

Tourism Planning & Development

ISSN: 2156-8316 (Print) 2156-8324 (Online) Journal homepage: https://www.tandfonline.com/loi/rthp21

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To cite this article: Bart Neuts & Dominique Vanneste (2019): Analysing Residential Preferences for Urban Redevelopment in Tourism Destinations: An Application of Choice Experiments, Tourism Planning & Development, DOI: 10.1080/21568316.2019.1580211

To link to this article: https://doi.org/10.1080/21568316.2019.1580211

Published online: 26 Feb 2019.

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TOURISM PLANNING & DEVELOPMENT
https://doi.org/10.1080/21568316.2019.1580211

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Analysing Residential Preferences for Urban Redevelopment in Tourism Destinations: An Application of Choice Experiments

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ABSTRACT

In a number of European heritage cities, concerns are raised that tourism has become unsustainable and that a city space is created – by design or organically – which primarily caters to visitors. In order to preserve a vibrant mix between visitors and locals, development strategies need to recognize residents' preferences. This paper introduces a discrete choice experiment to identify preferences of different residential groups in Amsterdam. Findings show that all resident groups attach high value to green areas and the improvement of commercial establishments. On the other hand, additional public transportation is only favoured by users residing outside of the historic centre. The potential for overcrowding is an ongoing concern, specifically for local residents. The findings reveal the need to account for individual variations in preferences and to reconcile the potentially conflicting objectives of cities of increasing local liveability, while creating, at the same time, an attractive visitor environment.

KEYWORDS

Discrete choice experiments; urban tourism; entrepreneurial city; residential preferences; urban redevelopment

1. Introduction

Urban tourism has become a significant economic activity for many urban destinations, although the scale and form of tourism is evidently variable. Especially in Western neoliberal markets, a contemporary era of intercity competitiveness can be recognized. Particularly in Europe, but also in cities such as New York, Tokyo, and Auckland, urban spatial development has moved from a managerial mode of policy making largely focused on land-use control and infrastructure provision towards adopting a local growth model of economic development, re-imagining the city to attract global investment, high-spending visitors, and renewed interest from middle and higher-income residents (Harvey, 1989). The "entrepreneurial city" rationale hinges on a number of ideas ideas: creating a liveable city for residents, instigating economic growth through private investment, and importing foreign currency through tourism.

The quality of the built environment becomes a prerequisite for economic development, bestows a decisive competitive advantage and determines the "liveability" of a city – albeit liveability for specific types of users (Florida, 2003; Gospodini, 2001). Madureira and Baeten (2016) note how these ideas are primarily outward-focused; new urban spaces

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are not being re-created for impoverished local people but for outsiders, investors, developers, and high-spending tourists. Elected officials – often in collaboration with private partners – devise development plans that prioritize the latter groups, promoting specific types of consumption patterns and activities in an attempt to create competitive advantages (Hubbard & Hall, 1998). The institutional framework for spatial development is characterized by a change from government to governance whereby a policy is increasingly formed by a collaboration between preferred partners.

Planning issues can arise when the needs of various resident and/or external groups do not converge. A growing number of European destinations have started to recognize the potential detrimental effects of an unsustainable growth model solely focused on economic advancement. As García-Ayllón (2015, p. 150) notes: "An urban planning model based on short-term parameters of profitability can drive into a degenerative vicious circle." Increasing population and visitor numbers put constraints on valuable resources and can affect the quality of life of local residents (Cantallops & Cardona, 2016). Reconciling the need for economic development through urban tourism with residential urban liveability requires the careful planning of both physical city spaces and destination marketing messages (Haywood, 1992; Jamieson & Jamieson, 2014).

It is within this context that our study explores the effects of a visitor-focused urban redevelopment plan on residential utility. In applying a discrete choice experiment (DCE) in a case study of Amsterdam, the main research aim is to analyse the preferences of heterogeneous resident groups concerning urban design aspects in shared tourist-resident city spaces. The results add to the wider understanding of resident attitudes to tourism development and are particularly significant in the much-visited European historic cities dealing with capacity constraints, where objections by residents towards increasing tourist growth have been notable (e.g. Hermanides, 2015; Van der Poel, 2015). Although the research focuses on Amsterdam, the methodology can also be applied to other destinations as a means of informing the city planners in tourist cities. Furthermore, tourism research has traditionally treated local residents as a homogeneous group (e.g. Sautter & Leisen, 1999; Sheehan & Ritchie, 2005) or distinguishing between a limited number of subgroups (e.g. Cantallops & Cardona, 2016; Lundberg, 2017). By accounting for model heterogeneity within a DCE analysis, this research allows for the inclusion of additional variations within groups.

In what follows, the paper first analyses the tourism-led economic growth theory and the effects of increased tourism concentration. In section 3, attention is paid to the study area and methodology. Section 4 presents the findings on the different urban attributes and respective changes in utility for different resident segments. Finally, section 5 summarizes the main conclusions.

