Cultural or Scientific Consensus? Cultural Cognition, Climate Science Knowledge, and Policy Preferences

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Climate Policy Preferences

- Research Question:
  - *What is the role of knowledge and values in shaping the public's climate change policy preferences*?

Climate Policy Preferences

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  - *What is the role of knowledge and values in shaping the public's climate change policy preferences*?
- Knowledge
  - *Fact-based*
  - *Heuristic-based*
- Values
  - *Cultural cognition*

Climate Policy Preferences

Knowledge → Policy Preferences

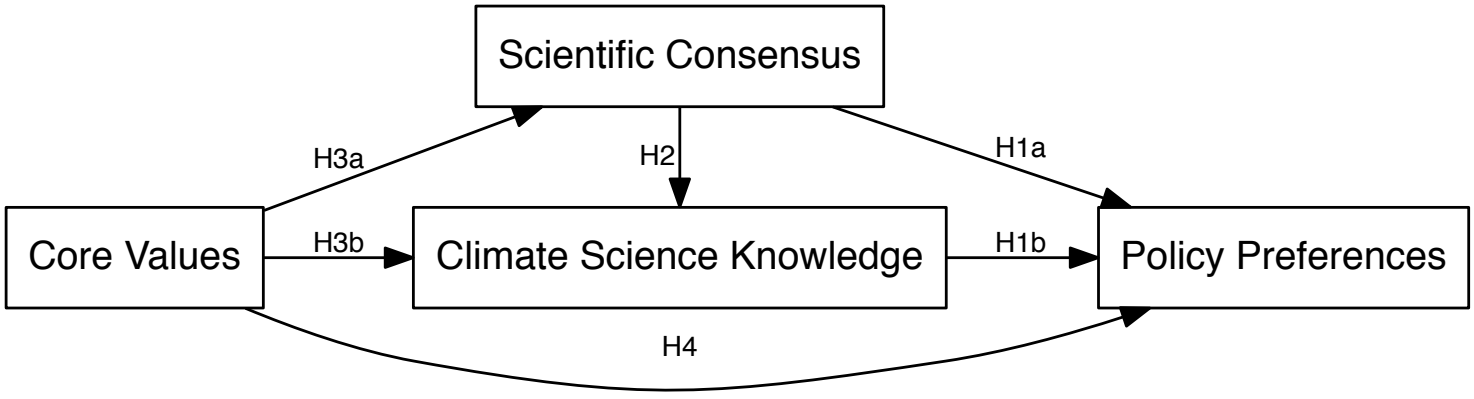
- Fact-based:
  - Climate science facts (O'Connor et al. 1999, Stoutenborough and Vedlitz 2014)
- Heuristic-based:
  - Climate science consensus (Ding et al. 2011, Lewandowsky et al. 2013, McCright et al. 2013)
    - "Gateway belief" (van der Linden et al. 2015)

Climate Policy Preferences

Core Values → Policy Preferences

- Ideology and partisanship
  - "Solution aversion" (Campbell and Kay 2014)
- Cultural Theory (Jones 2011)
- *Cultural Cognition* (series of papers by Kahan et al.)

Climate Policy Preferences Model



- Estimated in Two Stages
  - First stage: Core values predicting knowledge
  - Second stage: Core values and knowledge predicting support for policies

Core Values: Cultural Cognition

- Cultural cognition is a "conception" of Cultural Theory
- Cultural Theory
  - Two cross-cutting dimensions of grid and group
  - Grid and group combine to form four "ways of life"
    - Hierarchical
    - Egalitarian
    - Individualist
    - Fatalist

