



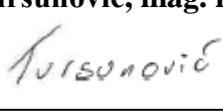
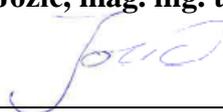
LAirA

Landside Airport Accessibility

III. Report: Understanding needs of passengers for mobility (behaviours and habits)

February, 2018.



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Passengers survey Airport Dubrovnik

The purpose of making a passenger survey is to analyze the needs and habits of users of the Dubrovnik airport. There is a need to analyze the characteristics of mobility of passengers, their perception of mobility and knowledge of the transport possibilities of departure or arrival at Dubrovnik airport.

The passenger mobility survey was made in accordance with the project partner's methodology (proposed issues). It contains standardized questions to simplify data analysis and facilitate comparisons of results in the future. Additional questions were made according to the specific characteristics of the Dubrovnik Airport (eg seasonality problem) and to collect the required parameters in the I. report.

The survey was created in "Google Forms" for better data structure and simplicity. The results from Google forms have been further processed in Excel to be well presented in this report.

There were two types of passenger survey:

- a printed passenger survey - interviewing passengers personally at the Dubrovnik airport
- online traveler survey - travelers fill in a survey on Google forms (required Internet connection)

According to the needs of the project, the focus was on 70% of domestic passengers leaving Dubrovnik airport (outgoing) and passengers from neighboring countries, including Dubrovačko – neretvansku county, BiH (Municipality Neum and Ravno), Republic Srpska (Trebinje Municipality), Montenegro (Herceg Novi and Kotor). The remaining 30% of respondents are passengers outside these areas.

Passenger Survey - Airport Dubrovnik
- TEREN

GENERAL INFORMATION - PART 2

Passenger Profile

Gender:

Male

Female

Age:

12 - 17

18 - 25

26 - 35

36 - 50

51 - 65

65 <

Ostalo: _____

Figure 1: Online passenger survey
Source: Mobilita Evolva

5. **Date:** _____
Primjer: 15. prosinca 2012.

GENERAL INFORMATION - PART 2
Passenger Profile

6. **Gender:**
Označite samo jedan oval.

Male

Female

7. **Age:**
Označite samo jedan oval.

12 - 17

18 - 25

26 - 35

36 - 50

51 - 65

65 <

Ostalo: _____

8. **Education:**
Označite samo jedan oval.

elementary school

high school

bachelor/master degree

postgraduate degree

Figure 2: Online Passenger Survey
Source: Mobilita Evolva



Interviewing passengers at the Dubrovnik Airport

Survey of passengers at the Durbovnik airport was carried out in the period 22.01.2018. - 26.01.2018. and online in the weeks following these dates.

Survey at the airport was carried out at three terminal locations, at Dobrota 24, Močići, 20213 Čilipi, Croatia.

JANUARY 2018						
SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Figure 1: Passenger surveying period

Four polling stations for passengers at the airport are:

- Check-in area
- Departure hall of international flights
- Departure hall of domestic flights
- Arrival hall

The survey was conducted in both Croatian and English on domestic and foreign passengers.

On Monday 22.01. and on Tuesday, January 23, 2018, a pilot survey was conducted to evaluate the quality of the survey question's structure. It was concluded that no additional modification is required and that the survey is at a satisfactory level functional.



Table 1: Schedule of departure flights, week 22.01.-26.01.2018.

TUESDAY	23.01.18.	NUMBER OF DEPARTING FLIGHTS:	6	
		Number of flight in a day	Departure time from Airport Dubrovnik	
		1. flight	06:40	ZAG
		2. flight	13:20	SPU/RJK
		3. flight	13:55 - <i>cancelled</i>	ZAG
		4. flight	15:50 - <i>cancelled</i>	ROME
		5. flight	16:30	FRANKFURT
WEDNESDAY	24.01.18.	NUMBER OF DEPARTING FLIGHTS:	4	
		Number of flight in a day	Departure time from Airport Dubrovnik	
		1. flight	06:40	ZAG
		2. flight	08:55	
		3. flight	13:20	ZAG
		4. flight	16:25	ZAG
		THURSDAY	25.01.18.	NUMBER OF DEPARTING FLIGHTS:
Number of flight in a day	Departure time from Airport Dubrovnik			
1. flight	06:40			ZAG
2. flight	13:20			ZAG
3. flight	13:55			
4. flight	16:30			
5. flight	19:15			
FRIDAY	26.01.18.	NUMBER OF DEPARTING FLIGHTS:	3	
		Number of flight in a day	Departure time from Airport Dubrovnik	
		1. flight	06:40	ZAG
		2. flight	13:20	ZAG
		3. flight	16:25	ZAG
		6. flight	21:50	ZAG



Figure 1: Passenger surveying in Check-in area
Source: Mobilita Evolva, 22.01.2018.



Figure 2: Passenger surveying in Check-in area
Source: Mobilita Evolva, 23.01.2018.



Figure 3: Passenger Surveying in Check-in area
Source: Mobilita Evolva, 22.01.2018.



Figure 4: Passenger Surveying in Departing Hall
Source: Mobilita Evolva, 25.01.2018.



Figure 5: Passenger Surveying in Check-in area
Source: Mobilita Evolva, 24.10.2018.



Figure 6: Employee Surveying
Source: Mobilita Evolva, 23.01.2018.

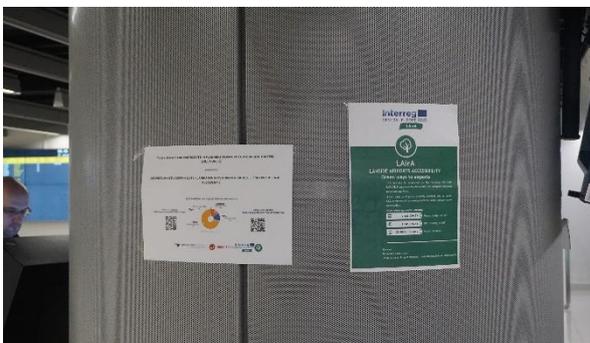


Figure 7: Posters of Project in Check-in Hall
Source: Mobilita Evolva, 22.01.2018.

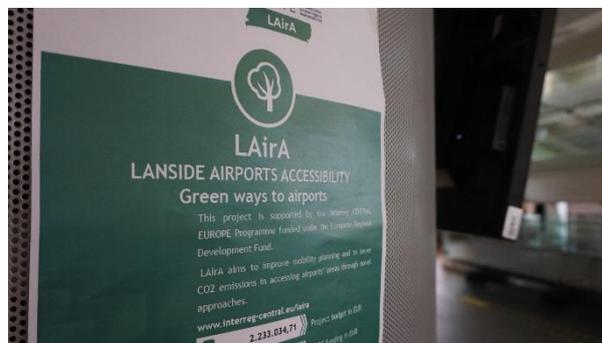


Figure 8: Poster of Project in Check-in Hall
Source: Mobilita Evolva, 22.01..2018.



A survey of passengers was carried out every day between 22.01.-26.01.2018. at least two hours before the departures of the aircraft when passengers arrive at the airport on the anticipated flights. Three weeks in total. Outbound flights were the priority of the survey for the needs of the project. Since a large part of the survey was conducted in the Check-In area, including Café, arrivals were also surveyed.

In the mentioned survey locations, the passengers were questioned about their profile (gender, age, occupation, residence), their current flight, departure point and destination, indication of the problem of arrival at the Dubrovnik airport and so on.

The basic form of the survey consists of:

- GENERAL INFORMATION - PART 1 (survey / site specifications, time)
- GENERAL INFORMATION - PART 2 (passenger profile / characterization)
- CHARACTERIZATION OF MOBILITY DESCRIPTION OF ACCESS AND MOBILITY OF DUBROVNIK AIRPORT
- PERCEPTION OF ACCESSIBILITY AND MOBILITY OF DUBROVNIK AIRPORT

Five interviewers participated with the help of student workers depending on the schedule of flights. Because of the meteorological conditions (bora) several flights were canceled and passengers were transported by buses to Split on the following flights from Split airport which was an overriding circumstance when collecting the survey.

Total of more than 850 passengers were surveyed.

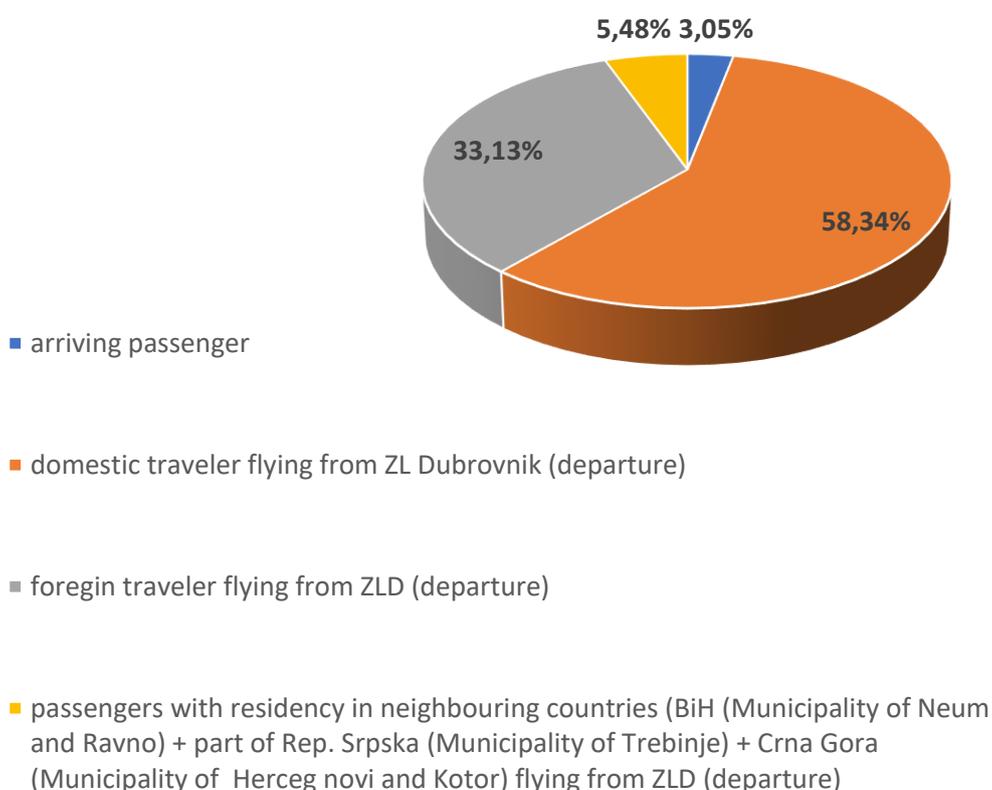


1. ANALYSIS OF SURVEY RESULTS

In the general analysis of the surveyed passengers, the number of passengers is shown by structure, age, sex, level of education, employment status, purpose of travel, the way of buying a freight ticket, passengers on a used airline and destinations.

Surveyed passengers structure

Graph 1: Surveyed passengers structure



From the graph 1 it is evident that the majority of the number of domestic passengers traveling from the airport of Dubrovnik is among the total number of surveyed passengers, followed by foreign passengers traveling from Dubrovnik airport.

There were only 5,48% passengers from the neighboring countries of BiH (municipalities of Neum and Ravno) and part of Republic Srpska (Trebinje municipality) and Montenegro (municipalities of Herceg Novi and Kotor).

The smallest number of passengers was surveyed who had landed to the airport.

