

The impact of tourism on the wellbeing of residents

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Abstract

Tourism researchers as well as policy makers are interested in knowing the impact of tourism on residents' life. Countless studies in tourism research considered positive and negative impacts of tourism on economic, social, environmental and cultural life of residents (Wal and Mathieson, 2006). These studies, however, provide an instant picture of the situation through a cross section analysis. 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). The focus of analysis in the existing literature is limited to a single destination making it difficult to generalize obtained results.

In the present study we investigate the impact of tourism flows directly on the overall utility of residents in tourism areas through the analysis of residents' satisfaction with life. For this we unite data from socio-economic panel of German residents (SOEP) and data on tourists' flows collected by German statistical bureau. The analysis conducted in the present paper involves the whole country distinguishing tourism destinations at regional political regions (ROR) level. The present study is conducted over time period between 2006 and 2011. Longitudinal feature of SOEP permits to investigate how the growth in tourism during the analysed period affected residents' wellbeing over time. The paper discusses implications of results obtained in the present study for the tourism development policy.

Keywords

satisfaction with life, tourism impact, residents

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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. 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.. Politicians aiming at increasing of local residents' wellbeing through tourism development should conduct a careful examination of costs and benefits associated with tourism expansion.

The majority of studies dealing with tourism influence on life of residents investigated residents' perception of or their attitude toward tourism (for a review Harril, 2004; Sharpley, 2014). 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 more recent approach taken in the tourism literature considers quality of life indicators to evaluate tourism impact on lives of residents (Uysal et al, 2016). Our previous research conducted with the use of German socio-economic panel (SOEP) and reported in Tokarchuk et al (2016) investigated relationship between satisfaction with life of residents in Germany and the presence of tourists in all German counties during the period from 2000 to 2011. This analysis found that the presence of tourists has an overall positive impact on satisfaction with life of employed residents. This effect has proved to be more pronounced for residents in highly tourism intensive counties. It is less distinct and almost negligible in areas where tourism is less intense. No significant effect was observed for not employed residents.

A similar analysis by Ivlevs (2017) was based on European Social Survey. It was conducted at country level involving 32 European countries in 2002-2013. This study found negative impact of tourists' arrivals on quality of life of residents. At the same time, investigation by Okulicz-Kozaryn and Strzelecka (2017) on the same data over the period 2010-2012 at province-level found that domestic tourism contributes positively to happiness of residents and that tourism development at lower intensity has positive contribution to residents' happiness, while in highly tourism intensive provinces a nil or negative effect is observed. This evidence suggests that the level of spatial aggregation of the data is important for the analysis.

The present paper aims to analyze relationship between tourists' density and satisfaction with life of residents on a different geographical scale. This investigation is based on a dataset SOEP, that comprises individual socio-economic data on a representative sample of German residents interviewed annually. The focus of the present research is at the level of regional planning regions (ROR). Germany is divided into 96 separate RORs. ROR is agglomeration of several counties, which is done for spatial planning reasons. They generally comprise economic center and its surroundings (Knies and Spiess, 2007). With this analysis we aim to provide additional evidence on the spatial contribution of tourism to quality of life of residents. In the present study we consider a period of investigation from 2006 to 2011.

The present study contributes to the stream of literature that evaluates the impact of tourism on residents of a whole country as opposed to the study of selected tourism destinations within country. The representativeness of the sample interviewed in SOEP permits to extend the validity of the results to the whole population of the country. Longitudinal nature of the data permits to account for the dynamic nature of tourism through evaluation of eventual changes in levels of life satisfaction over 5 years and relating it to tourism flows attracted at destination

during the analyzed period.

The remainder of the paper is organized as follows: Section 2 summarizes background of the research, Section 3 gives a brief description of tourism in Germany, Section 4 outlines methodology used for the analysis, Section 5 describes the data, Section 6 presents the results, and Section 7 concludes.

Background

Evaluation of the impact of tourism on life of residents is an important topic for tourism research demonstrated by a plethora of studies conducted on this topic over the last several decades. A number of literature reviews have been conducted in order to provide a systematic account of the research done so far. From these reviews emerges that the majority of studies investigating the impact of tourism on residents' lives elicit perceptions of locals about the development of tourism in the destination and its impact on their life (Sharpley, 2014). Several types of tourism impact on life of residents are considered: social, cultural, environmental and economic. The findings of this stream of literature suggest that residents perceive positively economic benefits of tourism, especially if they are personally involved with tourism, but are often concerned with socio-cultural and environmental consequences of tourism development (Uysal et al, 2016).

