Local spending patterns of tourists in Greater Budapest and the Lake Balaton tourism regions: An exploratory study on the non-accommodation budget across Airbnb and hotel guests

A turisták helyi kiadási szokásai Budapest és környéke, valamint a Balaton turisztikai régióban: feltáró kutatás az Airbnb- és szállodai vendégek szálláson túli kiadásairól

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In this exploratory research the local spending differences between the customers of hotels and Airbnb apartments in two Hungarian regions are studied. In this context, the non-accommodation budget of the tourists was focused. The tourists were asked about the share of their non-accommodation spending on local goods and services, providing the basis for comparison in terms of local spending propensity. Primary data was collected through a survey that yielded 103 responses. It was hypothesized that the Airbnb apartment customers spend a larger share of their non-accommodation budget on local goods and services compared to hotel customers. To prove this, Student's t-test, using RStudio statistical software was applied. The results of the test ($p < 0.05$) demonstrated the significant difference while box plots provided further confirmation. The findings of this study can assist policy makers aiming to boost tourism while mitigating its negative effects on the local economy.

Ebben a feltáró kutatásban a Budapest és környéke, valamint a Balaton régiós szállodák és Airbnb apartmanok vendégei közötti különbségeket vizsgáljuk a helyi kiadások vonatkozásában. A cikk a turisták szálláson túli kiadásaira összpontosított, melynek során a helyi árukra és szolgáltatásokra fordított rész került elemzésre. Az elsődleges adatokat egy online csatornákon és személyesen is végzett felméréssel gyűjtöttük össze a tanulmányban szereplő régiók turisztikai desztinációiban. A felmérést összesen 103 válaszadó töltötte ki. Feltételezésünk szerint az Airbnb apartmanok vendégei a szálláson túli költségvetésük nagyobb részét fordítják helyi árukra és szolgáltatásokra, mint a szállodák vendégei. Ennek bizonyítására a Student-féle t-próbát alkalmaztuk az RStudio statisztikai szoftver v2024.12.0+467 segítségével. Az adatok ($p < 0.05$) azt mutatták, hogy jelentős különbség van a szálláson túli költségvetésekben a helyi kiadások tekintetében. A box plotokhoz hasonló adatvizualizációs technikákat is alkalmaztunk, amelyek tovább erősítették a teszt eredményeit. A tanulmány eredményei segíthetnek azoknak a döntéshozóknak, akik a turizmus fellendítésére törekszenek, miközben enyhítik kívánják annak negatív hatásait a helyi gazdaságra.

1. Introduction

Tourism has grown significantly in recent decades and currently is a major sector in many

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regions, with tourists engaging in diverse activities from cultural and historic pursuits to leisure and shopping (BELLINI et al. 2007, ASHWORTH–PAGE 2011). This growth creates a complex relationship with host regions. While tourism generates substantial economic benefits, contributing to local income, employment, and state revenues through multiplier effects (ANDRIOTIS 2002, BALAGUER–CANTAVELLA-JORDA 2002, WTTC 2023), it also causes significant challenges.

Negative impacts include considerable pressure on urban infrastructures, particularly in historic areas, often leading to overcrowding and conflicts between residents and tourists (PEARCE 2001, NEUTS–NIJKAMP 2012). The concentration of tourists in central areas intensifies the use of facilities, potentially surpassing sociocultural carrying capacity and driving tourism gentrification (GOTHAM 2005, GUTIERREZ et al. 2017).

The rise of peer-to-peer platforms like Airbnb has intensified these issues by expanding lodging capacity in central locations more easily than traditional hotels (GUTTENTAG 2015, ZERVAS et al. 2017). This worsens crowding and tourism redevelopment pressures (RUSSO 2002), which is a pattern also observed in the Balaton region, although at a lower volume than in Budapest (DUDÁS et al. 2019).

This interplay necessitates careful management to balance benefits and challenges. If a destination experiences increasing visitor numbers but decreasing revenue per visitor, it risks unsustainable mass tourism (KOZAK 2001). Understanding the economic impact of different accommodation types, particularly their contribution to the local economy through tourist spending, is therefore important for sustainable tourism policy.

