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The Next Generation of Transportation Policy

Michael Greenstone, Cass Sunstein, and Sam Ori

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Two Facts about the National Program

1. Fuel Savings Have Been Disappointing
2. The Program's Benefits are Expensive

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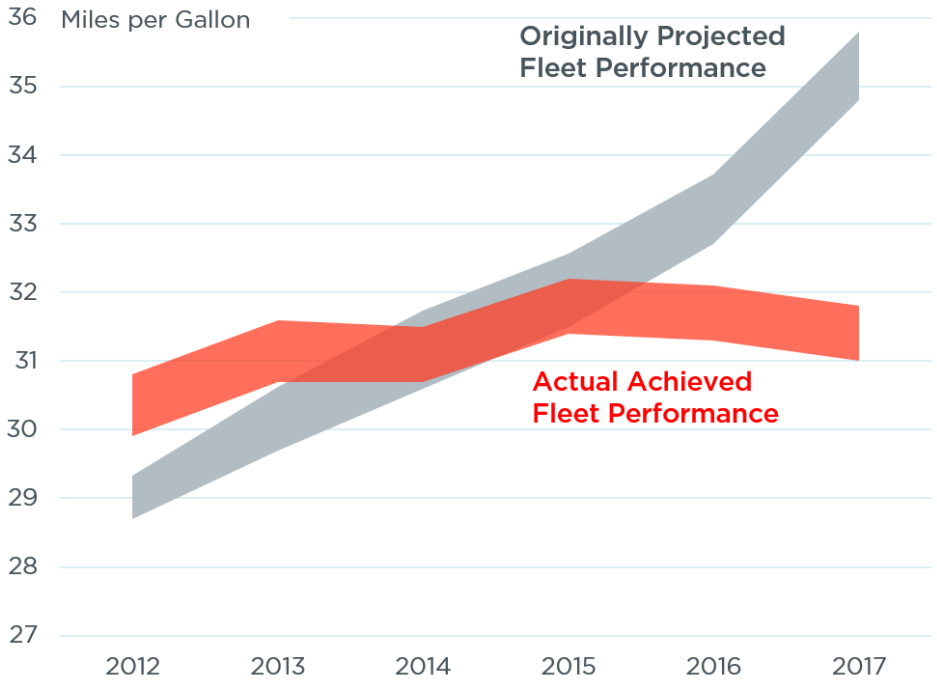
1. Fuel Savings Have Been Disappointing

Projected vs. Achieved Fuel Economy Performance



- Shifting consumer preferences have had a real impact over the past two model years
- Based on the latest data from NHTSA, actual fleet fuel efficiency performance trailed original projections by 1.4 miles per gallon in MY 2016 and the gap could widen to as much as 4.0 mpg in 2017.

Source: NHTSA, EPA

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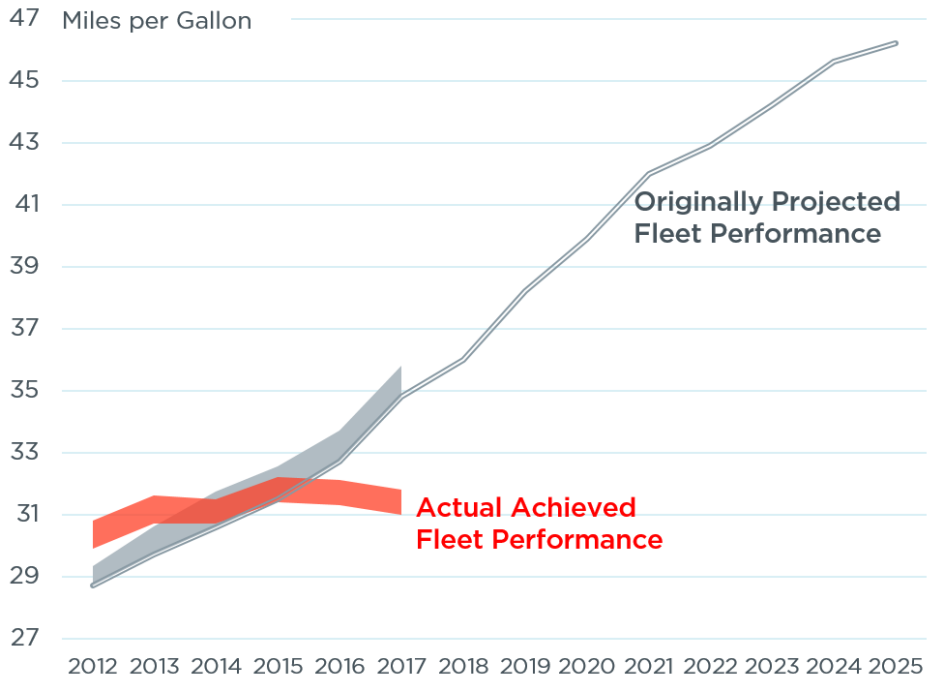

- Headline fuel savings depend on steep improvements in efficiency through 2025
- California and twelve other states have effectively re-affirmed their commitment to this trajectory

