Who Should Get Money? Estimating Welfare Weights in the U.S.

Francesco Capozza
Erasmus University Rotterdam

Krishna Srinivasan
University of Zurich

29 August 2023

Motivation

- Policy reforms in domains such as income taxation, cash transfers, and in-kind transfers typically have winners and losers

Motivation

- Policy reforms in domains such as income taxation, cash transfers, and in-kind transfers typically have winners and losers
- Evaluating a reform: weighing the gains of the winners against the losses of the losers using welfare weights
- Welfare weight: the social value of a \$1 increase in consumption to an individual

Motivation

- Policy reforms in domains such as income taxation, cash transfers, and in-kind transfers typically have winners and losers
- Evaluating a reform: weighing the gains of the winners against the losses of the losers using welfare weights
- Welfare weight: the social value of a \$1 increase in consumption to an individual
- Which welfare weights should we use to evaluate policies?

Motivation

- Policy reforms in domains such as income taxation, cash transfers, and in-kind transfers typically have winners and losers
- Evaluating a reform: weighing the gains of the winners against the losses of the losers using welfare weights
- Welfare weight: the social value of a \$1 increase in consumption to an individual
- Which welfare weights should we use to evaluate policies?
- Literature in public economics typically assumes a function for the weights

Motivation

- Policy reforms in domains such as income taxation, cash transfers, and in-kind transfers typically have winners and losers
- Evaluating a reform: weighing the gains of the winners against the losses of the losers using welfare weights
- Welfare weight: the social value of a $1 increase in consumption to an individual
- Which welfare weights should we use to evaluate policies?
- Literature in public economics typically assumes a function for the weights

- **This project: We elicit the welfare weights assigned by the general population of the U.S.**

Motivation

- Policy reforms in domains such as income taxation, cash transfers, and in-kind transfers typically have winners and losers
- Evaluating a reform: weighing the gains of the winners against the losses of the losers using welfare weights
- Welfare weight: the social value of a \$1 increase in consumption to an individual
- Which welfare weights should we use to evaluate policies?
- Literature in public economics typically assumes a function for the weights

- **This project: We elicit the welfare weights assigned by the general population of the U.S.**
  - Positive exercise: compare welfare weights of the general population to the (i) weights implied by tax and transfer policies in the U.S. (ii) weights used in the optimal policy literature
  - Normative exercise: welfare weights of the general population can be used to obtain socially acceptable policies

Literature

Identify ideals that guide people's preferences for redistribution
E.g., Drenik & Perez-Truglia (2018), Cappelen et al. (2013)
⇒ Interested in identifying if an ideal affects people's preferences for redistribution
⇒ Out paper: We elicit welfare weights

Optimal taxation incorporating a parsimonious set of ideals
E.g., Weinzierl (2018, 2014), Fleurbaey & Maniquet (2018)
⇒ Our paper: We do not modify the utility functions or the objective function. Instead, we plug the elicited welfare weights into the standard policy formulas

Direct estimation of weights
E.g., Saez & Stantcheva (2016)
⇒ Our paper: applicable to many policies beyond linear income taxes
⇒ Our paper: validate the weights and compare them to those implied by the tax and transfer policies in the U.S. and those used in the literature

Weights implied by existing policies
E.g., Bourguignon & Spadaro (2012), Hendren (2020), Lockwood & Weinzierl (2016)
⇒ Limitations: may not reflect societal preferences with political economy considerations such as lobbying, may be negative (and unusable), sensitive to assumptions about the elasticity of taxable income

THEORY

Theory: Based on Saez and Stantcheva (2016)

- N Recipients in society indexed by j
- A Social Architect assigns welfare weights $g_j = g(c_j, \theta_j)$ to Recipients
  - c_j: consumption of Recipients; θ: Recipients' characteristics (e.g., parental income)
- Welfare weights can capture various ideals
  - E.g., A Social Architect guided by equality of opportunity will assign higher welfare weights to individuals from disadvantaged backgrounds

Theory: Based on Saez and Stantcheva (2016)

- N Recipients in society indexed by j
- A Social Architect assigns welfare weights $g_j = g(c_j, \theta_j)$ to Recipients
  - c_j: consumption of Recipients; θ: Recipients' characteristics (e.g., parental income)
- Welfare weights can capture various ideals
  - E.g., A Social Architect guided by equality of opportunity will assign higher welfare weights to individuals from disadvantaged backgrounds
- We consider a small budget-neutral reform R conditioned on Recipients' incomes
- Social Architects report $\bar{g}_j$, weights averaged up to Recipients' incomes

Theory: Based on Saez and Stantcheva (2016)

- N Recipients in society indexed by j
- A Social Architect assigns welfare weights $g_j = g(c_j, \theta_j)$ to Recipients
  - c_j: consumption of Recipients; θ: Recipients' characteristics (e.g., parental income)
- Welfare weights can capture various ideals
  - E.g., A Social Architect guided by equality of opportunity will assign higher welfare weights to individuals from disadvantaged backgrounds
- We consider a small budget-neutral reform R conditioned on Recipients' incomes
- Social Architects report $\bar{g}_j$, weights averaged up to Recipients' incomes
- $\Delta W = \sum_{j=1}^{N} \bar{g}_j \cdot R$
  - The weighted sum of the reform amounts has a first-order effect on welfare (ΔW)
  - The reform R is desirable if $\Delta W > 0$

Theory: Based on Saez and Stantcheva (2016)

- N Recipients in society indexed by j
- A Social Architect assigns welfare weights $g_j = g(c_j, \theta_j)$ to Recipients
  - c_j: consumption of Recipients; θ: Recipients' characteristics (e.g., parental income)
- Welfare weights can capture various ideals
  - E.g., A Social Architect guided by equality of opportunity will assign higher welfare weights to individuals from disadvantaged backgrounds
- We consider a small budget-neutral reform R conditioned on Recipients' incomes
- Social Architects report $\bar{g}_j$, weights averaged up to Recipients' incomes
- $\Delta W = \sum_{j=1}^{N} \bar{g}_j \cdot R$
  - The weighted sum of the reform amounts has a first-order effect on welfare (ΔW)
  - The reform R is desirable if $\Delta W > 0$
- $\bar{g}_j$ can be estimated using Social Architects' choices between reforms

Theory: Based on Saez and Stantcheva (2016)

- N Recipients in society indexed by j
- A Social Architect assigns welfare weights $g_j = g(c_j, \theta_j)$ to Recipients
  - c_j: consumption of Recipients; θ: Recipients' characteristics (e.g., parental income)
- Welfare weights can capture various ideals
  - E.g., A Social Architect guided by equality of opportunity will assign higher welfare weights to individuals from disadvantaged backgrounds
- We consider a small budget-neutral reform R conditioned on Recipients' incomes
- Social Architects report $\bar{g}_j$, weights averaged up to Recipients' incomes
- $\Delta W = \sum_{j=1}^{N} \bar{g}_j \cdot R$
  - The weighted sum of the reform amounts has a first-order effect on welfare (ΔW)
  - The reform R is desirable if $\Delta W > 0$
- $\bar{g}_j$ can be estimated using Social Architects' choices between reforms
- We follow a sufficient statistics approach: a Social Architect's assessment of the welfare implications of a reform is a function of their average welfare weights, which can be estimated using their choices between various reforms without having to specify and uncover the underlying ideals that guide them

DESIGN

Eliciting Welfare Weights

- Participants are in the role of "Social Architect" or "Recipient"
- A Social Architect faces a pair of Recipients

Eliciting Welfare Weights

- Participants are in the role of "Social Architect" or "Recipient"
- A Social Architect faces a pair of Recipients
- We consider "small" reforms ($\$pt, -\$t$) that take \$t from the higher-income Recipient and give \$pt to the lower-income Recipient
- A Social Architect is asked to choose between a "Constant Reform" ($\$500, -\$500$) and various "Variable Reforms" of the type ($\$pt, -\$t$)

Eliciting Welfare Weights

- Participants are in the role of "Social Architect" or "Recipient"
- A Social Architect faces a pair of Recipients
- We consider "small" reforms ($\$pt, -\$t$) that take \$t from the higher-income Recipient and give \$pt to the lower-income Recipient
- A Social Architect is asked to choose between a "Constant Reform" (\$500, −\$500) and various "Variable Reforms" of the type ($\$pt, -\$t$)
- Goal: Elicit Variable Reform: ($\$pt, -\$t$) $\sim$ Constant Reform: (\$500, −\$500)