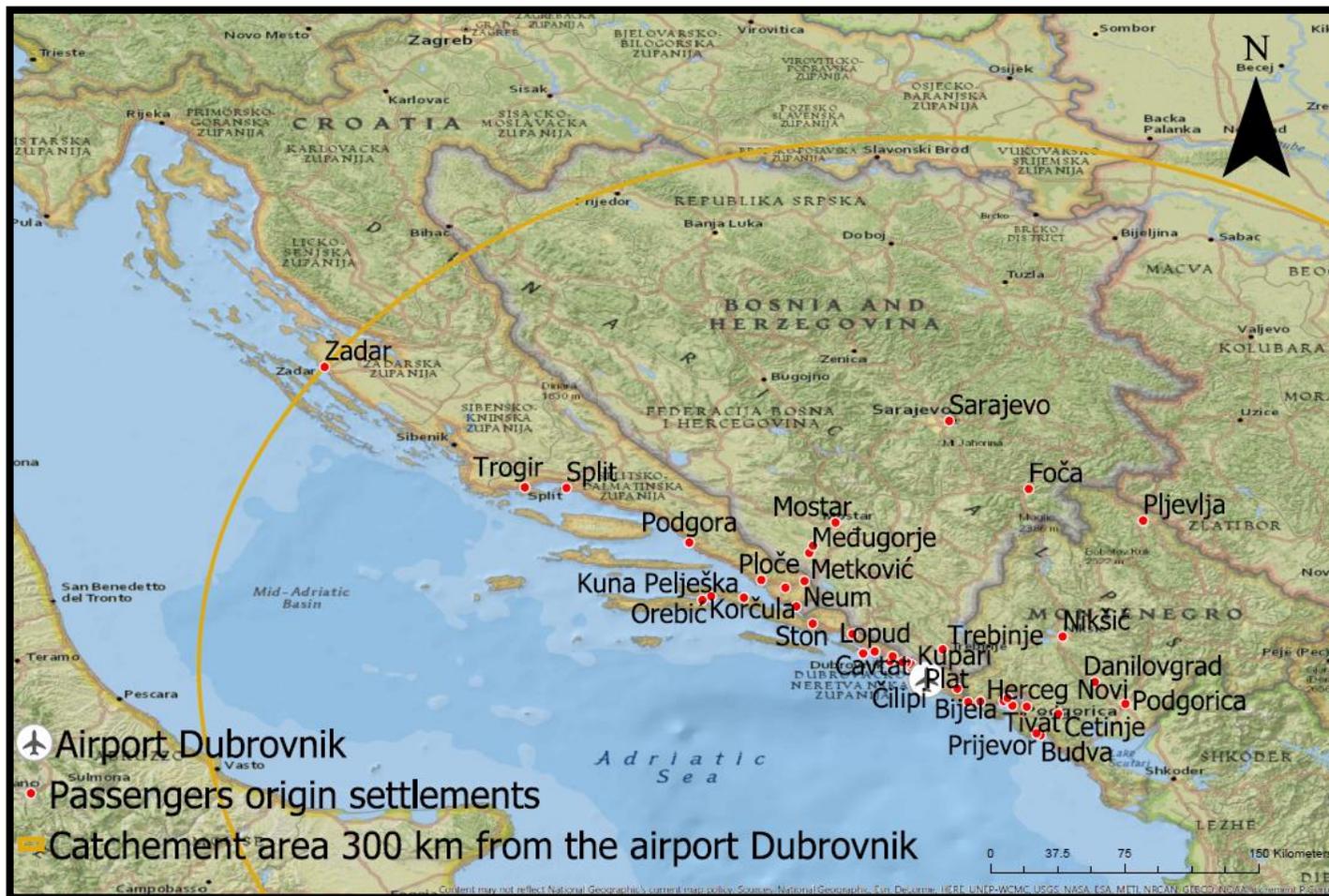


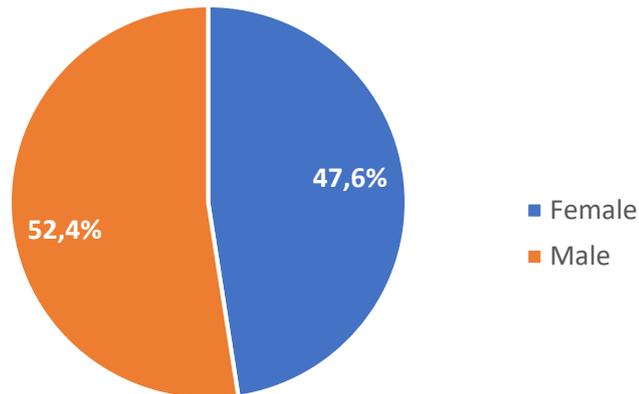
Figure1: Catchment area 300 km from the airport Dubrovnik

Source: Author

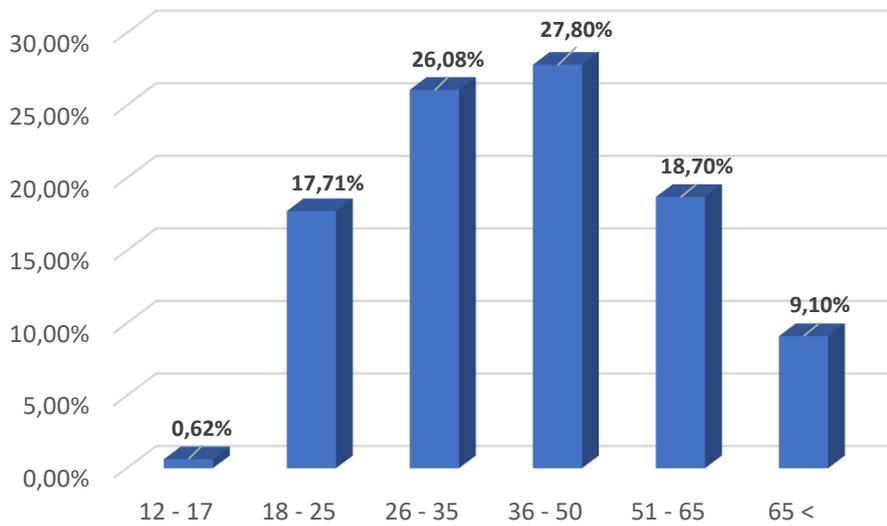


The following tables and graphs will show the passengers by age and gender and the level of education.

Graph 2: Structure by gender

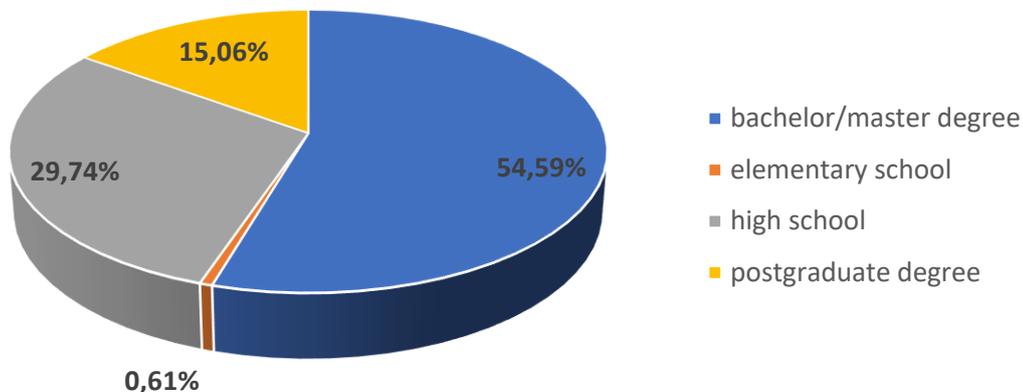


Graph 3: Structure by age





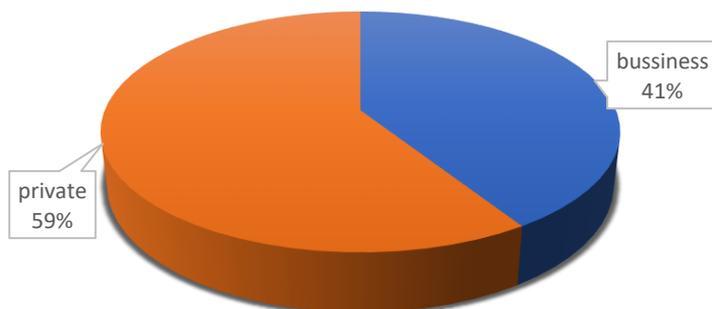
Graph 4: Structure by education



From the data presented above, it is clear that the most frequent travelers with high school education are aged 36-50 and 26-35 years. Men and women are equally represented.

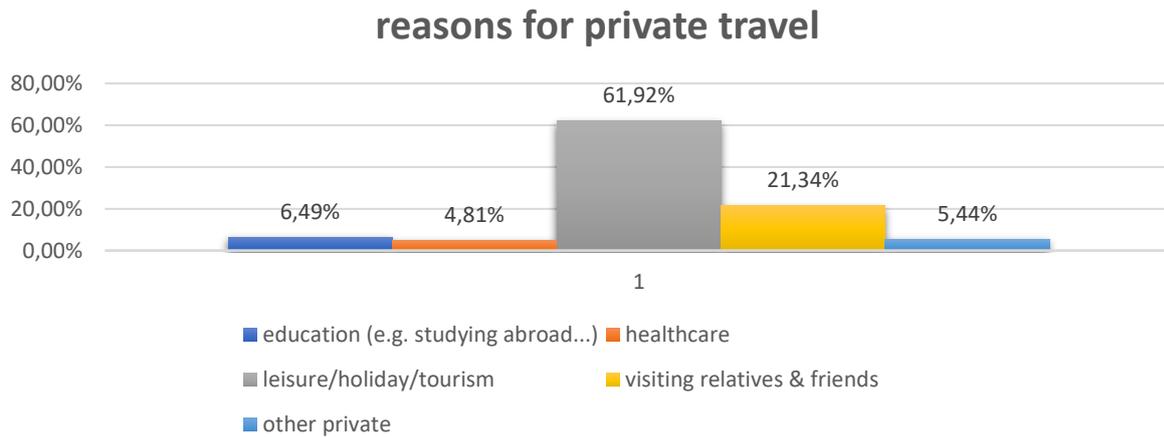
According to the purpose of travel surveyed passengers are divided into two groups - business and private. Private travelers are further divided on the reasons of private travel, which include: obligations, visits to relatives and friends, rest, health and the rest

Graph 5: Reason of travel





Graph 6: Reasons for private travel



From the graph it is apparent that 59% of travelers travel from private and 41% for business reasons.

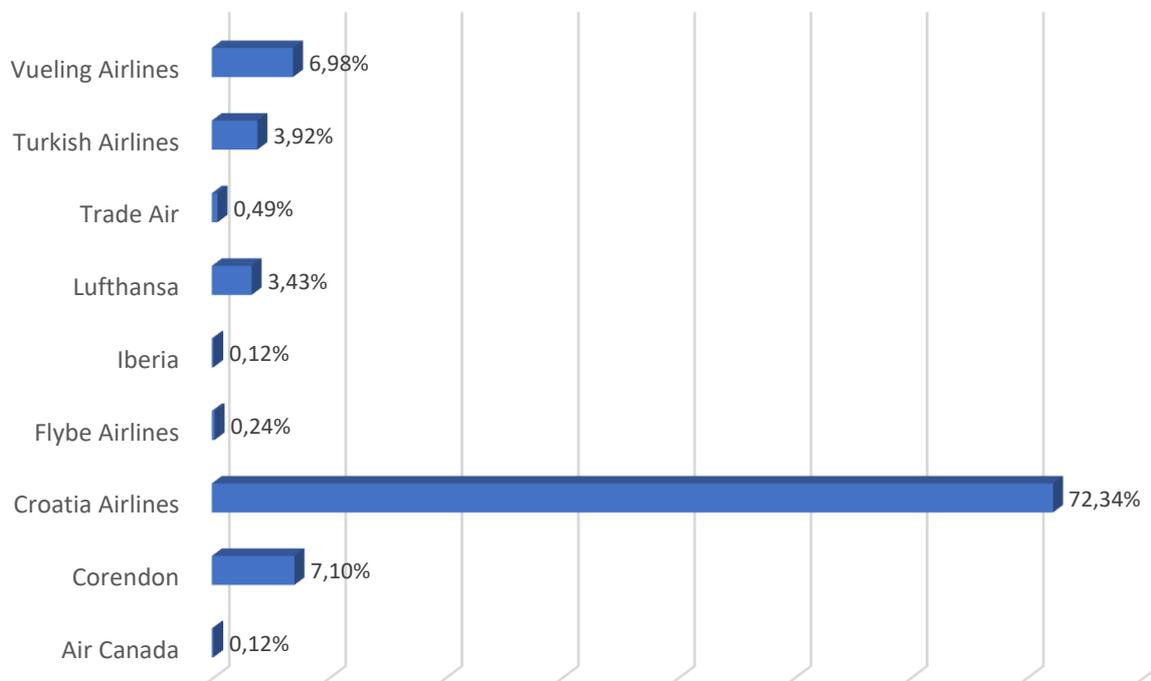
When sharing personal reasons most common reason is tourism (61.92%), followed by a visit to relatives and friends (21.34%), and education (6.49%) and health care (4.81%).

Overall the most common reason for travel is business.



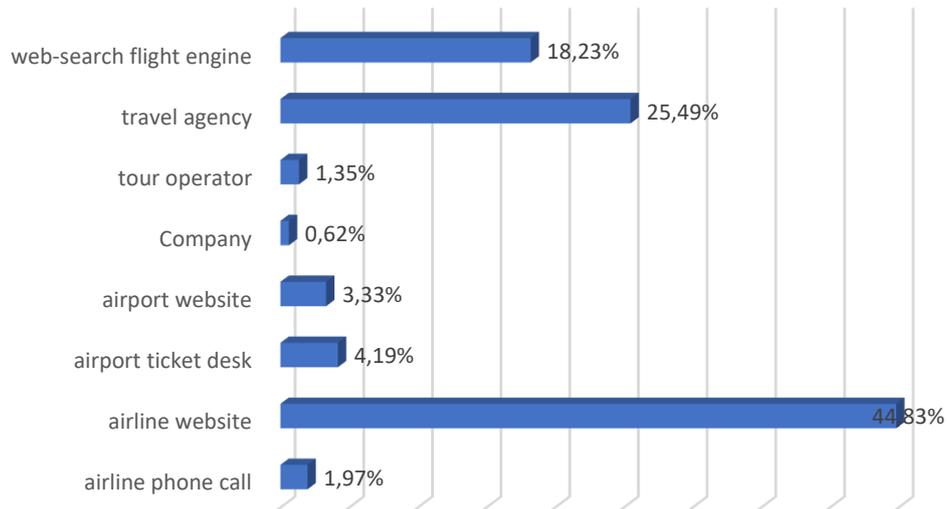
The following graphs show the most prominent carriers, how to buy an airline ticket and most often where the surveyed passengers go.

