

Consumer Preference for Autonomous Vehicles and Issues in Transport Planning

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Summary

1. To prepare for the commercialization of autonomous vehicles(AV), more definitive research on how development of AVs could affect the transportation systems is necessary.

- AVs are expected to bring about massive changes to our nation's transportation systems, it is difficult to reflect these changes in mid- or long-term transportation planning due to the uncertainties: the timing when AVs make a significant change of the transportation systems, the degree of the impact, the response from consumers, etc. This presents a great hindrance to the effectiveness of transportation planning.

2. The result of a consumer preference survey on AV show that in general the consumer's preference and willingness-to-pay were increased as the level of self-driving capability for car options higher. Indeed, if the respondents have an AV, the frequency of car-use and long-distance (over 100 kilometers) travel would be increased.

- The most important benefits of using AVs included "being less tired when driving" and "being able to do other activities in a car except driving." At the same time, there were concerns about the potential system errors of AV, security, and the higher cost of maintaining such vehicles.

- Regarding the car options of AV, "autonomous parking" was the most preferred. The preference for the car option of "autonomous driving on general roads" increased when it was linked to C-ITS (Cooperative-Intelligent Transport System) services.

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- Respondents were willing to pay for various self-driving options: about KRW 660,000 on average for self-driving on general roads, about KRW 639,000 for autonomous parking, and about KRW 621,000 for self-driving in congested traffic. The frequency of car travel and traffic volume for long-term travel are expected to increase.

Policy Implications

- ① To prepare for the era of AVs, the public sector should play a leading role in establishing an evaluation system that would ensure the safety of self-driving options, guarantee the renewal of electronic equipment and software, keep expenses reasonable for the driving public, and link AV to C-ITS services.
- ② Various transport issues can be expected to arise from the coexistence of autonomous and non-autonomous vehicles and autonomous vehicles with different levels of self-driving capabilities on the roads. A stepwise solution to address such issues is needed.
- ③ To reflect the potential effects of AVs in the mid- and long-term transportation planning, it is necessary to establish an analysis framework for economic feasibility evaluations. In addition, more researches are needed to analyze the impacts of AVs on travel behaviors.
- ④ As autonomous vehicles become more widespread, transport resources (such as traffic penalties and transport, energy, and environment protection taxes) may dwindle. To secure additional resources, it is necessary to consider imposing traffic taxes based on distance traveled, in consideration of autonomous vehicle user patterns.