Happy Tourists, Unhappy Locals

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Abstract

The most recent of literature focuses more often on the happiness of tourists, rather than the happiness of residents affected by tourism. However, this study aims at filling this gap with a new and refreshing perspective. This is carried out by using the European Social Survey (2010-2012) merged with Eurostat tourism data at the province (NUTS2) level. Staying consistent with homophily or ingroup preference theories, we find that domestic tourists contribute more to the happiness of locals than foreign tourists. Also by staying consistent with Irridex theory, we find that tourism at low levels of development contributes more to happiness than tourism at a high level of development.

KEYWORDS: TOURISM, HAPPINESS, LIFE SATISFACTION, SUBJECTIVE WELLBEING (SWB), EUROPEAN SOCIAL SURVEY (ESS)

Tourists are happy, but are residents in tourist areas happy as well?

It is good to be a tourist–this is after all why we spend money and time to become one. Every tourist is looking forward to her holidays, and she is arguably happy during, and even before or after the holidays.[1] However, tourism is a mixed blessing for host communities. In Port Aransas TX, for instance, residents appreciate economic growth and related economic benefits, but they feel more nostalgic about the town's atmosphere prior to tourism. Sometimes popularity of a tourist destination takes away from what made it popular in a first place. This happens usually when the tourism sector prioritizes tourists happiness, while at the same time residents' satisfaction with the industry is not taken into account. Moreover, the residents' quality of life is simply being overlooked (Uysal et al 2016). As aptly pointed out by Crick (1989), the relationship between the host and tourist is an odd one: one is at play, while the other is at work.

In 1995 there were about 500 million tourists, and by 2015 the number has doubled to more than a billion (http://mkt.unwto.org/en/barometer). Much research has been dedicated to the tourists' satisfaction with a destination (e.g., Chon and Olsen 1991, Danaher and Arweiler 1996, Joppe, Martin and Waalen 2001, Kozak and Rimmington 2000). Tourism scholars usually agree that travel experience boosts happiness of the touirst (Bimonte and Faralla 2012, 2014, Dolnicar et al. 2012, Gilbert and Abdullah 2004, Milman 1998, McCabe and Johnson 2013). Two happiness scholars, M. Joseph Sirgy and Jeroen Nawijn, who also study tourism found a positive effect of travel on tourist's happiness (Kim at al 2013, Nawijn et al. 2010, Nawijn 2011, Nawijn 2011B, Nawijn et al 2013, Neal at al 1999, Sirgy et al 2011, Uyasal at al 2013). However, research demonstrates that the effect of tourism on tourist's happiness is small. Namely, as a predictor of tourist happiness, travel only ranks 13th after factors such as family, friends, health and others (Ratz and Michalko 2011).

While there are no studies investigating directly the effect of tourism on residents' happiness, few studies are related. Bimonte and Faralla (2012a) propose that communities are happier after receiving tourists, but do not test this proposition. Kim et al. (2013) and Yamada et al. (2009) studied the effect of perceptions of tourism on happiness rather than the effects of tourism growht. Woo et al. (2015) found a positive effect of residents perceived value of tourism development on non-material and material life domain satisfaction rather than overall happiness. Moreover, Woo et al. (2015) also found that overall happiness predicts support for further tourism development. However, as it is unlikely that the happiness of residents has a substantial effect on the growth of conventional tourism, the present study is concerned with the direct effects of tourism on happiness. .

Residents attitudes towards tourism on the one hand and effects of tourism on residents on the other hand have been studied extensively (Long et al. 1990). Among many indicators are community satisfaction (Uysal et al. 2016), or empowerment (Boley et al 2014), but none of the past research has explored the relationship between tourism and happiness within host communities (Uysal et al.

1 We define happiness in next section. Arguably, people tend to be excited before traveling, and they are relaxed and refreshed after.

2016). With this gap in mind, the purpose of our research is to investigate the effect of tourism growth on residents happiness.[2]

Happiness yardstick

The terms happiness and subjective wellbeing (SWB) are used interchangeably. Happiness is simply measured by asking respondent to rate their overall satisfaction with life on some scale, say from 0=”miserable” to 10=”extremely happy,” and it has been shown that answers to such questions are reasonably reliable, valid, and comparable. For an indepth discussion of validity see Diener et al. (2013), and for a general discussion see recent reviews (Diener 2009, 2012, 2013, Veenhoven 2015). While happiness has been studied with respect to just about any and every topic, there is no research about happiness and tourism development. To be clear, this study focuses on general/overall happiness (life satisfaction), not a domain specific happiness such as satisfaction with tourism or with a neighborhood.

Traditional measures of development such as Gross Domestic Product are usually inadequate and sometimes misleading. For instance, tourism development may increase Gross Domestic Product, but it may also increase income inequality and corruption (Crick 1989). In contrast to Gross Domestic Product, happiness is an overall measure of human flourishing or broadly understood wellbeing (e.g., Okulicz-Kozaryn 2016) and we use a happiness yardstick to measure whether on balance residents are better or not with tourism. An advantage of happiness is that it is an overall measure in a sense that it seeks to capture many factors that affect our lives. The key advantage of a happiness yardstick is that it overcomes the difficulty of measuring utility in social welfare by taking into account known and unknown factors. In short, happiness is a yardstick for broadly understood human progress.

As overall the effect of tourism is very ambiguous (Crick,1989), the happiness yardstick appears a good way to measure the effects of tourism on host communities. Some studies, for instance, demonstrate evidence that tourism preserves wildlife, others show that it destroys wildlife; tourism may weaken tradition, but it may also raise historical awareness and lead to restoration; tourism may degrade local art, but also make it popular; tourism encourages maintenance of tradition, but it also stimulates change; tourism redistributes some resources, but it also creates inequality; tourism stimulates local agriculture, but it also causes people to leave the land. For a discussion see Crick (1989).

Tourism development cycle

One of the most applied tourism models is the destination life cycle proposed by Butler (1980). The model hypothesizes the development path of a tourist destination. At first a pristine and unspoiled area is visited by travelers searching for the unknown. As it is gaining popularity, commercialization of tourism services contributes to the loss of the destination’s original character. To some extent this process resembles gentrification of city neighborhoods. Wealthier newcomers are forcing out less prosperous locals, and global corporations such as H&M and Starbucks replace locally owned businesses (Zukin 2009). Commercialization and gentrification arguably make locals unhappy at least in some ways. In terms of a theory describing the relationship between tourist development cycle and happiness the most useful tourism theory is Doxey’s Irridex model (an irritation with tourists index). According to Doxey (1975) local residents go through several stages of attitudes which may be argued to correspond with decreasing happiness as shown in table 1 (Doxey 1975).

