

DOES ADMISSION FEE AFFECT ATTENDEES'
SPENDING AT THE LOCAL FESTIVALS:
ALFA JAZZ FEST EXPERIENCE?

by

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Abstract

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This thesis investigates the difference in expenditure structure of ticketed and non-ticketed attendees at the Alfa Jazz festival. As explanatory variables of festival expenditures we include socio-demographic and travel related predictors. The Tobit model is applied to Working-Lesser functional equations of main expenditure categories: accommodation, local transportation, food, entertainment and souvenirs. Based on Alfa Jazz Fest data it is shown that ticketed and non-ticketed festival visitors have the same structure of spendings in relative terms and most variation comes from the differences in the attendees' profile. In absolute terms the allocation of total expenditures varies depends on the level of the visitors' budget. Attendees with a larger budget allocate relatively more on accommodation, entertainment and souvenirs while spending a lower share of their festival expenditures on food.

To Dmytro Ilin

For His Enormous Support and Encouragement

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GLOSSARY

ABS – average budget share

MBS – marginal budget share

LPM – linear probability model

PDF – probability density function

CDF – cumulative distribution function

Chapter 1

INTRODUCTION

The development of tourism sector continues to experience transition period in Ukraine. Festival tourism has increased its share of tourism in the last decade. In general this reflects the trend in tourism where cultural, cognitive and entertaining forms become the basis for the growth of tourist flows in developed countries. Therefore in modern economies festivals and happenings become increasingly popular due to their potential impact on economic growth. Since the European integration has been declared a major aim of the foreign policy of Ukraine, the festival movement in our country is expected to receive an additional incentive to develop using Central European organization methods and taking European forms.

However there are more things to consider when researching: festivals are organized for a variety of reasons, including contribution to the local development by boosting regional economy, enhancing tourism industry, and improving environmental and social quality of life. For instance, the economic perspectives of cities are improved, temporary and permanent jobs are created due to the skillful organization of the events during the festivals. Therefore, festival movement is becoming more active and quickly taking on the traits of the "festival boom" in Ukraine during 90s. At the same time, organizational structures has been forming, directly contributing to the development of festival movement. A special role in this process belongs to the jazz clubs that arise in Ukraine in the early 60s and initiate new jazz festivals.

Festivals and outstanding events are considered by researchers as one of the fastest growing type of tourism expansion. Moreover, creation of a workplace in the tourism sector costs 20 times less than a workplace in industry, while the turnover of investment capital is four times higher than in other sectors of the economy (Kyfyak, 2003). Besides, local festivals are used as an instrument to boost the regional economy, develop the rural areas, and promote tourism. For instance, festival organizers mentioned that hotel and restaurant business earn more at Lviv festivals than during the EURO 2012.¹

The question of interest is how visitors' expenses of different categories changed when visitors paid for admission fee and when they did not, as there are no studies on this topic for the Ukrainian case. Additionally, foreign studies provide insufficient evidence on the issue, since they focus more on investigating the economic impact of outstanding events. The hypothesis of the proposed study is that the structure of expenditure of festival attendees who paid admission fee is different from expenditure structure of those who did not.

One of the reasons for studying determinants of festival attendees' expenditures is their impact on anticipated benefits for the host governments and festival organizers. Failure to investigate such factors is likely to lead to lower number of visitors, and result in reduction of the number of festivals. However, among the previous studies only few investigated the spending characteristics of festival attendees or event visitors. In general, the majority of studies focus on customers from the psychological and topological point of view. Therefore, more research is needed for better understanding of visitors' levels of satisfaction, loyalty, and intention to participate in the event next time. This knowledge would help

¹ http://ipress.ua/articles/lviv_gulyaie_19405.html

governments and festival organizers to maximize expected benefits from holding festivals and events. The current study aims to contribute to the existing literature about expenditures patterns of ticketed and non-ticketed festivals' attendees.

The analysis of festival spending can help to better understand the contribution of ticketed and non-ticketed attendees for the local economy. The main question of this paper is to determine how the socio-demographic and travel related predictors affect attendees' expenditures on the Ukrainian local festival, specifically, to investigate whether there are any differences in spending pattern of ticketed and non-ticketed attendees.

The paper is structured as follows. Chapter 2 reviews the literature about festivals' and events' attendee expenditures. Chapter 3 offers general information about Alfa Jazz festival. Chapter 4 describes data used in research, while Chapter 5 – methodology. Chapter 6 presents the empirical analysis. Finally, Chapter 7 summarizes findings and conclusions of the research.

Chapter 2

LITERATURE REVIEW

There are several reasons why festivals and local events have become very popular and attracted a lot of visitors in recent years: local governments and residents get economic benefits from the promotion of local festivals and events; local municipalities generate new revenue opportunities; festivals and events have a positive effect on the local economy, add value to local products and services, increase employment and local income for residents (Felsenstein & Fleischer, 2003). Consequently, local festivals are often used as an instrument of the economic development strategy for rural areas (Breen, 2001).

The literature review related to the festival attendee expenditures can be divided into three groups. First, we describe important methodological issues. Then, we discuss studies, which primarily focus on estimating the overall economic effects of festivals. After that, several papers looking at non-economic and some particular economic issues are discussed.

Methodological issues

The first big division in the literature deals with the estimation methods and the choice of dependent variable. There are several important issues related to the estimation. Some authors consider total expenditure as a dependent variable. In this case the story behind festival expenditure suggests that some independent variables should be more important than others. For instance, Thrane's (2002) investigates Kongsberg Jazz Festival visitors' expenditures focusing more on the motive for attending one of the largest festivals in Norway. According to the intercept approach students conducted face-to-face interviews during the 4-day

period of the festival. Such visitors' characteristics as the length of stay, geographical location, household income, household size, gender, first visit, planning horizon, age, work full-time are used in three different models. This study identified as significant factors the length of stay, the place of origin, household income, and household size in predicting festival attendee consumption behaviors.

The study reveals that visitors spent about \$122 per person during the festival. The main conclusion is that one extra unit of goers' motivation increases festival expenditure by 5%. The household size has a negative effect on expenditures (it decreases by 13% with an increase in income), staying one more day increases personal expenditures by 24%, local resident spent 18% less than nonlocal regionalists, male visitors spent 25% more than female.

Rao (2001) and Thrane (2002) control for the purpose of the trip, length of stay, a type of travel one participated in, and sociodemographic characteristics of respondents. Estimating the aggregated dependent variable (total expenditures) is argued to incorrectly predict festival attendee expenditures (Chhabra, Sills, and Cabbage, 2003). Thus, total expenditures are typically divided into several categories such as food, shopping, transportation, admission fee.

Methodologically, Rao (2001) and Thrane (2002) rely on the OLS and logistic regression analysis. More recent studies, such as Kim (2008), insist on using Tobit model for predicting festival attendee expenditures, because the dependent variable or variables include many zero expenditures. Alternatively, Tyrrell and Johnston (2003) apply computational equilibrium approach (which is based on the input-output model for estimation).

Economic impact of festivals and special events

The second important issue is the estimation of the economic impact of festivals and special events by looking at goers' expenditures in the host city or country. The most popular study is written by Chhabra, Sills, and Cabbage (2003). It estimates the economic effect of festival expenditures of two local Scottish festivals, Grandfather Mountain Highland Games and Flora Macdonald Highland Games, in rural North Carolina, using input-output model.

The input-output model is usually used to estimate the economic impacts and the multiplier effects. The extent of the economic impact depends on characteristics of festivals (length of the festivals) and the local economy (other activities and attractions). Furthermore, lodging expenditures have a large impact on the region if the festival takes more than one day while expenditures on food and beverage have a large impact on the region if the festival takes no longer than one day.

Chhabra, Sills, and Cabbage (2003) explore such categories of expenditures as spending on food and beverage, lodging, gasoline, admission and registration, Scottish goods, souvenirs, vehicle rental and vehicle repair. On the Grandfather Mountain Highland Games visitors spent the most on lodging (43%), food and beverage (17%), Scottish goods (13%), and admission and registration (11%). On Flora Macdonald Highland Games for visitors the largest expenditures were food and beverage (27%), Scottish goods (25%) and lodging (20%).

Another example of this type of research includes Hvenegaard (2007). It explores two wildlife festivals in Western Canada: the 2-day annual Snow Goose Festival hosted by Tofield and the 3-day annual Brant Wildlife Festival hosted by the Parksville-Qualicum Beach. The first festival attracts the estimated 5,000 visitors and the second attracts the estimated 3,430 visitors respectively. For 97.9% of

Snow Goose visitors and for 68.7% of Brant visitors the main purpose to visit host cities was festivals. Using the data of visitors' demographics and motivations, activities and current travelling, expenditures per person, and potential purchases Glen T. Hvenegaard (2007) shows that all Snow Goose visitors spent the estimated total of CA\$98,050 and Brant visitors spent CA\$534,188 in the local area. Using comparative approach the study concludes that the Brant Wildlife Festival attracts less visitors and expenditures are higher, whereas Snow Goose Festival visitors spent less per person.

The difference between expenditure categories of both festivals are in accommodation, restaurants, groceries, and entertainment, because Brant Wildlife Festival attract more visitors from out of province. The Brant Wildlife Festival nonresident visitors spent more on accommodation, restaurants, groceries, registration, entertainment, travel, and souvenirs than Snow Goose visitors. In addition, this study found that patterns of expenditures, motivations, activities, and visitors' characteristics differed depending on the festival.

Thrane (2002) examines jazz-lovers spending behavior at the festival. The results show that spending of attendees who are less interested in jazz music is lower than those who are more interested during the festival. Consequently, such jazz lovers spent more money on the issues, which are not related to the concerts. The main conclusion is that a few independent variables can explain a large amount of variation in spending behavior at jazz music festival.

Literature, examining food festivals, also shows the effects of festival quality and festival satisfaction on festival loyalty by attendees. Specially, the reports which have no relationships between quantity of respondents' spending during the festival and their scores for motivations. Tyrrell and Johnston (2003) demonstrate

that some festival expenditures are provided by nonlocal communities. Consequently, it causes some overestimation of economic impact of events. They also discussed the pros and cons of festivals holdings, costs and benefits for the regional economy.

Non-economic impacts

Many studies that explore economic impact of festivals on host communities, also investigate social, cultural and political impacts of festivals and events. Dwyer (2001) investigates the costs and benefits, which should be taken into account when analyzing the impact of holding festivals and events on the local community. The study investigates the second largest community festivals in the US by using the data collected by interviewing 774 participants during Lafayette Mardi Gras.

According to this study, the festival characteristics and social capital are important for determining the degree of which festival attendance facilitates the augmentation of social capital. It is found that visitors from other regions of the country are more likely to attend festivals with specific purposes. Another finding from this study tells us that important expenditure categories include attendance fee, food and accommodation costs.

Public-private cooperation

Another important question in the literature deals with public-private interactions in the festival organization. Using the expanded data on public assistance and visitor expenditure Felsenstein and Fleischer (2003) investigate two local festivals, the Kfar Blum Chamber Music Festival and the “Alternative Theater” Festival, which are held annually in Northern Israel. The estimated total visitors’ expenditures at the Kfar Blum event are \$1,221,000, and expenditures at the Acre

event are \$2,359,000. The spending is twice increase at the Acre Festival because it attracts 13 times more visitors than Kfar Blum Festival. The latter event attendees spent more on accommodation, whereas Acre visitors, who are much younger and not married, do not spend more on formal accommodation and stay in open spaces and on the local beach at night. Even the difference in ticket prices determines that Kfar Blum visitors spent much more on tickets, while the number of participants are proportionally equal in both festivals. Additionally, Felsenstein and Fleischer (2003) divided all visitors into local and nonlocal residents and found that being a local resident was a determinant of festival participants' total expenditures. There is a substantial variation in the festival attendees' expenditures as well as in the festival attendees' consumption behaviors.

Other issues

Some authors debate whether the data on festivals expenditures contradict the assumption of conventional utility theory. Particularly, Kim (2008) concludes that there is no similar pattern of festival attendees every year because of repeatable features of local festivals and on a high level of repetition. Kim (2008) concludes that the variable "overnight versus no overnight stay" has a significant effect on six categories of expenditure such as lodging, food and beverages, shopping, admission fee, transportation, entertainment, others. The effect of socio-demographic variables such as age, marital status, occupation, and place of residence varies by expenditure categories. The results obtained also show that, among other things, length of stay, respondents' location, household income, and household size do affect the amount of personal expenditures during the festival (Thrane, Christer, 2002).

In summary, the existing literature offers useful insights for festivals' management and organization. Most studies argue that festival attendee expenditures should be divided into several categories such as lodging, food and beverages, shopping, admission fees and others and should be studied separately because there is a noticeable gap between the number of participants, who spend money in one category and those who did not.

Chapter 3

ALFA JAZZ FEST: GENERAL INFORMATION

Alfa Jazz Fest is an international jazz festival, which is recognized as one of the best European festivals by the Guardian, an influential British publication. During the period of 2011-2015 the festival was held in Lviv and brought together jazz lovers from all over Ukraine and a large number of other countries. More than 40,000 visitors, 100 musicians and 100 accredited journalists from Ukraine and other countries attend the festival every year.

Firstly the festival was successfully organized in the open-air format in June 2011. According to organizers' estimates about 20 thousand people attended. Local newspaper, "Lviv Today", recognized the international festival "Alfa Jazz Fest" as the biggest and the best festival of the year and marked with the "Lviv Toda Lion Awards 2011". In 2013 the festival significantly expanded its geography. Festival attendees listened to the performances of new jazz musicians from Sweden, Norway, Israel and others countries. There were more than 15 performances of jazz stars. In 2015, the organizers' expected about 40 thousand of visitors to the festival.²

Traditionally Alfa Jazz festival takes place in three stages including the main stage in the Bohdan Khmelnytskyi Culture Park (ticket required), the stage in the central square of Lviv: Market Square (free entrance) and the stage in the most historical place of the city: Pototski Palace square (free entrance).³ Alfa Jazz Fest

² https://en.wikipedia.org/wiki/Alfa_Jazz_Fest

³ <https://alfajazzfest.com>

hosts musicians from various countries of Europe, such stars as Pat Merheny, Spyro Gyra, Jamala, Dianne Reeves and Branford Marsalis. Jam sessions, different master-classes and autograph sessions of prominent jazz stars take place during the festival as well as concerts of jazz musicians from all over the world. In addition, awards ceremony, «Alfa Jazz Fest Awards», is held during gala concert of jazz festival in Lviv annually. These awards are established in honor of the artists who made a significant contribution to the jazz music development. The winner is selected by a wide range of experts including music critics, prominent culture persons, public and government officials, journalists and entrepreneurs from different countries.

