An analysis of the macroeconomic effects of 2017-2025 federal fuel economy and greenhouse gas emissions standards

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Summary

• **Research question**: What are the macroeconomic effects of 2017-2025 fuel economy/GHG standards?

• **Main findings**: short-term economic losses but long-term gains
2012 VS. 2016 PERSPECTIVES
Gas Price Projections

Price premium for the average Light-Duty Vehicle due to the CAFE/GHG standards

Source of EPA figures: Federal Register, Table I-24, page 62665
Source of NHTSA figures: Federal Register, Table I-15, pages 62659-62660
Incremental Cost of Producing a Mid-Size Car: NRC Low Most Likely and High Most Likely Estimates, MY 2025

Source of data: NRC (2015)
Market Share

2012 Projection for 2025 (AEO 2012)

- Passenger: 67%
- SUV/light trucks: 33%

2016 Projection for 2025 (AEO 2015)

- Passenger: 52%
- SUV/light trucks: 48%
MACROECONOMIC MODELING
Model

- REMI PI+ 2.0.2: input-output, computable general equilibrium, econometric, and economic geography modeling components
- 160-industry-sector, 9-region
- Baseline: Standards freeze at 2016
- Analysis: 2017-2035
- Indicators: Employment, GDP, Personal Disposable Income

Regulatory Mechanisms

1. Price Premium on Vehicle Consumers (Individuals, Government, Industry)
2. Auto Industry Innovation in the auto supply chain

➢ The scope does not include environmental or security impacts
Price Premium: Employment
Gas Savings (by Calendar Year): Employment

- **2012 NHTSA**
- **2016 Low**
- **2016 High**

Year:
- 2017
- 2019
- 2021
- 2023
- 2025
- 2027
- 2029
- 2031
- 2033
- 2035

Thousands (Jobs): 0, 200, 400, 600
## Cumulative GDP

<table>
<thead>
<tr>
<th>Dataset and Indicator</th>
<th>2017-2025</th>
<th>2017-2035</th>
<th>Break-Even Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHTSA 2012 Perspective GDP (Billions 2009$)</td>
<td>-28.7</td>
<td>308.7</td>
<td>2027</td>
</tr>
<tr>
<td>2016 Low Perspective GDP (Billions 2009$)</td>
<td>-58.9</td>
<td>148.5</td>
<td>2030</td>
</tr>
<tr>
<td>2016 High Perspective GDP (Billions 2009$)</td>
<td>-94.9</td>
<td>93.4</td>
<td>2032</td>
</tr>
</tbody>
</table>
Sensitivity Analyses

• Location of supply chain innovation: percent in U.S. vs. elsewhere
• Gas revenue recycling
• Location of oil supply reductions
• Gas prices
• In future: assumption that 100% of price premium is used in supply chain innovation?
Conclusion

• The economy recovers from the negative shock of vehicle prices:
  – Annual employment: by 2024 or 2025 under 2016 Perspective assumptions
  – Cumulative GDP: by 2027-2032

• Implications for Trump Administration decisions about the future of the CAFE/GHG program?