

Household-Level Costs of Net Zero 2050

Richard B. Belzer
Good Intentions Paving Company
Society for Benefit-Cost Analysis Annual Conference
March 9, 2023

rbbelzer@post.harvard.edu
703.200.4260

Has anyone estimated this? Bueller? Bueller?

Source	Cost Estimate	Notes
EPA	N/A	Specific actions only
DOE	N/A	Specific actions only
IEA	N/A	Sectoral only
McKinsey	\$270 trillion	Global; no disaggregation
Swiss Re	\$290 trillion	Global; no disaggregation

Assumptions

- ⊙ NZ 2050 can be achieved
 - Inefficiently using existing statutory authorities
 - Efficiently using a new statutory carbon tax
- ⊙ Carbon tax \leq SCC; equality assumed here
- ⊙ Cost is directly or indirectly borne by HHs
- ⊙ $C_{HH/Yr} \simeq (SCC/CT_{mt} \times eCO2_{mt}) \div HHs$
- ⊙ No substitution effects (in short [?] run)
- ⊙ No offsetting tax cuts
- ⊙ Result is driven by CE, not BCA

Actual HH costs could be higher or lower

$C_{HH/Yr}$ higher	$C_{HH/Yr}$ lower
Global central planning fails	Global central planning works
Political compromises	No political compromises needed
Mandatory substitution	Voluntary substitution
Tech more expensive	Tech less expensive
Grid unreliability from renewables	Grid reliability problem solved
Environmental damages	No environmental damages
Permanent unemployment	Easy labor transition
No int'l subsidies from US HHs	US HHs subsidized by other nations

Data

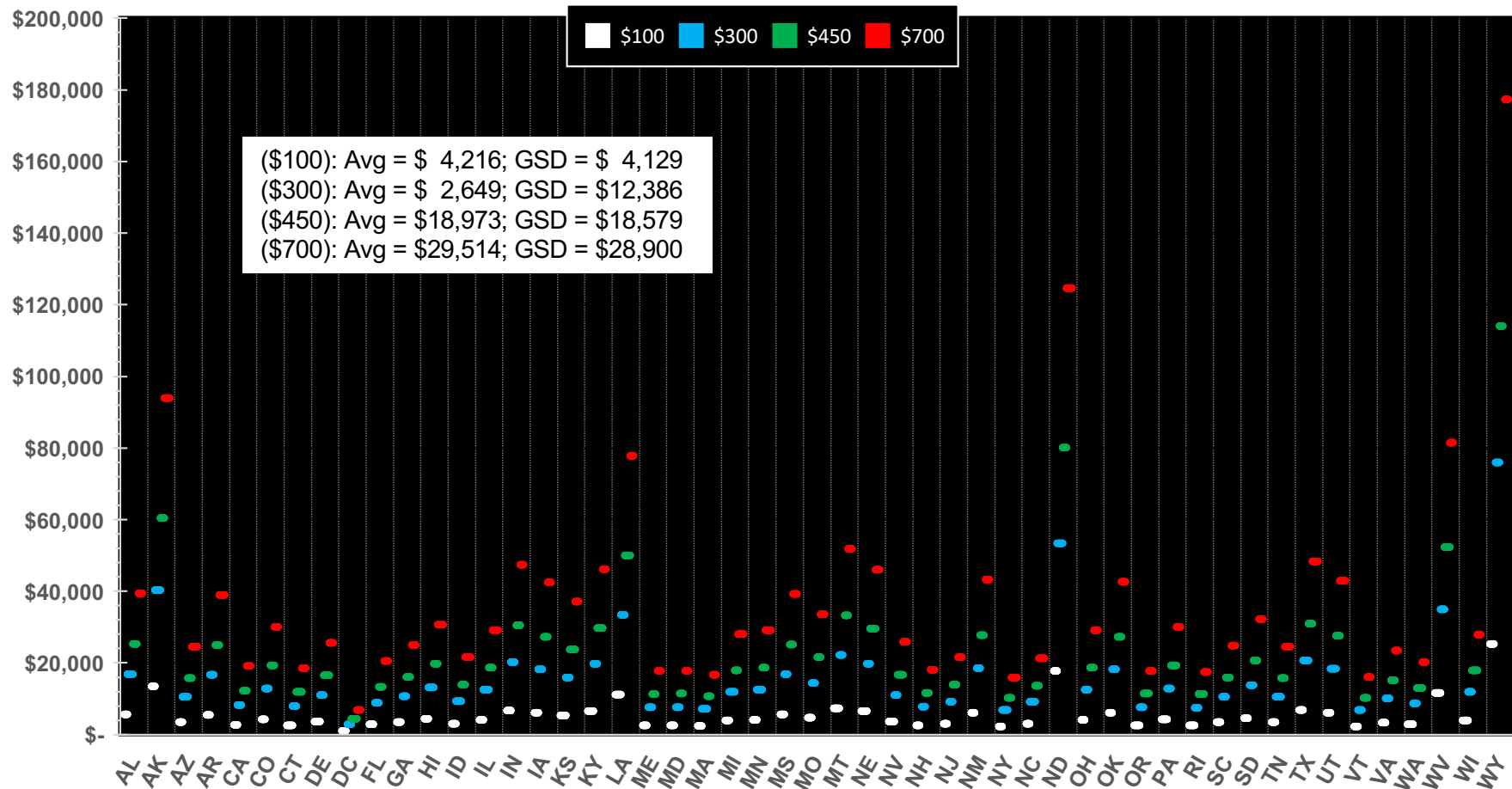
- ◎ CO2 from energy production: EIA State Energy Data System (SEDS)
- ◎ HHs, HH size, median income: Census
- ◎ SCC/CT: IWG, NFGS, McKinsey, Swiss Re
 - \$200-\$700/mt
- ◎ Distributional analysis
 - Money income: Census
 - After-tax after-transfer income: Gramm et al 2022