Table1: Duration and artists of Alfa Jazz Fest

<i>Year</i>	<i>Duration</i>	<i>Artists</i>
2011	02.06.11 - 04.06.11	Spyro Gyra, John Scofield Quartet, Bill Evans, Ron Carter Trio
2012	01.06.12 - 03.06.12	Cassandra Wilson, John Putitucci Trio, Gino Vannelli, Richard Bona
2013	13.06.13 – 16.06.13	Dirty Dozen Brass Band, Avishai Cohen with Strings, Charlie Haden Quartet West
2014	12.06.14 – 15.06.14	Larry Carlton, Dee Dee Bridgewater, Eliane Elias Quartet, Lucky Peterson feat Tamara Peterson
2015	26.06.15 – 29.06.15	Mike Stern, Bill Evans Band, Wayne Shorter Quartet, Hiromi, George Benson
2016	24.06.16 – 28.06.16	Pat Merheny, Esperanza Spardling, Dianne Reeves and Branford Marsalis, Jamala

The tickets for Ukrainian Alfa Jazz Fest are the least expensive among all festivals in the Top 10 by the Guardian list, such as French Festival Jazz in Vienne, A Love Supreme in English Sussex, Swiss Montreux Jazz Festival, North Sea Jazz Festival in the Dutch Rotterdam, Nisville Jazz Festival in Serbia and others. This year some foreign VIP guests – the ambassadors of France, Germany, Great Britain, and Austria have planned to combine business meetings and jam sessions of Alfa Jazz Fest. From Kiev to Lviv you can reach by other trains. This year additional flights number 191/192 Kyiv - Lviv will take place on 24, 25 and 28 of June.

The initiator of the festival is a financial and industrial consortium CIS "Alfa Group". Creative curator of Alfa Jazz Fest is jazz expert, Oleksii Kogan. General partners are Alfa-Bank and "Kyivstar". Organizer of festival is "Leopolis Jazz" LLC. The organizers plan to broadcast Alfa Jazz Fest through "Youtube" and also show it with partnership of French channel "Mezzo" in 44 countries.

Chapter 3

DATA DESCRIPTION

The data for the research includes the Alfa Jazz Fest data for 2015 year. The data was collected at the Alfa Jazz Festival, held in Lviv, Ukraine between June 26 and 29, 2015. The unique data source is the Alfa Jazz Fest Survey (AJFS). The survey was conducted in three festival stages for interviewing ticketed and non- ticketed visitors: Bohdan Khmelnytskyi Culture Park (ticket required), Market Square (free entrance) and Pototski Palace square (free entrance). The number of created questionnaires was 759, which include 393 questionnaires of Free -zone and 366 of VIP-zone.

The questionnaire consists of attendee's profile questions such as gender, age, location, means of transportation, accommodation, size of a company, duration of stay in Lviv, purpose of the visit (for fest special), previous experience (whether attended before) and plans to attend in the future, and questions about the attendee's average expenditures per person per day by categories such as accommodation, local transports, eating (cafe/restaurants), entertainments, souvenirs and other expenditures. Hence the data used for the analysis includes 18 variables and 758 observations for both zones, which left after eliminating one souvenirs observation with a wrong measure.

Independent variables were divided into two groups as literature suggests (Kim, 2008; Thrane, 2002). The first group includes socio-demographic variables of attendees: demographic profile (age, gender); geographical location (residents and non-residents). The second group of variables includes characteristics related to travel to the festival: length of stay (duration of stay in Lviv); means of

transportation (car, bus, plane, local transportation, train); accommodation (rent apartment, friends and their own apartment, hotel, hostel, by-passing); the number of accompanying people: size of a company; purpose of the visit (arrived special for participating in the festival); number of participated in the festival: previous experience (whether attended before); planning horizon: plans to attend in the future. It should be noted that the analysis does not include cost of tickets for the festival, cost of travel to Lviv and remuneration of musicians due to the fact that it does not contribute to the economy of Lviv. Nevertheless, the admission fee of the festival is from 800 UAH to 3500UAH. Thus, the analysis includes only organizing costs and visitors' costs associated with the direct hosting and attendance of the festival.

From the economic point of view, there is a strategy to attract more spenders on the event using jazz music as a motive, which will change visitors' personal expenditure. But there are 88.26% of visitors who came to Alfa Jazz Fest with a purpose to participate in this festival. Average expenditure for 1 day per jazz lover is equal 1099.786 UAH compared to non-lovers, which is equal to 490.9556UAH (1028.301UAH for all visitors). Thus festival organizers should be interested in attracting jazz non-lovers and develop strategies for tourists with other motives for visiting Lviv to spend more in the host community

Structure of average attendee's profile

Table2 summarizes the average attendee's profile and festival pattern of visitors. Among survey Alfa Jazz Fest visitors 393 attended Free-zone, which is 51.85% of total number of visitors, whereas 365 preferred VIP-zone, which is 48.15% of total number. Over half 50.26% were female; an average age was 36 years in both zones and overall; 60.9% were in their 20s, 30s and 40s. Visitors, who were in their 25s, 30s, 35s, were more preferred VIP-zone, whereas visitors in their 20s

and 50s were more preferred free-zone. The male-female division in both zones was the following: the number of females was higher by 5 relative to males in VIP-zone; the number of males was higher by 1 relative to females in free-zone. 76.65% of visitors were equally likely from Lviv or came from Kyiv. Among them 71.5% out of 393 visitors were in free-zone and 82.19% out of 365 visitors were in VIP-zone. However, 4.09% of attendees arrived from other part of Ukraine, CIS countries (Azerbaijan, Russia, Lithuania) and such foreign countries as Sweden, Belgium, Poland, UK, USA, Germany, Norway, Qatar, Jerusalem ext. Moreover, there were 2 attendees from CIS countries and 11 foreigners in VIP-zone compared to 2 attendees from CIS countries and 16 foreigners in free-zone.

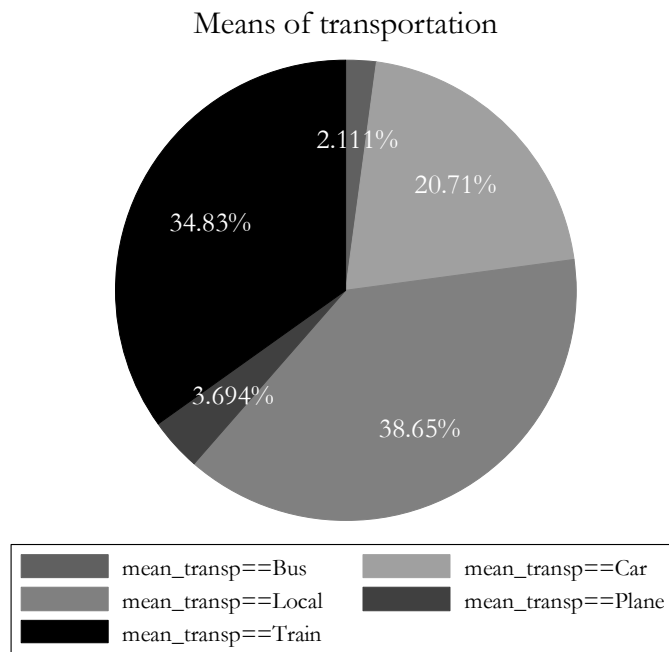


Figure 1. Distribution of means of transportation for festival attendees

The largest percentage of visitors consists of the company of 2 people (33.77%), the next highest percentage was people who visit the festival alone (17.15%) and the company of 3 and 4 people (13.19% and 11.61% respectively). There are only

10.69% of visitors who didn't plan to stay overnight. The significant number of attendees stay for 3 (29.68 %) and 5 days (26.39%) and even fewer for 4 (15.83%) and 2 (13.46%) days. Distribution of means of transportation is reported in the figure1. An appreciable quantity of respondents had traveled to the festival by local transport (38.65%) or trains (34.83%). Visitors were more preferred trains (33.97%) then local transports (30.96%) in VIP-zone versus visitors in free-zone who had the opposite preferences of local transportation (45.80%) and trains (35.62%).

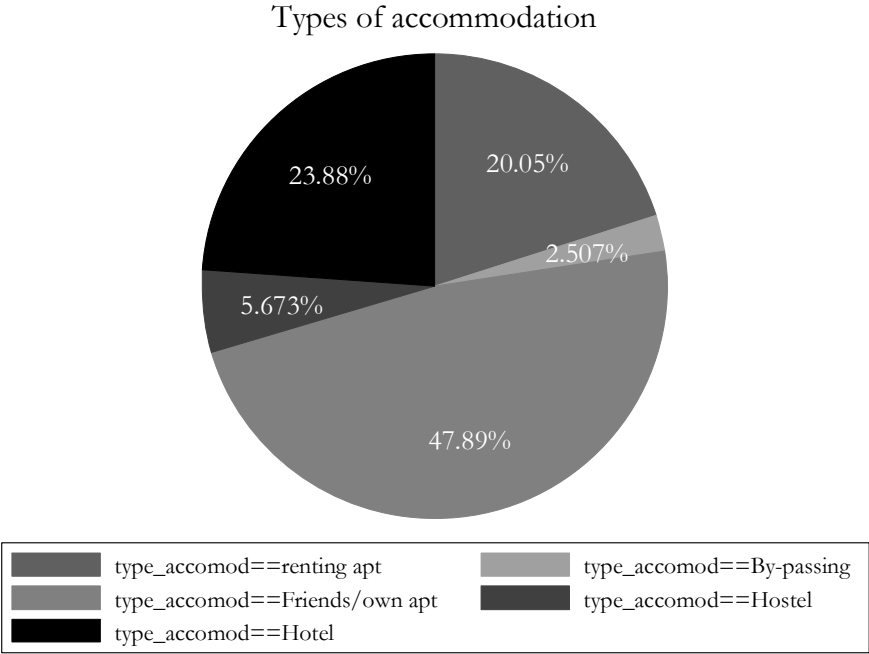


Figure 2. Distribution of types of accommodation for festival attendees

Distribution of types of accommodation among attendees is presented in figure 2. Attendees who got to the festival preferred to live in their own apartment or friends (47.89%). Less than half of them 49.6% rented apartment, lived in hotels or hostels. Only a small number of spenders use alternative options for

accommodation (2.51%). In VIP-zone visitors preferred to live in their own apartment or friends (38.08%) and hotels (37.81%). There were no VIP visitors that used other alternative options for accommodation except mentioned above. In free-zone visitors preferred to live in their own apartment or friends (57%) and rent an apartment (17.56%).

With respect to the purpose of visiting Lviv, the majority of respondents (88.26%) pointed that they came with motive to attend the festival and they (88.92%) planned to attend the event in the future. Moreover, over half of visitors 58.71% attended Alfa Jazz Fest prior to 2015, whereas 41.29% of visitors came to the festival for the first time. 22.39% of free-zone visitors who got to the festival had other motives for visiting Lviv, whereas almost all visitors arrived special for the festival in the VIP-zone. The majority of respondents (70.68%) in VIP-zone and less than half (47.58%) in free-zone attended the festival prior to 2015 and they (89.86% and 88.04% respectively) and planned to attend the event in the future.

In particular, their total average expenditures for 1 day for 1person were 1028.301 UAH for all visitors. Basically, visitors spent 500 UAH, 200 UAH and 100UAH per person per day during the festival on average. The total average expenditures for 1 day for 1person were much higher (1641.27 UAH) in VIP-zone and was equal to 459 UAH in free-zone. In free-zone the majority of visitors spent 50 UAH, 100 UAH, 200 UAH and 250 UAH per person per day whereas 6.36% of visitors did not make any expenses per day during the festival. The situation is the following in VIP-zone: basically visitors spent 500 UAH, 1000 UAH and 2000 UAH per person per day whereas 4.66% of visitors did not make any expenses during the festival.

Table 2. Descriptive statistics of average attendee's profile

<i>Independent variables</i>	<i>Non-ticketed</i>	<i>Ticketed</i>	<i>Total</i>
<i>Demographic profile</i>			
Age	36.62 (13.59)	36.54 (10.25)	36.58 (12.09)
Female	0.5 (0.5)	0.51 (0.5)	0.5 (0.5)
<i>Geographical profile</i>			
Kyiv	0.24*** (0.43)	0.51*** (0.5)	0.37 (0.48)
Lviv (base)	0.48*** (0.5)	0.31*** (-0.46)	0.4 (0.49)
Average expenditures	459.00*** (714.38)	1641.27*** (1963.23)	1028.3 (1570.67)
<i>Number of accompanying people</i>			
Alone	0.22*** (0.41)	0.12*** (0.33)	0.17 (0.38)
Company of 2 persons (base)	0.37** (0.48)	0.30** (0.46)	0.34 (0.47)
Company of 3 persons	0.14 (0.35)	0.12 (0.33)	0.13 (0.34)
Company of 4 persons	0.1 (0.3)	0.13 (0.34)	0.12 (0.32)
Company of 5 persons &>	0.17*** (0.37)	0.32*** (0.47)	0.24 (0.43)
<i>Duration of staying in Lviv</i>			
Staying in Lviv for 1 day	0.16*** (0.36)	0.05*** (0.22)	0.11 (0.31)
Staying in Lviv for 2 days	0.16* (0.36)	0.11* (0.31)	0.13 (0.34)

Table 2 continued

<i>Independent variables</i>	<i>Non-ticketed</i>	<i>Ticketed</i>	<i>Total</i>
Staying in Lviv for 3 days (base)	0.19*** (0.4)	0.41*** (0.49)	0.3 (0.46)
Staying in Lviv for 4 days	0.13** (0.34)	0.19** (0.39)	0.16 (0.37)
Staying in Lviv for 5 days	0.32*** (0.47)	0.21*** (0.41)	0.26 (0.44)
Staying in Lviv for 6 days &>	0.05 (0.21)	0.03 (0.18)	0.04 (0.2)
<i>Means of transportation</i>			
Bus used for transportation	0.03* (0.17)	0.01* (0.1)	0.02 (0.14)
Car used for transportation	0.13*** (0.34)	0.29*** (0.45)	0.21 (0.41)
Local transportation (base)	0.46*** (0.5)	0.31*** (0.46)	0.39 (0.49)
Plane used for transportation	0.03* (0.16)	0.05* (0.22)	0.04 (0.19)
Train used for transportation	0.36 (0.48)	0.34 (0.47)	0.35 (0.48)
<i>Types of accommodation</i>			
Renting apartment	0.18* (0.38)	0.23* (0.42)	0.2 (0.4)
By-passing	0.05*** (0.21)	0.00*** (0)	0.03 (0.16)
Friends/own apartment (base)	0.57*** (0.5)	0.38*** (0.49)	0.48 (0.5)
Hostel	0.10*** (0.3)	0.01*** (0.12)	0.06 (0.23)

Table 2 continued

<i>Independent variables</i>	<i>Non-ticketed</i>	<i>Ticketed</i>	<i>Total</i>
Hotel	0.11*** (0.31)	0.38*** (0.49)	0.24 (0.43)
<i>Festival related variables</i>			
Purpose of visit	0.78*** (0.42)	1.00*** (0.05)	0.88 (0.32)
Previous experience	0.48*** (0.5)	0.71*** (0.46)	0.59 (0.49)
Plans to attend in the future	0.88 (0.32)	0.9 (0.3)	0.89 (0.31)

Standard deviations in parentheses

* test for statistical difference of means from value in "Total"

*significant at 10%; ** significant at 5%; *** significant at 1%

Structure of attendee's expenditures

Attendee's expenditures are divided into 5 main categories according to the literature studies. There is a noticeable gap between visitors who spent their money in one expenditure category, and those who spent their money in other categories. Table3 contains information about the dynamics of average attendee's expenditures by 5 categories analyzed. From 758 visitors, on eating (cafe/restaurants) was the category that incurred spending by the large number of attendees – 711 spenders. The second and third most important categories were accommodation and local transportation (374 and 315 spenders respectively). In other words, 49.34% and 41.56% of visitors spent their money on accommodation and transportation in the host area. Consequently, the responders' expenditures were the lowest on entertainment and souvenirs. 39.71% of attendees enjoyed some entertainment and 26.65% purchased some souvenirs. Only 5.28% of total visitors purchased other goods and commodities,

which means that there are no other main expenditure categories. Therefore we do not take into consideration other expenditures in our estimation analysis.

