

# Pigouvian Policies in the Lab

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# Motivation for Overall Research Agenda

- Relatively unambiguous recommendations by economists on how to deal with environmental problems:  
In particular, Pigouvian tax and tradable permits.
- The public? Different story.

# Motivation for Overall Research Agenda

- Normative question: what can be done to make efficiency-enhancing policy instruments more popular?
- Positive question: why are they so unpopular to begin with?
- “The objective of the academic symposium is to discuss the economic rationality, political feasibility and public acceptability of carbon pricing [...]”

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# Experimental Set-up in our Papers

- 5 buyers in a market with automated seller, resale values and uniform single price
- Each purchase causes external costs on other buyers
- → optimal number of purchases less than equilibrium number
- Occasionally (binding) vote on whether to implement a certain policy instrument
- Instrument usually efficient (= increases sum of payoffs in group)
- All experiments programmed on ztree (Fischbacher 2007).

# In previous papers

- Surprising amount of tax aversion
- (small) effects from
  - - Labelling (“fee” instead of “tax”)
  - - “earmarking” revenues
  - - experience through a trial run (“Stockholm”)
- Also: general policy aversion, not just tax aversion.
- Delaying external costs → less acceptance of taxation.

# Current paper

- Do cultural worldviews explain individual opposition to welfare-enhancing policies?

# Cultural Worldviews

- Emerging literature on “cultural worldviews” or “cultural cognition,” advanced particularly by Dan Kahan (Yale).
- Cultural worldviews: socially constructed orientation that dictates how one interprets and interacts with reality.
- Cultural worldviews show how people access, process and assess information about environmental risks and policies