The main focus of this research lies in determining individual characteristics that influence this acceptance. Among them are often found household economic dependency on tourism, proximity of residence to tourism area, property ownership, length of residence, demographic characteristics (Sharpley, 2014). Among these factors only economic dependency on tourism seem to be a stable prediction of the residents' support for tourism between different studies (Harril, 2004), while other feature present contradictory results.

The studies based on perception of tourism impact typically investigate the impact of tourism on objective measures of welfare like income increase, creation of new jobs, pollution, crime rates, etc. Objective measures, however, are able to capture only partially the aspects of life that contribute to welfare (Kahneman and Sugden, 2005). Following general tendency in economics that shifts attention to adoption of subjective well-being measures that capture overall welfare of individuals, the study of the impact of tourism on subjective measures of quality of life of residents became a major focus of recent tourism studies (Uysal et al, 2016). These studies find significant relationship between tourism development and subjective measures of quality of life of residents.

Some studies find positive impact of tourism on residents' perception of quality of life. For instance, Yamada et al (2009), Tokarchuk et al (2016) and Tokarchuk et al (2017) find positive impact of tourism on residents' life satisfaction. The findings in Okulicz-Kozaryn and Strzelecka (2017) suggest that domestic tourists' arrivals drive this positive relationship. International tourists' arrivals do not present significant relationship. However, Ivlevs (2017) finds that tourists' arrivals reduce residents' satisfaction with life.

As shown previously studies on tourism impact on life of residents reach sometimes contradictory results in terms of the effect of tourism on residents' lives and in terms of moderators of this relationship (Harril, 2004; Sharpley, 2014; Uysal et al, 2016). The reason for this may be attributed to the fact that most studies are designed as case studies investigating one particular tourism destination characterized by its stage of development, history, tourists' profile, seasonality and others. Although some research considers several destinations within

one country (Kim et al., 2013) or compares destinations in several countries (Tosun, 2002), they fail to provide a unique comparable base between analyzed destinations and hence their results cannot be extended to other destinations.

Okulicz-Kozaryn and Strzelecka (2017) and Ivlevs (2017) base their studies on European Social Survey and include 32 countries in their investigation, while the analysis is performed at country level. Our previous research reported in Tokarchuk et al (2016) and Tokarchuk et al (2017) conduct investigation on the case of Germany at a level of single counties within the whole country.

Findings of research in spatiotemporal behavior of tourists suggest that their spatial movements in the destinations are concentrated within specified itineraries, especially on a first visit to the area (Caldeira and Kastenholz, 2017). This suggests that direct contact of residents with tourists is limited to certain areas within destination and only residents who attend these areas are directly influenced by tourists' presence. However, the indirect effects of tourism development within a territory can affect all residents to a certain degree. In the present paper our interest is to study how tourism affects residents' lives by studying its impact on residents in Germany at the level of regional planning regions (ROR). Germany is divided into 96 separate RORs. ROR is agglomeration of several counties, which is done for spatial planning reasons. They generally comprise economic center and its surroundings.

Analysis of tourism impact at ROR level permits to test whether tourism extends its effects to a larger area compared to a single destination. Previous investigation reported in Tokarchuk et al (2016) conducted analysis at county level considering the whole Germany. It demonstrated that the presence of tourists has overall positive impact on satisfaction with life of residents. This effect is more pronounced for residents in highly intensive touristic destinations. It is less distinct and almost negligible in areas where tourism is less represented. The present work aims to extend the scope of the analysis to a larger territory to investigate the effects of tourism on a more extended administrative region.

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 in 2011, the last year of the analysis included in the present study, resulted (UNWTO, 2011). 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).

Methodology

The dependent variable is the satisfaction with life of individuals (SatLife) and it is an indicator variable that assumes the mutually exclusive values $j=0, 1, 2, \dots, 10$. On scale 0-low to 10-high level satisfaction with life. Under these conditions the correct model to use is given by

the ordered multinomial logit regression model (Cameron and Trivedi, 2005)⁴.

