

TP.19: EVALUATION OF TRANSPORT POLICIES ON PUBLIC TRANSPORT IN PALESTINE

Amjad Issa¹ and Sameer Abu Eishesh²

¹Assist. Prof., Department of Civil Engineering, An-Najah National University, Nablus, Palestine, amjadissa@najah.edu

²Prof., Department of Civil Engineering, An-Najah National University, Nablus, Palestine, sameeraa@najah.edu

ABSTRACT

The paper presents and discusses the national policies on public transport considered by the Palestinian National Authority since its establishment in 1994. The evaluation of the Ministry of Transport policies on public transport assists in better planning and operation for this sector. Based on the information collected from primary sources and field surveys, analysis is conducted covering bus and the taxi modes. The implementation of the policies met mixed success. The number of permits granted for shared-taxis are not determined based on sound criteria. Lack of subsidies to support bus transport, which is fully owned and operated by the private sector, threatens the sustainability of this mode. The ministry specifies fares not in total conformance with those could result from their adopted fare formula considering data collected for a sample of routes. The prevailing policies need to be modified to enhance the competitiveness of mass public transport.

Keywords: Ministry of Transport, Public Transport Sector, Transport Policies, Palestine

Introduction

One of the principal components of the transportation systems in both developed and developing countries is public transportation, which provides mobility to a considerable share of the population. The definition of public transport varies from one location to another, depending on the type of service. Public transport is that transportation system which is considered as for-hire to the public. It includes buses, trains, taxis, and shared-taxis modes. If public transport did not satisfy the population needs in a suitable way, transportation mobility problems could occur.

The current situation of the public transport service in Palestine in general and in the West Bank at specific indicates that about 67% of West Bank households are fully dependent on public transport and 97% regularly use public transport. Moreover, public transport consumes 19% of total income due to high maintenance costs of the old bus fleet and the forced use of taxis with limited availability of other public transport alternatives [1].

Public transport in Palestine has consisted for decades of three modes; buses, shared-taxis (including intercity vans), and taxis. Since the establishment of the Palestinian National Authority (PNA) in 1994, after about 27 years of Israeli occupation of the West Bank and Gaza Strip, there have been no major developments observed in the public transport sector. There were no funds assigned by the PNA from its budget to the development of the public transport facilities or to directly subsidize public transport services. As public transport is owned and operated by the private sector (firms or individuals), the PNA depended on the private sector initiatives to develop the sector. There was one exception, where the PNA arranged with the Dutch government to support the purchase of Dutch buses by Palestinian bus firms.

Public transport in certain cities and on long-haul routes is provided by medium-sized and full-sized buses. This is supplemented by shared-taxis (mainly 7-seat vans), which operate on these routes as well. Shared taxis also operate to provide short-haul services within the larger cities (mainly 4-seat cars), and from cities to surrounding villages. Private taxis are available for individual point-to-point transport.

Public transport services are regulated by the Ministry of Transport (MOT), which sets relevant policies and keeps records of public transport routes, vehicles, and services characteristics. This implies that every bus and shared-taxi is required to have a permit, which specifies the route on which it must operate. The maximum number of shared-taxis to operate on a line is also regulated by the MOT. The determination of fares is another responsibility of the MOT. The MOT also has the right to give a certain bus company concession rights to exclusively operate on a certain route.

Due to the absence of PNA power on the ground in most of the West Bank, as more than 60% of its area is classified as Area C, which is still controlled by the Israeli occupation, there has been weak monitoring and control of public transport. This has affected the implementation of regulations related to public transport. The research will concentrate on the West Bank, due to difficulties to obtain reliable data on Gaza Strip.

The followed methodology includes the review of relevant studies, whether national or international, and collection of field surveys. Some of such data were gathered from previous or recent studies. Analytical approaches are used to evaluate the current criteria considered by the MOT and the application on the ground concerning number of issued permits, fares, and subsidies. Based on that proper conclusions and recommendations are drawn.