2. Literature review

2.1. Urban tourism and tourism-led growth

According to Law (1993, p. 1), "large cities are arguably the most important type of tourist destinations across the world", functioning as both a primary destination and as a gateway to the backcountry (Edwards, Griffin, & Hayllar, 2008). Especially in post-industrial Western cities with little alternative competitive advantage, elected officials have actively pursued

tourism development since at least the 1980s as a revitalization strategy in order to replace declining manufacturing activities (Law, 1992) since, as a place-based service industry, tourism jobs cannot easily be relocated and the tourism product requires only modest investments due to its experiential nature. Such ideas follow a tourism-led growth hypothesis, first postulated by Balaguer and Cantavella-Jordà (2002), which suggests a link between inbound tourism and economic growth. Brida, Cortes-Jimenez, and Pulina (2016) offer a succinct review of 10 years of research in the field and conclude that the tourism-led growth model is generally confirmed across continents, implying that tourism activities can be used as effective leverage for economic growth. However, research on tourism-led growth has typically been performed on whole countries, potentially limiting its generalizability towards lower-level geographical units. In their study on Macao, Sheng and Tsui (2009) did validate tourism-driven economic growth, but also identified negative externalities related to the transformation of regional economic structures. Furthermore, studies have primarily focused on high tourism propensity destinations and the validity of tourism as an economic driver might be questioned in locations where tourism is still developing (e.g. Chou, 2013) or negligible with respect to other economic sectors (Brida et al., 2016).

The latter objection could particularly be true for tourism as a driver of urban economic growth, with Tokarchuk, Gabriele, and Maurer (2016) observing how the general economic impact of tourism in larger cities with alternative service industries is often lower than that of economic activities such as finance and accounting, media, or communication services. However, exact numbers on the ratio of tourism-specific employment and income effects are difficult to come by at city-level, at least in part due to the complexity of extracting tourism as a separate economic activity. Adopting the Tourism Satellite Account definition of the tourism industry, sectoral employment statistics for Antwerp, a historic tourism city in Belgium, indicate tourism employment levels of 3.8% (excluding transportation) to 5.7% (including transportation) in 2013 – comparable to employment in the building sector (5.1%) and greater than the financial (3.9%) and pharmaceutical (0.5%) sectors (Rijksdienst voor Sociale Zekerheid, 2014). In Amsterdam, a more mature tourism destination, the Research, Information and Statistics (2016) centre of the council attributes 10% of total employment to tourism, although these numbers are likely inflated due to the inclusion of passenger transport, as well as the effects of local consumption within the recreational sphere. While these numbers do suggest the importance of tourism as an economic actor, it has to be noted that the sector is characterized by a profusion of poorly remunerated, often temporary, positions with limited opportunities for growth (Baum, 2015), implying that the income effects are likely to be smaller than the employment effects.

Notwithstanding reservations on the relative magnitude of economic effects as compared to other sectors, as Law (1992, p. 601) suggested: "Tourism was not and is not perceived as a panacea to urban economic problems, but as part of the solution." Tourism development can be one segment of a wider economic shift from manufacturing towards the service and creative industries.

2.2. The tourism precinct

Given the potential economic benefits offered by urban tourism, it is unsurprising that elected public authorities are increasingly competing to attract high-spending tourist

segments through marketing campaigns, events, infrastructure and cultural investments (Lehman, Wickham, & Reiser, 2017). Such tourism-focused infrastructure and facility development could prove beneficial for the local community as well – specifically in less-developed areas – and serve to create a multifunctional urban environment for residents and visitors alike (Law, 1992; Nepal, 2008). Notwithstanding, as stated by several authors, careful management of resident/tourist zones via community integration is vital (Malek & Costa, 2015), and residential liveability needs to be balanced with visitor expectations in order to ensure an authentic and attractive destination (Jamieson & Jamieson, 2014; Russo, 2002). If not properly planned, developed, and monitored, the entanglement between residential and visitor quality of urban areas could lead to what Williams and Ponsford (2009) have dubbed "the environmental paradox", whereby tourism relies on the exploitation of assets that must be preserved – in this case an authentic, liveable, residential urban space.

Potential unwanted negative externalities are specifically linked to tourist precincts: areas characterized by a prevalence of tourist-related activities and land uses (Hayllar, Griffin, & Edwards, 2008). Such areas of tourist concentration can develop both organically, through historic evolutions in city development (Ashworth & Tunbridge, 2000), and via city planning which has attempted to maximize economic effects by clustering places of consumption (Moosivand & Farahani, 2013). Tourist precincts take on various distinct forms (Howard, 2010). Specifically, in an attraction-specific tourist precinct, a supporting tourism industry follows the spread of primary historic attractions, and provides accommodation, restaurants, souvenir shops, and secondary attractions (Gospodini, 2001). Such development erodes the tourist/residential mix and might involve a loss of authenticity through commercialization (Spirou, 2008; Van der Borg, Costa, & Gotti, 1996).

The potential creation of a monoculture and the crowding out of non-tourism functions (e.g. Sheng & Tsui, 2009) is linked to the physical limitation of available space and the open access nature of an important subset of tourism resources (Healy, 1994, 2006). Scarcity of space and competition for labour and land (Edwards et al., 2008) can lead to issues of territoriality (Andereck, 1997) and a loss of place attachment for local residents with potential consequences for both resident and tourist satisfaction (Cantallops & Cardona, 2016; Lundberg, 2015).

Attitudinal research on resident perceptions has shown mixed reactions to tourism development. Rasoolimanesh, Ringle, Jaafar, and Ramayah (2017) identify a difference between residents in rural areas and those in more matured, urban destinations, with the latter having a greater awareness of both the positive and negative impacts of tourism. Látková and Vogt (2012) similarly note how the perception of negative impacts is compounded over time and associated with the maturity of the destination. Lundberg (2015), on the other hand, found that the relationship between impact perception and the tourism-area life cycle is non-linear and contextual. Furthermore, marked differences have been found between heterogeneous resident groups, with at least a subset of city inhabitants demonstrating negative attitudes and active avoidance behaviour (e.g. Cantallops & Cardona, 2016; Ritchie & Inkari, 2006; Snaith & Haley, 1999). This can further exacerbate the changing nature of such urban areas into "tourist bubbles", negatively influencing the authenticity of the experience for tourists motivated by the overall ambience, identity, diversity, and intangible local quality of life (Hughes, 1995; Jamieson & Jamieson, 2014).

