

Effect of Honam KTX Launch

from the perspective of Flow Big Data

Jonghak Kim Research Fellow

Korea Research Institute for Human Settlements

Summary

1. Flow Big Data enables tracking of changes made in transportation facilities as a result of the launch of Honam KTX, which was not possible through previous statistics data.

- Flow Big Data refer to data which is processed in a pattern of flows showing real-time record of one's location and behaviors through medium of credit card or cell phone.
- Flow Big Data are particularly useful in space hierarchy analysis as it can be applied in any time of the day without time bound.

2. Change 1: Reduced time-distance parameter by the launch of Honam KTX - Compact use of national land

- Results from the spatial-temporal analysis has shown that the compact effects of national land occurred by Kyeongbu-Honam KTX is 22.4%(22,000km²).
- Launch of Kyeongbu KTX and Honam KTX have brought compact land use in national territory respectively in which the compact effect accounting 16,000km² equivalent to 16.3% of Korea's territory and 6.1% of 6,000km².

3. Change 2: Credit card Big Data analytics - Increased credit card use among external population after the launch of KTX

- Card spending of Gwangju residents at Yongsan Station and Seoul residents at Gwangju Songjeong station have increased respectively to 43.2% and 71.7% signaling positive impacts for both.

4. Change 3: Mobile Phone Big Data Analytics - Shift in population from KTX Cities to KTX Stations

- One of the main reason for such shift towards KTX stations can be traced to recent increases in number of tenants at new apartment and increases in influx of active population emerged from the KTX launch.

Policy Issues

1. If private and public sector put collaborated efforts to conduct datafication of statistics from existing mobile and credit card data, such invented data will not only cut the cost of survey but will either lay the foundation in designing and implementing new policy measure that is aimed to be an imminent response for ongoing social changes.

2. Flow Big Data can be utilized as an indicator to identify indirect impacts of finance-invested transportation projects at the post evaluation stage.
3. Flow big data has great potential to be utilized as an objective evaluation tool for regional policies specially subject to 'Construction Technology Promotion Law' (Article 86) Impact Assessment, 'National Finance Law' Enforcement Decree (Article 3) Finance Project In-depth Assessment, and 'Balanced National Development Law' (Article 22).
4. For sustained positive impacts of KTX and for further development of new growth engine, hyper loop or other super highway transportation shall be implemented in response to make great use of current potentials.