Source: NHTSA, EPA

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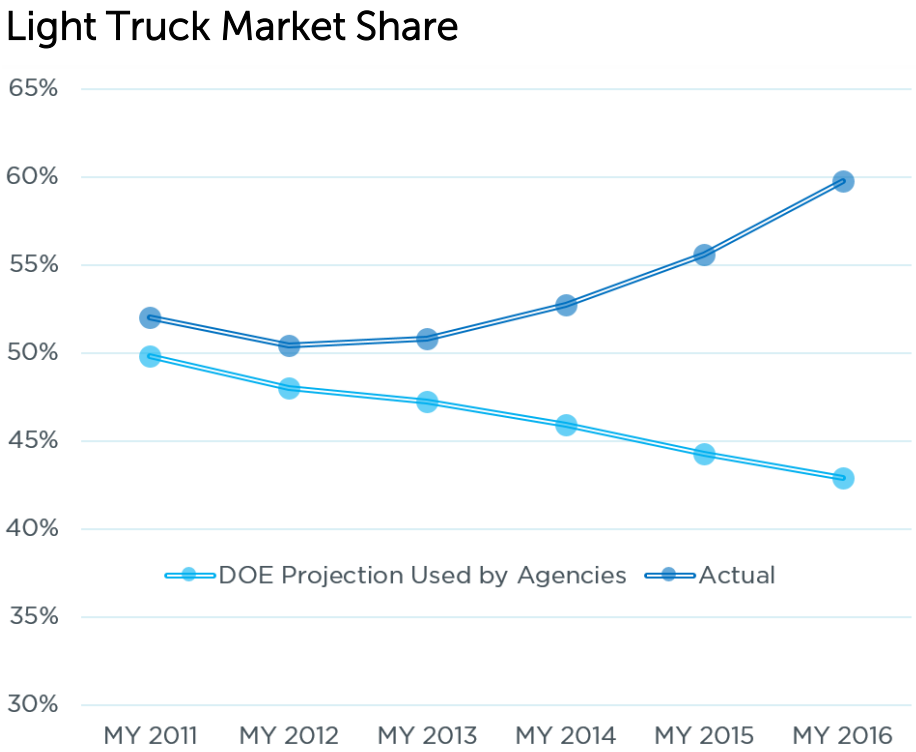

- Differential treatment of cars and trucks and the use of footprint based standards
- Fuel savings depend on the mix of cars versus trucks
- Cheap fuel prices and consumer preferences for SUVs have shifted the fleet toward trucks

Source: NHTSA, BEA

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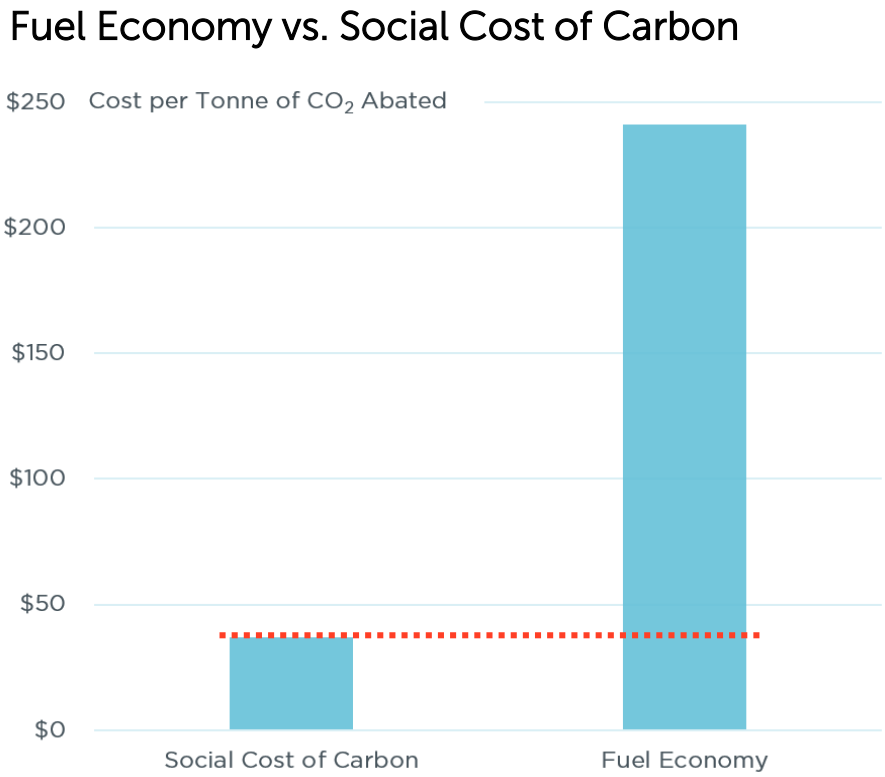
2. The Program's Benefits are Expensive



- Research estimates attribute-based standards have a total social cost of $241 per tonne of CO_2 abated
- USG estimate of social cost of carbon is $37 per tonne

Source: Jacobsen (2013)

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Proposal: A Cap and Trade for Transportation

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Why Cap and Trade?