2 Chancellor et al. (2011) found in Orange county IN that happiness was higher in the periphery than in core, which is consistent with research about happiness and location, which found that in developed countries people are happiest in smallest areas (Okulicz-Kozaryn 2015). However, Chancellor et al. (2011) does not measure tourism other than defining core and periphery, and even if such crude measure captured tourism, the study does not test for the difference in happiness between the two areas.

number of tourists	hypothesized happiness	attitude/feeling	brief description
few		euphoria	locals are excited about visitors
some		apathy	visitors are taken for granted
many		annoyance	locals are becoming uneasy about increasing inflow of tourists
throng		antagonism	locals do not welcome tourists anymore

Table 1: Tourist development cycle: Doxey's Irridex (Doxey 1975).

The explanation provided by the Irridex model could be complemented by that provided by the livability theory proposed by Veenhoven (2014). The livability theory explaines observed differences in happiness in terms of need-environment fit and it appears to be more applicable to tourism than some happiness theories based on comparison and adjustment (Brickman et al. 1978, Diener et al. 2006, Michalos 1985). In a tourism context, the livability theory stipulates that tourists are likely to make a destination more livable at early tourism development stages as residents experience immediate tourism benefits and the costs of tourism are usually less noticable. The net outcome of tourism effects on the livability of locals depends on whether benefits outweight costs or just the opposite- costs outweight benefits. One of the major tourism economic benefits include injection of money into local economy[3]. This is an important benefit as past research shows that richer areas are happier than poorer areas at least with diminishing returns (Okulicz-Kozaryn 2012)[4]. Another positive impact of tourism on locals wellbeing could register through social capital (e.g. Macbeth, Carson and Northcote, 2004)- a key compontns of happiness (Helliwell et al. 2004, Putnam 2001) and a key predictor of happiness (Myers 2000). Thus, we propose that economic and social capitals are two major sources of happiness that local residents derive from tourism. However, these benefits may be limited or even disappear if tourists and locals are strong outgroups. The ingroup-outgroup hypothesis in tourism context proposes that residents may strive to achieve a maximum difference between the ingroup (residents) and outgroup (touirsts) even at the price of sacrificing tourism benefits (Tajfel 1971). Specifically, this situation may occur if locals (and tourists) are not satisfied with the tourist-host social exchange (App 1992). We discuss ingroups in greater detail in next section.

How is tourism diminishing happiness of locals? There are fewer and fewer places left unspoiled by tourism, and even remote areas with difficult access such as Mount Everest are littered by tourists (Abrams 2014). Conventional tourism (as opposed to more sustainable types of tourism) alters community natural and cultural assets that it aims to promote for tourists.[5] It also depletes local resources such as water and land resources (UNEP,2016), as well as it generates air, water and noise pollution. Therefore,tourism is likely to affects happiness of the local populations (Rehdanz and Maddison 2008, Welsch 2005).

We acquired tourism arrivals data over 1990-2012 and we will calculate the effect of change in tourism arrivals on current happiness of residents. Also, we use income per capita to approximate the size of local economy and the need for economic benefits

3 We briefly discuss some of the potential tourism costs and benefits—for a more developed discussion see Crick (1989).

4 See Crick (1989) for a critical view.

5 Jafari, the founding editor of Annals of Tourism Research, wrote: "That 'each man kills the thing he loves,' as Oscar Wilde observed nearly a century ago, should perhaps be engraved over the door of national and regional tourism offices" (cited in Crick 1989).

from tourism among locals. We expect that some tourism development will result in happiness, whereas intensive tourism development will result in unhappiness:

H1: At low levels of tourism or income, tourism is associated with greater happiness, but at high levels of tourism or income, tourism is associated with low happiness.

Homophily or ingroup preference

Homophily or "love of the same" can be used to explain the causal mechanism between tourism and happiness. Humans are born with their own group preference or preference against other groups. There is evolutionary reason[6] for homophily–for most of human species history we lived among our own kin and people similar to us. First, as hunters and gatherers, we lived in small bands of 50-80 people and we mixed with other bands, but they all were very similar. Kin defined relations to even higher degree in horticultural society–in fact kin was a defining feature of social organization until advanced agrarian society (Maryanski and Turner 1992). Plainly speaking, we are "wired" to favor people similar to us–that's what is "natural" for us. It is "natural" for humans to have ingroup preference in a sense that it is how evolution has made us. "Natural" also means a most common habitat throughout species' history. By "wired" we mean that there is evolutionary propensity for it, not that we cannot change it–in fact we can and there are many strategies such as forming cross-group teams or setting common goals (Smith et al. 2010). Yet, we are born with homophily (Smith et al. 2010). For instance, infants and toddlers notice racial differences before they can speak and already by age of three children prefer to play with children of their own race (Smith et al. 2010, p. 59).[7] Even if we do not accept that homophily is an evolutionary mechanism, research demonstrates it is nearly a universal phenomenon (Smelser and Alexander 1999, p. 45).

As a consequence, love of the same must be accompanied by less love, neutrality, or hostility towards the other. International tourism results in greater diversity, and hence, there must be less liking of international tourists if homophily theory is correct. We don't know it yet, hence this study.Tourists, especially international tourists, are unlike locals, and according to homophily theory, they will make locals unhappy:

H2: The arrival of tourists that are similar to locals will contribute more to the happiness of locals. We aproximate similarity by juxtaposing domestic with foreign arrivals.

Data

The unit of analysis is a person (resident of a locality, not a tourist) nested within a province (for which we have tourist arrivals data). Provinces are defined according to so called NUTS2 classification.[8] All person-level data come from European Social Survey (ESS, `http://www.europeansocialsurvey.org`). While ESS is not necessarily representative of provinces, these are the best happiness data available for multiple European regions, and these data have been used in recent research at province level (Ferreira et al. 2013). We also use several province-level variables that were downloaded from ESS website. Tourism data come from Eurostat, a

6 "[...] Neuroscience has discovered racial prejudice rooted in brain areas that emerged early in primate evolution and that still govern our instincts today" (Smith et al. 2010, p. 4). There are at least three other theories: 1) homophily is a consequence of realistic group conflict, 2) homophily is an outgrowth of the authoritarian personality, 3) homophily is an expression of social identity (Kinder and Kam 2010). We find the evolutionary explanation most convincing. Of course, by relying on evolutionary explanation we are oversimplifying. Other factors like "the nurture", matter as well and point to the role of education and upbringing in enhancing or diminishing homophily.

7 For more detailed discussion of homophily and human nature see Fox (1994), Fu et al. (2012), Kinder and Kam (2010), and Wilson (2012).

8 NUTS stands for Nomenclature of Territorial Units for Statistics (from French Nomenclature des unites territoriales statistiques). NUTS2 refers to second level of aggregation, which is the second finest or most detailed level (after NUTS3). We mostly use level 2, but in some cases we use other levels as dictated by data availability from ESS. For details about NUTS classification see http://ec.europa.eu/eurostat/web/nuts/overview.

European Statistical Agency. We use regional database at http://ec.europa.eu/eurostat/web/regions/data/database. Variables are defined in table 2. All provinces along with key variables are listed in online appendix A.

