

As a Sustainable Transportation Issue, Evaluation Of Dolmush-Taxi Transition in Bursa, Turkey

[Safak Bilgic and Polat Yaliniz]

Abstract—Dolmush is a shared taxi system, which has a fixed route. This paratransit system is very popular in Turkey for a long time. The system offers cheap and comfortable trips like a private car in city centers. But the system has low capacity by comparison to other public transit systems and many dolmush drivers cause traffic problems in city center. Therefore many Turkish municipalities try for transition from dolmush to taxi. But there is no prediction study about “after transition”. Many passengers can prefer using of their private car and therefore traffic and parking problems can increase in city center. Because dolmush isn’t an unproductive alternative of bus system, it is a very productive alternative of private car usage. Therefore, it needs a detailed study about after transition.

Keywords—Dolmush, Carpool, Taxi, Sustainable Transport

I. Introduction

Dolmush is a shared taxi system, which has a fixed route. This paratransit system is very popular in Turkey for a long time. The system offers cheap and comfortable trips like a private car in city centers. But the system has low capacity (only 4 passengers) in comparison to other public transit systems and many dolmush drivers cause traffic problems in city center. Therefore many Turkish municipalities try for transition from dolmush to taxi.

II. Transportation Problems of Bursa

A. Transportation System of Bursa

Bursa has nearly 1.7 million population in city center in 2010. Automobile ownership is 112 per 1000 inhabitants. Automobile ownership in years plotted in Figure 1.

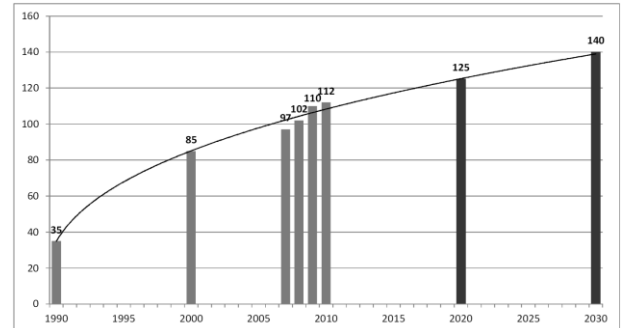


Figure 1. Automobile ownership per one thousand people in years

Bursa has a LRT system since 2002. Modal distribution rates of trips given in Table 1.

Table 1. Daily Trip rates for modes

Modes	Rates for 2010 (%)	Estimation for 2030 (%)
Automobile	16.6	23.7
Taxi	0.4	0.4
Public transit	25.1	26.7
Service buses	15.2	17.6
Pedestrian	42.2	33.7
Bicycle	0.5	1.9

Distribution in public transit given in Table 2 for 2010 and 2030.

Table 2. Distribution in public transit

Modes	Rates for 2010 (%)	Estimation for 2030 (%)
LRT	18.1	25.5
Bus	49.7	45
Minibus	22.6	20.7
Dolmush	9.6	8.8

Safak Bilgic
 Eskisehir Osmangazi University, Faculty of Engineering and Architecture,
 Department of Civil Engineering, Eskisehir
 Turkey

Polat Yaliniz
 Dumlupinar University, Faculty of Engineering, Department of Civil
 Engineering, Kutahya
 Turkey

B. Dolmush Paratransit System in Bursa

Dolmush system has 556 vehicles and 36 fixed routes in Bursa. Greater Municipality of Bursa offers taxi transition to dolmush owners. Transportation officers say that “Number of taxis in Bursa, is very low and dolmush causes traffic problems in city center”.

III. Advantages of High Occupancy Vehicles

Many companies and local authorities have introduced programs to promote carpooling. In an effort to reduce traffic and encourage carpooling, some governments have introduced high-occupancy vehicle (HOV) lanes where vehicles with only two or more passengers are allowed to drive. HOV lanes can create strong practical incentives for carpooling by reducing travel time and expense. It is common to find parking spaces reserved for carpoolers in some countries.

