

アジアの都市における長期的都市交通戦略

—ハノイ市における旅行行動分析と政策評価—

Long-term Urban Transport Strategies for Asian Cities

—Travel Behavior Analysis and Policy Evaluation in Hanoi City—

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1. Background

The special conditions of Asian developing cities call for more innovative strategies to develop urban transport system in the long run. One of which is the dominance of motorcycles due to lack of quality public transport services. However, the dominance of motorcycles has caused the problems of poor traffic safety and the decreasing of public transport. An integrated transport system—where MRT/BRT lines play as the backbone and private vehicles, including bicycles, motorcycles, and cars to some extent, serve as feeder modes—can be an innovative solution. So many Asian cities proposed ambitious plans to develop mass rapid transit systems. Can it solve the problem of motorcycle dominance? There might be uncertainties in changing people's travel behavior that may risk the effectiveness of investments. Alternatively, better understanding on people's travel behavior may help better planning of the MRT network, such as line alignment, station space, parking and terminals to connect with other modes. For instance, Hanoi—the most motorcycle-dominated city in Asia with a modal share of over 80% of the total motorized trips—plans to develop an extensive mass rapid transit system, consisting of 8 MRT lines and 5 BRT lines. One of the objectives is to attract a large number of motorcycle users. The question here is whether such ambitious plan may be able to do so? If not, what are other supplementary policies that are required to achieve the intended modal shift? Unfortunately, the travel behavior in the long term is not well understood.

2. Research Objectives and Method

This research aimed to answer the critical questions above by conducting a person trip survey in Hanoi city. The main objectives were to capture the people's existing travel behavior patterns, and examine their behavioral responses to different policy scenarios. The results would be helpful in the practical planning of the mass rapid transit system and the introduction of the supplementary policies or regulations. The person trip survey was conducted in May 2012, consisting of 800 samples.

3. Travel Behavior Analysis for Hanoi City

The analysis of revealed preferences found that mode preferences vary differently across income

groups. The poor prefer to choose bus or bicycle for low cost, while the middle and higher income people choose motorcycle for higher speeds, and the rich choose car for comfort, safety and business enhancement purposes. Interestingly, the presence of school children in the household increases the possibility of linking commuting trips with the trips to pick up or send off the children. The trip chaining behavior not only demonstrates the convenience and flexibility of motorcycles, but also calls for the coordination with land-use policies to further encourage the modal shift to MRT system. In addition, cars are perceived as a “business investment”, thus it might be extremely difficult to shift the car users to the improved public transport system in the future.

The analysis of stated preference survey showed that bus service improvements (including BRT) may be not effective to attract a large number of motorcycle and car users until the MRT system is introduced. Higher income people are less likely to choose BRT, but they may choose MRT. Household motorcycle ownership is likely to reduce the choice of both MRT and BRT in the future. Surprisingly, there might be a significant number of motorcycle and car users still choosing their vehicles despite the MRT introduction and the imposition of high parking fees. About 40% of the motorcycle users would still use motorcycles to commute distances beyond 20 km. The motorcycle user's trip chaining behavior and the car's perceived business-enhanced value may explain for the people's resistance to modal shift.

4. Conclusions

In the long term, Asian cities need to invest in the development of MRT system to attract a large number of motorcycle and car users. However, as there might be significant resistance of the private vehicle users to shifting to MRT system, it is suggested to consider other supplementary policies. These may include strong regulations to restrict or prohibit motorcycle ownership and use, and convert motorcycles to a feeder mode. At the same time, it is required measures to control private car ownership and use at early stage. Developing cities need to conduct travel behavioral survey that take into account of the long-term behavioral changes.