Excluding zero expenditures, the analysis of average attendees' expenditures per day by category shows that the highest spending categories were eating and accommodation (449.12 UAH and 329.65 UAH per visitor per day, on average), then souvenirs and entertainment (125.33 UAH and 72.67 UAH respectively). While the smallest average expenditures per day were 33.61 UAH on local transportation compared to the third important category, when we looked through the data in terms of the number of visitors.

Table3. Descriptive statistics of average attendee's expenditures

	<i>Non-ticketed</i>	<i>Ticketed</i>	<i>Total</i>
Accommodation	107.26*** (204.98)	569.41*** (877.77)	329.65 (667.45)
Local Transport	12.00*** (32.58)	56.87*** (93.79)	33.61 (72.68)
Food (cafe/restaurants)	205.91*** (260.2)	711.00*** (699.76)	449.12 (578.18)
Entertainment	49.66** (215.93)	97.44** (401.35)	72.67 (319.64)
Souvenirs	63.53** (213.98)	191.86** (1085.58)	125.33 (771.04)
Else	20.92 (256.89)	16.34 (179.88)	18.71 (223.02)

Standard deviations in parentheses

* test for statistical difference of means from value in "Total"

* significant at 10%; ** significant at 5%; *** significant at 1%

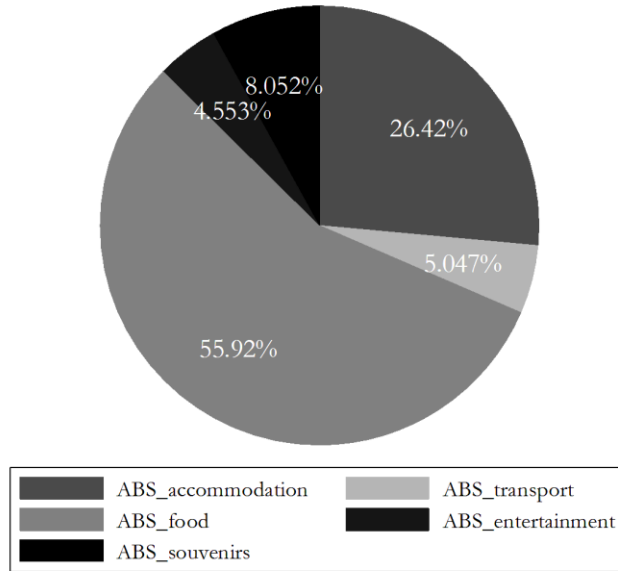
In free-zone from 393 visitors, eating (cafe/restaurants) was the category that incurred spending by the large number of attendees – 364 spenders. The second and third most important categories were accommodation and local transportation (149 spenders in each category). In other words, 37.91% of visitors spent their money on accommodation and buying souvenirs in the host area. Consequently, the responders' expenditures were the lowest on local transportation and entertainment. 24.17% of attendees enjoyed some entertainment and 32.06% used local transports. Only 4.58% of total visitors purchased other goods and commodities.

In VIP-zone from 365 visitors, food (cafe/restaurants) was the category that incurred spending by the large number of attendees – 347 spenders. The second and third most important categories were accommodation and local transportation (225 and 189 spenders respectively). In other words, 61.64% and 51.78% of visitors spent their money on accommodation and transportation in the host area. Consequently, the responders' expenditures were the lowest on entertainment and souvenirs. 29.32% of attendees enjoyed some entertainment and 41.64% purchased some souvenirs. Only 6.03% of total visitors purchased other goods and commodities.

Average budget shares

Following the methodological considerations in the next chapter, average budget shares of visitors' expenditures for each category are presented in Table 4. The difference between these two groups of visitors is statistically significant at 1%. The second largest average budget share for ticketed visitors is accommodation (26%) as well as for non-ticketed visitors (15%). The difference between these two groups of visitors is also statistically significant at 1%. Other expenditure allocations are statistically no different by two groups.

Average budget shares (ticketed)



Average budget shares (non-ticketed)

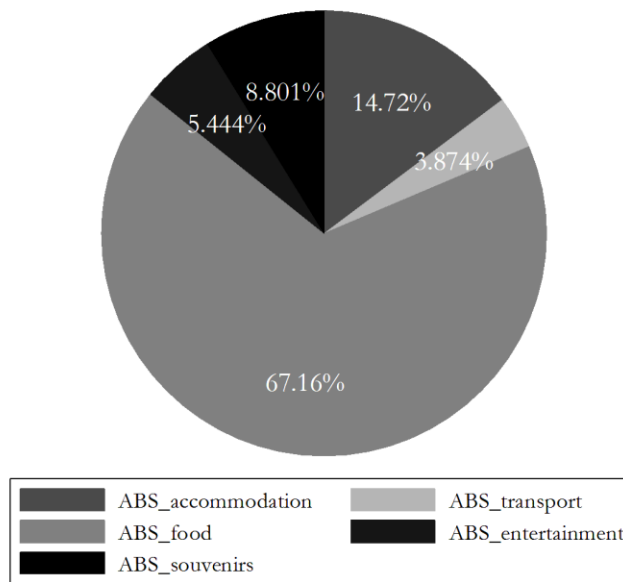


Figure 3. ABS of different expenditure categories for ticketed and non-ticketed visitors

Non-ticketed visitors spent the lowest share on entertainment (4.5%) while for ticketed visitors the smallest category is local transportation (3.8%). The difference is not statistically significant at 5%.

Table4. Average budget shares of expenditures' categories for ticketed and non-ticketed attendees

<i>Expenditure category</i>	<i>Non-Ticketed</i>	<i>Ticketed</i>	<i>Total</i>
Accommodation	0.145*** (0.202)	0.263*** (0.239)	0.202 (0.228)
Local transport	0.038 (0.103)	0.05 (0.093)	0.044 (0.099)
Food	0.662*** (0.306)	0.556*** (0.283)	0.61 (0.299)
Entertainment	0.054 (0.131)	0.045 (0.115)	0.05 (0.123)
Souvenirs	0.087 (0.141)	0.08 (0.137)	0.083 (0.139)
Other	0.014* (0.082)	0.006* (0.041)	0.01 (0.065)
Sum	1.00	1.00	1.00

Standard deviations in parentheses

* test for statistical difference of means from value in "Total"

* significant at 10%; ** significant at 5%; *** significant at 1%

Ticketed visitors spent 55.92% of their budget on food, 26.4% and 8% on accommodation and souvenirs (Figure 3). Entertainment and local transport constitute only 5% and 4% of their budget for both groups. Non-ticketed visitors have a similar structure of expenditures: they spent 67.2% of their budget on food, 14.72% and 8.8% on accommodation and souvenirs. Entertainment and local transport constitute only 5% of their budget respectively. It is interesting to observe that both ticketed and non-ticketed visitors on average spent the highest budget share on food (56% and 67% respectively). This can be explained by a

higher need for food by both groups. However, for non-ticketed visitors the average budget share of food was slightly larger.

Chapter 3

METHODOLOGY

The theoretical model

The main question of the present research is whether the spending on admission fee affects attendees' expenditures behavior in Ukraine. The analysis of local festivals attendees' expenditures based on marginal spending behavior measured by marginal budget share of expenditures of ticketed and non-ticketed visitors. In the present studies predictors of festival visitor expenditure estimated by Tobit model applying to linear functional form, where the dependent variable is expenditure category of a particular visitor.

In my study I am going to rely upon the Working-Lesser model (Working, 1943), which derives from the Engel demand function and estimates the linear relationship between the budget share of some expenditure category and logarithm of total expenditures for a certain visitor. In order to reflect the income redistribution effect the modern studies add an intercept to the model augment it with other explanatory variables. Adams (2008, 2005) used Working-Lesser model with an intercept for estimating the effect of remittances on spending behavior. In addition, the AIDS method (Almost Ideal Demand System) was used by Taylor (2006), which is similar to Working-Lesser model.

The functional form should satisfy the following criteria for the econometric analysis which was mentioned by Adam (2008) and Taylor (2006):

- The model should enable marginal propensities on spend on certain expenditure category to change as total level of expenditures change.

- Adding –up criteria: the sum of all budget shares must equal to unity.

The Engel function is described by the following formula:

$$C_i = \alpha_i EXP + \beta_i (EXP)(\log EXP) \quad \text{eq. 1}$$

The model, which expresses the share of expenditures on good i in total expenditure ($\frac{C_i}{EXP}$), is obtained from the equation (1) by dividing the formula by total expenditures (EXP):

$$\frac{C_i}{EXP} = \alpha_i + \beta_i (\log EXP) \quad \text{eq. 1}$$

The model should satisfy the adding-up criteria, as mentioned above, which implies that the sum of all budget shares must equal to unity:

$$\sum C_i / EXP = 1 \quad \text{eq. 2}$$

Different socio-demographic determinants such as age, gender, type of residence, geographic region, were included in the expenditure equation by some researchers (Osili 2007, Alderman 1996, Taylor 2006, Adams 2005, 2008). Part of the observed differences in spending behavior of visitors may be caused by differences in demographic profile, geographic region, mean of transportation or number of accompanying people. These variables can influence marginal propensities to spend on certain expenditure category. They need to be included in Engel function in a way that allows them to change the intercept and the slope of the function. Let X_j denotes j^{th} visitors' socio – demographic characteristic and μ_{ij} is a constant. Then the model takes the following form:

$$C_i = \alpha_i EXP + \beta_i (EXP)(\log EXP) + \sum_j \mu_{ij} X_j EXP + u_i \quad \text{eq. 3}$$

The complete model in semi-log ratio form equals to:

$$\frac{C_i}{EXP} = \alpha_i + \beta_i(\log EXP) + \sum_j \mu_{ij} X_j + u_i \quad \text{eq. 4}$$

where C_i – visitor expenditure on one of five expenditure categories defined above (accommodation, transportation, food, entertainment and souvenirs); EXP - total visitor expenditure.

The marginal and average budget shares are derived from previous equation by dividing by total expenditure (ABS_i) and by taking derivative with respect to total expenditure (MBS_i):

$$MBS_i = dC_i/dEXP = \alpha_i + \beta_i(1 + \log EXP) + \sum_j \mu_{ij} X_j, \quad \text{eq. 5}$$

$$ABS_i = \frac{C_i}{EXP_i}. \quad \text{eq. 6}$$

Prais and Houthakker (1971) concluded that using the semi-logarithmic functional forms performed better than the others in terms of goodness of fit. This functional form allows expenditure elasticities change as visitor income levels change.

Estimation

Tobit model would be used for each category i in eq. 5 given that dependent variable takes nonnegative values and has a large number of zeros. Indeed, festival attendee expenditures refer to the types of data called censored data. The

sample consists of significant proportion of observations with zero expenditures in each category and the remaining part of observations with positive expenditures. Applying OLS to this data makes the estimation parameter inconsistent due to the censored sample bias.

In the literature, two approaches are used to deal with zero expenditures, Heckman two-step model (Heckman, 1979) and Tobit model (Tobin, 1958), which are based on different assumption about zero expenditures. Heckman two-step model is an appropriate model if zero expenditures are due to sample selection meaning that no purchase was made for a particular item because of short survey period. On the other hand, Tobit model is an appropriate model where zero expenditures are included into the model as a corner solution for utility maximization meaning that there no expenditures on a particular good.

Due to Tobin, values of dependent variable are grouped at zero values of independent variables. Consequently, the sample is censored at zero because dependent variable cannot take negative values. The Tobit model allows to include zero values of festival visitors' expenditures in the model, information about decision whether to spend or not and the level of expenditure. In present study the Tobit model was used for further analysis of spending predictors because of censored attendees' expenditures sample.

The sample consists of $(y_i, x_i), i = 1, \dots, 758$. Independent variables x_i are observed, whereas the corresponding dependent variable y_i not observed on some interval. Therefore, the data include censored and uncensored observations. Consider the following regression model of latent variable y^* :

$$y_i^* = x_i' \beta + \varepsilon, i = 1, \dots, N \quad \text{eq. 7}$$

where $\varepsilon_i \sim N(0, \sigma^2)$ and x_i – fully observed independent variables.

In our case, the data is left censored at zero and observations are defined in the following way:

$$y = \begin{cases} y^* & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases} \quad \text{eq. 8}$$

The probability that the observation is censored equals to

$$\Pr(y^* \leq 0) = \Pr(x_i' \beta + \varepsilon \leq 0) = \Phi \left\{ \frac{(0 - x_i' \beta)}{\sigma} \right\}, \quad \text{eq. 9}$$

where $\Phi(\cdot)$ – standard normal cumulative distribution function.

The expected value of y for uncensored observations is

$$E(y_i | x_i, y_i > 0) = x_i' \beta + \sigma \frac{\varphi \left\{ \frac{(x_i' \beta - 0)}{\sigma} \right\}}{\Phi \left\{ \frac{(0 - x_i' \beta)}{\sigma} \right\}} \quad \text{eq. 10}$$

where $\varphi(\cdot)$ - standard normal density and $\varepsilon \sim N(0, \sigma^2)$.

The further analysis relies upon the maximum likelihood estimation technique. The density function consists of two parts for censored and uncensored observations of the left censored data, where $\gamma = 0$ – the censoring point. Let d is the indicator with two outcomes: $d = 1$ means that the observation is uncensored, whereas $d = 0$ means that the observation is censored. The formula of density function is the following:

$$f(y_i) = \left[\frac{1}{\sqrt{2\pi\sigma^2}} \exp \left\{ -\frac{1}{2\sigma^2} (y_i - x_i'\beta)^2 \right\} \right]^{d_i} \left[\Phi \left\{ \frac{(y_i - x_i'\beta)}{\sigma} \right\} \right]^{1-d_i} \quad \text{eq.11}$$

The Tobit maximum likelihood estimator (MLE) is consistent when two assumptions are introduced: error terms are normally distributed and heteroskedastic. If these assumptions are violated then Tobit MLE is a nonrobust estimator.

With Tobit estimation, we cannot rely on the eq. 6 to receive marginal expenditures. Thus, below we derive the new formula following the approach in Wooldridge 2013, Chapter 17. First, we find the partial derivative of $E(y|x)$ with respect to continuous x_j using calculus. This derivative accounts for $y > 0$ when x_j changes:

$$\begin{aligned} \frac{\partial E(y|x)}{\partial x_j} &= \frac{\partial P(y > 0|x)}{\partial x_j} E(y|y > 0, x) \\ &\quad + P(y > 0, x) \frac{\partial E(y|y > 0, x)}{\partial x_j} \end{aligned} \quad \text{eq.13}$$

Because $P(y > 0|x) = \Phi \left(\frac{x\beta}{\sigma} \right)$,

$$\frac{\partial P(y > 0|x)}{\partial x_j} = \left(\frac{\beta_j}{\sigma} \right) \phi \left(\frac{x\beta}{\sigma} \right), \quad \text{eq. 14}$$

so we can estimate each term in eq. 13, once we plug in the MLEs of the β_j , σ and particular values of x_j .

The expected values of y for given values of x , where y is positive, is equal to the formula:

$$E(y|y > 0, x) = x\beta + \sigma\lambda\left(\frac{x\beta}{\sigma}\right) \quad \text{eq. 15}$$

where $\lambda(c) = \phi(c)/\Phi(c)$ is called the inverse Mills ratio; it is ratio between the standard normal probability density function and standard normal cumulative density function, each evaluated at c .