Table 2: Variable definitions.

name	description
happiness	"All things considered, how satisfied are you with your life as a whole nowadays? Please answer using this card, where 0 means extremely dissatisfied and 10 means extremely satisfied."
per capita tourist arrivals*	data from Eurostat—see table's footnote
per capita tourist arrivals, residents*	data from Eurostat—see table's footnote
per capita tourist arrivals, non residents*	data from Eurostat—see table's footnote
crime scale	crime scale from factor analysis with varimax rotation using vehicle thefts, domestic burglaries and robberies
age	age
religiosity	"Regardless of whether you belong to a particular religion, how religious would you say you are? "
health	self reported health
male	male
income	income (whether respondent considers it enough)
born in country	"Were you born in [country]? "
population density	population divided by square kilometers
net migration	crude rate of net migration including statistical adjustment
size of a place	"Which phrase on this card best describes the area where you live? " "Farm or home in countryside" to "A big city"
average born in this country	country level proportion; calculated based on ESS variable "born in country"
per capita GDP	GDP at current market prices; Euro per inhabitant

[*]: tourist arrivals are defined as: "An arrival is defined as a person (tourist) who arrives at a tourist accommodation establishment and checks in or arrives at non-rented accommodation. But in the scope of the Regulation concerning European statistics on tourism, this variable is not collected for the latter type of accommodation. Statistically there is not much difference if, instead of arrivals, departures are counted. No age limit is applied: children are counted as well as adults, even in the case when the overnight stays of children might be free of charge. Arrivals are registered by country of residence of the guest and by month. The arrivals of same-day visitors spending only a few hours during the day (no overnight stay, the date of arrival and departure are the same) at the establishment are excluded from accommodation statistics. A person is considered to be a resident in a country (place) if the person: - has lived for most of the past year or 12 months in that country (place), or - has lived in that country (place) for a shorter period and intends to return within 12 months to live in that country (place). International tourists should be classified according to their country of residence, not according to their citizenship. From a tourism standpoint any person who moves to another country (place) and intends to stay there for more than one year is immediately assimilated with other residents of that country (place). Citizens residing abroad who return to their country of citizenship on a temporary visit are included with non-resident visitors. Citizenship is indicated in the person's passport (or other identification document), while country of residence has to be determined by means of question or inferred e.g., from the person's address." For more information see http://ec.europa.eu/eurostat/cache/metadata/en/tour_occ_esms.htm To match ESS data, and to discount random year-to-year variations, arrivals are calculated as average for period 2010-2013; All arrivals are used on per-capita basis.

Tourist arrival data are broken down by domestic (resident) and international (nonresident) tourism. Most residents come to non-capital regions and most non-residents come to capital regions (Eurostat 2013). All results are based on provinces with at least 50 respondents. We have dropped provinces with fewer respondents because such small samples are likely to be substantially biased.

Results

We start with basic descriptive statistics. Table 3 shows the top and bottom ten regions sorted on happiness. On a scale from 0 to 10 there is considerable variability in happiness ranging from around 4 in Bulgaria to above 8 in Denmark. The happiest regions are more wealthy, but they also have slightly more tourist arrivals. Table 4 repeats the same exercise, except the data are sorted on tourist arrivals. The top tourist destinations are either in Southern or Northern Europe, and it also appears from the table that tourist destinations are slightly happier. Also, note that domestic and international arrivals are correlated at .22 only. Next, we turn to graphing these basic relationships.

Table 3: Top and bottom ten provinces sorted on happiness.

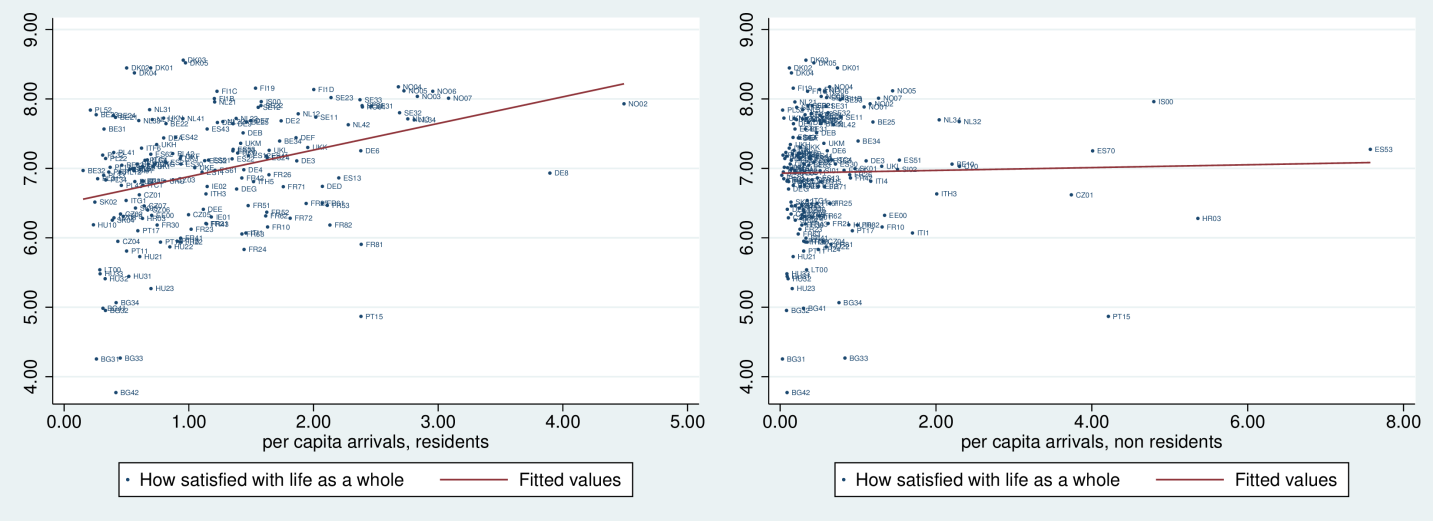
region	province name	How satisfied with life as a whole	per capita arrivals	per capita arrivals, residents	per capita arrivals, non residents	per capita GDP
BG42	Yuzhen tsentralen	3.77	0.50	0.42	0.09	3,590
BG31	Severozapaden	4.25	0.29	0.26	0.03	3,194
BG33	Severoiztochen	4.27	1.28	0.45	0.83	4,187
PT15	Algarve	4.87	6.59	2.38	4.21	16,424
BG32	Severen tsentralen	4.95	0.41	0.33	0.08	3,473
BG41	Yugozapaden	4.99	0.61	0.31	0.30	8,793
BG34	Yugoiztochen	5.07	1.17	0.42	0.76	4,299
HU23	Del-Dunantul	5.27	0.85	0.70	0.15	6,600
HU32	Eszak-Alfold	5.41	0.43	0.33	0.10	6,207
HU31	Eszak-Magyarorszag	5.44	0.61	0.52	0.09	5,900
NO06	Trondelag	8.11	3.53	2.96	0.58	45,841
NO05	Vestlandet	8.12	4.17	2.73	1.44	53,003
FI1D	Pohjois- ja Ita-Suomi	8.14	2.51	2.00	0.51	28,800
FI19	Lansi-Suomi	8.15	1.70	1.54	0.17	30,909
NO04	Agder og Rogaland	8.17	3.32	2.68	0.64	55,402
DK04	Midtjylland	8.38	0.71	0.56	0.15	38,664
DK02	Sjaelland	8.45	0.62	0.50	0.12	30,141
DK01	Hovedstaden	8.45	1.43	0.69	0.74	52,552
DK05	Nordjylland	8.52	1.41	0.97	0.43	37,292
DK03	Syddanmark	8.56	1.29	0.96	0.33	38,044