Graph 7: The most prominent carriers





Graph 8: the way of buying tickets

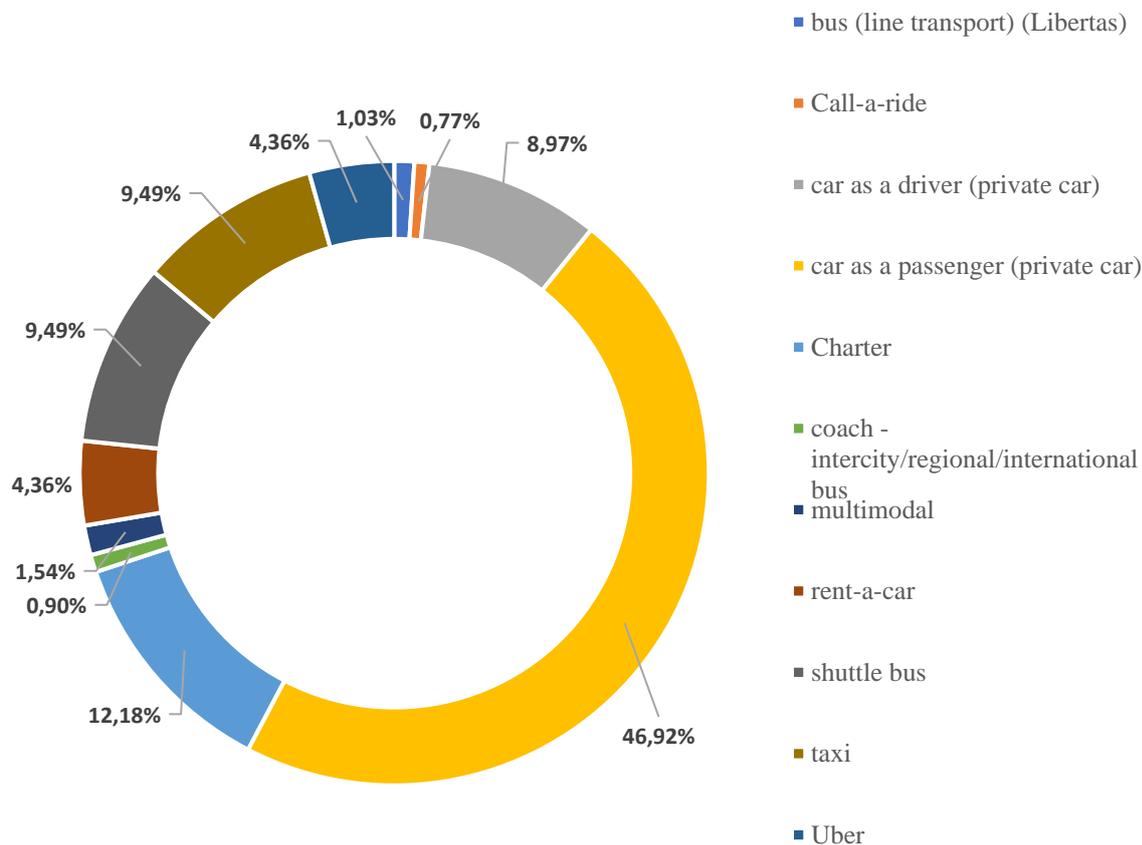


From the above graphs it is clear that the most significant carrier is Croatia Airlines and behind it are Corendon and Vueling Airlines. As far as car transport tickets are concerned, the most popular ways are through airline websites, internet search, and travel agencies. The most represented destinations according to which surveyed passengers are flying are Zagreb (493), Frankfurt (66), Rome (36) and Istanbul (29).

MODALITY ANALYSIS

Display of used means of transportation to Dubrovnik Airport.

Graph 9: Modal share



The modal share shows the ways by means of transport as the surveyed passengers arrived at the airport of Dubrovnik. From the view it is evident that the largest number of airport users comes by private car as a passenger (46.92%). In the surveyed area, 12.18% of the passengers to the airport arrived with the Charter bus. Of the more representative transport there are Shuttle buses, taxi transport and passengers arriving by private car. The least represented forms of transportation are interurban, regional, international bus service and city liner transport.



Figure 2: Spatial distribution of mode: car as passenger

Source: Author

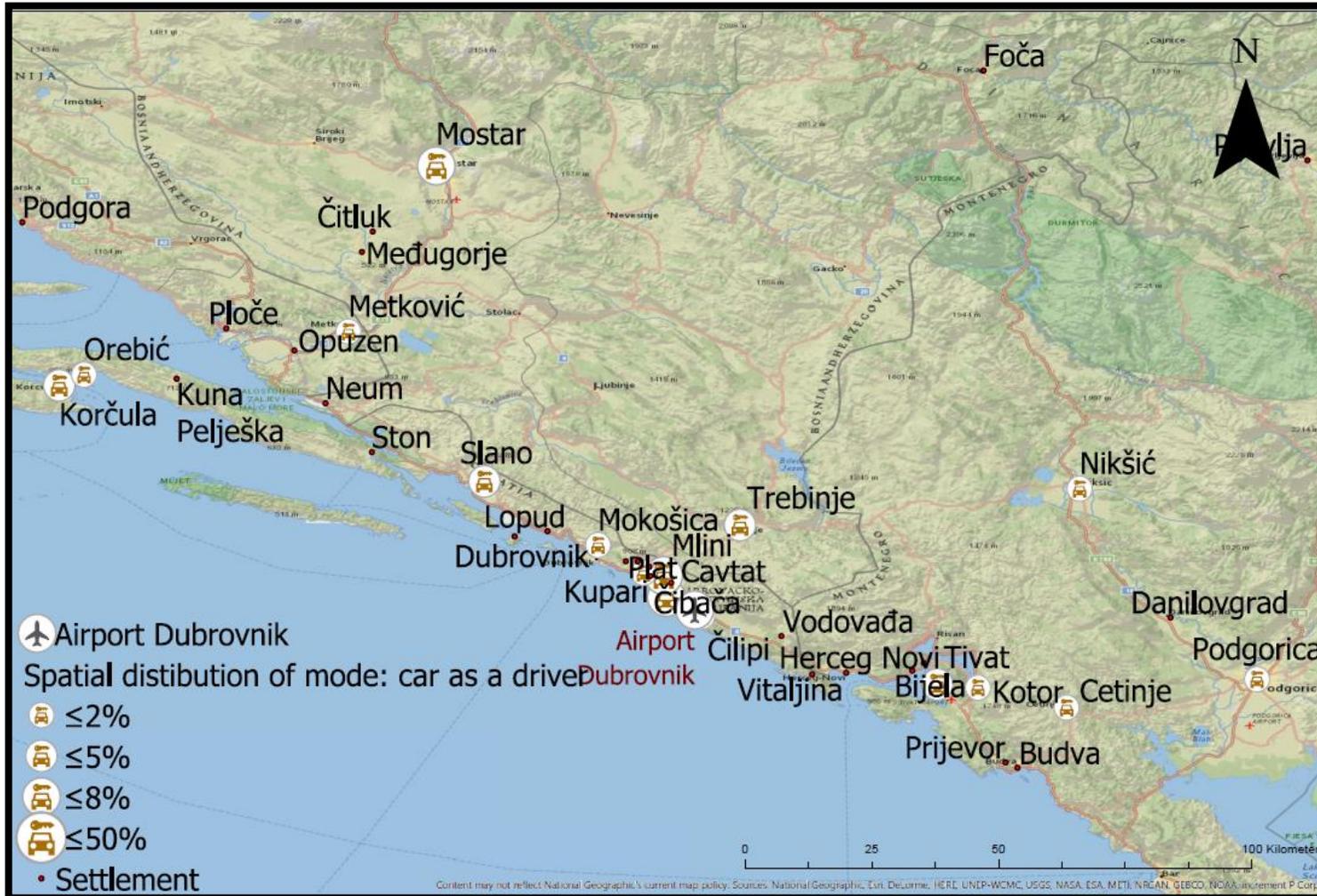


Figure 3: Spatial distribution of mode: car as a driver

Source: Author



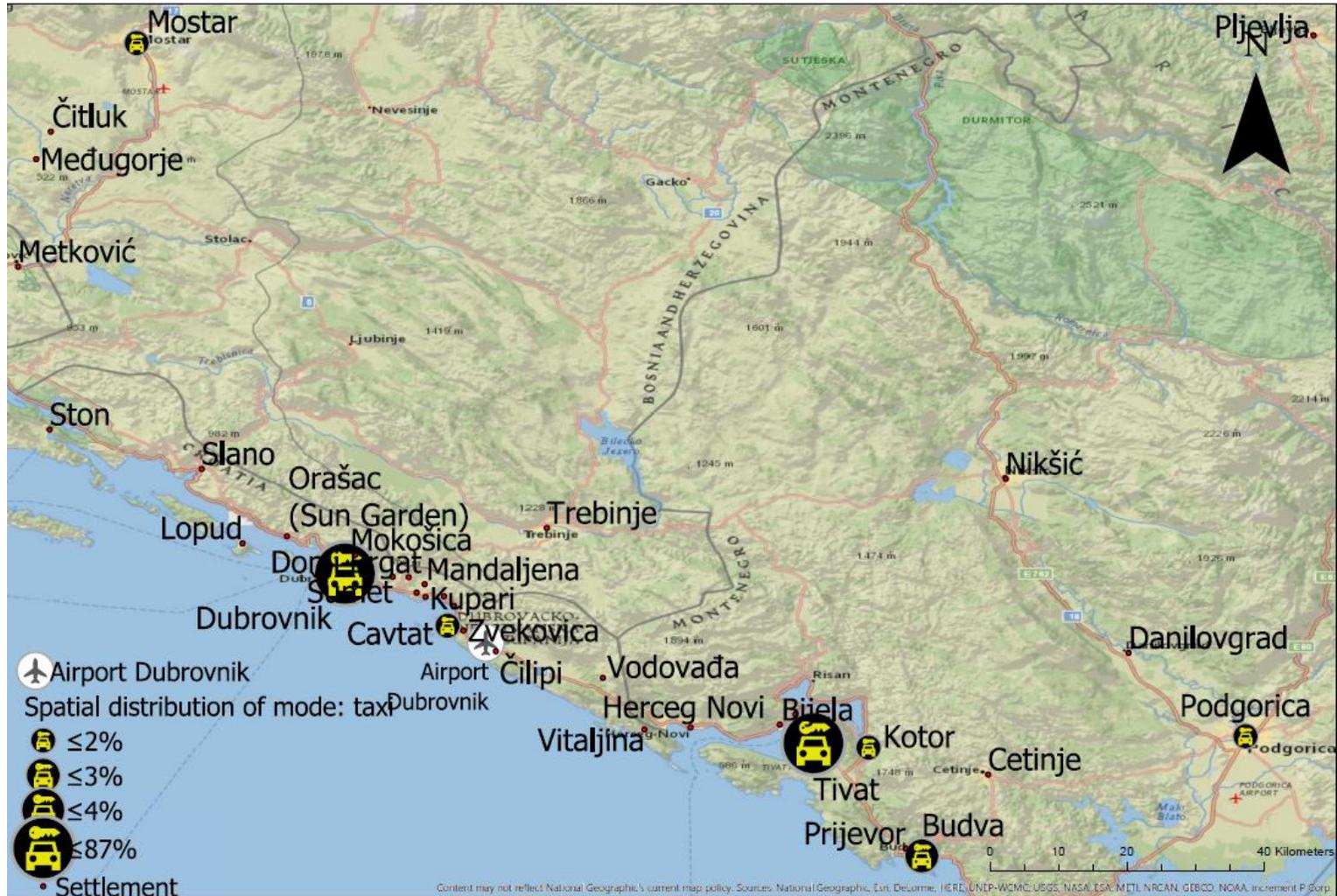
Figure 4: Spatial distribution of mode: intercity coach

Source: Author



Figure 5: Spatial distribution of mode: rent a car

Source: Author



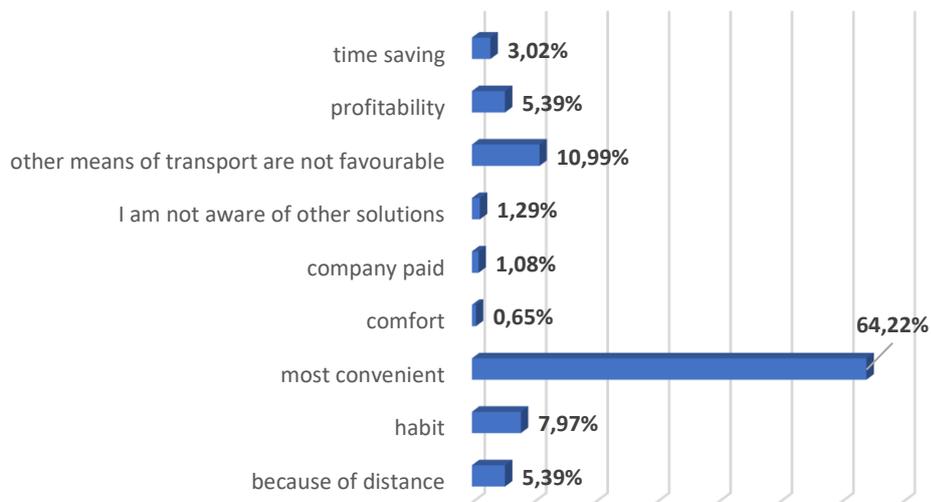
Picture 6: Spatial distribution of mode: taxi

Source: Author

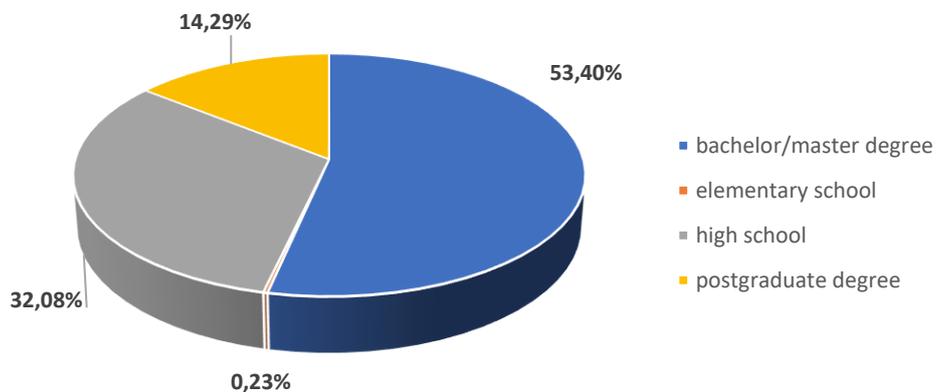


Analysis of the use of a car as a means of transport from Dubrovnik to the airport.