The literature thus suggests that tourism can, in many circumstances, act as a growth motor for urban (re)development. However, the creation of a sustainable tourism-resident space requires a careful balance between tourism functions and residential requirements. Planning issues arise when the needs of residents and visitors do not converge and entrepreneurial city models are focused exclusively on creating spaces of consumption. Therefore, in order to strengthen a mixed tourist/resident use of space it is important to take into account local residents' preferences as well.

3. Method

3.1. Study site

The city of Amsterdam in the Netherlands was chosen for the empirical fieldwork and provides an interesting case study for a number of reasons. Because of its rich heritage, interesting spatial characteristics, and liberal and tolerant image, Amsterdam has developed into an important global tourism destination (Dahles, 1998; Terhorst, van de Ven, & Deben, 2003). In 2015, the city received 6.7 million international hotel guests for a total of 12.5 million nights – a 12% increase from the previous year (Research, Information and Statistics, 2016). Such continuous growth in tourist arrivals and the concurrent surrounding economic development have recently led to concerns about the "disneyfication" of the city centre (Hermanides, 2015), with Terhorst et al. (2003) noting how different rounds of urban restructuring in Amsterdam since 1974 have changed the functionality of the city centre towards an area focused on the tourism and leisure industry.

Furthermore, in the early twenty-first century, intercity competition had caused a modest drop in Amsterdam's position on various international rankings. As a reaction to this perceived decline against international benchmarks, in 2004 a desired change in brand identity was identified, signalling an entrepreneurial redevelopment strategy linking policy, communication, product, and promotion. The rebranding effort singled out clear target groups – e.g. business decision-makers, the creative sector, and international visitors – dominated by a distinct outward-focused economic perspective, following a neo-liberal justification (City of Amsterdam, 2004). Subsequent urban redevelopment projects throughout the city show clear linkages with the promotional vision. This paper focuses exclusively on the "Red Carpet" project, which redevelops public space over an entire north–south axis (see Figure 1), coinciding with the new north/south metro line. Even though the area itself is limited in size, as identified in a recent tracking study (Van der Poel, 2015), most of the tourists visiting Amsterdam will traverse this zone. As such, it is one of the primary locations where pressures on the residential/tourist mix are increasingly prevalent.

The planning vision of the "Red Carpet" project accentuates the external scope: improving the quality of the historic city's entrance area for visitors (Gemeente Amsterdam, 2009). A dominant aspect of the plan is the prioritization of pedestrian traffic to create a "sense of place" and an enjoyable location in which to recreate (Ewing & Handy, 2009), while also providing essential links between attractions in the various tourism precincts of the city. The new metro stations – specifically at *Rokin* and *Vijzelgracht* (Figure 1) – will provide extra public transport stops and increase modal choice,

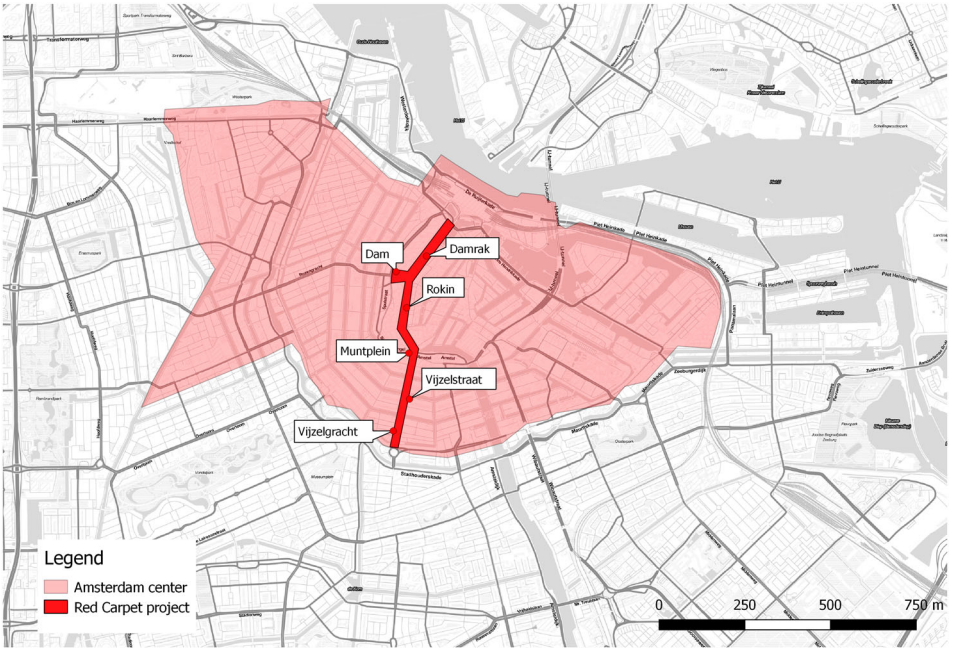


Figure 1. "Red Carpet" redevelopment area.

adhering to the Smart Growth philosophy that, among other things, stresses a need for a variety of transportation in order to create a liveable environment (Geller, 2003). Proposed pockets of green space will favourably affect urban liveability and human health (Jackson, 2003) while simultaneously providing an important attraction for visitors (Jamieson & Jamieson, 2014). In terms of commercial enterprises in the area, so-called low-quality stores are making way for mainstream international stores exuding a metropolitan character.