2. Literature review

Tourist expenditure is a substantial driver of economic growth at national and regional levels (MARROCU et al. 2015). Analyzing these spending patterns provides important insights for tourism stakeholders, helping to identify profitable market segments and tourist profiles (WANG–DAVIDSON 2010, AGUILÓ et al. 2017). For instance, studies show that tourists interested in cultural and natural attractions tend to spend more time and money, guiding destination managers in product development and target marketing (JUDITH 1999 in KOZAK 2001).

Methodologies for analyzing expenditure vary. KOZAK (2001) notes approaches range from calculating average spending per tourist to categorizing tourists by total budget or main influencing factors, such as income and length of stay. However, focusing merely on overall expenditure can be misleading, as high accommodation costs may offset spending in other categories (WANG–DAVIDSON 2010, BOBOLI–DASHI 2022). To address this, several studies have differentiated between accommodation and non-accommodation spending (HONG et al. 1996, AMIR et al. 2015), as the latter being more critical for local economies.

In the Hungarian context, research indicates a complex relationship between tourism and local communities. While residents recognize socio-cultural shifts, they generally support the controlled expansion of tourism, probably due to perceived economic benefits (RÁTZ 2000, PUCZKÓ–RÁTZ 2009). Studies around Lake Balaton show promise for engaging tourists with the local economy, from co-creating tourism services with cycling tourists to disperse benefits (LŐRINCZ et al. 2020), to a strong demand for local food products among visitors (MADARÁSZ et al. 2021).

Overall, despite growing interest in peer-to-peer accommodations, a notable gap exists in comparative economic impact studies that encompass both apartment rentals and hotels (OSKAM–BOSWIJK 2016). While some research has explored Airbnbs' effects on localities and guest behavior (LEVENDIS–DICLE 2016, SMITH et al. 2023), a direct comparison of the local spending propensity of Airbnb and hotel guests remains underexplored. This research aims to address this gap.

3. Study areas

There are two study regions in this research, Greater Budapest as well as the Lake Balaton. Greater Budapest, the capital area, is a major Central European metropolitan hub and a top-ranked city destination (EUROMONITOR 2023). Known for its history, culture, and architecture, it attracts millions of visitors annually (HUNGARIAN CENTRAL STATISTICAL OFFICE (HCSO) 2024), functioning as the country's most developed region. This status has fostered a wide range of accommodation options, from luxury hotels to the increasingly popular Airbnb apartments. The city has been noted for its transition from under-tourism to over-tourism in the post-socialist era (SMITH–PUCZKÓ 2020).

Lake Balaton, often called the "Hungarian Sea", is the second most-visited attraction of the country

(HCSO 2024). As the largest freshwater lake in Central Europe, it is a popular destination for domestic and international tourists (RÁTZ 2000). In contrast to Budapest, tourism development is more spatially dispersed across several smaller towns and villages. The region experiences high seasonality, with peak arrivals during the summer months focused on outdoor and water-related activities.

Moreover, *Figure 1* illustrates the two regions selected for the study made up over half of all tourism arrivals to the country, including both international and domestic visitors between 2021-2023, highlighting the selected regions might be perceived as more authentic by the tourists.

and services during their stay in Greater Budapest and the Lake Balaton tourism regions?
• RQ2. Excluding the accommodation spending, what is the percentage of money spent by hotel customers on local goods and services during their stay in Greater Budapest and the Lake Balaton tourism regions?

The hypothesis of this research is as follows:
H: Airbnb apartment customers spend a larger share of their non-accommodation budget on local goods and services compared to hotel customers in Greater Budapest and the Lake Balaton tourism regions.