Graph 10: Reason of using car

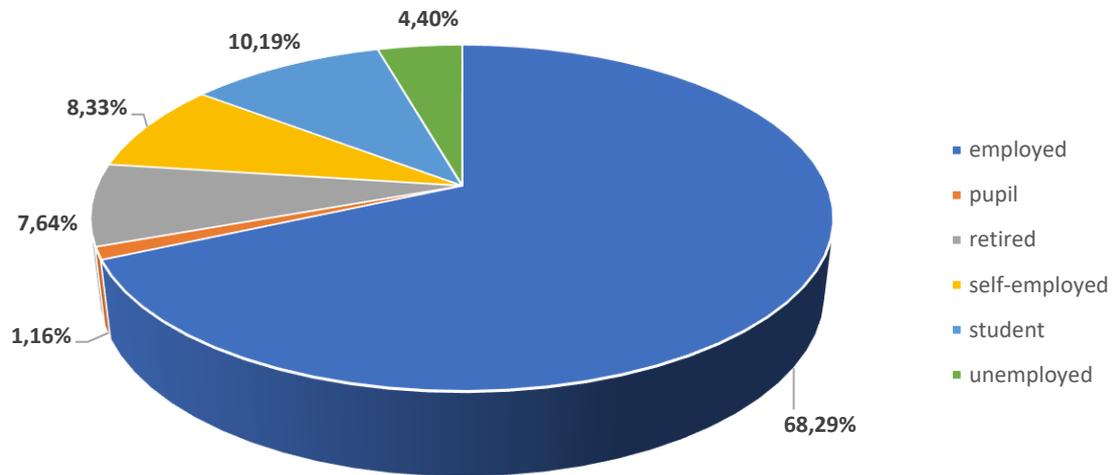


Graph 11: education of car user





Graph 12: status of car user

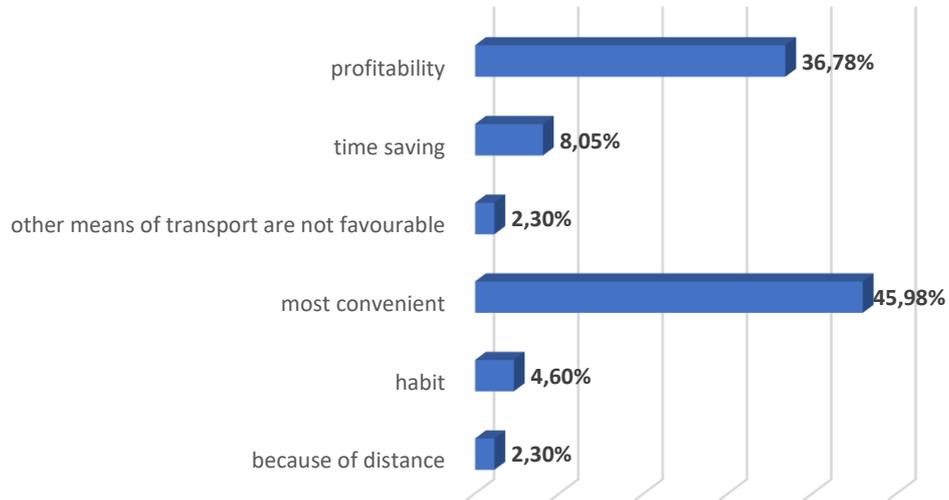


Using the car as a means of transport is the most popular way to get to the airport. The biggest reason is that such access to the Dubrovnik airport is the simplest because the conditions for other forms of transportation are not favorable. To a lesser extent are the reasons for distance and financial profitability. This type of transport is largely used by employed passengers with bachelor/master degree.

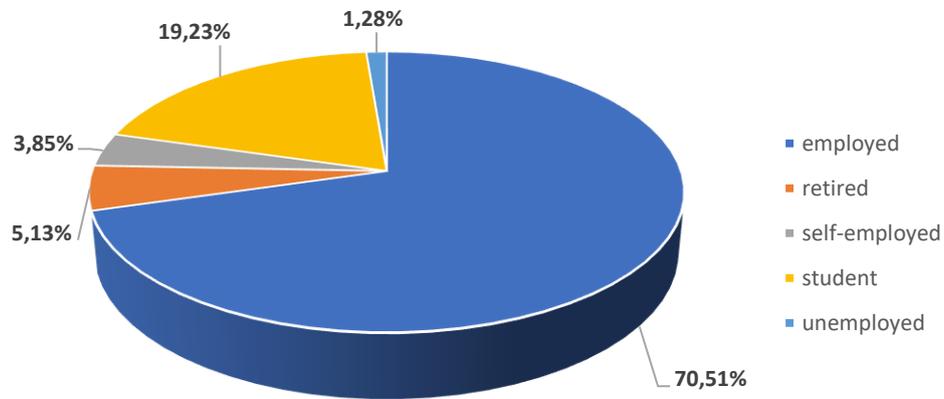


Analysis of Shuttle buses as a means of transportation from Dubrovnik to the airport.

Graph 13: reason of Shuttle bus user

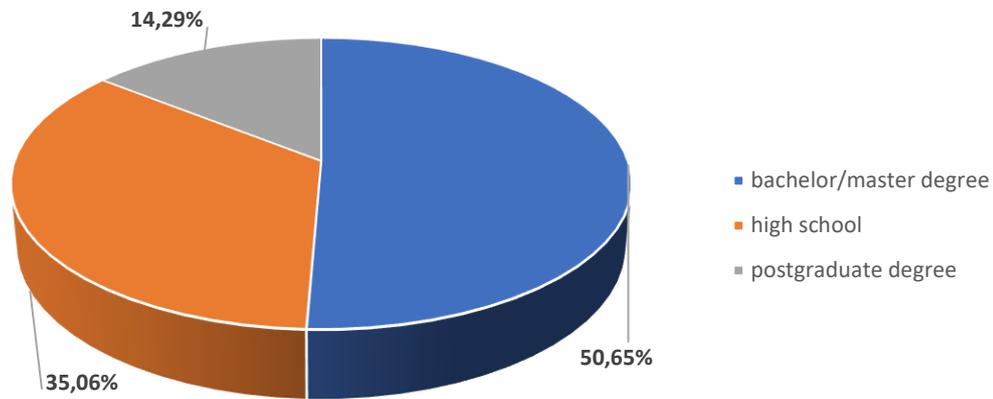


Graph 14: status od Shuttle bus user





Graph 15: education of Shuttle bus user

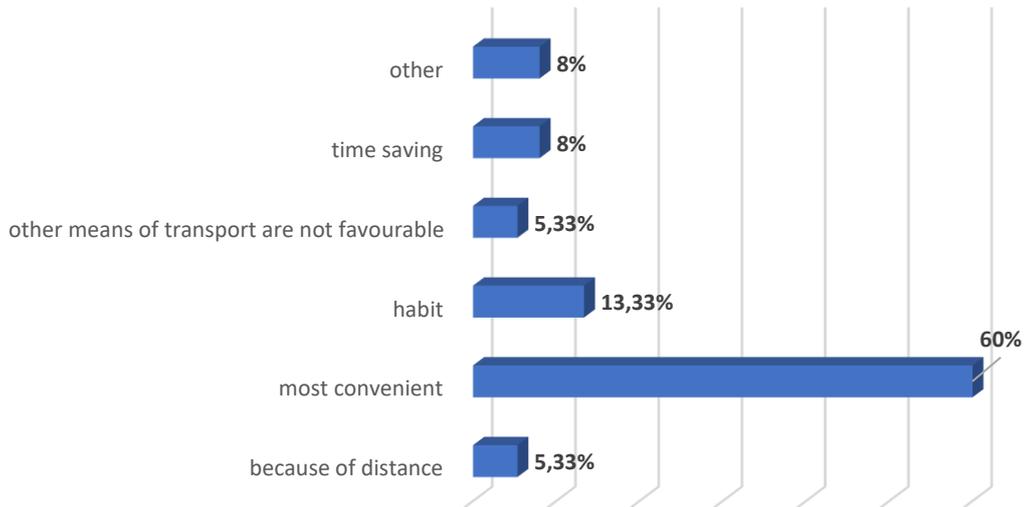


Shuttle bus surveyed passengers use it because their form of transportation is the simplest and finest most cost-effective one. It also saves time on travel. Shuttle bus users are most often employed with postgraduate degree.

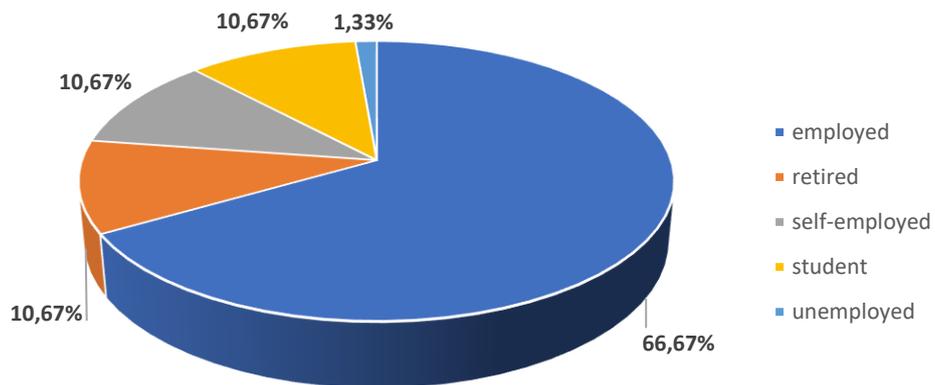


Analysis of taxi transport as a means of transport from Dubrovnik to the airport.

Graph 16: Reason of Taxi user

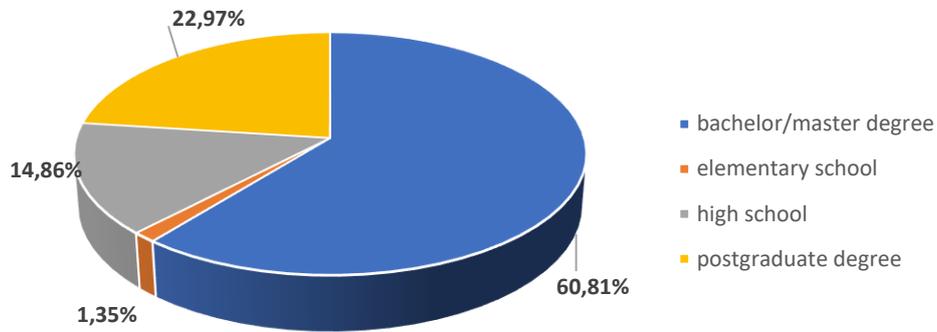


Graph 17: Status of Taxi user





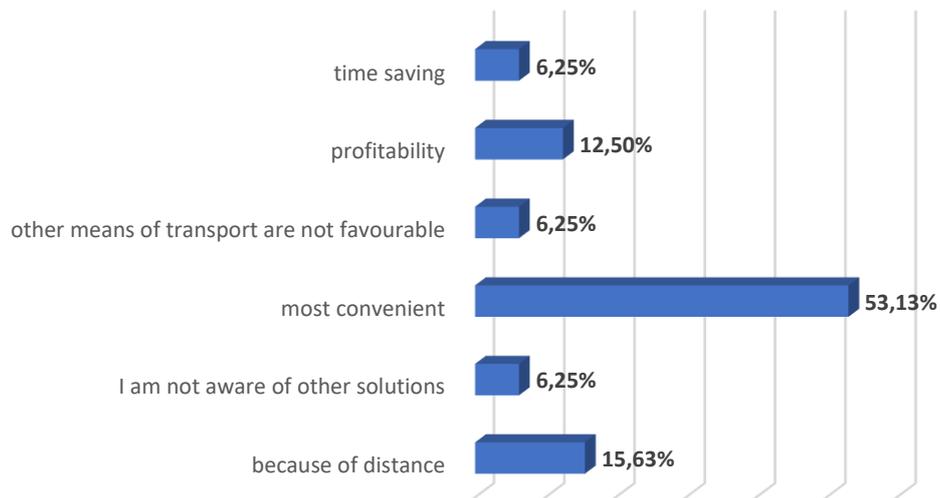
Graph 18: Education of transport user



Taxi services use employ with bachelor/master degree as they consider this form of transportation simpler and on that way save on travel time.