3.2. Survey, data collection

In order to analyse heterogeneous resident preferences in relation to the various aspects of the above-mentioned visitor-focused urban redevelopment, data were collected via a self-administered online survey – programmed in LimeSurvey 1.91 – containing questions involving development preferences, as well as questions relating to socio-demographic profile, site use and perception of the area under investigation. A disproportionate stratification subdivided the total sample into three resident segments, based on their respective distance to the central research area (<2 km, 2–4 km, >4 km). The survey link was distributed among 2,304 recipients – 768 in each of the three segments – via a panel provided by the Research, Information, and Statistics office of Amsterdam during the period January–February 2011. A total of 1,280 surveys were returned, and after accounting for incomplete responses and irrationality in choices – a necessary requirement of DCEs (Johnson & Mathews, 2001; Özdemir, Mohamed, Johnson, & Hauber, 2010) – a final sample size of 864 was retained.

3.3. Discrete choice experiment (DCE) design

DCEs measure individual preferences for goods and services and estimate marginal willingness to pay (WTP) for different characteristics of a good, by offering respondents hypothetical scenarios. Based on participants' choices in subsequent scenarios, trade-offs between attributes can be distinguished as marginal WTP, which then allows for the identification of preferred attributes. Furthermore, due to their hypothetical nature, the experiments can capture non-use value and preferences for idealized circumstances (Hanley, Wright, & Adamowicz, 1998). After their initial conception in resource economics, DCEs have found application in the evaluation of urban destination planning (e.g. Lindberg, Dellaert, & Rassing, 1999; Tait, Vallance, & Rutherford, 2016; Torres, Greene, & Ortúzar, 2013).

At the first stage of a DCE design, the target good's defining attributes and the variations within the attributes (i.e. the levels) need to be selected. The nominated attributes in terms of the urban redevelopment strategy closely followed the original redevelopment plans (Gemeente Amsterdam, 2009) and were identified as:

- street layout;
- green areas;
- shopping facilities; and
- preference for public transportation stops.

These were all measured dichotomously (i.e. comprising two levels per attribute). A four-level semantic crowding characteristic was incorporated as a fifth attribute (Ceurvorst, 2010) to reflect the potential conflicting use of space between residents and visitors and the general acceptability of a growth strategy. The relevance of these attributes could be verified by comparing the chosen characteristics with the urban space characteristics that have been found significant in residential environmental quality studies (see e.g. Fornara, Bonaiuto, & Bonnes, 2010; Tu & Lin, 2008). The broad dimensions of inner-area mobility (street layout, public transportation stops), commercial services (shopping facilities), green areas (green areas present), and quality of life (crowding) were all represented. Finally, a price vector was included in order to be able to assign WTP values to measure changes (i.e. the marginal rate of substitution between the price level and another attribute) and offer a comparable monetary basis for different attributes (Hanley, Mourato, & Wright, 2001).

The chosen attributes and their respective levels (as seem in Table 1) were described textually, with photographs of suggested street layout design, green spaces, and crowding levels preceding the DCE in order to provide respondents with a mental construct (Bateson & Hui, 1992; Kelly, Haider, Williams, & Englund, 2007). Furthermore, based on this preliminary analysis of semantic crowding levels and urban density via a photographic method, the four semantic crowding levels were later quantified for the statistical analysis.

The six different attributes were then combined into various development scenarios and offered to respondents in choice sets, using a pairwise approach, and asking respondents to choose their preferred out of two alternatives or a "neither of both" opt-out option. Figure 2 provides an example of a choice set. Since the combination of six

Table 1. Attributes and attribute levels (reference attribute levels in bold).

Attribute	Levels	Amsterdam
Street layout	2	**No wider sidewalk with tram rails and car lane separate**; Wider sidewalk with tram rails on car lane
Green areas	2	**No green areas**; Green areas
Shops	2	**No change in quality of shops**; Fewer coffee shops and tourist stores in place of international chains and boutiques
Public transportation	2	Stops every 200 m; **Stops every 500 m**
Crowding	4	Not at all crowded; Not crowded; **Crowded**; Very crowded
Tax level	6	+€1.5; +€2.5; +€4; +€6.5; +€9; +€14.5

	Alternative A	**Alternative B**	**Neither of both**
Street layout *Damrak*	Wider sidewalk with tram rails on car lane	No wider sidewalk with tram rails and car lane separate	Neither Alternative A, nor Alternative B
Green areas	Yes	No	
Shops	Fewer coffee shops and tourist stores in place of international chains and boutiques	No change in quality of shops	
Public transport stops	Stops every 500m	Stops every 200m	
Crowding	Not at all crowded	Not crowded	
Resident tax	+ €15 per year	+ €1.5 per year	
My choice (tick only one box)	☐	☐	☐

Figure 2. An example of a choice set given to respondents.

attributes and 18 different levels could lead to 384 unique scenarios ($2 \times 2 \times 2 \times 2 \times 4 \times 6$), it is necessary to select a subset in a way that still allows for the estimation of the main effects without leading to respondent fatigue. The study used a fractional experimental design (Hanley et al., 2001) to create orthogonal and balanced choice sets according to the method described by Street, Burgess, and Louviere (2005). This led us to retain 24 original choice scenarios, which were then equally divided between three surveys. Since the validity of welfare measures from stated preference methods depends on rational choices, tests were included to identify basic rationality. Within-set monotonicity, which implies that rational subjects will always prefer better levels of an attribute to worse levels (Özdemir et al., 2010), was tested by including two dominant choice sets in which only the tax level differed (Johnson & Mathews, 2001). Any rational respondent would be expected to choose the scenario with lower taxes. Stability of choices was measured by repeating the first two choice sets at the final stage and comparing these preferences. Consequently, each respondent ultimately received twelve binary choice sets, plus a "neither of both" option in every set.