Eliciting Welfare Weights

- Participants are in the role of "Social Architect" or "Recipient"
- A Social Architect faces a pair of Recipients
- We consider "small" reforms ($\$pt, -\$t$) that take \$t from the higher-income Recipient and give \$pt to the lower-income Recipient
- A Social Architect is asked to choose between a "Constant Reform" ($\$500, -\$500$) and various "Variable Reforms" of the type ($\$pt, -\$t$)
- Goal: Elicit Variable Reform: ($\$pt, -\$t$) $\sim$ Constant Reform: ($\$500, -\$500$)
  - A smaller p implies that the Social Architect needs to give less to the lower-income Recipient to be indifferent between ($\$pt, -\$t$) and ($\$500, -\$500$), implying a relatively higher weight on the lower-income Recipient
  - $p = 1$: equal weights to the two Recipients
  - $p < 1$: higher weight to the lower-income Recipient
  - $p > 1$: higher weight to the higher-income Recipient

Eliciting Welfare Weights

- Participants are in the role of "Social Architect" or "Recipient"
- A Social Architect faces a pair of Recipients
- We consider "small" reforms ($\$pt, -\$t$) that take \$t from the higher-income Recipient and give \$pt to the lower-income Recipient
- A Social Architect is asked to choose between a "Constant Reform" (\$500, −\$500) and various "Variable Reforms" of the type ($\$pt, -\$t$)
- Goal: Elicit Variable Reform: ($\$pt, -\$t$) $\sim$ Constant Reform: (\$500, −\$500)
  - A smaller p implies that the Social Architect needs to give less to the lower-income Recipient to be indifferent between ($\$pt, -\$t$) and (\$500, −\$500), implying a relatively higher weight on the lower-income Recipient
  - $p = 1$: equal weights to the two Recipients
  - $p < 1$: higher weight to the lower-income Recipient
  - $p > 1$: higher weight to the higher-income Recipient
- Less progressive Variable Reforms are also more efficient. We assume that preferences for efficiency is not a major factor that guides Social Architects' decisions

Eliciting Welfare Weights

Row	Constant Reform	Variable Reform	p	
1	(\$500, −\$500)	(\$550, −\$1450)	0.38	$p < 1$
2	(\$500, −\$500)	(\$625, −\$1375)	0.45	
...	...	...	...	
8	(\$500, −\$500)	(\$1000, −\$1000)	1.00	
...	...	...	...	$p > 1$
14	(\$500, −\$500)	(\$1375, −\$625)	2.20	
15	(\$500, −\$500)	(\$1450, −\$550)	2.64	

Eliciting Welfare Weights

Row	Constant Reform	Variable Reform	p	
1	(\$500, −\$500)	(\$550, −\$1450)	0.38	$p < 1$
2	(\$500, −\$500)	(\$625, −\$1375)	0.45	
...	...	...	...	
8	(\$500, −\$500)	(\$1000, −\$1000)	1.00	
...	...	...	...	$p > 1$
14	(\$500, −\$500)	(\$1375, −\$625)	2.20	
15	(\$500, −\$500)	(\$1450, −\$550)	2.64	

- An Architect switches from a Constant Reform to a Variable Reform
- Early switch $\Rightarrow$ smaller p $\Rightarrow$ higher weight to lower-income Recipient

Eliciting Welfare Weights

Row	Constant Reform	Variable Reform	p	
1	(\$500, −\$500)	(\$550, −\$1450)	0.38	$p < 1$
2	(\$500, −\$500)	(\$625, −\$1375)	0.45	
...	...	...	...	
8	(\$500, −\$500)	(\$1000, −\$1000)	1.00	
...	...	...	...	$p > 1$
14	(\$500, −\$500)	(\$1375, −\$625)	2.20	
15	(\$500, −\$500)	(\$1450, −\$550)	2.64	

- An Architect switches from a Constant Reform to a Variable Reform
- Early switch $\Rightarrow$ smaller p $\Rightarrow$ higher weight to lower-income Recipient
- Each Architect faces four questions in a staircase procedure
  - First question is Row 8
  - Remaining questions are selected using an adaptive procedure

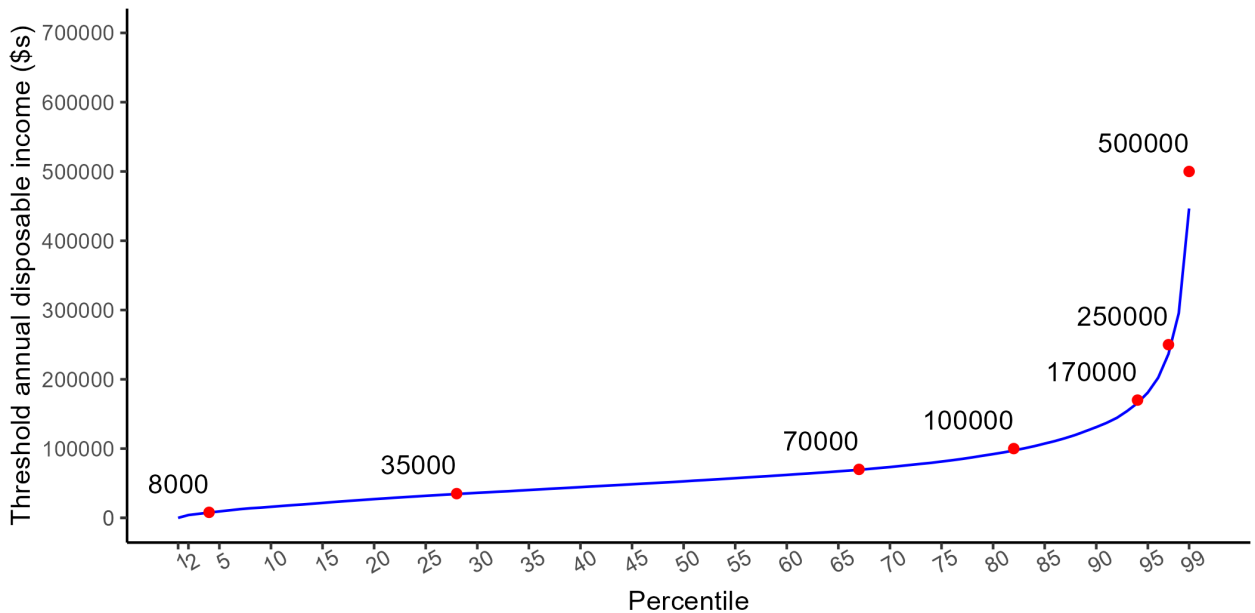
staircase screenshot

Information About Recipients

- Social Architects learn
  - seven real Recipients recruited from a survey panel
  - that Recipients are U.S. citizens and above the age of 18
  - the disposable incomes of the Recipients
  - recipients have an initial $1500 endowment

Information About Recipients

- Social Architects learn
  - seven real Recipients recruited from a survey panel
  - that Recipients are U.S. citizens and above the age of 18
  - the disposable incomes of the Recipients
  - recipients have an initial $1500 endowment
- Recipients span the disposable income distribution and various tax brackets



Decision Screens

Disposable income ($s)	Decision Screen 1	2	3	4	5	6
8,000	x					
35,000		x				
70,000	x	x	x	x	x	x
100,000			x			
170,000				x		
250,000					x	
500,000						x

- Recipient earning $70,000 common across decision screens
- Since welfare weights are relative, a Social Architect's decisions in the six decision screens reveal the weights assigned to the 7 Recipients

Incentives

- One Social Architect in the study will be randomly selected
- One question in one decision screen will be implemented
- Two Recipients receive: \$1500 endowment + bonus (depends on chosen Social Architect's choice)

Implementation

- Wave 1: General population sample on LUCID
  - 1965 participants
  - Quotas: age, gender, education, income, and region
- Wave 2: General population sample on Prolific
  - 1992 participants
  - Very few quotas
- All analyses are weighted using sampling weights to match the population average demographics
- Design and most regressions are pre-registered

RESULTS

Understanding Welfare Weights

demographics

Average Welfare Weights

$\bar{g}(y) = y^{\nu}$: (Saez 2002, Allcott et al. 2019).