To define the model consider the following single latent variable model:

$$\text{SatLife}_i^* = \mathbf{x}'_i \boldsymbol{\beta} + u_i, \quad [1]$$

the dependent variable SatLife^* is continuous and crosses the set of unknown thresholds α_j – to be estimated – that define the categories of our dependent variable. Formally we have:

$$\text{SatLife} = j \text{ if } \alpha_{j-1} < \text{SatLife}^* < \alpha_j \quad [2]$$

Where $\alpha_0 = -\infty$ and $\alpha_{11} = +\infty$.

The probability that an individual has an index of satisfaction with life equal to j is given by:

$$\begin{aligned} \Pr(\text{SatLife} = j) &= \Pr(\alpha_{j-1} < \text{SatLife}^* < \alpha_j) = \\ &= F(\alpha_j - \mathbf{x}'_i \boldsymbol{\beta}) - F(\alpha_{j-1} - \mathbf{x}'_i \boldsymbol{\beta}) = \frac{e^{\alpha_j - \mathbf{x}'_i \boldsymbol{\beta}}}{1 + e^{\alpha_j - \mathbf{x}'_i \boldsymbol{\beta}}} - \frac{e^{\alpha_{j-1} - \mathbf{x}'_i \boldsymbol{\beta}}}{1 + e^{\alpha_{j-1} - \mathbf{x}'_i \boldsymbol{\beta}}} \end{aligned} \quad [3]$$

Where the last expression refers to the ordered logit specification of the distribution of errors u_i ($F(\cdot)$).

The model is estimated using the maximum likelihood method. Moreover, in the estimation we use robust variance estimation that helps to correct for heteroskedasticity.

Note that the estimated coefficients $\boldsymbol{\beta}$ provide information about the sign of the relationship between the latent dependent variable y^* and the regressors. To recover the marginal effects on probabilities we should consider:

$$\frac{\partial \Pr(\text{SatLife}_i = j)}{\partial x_i} = [F(\alpha_j - \mathbf{x}'_i \boldsymbol{\beta}) - F(\alpha_{j-1} - \mathbf{x}'_i \boldsymbol{\beta})] \boldsymbol{\beta} \quad [4]$$

the equation [4] gives the changes in the probability of having a satisfaction with life equal to j for a unit change in the regressors. In particular, if we select from the vector the variable of interest represented by the tourism intensity $-\mathbf{x}'_i = \text{tourint}_i$ – we can study the changes in the satisfaction with life of individuals given by a unit change in the tourism intensity of a region.

Data

The database we employ for the analysis is the result of the merge of the waves of the SOEP survey corresponding to the period from year 2006 to 2011. In particular, we built a balanced panel, i.e. we select a subsample of individuals present in all the waves in the time period under analysis and we follow them through time. The longitudinal nature of the database obtained with this procedure allows us to exploit not only the cross section but also the time series variability of the variables involved into the study.

This data was enriched by regional data on arrivals of tourists obtained from regional statistics for 96 ROR. Since SOEP contains information on ROR of the residence of the

⁴ It is also possible to use an ordered multinomial probit model. Results obtained using this model are similar to the ones reported and discussed in the paper. Tables are available on request to the authors.

individual it was possible to merge the two datasets.

In total the empirical analysis in the study is based on 98,647 observations collected over 19,729 households during the analysed period of 5 years.

Table 1 presents descriptive statistics for the analysed sample.

INSERT TABLE 1 HERE

Results

Table 2 and 3 report the results of the estimation. As it can be seen from table 3 all cut-off points are significant. This means that all the levels of ordered logit estimation are well-defined which confirms the goodness of the estimation.

The results reported in table 2 correspond to ordered multinomial logit with robust errors. These results are consistent with previous literature on subjective wellbeing research in Germany. In particular, we show that spending more years in education/training, being healthy and having higher income are positively correlated with wellbeing (Ferrer-i Carbonell, 2005).

INSERT TABLE 2 HERE

INSERT TABLE 3 HERE

The variable of our interest is the flow of tourists to RORs. Statistic bureau collects information on flows of tourists' arrivals and nights spent at each region. The investigation involves comparison of all regions within a country that vary considerably on many characteristics including the size of their territory and resident population. For this reason conducting research based on flows will make it difficult to compare the regions. To allow for comparability of regions in terms of tourism there is a need for an indicator that equals the regions with respect to the size. Previous research in tourism considered as such indicator tourism density with respect to population (for instance, Vargas-Sánchez et al., 2011). We follow this approach as well by defining tourists' density as tourists' arrivals with respect to population in ROR.

