

アジア各国における自動車とバイクの保有率の関連性分析

Dynamic interactions between Motorcycle and Car ownership in Asia: A cross-country analysis

ブウ トゥアン アン 研究員

1. 研究の背景

In developing Asia, there are two special transport problems that call for innovative policy measures. One is the rapid motorcycle growths at low income levels and its dominant share in urban transport because of its low operation costs and poor public transport services. Another is the dominance of buses in inter-city transport due to its lower fare as compared to other modes (rail and air). However, as income increases and services of some modes improve further, such behaviors may change drastically. And such uncertainties in travel behavior may create the risk of making the wrong investment in the long run.

2. 研究の目的、構成、考察対象

The objectives of this research are to explore and understand long-term trends in travel behavior focusing on influences of socioeconomic and infrastructure/services changes, and recommend policy solutions for sustainable transport systems in developing Asian countries.

To pursue the objectives, the research framework consists of the following steps. The first step explores the long-term trends in private vehicle ownership and travel behavior (frequency, distance and mode choice). The second step analyzes the dynamic interactions between the infrastructure/services and the users. Finally, policy measures are suggested.

The research focuses on both urban and inter-city passenger transport in a number of developing Asian countries (Vietnam, Indonesia, Thailand and Malaysia) and developed countries (Taiwan, Korea and Japan).

3. アジアにおけるモータリゼーションの動向

As a part of the overall study, this section presents preliminary results of the analysis on the long-term motorization trends in selected Asian countries using country and provincial level time-series data. The motorization is measured by the number of private vehicles namely cars and motorcycles per thousand population.

The country-level analysis found different patterns of private vehicle ownership across the countries. At lower income stage, motorcycle ownership (MCO) grows at extremely high rates, as a result, the high MCO accelerates the car ownership (CAO). At higher income stage, two major trends are found. First, MCO is replaced by CAO as experienced by Japan and Korea. Second, CAO is stabilized at lower levels while MCO continues growing as observed in Taiwan. An important question to

policy makers in the developing countries is what pattern the rest of Asia may follow in the future? Is it Japan's, Taiwan's or other pattern?

The provincial-level data analysis for Vietnam (1995-2008) and Taiwan (1979-2008) showed different patterns of private vehicle ownership across cities and provinces in the same country. Comparing to metropolitan cities, local cities/provinces may have higher levels and higher growth rates of private vehicle ownership (MCO plus CAO). As MCO goes on increasing with income, it may indirectly impact CAO: CAO may rapidly increase when MCO surpasses 300 motorcycles per thousand people and be saturated when MCO reaches 600 motorcycles per thousand people.

The cross-sectional data analysis for Vietnam (2008) and Taiwan (2009) revealed that across cities, the influence of different factors on the total vehicle ownership may vary by income stage. At lower income stage (Vietnam), income level and urbanization may be dominant factors; however, at higher income stage the influence of these factors is weaker and other factors, such as road density and provision of public transport, play bigger roles.

4. 分析の要約

In summary, the inadequate infrastructures, poor public transport services and the rapid motorization are creating a perfect condition for strong modal shifts to private motorized and unsustainable modes in developing Asia. However, the preliminary results suggest that the special Asian situations strongly call for more innovative solutions with focuses on the changes of the people's travel behavior and the motorcycle phenomenon in the long run.

It should be kept in mind that the motorization trends observed elsewhere may not be applicable in developing Asian countries because the motorcycles can totally change the motorization picture in the region. At lower income stage (as of now), motorcycles rapidly increase, killing urban public transport and encouraging higher car growths. However, at higher income stage, motorcycles may not disappear, co-existing with cars (Taiwan's case), or may be declined, serving as a feeder mode (Japan's case) depending on future policy interventions in the developing countries.

5. 今後の課題

In the next steps, analysis of mode choice behavior with focus on the impacts of infrastructure/services strategies will be conducted in the candidate countries to make policy recommendations.