- y: disposable income of the Recipients
- ν: governs the progressivity of the weights
  - also: elasticity of the weights with respect to the incomes of the Recipients
- $\nu < 0$: progressive weights (weights decreasing with Recipients' incomes)
- $\nu > 0$: regressive weights (weights increasing with Recipients' incomes)

Average Welfare Weights

- Average weights of the general population: y^{ν}, $\nu = -0.34$
- A Social Architect is indifferent between giving a dollar to a Recipient and giving 66 cents to a Recipient earning twice as much
- Average weights are progressive

- **Implication:** On average, Social Architects want additional redistribution beyond that achieved by the current tax and transfer system

Welfare Weights and Preferences for Redistribution

- preferences for government redistribution = f(welfare weights, ...)
- We explore the empirical link between Social Architects' welfare weights and their preferences for government redistribution
- Such an exercise highlights the value in using the welfare weights of the general population to identify socially acceptable policies question results

Welfare Weights and Preferences for Redistribution

- preferences for government redistribution = f(welfare weights, ...)
- We explore the empirical link between Social Architects' welfare weights and their preferences for government redistribution
- Such an exercise highlights the value in using the welfare weights of the general population to identify socially acceptable policies question results
- We find corr(elasticity of the weights, preferences for redistribution) $= -0.36$

Welfare Weights and Preferences for Redistribution

- preferences for government redistribution = f(welfare weights, ...)
- We explore the empirical link between Social Architects' welfare weights and their preferences for government redistribution
- Such an exercise highlights the value in using the welfare weights of the general population to identify socially acceptable policies question results
- We find corr(elasticity of the weights, preferences for redistribution) $= -0.36$
- A benchmarking exercise reveals that: Social Architects' preferences for redistribution can be predicted with similar accuracy using either their stated political affiliation or their welfare weights

Welfare Weights and Preferences for Redistribution

- preferences for government redistribution = f(welfare weights, ...)
- We explore the empirical link between Social Architects' welfare weights and their preferences for government redistribution
- Such an exercise highlights the value in using the welfare weights of the general population to identify socially acceptable policies question results
- We find corr(elasticity of the weights, preferences for redistribution) $= -0.36$
- A benchmarking exercise reveals that: Social Architects' preferences for redistribution can be predicted with similar accuracy using either their stated political affiliation or their welfare weights

Implication: Welfare weights may be useful to obtain socially acceptable policies

factors and redistribution factors and weights

Other Results

- Heterogeneity in welfare weights more
- Weights by demographics more
- Treatment effects more

RESULTS

Comparing Welfare Weights

Compare to Weights Implied by Tax and Transfer Policies

- General population weights across treatments are given by $\nu \in (-0.37, -0.53)$

Compare to Weights Implied by Tax and Transfer Policies

- General population weights across treatments are given by $\nu \in (-0.37, -0.53)$
- Weights implied by the income tax schedule in the U.S. computed by Hendren (2020) details
  - Universe of tax returns in the U.S. 2012
  - Income taxes, alternative minimum tax (AMT), earned income tax credits (EITC), state and local taxes, and Medicare

Compare to Weights Implied by Tax and Transfer Policies

- General population weights across treatments are given by $\nu \in (-0.37, -0.53)$
- Weights implied by the income tax schedule in the U.S. computed by Hendren (2020) details
  - Universe of tax returns in the U.S. 2012
  - Income taxes, alternative minimum tax (AMT), earned income tax credits (EITC), state and local taxes, and Medicare
- Weights implied by transfer policies in the U.S. computed by Hendren & Sprung-Keyser (2020) details
  - We focus on taxes, cash transfers, and in-kind transfers

Compare to Weights Implied by Tax and Transfer Policies

- General population weights across treatments are given by $\nu \in (-0.37, -0.53)$
- Weights implied by the income tax schedule in the U.S. computed by Hendren (2020) details
  - Universe of tax returns in the U.S. 2012
  - Income taxes, alternative minimum tax (AMT), earned income tax credits (EITC), state and local taxes, and Medicare
- Weights implied by transfer policies in the U.S. computed by Hendren & Sprung-Keyser (2020) details
  - We focus on taxes, cash transfers, and in-kind transfers
- We find that the general population weights are 3.7 to 5.3 times more progressive than the weights implied by the income tax schedule ($\nu = -0.1$)

Compare to Weights Implied by Tax and Transfer Policies

- General population weights across treatments are given by $\nu \in (-0.37, -0.53)$
- Weights implied by the income tax schedule in the U.S. computed by Hendren (2020) details
  - Universe of tax returns in the U.S. 2012
  - Income taxes, alternative minimum tax (AMT), earned income tax credits (EITC), state and local taxes, and Medicare
- Weights implied by transfer policies in the U.S. computed by Hendren & Sprung-Keyser (2020) details
  - We focus on taxes, cash transfers, and in-kind transfers
- We find that the general population weights are 3.7 to 5.3 times more progressive than the weights implied by the income tax schedule ($\nu = -0.1$)
- We find that the general population weights are 1.4 to 2 times more progressive than the weights implied by transfer policies ($\nu = -0.26$)

Compare to Weights Implied by Tax and Transfer Policies

- General population weights across treatments are given by $\nu \in (-0.37, -0.53)$
- Weights implied by the income tax schedule in the U.S. computed by Hendren (2020) details
  - Universe of tax returns in the U.S. 2012
  - Income taxes, alternative minimum tax (AMT), earned income tax credits (EITC), state and local taxes, and Medicare
- Weights implied by transfer policies in the U.S. computed by Hendren & Sprung-Keyser (2020) details
  - We focus on taxes, cash transfers, and in-kind transfers
- We find that the general population weights are 3.7 to 5.3 times more progressive than the weights implied by the income tax schedule ($\nu = -0.1$)
- We find that the general population weights are 1.4 to 2 times more progressive than the weights implied by transfer policies ($\nu = -0.26$)

figure

Compare to Weights Implied by Tax and Transfer Policies

- We explore why the general population weights are more progressive than the weights implied by the income tax schedule ("political weights")
- We focus on factors related to the aggregation of societal welfare weights

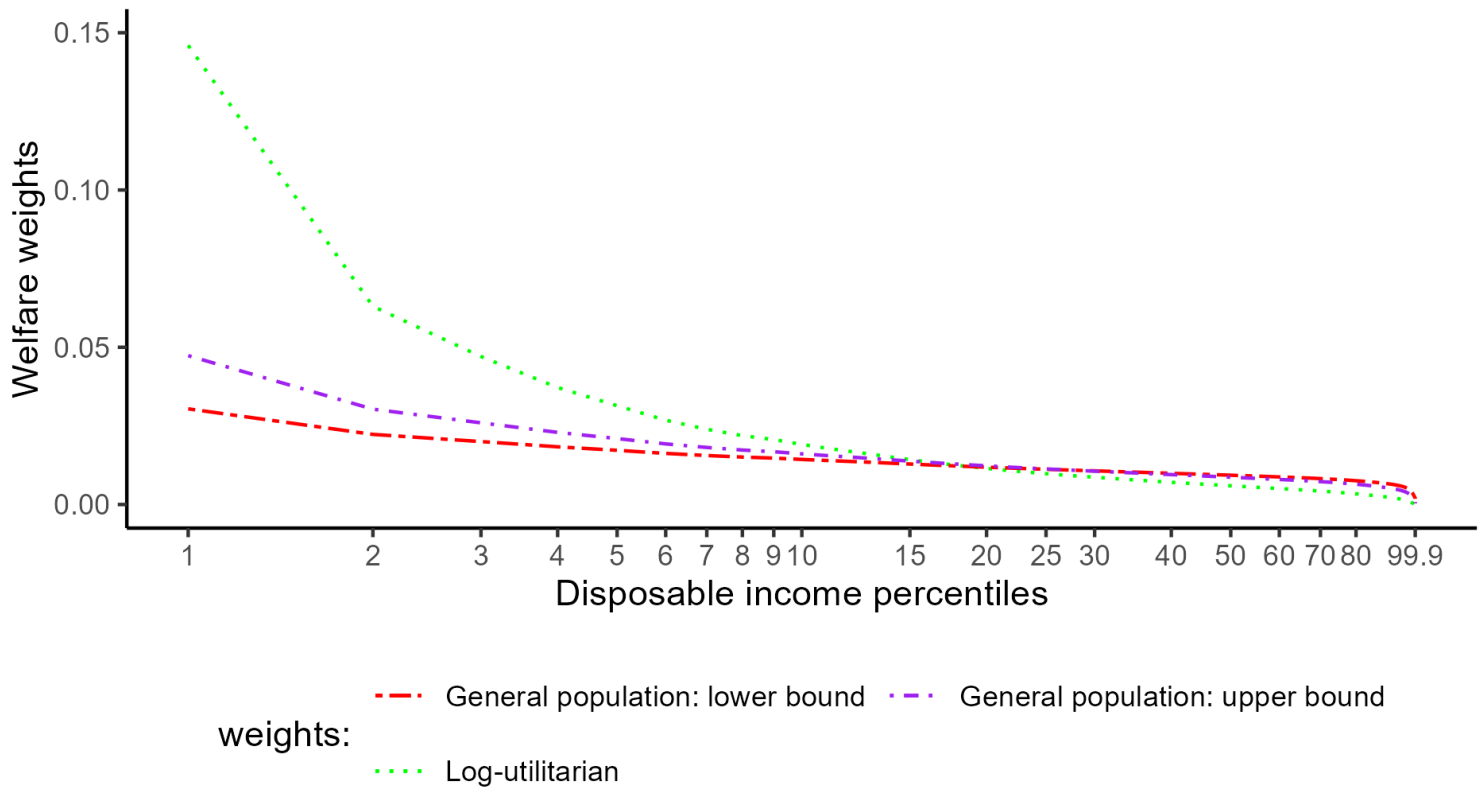
1. Political weights aggregate weights under the median voter model
   - ✗ Compare to the median welfare weights of the general population
2. Political weights ignore non-voters
   - ✗ Compare to weighted median welfare weights weighted by the probability of being a registered voter
3. Political weights aggregate weights guided by self-interest motives
   - ✗ Compare to modified average general population weights that account for self-interest motives
4. Political weights overweight the interests of the high-income individuals
   - ✓ Compare to the weighted average general population weights with a relatively higher "aggregation" weights to high-income individuals