Core Values: Cultural Cognition

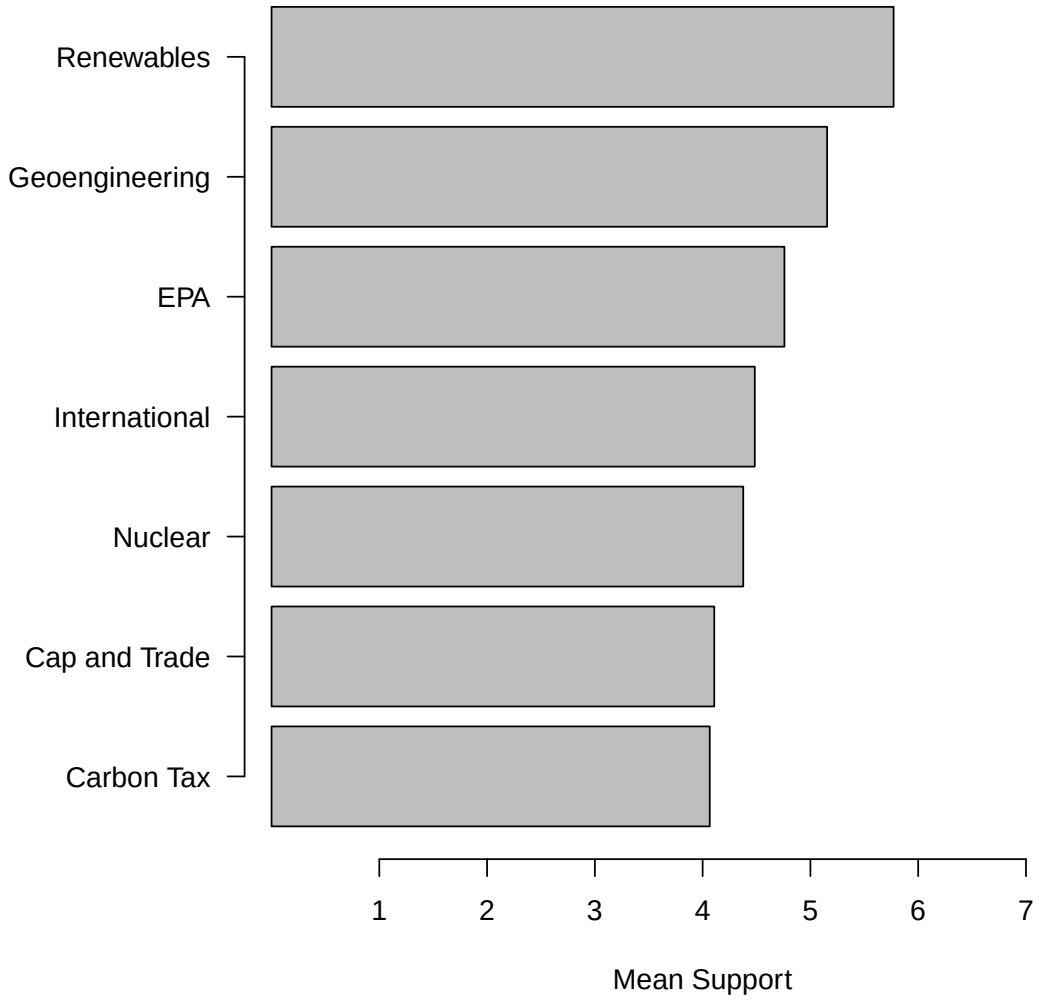
Cultural cognition departures from Cultural Theory

- Measurement
  - Hierarchy-Egalitarianism scale
  - Individualist-Communitarianism scale
- Social and psychological mechanisms
  - Biased-information processing

Data

- Sample of residents from South Carolina's eight coastal counties
  - Email addresses purchased from Survey Sampling International
  - Administered through Qualtrics
  - August 18th to August 29th
    - Completion rate 79%

Survey Measures: Policy Preferences



Survey Measures: Independent Variables

- Core Values
  - Hierarchy-egalitarianism scale, $\alpha = 0.775$
  - Individualism-communitarianism scale, $\alpha = 0.866$

Survey Measures: Independent Variables

- Core Values
  - Hierarchy-egalitarianism scale, $\alpha = 0.775$
  - Individualism-communitarianism scale, $\alpha = 0.866$
- Climate Change Knowledge
  - Fact-based: Series of climate science factual questions
    - 0-9, $\bar{X} = 4.33$
  - Heuristic-based: Scientific consensus
    - "Most scientists think climate change is happening"
    - Dummy variable, $\bar{X} = 0.495$