Table 4: Top and bottom ten provinces sorted on tourist arrivals.

region	province name	per capita arrivals	per capita arrivals, residents	per capita arrivals, non residents	How satisfied with life as a whole	per capita GDP
PL52	Opolskie	0.24	0.21	0.03	7.84	7,596
BG31	Severozapaden	0.29	0.26	0.03	4.25	3,194
PL31	Lubelskie	0.32	0.27	0.05	6.85	6,347
PL33	Swietokrzyskie	0.34	0.32	0.02	6.90	7,108
BE32	Prov. Hainaut	0.34	0.15	0.19	6.97	21,986
PL32	Podkarpackie	0.35	0.31	0.04	7.19	6,363
HU33	Del-Alfold	0.37	0.29	0.09	5.48	6,422
SK02	Zapadne Slovensko	0.39	0.25	0.14	6.51	11,919
PL22	Slaskie	0.39	0.33	0.06	7.14	10,172
PL61	Kujawsko-Pomorskie	0.40	0.36	0.04	6.95	7,804
NO05	Vestlandet	4.17	2.73	1.44	8.12	53,003
CZ01	Praha	4.34	0.60	3.74	6.62	31,200
NO07	Nord-Norge	4.35	3.08	1.26	8.01	44,342
NL34	Zeeland	4.85	2.81	2.04	7.70	34,167
ES70	Canarias	5.36	1.35	4.01	7.25	19,300
NO02	Hedmark og Oppland	5.65	4.49	1.15	7.93	38,372
HR03	Jadranska Hrvatska	5.99	0.63	5.36	6.28	10,000
IS00	Island	6.38	1.58	4.80	7.96	.
PT15	Algarve	6.59	2.38	4.21	4.87	16,424
ES53	Illes Balears	8.93	1.36	7.57	7.27	23,800

It turns out that the positive relationship between tourism and happiness is due to domestic arrivals as shown in figure 1 panel (a). There is no relationship between international arrivals and happiness in panel (b). Likewise, there is a similar relationship by level of development in figure 2: at low levels of income there is a positive relationship in panel (a), but there is no relationship, or even a negative relationship, at high levels of income in panel (b). In the next step we will show that the above relationships hold when controlling for a typical set of predictors of happiness (Okulicz-Kozaryn 2015). A potentially important control variable is the composition of local population–if a substantial proportion of locals are foreign born, they may be more welcoming to tourists (as per homophily theory). Following Ferrer-i-Carbonell and Frijters (2004) we use Ordinary least squares (OLS).

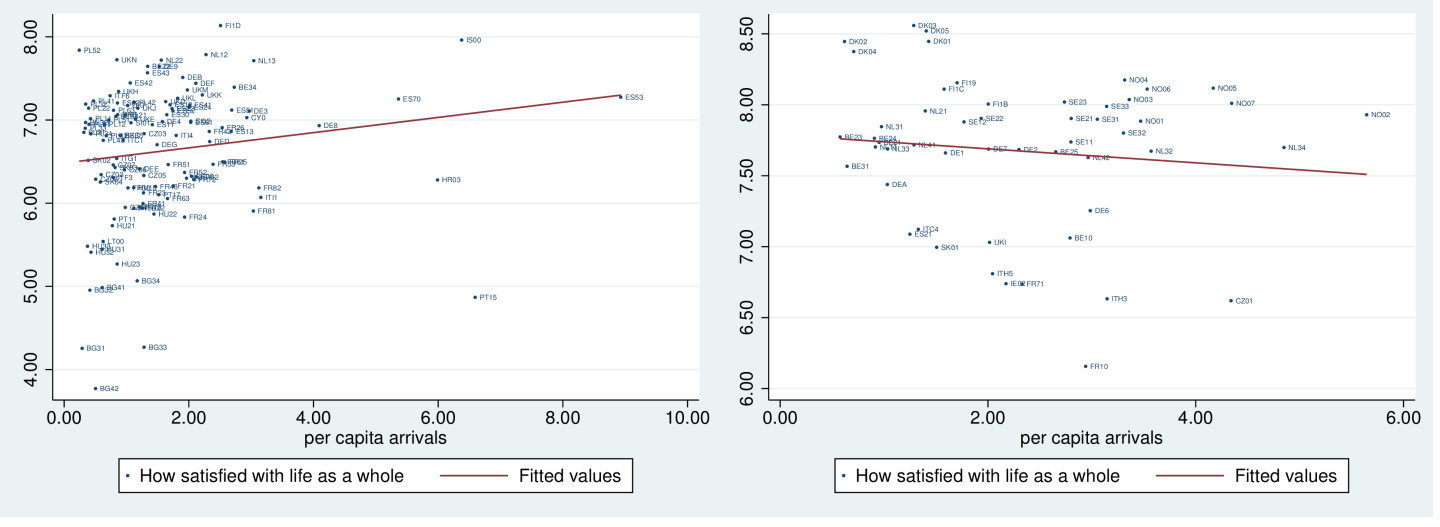
Figure 1: Domestic tourism, international tourism, and happiness. Note: we have also tried a quadratic fit, but the confidence interval at high levels of tourism was wide due to few observations and there was not a clear indication of quadratic relationship.



(a) domestic (resident) tourists

(b) international (nonresident) tourists

Figure 2: Tourism and happiness by income level.



(a) PCGDP<30k Euro

(b) PCGDP>30k Euro

First we examine the homophily thesis: are domestic tourists more predictive of happiness of their hosts than international tourists? Columns a1 and a2 in table 5 show that the above bivariate relationships from scatterplots are significant, and column a3 shows, as expected, that the relationship between international arrivals and happiness is insignificant. Column a4 shows that when considering simultaneously, only domestic arrivals predict greater happiness and international arrivals are unrelated to happiness. Columns a5 and a6 both elaborate basic models and show that the relationships persist (however the effect size declines).

Next we turn to life cycle theory, and specifically we test a hypothesis that follows from Doxey's Irridex (Doxey 1975): is tourism more related to happiness at low levels of development? Table 6 explores the effect by level of development. Again, the relationships seen earlier in scatterplots are confirmed: tourism is only positively related to happiness in provinces with income below 30k Euro. We have also tried cutoffs at 20k and 40k Euro and the results were similar.