Figure 1

Number of tourism nights in accommodation establishments
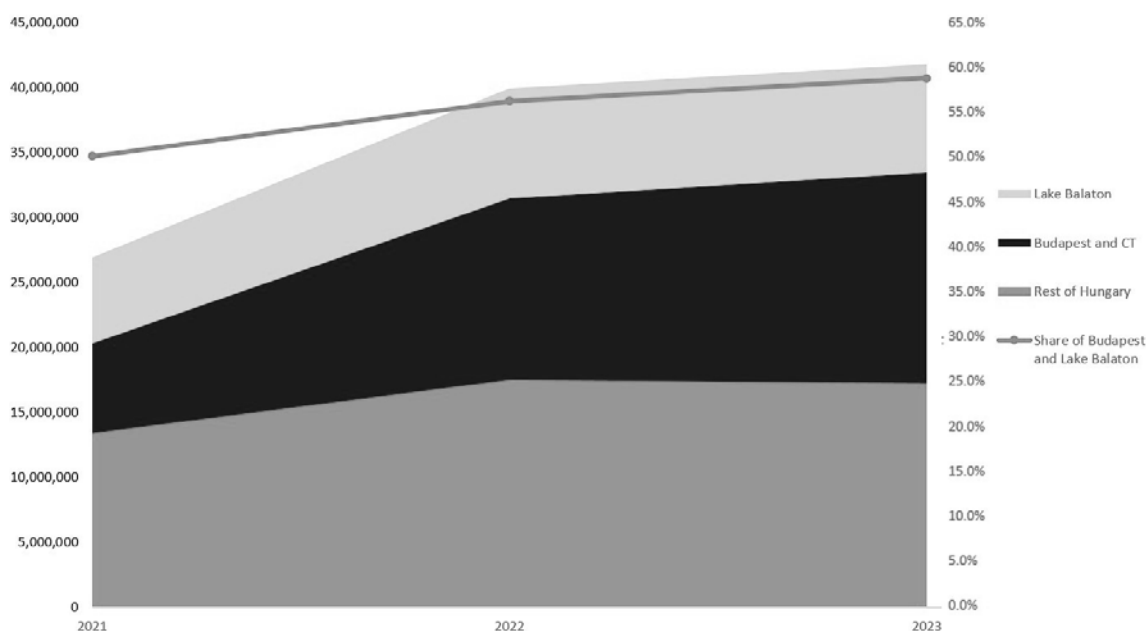
Source: KARIMOV (2025 p. 67) and HCSO (2024)

4. Methodology

## 4.1. RESEARCH QUESTIONS AND HYPOTHESIS

This research explores the non-accommodation spending behavior of tourists staying in hotels and Airbnb apartments, focusing on the share that benefits local suppliers, such as transportation, entertainment, shopping and F&B.

The research questions of the study are as follows:
• RQ1. Excluding the accommodation spending, what is the percentage of money spent by Airbnb apartment customers on local goods

Figure 2

Breakdown of tourist spending
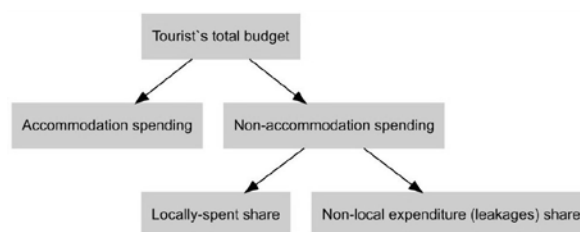
Source: KARIMOV (2025 p. 64)

The main reason behind is that hotel guests often have access to on-site amenities (e. g. restaurants, minibars) which may be supplied non-locally, especially in chain hotels (GIAMPICCOLI et al. 2020). Airbnb guests, lacking such conveniences, are more likely to engage with local businesses like markets and grocery stores, leading to more diversified and locally-oriented spending *(Figure 2)*.

4.2. DATA COLLECTION

Given the scarcity of official data on most aspects of tourist spending in Hungary, primary data was collected via a survey using LimeSurvey, administered online and in-person across both study regions using random sampling. The survey consisted of two parts: "Basic information" (e. g. age, importance of supporting local communities) and "Spending pattern".