Compare to the Weights Used in the Literature

- Literature assigns welfare weights based on several functional forms
- Welfare weights frequently used in the literature: inversely proportional to the disposable incomes of the Recipients (y^{ν}, $\nu = -1$)
- Correspond to utilitarian weights with log utilities
- Log-utilitarian weights are about 1.8 to 3.3 times more progressive than the average general population weights

Compare to the Weights Used in the Literature

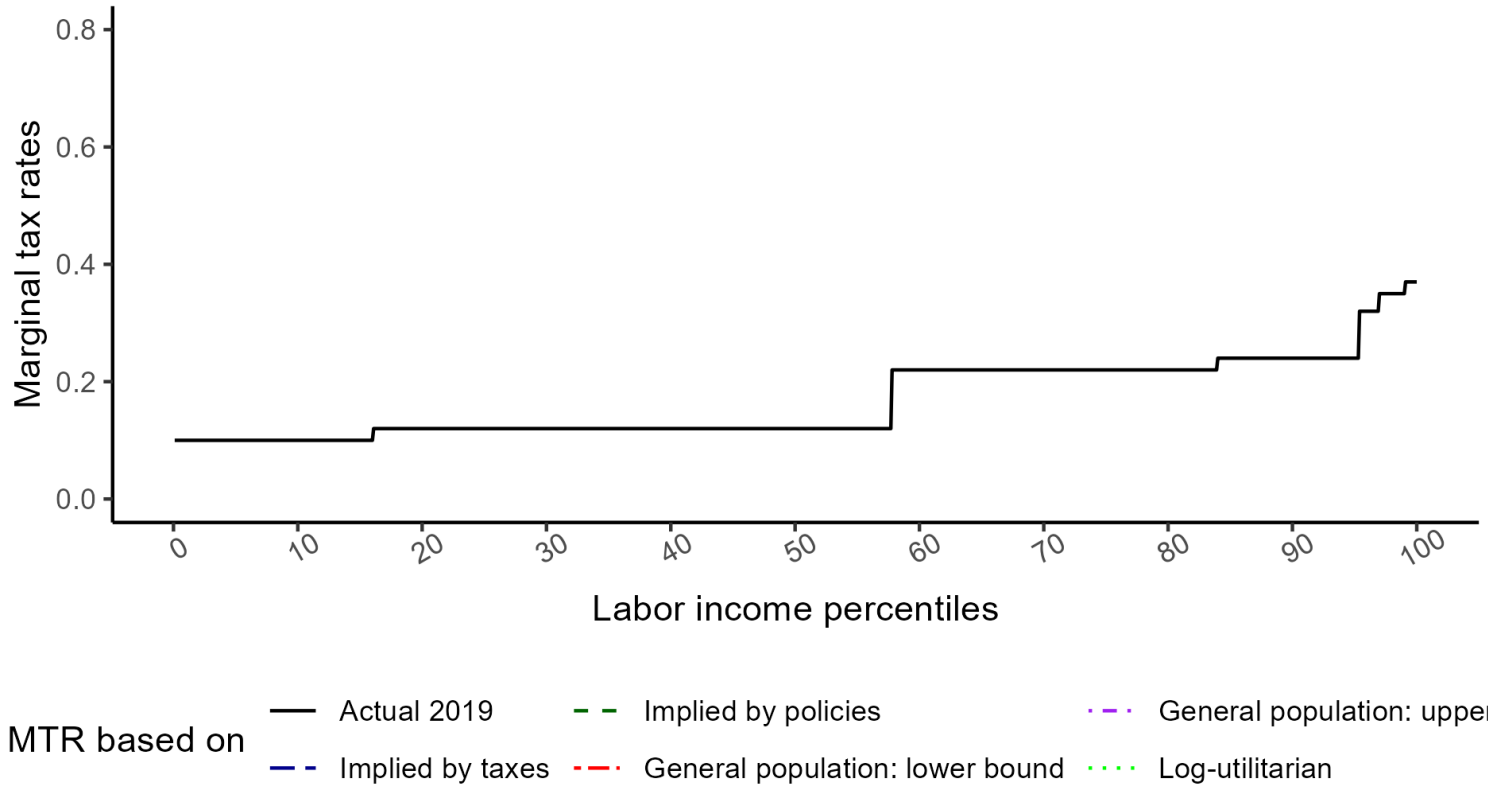
- Literature assigns welfare weights based on several functional forms
- Welfare weights frequently used in the literature: inversely proportional to the disposable incomes of the Recipients (y^{ν}, $\nu = -1$)
- Correspond to utilitarian weights with log utilities
- Log-utilitarian weights are about 1.8 to 3.3 times more progressive than the average general population weights



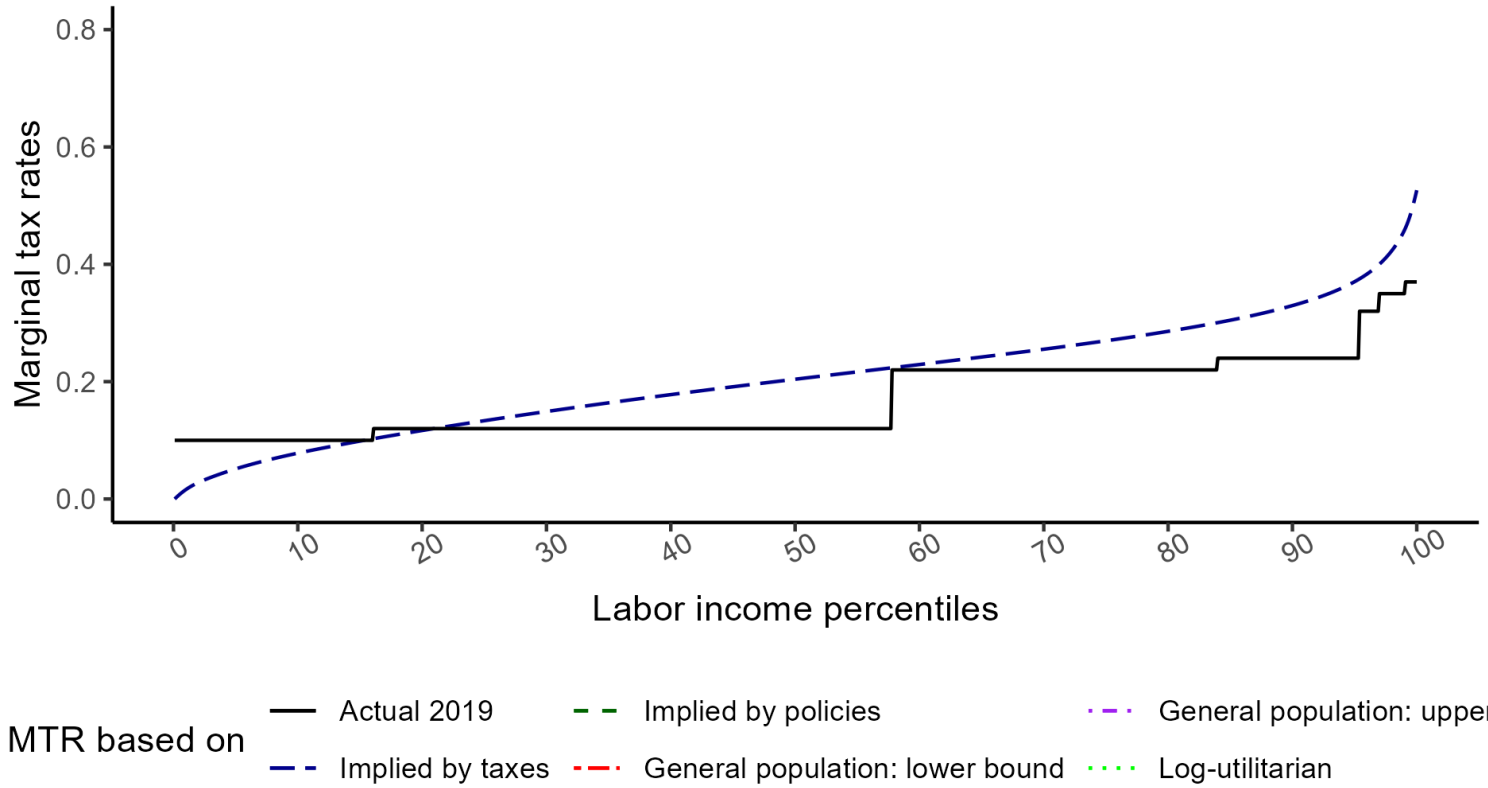
Calibrating Optimal Income Taxes

- Calibrate the optimal labor income taxes based on the formula given in Saez & Stantcheva (2016)
- Help illustrate the consequences of different sets of welfare weights for the optimal marginal tax rates (MTR)
- With some simplifying assumption details