1) **High level of certainty for emissions reductions**
   - Closer to regulating consumption instead of efficiency
   - Eliminate several weaknesses of the current system, including dual treatment, attribute-based standards, and credit loopholes
   - Cap level would be based on U.S. policy goals

2) **More bang for the buck**
   - Market-based regulation would greatly reduce compliance costs for the auto industry

3) **Could be implemented under existing EPA authority**
   - Does not require new legislation

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Key Steps in Our Approach

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> Regulates expected fuel consumption

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4.

Regulators set-up robust secondary market for permits

- Possible to increase liquidity through financial markets
- Presence of a central broker could reduce transaction costs

Key Issues

1) **Determining Expected Lifetime Fuel Consumption**
   - Vehicle retirement data is already available at the VIN number through state government databases and private vendors like IHS Markit
   - Could eventually use state-level emissions testing data or federal collection

2) **Distributional Considerations**
   - Initial allocation of permits creates the opportunity to address legitimate distributional issues

3) **Comprehensiveness**
   - Could be expanded to include medium- and heavy-duty trucks
   - Could eventually connect with power markets

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The Opportunity

1) The current system is not meeting the goals of advocates or industry

2) The Trump administration has re-opened the 2022-2025 standards

3) CA and 12 other states reaffirmed their commitment to existing standards on Friday, setting up a legal and policy showdown

4) The time is ripe for new ideas

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A Market-Based Approach to Vehicle Regulation

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Identifying Opportunities for Progress on Energy and Climate Policy

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Protecting Urban Places and Urban People from Rising Climate Risk

Matthew E. Kahn

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Proposal #1: Improving key urban infrastructure

- The challenge of aging infrastructure
- The Trump administration has called for major investments in infrastructure
- Key infrastructure ranging from the transportation network, to the electricity grid, to sewer systems now face greater risk from severe storms, extreme heat, and sea level rise.
- What steps can be taken to increase system resilience in the face of increased risks?

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Proposal #1: Three key steps

- **Diagnosing Infrastructure Resilience Risk**
- **Financing Resilience Investment**
- **Evaluating the Effectiveness of New Infrastructure Investment**

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Proposal #2: Protecting the urban poor

- Reducing the likelihood that the tragedy caused by Hurricane Katrina ever happens again
- **Information Provision and Short Run Forecasts**
- **Short Run Protection and Emergency Plans**
  - Uber, cooling centers and point to point transportation
- **Medium Term Adaptation**
  - Migration incentives
  - Land use planning

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Proposal #3: Insurance and water pricing reform

- The coasts are often beautiful
- But, they are increasingly risky and climate change is shifting such flood risk and actuaries have trouble quantifying these risks changes.
- Climate risk disclosure mandates when homes are sold
- Insurance pricing reform to reduce concerns about “moral hazard” effects induced by government subsidized insurance reliance
- The introduction of dynamic pricing for a larger set of water and electricity consumers (the law of demand!)

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Investing in Resilient Infrastructure

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When Real Options Matter

Steve Strongin

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Better functioning markets and climate change

- Increased information collection and dissemination helps to improve repeated decisions, but it's less effective for low-frequency or highly path-dependent decision trees
- Climate change poses particularly difficult problems in that as much of its impact arises from future changes in the tails of distributions and optimal responses often involve choices between mutually exclusive alternatives
- As a result, we often need to take stronger account of path dependencies and coordination problems

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Two broad classes of investment problems
Steady state shifts

1) Steady state shifts

- Kahn's current proposals make a great deal of sense here
- Organizing information to allow normal social planning processes to strengthen engineering requirements:
  - Positive feedback loop: information, standard-setting, climate-resilient investments
- Primary tools are building codes and specifications for public infrastructure
  - Both appropriately addressed at the state-level and can be linked to federal funding sources, including flood insurance

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Two broad classes of investment problems

Migration or major re-imagining of infrastructure

2) Where migration or major re-imagining of infrastructure is required for optimal adjustment: real options matter

- Much of the needed information is about what other economic agents will do (where will they migrate and when?) – not about climate change specifically
- Primary impediments to investment are coordination and anchoring in both the behavioral and engineering sense

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Solutions for migration investment problems

"Re-anchoring"

Optimal solutions to migration problems involve "re-anchoring" at the community level

- Individual agents need to perceive a relatively low level of uncertainty related to adaptation, in order to align actions with other members of the community
- More similar to the economics of "suburban flights" from cities or gentrification, rather than a typical investment problem
- Optimal policy actions will often resemble standard infrastructure spending, creating the skeletons of future communities in less-exposed locations to facilitate and incentivize migration

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Solutions for migration investment problems

Two uncomfortable truths

- When migration is optimal, it is difficult to avoid reinforcing bad anchors with partially-adequate investments and ill-designed flood insurance

- Successful migrations may be associated with historical patterns of the community that were not universally applauded

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