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Public Transport in Developing Countries

Rendra Adinata [a] ∗, Wike Wike [b], Alfi Haris Wanto [b]

[a] *Batu municipality government, East Java, Indonesia*
[b] *Departmet of Public Administration Brawijaya University, East Java, Indonesia*

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ABSTRACT

The changes and challenges in public transport in developing countries are need to be address with the right policy, yet to make the right policy, we need to identify the main problem and characteristics of public transport in developing countries itself. This article explains the characteristics of public transportation in developing countries using literature review. In general, it is based on its organization, multimodal transport planning and finance, fare control, fare exemptions and social obligations, vehicle specifications, competition and regulation and finally ownership and investment.

1. Introduction

Over the past decade, the continuous growing of cities in developing countries in the world has been accompanied by also continuous growing in car ownership. These lead to the change in the conditions of traffic circulation within these cities (Ramli, et al., 2012). Further, rapidly growing population, urbanization, and the widespread using of motor vehicles have resulted in mobility challenges in the developing countries such as traffic accidents, congestion, air and sound pollution as well as high energy use. In facing these change and challenges, there's a need for a good transport planning in the developing countries. It especially focusses on using more sustainable mode of transport, particularly public transport. However, before this alternative used to address the problem on developing countries transportation, we need to know the characteristics of public transport planning in developing countries, such as in Latin America, Africa, South Asia and South East Asia. This article aims to give an explanation on how public transport in developing countries characterized using literature review.

2. Discussion

In developing countries, population grow much faster than car ownership level (Iles, 2005), therefore, the dependencies of this growing population toward public transport is increasing. In most countries, even though walking is the most common mode of travel, it is limited in its range. Thus for farther range of travelling, people need a mode of transportation such as car or motorcycle. But the more people using private vehicles, the more problem occur, such as congestion, traffic accidents and high energy use as well as pollution. Public transport such as bus or train is one alternative to reduce the number of vehicles running on the road. However, in developing countries, the public transport services facing deteriorating problems in the face of increasing demand (Rodrigue, et al., 2013). Inadequate public transport services in developing countries are caused by a complex and inter-related factor (Pojani & Staed, 2015). For example, bus services maybe unreliable because of lack of maintenance of the vehicles; this in turn may be due to lack of funds, which itself maybe attributable to the form of regulation arising from inappropriate political decisions. According to Gwilliam (2000) the characteristics of public transport in developing countries are:

2.1. Organization

In the developing countries, there has been trends of decentralization of responsibility from central government to local government for urban public transport (Gwilliam, 2000). It is mainly due to the urge

∗ Corresponding author. e-mail: adinata.rendra@gmail.com

to distribute the burden of subsidizing public transport from central budget into local government budget, also in the hope that if it is managed by local government, the efficiency will be improved (Jirón, 2013).

However, the fact in the field talks differently from the target. By distributing the responsibility of public transport to the local government, the problem occurred when transporting in multi municipality region like Manila and Caracas (Gwilliam, 2000). The jurisdiction of each municipality are overlapping thus resulted in conflict of interest from each region. The impacts of this conflict can be seen in Venezuela public transportation. It is a complex mix of private and public, often overlapping, ventures that move an estimated twelve million commuters daily. The subway Metro system is a public enterprise and covers most of the city, but it is understaffed and overused. The Metro is now free as its nominal fee for tickets is so irrelevant it is no longer collected. But street-level public transportation, and service to the difficult-to-access hillside barrios are mostly covered by fleets of privately own buses and all-terrain vehicles. For the most part drivers, or cooperatives of drivers, own their own buses and operate within unions that cover specific routes (Hernáiz & Smilde, 2018).

2.2. Multi-Modal Transport Planning And Finance

In most developing countries functional responsibilities within the transport sector are also fragmented, with little attempt to rationalize transport planning and management at the metropolitan level (Gwilliam, 2000). In Bangkok, public buses are operated by the Bangkok Mass Transit Authority (BMTA), which allows private subcontractors. The major informal transport modes in Bangkok area include passenger vans and motorcycle taxis. They primarily serve as feeder systems to urban rail modes (Muromachi, et al., 2015).

The lack of an institutional focus for comprehensive urban transport planning has a number of adverse effects. At the very simplest level there have been quite severe physical conflicts between systems in Bangkok in such matters as providing for traffic to pass from one toll way operator to another or designing grade separations when systems cross (Gwilliam, 2000). Ad hoc approval of private promoters' schemes has also imposed significant contingent liabilities on governments for interchange and distribution facilities in cities like Manila (Mijares, et al., 2014).