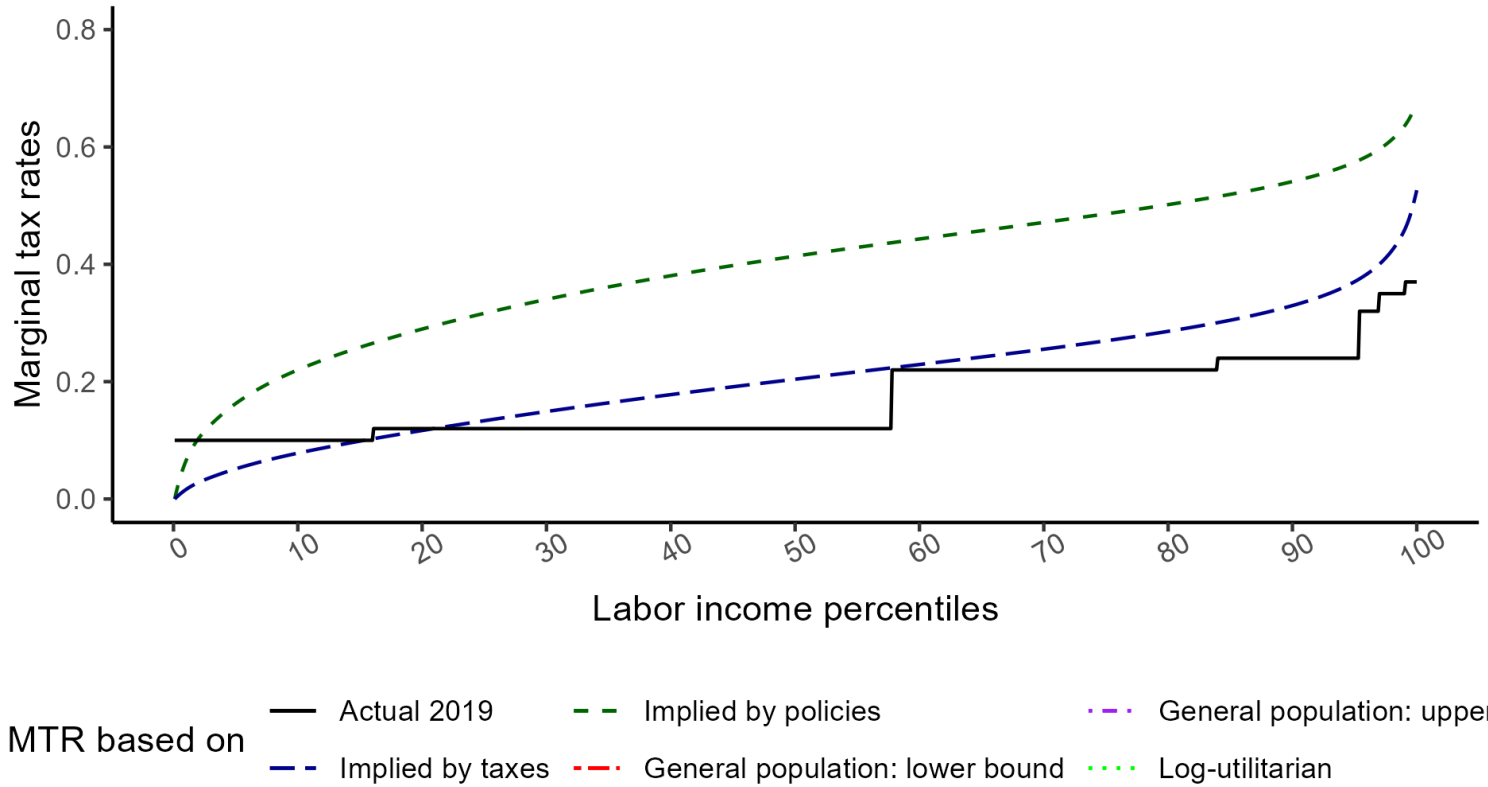
Calibrating Optimal Income Taxes



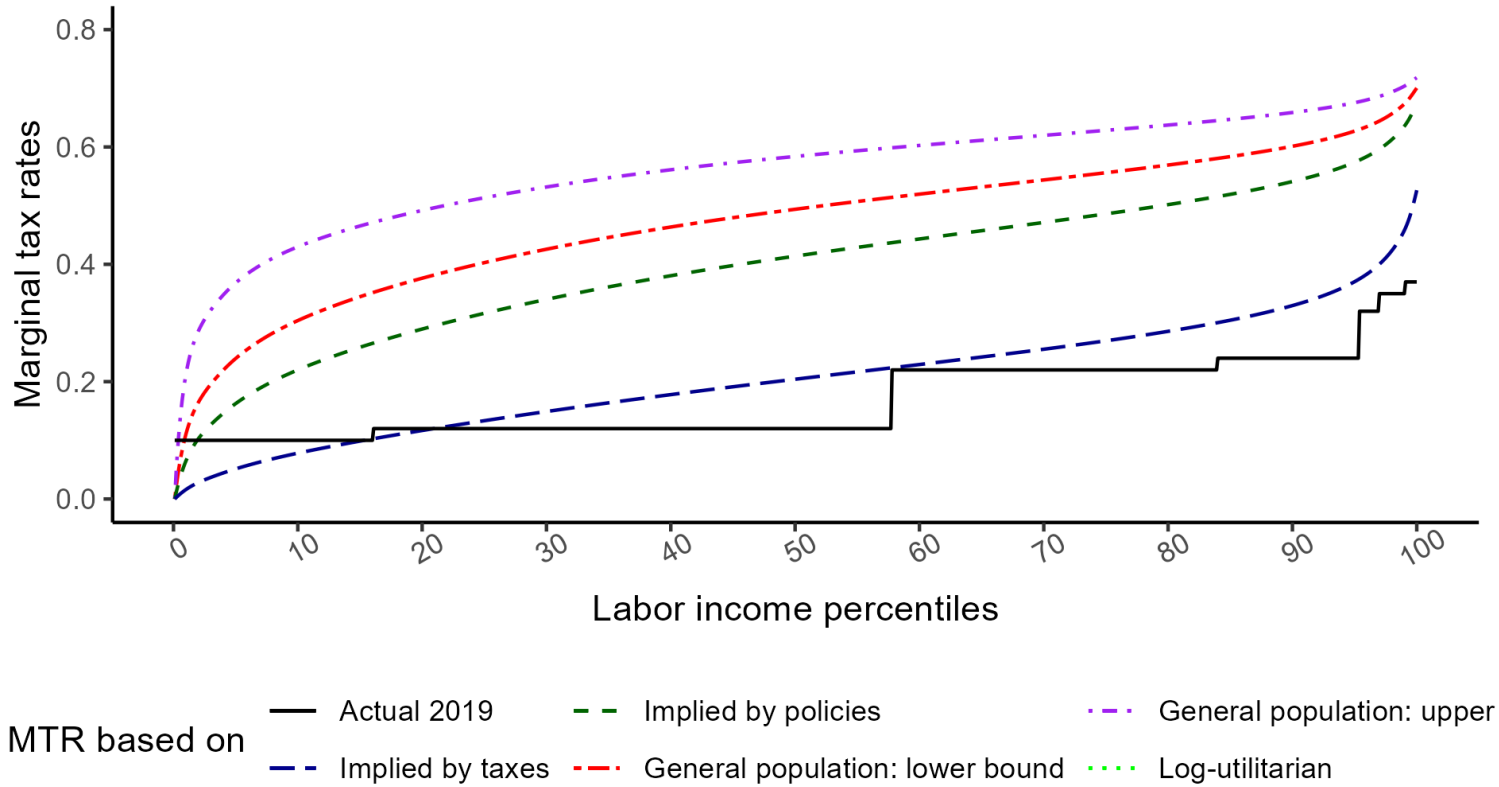
Calibrating Optimal Income Taxes



Calibrating Optimal Income Taxes

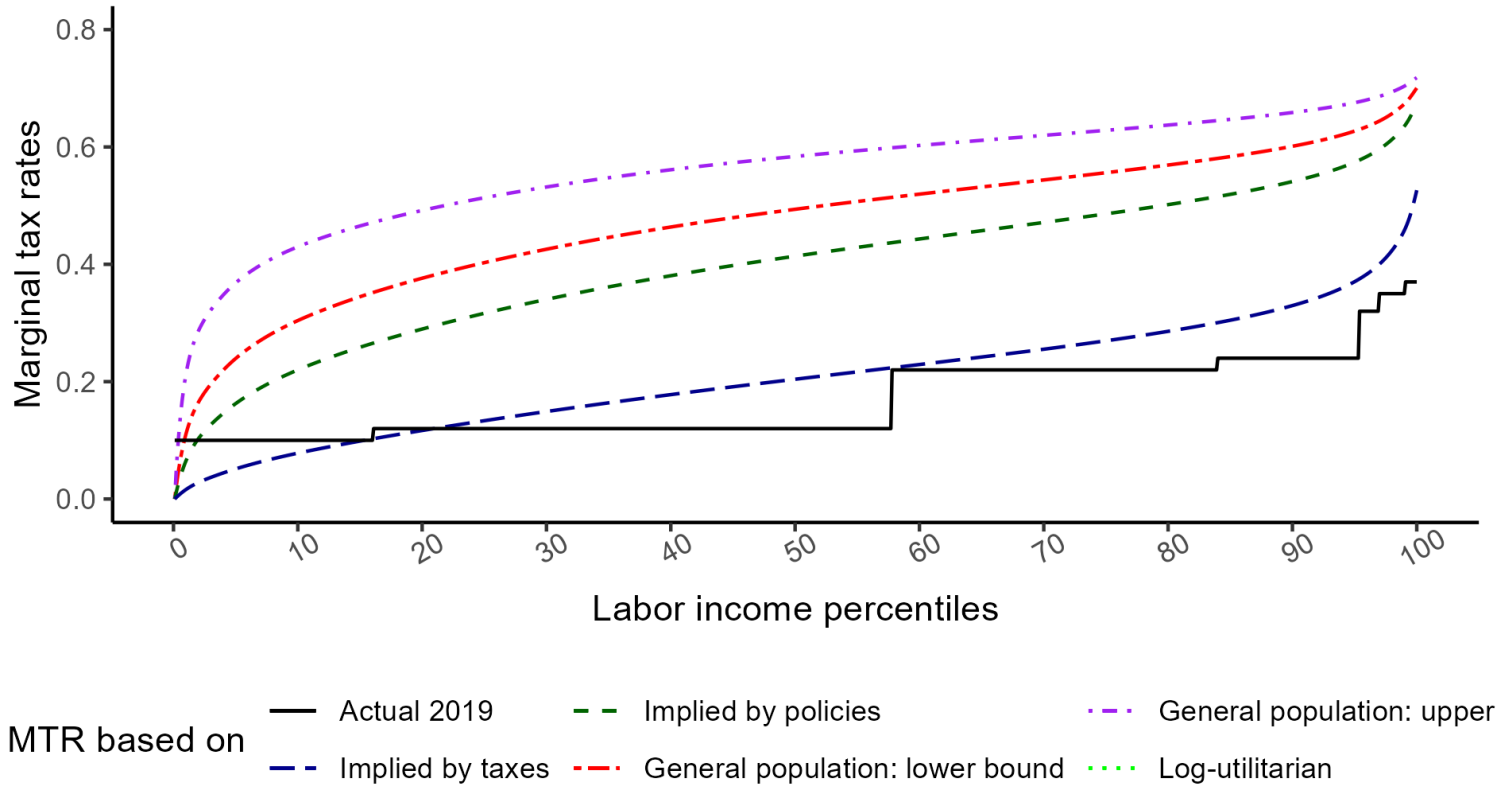


Calibrating Optimal Income Taxes



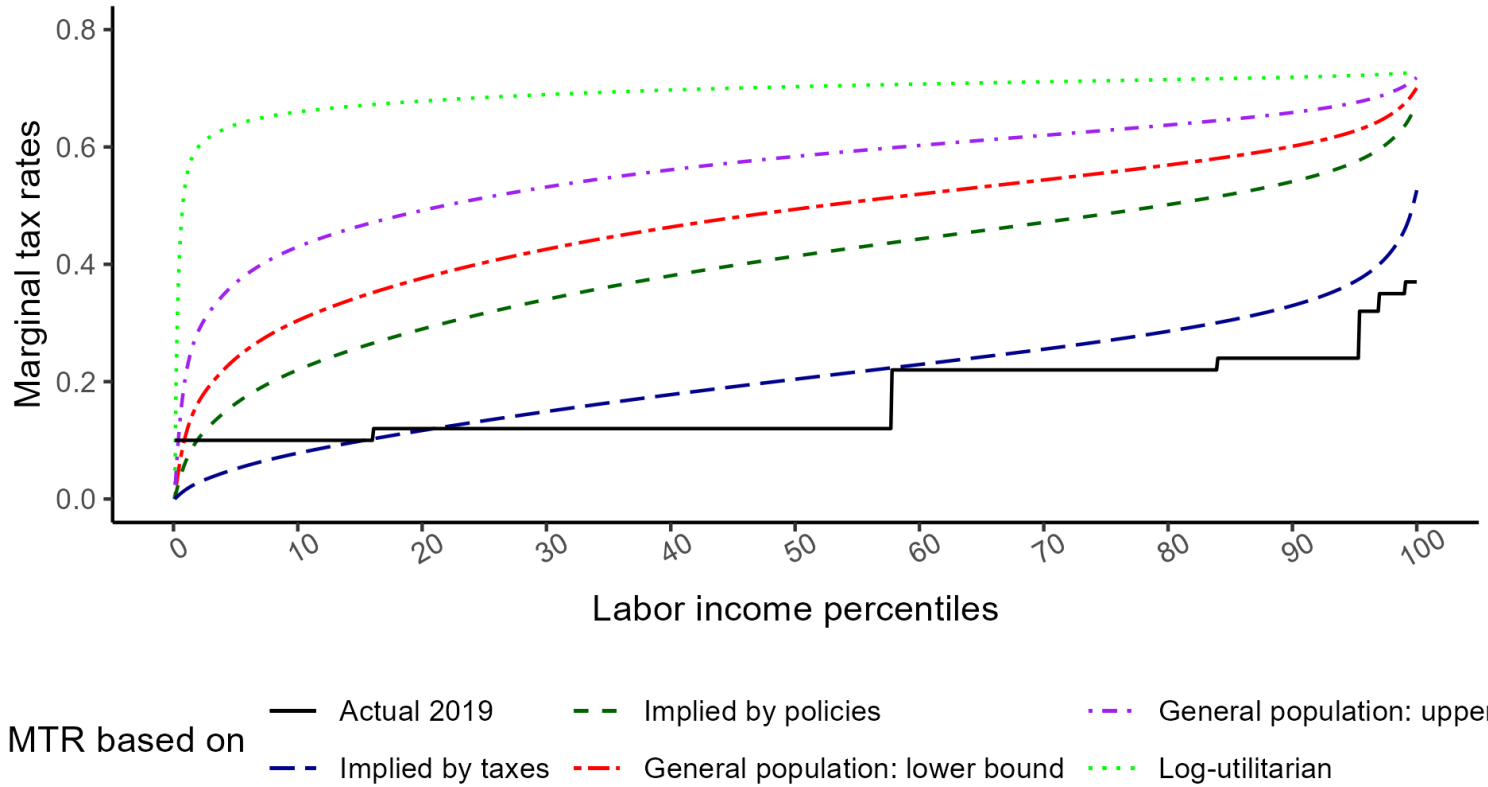
- E[MTR(general pop weights) − MTR(weights implied by policies)] is 7-16 pp

Calibrating Optimal Income Taxes



- E[MTR(general pop weights) − MTR(weights implied by policies)] is 7-16 pp
- E[MTR(general pop weights) − MTR(actual)] is 26-35 pp

Calibrating Optimal Income Taxes



- E[MTR(log-utilitarian weights) − MTR(general pop weights)] is 13-22 pp

Conclusions

We find the weights of the general population:

