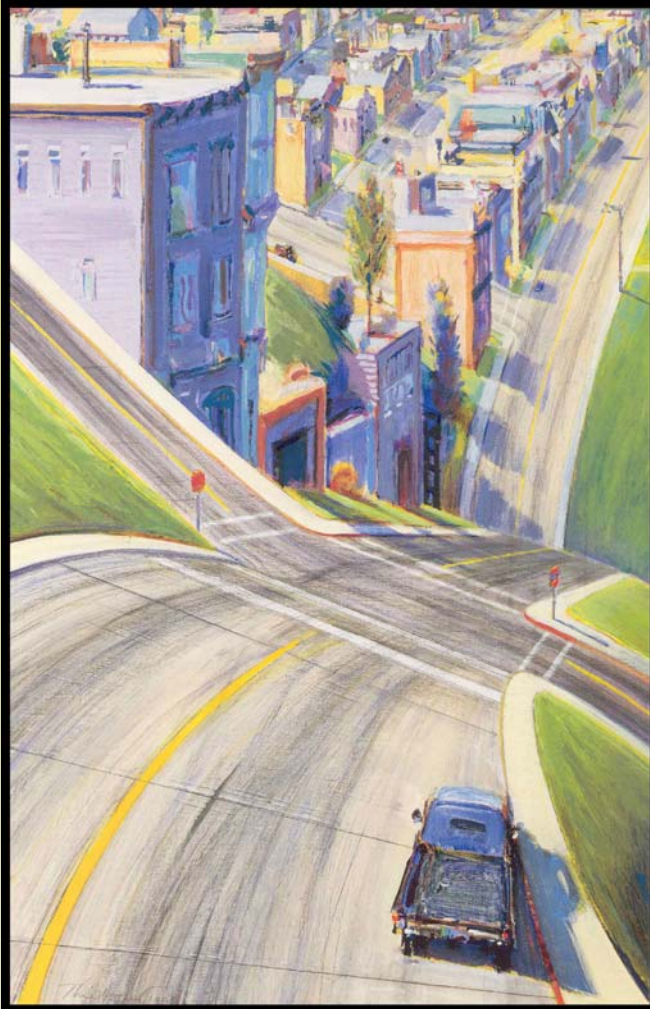


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**Are Consumers
Rational?
And, Will that Change?**
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(with gracious help from Nic Lutsey)

*10th Biennial Meeting on Transportation Energy
and Environmental Policy:
Toward a Policy Agenda for (?) Climate Change*

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Limiting the scope to automobiles, fuel efficiency, fuel economy...

- Are consumers rational?

No.

- Will that change?

No.

- Are transportation and energy analysts rational—in their analytical approaches to consumers?

Yes. At least, most try.

- An alternative approach

- What does this alternative approach mean for policy analysis and design?

What does it mean to be “rational?”

“Each *individual* participating in the society is motivated by *self-interest* and acts in response to it.”

“...*decision* makers are assumed to be purposive individuals whose choices are consistent with their evaluations of their self-interest.”

“...it is assumed that these individuals’ choices could be predicted simply from a knowledge of their *preferences* and the *relevant features* of their *alternatives*.”

Analytically, i.e., not necessarily part of the rational model above,

“...*ceteris paribus*...”

Compare and Contrast Two Approaches

Rational Analytical

1. Decision
2. Individual
3. Self-interest
4. (Pre-existing) preferences
5. Relevant attributes of alternatives
6. Ceteris paribus

“Social Constructionist”

1. Action
2. Social/Communication (creation and exchange of symbols)
3. Self-identity
4. Investment in consumption outputs
5. Symbols and/or accessible attributes of perceived alternatives
6. Less reductionist

1. Actions

How do Car Buyers come to Act?