A. Dolmush-Carpool Comparison

Many overcrowded cities propose Carpool system which is very similar to dolmush system. Carpooling is seen as a more environmentally friendly and sustainable way to travel which reduces carbon emissions, traffic congestion on the roads, and the need for parking spaces. Authorities often encourage carpooling, especially during high pollution periods and high fuel prices.

B. Taxi System in Bursa

Taxi system has 841 vehicles in Bursa. There are 1734705 inhabitants in city center in 2012. So, 0.485 taxis for 1000 inhabitants.

Transportation Department officers of Greater Municipality of Bursa say that “There are 0.45 taxis per every thousand people in Bursa. The numbers of taxis are 1.8 in Istanbul, 3.5 in Athens, 3 in London, 4 in Brussels and 7 in Paris for 1000 inhabitants. The number of taxis in Bursa are very low when compared with others.” in web page notification. But there isn't any explanation about why this rate is 7 in Paris and 3 in London.

There are a few studies about ideal number of taxis for cities. Schaller's study investigates 118 US cities. Figure 2 shows the results of the study.

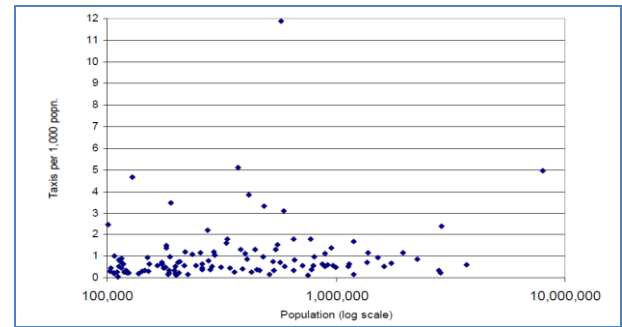


Figure 2. Taxicabs per 1000 population for 118 US cities

As seen in graphic, there is no ideal taxi number for cities; it depends to a lot of factors like population, population density, income levels, other public transport systems and land use. Washington DC has 12 taxis for one thousand people, but there are big differences in taxi numbers between the cities which have same population.

IV. Dolmush Transition

There is no prediction study about “after transition” in Bursa. Many passengers can prefer using their private car usage and therefore traffic and parking problems can increase in city center. Because, dolmush isn't an unproductive alternative of bus system, it is a very productive alternative of private car usage. It is cheaper than private car usage and taxi. Also it is faster than bus system. So, today, many automobile owners prefer dolmush for downtown trips. If a little part of passengers tends to automobile usage, parking and traffic problems can increase in city center.

The most distinctive features of the taxi system compared to other public transportation systems are high comfort and high cost. So, taxi system suitable for high-income people in Turkey. In the other hand the low-income citizens often use this type of transport is quite rare in special cases such as hospital, wedding and funeral trips. So dolmush owners don't want to compulsory dolmush-taxi transition. They disapproved taxi stands which determined by Transportation Department of Greater Municipality of Bursa, because of income uncertainty.

V. Conclusions

Finally, Greater Municipality of Bursa postponed dolmush-taxi transition, because of dolmush owners and users' reactions.

In this study, dolmush-taxi transition and possible results evaluated as a sustainable transportation issue. Inadequate studies about transportation problems can cause wrong decisions and bigger problems.

References

- [1] Greater Municipality of Bursa. Transportation Master Plan, 2013.
- [2] B. Schaller, "A Regression Model of the Number of Taxicabs in U.S. Cities," *Journal of Public Transportation*, Vol. 8, No. 5, pp. 63–78, 2005.

About Author (s):



Assist.Prof.Dr. in Civil Engineering
Dept. Transportation Division at
Eskisehir Osmangazi University.
He was born in 1973 in Zonguldak,
Turkey.
He graduated from Anadolu University
Civil Eng.Dept. in 1994. He finished
his MSc in Eskisehir Osmangazi
University in 1996 and PhD in Istanbul
Technical University in 2002.



Assist.Prof.Dr. in Civil Engineering
Dept. Transportation Division at
Dumlupinar University.
He was born in 1972 in Eskisehir,
Turkey.
He graduated from Anadolu University
Civil Eng.Dept. in 1994. He finished
his MSc and PhD degrees in Eskisehir
Osmangazi University.