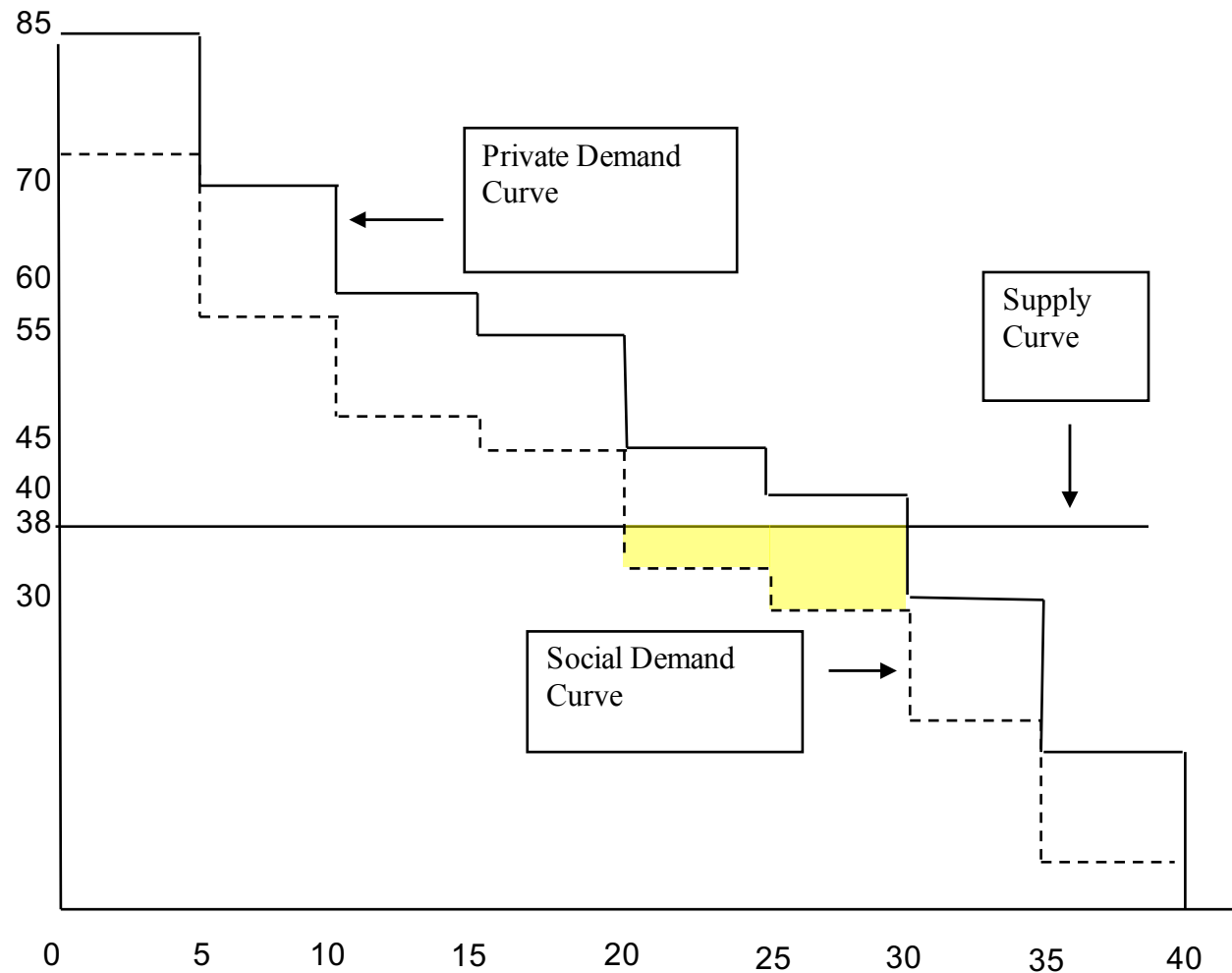
# Cultural Worldviews

- Survey instrument with statements for two dimensions (Likert Scale 1-6):
- **Hierarchy-egalitarianism:** “attitudes toward social orderings that connect authority to stratified social roles based on [...] largely fixed characteristics”  
(example: “We have gone too far in pushing equal rights in this country”)
- **Individualism-communitarianism:** “attitudes toward social orderings that expect individuals to secure their own well-being without assistance from society”  
(example: “The government should stop telling people how to live their lives”)

# Research Questions

- R1: Does policy aversion exist across instruments?
- R2: Is there a tradeoff between acceptability and efficiency?
- R3: Do individual cultural worldviews explain policy aversion?

# Experimental Design: Supply, Demand and Efficiency Gains



# Experimental Design

- Three policy instruments:  
Tax, subsidy, and quantity regulation
- Two levels:
  - “full” measure (27% gain in welfare, efficient)
  - “half” measure (18% gain)
- Three referenda:  
Full vs. none, half vs. none, and full vs. half
- Tax revenues returned and payments for subsidies raised lump-sum.

# Results: Market Outcomes

## Market Efficiency

	Predicted
No Policy	78.6
Half Measures	
Tax	92.8
Subsidy	92.8
Quantity Regulation	92.8
Full Measures	
Tax	100.0
Subsidy	100.0
Quantity Regulation	100.0

# Results: Referenda Outcomes

	Tax
Full vs. No	47.5
Half vs. No	64.2
Full vs. Half	60.8

- Market participants exhibited significant policy aversion **(R1)**
- For tax and quantity regulation, half measures are more popular than full, when paired with “No” **(R2)**

# Cultural Worldviews and Voting

## Support for Efficiency-enhancing Policy by Instrument, Referenda and Worldview

	Hierarchal	Egalitarian	Individualist	Communitarian
<b>Tax</b>				
Full vs. No	34.7	61.9	44.4	51.2
Half vs. No	51.0	76.2	52.8	70.7
Full vs. Half	55.1	71.4	58.3	63.4
<b>Subsidy</b>				
Full vs. No	50.0	76.9	58.8	64.3
Half vs. No	54.2	69.2	52.9	67.9
Full vs. Half	83.3	84.6	73.5	78.6
<b>Quantity</b>				
Full vs. No	44.6	56.1	45.1	56.5
Half vs. No	64.6	72.7	62.0	81.2
Full vs. Half	58.5	51.5	59.2	59.4

# Cultural Worldviews and Voting

## Voting Patterns and Worldviews

	Pooled
Prefer policies over no policies	41.7%
Prefer no policies over policies	21.9%
Other (policy in middle of preference ranking or cyclical voting)	36.5%