Data collection faced challenges, including social desirability bias and the intangible nature of measuring social impact (GYURÁCZ-NÉMETH 2023). The collected data was then examined to evaluate response distribution across key categories (e. g. age, location, accommodation type). This confirmed reasonable representation of all groups within the dataset, enhancing robustness despite limitations stemming from limited sample size (n=103), which affects generalizability.
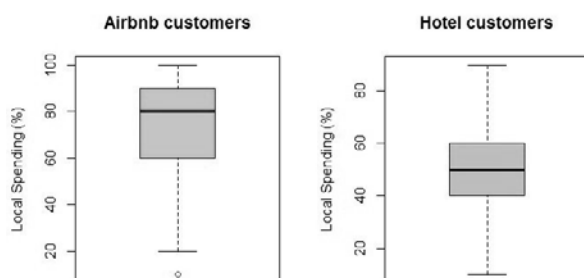
4.3. DATA ANALYSIS

In this research, the local spending behavior of two independent groups (1) Hotel guests and (2) Airbnb apartment guests were compared using RStudio.

4.3.1. Checking and treating outliers

Figure 3
**Box plots for local spending rates of
Hotels and Airbnb customers**

Source: KARIMOV (2025 p. 80)

What stands out from the *Figure* 3 is while there are no outliers identified for hotel customers data, only one value of 10% can be considered an outlier in the Airbnb customers data, as it lies below the interquartile range. This value was Winsorized to the nearest non-outlier value (20%) to reduce its impact without discarding the data point (SPRENT 1998).

4.3.2. Statistical method selection and assumption diagnostics

Student's t-test is a powerful statistical method widely used for comparing means across two groups (SAWYER 2009, EMERSON 2017). The t-statistic for the unpaired Student's t-test is calculated as:

$$t = \frac{\mu_1 - \mu_2}{s_p^2 \sqrt{\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

where s_p^2 is the pooled variance and calculated as:

$$s_p^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

where μ_1 and μ_2 are group means, n_1 and n_2 are the sample sizes, and s_1 and s_2 are the group variances (RUXTON 2006). The null hypothesis for the Student's t-test is:

$$H_0: \mu_1 = \mu_2$$

meaning the groups means are same. In this case, the alternative hypothesis indicates the difference between the group means *(Figure 4)*.

Figure 4
**Flowchart for the selection
of the statistical tests**
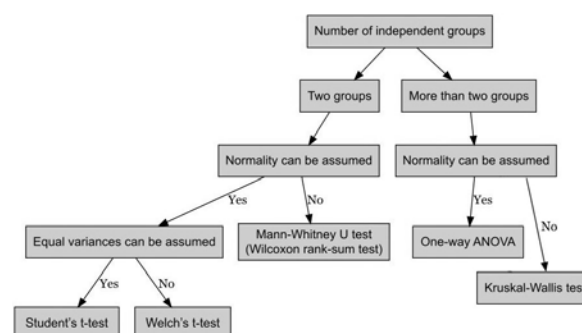
Source: KARIMOV (2025 p. 81)

However, as the Student's t-test is a parametric test, there are several assumptions to be met in

order to ensure any result that will be achieved is going to be valid. These assumptions are independence of observations, normality of residuals and homogeneity of variances. When these assumptions are not satisfied, the results of the Student's t-test can be misleading (SAWYER 2009).

Figure 5

Q-Q Plot for the residuals
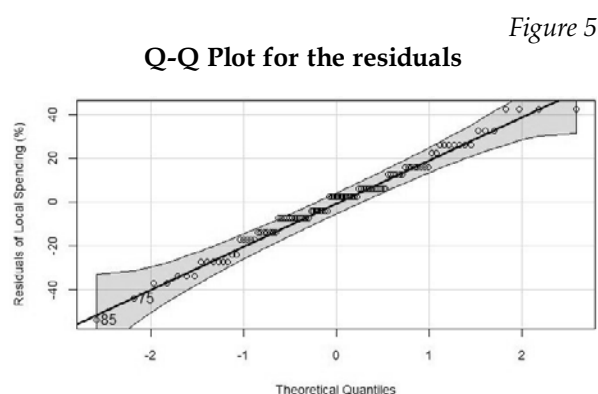
Source: own editing