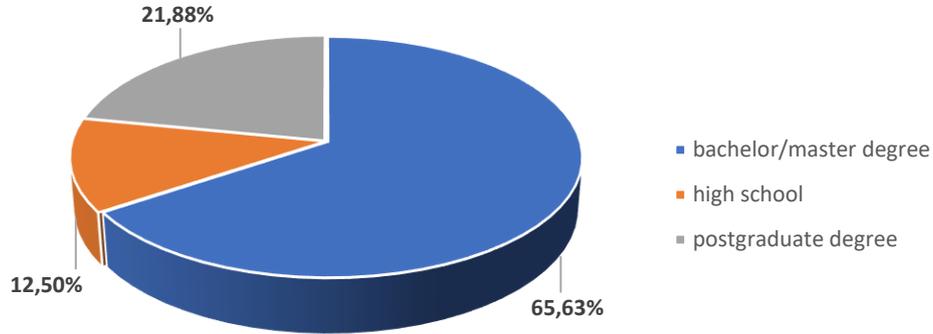
ANALYSIS OF RENT -A- CAR SERVICES AS A TRANSPORT MODE TO DUBROVNIK AIRPORT

Graph 19: Reason of Renta-a-car user

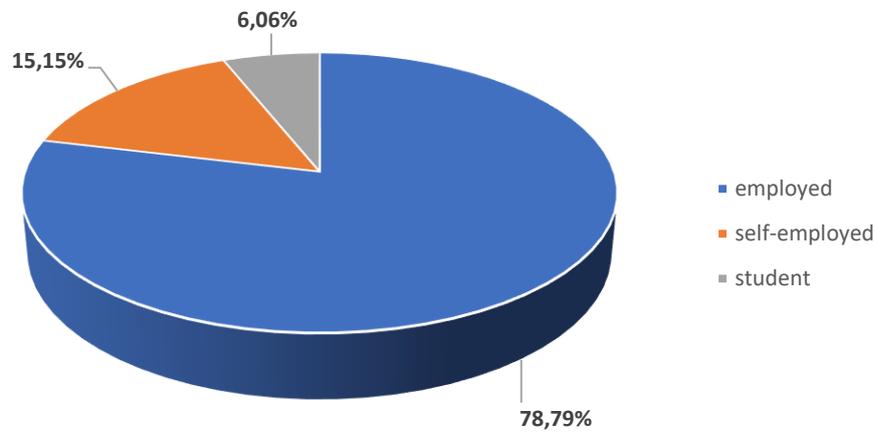




Graph 20: Education of rent-a-car user



Graph 21: Status of rent-a-car user



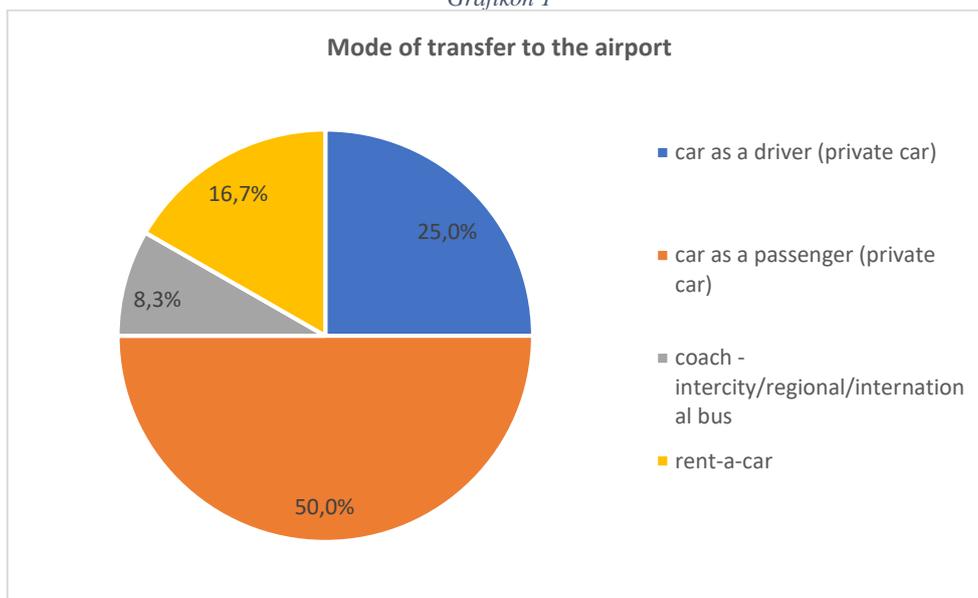
Rent-a-car service is used by passengers not only because it is the simplest form of transportation, but also because of the savings on travel time, financial viability and distance.



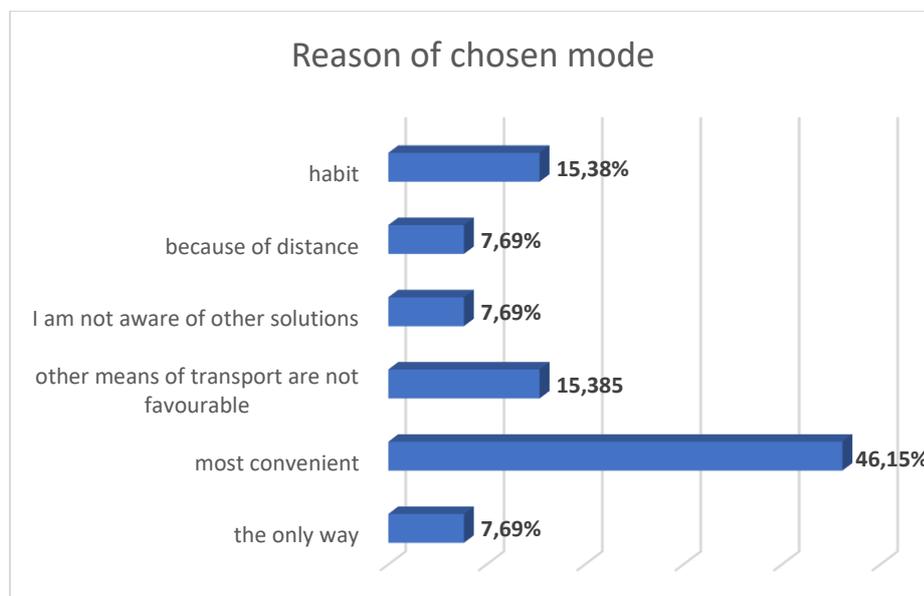
Herceg Novi

The average time to the airport is 37.5 minutes.

Grafikon 1



Grafikon 2



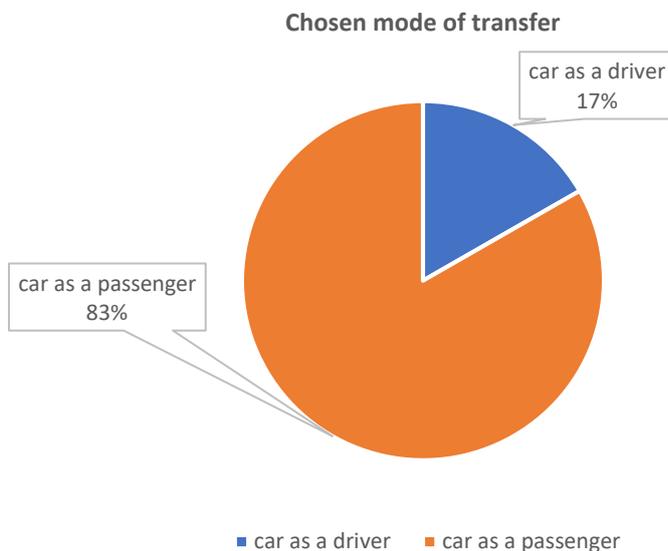
The above graphs show the information on how to arrive from Herceg Novi to Dubrovnik Airport and their reasons for choosing this type of transport. As can be seen, most of them have opted for a private car as a means of transport, either as a driver or as a passenger, and the main reason for choosing such a vision of transport is the simplicity.



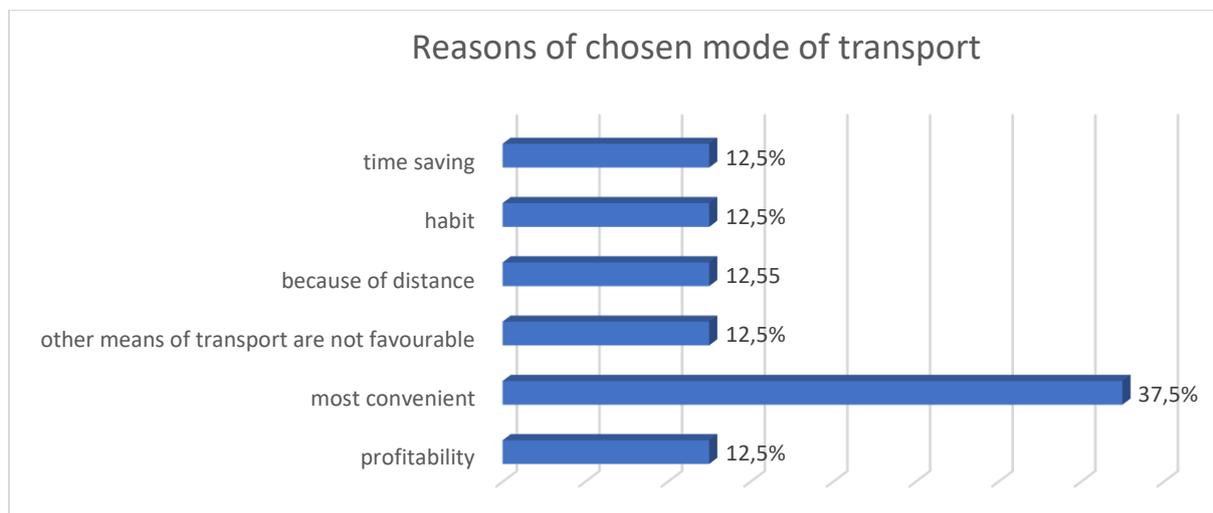
Nikšić

The average time to the airport is 1.92 h.

Graph 23: Chosen mode of transport from Nikšić to the airport



Graph 24: Reasons for choosing particular mode



The above graphs show data analysis for Nikšić passengers, how they arrive to the airport and the reasons for choosing such a type of transport. Most of them decided for the car as a means of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity.

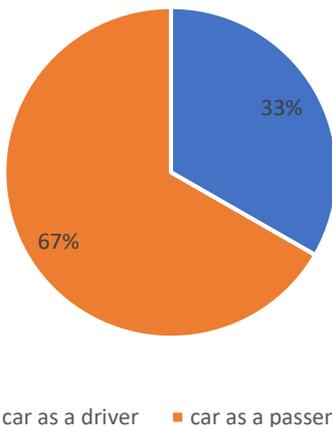


Trebinje

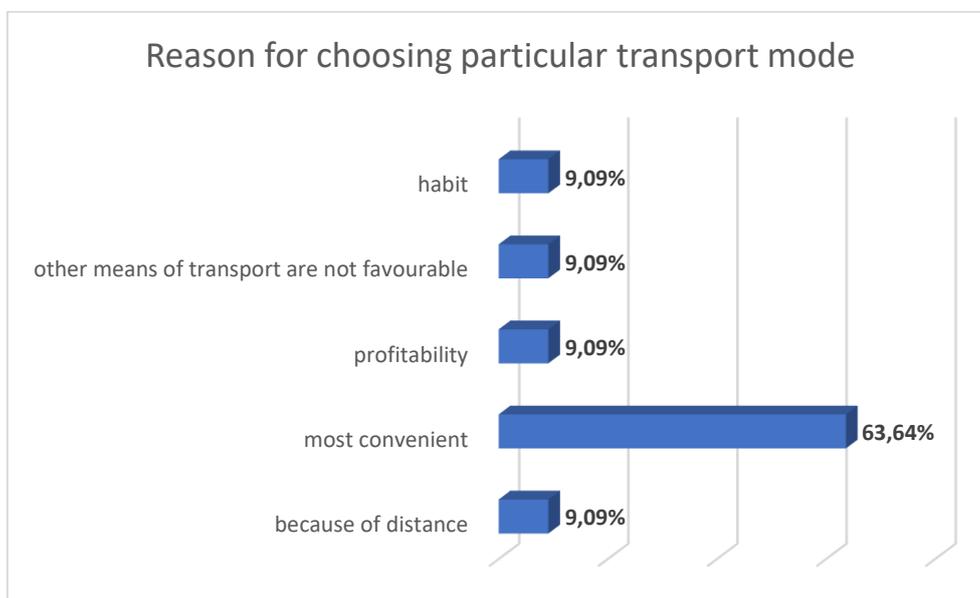
The average time is 41 min.

Graph 25: Chosen mode of transport

Chosen mode of transfer



Graph 26: Reason for chosen transport mode



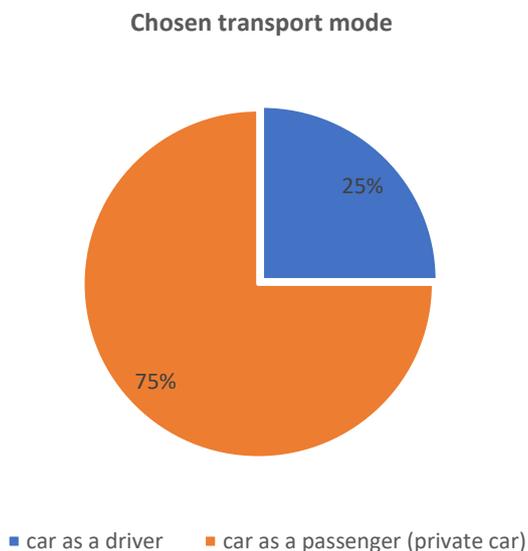
The analyzed data presented in the graphs above show the way of arrival of passengers from Trebinje to Dubrovnik Airport and the reasons for choosing this mode of transport. Most of them decided for the car as a mode of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity.