Table 5: OLS regressions of happiness.

	a1	a2	a3	a4both	a5	a6both
per capita arrivals	0.30***				0.08*	
per capita arrivals, residents		0.69***		0.68***		0.24***
per capita arrivals, non residents			0.10	0.04		-0.03
crime scale					0.03	0.04
age					0.00	0.00
religiosity					0.07***	0.08***
health					0.55***	0.55***
male					-0.04+	-0.04
income					1.04***	1.01***
born in country					0.09*	0.10*
population density					-37.84	16.96
average migration					0.04**	0.03***
size of a place					0.01	0.01
average born in country					-0.47	-0.38
constant	6.29***	6.12***	6.73***	6.10***	1.55*	1.44*
N	81702	81702	81702	81702	65741	65741

+p<0.10 *p<0.05 **p<0.01 ***p<0.001; robust clustered std err

Table 6: OLS regressions of happiness. Column suffix 'hi' indicates subsample of rich provinces (PCGDP>30k Euro), and suffix 'lo' indicates poor provinces (<30k Euro).

	b1hi	b1lo	b2hi	b2lo
per capita arrivals	-0.15***	0.14**		
per capita arrivals, non residents			-0.32**	0.09
per capita arrivals, residents			0.01	0.24*
crime scale	0.00	-0.11*	0.02	-0.10+
age	0.00*	0.00	0.00*	0.00
religiosity	0.06***	0.08***	0.06***	0.08***
health	0.50***	0.57***	0.50***	0.57***
male	-0.03	-0.05	-0.03	-0.05
income	0.77***	1.01***	0.76***	1.00***
born in country	0.11**	0.12	0.12**	0.12
population density	-123.68	241.45	58.86	218.12
average migration	0.06***	0.02*	0.05***	0.02**
size of a place	-0.02*	0.02+	-0.02*	0.02
average born in country	3.20**	-0.60	4.04***	-0.75
constant	0.13	1.40	-0.78	1.51
N	21817	43803	21817	43803

+p<0.10 *p<0.05 **p<0.01 ***p<0.001; robust clustered std err

Finally, we take another look at tourism life cycle theory using a different approach. We examine change in tourism–Eurostat data enables to look at tourist arrivals back to 1990s. We constructed two variables. Change in arrivals since early 1990s is a percentage change between arrivals in ESS data used here (2010-2012) and average over 1990-1995. The reason to take the average is to smooth any potential yearly fluctuations such as those caused by business cycle or local conditions such as weather. For robustness, we also calculate percentage change relative to 2000-2005. Results for change relative to 2000-2005 are set in table 7: the more tourists now relative to early 2000s, the less happiness, especially for poorer provinces in column c3lo. Results relative to early 1990s in table 8 are less clear. The bivariate relationship and the relationship with few controls in columns d1 and and d2 are negative and insignificant, but adding more controls changes sign to positive. We have explored possible reasons by elaborating models carefully. Adding crime,

population density, or migration separately in columns d3* or collectively in column d4, flips relationship to positive. One explanation for a complex relationship with above mentioned variables is that often mass tourism is associated with higher crime, population density, and possibly migration. Controlling for these variables reverses the negative effect of tourism. And the relationship is especially positive for poorer provinces in column d4lo, which is expected given the Irridex theory. But we do not have an explanation for this positive effect of tourism change over the long run in table 8 versus negative effect for shorter run in table 7. Perhaps, benefits from tourism take time to affect positively the wellbeing of locals–for instance, money brought by tourists translates into improved quality of life with a long lag. This result potentially contradicts tourism development cycle model and thus more research is needed that examines this problem. We also use the main independent variable of interest, tourist arrivals to index development cycle in a cross section–because this is an indirect attempt disregarding time dynamics, it is postponed to online appendix B.

Table 7: OLS regressions of happiness. Column suffix 'hi' indicates subsample of rich countries (PCGDP>30k Euro), and suffix 'lo' indicates poor countries (<30k Euro).

	c1	c2	c3hi	c3lo
change in arrivals since early 2000s	-1.18***	-0.51***	-0.42	-0.52***
crime scale		0.02	0.00	-0.10*
age		0.00	0.00*	0.00
religiosity		0.07***	0.05***	0.08***
health		0.55***	0.51***	0.58***
male		-0.04+	-0.04	-0.04
income		1.05***	0.72***	1.02***
born in country		0.10+	0.12**	0.13+
population density		-48.67	-170.96	207.77*
average migration		0.02+	0.03	0.01
size of a place		0.00	-0.02*	0.01
average born in country		-1.75*	2.52+	-2.91***
constant	7.16***	3.08***	0.88	3.90***
N	80245	61395	18885	42389

+p<0.10 *p<0.05 **p<0.01 ***p<0.001; robust clustered std err

Table 8: OLS regressions of happiness. Column suffix 'hi' indicates subsample of rich countries (PCGDP>30k Euro), and suffix 'lo' indicates poor countries (<30k Euro).Suffixes 'crime,' 'density,' 'migration' simply indicate that crime, density, and migration variables are controlled for.

	d1	d2	d3crime	d3density	d3mig	d4	d4hi	d4lo
change in arrivals since early 1990s	-0.13	-0.03	0.18**	0.07	0.17**	0.18***	0.06	0.33***
age		0.00+	0.00**	0.00**	0.00***	0.00***	0.00*	0.00***
religiosity		0.06***	0.07***	0.07***	0.08***	0.07***	0.05***	0.09***
health		0.46***	0.53***	0.52***	0.52***	0.53***	0.50***	0.54***
male		-0.03	-0.02	-0.02	-0.02	-0.02	-0.08+	-0.01
income		1.02***	0.93***	0.95***	0.96***	0.93***	0.79***	0.96***
born in country		0.05	0.12*	0.11*	0.11*	0.12**	0.14*	0.12
size of a place		0.02	0.00	0.01	0.02	0.00	0.02	0.02
average born in country		0.33	-2.04+	-0.22	0.56	-2.04***	4.49***	-2.86**
crime scale			-0.17***			-0.17***	-0.19***	-0.28***
population density				6.08			111.12	-150.14
average migration					0.06*		0.05**	0.01
constant	7.08***	1.51	3.63***	1.90	0.91	3.63***	-1.40	3.95***
N	35368	30445	27677	27677	23267	27677	7857	15410

+p<0.10 *p<0.05 **p<0.01 ***p<0.001; robust clustered std err

To summarize, we find support for both hypotheses H1 and H2. Domestic tourists contribute more to happiness than international tourists. Tourism contributes more to happiness in poorer areas than in richer areas. An increase in tourism activity beyond a certain point diminishes happiness.

Robustness and endogeneity

As Sorensen (2012) has pointed out, the key to solving the endogeneity problem is an argument that variation in X is random, or at least random with respect to key variables in the model. Tourist arrivals are unlikely to be much affected by the happiness of local residents. Arguably, tourists do not choose a place because locals are happy, at least it is not a major variable in their choice. Rather, broad ecological and environmental factors matter: natural amenities (ocean, mountains, etc), historical markers (pyramids, cathedrals, etc), and tourist infrastructure (airports, hotels, etc). There is a clear mechanism, however, as discussed above, that should lead from tourism to residents' happiness.