Scenarios

- A.** Each state levies carbon taxes sufficient to offset its own energy-related CO2 emissions
- Would be favored by importing states
 - 68% of House from 22 consuming states
- B.** Congress levies carbon taxes sufficient to offset US energy-related CO2 emissions
- Would be favored by exporting states
 - 46% of Senate from 23 exporting states

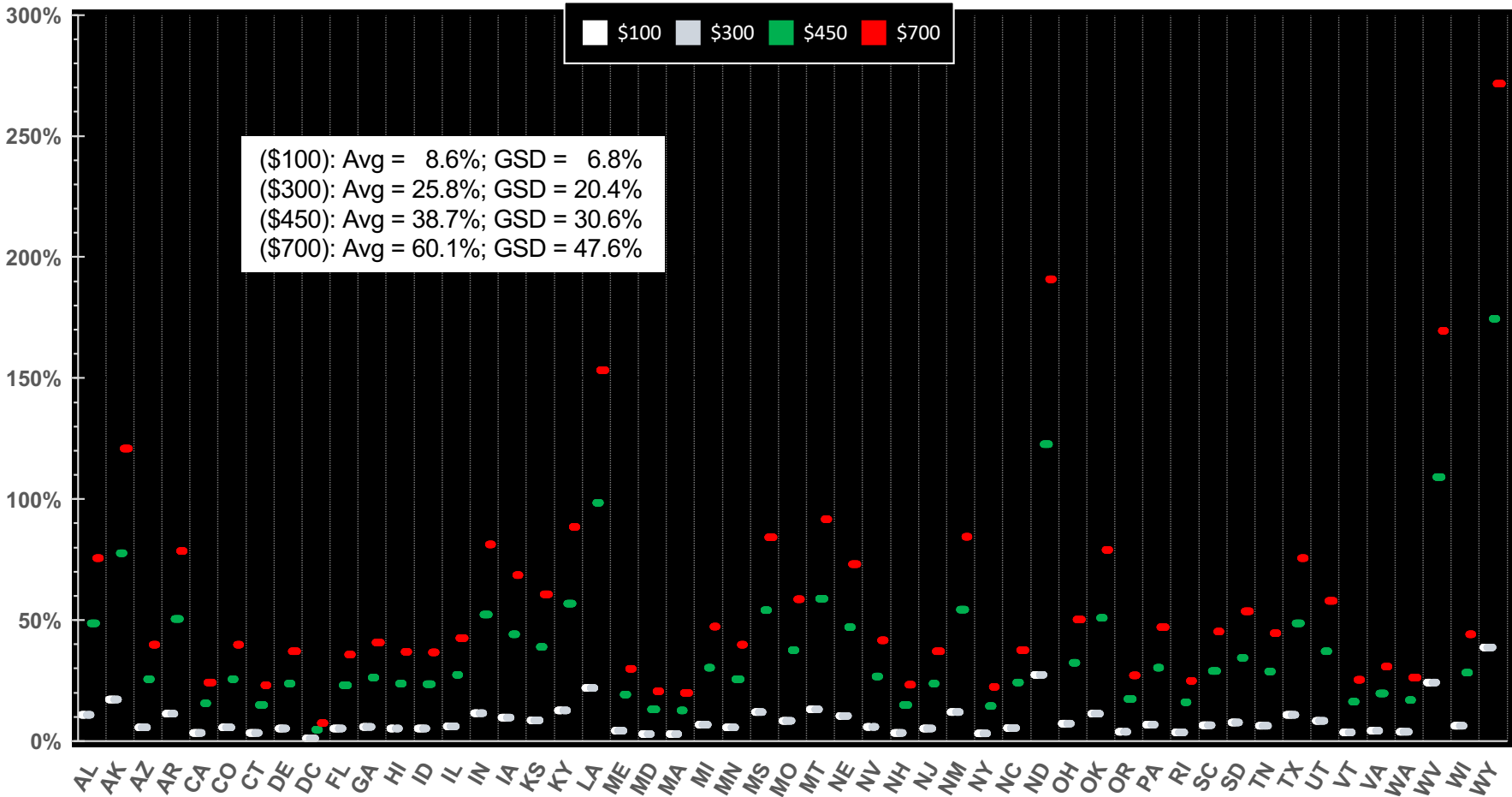
Scenario A results by State

Average annual household cost



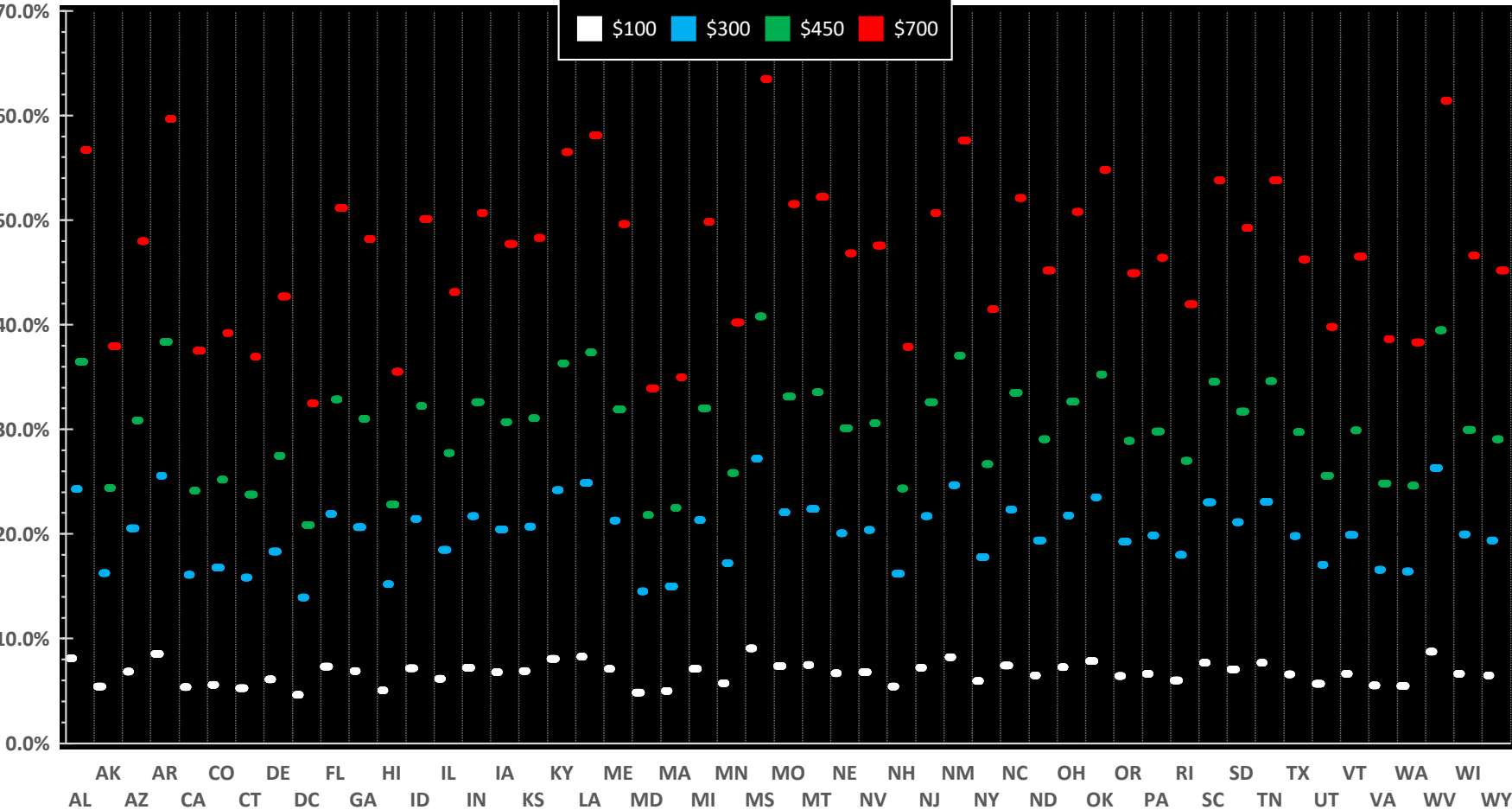
Scenario A results by State

% median household money income/year



Scenario B results by State

