

The results of compiling EV and its impact on Korean economy

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Electric Vehicle (EV) has been newly created as one of the product sectors from the 2020 benchmark Input-Output tables in Korea. The EV sector was separated from the existing passenger car sector in consideration of the growth potential of the EV industry and the difference in input structure from existing internal combustion engine vehicles. The size of the EV market has been steadily increasing, showing a level of growth that is expected to exceed the sales of non EVs after 2030. Input structure of EV was newly estimated by removing engines and fuel tanks from the input structure of existing car, and by adding batteries, motors, electric converters. The difference in input structure creates a difference in inducement effects on the economy as a whole.

EVs have a greater production inducement effect than conventional cars, but have a lower value added (VA) inducement effect. The EV's production and VA inducement effect can be analyzed by dividing into stages of the value chain. (EV, battery, battery materials) Especially the performance of the battery is the most important component and batteries account for the largest portion of the cost structure. The production inducement effect mainly occurred at the battery stage. The battery accounts for 35.4% of EV's intermediate input, which is why the production inducement effect occurred the most in the battery sector. Meanwhile, the VA inducement effect mainly decreased in the EV and battery material

stages. This is primarily due to the low VA rate of EVs. Because EVs have a small number of parts and a simple assembly process, the labor input is small and the rate of compensation of employees is low. Also, the operating surplus rate is low due to low margins caused by high battery costs. Therefore, the VA created by the EV is low. In addition, as the raw materials of batteries showed high import dependence, the VA that could have been created in Korea was leaked abroad, further reducing the VA inducement effect of EVs.

Recently, the VA overseas outflow on the value chain has changed. Comparing the situation in 2020 and 2023 by stage of the value chain, it can be seen that the amount of imports compared to the output of the battery material is lower, while the amount of imports compared to the output of the battery is higher. This is mainly due to the fact that overseas battery production increases by domestic companies and the batteries are imported to produce EVs in reverse. This leads to VA outflows. The trend is expected to continue for the time being, given the future investment plans of battery companies.

The VA inducement effect of EVs in the future depends on the conditions at each stage of the value chain. If the VA rate of EVs rises as battery costs are stabilized, domestic production of battery companies expands, and the localization rate of battery materials continues to rise, the VA inducement effect of EVs will rise and vice versa. It seems necessary to pay attention to the impact of changes in the value chain on domestic VA.