# Estimates of Voting Models

	Full/Half vs No			
	Pooled	Tax	Subsidy	Quantity
Hierarchy	-0.008** (0.003)	-0.015*** (0.005)	-0.014** (0.007)	-0.002 (0.005)
Individualism	-0.009** (0.004)	-0.005 (0.007)	-0.003 (0.010)	0.012*** (0.004)
Half Measure	0.122*** (0.029)	0.169*** (0.050)	-0.046 (0.062)	0.179*** (0.035)
Male	-0.100*** (0.037)	-0.122 (0.089)	-0.125** (0.060)	-0.084** (0.039)
Economics	-0.022* (0.012)	-0.009 (0.019)	-0.032* (0.017)	-0.026*** (0.010)
Age	-0.001 (0.004)	-0.0002 (0.008)	-0.003 (0.005)	0.0004 (0.005)
Experience	0.026*** (0.009)	-0.005 (0.021)	0.032** (0.016)	0.041*** (0.008)
Tax	-0.025 (0.049)	--	--	--
Subsidy	-0.009 (0.049)	--	--	--
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$\chi^2$	68.28 (0.000)	60.93 (0.000)	37.27 (0.000)	88.29 (0.000)
# of clusters	32	16	16	32
N	660	240	240	480

# Findings

R1: Again, people reject policies that make them better off

- Tax aversion → policy aversion

R2: Tradeoff between acceptability and efficiency

- Instrument specific
- Due to preferences for less coercive policies?

R3: Worldviews significantly correlated with policy aversion

- But specific to interaction of worldview and instrument
- Hierarchical vs. egalitarian more important for tax and subsidy support
- Individualist vs. communitarian more important for quantity regulation

Thank you.

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# Motivation for Overall Research Agenda

TIME poll from 2006:

- 87%: government should encourage reduction in power plant emissions.
- 85%: something should be done to lower the use of gasoline by cars.
- 19%: increase tax on electricity
- 31%: increase fuel tax

Defeat of energy, fuel, congestion and CO2 taxes in US, France, Australia, most recently in Washington State.

# Report: 98 Percent Of U.S. Commuters Favor Public Transportation For Others

NEWS - Science & Technology - Trends - Automotive - Public Transportation - ISSUE 44-27 ISSUE 36-43 - Nov 29, 2000

WASHINGTON, DC—A study released Monday by the American Public Transportation Association reveals that 98 percent of Americans support the use of mass transit by others.

The Onion  
Nov. 2000



Traffic moves slowly near Seattle, WA, where a majority of drivers say they support other people using mass transit.

"With traffic congestion, pollution, and oil shortages all getting worse, now is the time to shift to affordable, efficient public transportation," APTA director Howard Collier said. "Fortunately, as this report shows, Americans have finally recognized the need for everyone else to do exactly that."