Therefore, necessary diagnostic tests, merely Levene's test (null hypothesis assumes equal variances, p = 0.805) for the homogeneity of variances, which is more robust to non-normal data than Barlett's test (YITNOSUMARTO–O'NEILL 1986) and Shapiro-Wilk test for normality of the model's residuals (null hypothesis assumes normality, p = 0.278) have been run and it was confirmed that all assumptions were met in order to conduct the Student's t-test which is described in the Table 3 as well. Moreover, each observation in the data represents a unique participant. This means the independence assumption is met as well. *Figure 5* also further visually confirm what has been discussed regarding the assumptions of Student's t-test.

5. Results

5.1. RESPONDENTS' CHARACTERISTICS

The profile of survey respondents is depicted in *Table 1*. Main characteristics include a predominance of younger tourists, a higher proportion of Airbnb guests in Budapest, and a more balanced regional distribution for hotel guests.

There was a difference in the regional distribution of visits between apartment and hotel customers. Apartment customers were more likely to visit Greater Budapest, while hotel customers visiting both regions more equally. In terms of gender distribution, while the apartment customers category was slightly female-dominant,

there were almost even number of males and females for hotel customers category.

Table 1

Characteristics of the respondents.

Accommodation type		Apartment customers	Hotel customers
Total number of responses		*49*	*54*
Region visited	*Budapest and CT*	*36*	*34*
	Lake Balaton	*13*	*20*
Gender	*Males*	*21*	*28*
	Females	*28*	*26*
Age categories	*U-24*	*14*	*5*
	25-34	*16*	*12*
	35-44	*9*	*9*
	45-54	*8*	*12*
	55-64	*1*	*10*
	65+	*1*	*6*
Travel motivation of the respondents	*Business*	*3*	*5*
	Spa & Wellness	*2*	*7*
	Cultural	*24*	*28*
	Nature & Adventure	*14*	*11*
	Culinary	*0*	*0*
	Personal growth	*6*	*3*

Source: KARIMOV (2025 p. 86)

5.2. DESCRIPTIVE STATISTICS

The summary statistics for the dataset are described in *Table 2*, which provides information about the local spending patterns.

Table 2

Summary statistics of tourist spending in the study areas

| Used accommodation type		Airbnb	Hotel
N		*49*	*54*
Share of locally-spent amount	*Mean*	*74.08%*	*47.41%*
	Median	*80.00%*	*50.00%*
	SD	*19.46%*	*20.39%*
Lodging costs were less than other spending	*Yes*	*35*	*20*
	No	*14*	*34*
Importance of locals (1-5)	*Mean*	*3.90*	*3.04*

Source: KARIMOV (2025 p. 95)

The data indicates Airbnb tourists tend to spend their non-accommodation budget more locally compared to those staying in hotels. The boxplots for both visitor categories illustrated in *Figure 6* also confirm the above-discussed pattern.

The importance of supporting local businesses was also rated higher by apartment guests compared to hotel guests on a scale of 1 to 5. This clearly suggests apartment guests may have a stronger inclination towards supporting the local stakeholders during their stay. Therefore, the data suggests tourists staying in apartments not only spend a higher share of their budget locally but

also value supporting local businesses more than hotel guests.

Box plots of responses from tourists grouped by accommodation choices
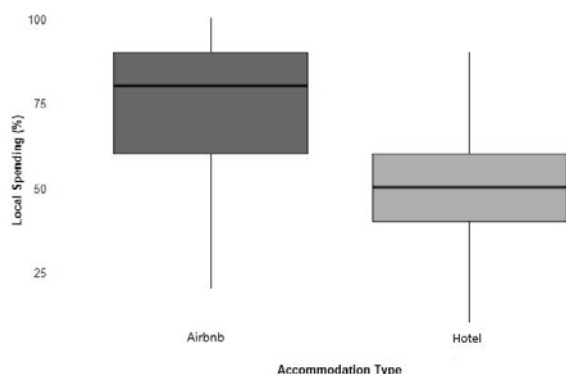
Source: KARIMOV (2025 p. 95)

5.3. STUDENT'S T-TEST RESULTS

The Student's t-test robustly confirms the differences in local spending patterns. So that, *Table 3* indicates the test resulted in a p-value less than the established threshold of 0.05.