- Symbols
 - Gasoline prices (e.g., Sequoia to Prius)
 - From deliberative to angry and impulsive
 - But even gasoline prices can stand for—symbolize— something else
 - Hybrids themselves (prompted purchases)
 - Price (and frequency) of a fill
 - Signals escape from/capture by low fuel economy trucks
 - Vehicle Purchase incentives

2. Social, Communicative

Socially constructed purchases

- Imitation: Actions of strong social referents may be repeated by others in their network
 - “They can buy anything they want, and they bought a Prius.”
 - “They are the sort of people who would have investigated this car very carefully.”
- Supporting Group membership

3. Self-identity

Creating, sustaining self-identity

- Actions are taken to create or support self-identity
 - Mustang Sally
 - We'll buy a boat someday, and we'll have the SUV to tow it
- Actions are taken to avoid being someone
 - Why some people won't compare a Corolla to a Prius
 - Young women who don't want to drive minivans like their moms.

4. Investment in Consumption Outputs

Novel Consumption Outputs

“The thing I like best about my Prius is that it shuts off when you stop. When I’m sitting in the line of cars at school, seeing all those other cars and giant SUVs idling, I wonder why everybody doesn’t [buy a Prius].”

- Reducing pollution at her grandchildren’s school
 - From SULEV to a tool to create this new consumption output
 - Her experience with this novel Prius/school/children/ pollution nexus can be communicated to others
- Other novel consumption outputs
 - Investing in energy efficient driving
 - Investing in lower resource consumption, including driving less

5. Symbols and/or Accessible attributes of perceived alternatives

Relevant measures of attributes

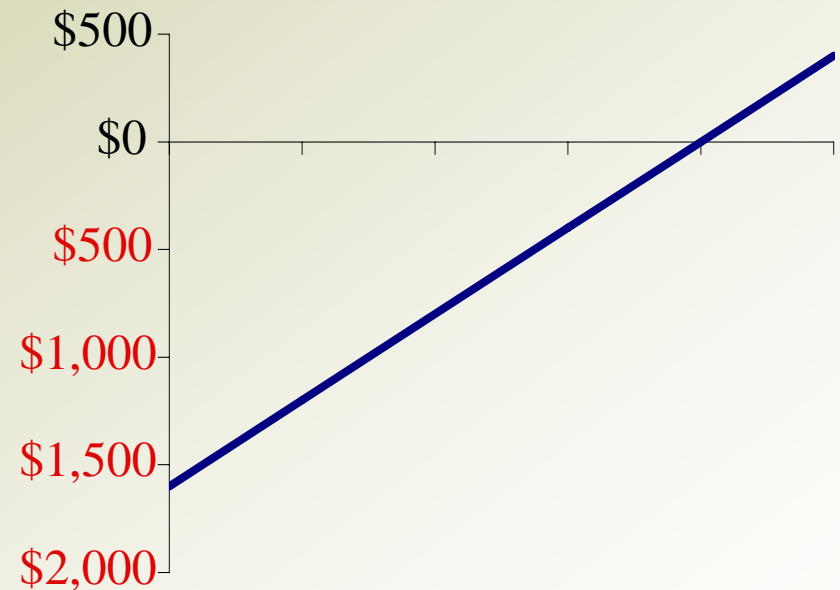
- News of difference—a vehicle with non-incrementally higher fuel economy can symbolize goals other than dollar savings
- High MPG is sought by hybrid buyers in order to:
 - Lower resource consumption
 - Live lighter
 - Limit financial payments to oil companies
 - Limit financial payments to non-democratic regimes believed to fund terrorism
- High MPG is rarely sought as a means to save money per se, but it may represent a “smart consumer, saving money”

