Subsidizing Electric Vehicles: Recent Experiences and Interactions with Other Policies

October 25, 2021 NAS Electric Vehicles Workshop

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Federal and State EV Subsidies Appear to Have Big Effects on Sales

Example #1: Georgia eliminates a \$5,000 vehicle subsidy in July 2015



Example #2: Tesla's federal tax credit starts phasing out in 2019



Sources: IHS and Wards Auto

What types of subsidies are most effective?

Given a finite budget, can subsidies be designed more effectively?

- Federal and state subsidies explained about half of plug-in vehicle sales in 2019
- Average fiscal cost >\$15,000 per vehicle

Options for targeting subsidies

- Link subsidy to household income or retail price
- Offer subsides for used purchases



Source: Leard et al. (2019)

Target EV subsidies to low-income households?

How to extend EV subsidies?

- Continue offering uniform subsidy to all buyers
- Link subsidy to household income
- Link subsidy to vehicle MSRP

Perhaps equity and effectiveness go hand in hand

- Low-income consumers tend to have lower EV demand
- They're also more price sensitive







Source: Linn (2021)

Implications of ZEV and CAFE for Plug-in Subsidies

Context

- Zero emission vehicle (ZEV) requirements through 2025
- Recently proposed fuel economy standards through 2026
- Plug-in subsidies effectively reduce incremental costs of these policies

Standards impose larger costs on highincome consumers

- These consumers have high valuation of fuel economy
- They also care more about forgone horsepower

Effects of 2019 fuel economy standards on consumer wellbeing



Subsidizing low-income consumers could be regressive

Income-based subsidies boost sales three times as much as do other subsidies

Vehicle manufacturers don't need to increase gasoline fuel economy as much

High-income consumers aren't as adversely affected by standards

Effects of plug-in subsidies on consumer wellbeing



Key points

Plug-in subsidies explain about half of US sales so far

Directing subsidies to low-income consumers would be more cost-effective than current policy

Because of interactions with other policies, income-based subsidies would be regressive in the short run