The partial effect of x_j on $E(y|y > 0, x)$ is determined by the following equation:

$$\frac{\partial E(y|y > 0, x)}{\partial x_j} = \beta_j * \left\{ 1 - \lambda\left(\frac{x\beta}{\sigma}\right) \left[\frac{x\beta}{\sigma} + \lambda\left(\frac{x\beta}{\sigma}\right) \right] \right\} \quad \text{eq. 16}$$

When we plug eq.14, eq.15 and eq.16 into eq.13 and use the fact that $\phi(c) = \Phi(c) * \lambda(c)$ for any constant c , we obtain:

$$\frac{\partial E(y|x)}{\partial x_j} = \beta_j \Phi\left(\frac{x\beta}{\sigma}\right). \quad \text{eq. 17}$$

Then we can find the partial derivative of $E(ABS_j|x)$ with respect to EXP_j for the eq.4:

$$\begin{aligned} \frac{\partial E(ABS_j|x)}{\partial EXP_j} &= \frac{\partial P(ABS_j > 0|x)}{\partial EXP_j} E(ABS_j|ABS_j > 0, x) \\ &+ P(ABS_j > 0, x) \frac{\partial E(ABS_j|ABS_j > 0, x)}{\partial EXP_j}. \end{aligned} \quad \text{eq. 18}$$

Let denote u by the following formula:

$$u = \alpha_j + \beta_j(\log EXP_j) + \gamma_{i1}Ticketed + \gamma_{i2}Ticketed(\log EXP_j) \quad \text{eq. 19}$$

$$+ \sum_j \mu_{ij} Z_j$$

$$v = \alpha_j + \beta_j(1 + \log EXP_j) + \gamma_{i1}Ticketed \quad \text{eq. 20}$$

$$+ \gamma_{i2}Ticketed(1 + \log EXP_j) + \sum_j \mu_{ij} Z_j$$

Because $P(ABS_j > 0|x) = \Phi(u/\sigma)$, and taking into account u we got

$$\frac{\partial P(ABS_j > 0|x)}{\partial EXP_j} = \left(\frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \right) \phi\left(\frac{u}{\sigma}\right), \quad \text{eq. 21}$$

The expected values of ABS_j , where ABS_j is positive, is equal to the formula:

$$E(ABS_j | ABS_j > 0, x) = u + \sigma \lambda\left(\frac{u}{\sigma}\right) \quad \text{eq. 22}$$

The partial effect of EXP_j on $E(ABS_j | ABS_j > 0, x)$ is determined by the following equation:

$$\frac{\partial E(ABS_j | ABS_j > 0, x)}{\partial EXP_j} = \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} * \left\{ 1 - \lambda\left(\frac{u}{\sigma}\right) \left[\frac{u}{\sigma} + \lambda\left(\frac{u}{\sigma}\right) \right] \right\} \quad \text{eq. 23}$$

As a result, we plug eq.21, eq.22 and eq.23 into eq.18 and obtain:

$$\frac{\partial E(ABS_j | x)}{\partial EXP_j} = \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} * \Phi\left(\frac{u}{\sigma}\right). \quad \text{eq. 24}$$

According to the properties of conditional expected value we got:

$$E(C_i | x) = E(ABS_j EXP_i | x) = EXP_i * E(ABS_j | x) \quad \text{eq. 25}$$

Then taking partial derivative with respect to EXP_i from eq. 24, we found partial effect of total expenditure on $E(C_i|x)$ using the eq. 22 and eq. 24 in the appendix:

$$\frac{\partial E(C_i|x)}{\partial EXP_j} = \Phi\left(\frac{u}{\sigma}\right) * v + \sigma * \varphi\left(\frac{u}{\sigma}\right). \quad \text{eq. 26}$$

On the base of ABS Tobit estimates derivation, which is presented in the appendix D, we obtain the formula of MBS for festival attendees (appendix C).

Chapter 6

EMPIRICAL RESULTS

The empirical results are divided into two parts. First part focuses on Tobit model estimation describing the marginal effect of total expenditure on average budget shares for two groups: those who paid admission fee and those who did not pay. The second part calculates marginal budget shares of expenditure for ticketed and non-ticketed attendees.

The central question of the paper is how the admission fee affects attendees' spending patterns at Alfa Jazz Fest. The regression specification is chosen to be most flexible. It allows affecting visitors' expenditures budget shares through shifting an intercept (linear functional form) and by changing the attendees' marginal propensity to consume for different expenditure categories (interaction term of ticketed and logarithm of expenditure in the model).

According to the literature, in the household budget allocation study two moments are valuable for the estimation: the expenditure level and budget share distribution for different expenditure categories (Barigozzi, Matteo, 2012). Using of Engel curve for a given total level of expenditure allows study how visitors' budget is allocated between expenditure categories. The model is estimated as a system of average budget shares of different expenditure categories relative to the total expenditure of a particular visitor.

Robustness

Several checks concerning the robustness of results were conducted as Tobit regression often violated the underlying assumptions. As mentioned in the

literature review, Tobit regression should satisfy normality and homoskedasticity of error terms. In order to control for normality conditional model test (CM) was run in Stata using `tobcm` command. The result shows that p-value is less than 0.05 rejecting the hypothesis that error terms are normal (appendix G). Then we check homoscedasticity of error terms applying LM- test in Stata, which shows the same result. Therefore, normality and homoscedasticity assumptions of Tobit model are violated.

There is one of the ways to evaluate whether the Tobit model is an appropriate for econometric analysis when main assumptions do not hold. Wooldridge (2010) suggest that Tobit estimators divided by standard error are similar to the probit estimates of the same regression in terms of the appropriateness of Tobit model. The author also indicates the following property of misspecification: “statistically significant sign changes” of Tobit divided by sigma and probit estimators. Moreover, $\frac{\partial P(ABS>0|x)}{\partial EXP}$ and $\frac{\partial E(ABS|x,ABS>0)}{\partial EXP}$ also has the same sign.

For further comparison we generate the following binary dependent variable of probit regression:

$$ABS_i = \begin{cases} 1, & \text{if } ABS_i > 0 \\ 0, & \text{if } ABS_i = 0. \end{cases} \quad \text{eq. 28}$$

Results of Tobit estimators divided by sigma and probit estimators are relatively the same and have the same sign (appendix H and I). We conclude that econometric specification of the model can roughly be estimated and we rely upon such results even if Tobit error terms do not satisfy CM and LM-tests of normality and homoscedasticity requirements.

To deal with the violation of normality and homoscedasticity, the Probit model was estimated with the dependent variable as in eq. 28. Additionally, we can apply linear probability model (LPM) to check robustness of our results. The LPM has heteroskedastic error terms by definition which requires robust standard errors as derived by White (1980). For the LPM estimation we generate the following binary dependent variable:

$$ABS_i = \begin{cases} 1, & \text{if } ABS_i \geq \mu(ABS_i) \\ 0, & \text{if } ABS_i < \mu(ABS_i), \end{cases} \quad \text{eq. 29}$$

where μ is the mean of ABS_i . This is done separately for ticketed and non-ticketed visitors. The results of the LPM model are reported for festival attendees in the appendix K (accommodation, transportation) and J (entertainment, souvenirs).

Results of Tobit regression estimation

As mentioned above, the comparison of Tobit divided by sigma and Probit coefficients of ABS for accommodation and transportation show that statistically significant coefficients from them do not change their sign (appendix H). Therefore we can conclude that the estimated model is appropriate and we can classify Tobit estimates as credible even though post-estimation tests do not hold. After estimation of Tobit regression, we analyzed the relative effect on the spending share in a certain expenditure category of the one unit increase in explanatory variables.

Table 5 reports the Tobit estimation of marginal effects of explanatory variables on ABS for accommodation, their statistical significance and the probability of spending on this category.

Table 5. Marginal effects of Tobit regression of ABS for accommodation

VAR	(1) Tobit Coeff.	(2) $\frac{\partial E(ABS x)}{\partial x_j}$	(3) $\frac{\partial E(ABS ABS > 0, x)}{\partial x_j}$	(4) $\frac{\partial Pr(ABS > 0 x)}{\partial x_j}$
LogEXP	0.201*** (0.0235)	0.110*** (0.0131)	0.0907*** (0.0110)	0.208*** (0.0326)
ticketed	0.176 (0.185)	0.0959 (0.101)	0.0792 (0.0836)	0.254 (0.258)
ticLogEXP	-0.0383 (0.0287)	-0.0209 (0.0157)	-0.0173 (0.0130)	-0.0565 (0.0435)
age	-0.00113 (0.00120)	-0.000614 (0.000656)	-0.000507 (0.000541)	-0.00252** (0.00111)
female	0.0267 (0.0251)	0.0146 (0.0137)	0.0120 (0.0113)	0.0197 (0.0236)
purpose	-0.0220 (0.0412)	-0.0120 (0.0225)	-0.00991 (0.0186)	-0.00718 (0.0413)
attenbefore	-0.132*** (0.0268)	-0.0720*** (0.0144)	-0.0594*** (0.0120)	-0.128*** (0.0277)
plan	0.0181 (0.0387)	0.00987 (0.0211)	0.00815 (0.0174)	0.00967 (0.0423)
Kyiv	0.175*** (0.0265)	0.0955*** (0.0141)	0.0788*** (0.0119)	0.167*** (0.0240)
alone	-0.0873** (0.0413)	-0.0477** (0.0225)	-0.0394** (0.0187)	-0.0729** (0.0310)
company3	-0.0150 (0.0372)	-0.00818 (0.0203)	-0.00675 (0.0168)	-0.0163 (0.0341)
day1	-0.303*** (0.0688)	-0.165*** (0.0375)	-0.137*** (0.0310)	-0.246*** (0.0467)
day2	-0.0715** (0.0364)	-0.0390** (0.0199)	-0.0322** (0.0164)	-0.0474 (0.0346)
day4	0.0891*** (0.0334)	0.0486*** (0.0182)	0.0402*** (0.0150)	0.114*** (0.0378)
day5	0.0130 (0.0329)	0.00710 (0.0180)	0.00587 (0.0148)	0.0239 (0.0294)
Constant	-1.102*** (0.160)			
Obs.	716	716	716	716

Robust standard errors in parentheses

Average marginal effects of all covariates, columns (3) and (4)

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

Note that in Table 5 for attendees who spent on admission fee, “Ticketed” is set to be equal to 1, for those who did not pay the fee “Ticketed” equals 0. This variable has no effect on ABS for accommodation. The “unconditional” difference in accommodation budget shares found previously for ticketed and non-ticketed participants is fully captured by the difference in total expenditures: with 1% increase in total expenditures visitors increase their budget on lodging by 11% (column (2), table 5).

Several other explanatory variables are significant in explaining the variation in the average budget share of accommodation: duration of visit, home residency, previous experience of festival visits. Specifically, among festival attendees who visited Lviv for 1 day the average budget share of accommodation is lower by 17% while for those who stayed 4 days relative spending on accommodation are 5% higher (compare to visitors who came for three days).

We are interested in the sensitivity of ABS for accommodation to changes in marginal expenditures. Among festival attendees, who actually spend on accommodation, the ABS for accommodation is lower by 5% for visitors who came alone. For attendees from Kyiv ABS for accommodation is 10% higher. The “conditional” difference in accommodation shares shows that previous experience in attendance decreases ABS by 6% in comparison with attendees who came for the first time.

Table 6. Marginal effects of Tobit regression of ABS for transportation

VAR	(1) Tobit Coeff.	(2) $\frac{\partial E(ABS x)}{\partial x_j}$	(3) $\frac{\partial E(ABS ABS > 0, x)}{\partial x_j}$	(4) $\frac{\partial Pr(ABS > 0 x)}{\partial x_j}$
LogEXP	-0.00134 (0.0135)	-0.000532 (0.00536)	-0.000418 (0.00422)	0.0475** (0.0228)
ticketed	0.116 (0.131)	0.0459 (0.0523)	0.0361 (0.0411)	-0.0500 (0.214)
ticLogEXP	-0.0107 (0.0193)	-0.00423 (0.00766)	-0.00333 (0.00602)	0.0164 (0.0327)
age	-0.00133* (0.000785)	-0.000526* (0.000308)	-0.000414* (0.000243)	-0.00356** (0.00156)
female	0.00864 (0.0158)	0.00343 (0.00627)	0.00270 (0.00493)	0.0208 (0.0359)
purpose	0.0718** (0.0291)	0.0285** (0.0115)	0.0224** (0.00907)	0.137** (0.0649)
attenbefore	-0.00742 (0.0162)	-0.00294 (0.00645)	-0.00232 (0.00507)	-0.00379 (0.0396)
plan	-0.0174 (0.0229)	-0.00690 (0.00908)	-0.00543 (0.00715)	-0.0815 (0.0573)
Kyiv	0.00836 (0.0165)	0.00332 (0.00655)	0.00261 (0.00516)	0.0346 (0.0428)
alone	-0.0422 (0.0268)	-0.0167 (0.0106)	-0.0132 (0.00835)	-0.0983* (0.0509)
company3	0.00733 (0.0181)	0.00291 (0.00718)	0.00229 (0.00565)	0.0591 (0.0513)
day1	-0.0626 (0.0419)	-0.0248 (0.0165)	-0.0195 (0.0130)	-0.203*** (0.0763)
day2	0.0123 (0.0242)	0.00489 (0.00958)	0.00385 (0.00754)	0.00197 (0.0557)
day4	-0.00405 (0.0167)	-0.00161 (0.00661)	-0.00127 (0.00520)	0.0392 (0.0521)
day5	0.0176 (0.0202)	0.00698 (0.00797)	0.00549 (0.00628)	0.00290 (0.0482)
Constant	-0.0567 (0.0922)			
Obs.	716	716	716	716

Robust standard errors in parentheses
Average marginal effects of all covariates

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

Column (4) of Table 5 reveals that 1% increase in total expenditure raises the probability of spending on accommodation by 21%, whereas the LPM gives the same result for ABS of accommodation as it states that the probability of spending is 20% (column (1), appendix J). Moreover, additional income is also more likely increase spending on accommodation at and above the mean of ABS of accommodation. Concerning those attendees, who actually spend on accommodation, the Tobit regression shows that ABS of accommodation increases by 9% if visitors get additional income. Non-residents from Kyiv have the probability to spend on accommodation of 17% greater than attendees from other regions from Ukraine. In addition, attendees who characterized by 1-2 visit have the probability of spending on accommodation by 25% lower than visitors who stayed 3 days while attendees with higher duration increase ABS for accommodation by 11%.

The LPM states similar results that the probability of spending on accommodation is 13% higher if visitors stay for 4 days in Lviv and 28% higher if attendees are from Kyiv. We can conclude that attendees, who came alone at the Alfa Jazz and for one day, spend less, than attendees who staying for loner time, especially those who are from Kyiv. Obviously, visitors with more festival attending experience know the ways of reducing accommodation costs. It is interesting to observe that LPM and Tobit model suggest that residence, number of accompanying people and previous experience are statistically significant, whereas the literature suggests that these predictors do not affect spending on accommodation.

Several interesting results are worth mentioning. For expenditures on transportation significant predictors are age and purpose of visit at the festival. In particular, those who came specifically for the festival spent 3% more from their

budget. Younger people spend a larger share on transportation, i.e. the ABS decreases by 0.1% with each additional year of age and the probability of spending is 0.4% lower. The “conditional” difference in transportation shares shows that purpose of the visit increases ABS by 3% in comparison to those attendees who have other goals. If individuals stay in Lviv for one day only, then the probability of transportation share of spending decreases by 2% which is likely to happen due to larger absolute expenses on other categories giving the relatively fixed nature of transportation costs. Younger people spend larger share on transportation, i.e. the ABS decreases by 1% with each additional year of age.