The common theoretical framework underlying DCEs is the random utility model, which considers decision makers to exhibit utility-maximizing behaviour when faced with such multiple choice scenarios (McFadden, 1980). While the utility (U) is known by the

respondent, the researcher can only observe a hierarchy in responses; it is assumed that a respondent (r) will only choose an alternative (i) if:

$$U_{ri} > U_{rj} \forall j \neq i \tag{1}$$

While the attribute levels of each scenario (x_{rj}) and the socio-demographic data of the respondent (s_r) are known by the researcher, unobservable parts of utility (U) are captured by an error term (ε_{rj}). Therefore, utility can be written as a function V of the attribute levels x_{ri} (the deterministic part) and an error term (the random part), giving a probability that a respondent chooses alternative i over alternative j of:

$$P_{ri} = \text{Prob}(U_{ri} > U_{rj} \forall j \neq i) \tag{2}$$

$$\text{Prob}(V_{ri} + \varepsilon_{ri} > V_{rj} + \varepsilon_{rj} \forall j \neq i) \tag{3}$$

$$\text{Prob}(V_{ri} - V_{rj} > \varepsilon_{rj} - \varepsilon_{ri} \forall j \neq i) \tag{4}$$

Since values of ε_{rj} are unknown and random, the equation can only be solved by making assumptions about the error term distribution (Hanley et al., 1998; Train, 2002). The most widely used analytic procedure in DCE is the conditional logit (or multinomial logit) model (Train, 2002) which assumes that the errors are identically and independently distributed (iid) extreme value and are uncorrelated over alternatives. This prerequisite limits the options for handling taste variation among respondents. While systematic taste variation can be incorporated into the model by interacting attribute levels with socio-economic variables, random taste variations cannot (Train, 2002).

In order to deal with both systematic and random taste variations, we included significant interactions of personal attributes within a random parameter logit (RPL) (or mixed logit) estimation. RPL splits the error component into a random part which contains correlations and random preference heterogeneity and can follow a number of distributions (most notably normal, lognormal, triangular), and a systematic part which is solved as a conditional logit model (Hensher & Greene, 2003). The analysis combines the advantage of (a) identifying specific sources of heterogeneity, and (b) covering unknown, random aspects of taste difference, and allows for a better understanding of resident heterogeneity than traditional grouping based on pre-identified variables. We estimated the latter RPL model with interactions with R 2.13.2, specifically the mlogit package developed by Yves Croissant (see CRAN, 2011).

The estimation of this RPL model requires four important decisions:

(a) the specification of the utility function;
(b) the attributes to be randomized;
(c) the respective distributions of the random attributes; and
(d) the socio-demographic characteristics to incorporate as interaction terms.

Firstly, instead of modelling utility in a linear fashion, in line with the findings of Neuts (2016), a quadratic relationship between crowding and utility is specified, reflecting the idea that public spaces need a certain amount of users in order to function optimally. Secondly, a preliminary RPL model was estimated in order to decide which attributes to randomize through the t-statistic test of the standard deviations of each attribute, with

significant standard deviations signalling heterogeneity (Mohammadian, Haider, & Kanaroglou, 2008). As a result, only the Alternative Specific Constants (ASCs) and taxation level were kept fixed in the final model. Finally, in order to choose the respective distributions of the random attributes, as well as relevant interactions, Hensher and Greene's (2003) empirical approach was used. A conditional model was estimated $n + 1$ times, removing a single respondent in each iteration and comparing these coefficients with the full model coefficients. To identify the distributions of each random attribute, coefficient differences were plotted on a kernel density function, revealing a normal distribution for all random variables. In a similar way, significant interactions were established by running a simple linear regression between each coefficient difference and relevant socio-demographic characteristics.

4. Findings

Table 2 presents the results of the RPL estimate with interactions. The table describes residents' preferences for street layout, green areas, shopping possibilities, public transportation, and crowding, taking into account the proximity of the residents to the study area. The coefficients can be interpreted as changes in personal utility: positive values indicate that a change from the reference level (i.e. the pre-redevelopment state of the area) to the alternative level increases personal utility while negative values suggest that a change from the reference state is not supported. The ASCs show the change in utility of making a different choice from the status-quo, with negative values indicating status-quo bias. The quadratic crowding attribute is reflected in Table 2. Furthermore, interaction effects between the primary attributes (i.e. street layout, green areas, shops, public transportation)

Table 2. Results of random parameter logit (RPL) model (ASC = Alternative Specific Constant).

	Residents within the centre (<2 km)		Residents outside of the centre (>=2 km)	
Parameter	Estimate	Std. Err.	Estimate	Std. Err.
ASC1	−2.09570***	.20081	−1.90420***	.11181
ASC2	−1.96230***	.20248	−2.27810***	.11650
Street layout	.57281	.35752	.25971	.20644
→ Primary transportation: public transport	−.07764	.10541	−.11460*	.05371
Green areas	3.22170***	.41717	2.12330***	.16185
→ Reason to visit area: work	.06524	.06357	.06350°	.03538
→ Age	−.02161**	.00680	−.00568**	.00198
Shops	1.61750***	.13047	1.37580***	.07671
Public transportation	−.24760	.44667	−.70376**	.23961
→ Primary transportation: on foot	−.13309	.09479	−.08495°	.04833
→ Primary transportation: public transport	.25136*	.10404	.19703***	.05421
→ Frequency of use: necessary activities	−.18869	.15065	.24540*	.11183
Crowding	.01434*	.00588	.01032**	.00342
Crowding^2	−.00011***	.00003	−.00008***	.00002
Tax	−.11502***	.01517	−.10731***	.00853
sd.Street layout	1.30830***	.16122	1.55500***	.09643
sd.Green areas	1.29660***	.13498	1.03360***	.08459
sd.Shops	1.37290***	.14450	1.37860***	.08336
sd.Public transportation	−.77477***	.18052	1.13460***	.09191
sd.Crowding	−.00606*	.00295	.00737***	.00150
Log-Likelihood	−1363.7		−4107.3	
McFadden ρ^2	.2722		.2279	

Significance codes: 0.001 "***", 0.01 "**", 0.05 "*", 0.1 "°".