This is an observational or correlational study, and hence, causality cannot be determined. It remains for future research to tackle this issue using a different research design and focusing on specific tourism destination for comperative analysis. It may be possible, for instance, to use a natural experiment, where the treatment (tourism) was applied with some randomness.

Conclusion and discussion

Our research responds to Crick's (1989) call for an interdisciplinary perspective in tourism studies. We incorporated large scale data analysis to understand the effect of tourism development on resident's happiness. While we find some support for the proposition that conventional tourism development is desirable and that it contributes to the overall area development (Crick 1989), the positive effect of such tourism is only observed up to a certain point. For more popular destinations the relationship between tourism and happiness is nil or even negative. We concluded that our findings agree with Doxey's Irridex theory (Doxey 1975). More tourism development is more likely to make residents unhappy and in turn lead to more negative attitudes toward tourism.[9] We also find some support for social psychological theory of ingroup preference or homphily (Tajfel 1971, 1982): namely, domestic tourists are related to higher happiness within local population, whereas foreign tourists are unrelated.

While we demonstrated that residents are happier with domestic tourists, it remains for the future research to test the effect of tourism on different residents' groups within a destination. Notably local entrepreneurs and business owners will arguably be happy with as many tourists as possible. Likewise, people working in the tourist sector and making more than a minimum wage are expected to be more happy than residents not benefiting from tourism directly (e.g. Rotham 1978, Tosun 2001). These hypotheses can be further tested using European Social Survey data.

Importantly, there is a question of inequality and capitalistic extracting of profits (Harvey 2014), that is, locals do not benefit much if they work in minimum wage jobs, while most value added from tourism is extracted by few capitalists who neither live, nor spend within a destination. It would be interesting to explore whether tourism contributes more to happiness in areas were only elites benefit from tourism or within areas where long lasting profits are eqully shared within a community (Scheyvens, 1999).

Finally, it is possible that sustainable tourism, rather than conventional touirsm, actually contributes to residents' happiness. At this pont, however, we are not able to test this hypothesis because we do not have data about sustainability of tourism at NUTS2 level of geographic aggregation. It would be an interesting and important topic for future research (perhaps at different level of aggregation), especially given the indication that sustainability and happiness are related (Engelbrecht 2009, Zidanšek 2007).

It also remains for the future research to test the relationship between residents happiness and specific types of tourism such as sustainable touirsm, ecotourism, voluntourism. While Eurostat data allows to measure length of stay, and tourism by type of accommodation, we purposfully limit ourselves to the general relationship. Again, this is the first study to focus on the relationship between tourism and residents' happiness. We are interested in documenting an overall relationship to spark further and more detailed investigations.

Appendix A: List of All Provinces

9 Prior research also found grass-roots local small-scale tourism development is after all more economically beneficial to residents than large-scale conventional tourism development (Crick 1989).

Region	Province name	How satisfied with life as a whole	per capita arrivals	per capita arrivals, residents	per capita arrivals, non residents	per capita GDP
BG42	Yuzhen tsentralen	3.77	0.50	0.42	0.09	3,590
BG31	Severozapaden	4.25	0.29	0.26	0.03	3,194
BG33	Severoiztochen	4.27	1.28	0.45	0.83	4,187
EL11	Anatoliki Makedonia, THraki	4.27				
PT15	Algarve	4.87	6.59	2.38	4.21	16,424
EL22	Ionia Nisia	4.91				
BG32	Severen tsentralen	4.95	0.41	0.33	0.08	3,473
BG41	Yugozapaden	4.99	0.61	0.31	0.30	8,793
BG34	Yugoiztochen	5.07	1.17	0.42	0.76	4,299
EL12	Kentriki Makedonia	5.14				
HU23	Del-Dunantul	5.27	0.85	0.70	0.15	6,600
HU32	Eszak-Alfold	5.41	0.43	0.33	0.10	6,207
HU31	Eszak-Magyarorszag	5.44	0.61	0.52	0.09	5,900
HU33	Del-Alfold	5.48	0.37	0.29	0.09	6,422
LT00	Lietuva	5.54	0.63	0.29	0.34	10,200
EL30	Attiki	5.57				
EL21	Ipeiros	5.62				
EL41	Boreio Aigaio	5.65				
HU21	Kozep-Dunantul	5.73	0.77	0.61	0.17	8,553
PT11	Norte	5.81	0.80	0.50	0.30	13,000
FR24	Centre	5.83	1.93	1.44	0.49	25,432
EL24	Sterea Ellada	5.86				
HU22	Nyugat-Dunantul	5.87	1.44	0.85	0.59	9,874
FR81	Languedoc-Roussillon	5.91	3.04	2.38	0.65	23,228
PT16	Centro (PT)	5.94	1.12	0.77	0.35	13,302
FR22	Picardie	5.94	1.26	0.93	0.33	23,230
CZ04	Severozapad	5.95	0.98	0.43	0.55	11,500
PT18	Alentejo	5.95	1.21	0.91	0.30	14,731
EL23	Ditiki Ellada	5.96				
FR41	Lorraine	5.99	1.27	0.93	0.33	23,280
EL42	Notio Aigaio	6.03				
FR63	Limousin	6.06	1.66	1.43	0.23	23,085
ITI1	Toscana	6.07	3.16	1.46	1.70	28,200
HR0	Hrvatska	6.09				
PT17	Lisboa	6.10	1.52	0.59	0.93	22,511
FR23	Haute-Normandie	6.12	1.27	1.02	0.25	26,565
FR10	Ile de France	6.16	2.94	1.63	1.31	50,646
FR30	Nord - Pas-de-Calais	6.18	1.02	0.75	0.28	24,466
FR82	Provence-Alpes-Cote d'Azur	6.18	3.12	2.13	0.99	28,832
HU10	Kozep-Magyarorszag	6.19	1.12	0.23	0.88	16,033
FR43	Franche-Comte	6.20	1.47	1.14	0.32	23,906
FR21	Champagne-Ardenne	6.21	1.75	1.14	0.62	25,928
EL25	Peloponnisos	6.24				
SK04	Vychodne Slovensko	6.25	0.58	0.39	0.19	8,493
HR03	Jadranska Hrvatska	6.28	5.99	0.63	5.36	10,000
FR72	Auvergne	6.28	2.08	1.81	0.27	24,199
CZ08	Moravskoslezsko	6.29	0.51	0.40	0.11	12,900
IE01	Border, Midland and Western	6.30	1.96	1.18	0.41	23,700
ITF3	Campania	6.31	0.79	0.47	0.31	16,000
FR62	Midi-Pyrenees	6.32	2.12	1.62	0.50	26,453
EE00	Eesti	6.32	2.04	0.70	1.34	11,498
CZ05	Severovychod	6.33	1.28	1.00	0.28	12,200
CZ02	Stredni Cechy	6.34	0.59	0.45	0.14	13,200
FR52	Bretagne	6.37	1.93	1.63	0.31	24,798
EL43	Kriti	6.38				
CZ06	Jihovychod	6.40	0.97	0.67	0.30	13,400
EL14	THessalia	6.41				
DEE	Sachsen-Anhalt	6.41	1.21	1.12	0.09	22,083
SK03	Stredne Slovensko	6.43	0.82	0.57	0.25	9,960
CZ07	Stredni Morava	6.46	0.79	0.64	0.15	12,000
FR51	Pays de la Loire	6.46	1.67	1.48	0.19	26,744
FR53	Poitou-Charentes	6.47	2.39	2.11	0.28	24,169
FR25	Basse-Normandie	6.49	2.58	1.94	0.64	23,561
FR61	Aquitaine	6.50	2.54	2.07	0.47	26,511
SK02	Zapadne Slovensko	6.51	0.39	0.25	0.14	11,919
ITG1	Sicilia	6.54	0.84	0.50	0.35	16,600
CZ01	Praha	6.62	4.34	0.60	3.74	31,200
EL13	Ditiki Makedonia	6.63				
ITH3	Veneto	6.63	3.15	1.14	2.01	30,200