Results of the Student's t-test, Shapiro-Wilk normality test and Levene's test

Test	Statistic	Degrees of Freedom	p-value
Student's t-test	t = -6.775	df = 101	p < 0.001
Levene's test for homogeneity of variance	F = 0.061	df = 1; 101	p = 0.805
Shapiro-Wilk normality test	W = 0.985		p = 0.278

Source: KARIMOV (2025 p. 96)

Hence, the null hypothesis is successfully rejected, meaning the hypothesis of this research has successfully been proven to be correct based on the results of the utilized statistical approaches, which suggests the type of accommodation plays an important role in terms of influencing tourists' local spending behaviour.

5.4. DISCUSSION

5.4.1. Impact of accommodation type on local spending and policy implications

The findings of this study provide evidence that tourists staying in Airbnb apartments allocate a higher share of their non-accommodation budget in local businesses in comparison with the tourists that stayed in hotels in Greater Budapest as well as the Lake Balaton tourism regions. While the findings support the research hypothesis, this may not necessarily mean Airbnb customers contribute more in absolute monetary terms to the local economy than the hotel guests. So, a lower percentage of a higher total budget, as is often the case with hotel guests (LI et al. 2022), could still result in greater overall spending. Thus, while Airbnb guests demonstrate a stronger inclination toward local spending, further research is needed to evaluate absolute economic contributions. This agrees with the previous Balaton study by RÁTZ (2000), where residents though aware of social and cultural impacts, supported tourism's current scale as well as its continued growth, emphasizing the delicate balance between local purchases and sustainable planning.

Having stated that, there possibly can be several factors contributing to such a difference found in percentage shares. Firstly, while hotel guests may rather rely more on such dining and other services located close or within accommodations, apartment guests might be more prone to explore local markets, which may also result from Airbnbs removing the "invisible border" between the traditional neighborhoods and the tourist centers (BEGIN 2022), hence, better blending with the local community. Social communications, as well as authentic experience being identified as the main point of the Airbnb customers' experience (YANNOPOULOU et al. 2013) may also influence this pattern. In addition, this scenario effectively results in more diversified spending patterns for the Airbnb customers, to illustrate, LEVENDIS–DICLE (2016) highlight 6 different non-accommodation spending categories for Airbnb tourists, where groceries and other services made over 7.7% of this spending.

The findings of this research can also be worthy information for policymakers aiming to enhance local economic benefits of the tourism sector. The aforementioned behavioral pattern, coupled with the comparatively higher importance put on supporting local people by apartment guests, suggests tourists staying in apartments may have a greater inclination toward engaging with local communities. This may also suggest one of the motivations for choosing Airbnb apartments can be the tourists being more interested in engaging with the local communities and supporting them. Hence, rather than promoting one type of accommodation over another, tourism development strategies could explore ways to encourage all tourists to

increase their engagement with local businesses. Furthermore, the local tourism authorities, such as DMOs might consider approaches to further increase the attractiveness of local authenticity of the areas to hotel guests, in order to ensure better economic benefits among hotel visitors. In addition, given the strong demand for local edible products around Lake Balaton (MADARÁSZ et al. 2021), accommodators could improve the level of partnership with regional food producers, thereby directly channeling tourist spending into local F&B businesses. This would also increase overall guest satisfaction which is claimed to be a primary concern for hoteliers (GYURÁCZ-NÉMETH 2014).

Moreover, tourism is considered as a strategic priority for Hungary's economic development by the Hungarian government (OECD 2018). The "National Tourism Development Strategy – 2030" by the HUNGARIAN TOURISM AGENCY (2017) states even though Hungary's tourism industry is currently thriving, the preferences of tourists are also changing at the same time. The rise of the sharing economy, the growing need for authentic, hence, local tourism supply, as well as the necessity of ensuring and promoting the well-being of local communities are all important factors to consider when promoting sustainable tourism.