# Motivation for Overall Research Agenda

Important to understand the reasons for public opposition: Public

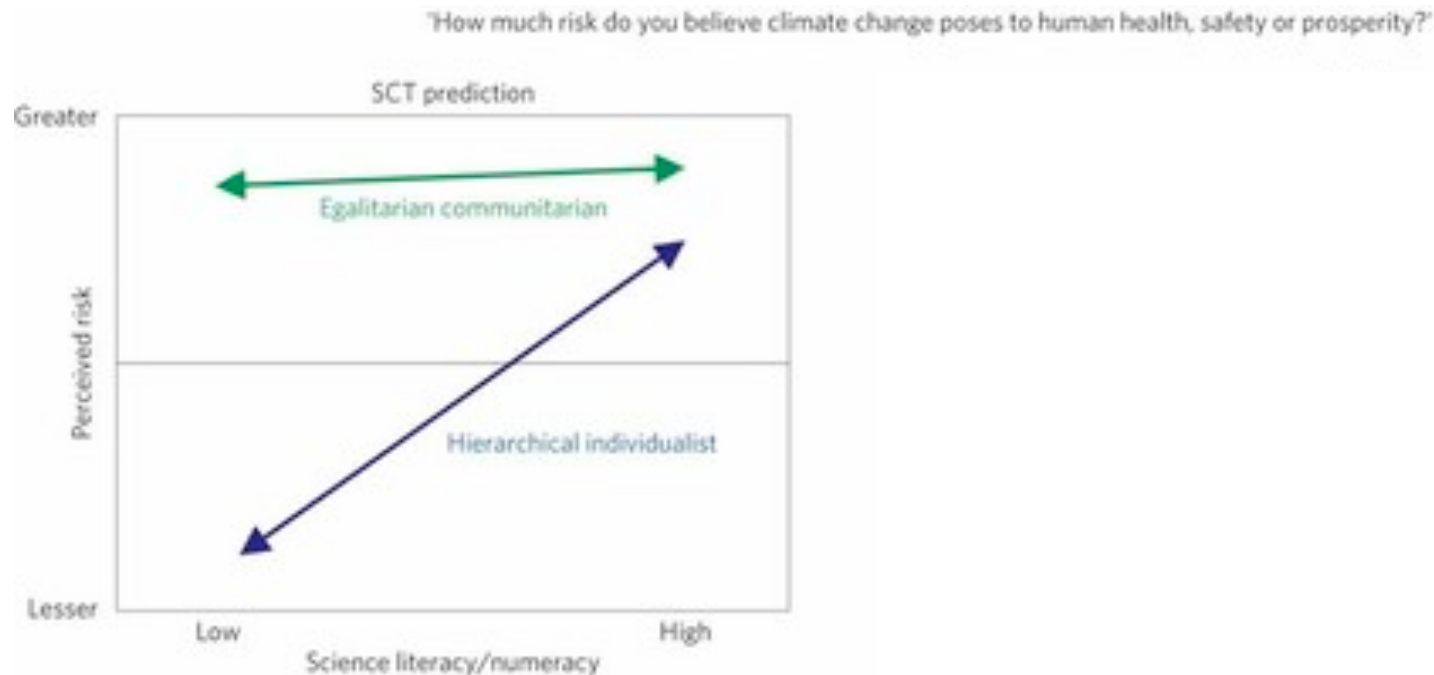
- does not understand the policies
- has a general tax aversion
- does not trust government
- is worried about how revenues from instruments are being redistributed
- has an inequity aversion
- generally prefers other instruments

# Cultural Worldviews

- Examples (both from Kahan et al., 2011):
- People believe that there is a scientific consensus (on climate change, nuclear waste, concealed weapons) if such a consensus would “fit” to their worldview.
- People find (fictional) experts more trustworthy if a summary of these experts’ findings fits to their worldview.

# Cultural Worldviews

- Kahan et al. (2012) on perceived climate change risks.





## **Cultural world view measure**

We used the same cultural world view measure as Kahan et al. (2011). Their questions are shown below.

People in our society often disagree about how far to let individuals go in making decisions for themselves. How strongly you agree or disagree with each of these statements? [strongly disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, strongly agree; items prefixed by “S” or “E” were reverse coded]

IINTRSTS. The government interferes far too much in our everyday lives.

SHARM. Sometimes government needs to make laws that keep people from hurting themselves.

IPROTECT. It's not the government's business to try to protect people from themselves.

IPRIVACY. The government should stop telling people how to live their lives.

SPROTECT. The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals.

SLIMCHOI. Government should put limits on the choices individuals can make so they don't get in the way of what's good for society.

People in our society often disagree about issues of equality and discrimination. How strongly you agree or disagree with each of these statements? [strongly disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, strongly agree]

HEQUAL. We have gone too far in pushing equal rights in this country.