The LPM reveals that the probability of share spending on transportation decreases by 9% for attendees, who visit festival alone. Concerning the further control variables, LPM states that planning of visit and staying for one day in Lviv decreases the probability of spending by 11%. Moreover, the probability of spending on transportation is more likely to decrease with additional age at and above the mean of ABS of transportation from -0.4% to -0.2%. Purpose of festival visits slightly increase spending share on transportation by 4% above the mean.

Table 7 and 8 reports the results of marginal effects of Tobit estimation of ABS of entertainment, souvenirs and probabilities of spending on these categories. Since comparison of Tobit divided by sigma and Probit coefficients does not indicate sign changes of statistically significant regressors, we can roughly rely upon our results (appendix K). Purpose of visit (-4%) and previous attendance (-2%) are significant predictors of relative entertainment expenditures.

Table 7. Marginal effects of Tobit regression of ABS for entertainment

VAR	(1) Tobit Coeff.	(2) $\frac{\partial E(ABS x)}{\partial x_j}$	(3) $\frac{\partial E(ABS ABS > 0, x)}{\partial x_j}$	(4) $\frac{\partial Pr(ABS > 0 x)}{\partial x_j}$
LogEXP	0.157*** (0.0248)	0.0418*** (0.00698)	0.0391*** (0.00629)	0.157*** (0.0229)
ticketed	0.312 (0.203)	0.0830 (0.0545)	0.0777 (0.0508)	0.296 (0.201)
tickLogEXP	-0.0641** (0.0303)	-0.0171** (0.00815)	-0.0160** (0.00758)	-0.0620** (0.0308)
age	0.000693 (0.00145)	0.000185 (0.000386)	0.000173 (0.000362)	0.000220 (0.00144)
female	0.0315 (0.0287)	0.00838 (0.00765)	0.00784 (0.00716)	0.0304 (0.0306)
purpose	-0.131*** (0.0470)	-0.0350*** (0.0126)	-0.0327*** (0.0118)	-0.127** (0.0520)
attendbefore	-0.0742** (0.0312)	-0.0198** (0.00833)	-0.0185** (0.00778)	-0.0872*** (0.0331)
plan	0.00673 (0.0406)	0.00179 (0.0108)	0.00168 (0.0101)	-0.0311 (0.0474)
Kyiv	0.0156 (0.0319)	0.00415 (0.00846)	0.00389 (0.00793)	0.0769** (0.0342)
alone	-0.0102 (0.0404)	-0.00273 (0.0108)	-0.00256 (0.0101)	-0.0114 (0.0432)
company3	0.0173 (0.0402)	0.00461 (0.0107)	0.00432 (0.0100)	0.0130 (0.0423)
day1	-0.0894 (0.0722)	-0.0238 (0.0191)	-0.0223 (0.0179)	-0.153** (0.0671)
day2	0.0253 (0.0504)	0.00673 (0.0134)	0.00630 (0.0126)	-0.0181 (0.0489)
day4	0.0152 (0.0352)	0.00405 (0.00939)	0.00379 (0.00879)	0.0263 (0.0424)
day5	-0.0265 (0.0378)	-0.00705 (0.0101)	-0.00660 (0.00941)	-0.0233 (0.0413)
Constant	-1.005*** (0.167)			
Obs.	716	716	716	716

Robust standard errors in parentheses

Average marginal effects of all covariates

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

Column (4) in Table 7 indicates that the probability of share spending on entertainment is 13% lower if attendees arrived with the purpose to visit the festival. The LPM also states that visitors are less likely spend on entertainment at and above the mean of ABS on entertainment. Furthermore, econometric estimation reveals similar results for visitors with previous attendance experience. It is interesting to observe that ticketed attendees are more likely to decrease their spending on entertainment above the mean of ABS on entertainment. In addition, probit and LPM estimators are consistent. We can conclude that with additional income all attendees increase their spending on entertainment by 5%, but ticketed visitors spend less by 2% relative to non-ticketed.

Finally, significant predictors of the marginal effect on relative spending on souvenirs are the following: age (0.1%), previous experience (-2%), Kyiv residence (2%), duration of staying for 4 days (3%). The “unconditional” difference in souvenirs budget share found for festival participants is captured by the difference in spending on admission fee: with one increase in total expenditure ticketed visitors decrease their expenses on souvenirs by 2% relative to non-ticketed. At the same time, additional income increase participants’ expenditures on souvenirs by 5%.

Table 8 also indicates that the probability of share spending on souvenirs is 9% for Kyiv residents, whereas the LPM indicates higher result for ABS on souvenirs as it shows that the probability of spending is 12% at zero. The probability of souvenirs expenditures is 9% higher for attendees who staying in Lviv for 4 days relative to those with lower length of stay. Moreover, additional budget is more likely increase share spending on souvenirs below the mean of ABS on souvenirs.

Table 8. Marginal effects of Tobit regression of ABS for souvenirs

VAR	(1) Tobit Coeff.	(2) $\frac{\partial E(ABS x)}{\partial x_j}$	(3) $\frac{\partial E(ABS ABS > 0, x)}{\partial x_j}$	(4) $\frac{\partial Pr(ABS > 0 x)}{\partial x_j}$
LogEXP	0.127*** (0.0151)	0.0522*** (0.00631)	0.0415*** (0.00500)	0.214*** (0.0244)
ticketed	0.250* (0.148)	0.103* (0.0609)	0.0817* (0.0483)	0.600*** (0.204)
tickLogEXP	-0.0587*** (0.0218)	-0.0241*** (0.00897)	-0.0191*** (0.00711)	-0.127*** (0.0325)
age	0.00235** (0.00107)	0.000967** (0.000439)	0.000767** (0.000349)	0.00261* (0.00149)
female	0.0193 (0.0220)	0.00793 (0.00902)	0.00630 (0.00716)	0.0277 (0.0332)
purpose	0.0324 (0.0403)	0.0133 (0.0166)	0.0106 (0.0132)	0.0843 (0.0599)
attendbefore	-0.0586** (0.0253)	-0.0241** (0.0104)	-0.0191** (0.00827)	-0.0841** (0.0366)
plan	-0.0261 (0.0355)	-0.0107 (0.0146)	-0.00853 (0.0116)	-0.0387 (0.0558)
Kyiv	0.0425* (0.0253)	0.0175* (0.0103)	0.0139* (0.00822)	0.0948** (0.0389)
along	0.0127 (0.0360)	0.00523 (0.0148)	0.00415 (0.0117)	-0.0217 (0.0493)
company3	0.0228 (0.0303)	0.00938 (0.0125)	0.00745 (0.00990)	0.0287 (0.0491)
day1	0.0298 (0.0543)	0.0122 (0.0224)	0.00971 (0.0178)	-0.0465 (0.0650)
day2	-0.00345 (0.0337)	-0.00142 (0.0138)	-0.00113 (0.0110)	-0.00720 (0.0529)
day4	0.0820*** (0.0306)	0.0337*** (0.0126)	0.0268*** (0.0100)	0.0936* (0.0482)
day5	0.0378 (0.0299)	0.0155 (0.0123)	0.0123 (0.00976)	0.0488 (0.0453)
Constant	-0.893*** (0.117)			
Obs.	716	716	716	716

Robust standard errors in parentheses
Average marginal effects of all covariates
*** p<0.01, ** p<0.05, * p<0.1

We can make the following conclusion about spending on souvenirs: with additional budget participants expenses increase by 5%, but there is a reduction in ticketed visitors' expenses by 2% in comparison to non-ticketed. The overall conclusion is that ticketed attendees spend more on all expenditure categories in absolute terms but lower is their spending share on entertainment and souvenirs relative to non-ticketed.

Marginal effects of Tobit regression of ABS on food are reported in the appendix K. The average budget share of food is negatively affected by spending decisions on most other categories such as duration of the visit, expensive means of transportation and accommodation. In particular, visitors who stay in Lviv beyond four days allocate lower share to food (7% less if stay 4 days, trip to Lviv for one day increases the spending share on food by 7%). Festival guests using plane, car and train to attend the event reduce relative spending on food by 14%, 11%, and 15% respectively. Visitors renting apartments or living in hotels decrease relative food expenses by 17% and 22% respectively.

As might be expected, a decision to rent an apartment or stay in a hotel also increases average budget share by 21% and 25% respectively as compare to staying with friends. This shift in the preferences comes at the expense of food budget (appendix). In contrast, festival guests who come by plane, train, or a car also spend relatively more on accommodation budget (by 11%, 13% and 9% higher respectively).

Overall, consistent with economic theory, the allocation of total expenditures varies depends on the level of the visitors' budget. Attendees with a larger budget allocate relatively more on accommodation, entertainment and souvenirs while spending a lower share of their festival expenditures on food. More specifically,

with 1% increase in festival expenditures the share of accommodation increases by 11%, of entertainment – by 4% and of souvenirs – by 5%, whereas average budget share of food decreases by 2%.

Table 5 also shows that taking into account the effect of all other variables, attendees' average budget shares are not statically different for ticketed and non-ticketed visitors. This is true for all expenditures categories except two, where total expenditures drives the difference on a margin: with each additional 1% increase in total spending on the festival visitors spend relatively more on food (budget share increases by 3%) and less on souvenirs (budget share drops by 3%).

Marginal budget shares

The main question of the paper is to analyze the differences in spending behavior of ticketed and non-ticketed attendees. Table 5 suggests that the relative patterns (budget shares) are rather similar with some difference being rather caused by total budget of the visitor. Therefore, for practical purposes we would like to calculate the differences in marginal expenditures (in terms of marginal budget shares, MBS) for all expenditure categories for ticketed and non-ticketed visitors.

Marginal budget shares of visitors' expenditures for each spending category are presented in Table 9. MBS was calculated by plugging the coefficients from the regression equation eq.24 into eq.26.

On average with 100 UAH increase in expenses on the festival, both ticketed and non-ticketed attendees will spend most of it on food category (44 UAH and 52 UAH respectively), followed by spending on accommodation (36 UAH and 22 UAH respectively). The remaining amount will go on souvenirs (11 UAH and 14 UAH), followed by entertainment (8 UAH and 9 UAH respectively) and

transportation (6 UAH versus 4 UAH). The difference between MBS of ticketed and non-ticketed attendees is statistically significant at 5% for all expenditure categories.

Table 9. Marginal budget shares for ticketed and non-ticketed attendees

<i>Expenditure category</i>	<i>Non-ticketed</i>	<i>Ticketed</i>	<i>Total</i>
Accommodation	0.22*** (0.22)	0.36*** (0.21)	0.29 (0.23)
Transport	0.04*** (0.01)	0.06*** (0.01)	0.05 (0.02)
Food	0.52*** (0.21)	0.44*** (0.17)	0.49 (0.19)
Entertainment	0.09** (0.09)	0.08** (0.04)	0.09 (0.07)
Souvenirs	0.14*** (0.1)	0.11*** (0.05)	0.12 (0.08)
Other	0.02 (0.03)	0.02 (0.02)	0.02 (0.02)
Sum	1.00	1.00	1.00

Standard errors in parentheses

* test for statistical difference of means from value in "Total"

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

The results of marginal effects of Tobit estimation of ABS suggest that ticketed visitors expenditures structure have relatively small difference from structure of non-ticketed attendees while in absolute terms there is substantial variation. This rather suggests that the higher absolute spending of ticketed visitors and some differences in spending patterns in absolute terms are due to other factors. These factors include total individual's expenses on the festival, the choice of accommodation, means of transportation and duration of stay.

The result of present study is consistent with results from Kim (2008), Thrane (2002) where travel related dependent variables (purpose of visit, previous experience, means of transportation and type of accommodation) and demographic profile (age) affect the festival expenditure. Literature also suggests that the following expenditure categories are significant for attendees spending estimation: the number of accompanying people, length of stay, level of education, marital status and occupation. We enhance these results by concluding that in relative terms ticketed and non-ticketed festival visitors have the same structure of festival spendings and most variation in absolute terms comes from the differences in the attendees' profile.

Chapter 5

CONCLUSION

Most papers that studied the topic of festivals and outstanding events focus on the economic impact, explain the motivation and level of satisfaction, describe the spending pattern of residents versus non-residents. However, only few of them investigate festivals and outstanding events by looking at the structure of the expenditures. In this study we investigate how the spending patterns of ticketed and non-ticketed festival attendees vary using Alfa Jazz Fest Survey conducted in 2015.

In the proposed research we consider the following five expenditure categories: accommodation, local transportation, food, entertainment and souvenirs. As predictors of Alfa Jazz Fest expenditures we include socio-demographic and travel related variables. This study differs from the existing papers in several ways. First, it uses Working-Lesser model to take into account that sum of marginal effect for all expenditure categories should sum up to unity. Second, Tobit estimation method is applied to account for censoring at zero. Further, in order to investigate the difference in spending patterns for ticketed and non-ticketed we look at the relative (average budget shares) and absolute (marginal budget shares) difference in expenditures. The results show despite large variation in absolute expenditures of ticketed and non-ticketed attendees, that the patterns (the average expenditure shares) vary only for entertainment and souvenirs and this variation is mostly driven by differences in total attendee's expenditures.

Econometric analysis also shows other variables significantly affect spending patterns. On the basis of the econometric analysis results, the most important

variables were the following: age, duration of stay in Lviv, means of transportation (bus, car, and train), type of accommodation (renting apartment and hotels), purpose of visit and previous experience of attending festivals. The findings of the proposed study were not exactly similar to the literature results. For instance, geographical location was not significant only for one category of expenditures and not for others as Thrane (2002) suggests. Moreover, being resident and non-resident was a determinant of festival spending as Felsenstain and Fleischer (2003) found, whereas in this study only Kyiv was significant for average expenditure shares.

We can make the conclusion that the allocation of total expenditures varies depends on the level of the visitors' budget. Attendees with a larger budget allocate relatively lower share of their festival expenses on food and more on accommodation, entertainment and souvenirs. Overall, ticketed attendees spend more on all expenditure categories in absolute terms but lower is their spending share on entertainment and souvenirs relative to non-ticketed.