The paper is composed from the introduction followed by the research objectives. Next the literature review for local and international relevant policies is provided. After that the data collection and the analysis and assessment are introduced. Finally, the conclusions and recommendations are presented.

Research Objectives

The motivation behind this research is the general observance of the lack of enough regulations and policies on public transport or the improper implementation of the prevailing policies in Palestine. There is a need to have a well-planned and operated public transport sector through proper transport policies. As one general example, excess in capacity in terms of the number of shared-taxis/taxis is observed, where their numbers increased significantly during the past two decades, on the expense of buses, as the PNA resumed granting permits after years of strict control by the Israeli authorities. The resulting increase in the number of shared-taxis/taxis has caused an increase in the share of these vehicles in the traffic flow on the already congested urban streets. This problem is one of several problems related to public transport, which requires examining and assessing the governmental policies on public transport.

The aim of this research is therefore to analyze and evaluate the current policies applied by the MOT in the field of public transport in order to guide the MOT in developing proper regulations and recommend proper courses of actions. Therefore, the evaluation of one of those policies, as related to fares, is to be conducted considering comparison of the adopted fare formula compared with the respective fares resulting from actual data for a sample of routes. Specific objectives also include identifying proper procedures to assist in predicting the number of shared-taxis and buses needed and comparing the results with the existing numbers. In addition, the research objectives include the evaluation of the MOT policy regarding the bus companies as related to the application of exclusive rights and subsidies, which could affect service sustainability.

Literature Review

The development and management of public transport sector is a key issue in both developed and developing countries. Study and analysis of similar policies in other countries are beneficial. Different countries adopted different policies, which reflect on encouraging the use of public transport modes rather than private vehicles and automobiles. The objectives of these policies aimed to fulfill transit riders needs such as: regulation and order, safety, comfort, privacy, environment protection, rational fares, and to maximize general utility through traffic regulations imposed by the government (i.e., on licensing, permits, tariffs, etc.).

As main issues in public transport policies management that discussed in this research include: permits, determination of number of shared-taxis and buses required, governmental subsidization to public transport, and fares calculation, it will be beneficial to review the respective MOT governmental policies in other countries such as Jordan, Singapore, and UK. But before so doing, the following paragraphs review the relevant current situation in Palestine.

- **Public Transport in Palestine**

After the establishment of the PNA, operation permits have been awarded based on the population in each area, where, for example, for any shared-taxi mode, the permit is rented by 10,000

New Israeli Shekel (NIS) and renewed annually. The PNA criterion in granting permits is one shared-taxi permit for each 500 inhabitants in the service area [2].

Regarding buses, the MOT used to specify the maximum allowed age of a bus as 15 years. During the second Intifada, which erupted in the year 2000, the age was increased to 24 years and the ministry is not enforcing this at the present time. Several bus companies in the West Bank complained that they are losing money in their operations, and that they cannot afford purchasing newer fleet. The shared-taxis are the most widely used type of public transport and are operated on most internal (urban) and external (inter-urban) routes. They compete with bus services on the routes they operate on. All shared-taxis operate on the route specified on their licenses, but for an additional charge, most shared-taxis are diverted from their routes to take passenger to or from a particular point. The number of shared-taxis increased since the year 2000, as the MOT lessened the tight measures to grant permits and made it more affordable as they reduced the annual permit fees by 75%, from NIS 10,000 to 2,500 nowadays [3].

The World Bank, for example, conducted three relevant studies related to public transport sector. In 2010, it published the report “Technical Assistance in Public Transport Sector Performance and Tariff Setting” [4] and in 2009, the Bank published the “Technical Assistance in the Passenger Transport Sector Development” report [5]. Few year before that, the World Bank published the “West Bank and Gaza Transport Sector Strategy Note” [6].

Accordingly, the MOT established formula for estimating the total number of permits to issue, as well as the fare for each type of public transport. The number of permits is mainly based on population and their distribution. The formula implies that a certain number of people require a specific number of shared-taxis, private taxis, and buses. The MOT established fares for routes of each type of public transport. This fare is calculated based on a cost plus a profit margin for each route. The cost per kilometer is calculated for each public transport mode based on fuel (diesel) consumption, vehicle registration fees, insurance, vehicle deterioration and maintenance, taxes, and driver’s wage. The regulation of the MOT specifies that within the city, a flat fare is charged, irrespective of distance, but for external long journey routes, fares are based on distance for buses, but are fixed for shared taxis.

