

FACTORS AFFECTING MODAL CHOICE OF THE POPULATION OF THE CZECH AND SLOVAK REPUBLIC

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In this article we developed a comprehensive overview of the factors that affects passengers in their choice for a specific mode of transport. Transport is divided in many ways, whether in terms of popularity, price, geographic options, comfort, safety and speed, but also according to statistics published on the internet.

K e y w o r d s: Transport, Transport statistics, Transport systems, Transport infrastructure, Vehicles

1 INTRODUCTION

People in the past did not know so many modes of transport as we know it today, but needed to be transported from one place to another looking for food or a home. They use it for transport on foot. Gradually, their requirements for transportation increased, so they sought other ways to get somewhere as quickly and as safely. They began to build roads, rail, water tunnels and necessary means of transport. Transportation has evolved and has become a necessary part of life.

2 TRANSPORT

One measure of evaluation of the technical level and maturity level of the company is also a mode of transport in terms of the level of transport systems used for transporting people and cargo. Transport systems consist of transport routes, namely infrastructure and vehicles.

2.1 Definition of transport

The most common and simplest definition of traffic is that it is the movement of people and cargo in a particular space. Transport can be defined as the movement of vehicles along transport routes, transport facilities or activities which the carriage is performed or as a set of activities that will take place movement of vehicles on the road. According to another source the right deliberate movement of vehicles on the road or operation of transport equipment, which the transport takes place. It is also a sector of the national economy to ensure the transport of persons, things or messages.

2.2 Types of transport

Transport can be divided according to different criteria. The most common ones are:

Transport in terms of space:

- a) surface transport
- b) water transport
- c) air transport
- d) space transport

Transport in terms of traffic road:

- a) road transport
- b) runway transport
- c) water transport
- d) air transport
- e) pipeline transport

Transport in terms of regularity:

- a) regular services
- b) non-scheduled services

2.3 History of transportation in the world

The origins of traffic associated with early human society. The oldest form of transport was the right foot, which included the freight transport by man carrying loads. The first means of transport were common floating tree trunks and puffy skin of animals.

2.3.1 Road transport

The emergence and subsequent development of transport in the world made possible by the wheel. According to previous discoveries include the beginnings of the development wagon in the period 5000 years ago, in the Sumerian. Collective transport has become the wagon up to the Roman Empire. Length of roads that allow to control the whole empire, amounted to 150 000 km. A network of Roman roads gradually deteriorated and disappeared. Roads were built in the 16th century. Public transport is ensured Furman carriages and later postal stagecoach. At the beginning of the 19th century in England and France took the first angular car with a flat roof. For the first car in the world is considered to be motor tricycle built by Carl Friedrich Benz in 1885.

2.3.2 Railway transport

The first forms of rail transport include beam path, on which were moving small wooden carts on wheels in 16 century. Later they were replaced by iron rails and cylinder of soft iron. The drive was resolved in 18 century, the invention of the steam engine, which was the signal for the construction of railway lines.

The first steam engine train of the world led from Stockton to Darlington. Its wide track 1435 mm is still considered standard gauge and is widely used in the world. Traffic on this line was launched in 1825, which means the beginning of the development of railways can be dated precisely in this period.

2.3.3 Water transport

Water transport was used since ancient times, when people used to transport a variety of tree trunks and branches, which were later tied to the raft. Progress has been handmade primitive craft from tree trunks, which were later supplemented sail for wind power. Great importance for the development of water transport was the invention of the lock, which enabled the construction of waterways. In the later started using the artificial structures to overcome obstacles, such as aqueducts and water tunnels. The first vessel was fitted with a steam engine, which was built in the late 18th century. A couple years later, swam the first steamship named Savannah entire Atlantic Ocean. Until the mid-19th century, ships were built mostly of the wood. Construction of steel ships began in 1850, which enabled the new technology rolled sheets.