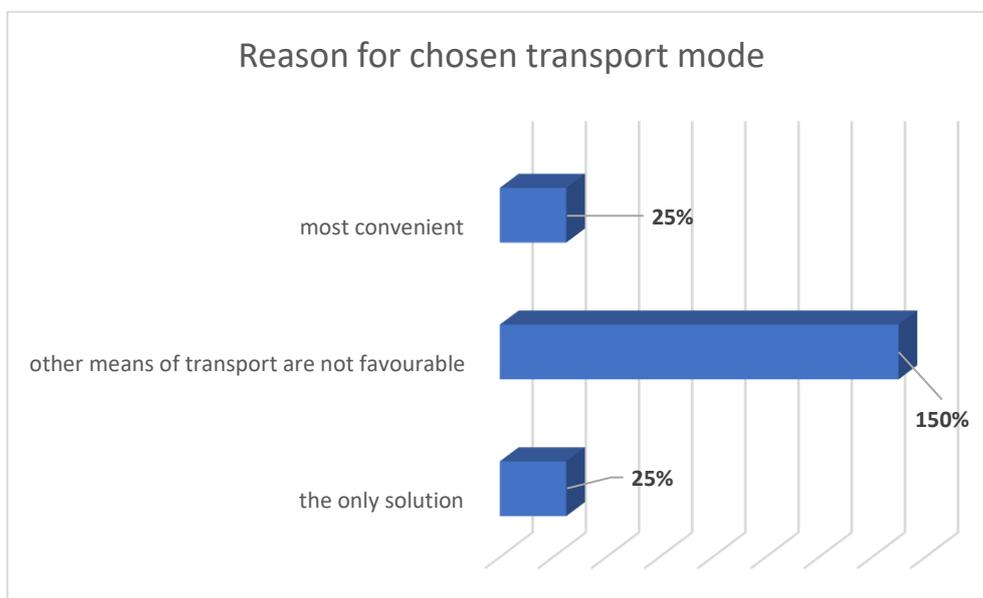
Budva

The average time to the airport is 1.87 h.

Graph 27: Chosen mode of transport from Budva to the airport



Graph 28: Reason for chosen transport mode



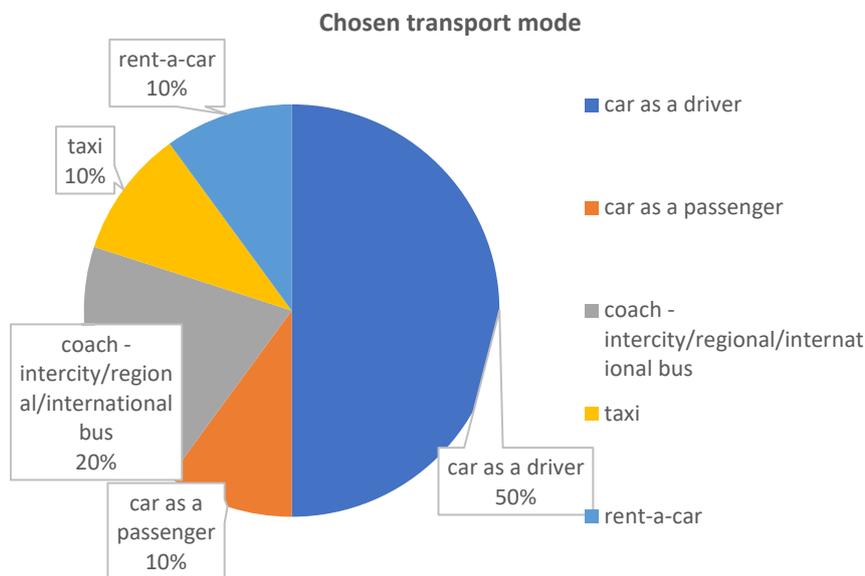
The above graphs show data analysis for Budva passengers, how they arrive at the airport and the reasons for choosing such a type of transport. Most of them decided for the car as a means of transport to the airport, either as a driver or as a passenger, while as the main reason for choosing such a type of transport stated that the conditions were not favorable for other modes of transport. Other reasons were that it was the simplest way to transport it and that it was the only option at 5.00 am.



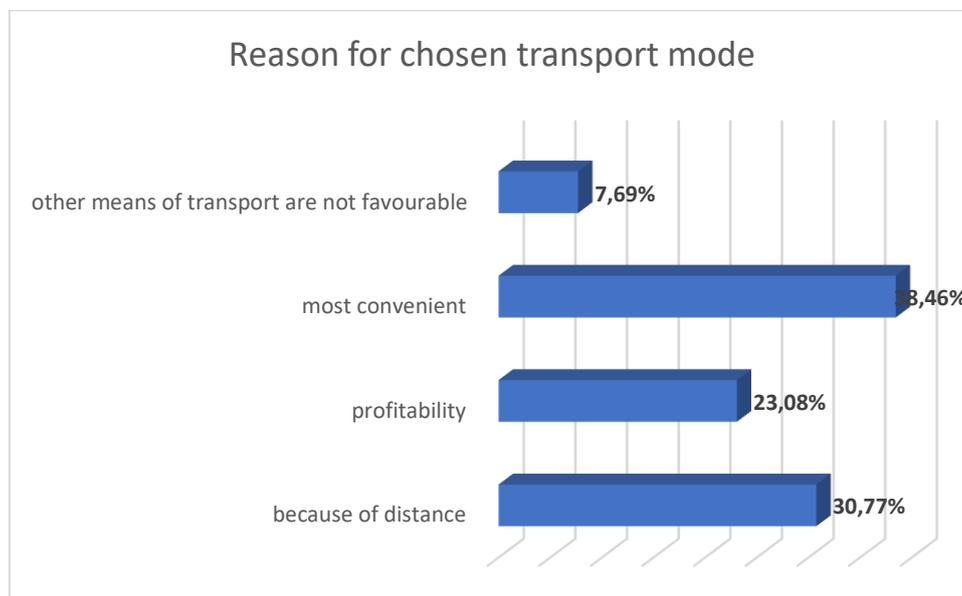
Mostar

The average time to the airport is 2.85 h

Graph 29: Chosen transport mode



Graph 30: Reason for choosing particular mode



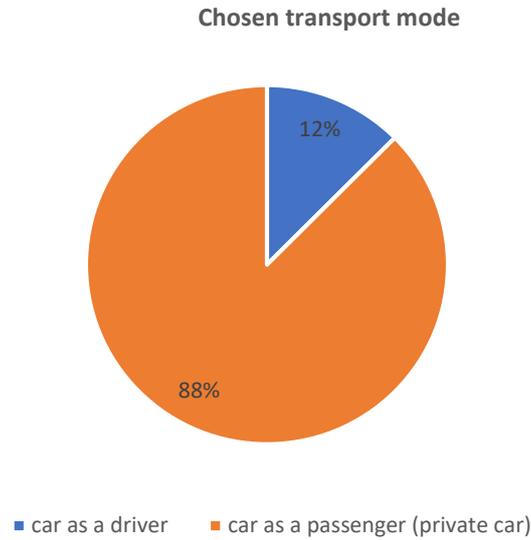
The analyzed data presented in the above graphs show the way of arriving from Mostar to Dubrovnik Airport and the reasons for choosing this type of transport. Most of them decided for the car as a mode of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity. The next most frequent answer is the distance.



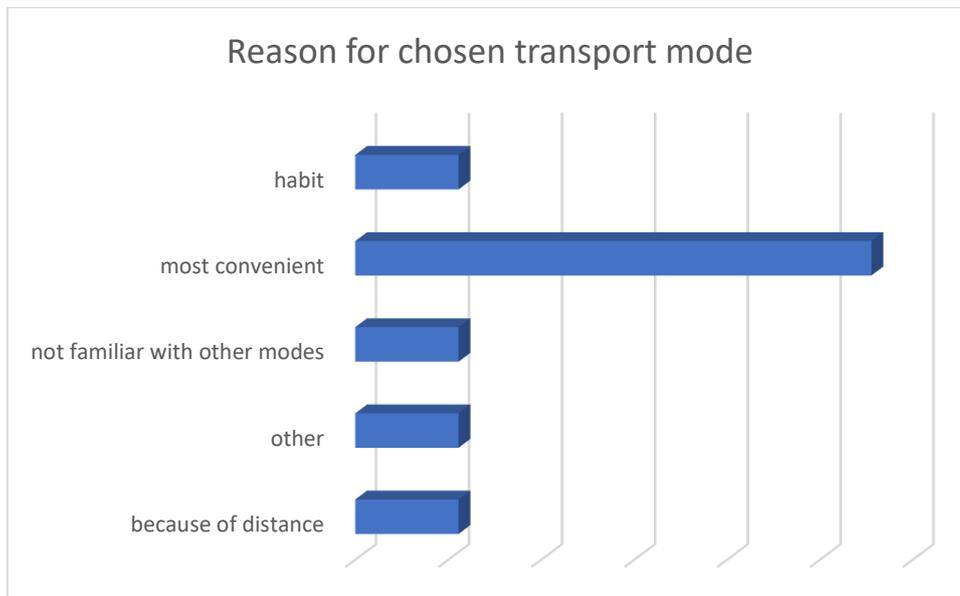
Tivat

The average time to the airport is 72 minutes.

Graph 30: Chosen transport mode



Graph 31: Reason for chosen transport mode



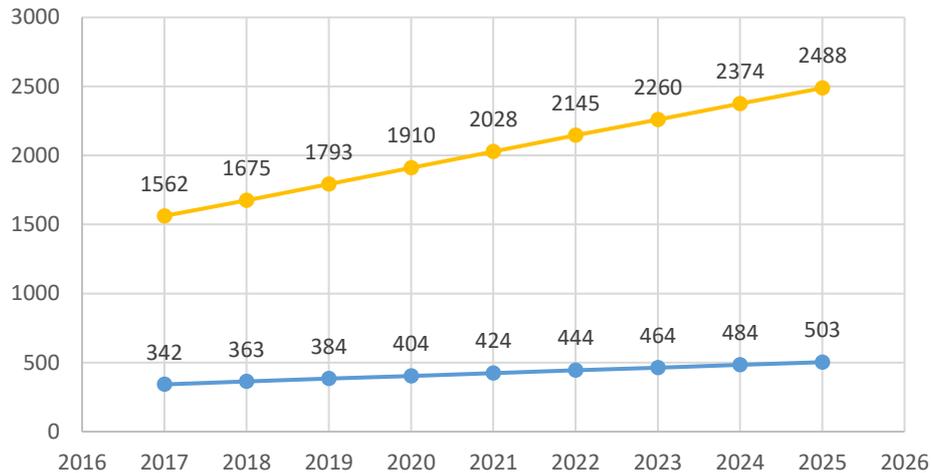
The above graphs show data analysis for Tivat passengers, the way they arrive to the airport and the reasons for choosing such a type of transport. Most of them decided for the car as a means of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity.



Trend for travel development in the period by 2017. – 2025. Year

Graph 32: Passengers flow forecast

Passengers flow forecast



Source: author

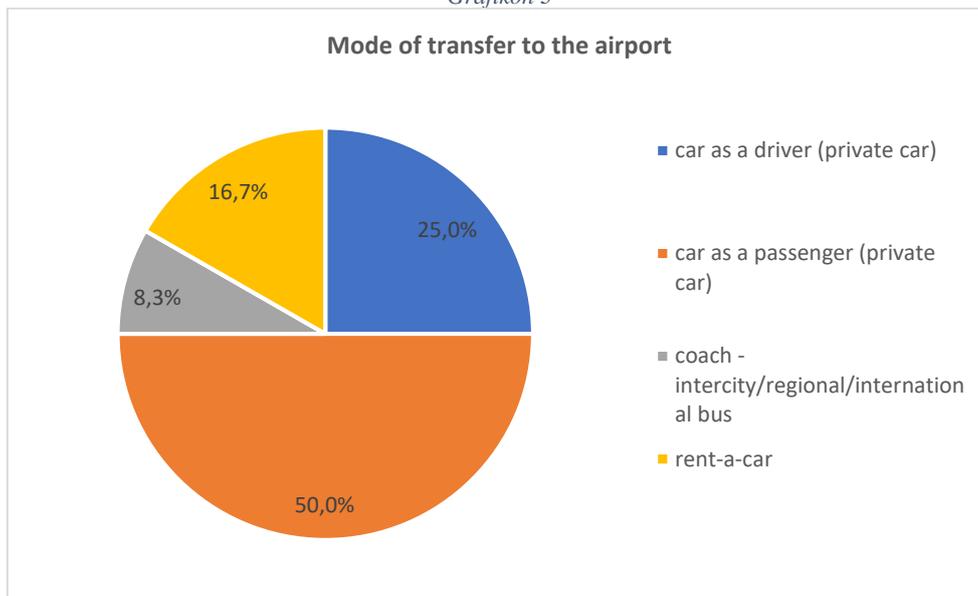
The cart shows the expected growth of domestic and foreign passengers in Dubrovnik Airport in the period of 2017 to 2025 y. The number of domestic passengers will increase from 342 to 503 passengers by 2025, while the number of foreign passegers will increase from 1562 to 2488 passengers



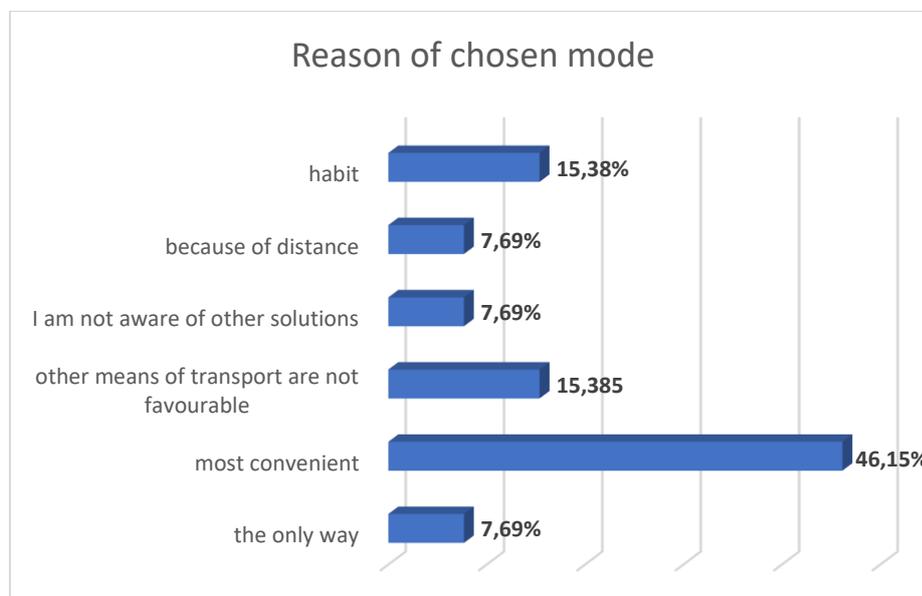
Herceg Novi

The average time to the airport is 37.5 minutes.