The interaction between private and public transport is the most critical point for policy coordination (Pettersson, et al., 2018). Without coordination between these two parties, there will be chaos in public transportation. When private company tried to minimize their loss from their expenditure with raising fare, government subsidize public transport so the fare keeps low. This will only lead to conflict and competition.

Even within the public transport sector there are some difficult issues concerning financial coordination (Gwilliam, 2000). Comprehensive multi-modal ticketing and revenue sharing systems are rare. On a more limited basis metro systems have their own bus feeder services in Kuala Lumpur, Caracas and Santiago (Abd-Rahman & Abdullah, 2016; Hernáiz & Smilde, 2018; Oliveira, et al., 2018). As the role of the private sector increases the more difficult the maintenance of multi-modal ticketing systems might appear to be (Meyer, 2016).

These coordination issues have been addressed by some countries, such as Brazil with its Regional Transport Coordinating Committees (Oliveira, et al., 2018). The issue raised by that experience is the extent to which it is realistic to seek the establishment of multi-jurisdictional, multi-modal transport planning and regulation agencies at the conurbation level in the absence of more comprehensive reform of local government organization.

2.3. Fare Control, Fare Exemptions and Social Obligations

The economic relevance of public transit is being questioned. Most urban transit developments had little if any impact on alleviating congestion in spite of mounting costs and heavy subsidies. This paradox is partially explained by the spatial structure of contemporary cities which are oriented along servicing the needs of the individual, not necessarily the needs of the collective. Even in transit-oriented cities such as in Europe, transit systems depend massively on government subsidies. Little or no competition is permitted as wages and fares are regulated, undermining any price adjustments to changes in ridership. Thus, public transit often serves the purpose of a social function ("public service") as it provides accessibility and social equity, but with limited relationships with economic activities (Rodrigue, et al., 2013).

Most public transit systems have abandoned a distance-based fare structure to a simpler flat fare system (Rodrigue, et al., 2013). This had the unintended consequence of discouraging short trips for which most transit systems are well suited, and encouraging longer trips that tend to be more costly per user than the fares they generate. Information systems offer the possibility for transit systems to move back to a more equitable distance-based fare structure (Pojani & Staed, 2015).

The unwillingness to consider fare increases stems from some sort of feeling that there is a maximum fare that is affordable, and that fare control is necessary to maintain that. That view has been encouraged by Alan Armstrong Wright's famous proposition that journey to work transport costing more than 15% of disposable income is unacceptable. But the effects of that prescription may be to contribute to the financial failure of the public companies' basic services (Armstrong-Wright & Thiriez, 1987). This differentiation actually is not totally bad, because with this, the passengers have the liberty to choose between a better service but more expensive with poorer service but cheaper fare.

However, it needs to be maintained in a better way so that there is no conflict appear due to fare differences.
Another concern is about social obligations, which means that public transportation should also consider those people with disability such as those who use wheel chair, or people with sight disability. However, in the developing countries, these matters are become least prioritized compared to economic gain (Lucas, 2004).

2.3. Vehicle specification

For public transport in developing countries, the provisions are ranging from small animal and pedestrian powered vehicles which can carry one or two passengers only, to specific bus which is designed to carry more than 200 passengers. Each of these vehicles has their own role and can complement each other to support population mobility (Iles, 2005).

The first specification of vehicle in public transport is its size. It is important to consider the size of a vehicle to meet specific transport requirement. There are trade-off between fare, speed, efficiency and accessibility in this consideration. Using train for example, can minimize cost, thus lowering fare and can transport more passenger each time with faster transfer speed, but it can't reach more remote area with smaller access road. On the other hand, small vehicles like mini-van, due to the cost to operate this mode, the fare is relatively higher than train, and limited passenger to transport with also longer time to reach destination, but it can reach smaller access road which means gives more services to the citizens in remote area. This illustration can be seen in figure 1, where there is a trade-off between average speed and accessibility in each public transport mode.

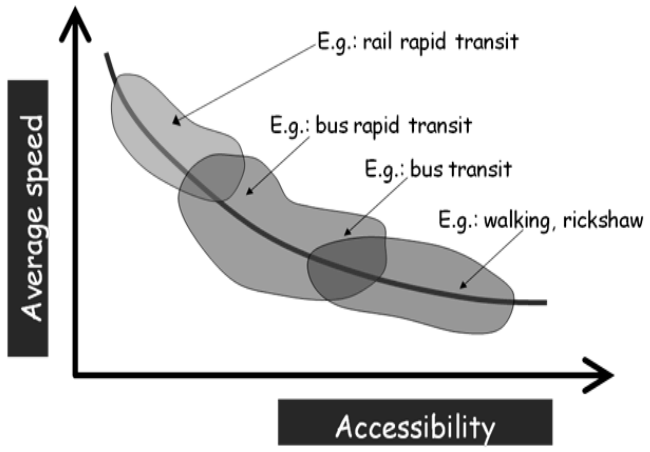

Figure 1. Balancing Access and Speed (Verma & Ramanayya, 2015)