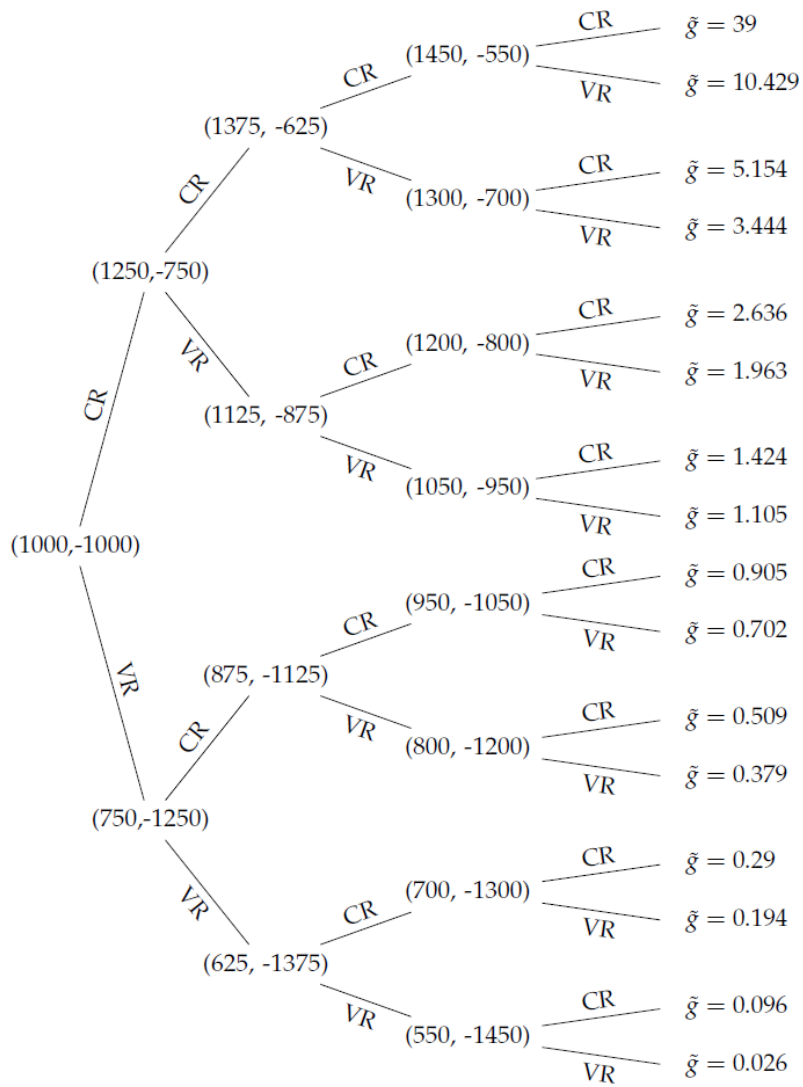
1. are progressivity on average
   $\Rightarrow$ on average, people want additional redistribution beyond that achieved by the current tax and transfer sytem
2. are more progressive than the weights implied by the income tax schedule and transfer policies in the U.S.
   $\Rightarrow$ "political weights" do not perfectly reflect societal preferences
3. are less progressive than the welfare weights frequently used in the optimal policy literature (utilitarian weights with log utilities)

THANK YOU

APPENDIX

Variable Reform Amounts in the Staircase

Back



VR" and "CR" indicate that the Variable Reform and the Constant Reform was chosen in the previous node, respectively. The Constant Reform is $(500, -500)$. $\tilde{g}$ is the ratio of the weight assigned to the higher-income Recipient to the weight assigned to the lower-income Recipient.

Screenshot of one question

Back

Decision Screen 1/6

Please consider each question carefully because if you are selected, one of your choices will have real consequences for two other persons.

	Person A	Person C
After-tax annual income	**$8,000**	**$70,000**

Question 1/4: Please choose your preferred alternative

Person A: +$1000 Person C: -$1000	Person A: +$500 Person C: -$500

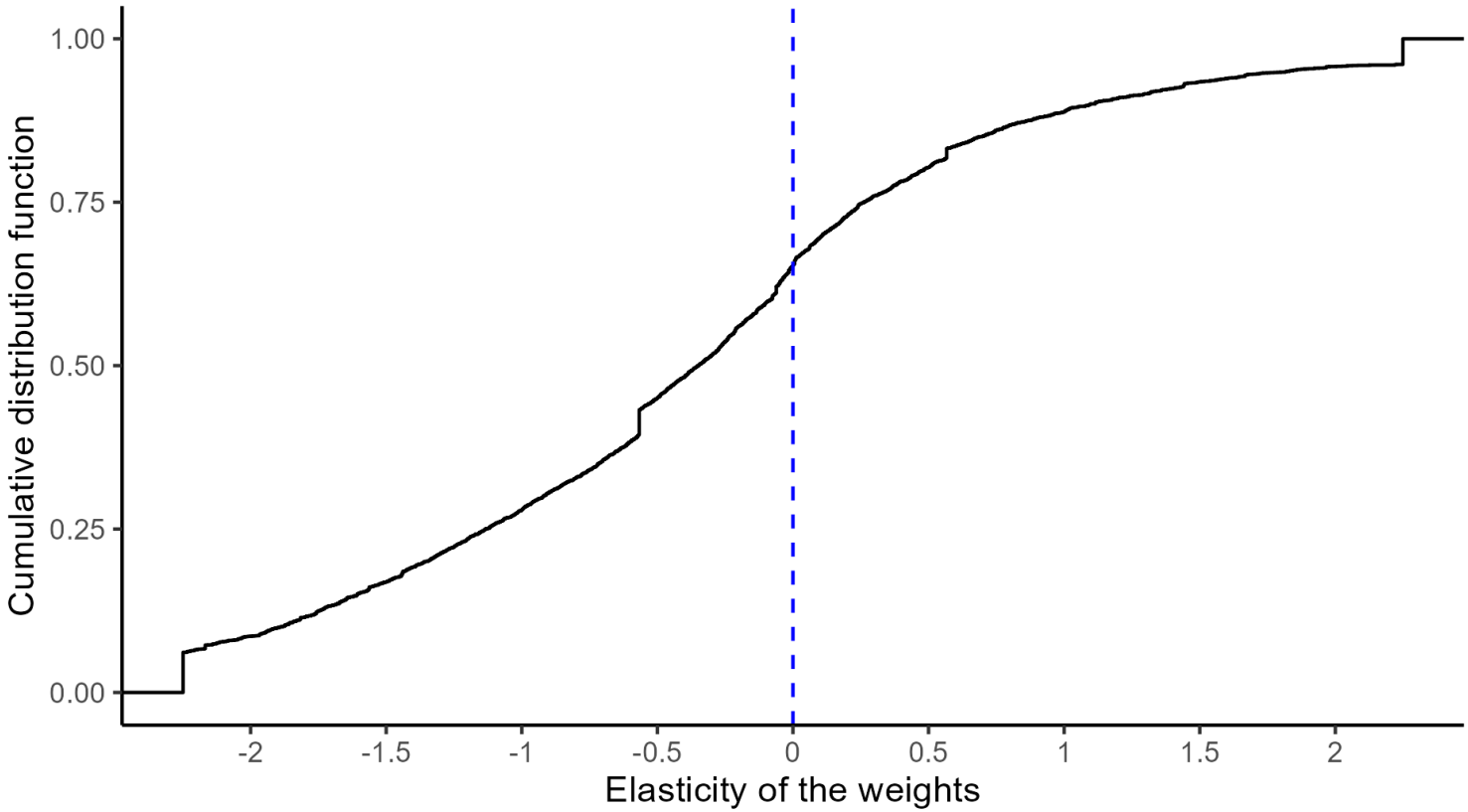
Demographics back

	Population	Wave 1	Wave 2
Income: $<$ 30,000	0.51	0.53	0.38
Income: 30-59,999	0.26	0.26	0.29
Income: 60-99,999	0.14	0.13	0.22
Income: 100-149,999	0.06	0.05	0.09
Income: $>$ 149,999	0.04	0.03	0.04
Age: 18-34	0.30	0.29	0.37
Age: 35-44	0.16	0.17	0.22
Age: 45-54	0.16	0.17	0.15
Age: 55-64	0.17	0.17	0.16
Age: $>$ 64	0.21	0.19	0.10
Edu: Up to Highschool	0.39	0.46	0.14
Edu: Some college	0.22	0.20	0.20
Edu: Bachelor or Associate	0.28	0.24	0.49
Edu: Masters or above	0.11	0.10	0.16
Region: West	0.24	0.21	0.18
Region: North-east	0.17	0.18	0.20
Region: South	0.38	0.40	0.43
Region: Mid-west	0.21	0.21	0.20
Male	0.49	0.46	0.50
Republican	0.28	0.32	0.19

- In Wave 1: $\uparrow$ share w/ education up to high school
- In Wave 2: $\downarrow$ share w/ incomes $<$ \$30,000, $\downarrow$ share above 64 years, $\downarrow$ share who studied up to high school, $\uparrow$ share w/ bachelor's degree, and $\downarrow$ share of Republicans

Heterogeneity in Welfare Weights

back



- **Result**: About 65% of the Social Architects have progressive welfare weights

Treatments Effects

Table 1: Elasticity of the Weights across Treatments

	(1)	(2)	(3)	(4)
Case	mean	se	mean	se
Loss x 70K	-0.36	0.03	-0.37	0.03
Loss x 500K	-0.09	0.03	-0.1	0.03
Gain x 70K	-0.49	0.03	-0.51	0.04
Gain x 500K	-0.13	0.02	-0.14	0.02
Base	-0.58	0.03	-0.53	0.05
Hypothetical	-0.67	0.03	-0.76	0.04
Brackets	-0.14	0.03	-0.07	0.05
Self-Interest	-0.38	0.03	-0.46	0.04
All treatments	-0.35	0.01	-0.34	0.01
Controls?	No	No	No	No
Weighted?	No	No	Yes	Yes

Welfare Weights and Preferences for Redistribution back

Consider the current incomes of individuals in society obtained after all taxes are paid and transfers received.