Table 2 reports the results of estimation including density of tourists per capita of residents (the number of tourists' arrivals per resident) in the ROR and the square of density as parameters of interest. Tourism density has significant positive effect on residents' satisfaction with life. It means that an increase in density of tourists with respect to local residents increases satisfaction with life of locals living in the destination. However, the square of tourists' density is significant and negative in sign. This result indicates that the relationship between tourists' density and residents' wellbeing is nonlinear. There is positive effect of tourists' density increase until a certain point is reached. When there are too many tourists choosing the destination, i.e. tourists' density is higher than the threshold, it has negative effect on the overall wellbeing of residents.

Given the parameters of the estimation this threshold point should be reached when the density of tourists in a given ROR is 7.39 tourists per resident. However, analysis of table 1 suggests that this point is not hit by any ROR in the analyzed period, the highest density registered in this period is 6.81 tourists arrivals per resident. Therefore, we conclude that during the analyzed period the impact of tourism on lives of residents remain positive.

As mentioned earlier the coefficient associated with tourists' density indicates only the sign of the relationship. Table 3 presents marginal effects corresponding to the relationship. It shows

that increase in satisfaction with life is not equal for all categories of residents. Residents that are unhappy with their life indicating levels with life satisfaction below 3 are not significantly affected by the tourism development. The main effect of tourism is observed for individuals with happiness levels between 3 and 7. These persons with increase in tourists' density move to higher categories comprised between 8 and 10 (this effect corresponds to negative probability to end up in the lower categories and positive probability to move into higher categories).

INSERT TABLE 4 HERE

It is worthwhile noting that including annual flow of tourists arriving to individual ROR does not have significant effect on satisfaction with life⁵. It implies that the mere number of tourists arriving at the destination does not significantly influence residents' wellbeing. The same result is observed when tourists' arrivals are considered in relationship to the area of ROR measured in square kilometers. It appears that what makes residents sensible with respect to tourists is how often they meet tourists compared to local resident.

Conclusions

The present study aims to answer the question if there is effect of tourism development on a broader measure of individual welfare, which is subjective wellbeing, and if this effect can be detected for a larger territory than county.

Investigation conducted in the present study showed that the effect of tourism on residents' satisfaction with life is not linear. Increase in tourists' density has positive effect on residents' wellbeing until a certain threshold is reached. After that point additional increase in tourists' arrivals in proportion to population will have negative effect on wellbeing of locals. This evidence suggests that destinations can accommodate only certain number of tourists, which means that carrying capacity of destinations is limited. In the case that is discussed in the present work this capacity is related with population size. Once the capacity is reached there is not enough space for tourists and residents, which negatively affects locals' wellbeing.

The results of the present study need to be seen in a larger context. For instance, our previous study reported in Tokarchuk et al (2016) found that tourists' density has positive effect on residents' satisfaction with life when tourists and residents are studied at county level. At the same time Ivlevs (2016) found that at the level of country increase in tourism flows has negative effect on satisfaction with life of residents. Territorial measure considered in the present study lies in between county level and country level. This evidence taken together suggests that residents in nearest proximity to the tourist destination, comprised by county borders, benefit the most from tourism development, at least in the case of Germany. While the effects of tourism evaluated on a larger territory proved to be positive in this study the caution for further development emerge.

The results of our study demonstrate that tourists' arrivals by themselves do not significantly affect satisfaction with life of residents. Only a relative measure of tourists' arrivals per resident has significant effect. This indicates that tourism development should be taken not in absolute terms but it should be considered in relative terms with respect to the number of people living in the region.

The effect of tourism is non-equally distributed among individuals. Analysis of marginal

⁵ These results are not reported in the paper and are available upon request to the authors

effects shows that mainly categories of people with middle values of happiness with life increase their happiness due to tourists' density increase and are more prone to change their level of happiness.

The use of SOEP dataset permitted us to consider residents from all German regions contributing to the creation of evidence that is not limited to single destinations within country but representative of the whole country. Germany includes several tourism destinations that range from city tourism attractions to nature-based destinations. Inclusion in the analysis region-specific dummies helps to control the result for region (and destination)-specific characteristics while comparing different destinations between them. Given that SOEP is representative of German population the results obtained in the present study present validity extendable to the whole population.