Grafikon 3



Grafikon 4



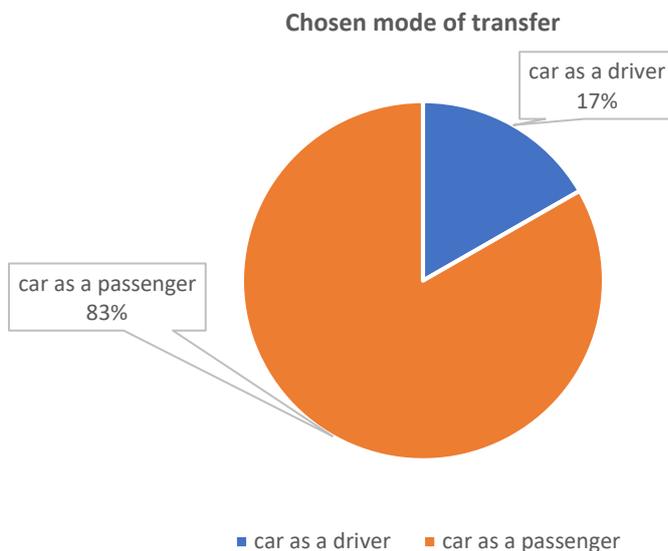
The above graphs show the information on how to arrive from Herceg Novi to Dubrovnik Airport and their reasons for choosing this type of transport. As can be seen, most of them have opted for a private car as a means of transport, either as a driver or as a passenger, and the main reason for choosing such a vision of transport is the simplicity.



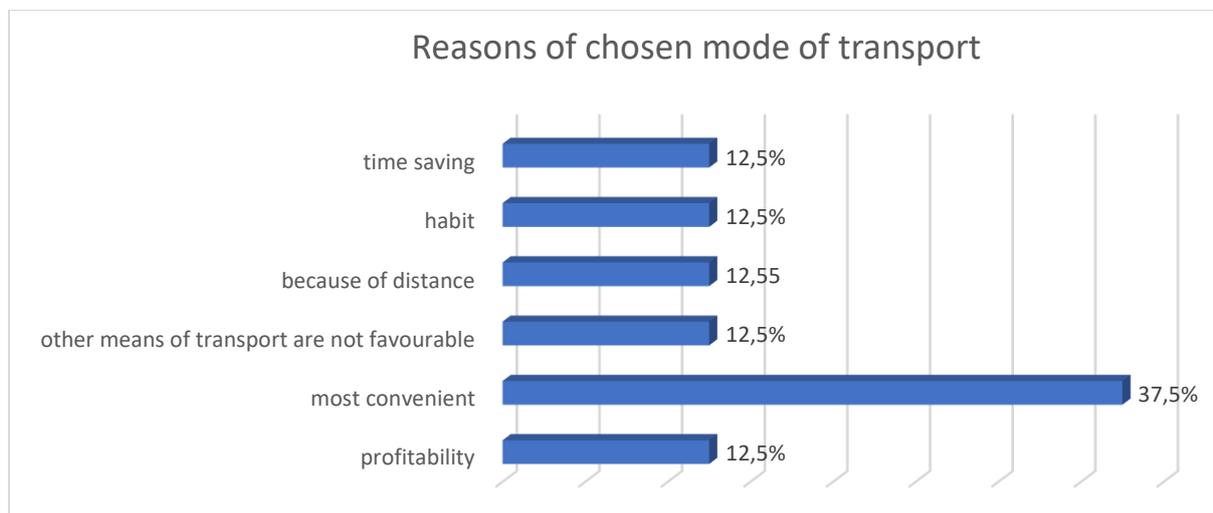
Nikšić

The average time to the airport is 1.92 h.

Graph 23: Chosen mode of transport from Nikšić to the airport



Graph 24: Reasons for choosing particular mode



The above graphs show data analysis for Nikšić passengers, how they arrive to the airport and the reasons for choosing such a type of transport. Most of them decided for the car as a means of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity.

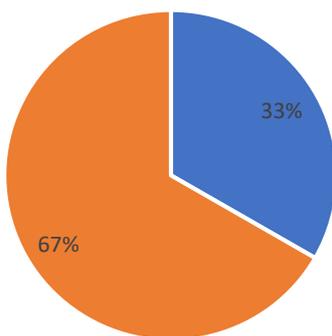


Trebinje

The average time is 41 min.

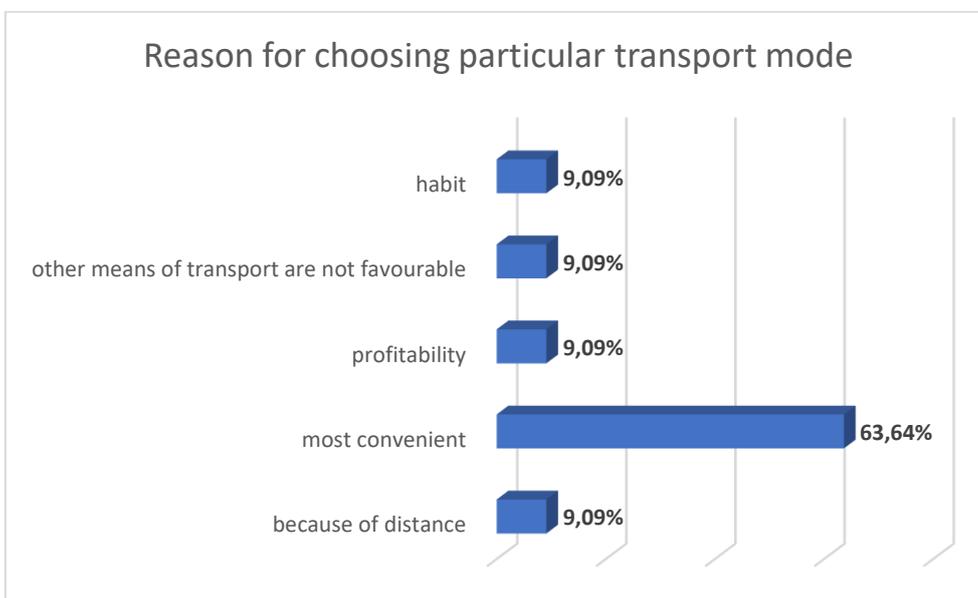
Graph 25: Chosen mode of transport

Chosen mode of transfer



■ car as a driver ■ car as a passenger

Graph 26: Reason for chosen transport mode



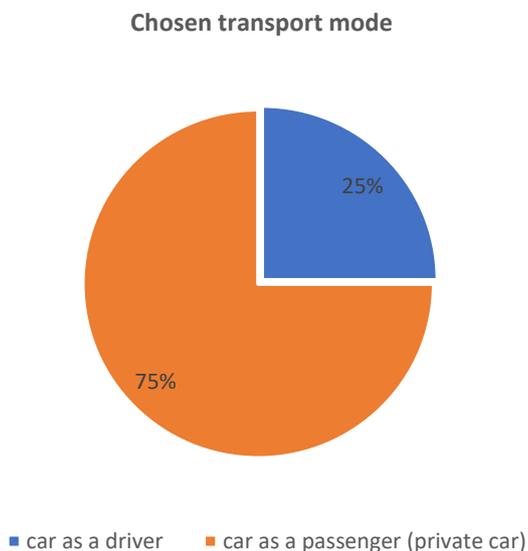
The analyzed data presented in the graphs above show the way of arrival of passengers from Trebinje to Dubrovnik Airport and the reasons for choosing this mode of transport. Most of them decided for the car as a mode of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity.



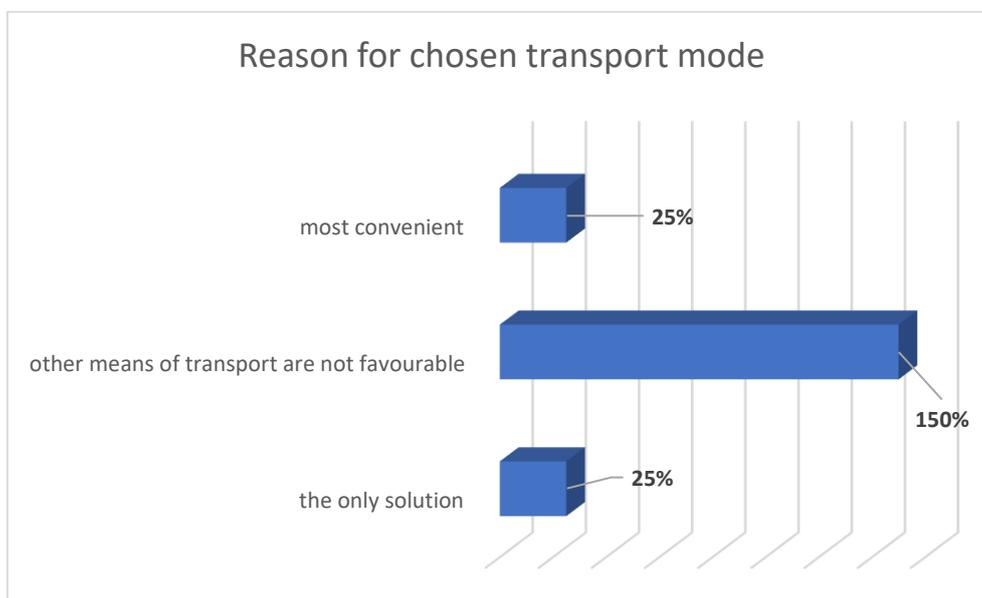
Budva

The average time to the airport is 1.87 h.

Graph 27: Chosen mode of transport from Budva to the airport



Graph 28: Reason for chosen transport mode



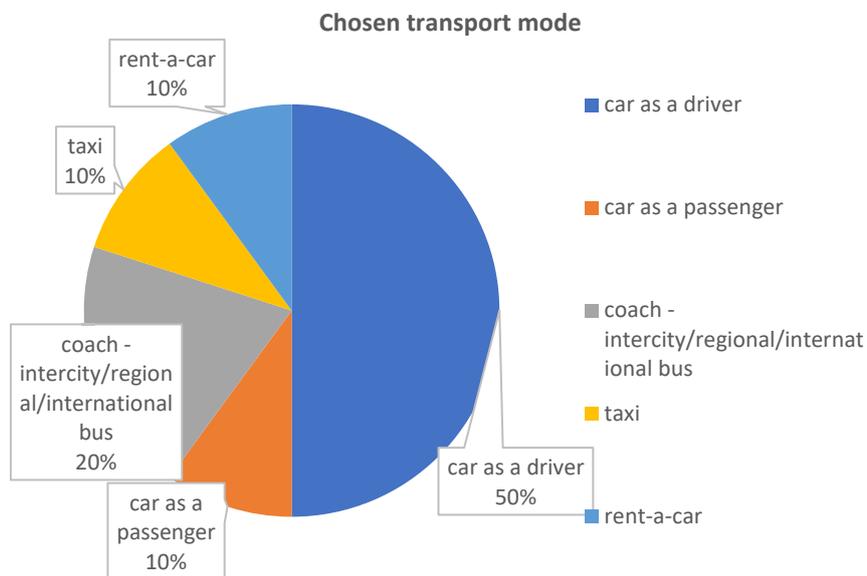
The above graphs show data analysis for Budva passengers, how they arrive at the airport and the reasons for choosing such a type of transport. Most of them decided for the car as a means of transport to the airport, either as a driver or as a passenger, while as the main reason for choosing such a type of transport stated that the conditions were not favorable for other modes of transport. Other reasons were that it was the simplest way to transport it and that it was the only option at 5.00 am.