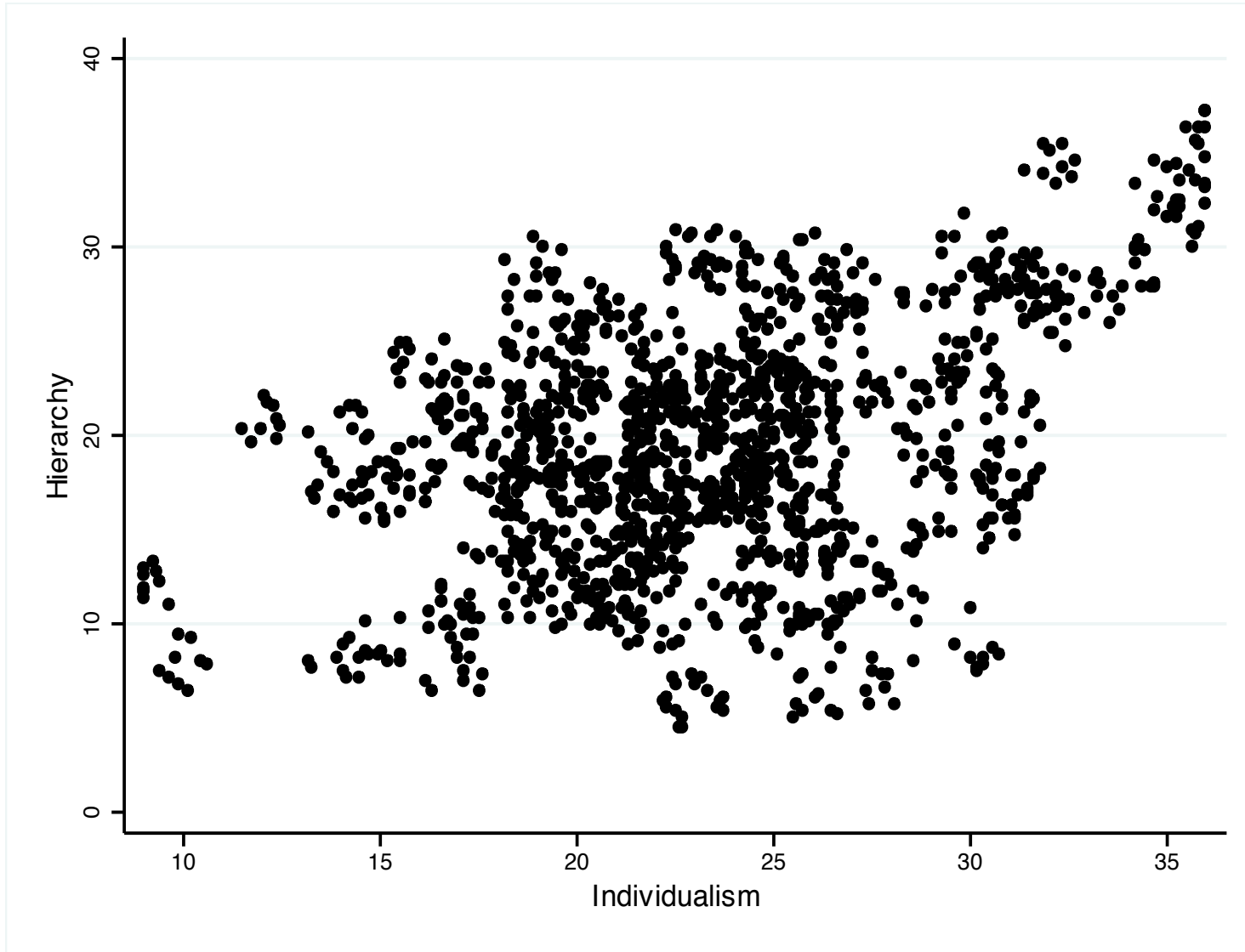
EWEALTH. Our society would be better off if the distribution of wealth was more equal.

ERADEQ. We need to dramatically reduce inequalities between the rich and the poor, whites and people of color, and men and women.

EDISCRIM. Discrimination against minorities is still a very serious problem in our society.

HREVDIS2. It seems like blacks, women, homosexuals and other groups don't want equal rights, they want special rights just for them.

HFEMININ. Society as a whole has become too soft and feminine.



# Experimental Design

ABA Sessions				
<i>Stage</i>	1	2 (A)	3 (B)	4 (A)
<i>Periods</i>	1-5			
<i>Vote</i>	None			
<i>Instrument</i>	None			
<i>Efficiency</i>	None			
BAB Sessions				
<i>Stage</i>	1	2 (B)	3 (A)	4 (B)
<i>Periods</i>	1-5			
<i>Vote</i>	None			
<i>Instrument</i>	None			
<i>Efficiency</i>	None			

- 8 sessions lasting about 90 minutes; each with 20 participants
- 160 participants in 1,024 market periods and 288 referenda
- 1440 votes cast
- 12 Worldview survey questions after last period