Big data reveal the costs of living transport in your community

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Summary

1. (Estimation of costs of living transport using big data)

A new approach to estimating transport costs from existing survey-based methods to mobile big data and web crawling.

2. (Concept of costs of living transport)

The sum of direct and indirect costs of the living transit, which is defined as transits from the origin (eup, myeon, dong) to destinations (eup, myeon, dong) that account for at least 1% of the total transits therefrom.

* Direct and indirect costs: direct costs (fuel, taxes, etc.) and indirect costs (time value, KRW/time)

3. (Regional differences in costs of living transport)

The costs of living transport in Gyeonggi Province (560 eups, myeons and dongs) estimated using big data: KRW 200,000 in the southern Gyeonggi region in proximity to Seoul; KRW 400,000 in the northern Gyeonggi region; and KRW 700,000 in the outskirts of Gyeonggi.

* Assumption: One roundtrip living transit by a passenger car for regional comparison with the same criteria.

4. (Differences in costs of living transport by income level)

The costs of living transport in lower income areas in Gyeonggi are KRW 140,000 higher than low-middle income areas and KRW 300,000 higher than higher income areas, meaning people in the lower income areas pay more for living transport.

5. (Share of costs of living transport in total income)

How much the costs of living transport account for in the total income vary regionally: 5% in the first-generation new towns in the capital region such as Bundang, Gunpo and Dongan District in Anyang; and 10% in the second-generation new towns such as Namyangju, Hwaseong, and Gwangju.

Policy proposals

1. To take advantage of big data for policy purposes, identify how to converge different sets of big data by ensuring full understanding of data between the producers and processers of big data.

E.g., mobile big data + web crawling (travel time/distance information) ⇒ estimating costs of living transport.

2. The starting point of narrowing the gap in the costs of living transport should be understanding how much people in different eups, myeons and dongs are paying for living transport. The data therefrom should be accumulated for time series monitoring.

E.g., Estimating the costs of living transport in rural areas in proximity to provincial borders ⇒ introducing wide-area bus services to agricultural and fisheries villages, estimating the use of expressways by living transits ⇒ offering toll discounts.

3. Identify directions for more efficient investment by adding living transport infrastructure to the government's 10 major projects for living social overhead capital.

E.g., Building a mid-size library with a bigger collection and improving accessibility thereto by improving living transport infrastructure would benefit more citizens compared to building small libraries indiscriminately.