Climate Facts

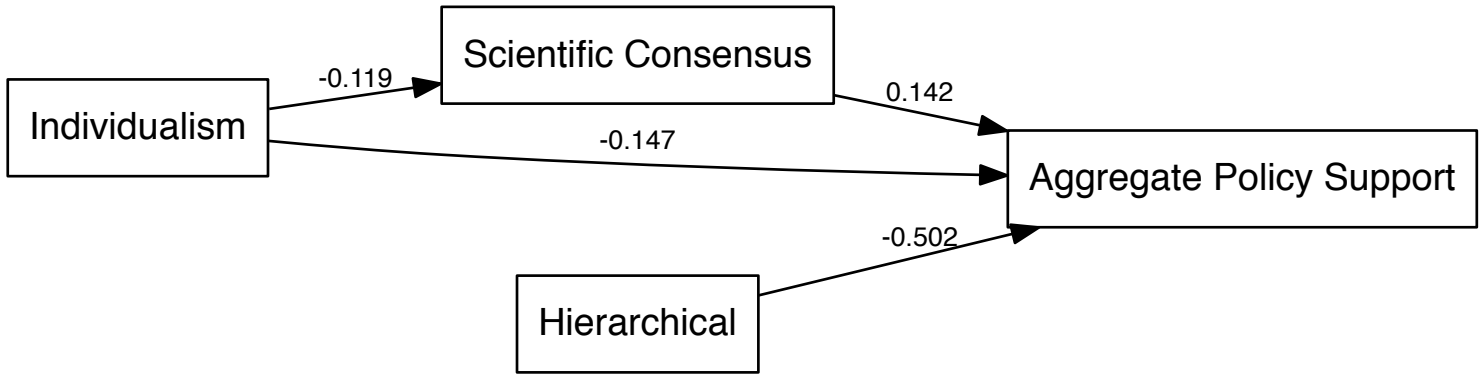
Table: Climate Science Knowledge Questions

Statistic	Mean	St. Dev.
North Pole Icecap	0.089	0.286
Air Temps	0.836	0.371
Coastal Flooding	0.890	0.314
Hurricane Severity	0.202	0.402
Nuclear Power	0.458	0.499
Skin Cancer	0.226	0.419
Positive and Negative Effects	0.476	0.500
Reduce Photosynthesis	0.247	0.432
Gas	0.902	0.298

Results: Scientific Consensus

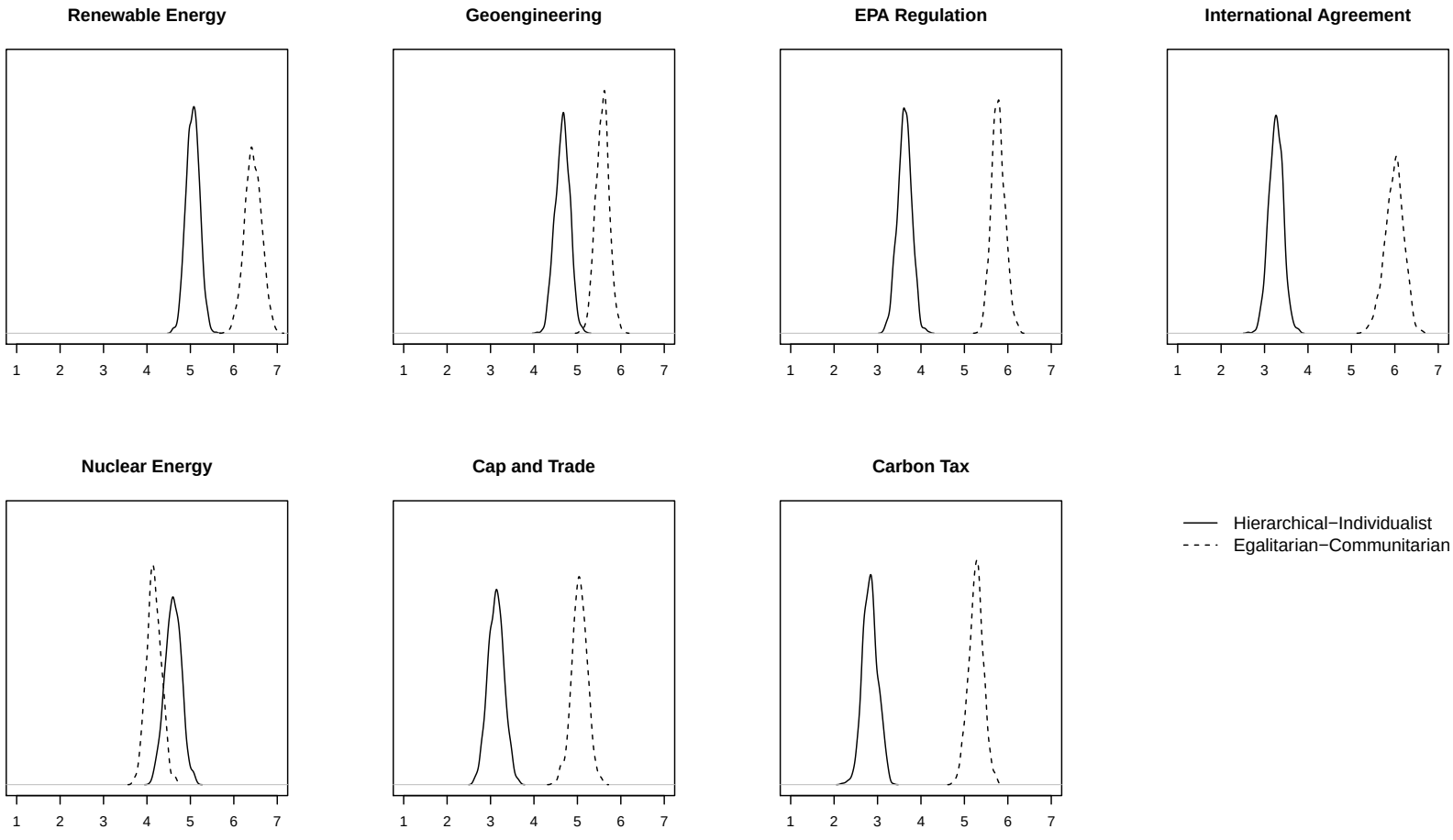
	Dependent variable:	
	Scientific Consensus	Science Questions
	logistic	*OLS*
	(1)	(2)
Hierarchical	−0.139	0.077
	(0.120)	(0.063)
Individualism	−0.279*	0.114
	(0.125)	(0.064)
Scientific Consensus		−0.027
		(0.142)
Observations	302	302
Adjusted R^2		0.049
Akaike Inf. Crit.	384.695	
Note:		*p<0.05; **p<0.01; ***p<0.001

