

Electric vehicle adoption and energy prices: Evidence from four Nordic countries

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Abstract: While the transport sector accounts for around 25% of the EU's total GHG emissions, the adoption of electric vehicles (EVs) plays an important role for EU to reach its net zero emissions goal. In addition to the widely used subsidies or tax exemption for EV purchases, energy prices, i.e., electricity price and gasoline price, can also be considered as instruments for government to induce consumers into EVs over ICE (internal combustion engine) vehicles. Using a unique panel of EV registrations at the product-level for four Nordic countries (Denmark, Finland, Norway, Sweden) from 2019 to 2022, this paper investigates how electricity prices and gasoline prices stimulate the adoption of EVs. The results show that gasoline price has a more statistically significant effect on the adoption of EVs, compared with electricity price. On average, 1% increase in gasoline price would increase the sales of EVs by 0.85% and the effect is larger for EV models with relatively lower purchase cost (where the effect of electricity price on stimulating adoption is also found statistically significant) and those with less-known brands. Further simulation results show that a 1% increase in the gasoline price would reduce the life-cycle GHG emissions of new automobiles by 0.54%. Our study highlights the importance of energy prices in accelerating EV adoption and mitigating carbon emissions in Nordic countries.