2.3.4 Air transport

The first attempts to imitate the birds and take off tried by pilots on balloons in the 18th century. The first man, who flight into the air in a balloon, was in 1709, Portuguese physicist Bartolomeo Gusmao. His paper balloon was about eight decades replaced by hot-air balloon, which was built by the Montgolfier brothers. Balloons were, however, due to the heavy handling, used only for military and scientific purposes. Better control of the airship had airship with own power, which were built in the mid 19th century. They were used to carry passengers and freight between Europe and America. Their era ended, however, with disaster German airship LZ 129 "Hindenburg" in 1937. At the end of the 19th century, there were attempts at flying gliders aircraft heavier than air. In 1903, the Wright brother made the first real flight engine airplane "Flyer".

2.3.5 Development of transport in our area

Our area has already passed in prehistoric times and ancient amber major international trade route. The expansion of roads, however, came up during the Great Moravia and early feudalism. On the territory of today's Czech Republic was established in 1750, 96 postal stations and 16 postal Prague based connections. Slovakia's road network over the Czech Republic is very lagged.

Gradually develop the rail and waterways. In the period between the wars spread use of railcars fueled by petrol or diesel engine. Propulsion the early 20th century began to use steam turbines and later low-speed internal combustion engines. Air transport began its history in our country already in 1790, when Frenchman Jean-Pierre Blanchard performed in our country first flight in a balloon. In 1923 the company was founded Czechoslovak State Airlines, intended for domestic traffic and quickly after the Czechoslovak airline designed for international transport.

Before the split of Czechoslovakia was the length of lines in Slovakia about three times less than in the Czech Republic. The reason is about three times larger

area compared to the Czech Republic and Slovakia thus more developed transportation.

3 FACTORS AFFECTING MODAL CHOICE OF THE POPULATION

There are several factors that affect the modal choice of the population in each country. The most important factors include:

- target group - age groups, persons
- time - loss times, transfers
- distance - 1 km, 10 km, 100 km, 1000 km, 10000 km
- costs - parking, fees, fuel
- comfort - services, network availability
- safety

3.1 Target group

The most important factors influencing the choice of mode of transport is the target group, which transport concerns.

3.1.1 School children, younger students

In the first group are pupils, who go to school every day. Their mode of transport affects other factors, which are mainly financial situation of their families and the distance between home and school. However, the most common mode of transport in this case, is certainly walking. The second and third much less commonly option is still right away (with parents) and bus. In larger cities it is a public transport and in smaller towns such as school buses.

3.1.2 Secondary schools and colleges

For students aged about 15 years is pedestrian traffic increasingly utilized. In this group, the most common form of transport certainly shuttle. It is advantageous from the point of view that students have discounts on travel, bus stops at almost every corner of the bus and may even teach or talk with friends. Second place belongs to rail transport, which is mainly used by university students. Transportation by train is fast, simple and comfortable, but the trains go only where they built rails and do not go as often as buses. Rail transport also need to be mostly combined with bus and pedestrian movement to the destination. Many people aged over 18 will receive or buy any used car, which can move around the city, going to school, eventually the brigade. This mode of transport is very popular among students, mainly because that is not for nothing and no one to bind and transport is convenient and fast. The disadvantage is the high cost of fuel or servicing the vehicle, which can not financially provide all students.

3.1.3 Staff

Even in a group of employees can not specify exactly which mode of transport is most typical for them. As with the students, often depends on the financial

situation, so the salary and also the distance between home and work. In this group, the most utilized transport by car. If the spouses have the opportunity to travel to work in the morning and afternoon of work together, this type of transport is very convenient for them also financially. Second place takes bus service. It is used by employees who do not work far from home and who do not want to worry about whether the car is driving at full fight traffic. In third place could still be a rail and a limited number of people who live and work near the railroad and transportation that is easy to avoid traffic congestion.

3.1.4 Private entrepreneurs and managers

Entrepreneurs do not want anyone to bind. They rely on themselves and their car in need of a job. It is also important for them to comfort and quiet, not noisy buses. They are accustomed to traffic and driving with no problem. The disadvantage is the higher financing costs, which often may be included in the cost of their company. The car is also a symbol of entrepreneurial success and social status. With a car you have a chance to calculate the time of arrival, which is very important for them in the program planning. A typical form of transportation for is air travel, which can provide more costly, but rapid transportation. An interesting alternative is the train type IC. The benefits of high speed transport comparable aircraft, which are able to use throughout the working computer or mobile phone. With these services lose business through time, but at the final destination is coming anyway rested and ready to negotiate.