- **Public Transport in Jordan**

In 2010, the Land Transport Regulatory Commission (LTRC) became responsible on all land transport facilities instead of Public Transport Regulatory Commission (PTRC).The LTRC aims to regulate, control the land transport services and encourage investment in the land transport sector in line with the objectives of economic and social development [7].

The public transport sector does not receive any significant financial support from the state, which is not surprising considering that public transportation is not among its priorities. The state acts as though this sector should be financially self-sufficient, and therefore should cover its costs. LTRC determines fares according to a formula it has developed that addresses factors such as the price of fuel and general capital and operating costs, as well as the operator's profit margin, and assumes a certain occupancy rate. Criticism, however, has been made that the formula does not take into consideration the particularities of different routes, specifically as related to issues such as the number of users (reflected in the occupancy rate). As a result, the formula may work well for some operators, but not for the others. Many bus operators accordingly are only able to make a profit by

lowering the frequency of bus trips and not initiating trips until their buses are full. This, in turn, results in poor quality of service and lower liability [8].

Subsidies for public transportation are almost nonexistent. The only support currently provided for the sector relates to the routes serving a limited number of universities in the country that are located outside urban centers. The annual subsidies provided for these routes amount to about six million JD, and they are exceptional in nature in that they are only provided because of the geographic remoteness of these universities (hence the students are the only users of those routes). This was not considered as appropriate, as subsidizing the country's public transportation network as a whole and improving the quality of services will have positive effects on the economy and on the quality of life in the country [8].

A permit is the approval issued by LTRC or the competent party to passenger transportation means that allows them to offer passenger transportation services of various kinds (regular, private touristic, rental). Permits are granted annually. The law prohibits the offering of passenger transportation services upon the expiry, suspension, or cancellation of a permit, and doing so incurs the risk of legal accountability and a fine of 5,000 JD. The law prohibits the use of a vehicle for the private transportation of passengers without a permit, irrespective of whether the vehicle is being used for a fee or for free. The law imposes a penalty of 50 – 500 JD for anyone operating a vehicle without a permit. Available statistics indicate that there are 0.2 buses per 1000 people, even though a preferred ratio is one per 1000 people [8].

• **Public Transport in Singapore**

In 2013, the Public Transport Council (PTC) adopted a fare review framework recommended by the Fare Review Mechanism Committee (FRMC). Under the framework, the allowable fare adjustment quantum is based on a formula that is pegged to macro-economic factors. The formula also includes a productivity extraction component that will benefit commuters in the form of lower fare adjustment [9].

The formula, which is valid from 2013 to 2017, is as in equation (1):

$$\text{Fare Formula} = \text{Price Index} - 0.5\% \quad (1)$$

where

$$\text{Price Index} = 0.4\text{CPI} + 0.4\text{WI} + 0.2\text{EI} \quad (2)$$

CPI: Change in core Consumer Price Index over the preceding year.

Wage Index (WI): Change in Average Monthly Earnings (Annual National Average) over the preceding year, adjusted to account for any change in the employer's Central Provident Fund (CPF) contribution rate.

Energy Index (EI): Change in Energy Index which is a composite of cost changes in electricity and diesel.

0.5% = Productivity extraction set for 2013 to 2017.

While the formula gives the allowable fare adjustment quantum, the PTC may vary the quantum to be granted at each fare review period, or defer it to the next review period.

• **Public Transport in UK**

Transport for London, the local government body responsible for the transport system in Greater London, published in 2013 the taxi cost index and showed a proposed increase to taxi fares of 1.0

percent. Since then, the cost index has been revised to include the most recent fuel cost and the proposed increase to taxi fares is now 0.7 percent. The current cost index provides a reliable and tested method for reviewing taxi fares and allows the local government to ensure that fares are set at a level that enables drivers to recover their operating costs and maintains an acceptable level of income for drivers but also does not excessively raise fares to the point that taxis are completely unaffordable for many members of the public, in particular elderly and disabled passengers who are heavily reliant on them.

