perceptions of impacts: a comparative tourism study', *Annals of Tourism Research*, Vol 29, No 1, pp 231-253.

Van Praag, B., Frijters, P., and Ferrer-i Carbonell, A. (2003) 'The anatomy of subjective well-being' *Journal of Economic Behavior and Organization*, Vol 51, No 1, pp 29–49.

Wagner, G.G., Frick, J.R., and Schupp, J. (2007), 'The German Socio-Economic Panel Study (SOEP) - Scope, Evolution and Enhancements', *Schmollers Jahrbuch* 127, No 1, pp 139-169.

Wall, G., & Mathieson, A. (2006). *Tourism: Changes, impacts, and opportunities*. New York: Pearson Prentice Hall.

Woo, E., Kim, H., & Uysal, M. (2015), 'Life satisfaction and support for tourism development', *Annals of Tourism Research*, Vol 50, pp 84-97.

Figure 1: Bottom-up spillover model of tourism impact on residents' satisfaction with life

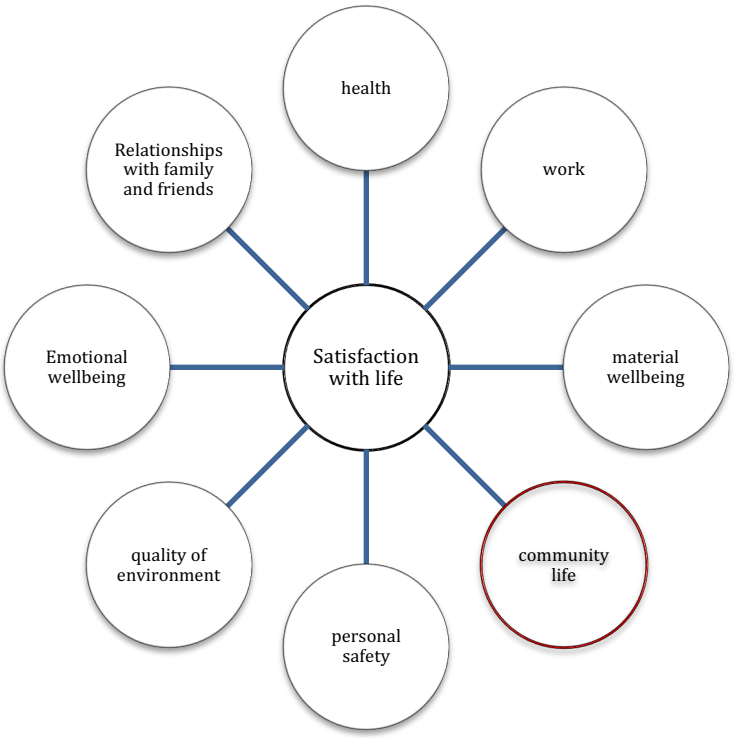

Table 1: Temporal distribution of the database SOEPGER for all Germany, number of individuals (freq.).

Survey Year	Frequency	Percent	Cumulative
2000	21,930	9.16	9.16
2001	21,064	8.79	17.95
2002	22,186	9.26	27.21
2003	21,224	8.86	36.07
2004	20,434	8.53	44.60
2005	19,625	8.19	52.80
2006	20,814	8.69	61.49
2007	19,400	8.10	69.58
2008	18,454	7.70	77.29
2009	19,487	8.14	85.42
2010	17,720	7.40	92.82
2011	17,195	7.18	100.00
Total	239,533	100.00	

Table 2: Descriptive statistics of the variables included in the econometric models *(source: SOEPGER)*.