6. Why be less reductionist?

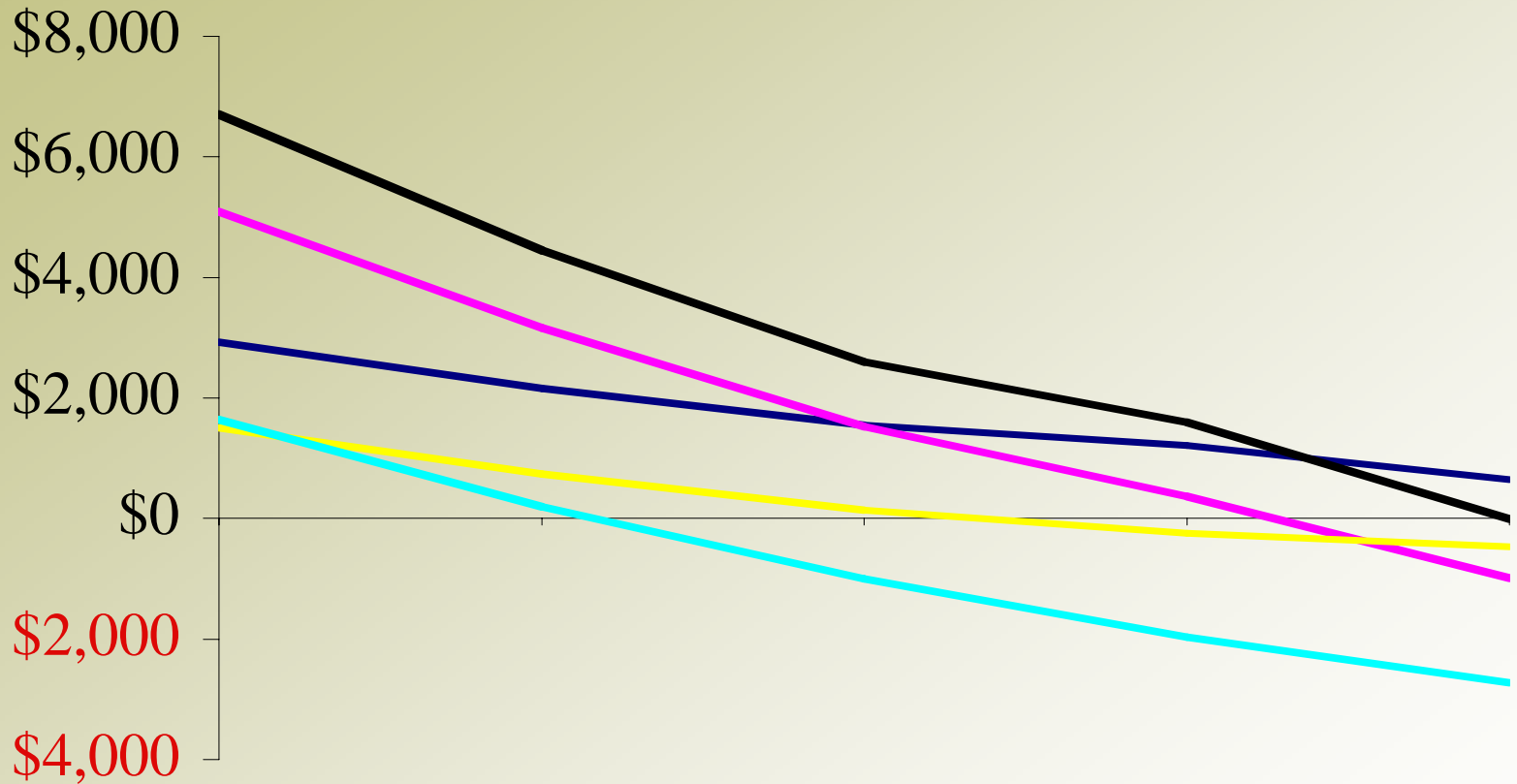
Asking questions about fuel economy

“Suppose that the next vehicle you’ve decided to buy offers an option of better fuel economy, but at a higher price. The savings in fuel costs would pay back the higher price over time. How soon, in years, would the fuel savings have to pay back the additional cost to persuade you to buy the higher fuel economy option?”

- This question states the world looks like this...