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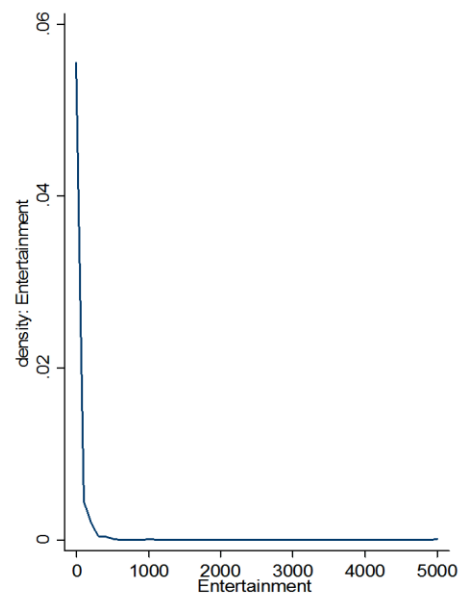
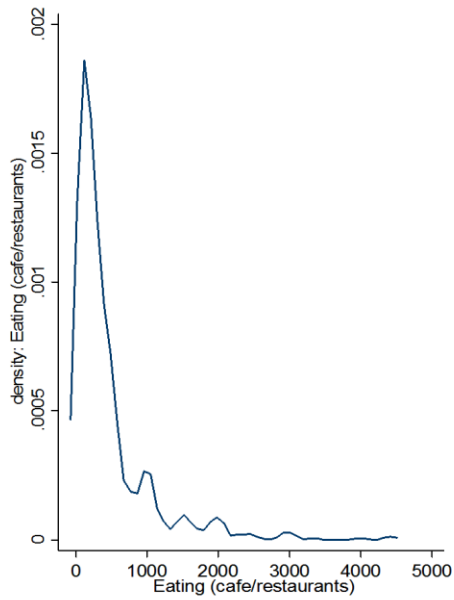
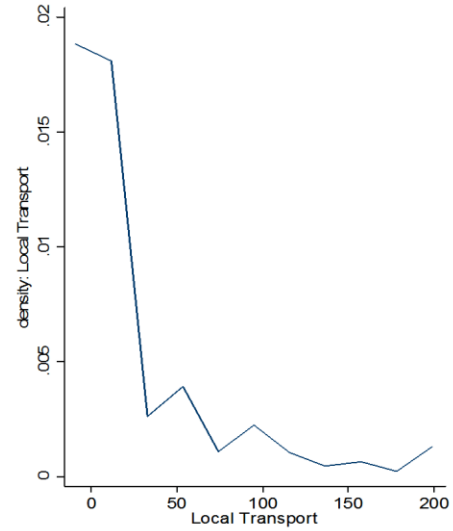
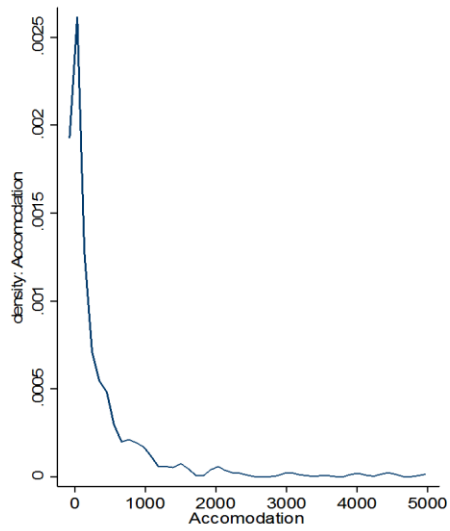
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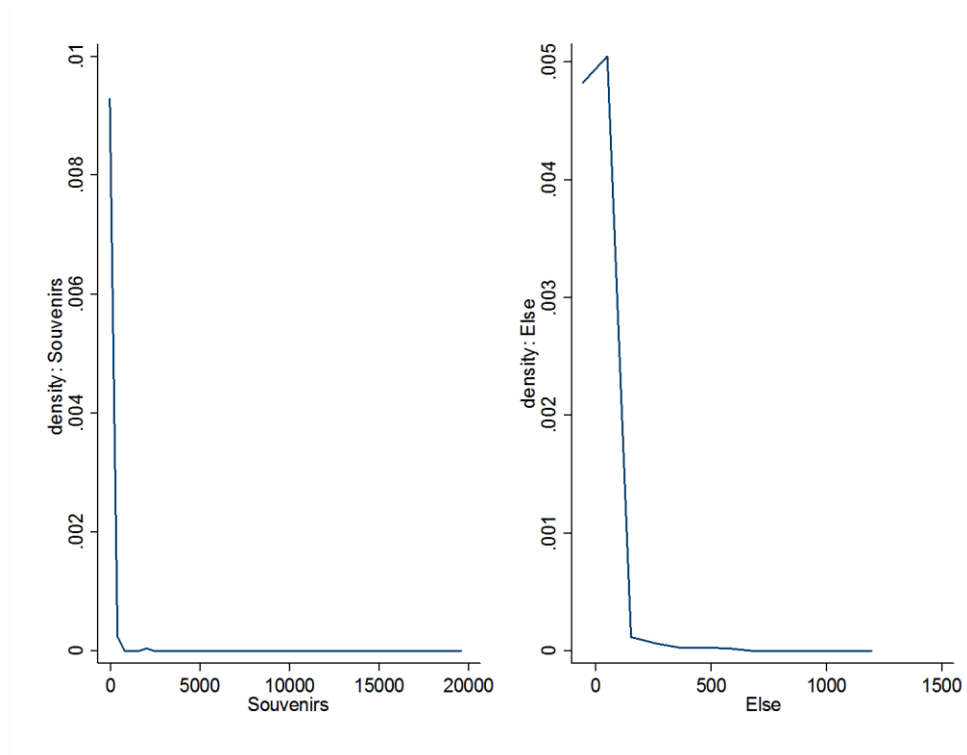
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APPENDIX A

Kernel density plots with adjustment for highly skewed data

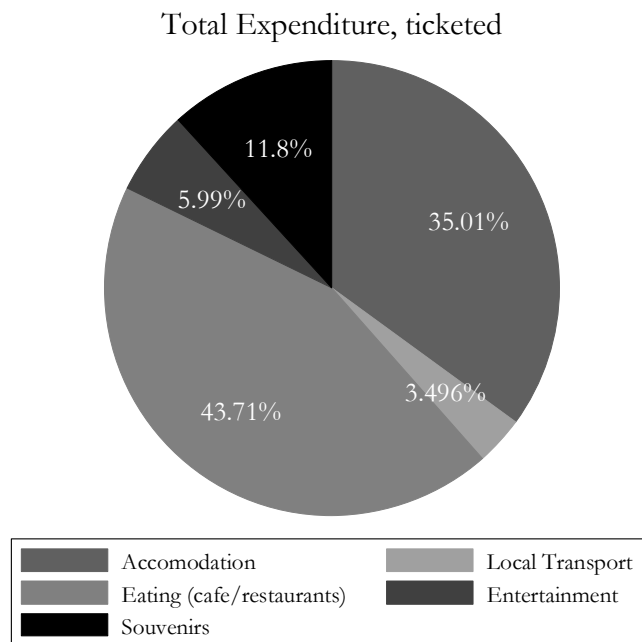
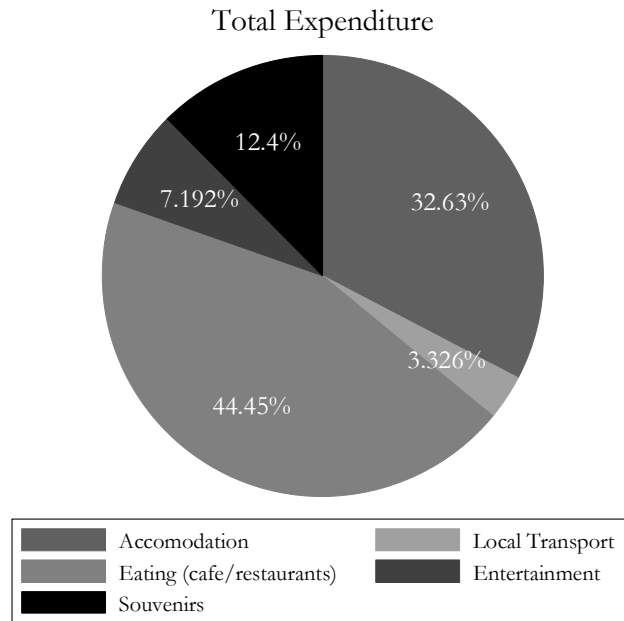


Appendix A continued



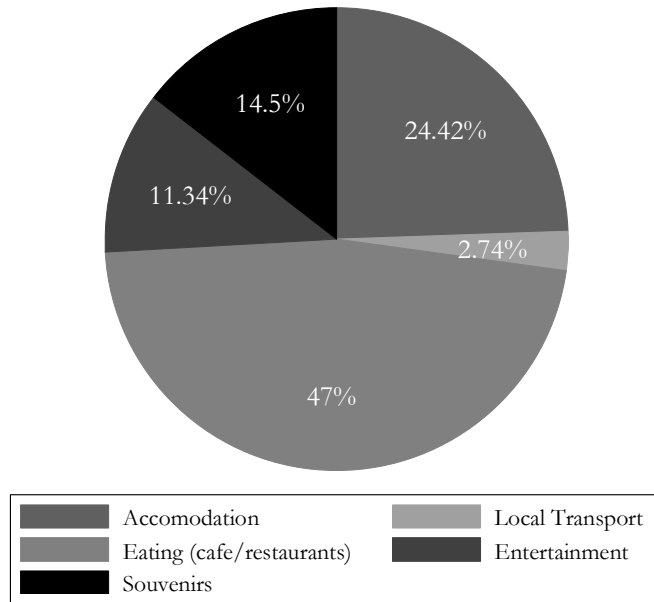
APPENDIX B

Distribution of total expenditures among festival attendees



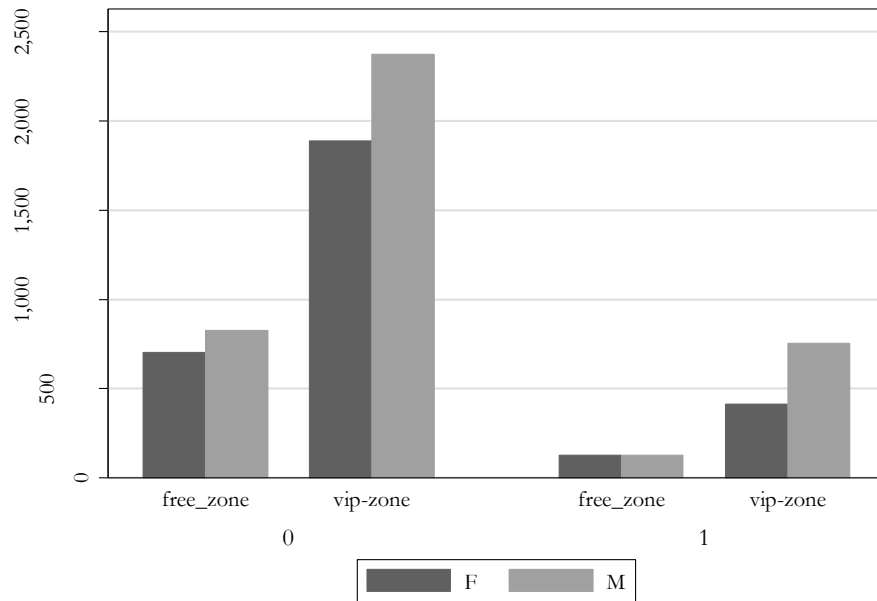
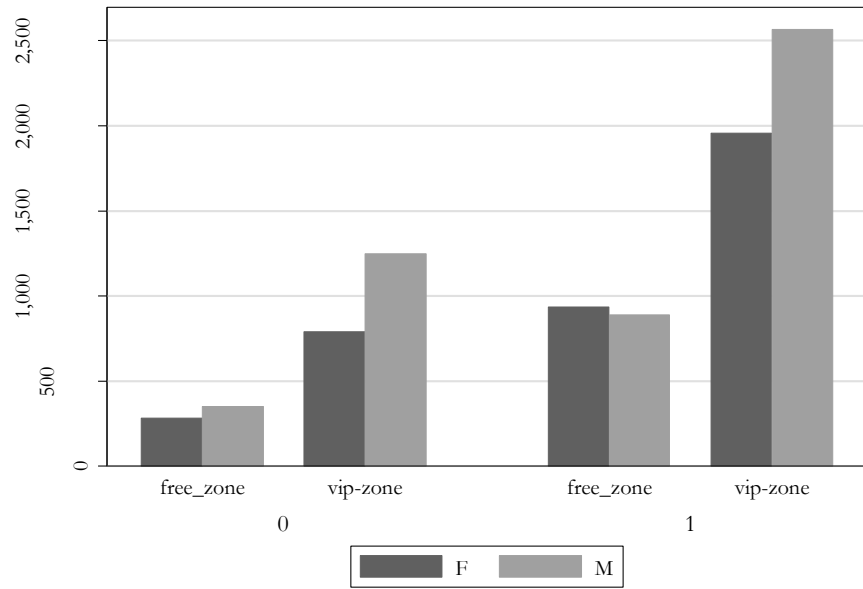
Appendix B continued

Total Expenditure, non-ticketed



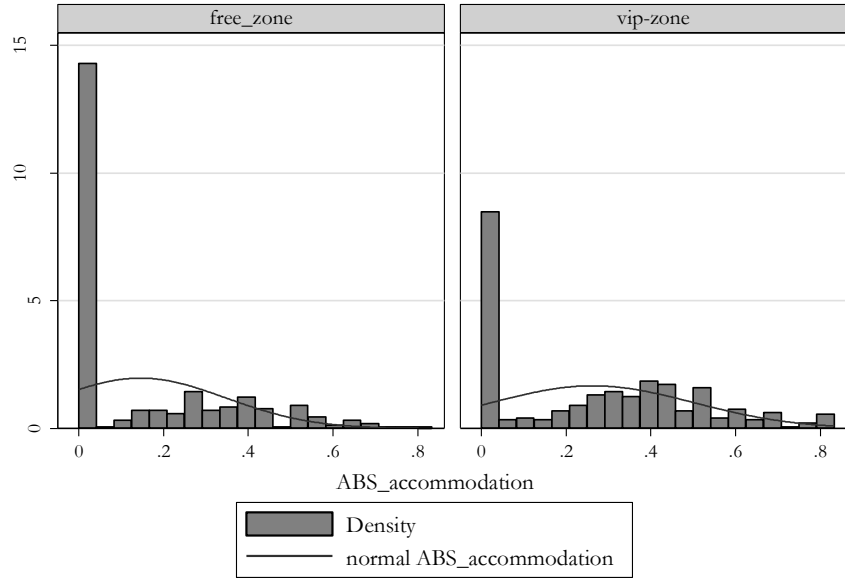
APPENDIX C

The mean of expenditures by ticketed and non-ticketed attendees in Kyiv and Lviv (F-female, M-male)