The cost index is composed from the following components (cost per mile of each component): vehicle cost, parts, tires, garage and servicing premises, garage and servicing labor, fuel, insurance, miscellaneous, the knowledge, social costs, and average national earnings [10].

Data Collection

The data needed for policies assessment was collected from various sources. These can be classified according to such source, nature, and characteristics into three types as follows:

1. Palestinian Central Bureau of Statistics (PCBS) Data: The PCBS was entrusted by the PNA to be the party that produces the official statistics. It provides periodically important socio-economic characteristics including population, employment rates, registered vehicles (including public transport vehicles), fares, trade and services establishments, income, etc.
2. Ministry of Transport Data: The data were obtained from the Department of Licensing in the MOT. The data included the documentation on the criteria for calculation the number of buses, shared-taxis, and taxis, and well as on fare estimation.
3. Field Survey Data: Previous In order to calculate the required number of permits for a public transport mode, such as shared-taxis supply)based on actual number of passengers who use the same mode (demand). This was collected from previously or recently conducted field surveys in Palestine [2, 11].

Tables 1-3 illustrate samples of data collected. The external shared-taxis include the intercity and the routes from center of governorates to nearby villages and towns.

Table 1: Number of Permits per Type and Governorate in the West Bank

Governorate	Shared-Taxi		Private Taxi	Taxi Offices
	Internal	External		
Jenin	30	554	448	61
Tubas	0	105	74	13
Tulkarm	135	389	338	40
Nablus	675	517	814	51
Qalqilia	3	155	245	17
Salfit	5	90	50	14
Ramallah	298	860	748	89
Jeicho	25	72	131	7
Jerusalem	0	30	45	12
Bethlehem	181	530	343	25
Hebron	210	1,075	967	50
Sub-Total	1,562	4,377	4,203	379
Total	5,939		4,203	
Grand Total			10,142	

Source: [12]

Table 2: Number of Routes and Corresponding Buses per Governorate in the West Bank

Governorate	No. of Public Bus Companies	No. of Routes	No. of Permits	No. of Operated Buses
Jenin	18	50	156	155
Tubas	5	13	41	40
Tulkarm	3	20	91	85
Nablus	13	43	174	155
Qalqilia	2	8	21	14
Salfit	1	8	21	21
Ramallah	12	27	171	140
Jericho	2	17	70	70
Jerusalem	7	9	49	39
Bethlehem	9	18	127	86
Hebron	16	40	236	170
Total	88	243	1,157	975

Source: [12]

Table 3: Fare (NIS) from Nablus to Different Governorates Centers for Shared-Taxis

From	To	MOT Fare	Calculated Fare	Charged Fare
Nablus	Awzrta	4.5	4.56	5.0
	Iraq Burin	3.5	2.98	3.5
	Jurish	8.5	7.7	9.0
	Maythalone	9.5	9.47	10.0
	Doma	8.5	8.8	8.5
	Majdal	7.5	8.45	8.0
	Talfeet	7.5	7.07	7.5
	Beit Forik	4.0	3.72	4.0
	Tel	4.0	3.82	4.0

Source: [11, 13]

Analysis and Assessment

Based on the MOT regulation on public transport sector in Palestine, the number of vehicles to operate for each of the modes (buses, shared-taxis, and taxis) and the respective fares are identified following certain criteria. The previous criteria (up to 2007) implies that the number of permits to be granted to operate on a certain route is identified based on population that the route serves. Table 4 shows the number of shared-taxis and buses based on MOT previous formula.