DEG	Thuringen	6.70	1.49	1.38	0.11	21,560
FR71	Rhone-Alpes	6.74	2.33	1.76	0.57	30,353
IE02	Southern and Eastern	6.74	2.17	1.15	0.49	39,900
DED	Sachsen	6.74	2.33	2.07	0.26	22,942
PL43	Lubuskie	6.76	0.63	0.46	0.17	7,913
ITC1	Piemonte	6.76	0.95	0.63	0.32	28,200
ITH5	Emilia-Romagna	6.81	2.04	1.52	0.53	32,100
PL62	Warminsko-Mazurskie	6.81	0.68	0.57	0.11	6,807
BE35	Prov. Namur	6.81	0.91	0.63	0.28	23,885
ITI4	Lazio	6.81	1.80	0.63	1.16	29,900
UKC	North East (England)	6.82	0.90	0.81	0.09	20,638
PL34	Podlaskie	6.83	0.43	0.33	0.10	6,804
CZ03	Jihozapad	6.84	1.28	0.87	0.41	12,900
PL31	Lubelskie	6.85	0.32	0.27	0.05	6,347
FR42	Alsace	6.86	2.33	1.43	0.90	28,174
ES13	Cantabria	6.86	2.68	2.20	0.48	22,100
PL33	Swietokrzyskie	6.90	0.34	0.32	0.02	7,108
FR26	Bourgogne	6.91	2.54	1.64	0.89	25,222
DE8	Mecklenburg-Vorpommern	6.93	4.09	3.90	0.19	21,557
ES11	Galicia	6.94	1.41	1.11	0.31	20,500
PL61	Kujawsko-Pomorskie	6.95	0.40	0.36	0.04	7,804
PL12	Mazowieckie	6.95	0.64	0.45	0.20	15,389
SI01	Vzhodna Slovenija	6.97	1.07	0.56	0.51	14,512
BE32	Prov. Hainaut	6.97	0.34	0.15	0.19	21,986
ES61	Andalucia	6.97	2.03	1.21	0.82	17,100
DE4	Brandenburg	6.98	1.58	1.44	0.14	22,377
SI02	Zahodna Slovenija	6.99	2.03	0.53	1.51	20,814
SK01	Bratislavsky kraj	7.00	1.51	0.55	0.96	30,845
PL51	Dolnoslaskie	7.00	0.72	0.56	0.15	10,621
UKE	Yorkshire and the Humber	7.01	1.14	1.05	0.10	22,886
PL11	Lodzkie	7.02	0.42	0.37	0.05	8,702
CY0	Kipros / Kibris	7.03	2.93	0.63	2.30	21,100
UKI	London	7.03	2.02	0.71	1.30	47,986
BE33	Prov. Liege	7.05	0.83	0.46	0.37	25,040
BE10	Region de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	7.06	2.79	0.58	2.21	61,937
PL21	Malopolskie	7.06	0.98	0.67	0.31	8,076
ES30	Comunidad de Madrid	7.06	1.65	0.94	0.71	29,600
UKG	West Midlands (England)	7.06	0.86	0.73	0.13	22,604
ES21	Pais Vasco	7.09	1.25	0.81	0.43	30,500
DE3	Berlin	7.11	2.97	1.87	1.10	29,144
ES52	Comunidad Valenciana	7.11	1.75	1.13	0.62	19,900
PL63	Pomorskie	7.12	0.79	0.65	0.14	8,989
ES51	Cataluna	7.12	2.69	1.16	1.53	26,600
ITC4	Lombardia	7.12	1.33	0.67	0.66	33,900
ES22	Comunidad Foral de Navarra	7.14	1.73	1.35	0.38	29,100
UKJ	South East (England)	7.14	1.18	0.93	0.25	29,669
PL22	Slaskie	7.14	0.39	0.33	0.06	10,172
ES24	Aragon	7.15	2.00	1.63	0.38	25,300
UKF	East Midlands (England)	7.18	1.02	0.94	0.08	22,799
ES41	Castilla y Leon	7.18	2.01	1.62	0.39	22,300
ES12	Principado de Asturias	7.18	1.70	1.48	0.22	21,300
PL32	Podkarpackie	7.19	0.35	0.31	0.04	6,363
ES62	Region de Murcia	7.20	0.85	0.70	0.16	18,500
PL42	Zachodniopomorskie	7.21	1.13	0.87	0.26	8,008
UKD	North West (England)	7.22	1.63	1.39	0.24	23,599
PL41	Wielkopolskie	7.23	0.47	0.40	0.07	9,807
ES70	Canarias	7.25	5.36	1.35	4.01	19,300
DE6	Hamburg	7.25	2.98	2.38	0.61	52,357
UKL	Wales	7.26	1.82	1.64	0.18	19,525
ES53	Illes Balears	7.27	8.93	1.36	7.57	23,800
ITF6	Calabria	7.29	0.74	0.62	0.12	16,400
UKK	South West (England)	7.30	2.22	1.95	0.26	24,951
UKH	East of England	7.34	0.87	0.74	0.13	25,483
UKM	Scotland	7.36	1.98	1.42	0.56	25,960
BE34	Prov. Luxembourg (BE)	7.39	2.73	1.73	1.00	22,444
DEA	Nordrhein-Westfalen	7.44	1.03	0.80	0.23	31,880
DEF	Schleswig-Holstein	7.44	2.11	1.86	0.25	26,404
ES42	Castilla-La Mancha	7.45	1.06	0.89	0.17	18,100
DEB	Rheinland-Pfalz	7.51	1.90	1.44	0.47	28,535
BE31	Prov. Brabant Wallon	7.57	0.64	0.32	0.32	33,828
ES43	Extremadura	7.57	1.34	1.15	0.19	15,700
NL42	Limburg (NL)	7.63	2.96	2.28	0.69	31,849
DE9	Niedersachsen	7.64	1.53	1.35	0.17	28,144