In developing countries, the number of small vehicles that act as public transport provision are more than bus, tram or train (Iles, 2005). There are many reasons these phenomena occur. For instance, congestion externalities enter into the calculations of governments, but not of operators, and may well explain the government preference for larger vehicles in congested cities such as Lima. Availability of finance often limits the informal sector to small vehicles which can be bought with family savings. This is often compounded by regulations which give greater freedom of entry and fares to vehicles below specified size (usually in the range of 12 to 16 seats) (Gwilliam, 2000).

2.4. Competition and regulation

Supporting public transport fund only with government budget is very burdening, thus the central government try to distribute its responsibility and authority to manage transportation to ease this burden (Gwilliam, 2000). However, for local government this problem is still become a burden for them, thus initiating the public private partnership in some countries, such as Thailand, Malaysia, Indonesia, and Brazil. In other countries the solution brought out is to relate the public transportation to private party. In Bangkok for example, the financial collapse of BMTA that has driven a progressive transfer of service supply to the private sector. But, for whatever reason, it is happening.

According to Ramli, et al. (2012), there was less use of economic instruments in the choice of policies taken by the developing countries to overcome the transport problems. In particular, there was no policy in place to reduce the need to travel and to encourage a modal shift from private to public transport. The effort to promote the use of cleaner and more fuel-efficient vehicles was not really taken by the public. In addition, Malaysia, Thailand, and Indonesia rely more on direct regulatory measures to control transport emissions, including the vehicle emission standards and vehicle inspections programme, with a combination of economic instrument that is limited to excise duty and taxes on fuel and vehicles. This has very little impact on switching people from private to public transportation (Ramli, et al., 2012).

That highlights the fact that many governments still need to be convinced that stability and reliability in public transport service can be achieved in a competitive regime. For that reason, which may not be entirely good, competitively tendered franchising systems, accompanied by the development of associations of independent, informal sector operators into legal associations offer an attractive form of private sector participation for many formerly socialist regimes. Strategically, the demonstration that quality of service can be improved and fares reduced through competitive tendering of some routes operated by smaller vehicles may be an important element in convincing governments of the merits of competition (Gwilliam, 2000).

2.5. Ownership and Investment

There is a paradigm in society that only state own enterprises or public companies can or will provide social services without focusing on profit. To some extent, this is resulted from the fact that there are change in public transport ownership from public sector to

private sector due to inability of the government to give financial support to social services but has been unwilling to grasp the nettle of permitting fare increases (Gwilliam, 2000). In Venezuela for example, the subway Metro system which is a public enterprise and covers most of the cities, but is understaffed and overused to the point that in 2018, the public transportation has basically collapsed (Hernáiz & Smilde, 2018).

There are numerous reasons why the private sector, and particularly the informal sector, is viewed with suspicion. Often, they have developed only quasi-legally, and still carry some stigma. When they are outside the regulatory regime, they may also be unreliable. In particular they tend to be much more favorably treated for taxation than the formal sector. Franchising is partly attractive in the central Asian countries as a means of bringing the informal sector into the tax net. Addressing the public transport supply problem through private sector involvement is certain to meet resistance unless these sorts of fiscal distortions can be eliminated (Meyer, 2016).

3. Conclusion

To conclude, public transportation in developing countries are characterized by its organization where central government distribute their responsibility to local government which resulting in conflict of authorities in multi municipality region. The second one is in its multimodal transport planning and finance, where functional responsibilities within the transport sector are fragmented, with little attempt to rationalize transport planning and management at the metropolitan level. In accordance to fare control, fare exemption and social obligations, developing countries typically using flat fare system with some regulation regarding the standard fare by the government. Furthermore, transport equity consideration in developing countries hasn't been priorities in transport planning compared to economic consideration.

In developing countries, small vehicles are dominant as a provision for public transport due to its accessibility factor and its procurement factor. Even though there are trend for some megacities in these developing countries that shifting in mass rapid transport mode regardless of its finance. In terms of regulations, many governments still need to be convinced that stability and reliability in public transport service can be achieved in a competitive regime. Thus, relieving some responsibility to private sector is needed and competition can make a better change for public services. Finally, skepticism toward private sector to take care of public transport become the last characteristics of public transport in developing countries.

There needs a change of paradigms in the developing countries to change how public transport run and manage. Also there need a collaboration between public, private and community to ensure public transportation can benefit all parties and help in region and human development.

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