Notwithstanding, despite their customers identified with putting less emphasis on local non-accommodation spending in this research, it would be a big mistake to propose hotels as harmful establishments for the local economies. So that, some hotel establishments apparently are putting strong emphasis on local supplies, to illustrate, MARRIOTT (2025) on their Hungarian branch website specifically state *"We aim near but high: sourcing the very best local supplies"*. Furthermore, research conducted in Veszprem district also indicates high multiplier levels (KARIMOV et al. 2023) for hotels in Hungary, while including other similar establishments as well in the calculations. Therefore, although such claims and activities might be promising about local economic contributions of hotels, it necessitates further research to confirm the levels of local procurement by the accommodation categories and suggests a balanced approach by the policymakers.

To sum up, tourism is increasingly leveraged as a strategic policy tool for regional economic development (LEEUWEN et al. 2009). Considering the Hungarian government is also identifying the sector as a strategic priority (OECD 2018), understanding the economic role of different accommodation types is quite important. While Airbnbs contribute to the local economy through diverse ways, their expansion should be regulated delicately, as the over-promoting of the Airbnb apartments could intensify mass tourism and increased housing prices. This means a balancing policy is necessary to enable sustainable development of tourism. Below subsection discuss the limitations and the further research prospects.

5.4.2. Limitations and future studies

Despite the importance of the research results, this study has its own limitations as well. First of all, the study mainly focused on comparing the local spending behaviors of Airbnb apartment guests and hotel customers, however, it didn't take into account the other existing types of accommodations, such as guesthouses and hostels. Including such accommodation categories in future studies may provide a better perspective in regards with how various lodging types may impact the local spending patterns of the tourists respectively.

Furthermore, while this study provides insights into how tourists allocate their non-accommodation budgets, it does not measure total monetary contributions. A higher percentage of local spending may not be equal to greater overall economic benefits if the total budget is smaller. Future research may incorporate total spending amounts to provide a more comprehensive interpretation of the economic impact of different accommodation types.

If local economic contributions are the main focus, another important point to analyze might be the procurement patterns of the accommodations. Hence, while results of this study provide valuable understanding of the local economic effects of the accommodation choice by tourists, including procurement practices of the accommodations would be more nuanced in terms of their overall effect on the local economy.

Moreover, there might be differences between the types of Airbnbs based on ownership as well. Given the discussion by DUDÁS et al. (2019) that Balaton's Airbnb market is largely professionalized, regulators might consider host-type differentiation to encourage resident hosts through local-host incentives while ensuring corporate operators contribute fairly to community development. Hence, in future studies it could be explored if there are differences between landlord-owned and absentee-owned Airbnb apartments in terms of their effect on local economy.

Finally, the relatively small sample size and the exploratory nature of this study should be taken into account when interpreting the findings or

making decisions based on the results. Overall, by addressing the abovementioned limitations, future studies can build on and improve this research, hence, offer a more detailed and generalizable understanding of the impacts of different types of accommodations on the local economy.

6. Conclusion

The results of the research suggest that there is a significant difference in terms of local spending patterns of hotel visitors and Airbnb customers. To be more precise, the latter spent a bigger share of their non-accommodation budget on local goods and services than the former. Such a result is most probably due to Airbnb guests being more likely to come in contact with the local stakeholders, such as in local markets, etc. However, it is important to note this does not necessarily imply a greater total economic impact compared to hotel guests.

As stated in "National Tourism Development Strategy – 2030", using destination-based approaches has great potential in order to increase the country's tourism potential while not disregarding the contributions to the regional economic development. Hungary's tourism industry may continue to grow while maintaining its positive effects on local economy by implementing such methods considering preferences of the tourists, which apparently influence their spending behaviours. Having stated that, direct impacts, as well as local procurement levels of hotels and Airbnbs should also be explored more thoroughly, next to the tourist spending in future researches to provide a better understanding of the effects of the industry as a whole.

Acknowledgements

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