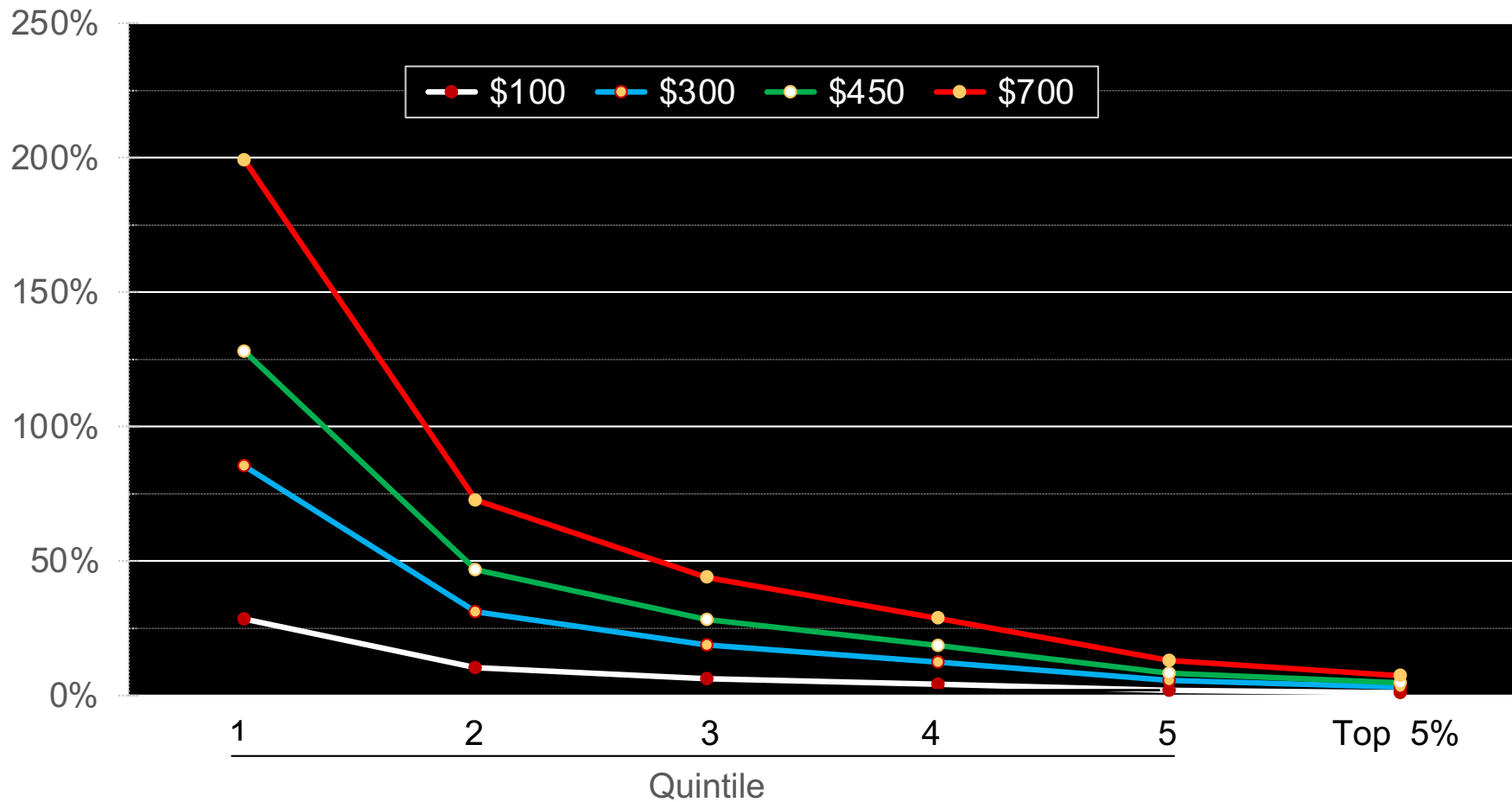
% median household money income/year



Richard B. Belzer
Belzer@Post.Harvard.Edu

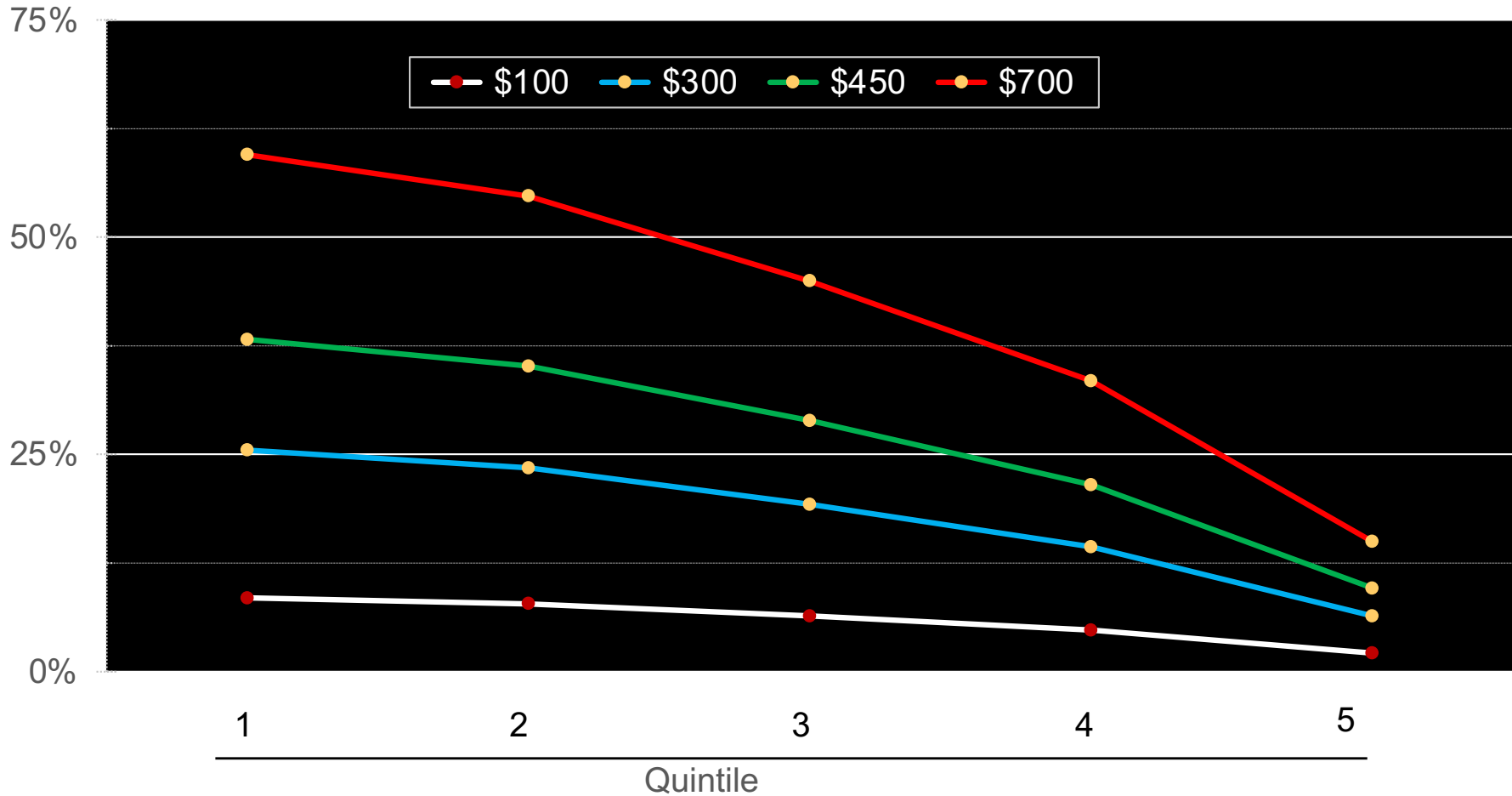
Scenario B results by quintile

% median household money income/year



Scenario B results by quintile

% median household ATAT income/year



Conclusions

- ③ Carbon shadow prices high enough to achieve Net Zero 2050 mean bankruptcy.
- ③ Most households simply can't pay and they would vote out of office (or worse) any government that tried to mandate it.
- ③ The highest-income households would have to pay. Will they agree?