Results: Values, Knowledge, and Climate Policy Support



- Path analysis: Standardized OLS coefficients
- Aggregate policy support: Average support of all policy options

Results: Values and Climate Policy Support



Conclusion

- Knowledge not likely to move those skeptical of climate change
- Renewable energy, geoengineering, and nuclear energy *less* polarized; EPA, cap and trade, and carbon tax *more* polarized
- Encourage deliberation over less polarized solutions rather than climate science

Results: Values, Knowledge, and Climate Policy Support

	Dependent variable:			
	Renewables	Geoengine	EPA	Int. Agree
Hierarchical	-0.438^{***}	-0.272^{***}	-0.563^{***}	-0.509^{***}
	(0.073)	(0.080)	(0.081)	(0.082)
Individualism	-0.009	-0.022	-0.147	-0.309^{***}
	(0.075)	(0.082)	(0.082)	(0.083)
Sci. Knowledge	0.012	-0.144	-0.155^{*}	0.049
	(0.068)	(0.074)	(0.075)	(0.076)
Sci. Consensus	0.254	0.271	0.719^{***}	0.626^{***}
	(0.164)	(0.180)	(0.181)	(0.184)
Observations	302	302	302	302
Adjusted R^2	0.165	0.098	0.445	0.411
Note:				*p<0.05; **p<0.01; ***p<0.001

Results: Values, Knowledge, and Climate Policy Support

	Dependent variable:			
	Nuclear	Cap and Trade	Carbon Tax	Aggregate Policy
Hierarchical	0.105	-0.414^{***}	-0.550^{***}	-0.377^{***}
	(0.088)	(0.090)	(0.086)	(0.053)
Individualism	0.052	-0.252^{**}	-0.286^{**}	-0.139^{*}
	(0.090)	(0.092)	(0.088)	(0.054)
Sci. Knowledge	0.046	-0.110	-0.076	-0.054
	(0.081)	(0.083)	(0.080)	(0.049)
Sci. Consensus	-0.189	0.284	0.764^{***}	0.390^{**}
	(0.198)	(0.202)	(0.194)	(0.119)
Observations	302	302	302	302
Adjusted R^2	0.140	0.286	0.399	0.393
Note:				*p<0.05; **p<0.01; ***p<0.001