Life domains	Name of the variable	N	mean	sd	min	max
	Current satisfaction with life	239533	6.99	1.77	0.00	10.00
Community	*Tourism intensity to the community (at city level)*	239297	3.96	4.64	0.20	44.10
	Living in an old residential area[a]	239533	0.06	0.23	0.00	1.00
Health	*Satisfaction with health*	239533	6.64	2.22	0.00	10.00
Work	*Satisfaction with work*[b]	141407	6.93	2.17	0.00	10.00
	Weekly work time[b]	131929	38.86	12.78	1.00	80.00
	Commuting to work[b]	193852	0.29	0.46	0.00	1.00
	Being unemployed (dummy)	239533	0.05	0.22	0.00	1.00
	Being retired (dummy)	239533	0.19	0.39	0.00	1.00
Material wellbeing	*Individual net labor income*[b]	131482	1602.80	1303.03	1.00	99999.00
	Homeowner (dummy)	239529	0.53	0.50	0.00	1.00
Personal security	*Worried about job security*[c]	137193	2.31	0.71	1.00	3.00
	Worried about crime[c]	239123	1.68	0.67	1.00	3.00
Environment	*Worried about environment*[c]	239533	1.87	0.62	1.00	3.00
Emotional	*Satisfaction with amount of leisure time*	239533	7.05	2.19	0.00	10.00
Family	*Number of persons in the household*	239533	2.71	1.27	1.00	14.00
	Live with a permanent partner	239533	0.61	0.49	0.00	1.00
	Dummy one child	239533	0.16	0.37	0.00	1.00
	Dummy two children	239533	0.11	0.32	0.00	1.00
	Dummy More than two children	239533	0.04	0.19	0.00	1.00
	Dummy In working force	239533	0.81	0.39	0.00	1.00

Notes: Only valid answers for each variable.
[a]: Old residential area as defined in the SOEP v29.0. [b]: Only for employed persons with valid answers. [c]: the range of the variable is from: 1 "not worried at all" to 3: "very concerned".

Table 3: Regression results. Dependent variable: current satisfaction with life (quantitative ordinal categorical variable with values from 0 to 10).

Models:	*Ordered logit* *All Germany*
	(Model 1)
Independent variables:	
Nights per resident	0.0376***(0.014)
Nights per resident Squared	-0.0004 (0.000)
Living in an old residential area[a]	0.2433*** (0.022)
Satisfaction with health	0.3781*** (0.003)
Satisfaction with work[b]	0.2874*** (0.003)
Weekly work time[b]	-0.0000 (0.000)
Commuting to work	-0.0371*** (0.011)
Being unemployed (dummy)	-0.0330 (0.096)
Being retired (dummy)	2.9553*** (0.061)
Individual net labor income[b]	0.0001*** (0.000)
Homeowner (dummy)	0.2083*** (0.012)
Worried about job security[b]	0.3659*** (0.008)
Worried about crime	0.0427*** (0.008)
Worried about environment	-0.0676*** (0.009)
Satisfaction with amount of leisure time	0.2327*** (0.003)
Number of persons in the household	0.0212*** (0.006)
Live with a permanent partner	0.2569*** (0.012)

Dummy one child	-0.0646*** (0.015)
Dummy two children	-0.0349* (0.018)
Dummy more than two children	-0.0168 (0.032)
year dummies	Y
city dummies	Y
Observations	134,885
Pseudo r squared	\
Wald chi test	113,970.39
prob > chi	<0.001

*Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parenthesis.*
*[a]: Old residential area as defined in the SOEP v29.0. [b]: The variable is interacted with the dummy indicating the working status. Formally we included in the regression the product: Var_of _interest*DWorking.*

Table 4: Estimated cutoff points of the latent variable in the ordinal models reported in Table 3. Dependent variable: current satisfaction with life.

Models:	*Ordered logit* *All Germany*
Estimated cuts of the models:	(1)
Cut 1	-0.8683***
	(0.177)
Cut 2	0.0760
	(0.169)
Cut 3	1.3260***
	(0.166)
Cut 4	2.4321***
	(0.165)
Cut 5	3.2537***
	(0.164)
Cut 6	4.6460***
	(0.165)
Cut 7	5.5647***
	(0.165)
Cut 8	7.0370***
	(0.165)
Cut 9	9.1789***
	(0.166)
Cut 10	11.0156***
	(0.167)

*Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parenthesis.*