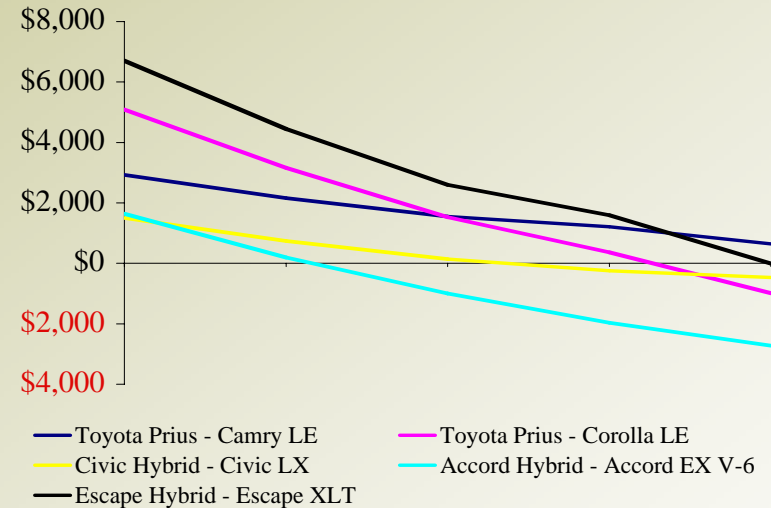
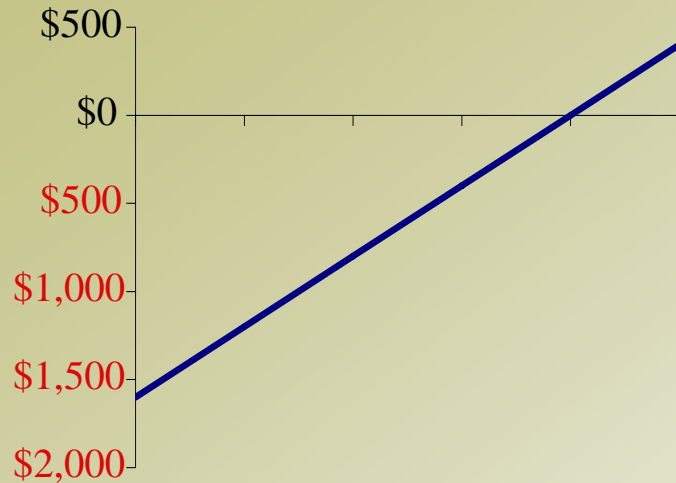
But, the world of hybrids looks more like this...



— Toyota Prius - Camry LE
— Civic Hybrid - Civic LX
— Escape Hybrid - Escape XLT

— Toyota Prius - Corolla LE
— Accord Hybrid - Accord EX V-6

The risks of being too *ceteris paribus*...