3.1.5 Unemployed and older people

For this group the most typical pedestrian and bus traffic, or their combination. The unemployed can usually not afford to own a car and traveling as a family or just looking for work, the cost of the car would not be able to pay. Similarly, it is the elderly who are no longer able to lead an automobile. They therefore used mainly bus, which is available for them financially. Retirees usually have to travel by bus of public transport or trains for free or with reduced prices, as many of them also used.

3.1.6 Families and tourist groups

Larger groups of people choose the modal of transport by the distance to which they travel. If it is a journey to another country or on another continent, they often travel by airplane. This is advantageous for larger groups financially and temporally. They can also use the bus service with driver or rail transport. But there is less space to carry luggage. For families with children is the easiest way to transport their own car, into which fits well enough luggage and family is not tied to anyone. This transport is fast enough, allowing stop anytime and anywhere. For this his occupation is also appropriate costly.

3.2 Distance

The decisive factor in the choice of transport is the distance at which the target group travels. Passengers can choose way of shipment by route length.

3.2.1 Short distance

For short distances up to 1 km, people are still willing to transport by foot. For those older and lazy people, here is the opportunity to travel by bus, but the entire length of the transport can be extended by waiting periods. In addition to such short-distance bus service is unnecessarily expensive and worth it just for lack of time, possibly in bad weather. At the distance of 10 km is the most common transport by bus or by car. In addition to transportation to school and work, this may be traveling to visit family or for shopping. Price for bus is compared with the price of fuel at such a distance very similar. It depends on the target group, which relates to transport and its demands.

3.2.2 Middle distance

On distances up to 100 km traveling most students to / from school or staff seconded to purchase any materials or lectures, meetings and negotiations. According to whether man need to carry only itself or even some goods may choose between driving a car and rail. These two species are best financially, and provide plenty of comfort. Longer journeys to 1000 km are mostly practiced by transport by car, rail or air. The fastest of these is of course air transport, which is one but also the most expensive.

3.2.3 Long distance

For ways over 1000 km passengers in most cases choose air travel. All other modes are inefficient and are becoming more adventure travel than a mere transfer from one place to another.

3.3 Time

The time that is required for transport, includes not only the actual carriage, but also waiting times for selected transport in combined transport and waiting time to change various security and customs checks or time lost in traffic jams and the parking.

3.3.1 Individual transport

For pedestrian traffic, which is only used for short distances, time loss is almost zero. A person with normal movement stops only at traffic lights and pedestrian crossings and the journey has really just the time needed for transport. The second is the least time-consuming road transport. Many people prefer it because it works on simple principle "sit down and go". To transportation must be included downtime, often to road transport. However, many people overlook the little things, because the car is for them the most convenient

mode of transportation, what they can imagine, and it is also fast enough.

3.3.2 Public transport

For bus services to the total time for the journey must include already waiting period. To go to bus stop, there is necessary to go earlier. It is better than be there late. Rail transport is very similar to the bus transport, with the difference, that the trains stop only at their stations, which are mostly located on the outskirts of villages and in cities near the center. However, it is much faster compared to the bus. Fast trains and InterCity trains have a few stops moving and their speed is over 100 km/h.

The quickest form of transport is air transport. Air transport is in this time very popular. The problem is that the financial cost of fuel, maintenance and miscellaneous charges, does not permit to fly short distances. Air transport connects particular places several hundred kilometers away. The carriage by air, however, include the longest waiting time, whether before or equipment breaks. Time is prolonged and security control, marking and loading of baggage, passengers boarding on board the aircraft or exit of passengers.

3.4 Costs

If man needs to get somewhere quickly and comfortably, this can be very expensive. Bus, rail and air transport have in every state, even in every village, their conditions of carriage and tariffs determined by the size of the village, population, utilization route network and of course as the necessary cost of operation.