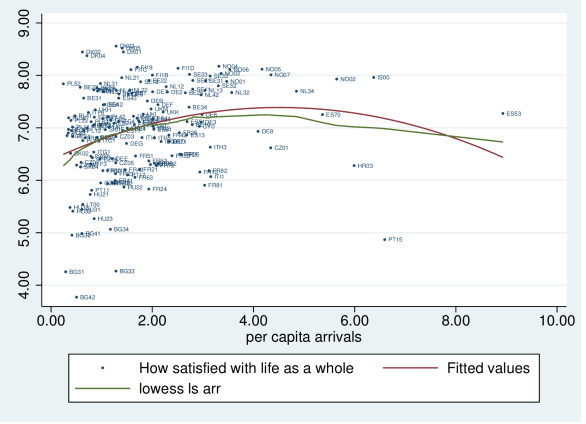
BE22	Prov. Limburg (BE)	7.64	1.34	0.82	0.52	27,402
DE1	Baden-Wurttemberg	7.66	1.59	1.23	0.36	35,283
BE25	Prov. West-Vlaanderen	7.67	2.65	1.46	1.19	31,570
NL32	Noord-Holland	7.67	3.57	1.27	2.30	40,471
DE2	Bayern	7.68	2.30	1.74	0.56	35,820
DE7	Hessen	7.69	2.01	1.50	0.51	36,838
NL33	Zuid-Holland	7.69	1.04	0.60	0.44	35,300
NL34	Zeeland	7.70	4.85	2.81	2.04	34,167
NL11	Groningen	7.70	0.92	0.71	0.21	49,607
NL13	Drenthe	7.71	3.04	2.76	0.29	27,114
NL41	Noord-Brabant	7.72	1.29	0.95	0.34	36,191
NL22	Gelderland	7.72	1.56	1.38	0.18	29,965
UKN	Northern Ireland	7.72	0.85	0.80	0.05	21,040
BE21	Prov. Antwerpen	7.74	0.95	0.41	0.54	38,594
SE11	Stockholm	7.74	2.80	2.02	0.78	54,960
BE24	Prov. Vlaams-Brabant	7.76	0.91	0.40	0.51	35,190
BE23	Prov. Oost-Vlaanderen	7.77	0.58	0.26	0.32	30,308
NL12	Friesland (NL)	7.79	2.28	1.88	0.40	28,864
CH01	Region lemanique	7.79				
SE32	Mellersta Norrland	7.80	3.30	2.69	0.61	37,281
CH07	Ticino	7.82				
PL52	Opolskie	7.84	0.24	0.21	0.03	7,596
NL31	Utrecht	7.85	0.98	0.69	0.29	42,156
SE12	Ostra Mellansverige	7.88	1.77	1.56	0.21	33,913
NO01	Oslo og Akershus	7.88	3.47	2.39	1.08	71,105
SE31	Norra Mellansverige	7.90	3.05	2.46	0.59	33,617
SE21	Smaland med oarna	7.90	2.80	2.39	0.41	34,829
SE22	Sydsverige	7.90	1.93	1.58	0.36	34,017
NO02	Hedmark og Oppland	7.93	5.65	4.49	1.15	38,372
NL21	Overijssel	7.96	1.40	1.21	0.19	31,212
IS00	Island	7.96	6.38	1.58	4.80	
SE33	Ovre Norrland	7.99	3.14	2.37	0.77	39,823
FI1B	Helsinki-Uusimaa	8.01	2.00	1.20	0.80	46,200
NO07	Nord-Norge	8.01	4.35	3.08	1.26	44,342
SE23	Vastsverige	8.02	2.74	2.14	0.60	37,376
NO03	Sor-Ostlandet	8.04	3.36	2.83	0.53	41,161
FI1C	Etela-Suomi	8.11	1.58	1.23	0.35	30,800
NO06	Trondelag	8.11	3.53	2.96	0.58	45,841
NO05	Vestlandet	8.12	4.17	2.73	1.44	53,003
FI1D	Pohjois- ja Ita-Suomi	8.14	2.51	2.00	0.51	28,800
FI19	Lansi-Suomi	8.15	1.70	1.54	0.17	30,909
NO04	Agder og Rogaland	8.17	3.32	2.68	0.64	55,402
CH02	Espace Mittelland	8.25				
CH03	Nordwestschweiz	8.30				
CH06	Zentralschweiz	8.30				
CH05	Ostschweiz	8.31				
DK04	Midtjylland	8.38	0.71	0.56	0.15	38,664
DK02	Sjaelland	8.45	0.62	0.50	0.12	30,141
DK01	Hovedstaden	8.45	1.43	0.69	0.74	52,552
DK05	Nordjylland	8.52	1.41	0.97	0.43	37,292
DK03	Syddanmark	8.56	1.29	0.96	0.33	38044

Appendix B: Tourism Development Cycle, a Cross-Sectional Analysis

We will measure tourism development cycle simply using the main independent variable of interest, tourist arrivals.

There is some support for tourist development cycle (Doxey 1975) in figure 3. Both, lowess and quadratic fit lines are shown and they indicate that the tourism benefit levels off somewhere at 4 arrivals per capita.

Figure 3: Happiness and tourist development cycle.



The tourist development cycle is tested using squared terms in regression framework in table 10. As earlier without quadratics, overall arrivals (e1*) and resident arrivals (e2*) are significant and nonresident arrivals are insignificant (e3). Yet in full specifications, overall arrivals (e1full) turn up insignificant and nonresident arrivals become significant (e3full) with reversed quadratic signs: first declining effect and then positive effect, thus contradicting our findings. Perhaps, some nonresident tourists may disturb locals, but if there are plenty locals get used to. We leave it for the future research to explore further.

Table 10: OLS regressions of happiness.

	e1base	e1full	e2base	e2full	e3base	e3full
per capita arrivals	0.80***	0.17				
per capita arrivals squared	-0.09**	-0.02				
per capita arrivals, residents			1.58***	0.71***		
per capita arrivals, residents squared			-0.29***	-0.15**		
per capita arrivals, non residents					0.30	-0.34*
per capita arrivals, non residents squared					-0.05	0.07*
crime scale		0.03		0.03		0.04
age		0.00		0.00		0.00
religiosity		0.07***		0.08***		0.07***
health		0.55***		0.55***		0.55***
male		-0.04+		-0.04+		-0.04+
income		1.03***		0.99***		1.03***
born in country		0.10*		0.10*		0.09*
population density		-32.20		25.50		-52.02
average migration		0.03**		0.03***		0.05***
size of a place		0.01		0.01		0.01
average born in country		-0.14		0.39		-1.90*
constant	5.84***	1.17	5.67***	0.49	6.65***	3.18***
N	81702	65741	81702	65741	81702	65741

+p<0.10 *p<0.05 **p<0.01 ***p<0.001; robust clustered std err

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