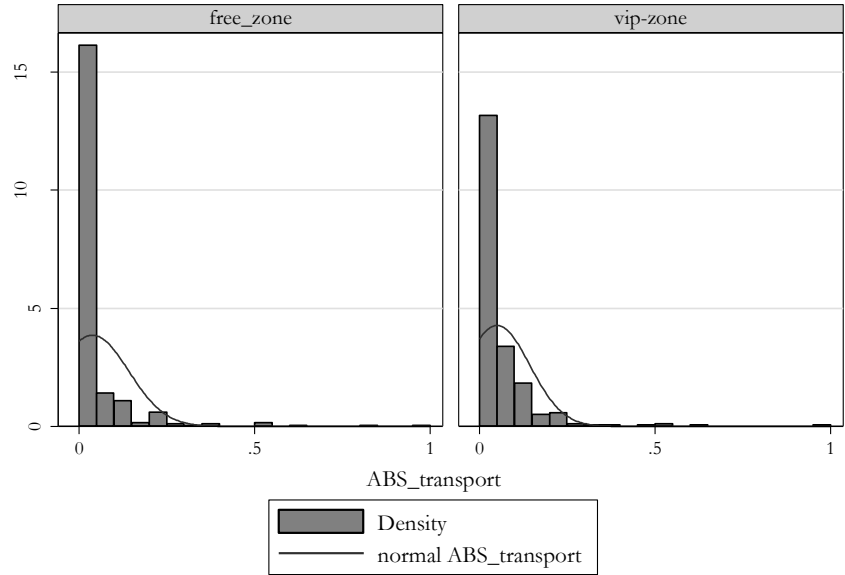


APPENDIX D

Histogram of ABS for certain expenditure categories

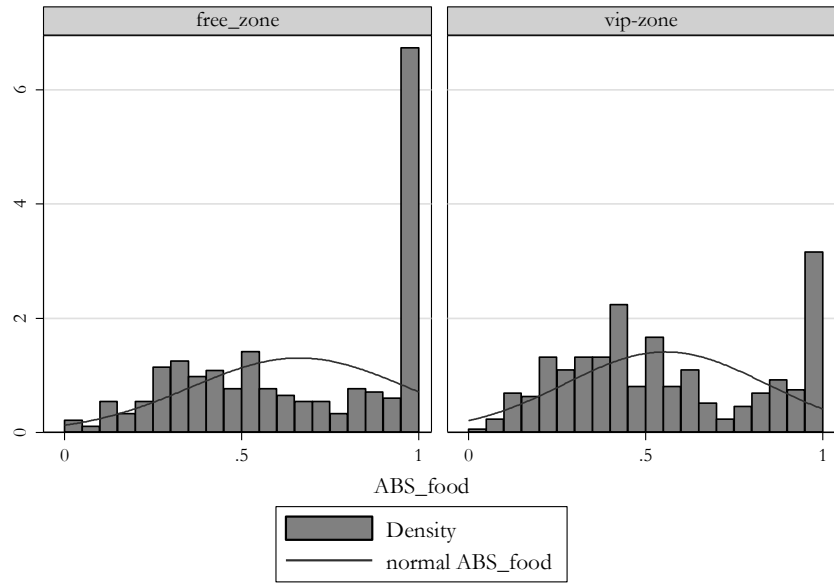


Graphs by Zone

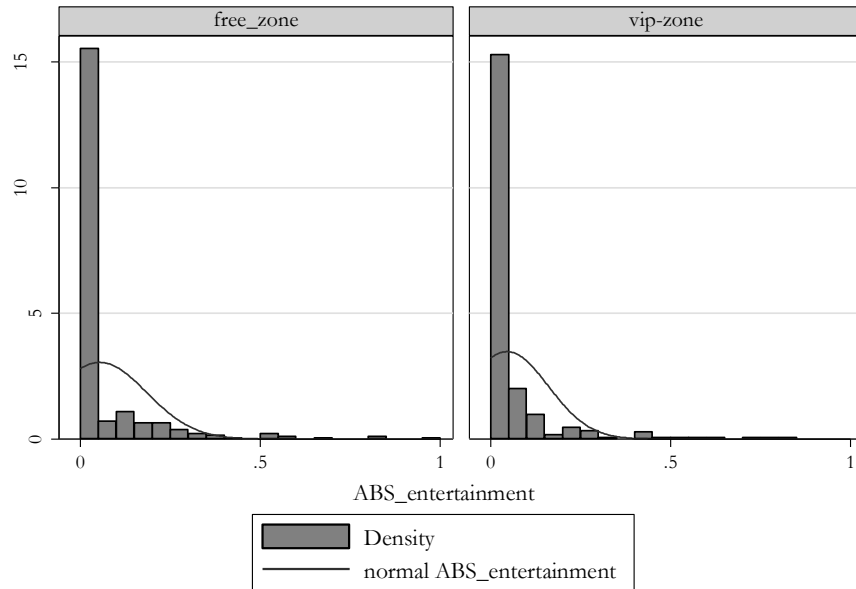


Graphs by Zone

Appendix D continued

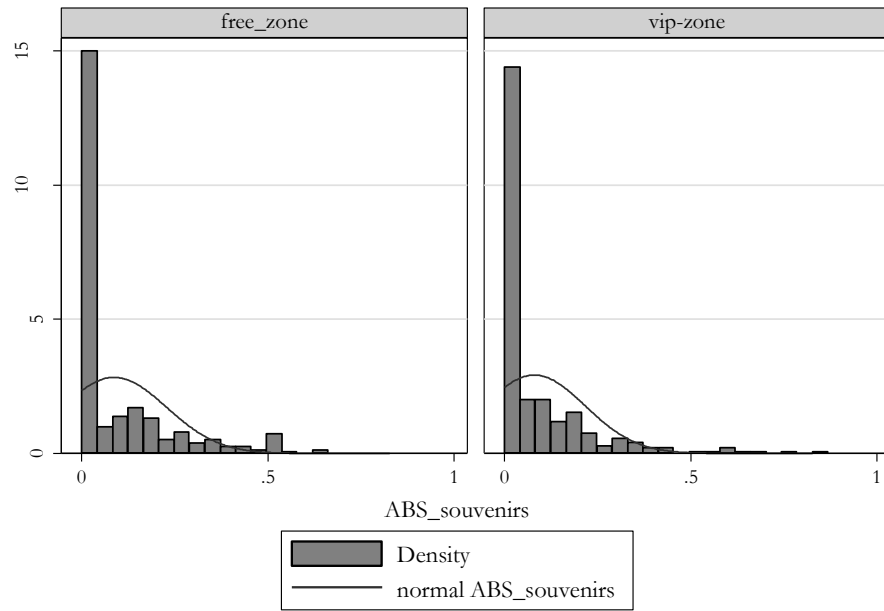


Graphs by Zone



Graphs by Zone

Appendix D continued



Graphs by Zone

APPENDIX E

Tobit estimates of ABS

In this appendix, we derive the formulas for defining Tobit estimates of the marginal propensity on spending on certain expenditure category. The partial derivative of $E(ABS_j|x)$ with respect to EXP_j for the eq.4 can be derived using the following formula for $ABS_j > 0$:

$$\begin{aligned} \frac{\partial E(ABS_j|x)}{\partial EXP_j} &= \frac{\partial P(ABS_j > 0|x)}{\partial EXP_j} E(ABS_j|ABS_j > 0, x) && \text{eq. E.1} \\ &+ P(ABS_j > 0, x) \frac{\partial E(ABS_j|ABS_j > 0, x)}{\partial EXP_j}. \end{aligned}$$

Let denote u as an Engel function which express the spending behavior of festival attendees:

$$\begin{aligned} u &= \alpha_j + \beta_j(\log EXP_j) + \gamma_{i1} Ticketed && \text{eq. E.2} \\ &+ \gamma_{i2} Ticketed(\log EXP_j) + \sum_j \mu_{ij} Z_j \end{aligned}$$

Let denote v which express the marginal propensity on spending on certain expenditure category for festival attendees:

$$\begin{aligned} v &= \alpha_j + \beta_j(1 + \log EXP_j) + \gamma_{i1} Ticketed && \text{eq. E.3} \\ &+ \gamma_{i2} Ticketed(1 + \log EXP_j) + \sum_j \mu_{ij} Z_j \end{aligned}$$

In particular, the density of ABS_j given x is the same as the density of ABS_j given x for positive values:

$$\begin{aligned}
P(ABS_j > 0|x) &= P \left(\begin{array}{c} \alpha_j + \beta_j(\log EXP_j) + \gamma_{i1} Ticketed + \\ \gamma_{i2} Ticketed(\log EXP_j) \\ + \sum_j \mu_{ij} Z_j + \varepsilon_j > 0 \end{array} \middle| x \right) && \text{eq. E.4} \\
&= 1 - P \left(\begin{array}{c} \alpha_j + \beta_j(\log EXP_j) + \gamma_{i1} Ticketed + \\ \gamma_{i2} Ticketed(\log EXP_j) \\ + \sum_j \mu_{ij} Z_j + \varepsilon_j < 0 \end{array} \middle| x \right) \\
&= 1 - P(\varepsilon_j < -u|x) = 1 - P\left(\frac{\varepsilon_j}{\sigma} < \frac{-u}{\sigma} \middle| x\right) \\
&= 1 - \Phi(-u/\sigma) = \\
&= 1 - [1 - \Phi(-u/\sigma)] = \Phi(u/\sigma).
\end{aligned}$$

$$\frac{\partial P(ABS_j > 0|x)}{\partial EXP_j} = \frac{\partial}{\partial EXP_j} \Phi\left(\frac{u}{\sigma}\right) = \left(\frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j}\right) \phi\left(\frac{u}{\sigma}\right) \quad \text{eq. E.5}$$

If $z \sim N(0; 1)$, then $E(z|z > c) = \varphi(c)/[1 - \Phi(c)]$ for any constant c . For given values of x we can easily find the expected value of y for festival attendees where y is positive:

$$\begin{aligned}
E(ABS_j | ABS_j > 0, x) &= u + E(\varepsilon_j | \varepsilon_j > -u) = u + \sigma E\left(\frac{\varepsilon_j}{\sigma} \middle| \frac{\varepsilon_j}{\sigma} > -\frac{u}{\sigma}\right) && \text{eq. E.6} \\
&= u + \sigma \frac{\phi\left(\frac{u}{\sigma}\right)}{\Phi\left(\frac{u}{\sigma}\right)} = u + \sigma \lambda\left(\frac{u}{\sigma}\right)
\end{aligned}$$

because $\phi(c) = \varphi(-c)$, $1 - \Phi(-c) = \Phi(c)$, and $\frac{\varepsilon_j}{\sigma}$ has a standard normal distribution independent of x . $\lambda(c) = \phi(c)/\Phi(c)$ is called inverse Mills ratio between the standard normal pdf and standard normal cdf.

Then taking partial derivative of the expected value of y where y is positive with respect to EXP , we got eq. E.7 by assuming that EXP is not related to other independent variables if EXP is continuous variable:

$$\begin{aligned}
\frac{\partial E(ABS_j | ABS_j > 0, x)}{\partial EXP_j} &= \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} + \sigma * \frac{\partial \lambda(u)}{\partial EXP_j} * \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} && \text{eq. E.7} \\
&= \frac{\beta_j + \gamma_{i2}}{EXP_j} * \left(1 + \frac{\partial \lambda(u)}{\partial EXP_j}\right) \\
&= \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} * \left\{1 - \lambda\left(\frac{u}{\sigma}\right) \left[\frac{u}{\sigma} + \lambda\left(\frac{u}{\sigma}\right)\right]\right\}
\end{aligned}$$

We can also show that $\frac{\partial \lambda(c)}{\partial c} = -\lambda(c)[c + \lambda(c)]$ by differentiating $\lambda(c)$ and using $\frac{\partial \Phi(c)}{\partial c} = \phi(c)$ and $\frac{\partial \phi(c)}{\partial c} = -c\phi(c)$.

Substituting eq. E.4 - eq. E.7 into eq. E.1, we got the partial effect of EXP on $E(ABS_j | x)$:

$$\begin{aligned}
\frac{\partial E(ABS_j | x)}{\partial EXP_j} &= \frac{\partial P(ABS_j > 0 | x)}{\partial EXP_j} E(ABS_j | ABS_j > 0, x) \\
&\quad + P(ABS_j > 0, x) \frac{\partial E(ABS_j | ABS_j > 0, x)}{\partial EXP_j} \\
&= \left(\frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j}\right) \phi\left(\frac{u}{\sigma}\right) * \left(u + \sigma \lambda\left(\frac{u}{\sigma}\right)\right) + \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{EXP_j} \\
&\quad * \left\{1 - \lambda\left(\frac{u}{\sigma}\right) \left[\frac{u}{\sigma} + \lambda\left(\frac{u}{\sigma}\right)\right]\right\} =
\end{aligned}$$

$$\begin{aligned}
&= \left(\frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \right) \phi \left(\frac{u}{\sigma} \right) * u + \left(\frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \right) \phi \left(\frac{u}{\sigma} \right) \sigma \lambda \left(\frac{v}{\sigma} \right) + \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \\
&\quad - \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} * \lambda \left(\frac{u}{\sigma} \right) \frac{u}{\sigma} - \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \\
&\quad * \lambda \left(\frac{u}{\sigma} \right)^2 = \\
&= \left(\frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \right) \phi \left(\frac{u}{\sigma} \right) * u + \left(\frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \right) \phi \left(\frac{u}{\sigma} \right) \sigma \frac{\phi \left(\frac{v}{\sigma} \right)}{\Phi \left(\frac{u}{\sigma} \right)} + \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \\
&\quad - \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} * \frac{\phi \left(\frac{v}{\sigma} \right)}{\Phi \left(\frac{u}{\sigma} \right)} * \frac{u}{\sigma} - \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{\sigma * EXP_j} \\
&\quad * \frac{\phi \left(\frac{v}{\sigma} \right)^2}{\Phi \left(\frac{u}{\sigma} \right)^2} = \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{EXP_j}
\end{aligned}$$

We summarize the derivative in eq. E.8, that show the fact that people might choose $ABS_j > 0$ with the initial point at $ABS_j = 0$, when EXP_j change:

$$\begin{aligned}
\frac{\partial E(ABS_j|x)}{\partial EXP_j} &= \frac{\partial P(ABS_j > 0|x)}{\partial EXP_j} E(ABS_j|ABS_j > 0, x) && \text{eq. E.8} \\
&+ P(ABS_j > 0, x) \frac{\partial E(ABS_j|ABS_j > 0, x)}{\partial EXP_j} \\
&= \Phi(u/\sigma) * \frac{\beta_j + \gamma_{i2}}{EXP_j}
\end{aligned}$$

Equation E.8 allows us roughly compare probit and Tobit divided by sigma estimators.

APPENDIX F

Derivation of MBS

In this appendix, we derive the formulas of marginal budget shares for different expenditure categories:

Let denote u as an Engel function:

$$u = \alpha_j + \beta_j(\log EXP_j) + \gamma_{i1}Ticketed + \gamma_{i2}Ticketed(\log EXP_j) + \sum_j \mu_{ij} Z_j \quad \text{eq. F.1}$$

Let denote v as a marginal propensity of spending on expenditures for festival attendees:

$$v = \alpha_j + \beta_j(1 + \log EXP_j) + \gamma_{i1}Ticketed + \gamma_{i2}Ticketed(1 + \log EXP_j) + \sum_j \mu_{ij} Z_j \quad \text{eq. F.2}$$

As mentioned in methodology, we can express C_i in terms of ABS_i , because $C_i = ABS_i * EXP_i$:

$$\begin{aligned} \frac{\partial E(C_i|x)}{\partial EXP_i} &= \frac{\partial E(ABS_i * EXP_i|x)}{\partial EXP_i} = & \text{eq. F.3} \\ &= 1 * E(ABS_i|x) + \frac{\partial E(ABS_i|x)}{\partial EXP_i} * EXP_i \\ &= 1 * E(ABS_i|x) + \Phi\left(\frac{u}{\sigma}\right) * \left(\frac{\beta_i + \gamma_{2i}Ticketed}{EXP_i}\right) \\ &\quad * EXP_i \\ &= E(ABS_i|x) + \Phi\left(\frac{u}{\sigma}\right) * (\beta_i + \gamma_{2i}Ticketed) \end{aligned}$$

We derive the “unconditional” expected value for ABS_i , which is equal to probability of spending on certain expenditure category multiplying by “conditional expectation” because it is conditional on $ABS_i > 0$:

$$\begin{aligned}
 E(ABS_i|x) &= P(ABS_i|x) * E(ABS_i|ABS_i > 0, x) && \text{eq. F.4} \\
 &= \Phi\left(\frac{u}{\sigma}\right) * (u + \sigma * \lambda\left(\frac{u}{\sigma}\right)) \\
 &= \Phi\left(\frac{u}{\sigma}\right) * \left(u + \sigma * \frac{\phi\left(\frac{u}{\sigma}\right)}{\Phi\left(\frac{u}{\sigma}\right)}\right)
 \end{aligned}$$

Substituting eq. F.4 into eq. F.3, we can find the partial derivative of $E(C_i|x)$ with to EXP_i :

$$\begin{aligned}
 \frac{\partial E(C_i|x)}{\partial EXP_i} &= \Phi\left(\frac{u}{\sigma}\right) * \left(u + \sigma * \frac{\phi\left(\frac{u}{\sigma}\right)}{\Phi\left(\frac{ABS_i}{\sigma}\right)}\right) + \Phi\left(\frac{u}{\sigma}\right) && \text{eq. F.5} \\
 &\quad * (\beta_i + \gamma_{2i}Ticketed) \\
 &= \Phi\left(\frac{u}{\sigma}\right) * (u + \beta_i + \gamma_{2i}Ticketed) + \Phi\left(\frac{u}{\sigma}\right) * \sigma \\
 &\quad * \frac{\phi\left(\frac{u}{\sigma}\right)}{\Phi\left(\frac{u}{\sigma}\right)} = \Phi\left(\frac{u}{\sigma}\right) * v + \sigma * \phi\left(\frac{u}{\sigma}\right)
 \end{aligned}$$

Given equation F.5, we get MBS using calculus and obtain standard normal cdf and pdf from Tobit regression in Stata.