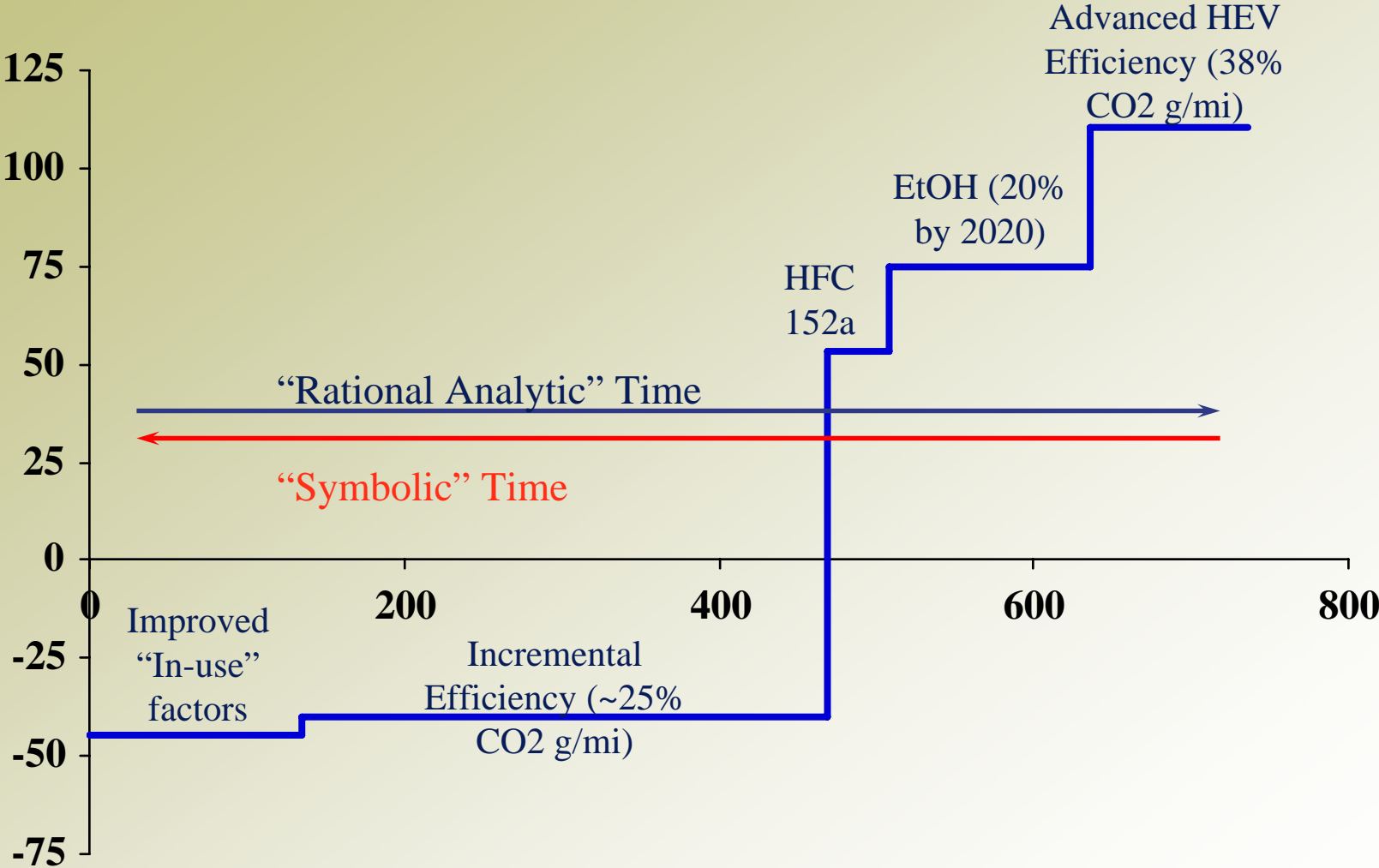


- Our models (questions) should be simplifications of the real world, not misrepresentations.
- Even if consumers accurately answer the question on the left, we risk making incorrect inferences about the real world
 - People respond differently to prospects of losing or gaining even if the possible end states are the same (Kahneman and Tversky)

Implications

“Rational analytic” or “symbolic” time in policy analysis and policy making

Supply Curve Analysis of Vehicle Strategies to Reduce GHGs



GHG Emission Reduction in 2025 (million tonne CO₂ eq./yr.)



Conclusions...

Non-incremental changes in fuel economy

- Non-incremental alternatives allow and may foster non-incremental thinking.
 - Early hybrid buyers didn't buy just (or even importantly) lower private fuel cost.
 - They bought a piece of the future.
 - They bought a less-consumptive lifestyle.
 - They bought the car they believe symbolizes a smart consumer.
 - They bought into a system to produce clean air, lower oil consumption, less terror.
 - They bought symbolic as well as real fuel cost savings

Non-incremental changes in fuel economy

- Will consumers pay more for higher economy?
 - Yes, but...it may be more effective to address symbolic meaning of big shifts in fuel use
 - Even if it is true most people may not pay more for a vehicle to save fuel costs equivalent to the price of a cup of coffee or a six pack of beer...

...it does not follow that they won't pay for a better self-narrative and a better world

Policy Design

- Shift from only a rational analytical framework to include “social construction”
- Initiate and sustain a national conversation about energy, energy efficiency, carbon-free energy, global warming, transportation, automobility...
- The most important incentive is a reason to care
 - Americans, by and large, still have low awareness, knowledge, and consideration of global warming in any decisions they make or actions they take

Take away messages

- Symbolic meaning matters—maybe more than any functional attribute
 - Climate change policy that appeals to the more important (personal) goal of writing our narratives of self-identity is more likely to succeed than policy that (only) meets the test of cost-effectiveness.
- When experts measure fuel economy only as miles per gallon or cents per mile, we confound what we can measure for (the totality of) what matters to consumers.
- Alternative fuels, electric-drive vehicles, car-use reduction and other strategies are subject to the same re-interpretation
- If consumers are not making rational decisions, analysts and policy makers need to expand their repertoire of behavioral models
- If people aren't talking about it, they aren't acting on it.

Thank you.