Table 3. Willingness to pay estimates (in EUR).

	Residents within the centre (<2 km)		Residents outside of the centre (>=2 km)	
Parameter	WTP	95% Conf. Interval	WTP	95% Conf. Interval
Street layout	4.98	−2.08; 11.86	2.42	−0.99; 6.70
→ Primary transportation: public transport	−0.68	−5.72; 3.39	−1.07	−1.97; −0.11
Green areas	28.01	21.94; 36.36	19.79	17.05; 24.03
→ Reason to visit area: work	0.57	−0.29; 1.80	0.59	0.01; 1.25
→ Age	−0.19	−0.34; −0.08	−0.05	−0.13; −0.03
Shops	14.06	12.25; 16.62	12.82	11.59; 14.36
Public transportation	−2.15	−6.82; 3.49	−6.56	−10.13; −2.18
→ Primary transportation: on foot	−1.16	−2.57; 0.09	−0.79	−1.63; 0.03
→ Primary transportation: public transport	2.19	0.89; 3.58	1.84	0.76; 2.53
→ Frequency of use: necessary activities	−1.64	−3.95; 0.09	2.29	0.03; 4.51
Crowding	0.12	0.06; 0.20	0.10	0.06; 0.14
Crowding^2	0.00	0.00; 0.00	0.00	0.00; 0.00

and a number of individual variables are noticeable, indicating structural preference heterogeneity.

After determining resident preferences, Table 3 displays the WTP results of all primary characteristics as well as the significant interactions, estimated as the ratio of attribute coefficients to the tax coefficient. WTP confidence intervals were based on the parametric bootstrapping technique with 1000 replications (Kragt & Bennett, 2011).

4.1. Street layout

Up until the redevelopment, the main entrance street to the area *Damrak* consisted of two sidewalks, a bicycle lane, a tramway, and a lane for cars (see Figure 3). Due to the large number of pedestrians in the area, pedestrians frequently block the cycle lane. This results in conflict with local inhabitants, as was noted by one respondent: " … they can walk on the sidewalks. There is enough space for them. And then I start to ring my bell and they pretend they cannot hear me. That really winds me up." Recognizing the undesirability of lowering pedestrian traffic, the original design alternative (Gemeente Amsterdam, 2009) therefore consisted of a reduction of the car and tram lane, by combining these in a single lane, and opening up extra space for slower modes of transportation. Such spatial reconfigurations could theoretically be considered advantageous for both tourists – who often explore historic city centres on foot – and residents, by contributing to walking environmental attractiveness (Adkins, Dill, Luhr, & Neal, 2012).

The results from the RPL indicate non-significance for this general attribute. Interestingly, 11 respondents explicitly stated that they would have chosen a traffic-free *Damrak*, if this option had been given. Therefore, the variations, and non-significance,

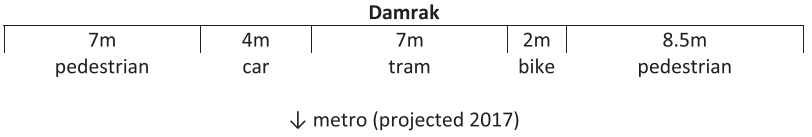


Figure 3. Traditional street layout in *Damrak*.

might be attributable to the preferred attribute level not being offered. However, the council did not consider full closure for motorized traffic. Nonetheless, statements made by a number of respondents might be indicative that pedestrian-and-bicycle-orientation are desired urban qualities, which would support the findings of Ewing and Handy (2009) and Gilderbloom, Riggs, and Maeres (2015). One significantly negative interaction effect was found: for non-central residents who primarily use public transportation in the area, the new design proposal is no longer favoured since integrating the tramway with the car lane can cause congestion. On busy days, cars are often queued up to enter the parking garage at *Damrak*. Under the proposed street design, this would interfere with public transport. Notably, the final design of *Damrak* diverted from the conceptual plans by keeping the original separation between car and tram lanes intact (Gemeente Amsterdam, 2013).

The systematic taste variations are indicative of the fact that design choices cannot satisfy every group of users to the same extent and an insight into the strength of preferences can help inform decision-making. In order to transfer the utility-concept into a measurable and comparable scale, the tax coefficient was used to calculate WTP values for the scenarios. A change in street layout is valued at €4.98 while for residents living outside of the central area, utility is lower at a value of €2.42 per person. The influence of the primary transportation mode used by the respondents as an interaction variable is noticeable in the negative WTP value for public transport users. This could reverse the utility coefficient of "Street layout" if public transportation is the main mode of transport, specifically for residents living outside of the centre. Ultimately, though, the value remains rather low and suggests that residents do not particularly favour any of the alternatives while the confidence intervals around the WTP values imply large heterogeneity.