APPENDIX G

Tobit post-estimation. Conditional moment test against the null of normal errors

<i>Expenditure category</i>	<i>CM</i>	<i>Prob > chi2</i>
Accommodation	7.8914	0.01934
Transportation	92.047	0.00000
Food	11.291	0.00353
Entertainment	11.433	0.00329
Souvenirs	15.121	0.00052

H0 hypothesis: Errors are normal

Because p-value is less than 0.05, we reject H0 hypothesis for all expenditure categories.

APPENDIX H

Comparison of Tobit/sigma and probit coefficients for ABS of accommodation and transportation

VARIABLES	(1) Tobit/sigma	(3) Probit	(4) Tobit/sigma	(6) Probit
LogEXP	0.742***	1.200***	-0.008	0.133**
ticketed	0.648	1.463	0.672	-0.140
ticketedLogEXP	-0.141	-0.326	-0.062	0.0458
age	-0.004	-0.0146**	-0.008*	-0.00994**
female	0.098	0.113	0.050	0.0582
purpose	-0.081	-0.0415	0.417**	0.384**
attendbefore	-0.487***	-0.737***	-0.043	-0.0106
plan	0.067	0.0558	-0.101	-0.228
Kyiv	0.646***	0.962***	0.049	0.0966
along	-0.323**	-0.420**	-0.245	-0.274*
company3	-0.055	-0.0940	0.043	0.165
day1	-1.118***	-1.419***	-0.364	-0.568***
day2	-0.264**	-0.273	0.072	0.00549
day4	0.329***	0.657***	-0.024	0.110
day5	0.048	0.138	0.102	0.00811
Constant	-4.070***	-6.534***	-0.329	-0.874*
Observations	716	716	716	716

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

APPENDIX I

Comparison of Tobit/sigma and probit coefficients for ABS of entertainment and souvenirs

VARIABLES	(1) Tobit/sigma	(3) Probit	(4) Tobit/sigma	(6) Probit
LogEXP	0.568***	0.576***	0.517***	0.672***
ticketed	1.128	1.084	1.018*	1.880***
ticketedLogEXP	-0.232**	-0.227**	-0.239***	-0.398***
age	0.003	0.000805	0.00956**	0.00818*
female	0.114	0.111	0.078	0.0867
purpose	-0.475***	-0.466**	0.132	0.264
attendbefore	-0.269**	-0.319***	-0.238**	-0.264**
plan	0.024	-0.114	-0.106	-0.121
Kyiv	0.056	0.282**	0.173*	0.297**
along	-0.037	-0.0417	0.052	-0.0679
company3	0.063	0.0477	0.093	0.0900
day1	-0.324	-0.561**	0.121	-0.146
day2	0.092	-0.0664	-0.14	-0.0226
day4	0.055	0.0962	0.333***	0.293*
day5	-0.096	-0.0853	0.154	0.153
Constant	-3.638***	-3.522***	-3.633***	-4.529***
Observations	716	716	716	716

Robust standard errors in parentheses

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

APPENDIX J

Linear probability model for ABS of accommodation and transportation

VARIABLES	(1) LPM at 0	(2) LPM at μ	(3) LPM at 0	(4) LPM at μ
LogEXP	0.202*** (0.0174)	0.145*** (0.0206)	0.0439** (0.0215)	-0.0110 (0.0194)
ticketed	-0.0586 (0.126)	-0.121 (0.158)	-0.109 (0.213)	0.219 (0.199)
ticketeLogEXP	-0.0100 (0.0208)	0.0106 (0.0266)	0.0264 (0.0326)	-0.0109 (0.0298)
age	-0.00124 (0.00123)	0.000150 (0.00130)	-0.00356** (0.00152)	-0.00236* (0.00140)
female	0.0176 (0.0260)	0.0246 (0.0301)	0.0218 (0.0366)	0.0308 (0.0343)
purpose	-0.0238 (0.0433)	0.00947 (0.0502)	0.124** (0.0573)	0.161*** (0.0431)
attendbefore	-0.159*** (0.0294)	-0.180*** (0.0329)	-0.000999 (0.0400)	-0.0197 (0.0367)
plan	-0.0220 (0.0461)	0.0127 (0.0532)	-0.0860 (0.0561)	-0.105* (0.0567)
Kyiv	0.277*** (0.0356)	0.262*** (0.0405)	0.0396 (0.0453)	-0.00891 (0.0416)
alone	-0.0941*** (0.0346)	-0.0715** (0.0361)	-0.0880* (0.0479)	-0.0624 (0.0425)
company3	-0.00213 (0.0359)	-0.0245 (0.0431)	0.0653 (0.0527)	0.0759 (0.0514)
day1	-0.249*** (0.0410)	-0.209*** (0.0432)	-0.181*** (0.0641)	-0.109* (0.0576)
day2	-0.0533 (0.0396)	-0.0687 (0.0463)	0.00370 (0.0574)	0.0428 (0.0566)
day4	0.130*** (0.0384)	0.0886* (0.0488)	0.0443 (0.0552)	-0.0710 (0.0485)
day5	0.00912 (0.0365)	0.00374 (0.0409)	0.00361 (0.0505)	0.00470 (0.0473)
Constant	-0.592*** (0.122)	-0.438*** (0.138)	0.212 (0.150)	0.334** (0.133)
Observations	716	716	716	716
R-squared	0.569	0.414	0.111	0.074

Robust standard errors in parentheses

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

APPENDIX K

Linear probability model for ABS of entertainment and souvenirs

VARIABLES	(1) LPM at 0	(2) LPM at μ	(3) LPM at 0	(4) LPM at μ
LogEXP	0.128*** (0.0179)	0.112*** (0.0176)	0.183*** (0.0180)	0.153*** (0.0185)
ticketed	0.0960 (0.154)	0.307** (0.142)	0.378** (0.162)	0.352** (0.158)
ticketedLogEXP	-0.0327 (0.0259)	-0.0637*** (0.0241)	-0.0921*** (0.0260)	-0.0837*** (0.0257)
age	0.000388 (0.00136)	0.000834 (0.00132)	0.00269* (0.00146)	0.00484*** (0.00147)
female	0.0260 (0.0317)	0.0442 (0.0304)	0.0245 (0.0340)	0.0474 (0.0338)
purpose	-0.131** (0.0547)	-0.133** (0.0547)	0.0650 (0.0543)	0.0522 (0.0559)
attendbefore	-0.0915** (0.0362)	-0.0832** (0.0346)	-0.0960** (0.0379)	-0.101*** (0.0382)
plan	-0.0433 (0.0566)	-0.0182 (0.0558)	-0.0400 (0.0583)	-0.0430 (0.0593)
Kyiv	0.0955** (0.0425)	0.0565 (0.0406)	0.115*** (0.0444)	0.0563 (0.0444)
along	-0.00405 (0.0383)	-0.0175 (0.0381)	-0.0276 (0.0462)	-0.00353 (0.0447)
company3	0.0286 (0.0455)	0.0300 (0.0444)	0.0385 (0.0507)	0.00736 (0.0500)
day1	-0.149*** (0.0485)	-0.129*** (0.0472)	-0.0506 (0.0575)	0.0181 (0.0576)
day2	-0.0223 (0.0515)	-0.0413 (0.0500)	-0.00155 (0.0533)	0.0111 (0.0539)
day4	0.0204 (0.0518)	0.0153 (0.0496)	0.105** (0.0524)	0.0970* (0.0526)
day5	-0.0304 (0.0428)	-0.0398 (0.0412)	0.0451 (0.0473)	0.0586 (0.0453)
Constant	-0.288** (0.128)	-0.268** (0.126)	-0.738*** (0.129)	-0.720*** (0.128)
Observations	716	716	716	716
R-squared	0.181	0.133	0.203	0.145

Robust standard errors in parentheses

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

APPENDIX L

Marginal effects of Tobit regression of ABS for food

VAR	(1) Tobit Coeff.	(2) $\frac{\partial E(ABS x)}{\partial x_j}$	(3) $\frac{\partial E(ABS ABS > 0, x)}{\partial x_j}$	(4) $\frac{\partial Pr(ABS > 0 x)}{\partial x_j}$
LogEXP	-0.141*** (0.0126)	-0.139*** (0.0124)	-0.132*** (0.0120)	0.00830 (0.00758)
ticketed	-0.0671 (0.109)	-0.0659 (0.107)	-0.0625 (0.102)	-0.167 (0.108)
tickLogEXP	0.0255 (0.0167)	0.0250 (0.0164)	0.0237 (0.0156)	0.0316 (0.0208)
age	-0.00114 (0.000794)	-0.00112 (0.000780)	-0.00107 (0.000740)	0.000434 (0.000713)
female	-0.0366** (0.0174)	-0.0360** (0.0171)	-0.0341** (0.0162)	-0.0248* (0.0149)
purpose	0.0250 (0.0279)	0.0246 (0.0274)	0.0233 (0.0260)	0.0233* (0.0135)
attendbefore	0.100*** (0.0185)	0.0986*** (0.0182)	0.0935*** (0.0172)	0.0154 (0.0133)
plan	-0.0181 (0.0267)	-0.0178 (0.0262)	-0.0169 (0.0248)	
Kyiv	-0.104*** (0.0202)	-0.102*** (0.0198)	-0.0971*** (0.0188)	
alone	0.0195 (0.0255)	0.0192 (0.0250)	0.0182 (0.0237)	0.00853 (0.0131)
company3	-0.0146 (0.0241)	-0.0144 (0.0237)	-0.0136 (0.0224)	0.000260 (0.0135)
day1	0.0699** (0.0333)	0.0687** (0.0327)	0.0651** (0.0310)	-0.116** (0.0497)
day2	0.00574 (0.0268)	0.00564 (0.0263)	0.00535 (0.0249)	-0.144** (0.0587)
day4	-0.0709*** (0.0233)	-0.0697*** (0.0229)	-0.0661*** (0.0217)	
day5	-0.0228 (0.0229)	-0.0224 (0.0225)	-0.0213 (0.0214)	-0.136** (0.0571)
Constant	1.482*** (0.0889)			
Obs	716	716	716	346

Robust standard errors in parentheses

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

APPENDIX M

Marginal effects of Tobit regression of ABS for entertainment including means of transportation and types of accommodation

VAR	(1) Tobit Coeff.	(2) $\frac{\partial E(ABS x)}{\partial x_j}$	(3) $\frac{\partial E(ABS ABS > 0, x)}{\partial x_j}$	(4) $\frac{\partial Pr(ABS > 0 x)}{\partial x_j}$
<i>Accommodation</i>				
plane	0.214*** (0.0570)	0.114*** (0.0307)	0.108*** (0.0291)	-0.0136 (0.0288)
car	0.171*** (0.0498)	0.0914*** (0.0269)	0.0864*** (0.0254)	0.0136 (0.0233)
train	0.247*** (0.0460)	0.132*** (0.0251)	0.125*** (0.0236)	0.0733*** (0.0170)
renting apt	0.382*** (0.0332)	0.204*** (0.0159)	0.193*** (0.0162)	0.198*** (0.0199)
hotel	0.467*** (0.0338)	0.250*** (0.0158)	0.236*** (0.0165)	0.230*** (0.0264)
<i>Transportation</i>				
plane	0.00753 (0.0340)	0.00299 (0.0135)	0.00235 (0.0106)	0.0389 (0.106)
car	-0.0111 (0.0269)	-0.00439 (0.0107)	-0.00346 (0.00839)	-0.0437 (0.0692)
train	-0.000757 (0.0241)	-0.000300 (0.00955)	-0.000236 (0.00752)	0.0284 (0.0589)
renting apt	-0.0331 (0.0226)	-0.0132 (0.00901)	-0.0104 (0.00709)	-0.0255 (0.0589)
hotel	-0.0273 (0.0252)	-0.0108 (0.0100)	-0.00853 (0.00787)	-0.0557 (0.0628)
<i>Food</i>				
plane	-0.143*** (0.0491)	-0.141*** (0.0484)	-0.134*** (0.0463)	
car	-0.115*** (0.0316)	-0.113*** (0.0313)	-0.108*** (0.0299)	
train	-0.150*** (0.0287)	-0.148*** (0.0284)	-0.141*** (0.0272)	
renting apt	-0.175*** (0.0269)	-0.173*** (0.0265)	-0.165*** (0.0253)	
hotel	-0.218*** (0.0295)	-0.215*** (0.0291)	-0.205*** (0.0277)	
<i>Entertainment</i>				
plane	0.144* (0.0819)	0.0385* (0.0219)	0.0357* (0.0203)	0.189** (0.0873)

Appendix M continued

VAR	(1) Tobit Coeff.	(2) $\frac{\partial E(ABS x)}{\partial x_j}$	(3) $\frac{\partial E(ABS ABS > 0, x)}{\partial x_j}$	(4) $\frac{\partial Pr(ABS > 0 x)}{\partial x_j}$
car	0.203*** (0.0611)	0.0541*** (0.0166)	0.0502*** (0.0151)	0.240*** (0.0598)
train	0.225*** (0.0534)	0.0601*** (0.0146)	0.0558*** (0.0132)	0.242*** (0.0528)
renting apt	-0.0523 (0.0441)	-0.0139 (0.0118)	-0.0129 (0.0109)	0.0103 (0.0471)
hotel	-0.103** (0.0488)	-0.0276** (0.0132)	-0.0256** (0.0121)	-0.0278 (0.0509)
<i>Souvenirs</i>				
plane	0.101 (0.0719)	0.0415 (0.0296)	0.0330 (0.0235)	0.136 (0.100)
car	0.119*** (0.0432)	0.0490*** (0.0178)	0.0389*** (0.0141)	0.134** (0.0603)
train	0.113*** (0.0385)	0.0464*** (0.0158)	0.0369*** (0.0126)	0.173*** (0.0519)
renting apt	0.0105 (0.0325)	0.00433 (0.0134)	0.00344 (0.0106)	0.0896* (0.0508)
hotel	-0.0527 (0.0374)	-0.0217 (0.0154)	-0.0172 (0.0123)	-0.0107 (0.0563)
Observations	716	716	716	716

Robust standard errors in parentheses

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