3.4.1 Bus transport

To traveling with public transport and long-distance and international bus lines, you must have purchased a valid ticket or prepaid smart card. There are several companies that operate such services and all have their own price lists with different discounts for students and pensioners. Not forgetting the luggage, for which you must pay in bus transportation. Price of the ticket for public transport depends on the length of travel. For long-haul routes it depends on the distance to the target point.

3.4.2 Runway transport

Runway transport allows transport by passenger trains, fast trains, InterCity trains or subway. All of them, except the last of them, are used for transport between villages, cities and between countries. Metro is the public transport and in Slovakia and the Czech Republic we find it only in Prague, where it has a track about 60 kilometers long. In rail transport, however, distinguishes travel class and mode of travel. There are two classes of travel. First class is more comfortable with a variety of different services and second class basically common with normal services. As for the method of travel, except seat wagons there are couchette, which is mainly used by passengers

when traveling at night. For all the extra services for this type of transport you will pay more money.

3.4.3 Road transport

Transportation by car is currently very popular, but financially costly. Already the cost of buying a car and its actual operation vary quite high and therefore not everyone is able to "feed" the car. The cost of operating the vehicle includes fixed and variable costs. These fixed costs includes rental price, third party liability insurance and periodic inspection, which includes car servicing, roadworthiness and state emissions, tire replacement, oil replacement and brake control and many other routine tasks. Variable costs are fuel, which the owner did not get far without and fluids too.

Road transport can also mean transport by taxi. Taxi prices are too high to enable people to use them for longer distances. However, these passengers not have to pay any additional costs associated with the operation of the vehicle. Taxis service is worthwhile for those, who travel only sometimes. The costs of fuel in the vehicle are sufficiently high, but much lower than taxi service. There are, however, counted all the other costs that make this service more expensive. There is advantage of road transport, that you pay only once for all people in the car. If there are in car four or five people, this form of transport is one of the less costly.

3.4.4 Air transport

The most expensive form of transportation is air transport. Operation of air transportation by the airlines includes an impressive amount of fees that passengers feel in the ticket price. Airfare is composed mainly of the price of transport, airport charges, fuel, safety and handling fee (per booking) and insurance. If a passenger wants to save some money for ticket, he must book it several months in advance or on the contrary, buy it on sale named "last minute". Not forgetting to study the timetable in which passengers can read, how much luggage they may take to with them, if they do not want pay extra money. The simplest is traveling with only hand luggage. Such flights are paid mainly by low-cost airlines. They are very convenient, but less comfortable, so they can be used only saving passengers.

3.5 Comfort

The smallest, yet most comfortable, both in different senses, have drivers in road transport. They do not have to rely on anyone else, find a place to sit, wait at the bus stop or at the airport, but must devote their attention to driving. Its advantages have also bus and rail transport, where people can work on a laptop or make calls or also can sleep. But there is little space and comfort, and if you want sleep, you manage to mostly only for a short while. In addition, there is a possibility that you asleep your stop. So a few minutes travel can be stretched into hours. This has the great advantage of air

travel, where passengers can relax sleeping or reading, can work on your laptop while it operates a flight attendant who cares to him nothing was missing.

3.6 Safety

Everything about safety says accidents statistics and also own sense of a passengers, who choose the mode of transportation. Although the most common accidents occur in road transport, people can still use it more and more. One of the main reasons is certainly the one that they do not want to rely on anyone else, just for them. When a car accident may lead to death, but it may be only minor injuries, such as what is in the air almost impossible. In aviation accidents usually survive only a few passengers. It depends of course on the extent of the accident.

4 CONCLUSION

Although traffic was not very developed in the past, it is now an important part of human life. People use it for both passenger and freight transportation daily. The most common mode of transport is the car transportation, which caused the rapid construction of roads and vehicles, thanks to which you can get almost anywhere. Favorites are two kinds of public transport, there are rail and bus transport, which are mainly used by passengers with requirements for lower costs.

Modal choice depends on the target group that chooses the mode of transport. The most important are speed, respectively, the time for which the traveler needs to deliver to the destination point, the distance of the target point, the price of transport, transport safety and the level of service and comfort during transport. Statistics and analysis of the questionnaire showed that the most popular form of transport is road transport, thanks to the convenience it provides.

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