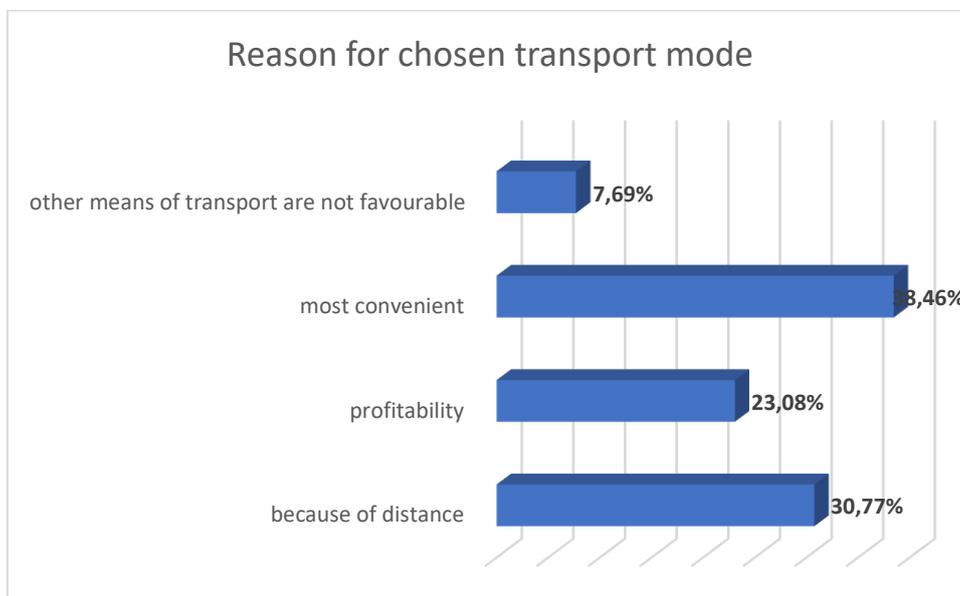
Mostar

The average time to the airport is 2.85 h

Graph 29: Chosen transport mode



Graph 30: Reason for choosing particular mode



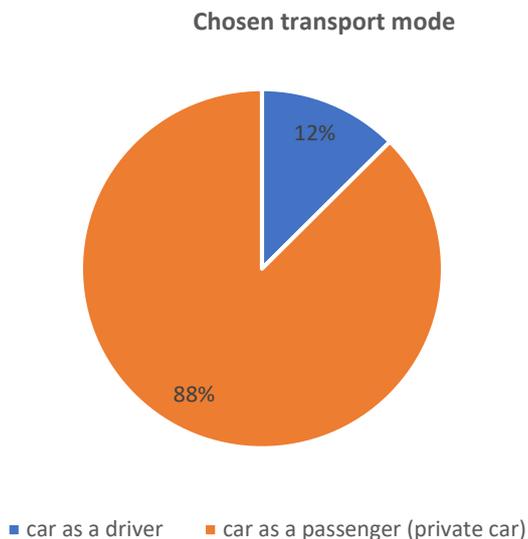
The analyzed data presented in the above graphs show the way of arriving from Mostar to Dubrovnik Airport and the reasons for choosing this type of transport. Most of them decided for the car as a mode of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity. The next most frequent answer is the distance.



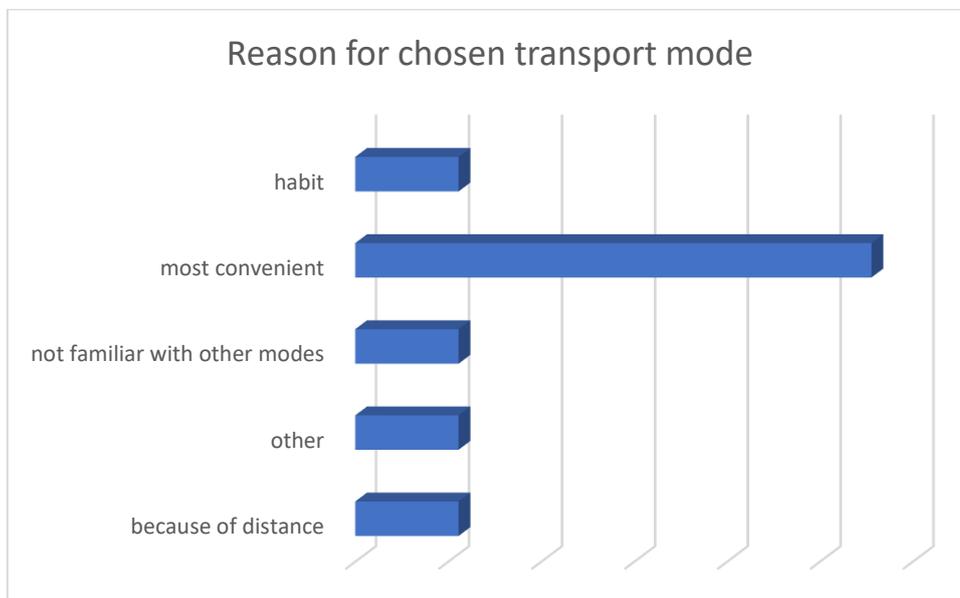
Tivat

The average time to the airport is 72 minutes.

Graph 30: Chosen transport mode



Graph 31: Reason for chosen transport mode



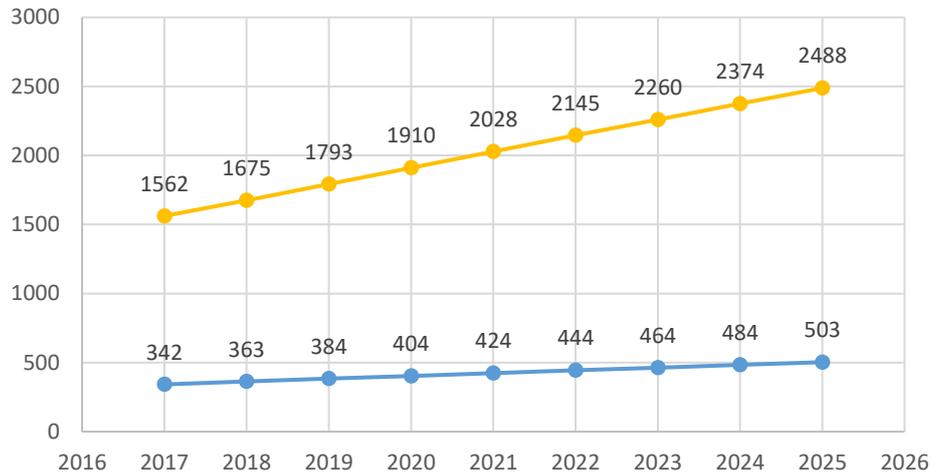
The above graphs show data analysis for Tivat passengers, the way they arrive to the airport and the reasons for choosing such a type of transport. Most of them decided for the car as a means of transport to the airport, either as a driver or as a passenger, while the main reason for choosing such a type of transport meant simplicity.



Trend for travel development in the period by 2017. – 2025. Year

Graph 32: Passengers flow forecast

Passengers flow forecast



Source: author

The cart shows the expected growth of domestic and foreign passengers in Dubrovnik Airport in the period of 2017 to 2025 y. The number of domestic passengers will increase from 342 to 503 passengers by 2025, while the number of foreign passegers will increase from 1562 to 2488 passengers



PLANNED PROJECTS ON THE LANDSIDE OF DUBROVNIK AIRPORT

In accordance with the planned growth of passengers, plans are planned on the road system and parking places on the terrestrial side of the Dubrovnik Airport according to the phases shown in table xx. According to the above graph, plans are to build a multi-storey garage, to build new buses station, to build a new open parking lot for workers and visitors, the construction of a new open parking lot for rented cars and taxis, the construction of new public roads on the earth's strain of airport, the construction of new operational roads on the airport's terrestrial strain.

Table 1: Key projects and prices

DBV - key projects	2. phase					3. phase			
	2017.g.	2018.g.	2019.g.	2020.g.	2021.g.	2022.g.	2023.g.	2024.g.	2025.g.
Road system and parking on the land side									
Construction of a multi-storey garage			1 968 750	2 625 000	656 250				
Building new bus stops								45 000	405 000
Construction of a new open parking lot for passengers and employees	170 000	337 875							140 000
Construction of a new open parking lot for rented cars and taxis									
Construction of new public roads on the land side of the airport	76 900	153 800						246 550	493 100
Construction of new operational roads on the land side of the airport									

Source: Key Projects under Annex 3b Master Plan DBV

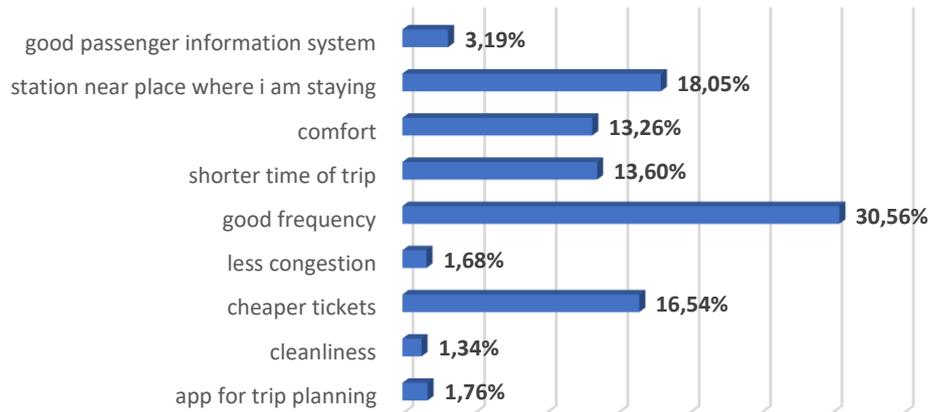




Motivation for choosing public transport

Graph 34: What would motivate you to use public transport?

Motivation for using public transport



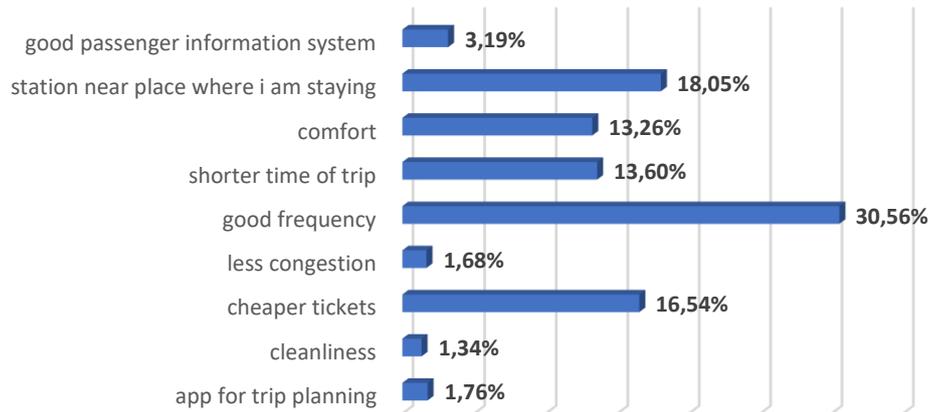
The main motivations that passengers have put forward as a reason for using public from their starting point to Dubrovnik Airport are better frequency, respectively more frequent departures than present, stations nears their place of residence before arriving at the airport and cheaper carriers. For other more prominent reasons, there is a shorter travel time, a travel planning application, better information on the public transport timetable and comfort.



Motivation for choosing public transport

Graph 34: What would motivate you to use public transport?

Motivation for using public transport

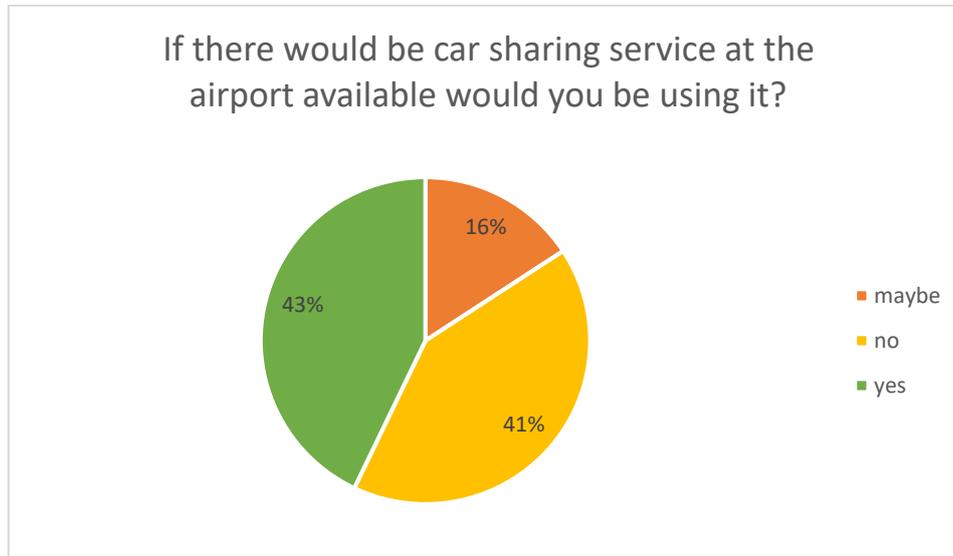


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USE OF CAR SHARING SYSTEM

Graph 35: Would you use car sharing?



The idea of introducing a car sharing system as one of the options for transport to the Dubrovnik Airport surveyed passengers in most (42 %) pleaded to use such a form of transportation. Of the total number of surveyed passengers, them 40 % of the participants did not use it. 16 % of the respondents might have used such transport system.

When looking at the division of used means of transport to Dubrovnik Airport based on employment, respectively the division of employees and the unemployed from the top two graphs, it is evident that users of both division to Dubrovnik Airport come as private car passengers. From graphs it is also apparent that employed passenger use more different forms of transport to Dubrovnik Airport while in the case of the unemployed, in addition to the abovementioned mode, there is still an uber, call-a-ride, regional bus and shuttle bus.

According to the degree of education, passengers to the Dubrovnik Airport come to the greatest extent as travellers in private cars. Shuttle buses are mostly used by people with graduate/postgraduate studies and high school students.

PROPOSALS OF ANTI-QUEUED PASSENGERS

- Better connectivity of the region by public transport
- Increased public transport frequency
- Better passenger information system



- Better public transport advertising system
- Better information of passengers through the web site
- Integrated passenger transport
- More traffic signs on access road to Airport