4.2. Green areas

Similarly to a pedestrian-focused approach, the creation of green spaces within the city centre ought to add utility to both tourists and residents (Henderson, 2013; Zhou & Rana, 2012). Historically, the city centre areas of *Damrak* and *Dam* have lacked significant green areas. While *Damrak* is partly flanked by water, other elements such as trees, bushes and grassland are missing. Clearly, all respondents, with little difference between the two subsamples (central and non-central residents), value pockets of green space. The results therefore correlate with the theory that greening of the environment significantly increases utility of the area for all residential groups alike and are important urban amenities (Jackson, 2003; Rostami, Lamit, Khoshnava, Rostami, & Rosley, 2015). Investments in, minimally, roadside or road-median greening upscale the neighbourhood and provide credence to the redevelopment. It is also the most valued aspect of public space improvement, with a WTP of €28.01 and €19.79 for central and non-central residents, respectively.

Two interactions were found: older respondents saw less benefits in green spaces, while respondents that primarily visit the area for work-related purposes seem to value neighbourhood parks and pockets of green more. For the latter residents, green environments might offer a place of relaxation during work breaks. However, as noted by a respondent, there are also elements of competition for space use to consider. While green areas can offer a public place for relaxation for locals, they could simultaneously offer attractive

rest areas for visitors, thus impeding the pedestrian flow and aggravating the congestion problem. This potential competition further illustrates that high-quality residential areas are also attractive visitor destinations.

4.3. Shops

In the redevelopment plans it was noted how the first image that is projected of Amsterdam through *Damrak* is not one of culture, heritage, and history, but one of vice, liberal atmosphere, and partying. The quality of shops and other commercial enterprises around the area (e.g. cheap tourist souvenirs, soft drug paraphernalia, international call shops) was deemed unfavourable and an upgrade was planned by the city council through strict zoning and licensing policies (Gemeente Amsterdam, 2009). However, while not being in line with the atmosphere the city wants to exude, the commercial establishments of *Damrak* and its surroundings do provide visitors with a more distinctive atmosphere and the shopping possibilities, leisure supply, and coffee shops have previously been identified as positive aspects of the city in visitor surveys (Amsterdam Toerisme en Congres Bureau, 2012). Applying an entrepreneurial scope and focusing development on international chain stores in order to attract higher value stores and higher spending recreationists, might ultimately lead to a more homogeneous image of the neighbourhood.

Notwithstanding, tidying up the area by introducing better quality stores and international chains seems to be the preference of Amsterdam residents, with significantly positive values. In terms of WTP, a change in the commercial fabric is the second most important attribute, with a value of €14.06 for local residents and €12.82 for residents living outside of the historic centre, with limited individual differences.

4.4. Public transportation

City planning has opted for extending current public transportation, offering extra underground stops at *Rokin* and *Vijzelgracht* in the central district as a result of the new metro line. This would lower the radius of distance between public stops, increase modal choice and further connect tourist nodes such as the *Rijksmuseum* and the *Van Gogh Museum*. The increase in modal choices and easy connection between tourist nodes is an important aspect of tourist precincts and attractive urban destinations (Le-Klähn & Hall, 2015). It is theoretically expected that the preferences of visitors will mirror those of residents and other frequent local-public-transportation users (Tumlin, 2012). However, from the results in Table 2, it seems that the respondents of the survey do not value the proposed increase in public transport options and stops in the neighbourhood. While the public transportation attribute is priced at a rather low WTP rate, €-2.15 for residents within the central area and €-6.56 for residents of the wider Amsterdam region.

This is specifically true for pedestrians in the area who are not dependent on public transportation and might favour less public transport stops since these are areas of social congestion (Tirachini, Hensher, & Rose, 2013) and have been related to additional negative externalities such as an increased crime risk (Newton, Partridge, & Gill, 2014). In contrast, as could be expected, the proposed change is valued differently by frequent users of public transport in this area. The residents in this group are more inclined to

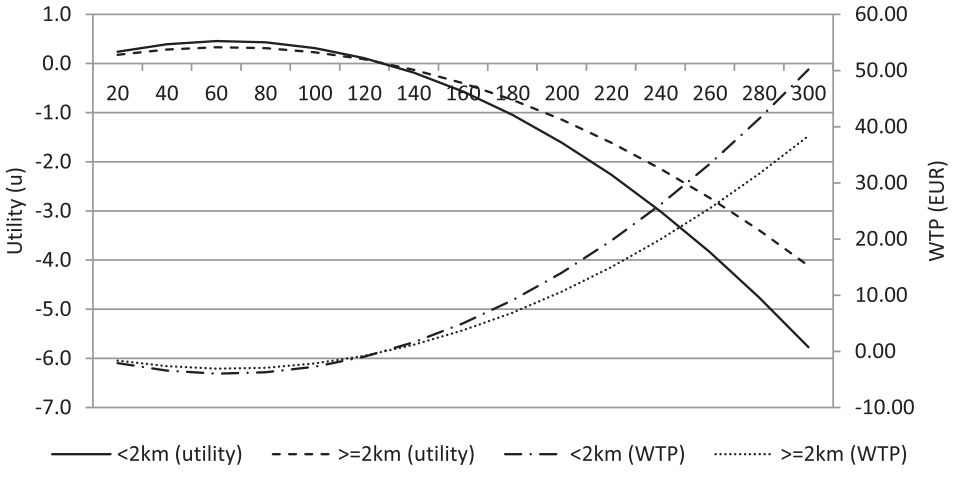


Figure 4. Crowding utility (left axis) and Willingness To Pay (right axis): people per 200 m^2.

support investments in additional transport lines and stops since it increases their choices and simplifies travels. Similarly, non-central residents that visit the area out of necessity (i.e. working or studying) supported an increase in public transport connections, possibly because they depend on these means of transportation to reach their workplace.