SOEP contains information on the ROR of residence of interviewed individuals. ROR's are well-defined spatial units, designated on the basis of economic attributes and commuting patterns of residents (Knies and Spiess, 2007). Germany is divided into 96 ROR's that permits a rather precise definition of destination, given the scale of the research. For instance, Berlin and Hamburg, the most popular city destinations, constitute a separate ROR. However, geographical aggregation presents also a limitation of the study. The level of detail of spatial location of residents did not permit to measure the effect of the distance of residence from the tourism destination in the present study. This factor has been shown to be important for influencing perception of tourism impact (Harrill, 2004; Sharpley, 2014).

The results of the present study are limited to the case of Germany. It is of interest to repeat the study with other destinations in developed countries and compare the results between different countries.

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Table 1: Descriptive statistics.

variable	Variable definition	mean	sd	min	max
SatLife	Satisfaction with life	6.9793	1.7586	0	10
age	Age of individual	49.2907	17.2352	17	100
Gender	gender	1.5242	0.4994	1	2
SchoolLeav	School leaving diploma	2.5242	1.5223	1	7
HousSiz	Household size	2.6854	1.2486	1	14
Marit	Marital status	1.9718	1.3202	1	6
SatHeal	Satisfaction with health	6.5695	2.2011	0	10
EMplSt	Employment status	4.6750	3.7349	1	9
NetIncAd	Household Net income	3122.3500	2210.9430	0	100000
LabNeIncom	Labor net income	960.2542	1369.1040	0	84300
WorkTimeAc	Work time	20.4138	22.2611	0	80
self	Dummy self employment	0.0219	0.1463	0	1
arriv_res_	Arrivals of tourists per resident	1.5656	0.8387	0.4319	6.8190

Table 2: Ordered logit estimation. Dependent variable: Satisfaction with life. Robust standard errors used.

VARIABLES	(1) Mtutti SatLife
tourists' arrivals per resident	0.3951*** (0.073)
square of tourists' arrivals per resident	-0.0267** (0.011)
age	0.0134*** (0.001)
Household size	-0.0620*** (0.009)
Satisfaction with health	0.5258*** (0.005)
Net income	0.0001*** (0.000)
Net income from labor	0.0000** (0.000)
Work time	-0.0040*** (0.001)
Self employed	-0.1559*** (0.055)
Male	-0.0927*** (0.020)
ROR controls	Y
Observations	98,647

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

**Table 3: Cut points of the ordered logit estimations of the models (1), (2) and (3) reported in Table (1).
Dependent variable: Satisfaction with life.**

VARIABLES:	Model (1)
cut1	-2.4802*** (0.110)
cut2	-1.6262*** (0.103)
cut3	-0.5746*** (0.099)
cut4	0.3643*** (0.098)
cut5	1.0616*** (0.098)
cut6	2.2834*** (0.098)
cut7	3.0675*** (0.098)
cut8	4.2819*** (0.098)
cut9	6.1931*** (0.099)
cut10	7.8439*** (0.100)
Observations	98,647

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4: Average marginal effects $\frac{\partial \text{Pr}(\text{SatLife}_i=j)}{\partial \text{arriv_res}_i}$ for model (2) –including control for year 2006.

Prob(SatLife=j)	$\frac{\partial \text{Pr}(\text{SatLife}_i = j)}{\partial \text{arriv_res}_i}$	Std.	z	P>z	[95% conf. Interval]
0	-0.0002	0.0001	-3.50	0.0000	-0.0003 -0.0001
1	-0.0003	0.0001	-3.51	0.0000	-0.0005 -0.0001
2	-0.0010	0.0003	-3.54	0.0000	-0.0015 -0.0004
3	-0.0022	0.0006	-3.55	0.0000	-0.0034 -0.0010
4	-0.0033	0.0009	-3.55	0.0000	-0.0052 -0.0015
5	-0.0120	0.0034	-3.56	0.0000	-0.0186 -0.0054
6	-0.0111	0.0031	-3.56	0.0000	-0.0172 -0.0050
7	-0.0070	0.0020	-3.55	0.0000	-0.0109 -0.0032
8	0.0231	0.0065	3.56	0.0000	0.0104 0.0359
9	0.0108	0.0030	3.56	0.0000	0.0048 0.0167
10	0.0032	0.0009	3.55	0.0000	0.0014 0.0050

Calculations using delta method.

Figure 1: Distribution of SatLife (satisfaction with life). Scale: 0-low to 10-high.