Table 4: The Inhabitants per Permit for each Public Transport Mode

Public Transport Mode	Inhabitants
Big size bus	5,000
Small size bus	2,500
Share-taxi	500
Taxi	1,000

Source: [2]

The number of permits awarded by the MOT increased during the second Intifada due to increased unemployment rate. The new criterion (since 2007) adopted by the MOT depends on the real need based on the demand. The number of issued permits for a route depends on the daily reports of MOT traffic inspectors, prepared to monitor and control the public transport service. The main factors considered are the number of trips and the occupancy rates, and these are used in conjunction with the current number of permits (buses and shared-taxis) to examine needed changes in the number of permits for a route.

The application of the criteria, whether old or new, considers each mode alone without the effect of the share of other modes on a specific route.

In case of deficiency in service, where the number of granted permits for a certain route is found to be not enough, and for bus services, at specific, the MOT issued new permits through competition process between three bus companies. For shared-taxis, the MOT considers transfer of the needed number of shared-taxis from one route to another based on the demand, and if this is not feasible or does not satisfy the need, new permits are granted [3].

It has to be stated that currently there are no clear policies set by the MOT towards the granting more attention to using buses and gradually reducing the dependency on shared-taxis. The reason behind that may be related to the existence of the strong union of shared-taxis operators.

As for the fare structure, the regulations of the MOT considers the distance travelled is the basis for fare for buses for external routes only, otherwise the fare is flat for internal routes. For the shared-taxis, however, the fare is flat for internal and external routes.

The MOT sets the values for public transport fares for both buses and shared-taxis per kilometer (i.e., kilometric tariff). This tariff is reviewed and calculated normally every six months based on the fuel prices (especially diesel). The MOT generally follows a number of steps in calculating the tariff for a certain route of distance in km average speed in km/hr, and time in hours. The main items included for bus public transport are depreciation, fuel, maintenance, income tax, value added tax, driver wage, overhead expenses, parking, and registration expenses for buses. For shared-taxis, the permit fees are added to the previous items [2].

According to the World Bank [5], setting of performance criteria and tariff for each public transport mode (bus and shared-taxi) would require some basic studies including the following:

- Fuel consumption of various public transport vehicles and routes,
- Distance and average travel time for each route and each mode,
- Number of trips for each direction per day per route per mode; and thus the average number of one-way trips per vehicle per day could be estimated, and
- Average percent occupancy of the all trips in both direction for each route.

The calculation of the recommended tariff for the public transport operation is based on the above different components. An interactive and user-friendly template (in the format of .xls) was developed with sample routes calculations. The template is comprehensive and includes all possible tariff components; yet flexible and may be used for various modes, routes, and operational options. In addition, tariff components may be added or omitted. The designed template includes 40 columns, out of which 28 columns are input data, information or decision making parameters. The remaining 12 columns are calculated. The accuracy and usefulness of the tariff formulation is directly related to the accuracy of the input data. Annex 1 of the report provides the template's spread sheet and sample data and calculation of tariff estimation for several buses and shared taxis routes.

Comparing the calculated fares considering real data with the fares set by the MOT for a sample of routes in the Northern West Bank shows that there is a difference of fares ranging from zero to 19%. This implies that in a number of cases there is a considerable deviation in the set fares with respect to the calculated ones based on actual data especially as related to demand.

The applied subsidies for public transport from the MOT are introduced through numerous forms (not necessary direct monetary subsidies); such as the currently implemented policy of free or lowers customs on purchases of new buses and taxis) and the reductions of registration and permit fees, etc. Based on interviews with the MOT representatives, it is found that the MOT had recently decided that bus companies do not have the open concession rights, as these have to fulfil service

obligations. If any bus company does not comply with the licensing agreement, another bus company will be chosen through competitive tendering process inviting three companies to bid to serve the same route.

The subsidization issue represents the main challenge to the MOT. The MOT helps the public transport operators through reducing the permit fees and through customs exemptions. Moreover, for bus fleet at specific, the PNA and Netherlands government signed recently an agreement to subsidize the bus companies through the ORIO project. The aim of the project is to improve the public transport system with support from a Dutch fund [1]. The objective is to upgrade and expand the bus fleet, and to enable the creation of additional routes. It also aims to have appropriate tariffs and lease rates, and eventually achieve consolidation of services and defining clear service standards for bus companies, and to reform the institutional settings as related to public transport within the MOT.