4.5. Crowding

Due to the quadratic nature of the crowding attribute, its interpretation depends on the number of users (*n*). Figure 3 plots the crowding utility value for different levels of *n*. Utility is optimized at around 70 people in an area of approximately 200 m^2 (or an available space of 2.86 m^2 per person). However, starting from approximately 130 public space users in the same area, crowding becomes negative. Local residents suffer most from crowded public spaces. This is shown in Figure 4, where the sample of residents living within the tourist precinct attach more importance to an uncrowded area. Diminished satisfaction is similarly, albeit less significantly, felt by other residents.

In terms of WTP, respondents attach low value to suboptimal use below the optimal level (ca. 70 people). However, the situation changes once personal space falls below 1.67 m^2 per person (ca. 120 users in our setting). From this point onwards, WTP values rise exponentially and at around $n = 220$, the value attached to limiting crowding becomes comparable to the value of urban green spaces. It should therefore be a concern that liveability through attractive design might be counteracted by an increased visitation from outsiders, making it important to monitor crowding states, since an increase in violations diminishes the quality of the residential environment.

5. Conclusion

The purpose of this study was to evaluate preferences of residents within a tourist-historic city precinct that is the subject of urban redevelopment plans with a strong commercial or entrepreneurial focus. Recently, within a number of well-visited European heritage cities,

tourism pressures on urban residents have become increasingly unsustainable, creating the perception that city spaces are primarily created for short-term visitors. From both an urban governance perspective and an economic perspective, it is of primary importance to include the residents' voices in commercial redevelopments. Within democratic society, city officials are supposed to first and foremost serve the municipal population which grants legitimacy to the elected body. Furthermore authenticity, atmosphere, and local way of life are essential aspects of the tourist experience, meaning that a decrease in residential quality and satisfaction and the creation of homogeneous environments might similarly result in a less competitive tourist destination.

In order to include resident opinions, a DCE estimated personal preferences for street layout, green areas, shops, public transportation, and congestion. By letting respondents choose between scenarios, trade-offs between attributes become noticeable and relative preferences can be estimated. This in turn could guide decision making. The results of the DCE show significant support for the introduction of green areas and the upgrading of commercial enterprises in the neighbourhood. However, the proposed new street layout with an extended pedestrian zone did not find full support, and was found non-significant. Taking interactions into account, widening of the sidewalk in exchange for a shared car-tram space even became an unwanted development for those residents living at least two kilometres from the study area. Similarly, an extension of public transport options by the opening of new metro stations was not supported by local residents. Here as well, though, interactions need to be taken into account and it can be noticed that the preferences for public transportation are dependent on the usual mode of transportation used by the respondent. Finally, a crowded public space was an unwanted aspect of the area. The crowding attribute showed a quadratic relationship and only became truly and exponentially negative up to a certain threshold of users. While the issue of crowding primarily influences residential quality for the sample group that lives close to the study area, it is noteworthy that the identified threshold value for both samples is almost identical. This is indicative of a quite stable, shared crowding norm among Amsterdam residents.

The relative willingness to pay preferences are the strongest indications for policy makers of the design elements to prioritize. It shows that green areas and commercial redevelopment are strongly supported, but that the very expensive public transportation redevelopment is not valued by the resident sample, while they are undecided about the new street layout. A critical aspect that needs to be monitored is the crowding level. When certain thresholds are breached, the negative effects of public space crowding negate the potential positive effects of upgrading the neighbourhood. This introduces a difficult balance for policy makers. Upgrading of the area increases resident satisfaction, but since many elements of urban quality of life also ameliorate the visitor experience, it might serve to attract more tourists to the area. Thus, introducing extra public transportation options could be counterproductive, since it might exacerbate already significant use levels.

This paper offers both theoretical and methodological contributions. On the theoretical level, the results indicate that an entrepreneurial development focus, as followed by the city of Amsterdam, does not necessarily alienate residents. At least in Amsterdam, where a large segment of the population belongs to a higher middle class, many of the proposals were generally supported. Still, within the shift from government to governance

it is important to formally include the residents' voices, specifically when one needs to account for heterogeneity within the community. While the methodology and approach used in this research offers destination planners a tool for evaluating design options and eliciting preferences, the significance of interaction effects points to the importance of using a representative survey if a DCE is to be used to guide real policy choices. Nonetheless, the correlation between sample groups on most attributes points to the fact that respondents generally held similar preferences. Another potential limitation lies in the fact that real redevelopment plans formed the basis for the choice attributes. Therefore, the hypothetical scenarios were well grounded. Nevertheless, as a drawback, opposition and media coverage might have clouded individual preferences. For example, the resistance to an extra public transportation stop might have to do more with the anticipated hassle of significant urban construction works or the cost of such an extensive project. Nonetheless, realistic objections have to be accounted for in any real-life redevelopment plan.

Future studies can build on the proposed set-up by including more attributes, although a balance has to be found between the number of attributes, the attribute levels, and response fatigue. Another avenue of interest is the inclusion of a non-resident sample. In the case of the Red Carpet redevelopment plan, which has an important external focus, comparing the preferences of local residents with those of visitors to Amsterdam would be of interest. While a city council's primary responsibility is towards its residents, current entrepreneurial strategies do have to balance the internal and external focus, and levels of agreement or disagreement are important aspects to consider in urban design plans.

Disclosure statement

No potential conflict of interest was reported by the authors.

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