Conclusions and Recommendations

The paper has assessed the policies that had been considered to regulate the public transport sector in Palestine. For the existing modes of public transport, the bus, shared taxi and taxi, the study presents the findings in four major policy areas as related to the basis of granting operation permits, the fare set for service, the subsidies and the concession rights.

The study findings show that despite the existence of specific policies that have been considered by the MOT in order to organize the public transport sector, and consequently better serve the Palestinian community, there are still limited policies that support the sector as to be able to develop and compete with the private automobile. In addition, there are no policies that support mass transport as compared with the shared-taxis.

The findings also show that the numbers of granted permits are not based on studies of demand or service variables, but on the observation of the MOT traffic inspectors. Calculated fares for a sample of routes based on collected data do not coincide with the charged or MOT fares. Bus concession rights for specific routes are now linked with the quality of provided service; although there is no strict observance to adherence to time schedules. No direct subsidies are provided to the public transport, which is totally owned and operated by the private sector. This would not support the bus service, at specific, to be able to provide the anticipated service quality.

It is recommended to revise the policies so as to encourage public transport in general in order to provide better mobility to the larger share of the population and to assist in reducing the mounting traffic congestion. Specific policies need to be devised to encourage mass transport and reduce the dependency on the shared-taxis. This might be achieved through increasing number of buses operating on highly demanded routes (either inside the urban area or externally). This will not be possible without considering policies that imply having direct governmental subsidies to mass public transport.

Moreover, it is recommended to redistribute the permits for shared-taxis and taxis based on the demand for each route. The new distribution should take into consideration introducing new buses for highly demanded routes. It is also recommended to continue linking bus concession rights with quality of service provided and to have a mechanism for monitoring and evaluation.

It is recommended that the MOT intensifies its efforts to establish the Palestinian Public Transport Authority (PTA). The PTA will be responsible for determination of the fare formula taking into consideration all relevant variables. Moreover, the PTA will also improve the quality of

the public transport services. This should be part of the intention with MOT exhibited recently to reform the sector.

Acknowledgement

The authors thank very much the MOT representatives for their cooperation and providing the necessary data.

References

- [1] Netherlands Commission for Environmental Assessment Report (2015). Process Advice EIA Public West Bank. Palestinian Territories (ORIO 13/pt/01).
- [2] A. Issa, "The Impact of Ministry of Transport Policies on Public Transportation in Palestine," M.Sc. thesis, Roads and Trans. Eng. Program, An-Najah National Univ., Nablus, Palestine, 2006.
- [3] Ministry of Transport (2017). Periodic Report, Directorate General Traffic Observer, Ramallah, Palestine.
- [4] World Bank (2010). Technical Assistance in Public Transport Performance and Tariff Setting. Final Report.
- [5] World Bank (2009). Technical Assistance in Passenger Transport Sector Development. Final Report.
- [6] World Bank (2007). West Bank and Gaza Transport Sector Strategy Note. Final Report.
- [7] M. Al-Humood (2016). Public Transport Projects in Urban Areas. Land Transport Regulation Commission, Amman, Jordan.
- [8] The Center for the Study of the Built Environment and The Friedrich Ebert Foundation (2017). Public Transportation in Jordan: A Policy Study Report, Amman, Jordan.
- [9] <https://www.ptc.gov.sg/regulation/annualFareReviewProcess.htm>
- [10] Transport for London (2014). Taxi Fares and Tariffs-Annual Revision. Finance and Policy Committee.
- [11] K. Darawsheh, "Fare Estimation for Public Transportation in Palestine: Northern Governorates of the West Bank as a Case Study," Draft M.Sc. thesis, Roads and Trans. Eng. Program, An-Najah National Univ., Nablus, Palestine, 2017.
- [12] Ministry of Transport (2015). Final Annual Report, Ramallah, Palestine.
- [13] Ministry of Transport (2015). New Tariff Report, Ramallah, Palestine.