Do you think that, given the current incomes of individuals in society, incomes should be further redistributed or should not be further redistributed?

Please provide your answer on a scale from -2 to +2 where a +2 means that income should be further redistributed by taking from the higher-income individuals and giving to the lower/middle-income individuals while a -2 means that income should be further redistributed by taking from the lower/middle-income individuals and giving to the higher-income individuals.

- ○ -2: Incomes should be further redistributed by taking from the lower/middle-income individuals and giving to the higher-income individuals
- ○ -1:
- ○ +0: Incomes should **not** be further redistributed
- ○ +1:
- ○ +2: Incomes should be further redistributed by taking from the higher-income individuals and giving to the lower/middle-income individuals

Welfare Weights and Preferences for Redistribution back

- Correlation of elasticity of the weights and preferences for redistribution is -0.36
- We benchmark the predictive power of welfare weights against political affiliation

Row	Explanatory variable	Controls?	RMSE
1	Republican	No	0.85
2	Elasticity of the weights	No	0.83
3	Republican	Yes	0.84
4	Elasticity of the weights	Yes	0.83
5	Republican + Elasticity of the weights	No	0.83
6	Republican + Elasticity of the weights	Yes	0.83

Welfare Weights and Preferences for Redistribution back

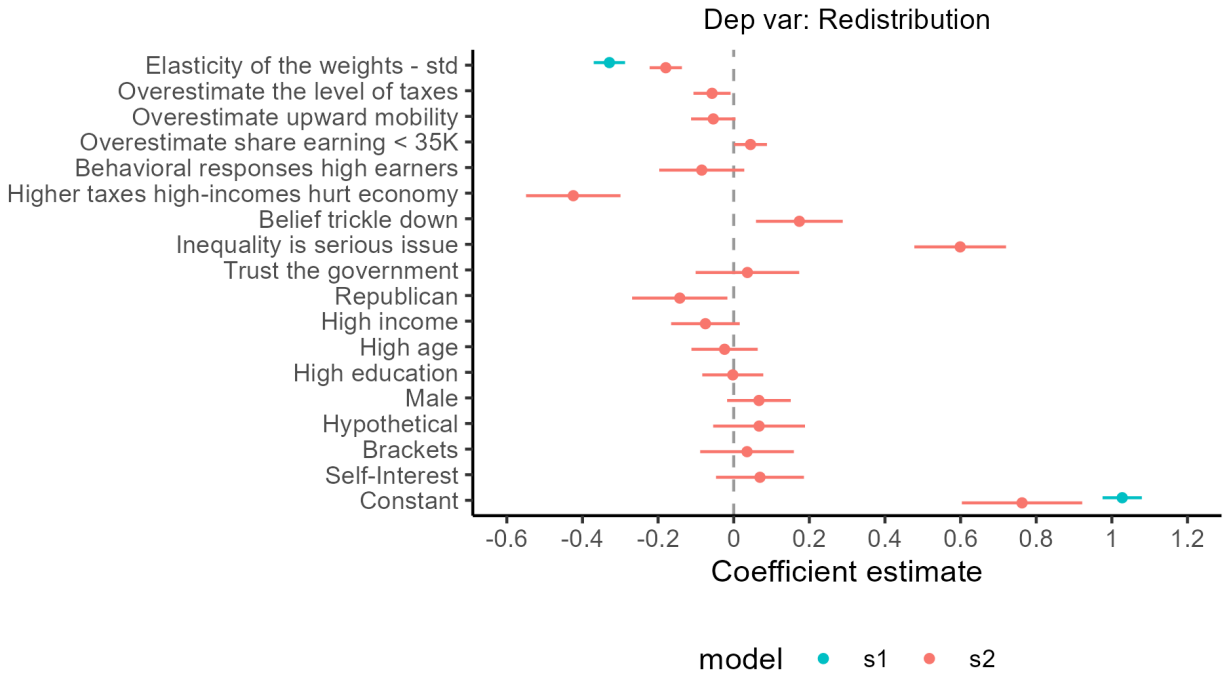
- Correlation of elasticity of the weights and preferences for redistribution is -0.36
- We benchmark the predictive power of welfare weights against political affiliation

Row	Explanatory variable	Controls?	RMSE
1	Republican	No	0.85
2	Elasticity of the weights	No	0.83
3	Republican	Yes	0.84
4	Elasticity of the weights	Yes	0.83
5	Republican + Elasticity of the weights	No	0.83
6	Republican + Elasticity of the weights	Yes	0.83

Result: Social Architects' preferences for redistribution can be predicted with similar accuracy using either their stated political affiliation or their assigned welfare weights.

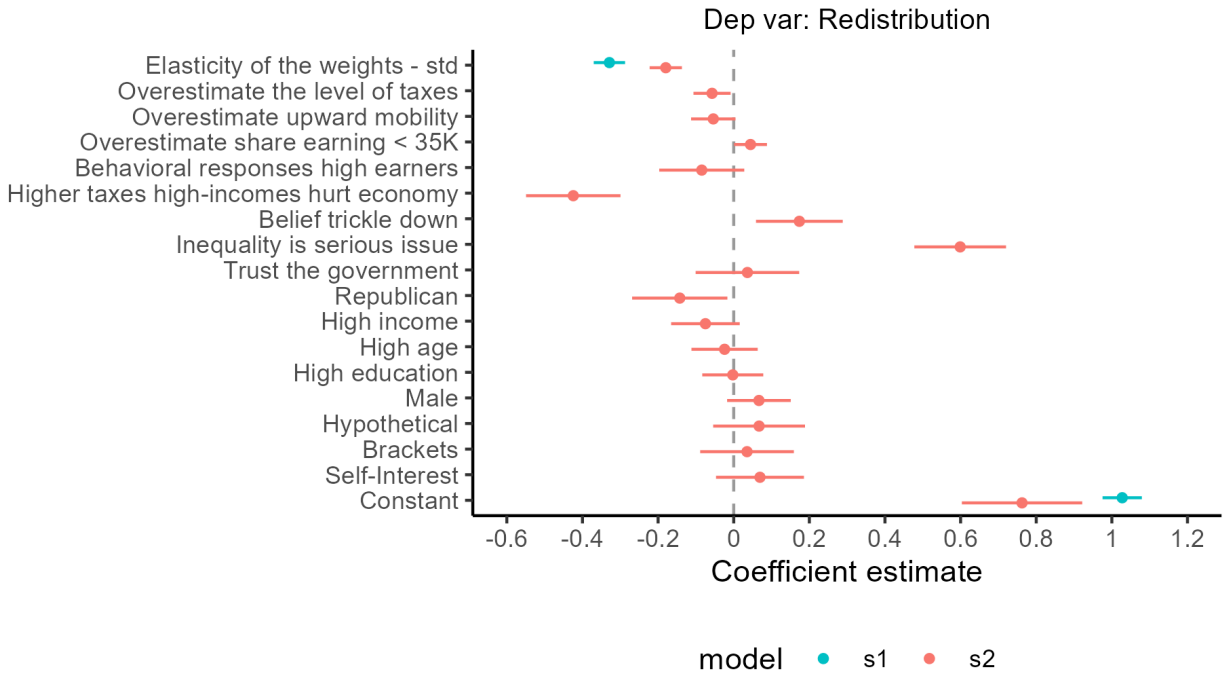
Implication: Welfare weights may be useful to obtain socially acceptable policies

Which Factors Predict Preferences for Redistribution back



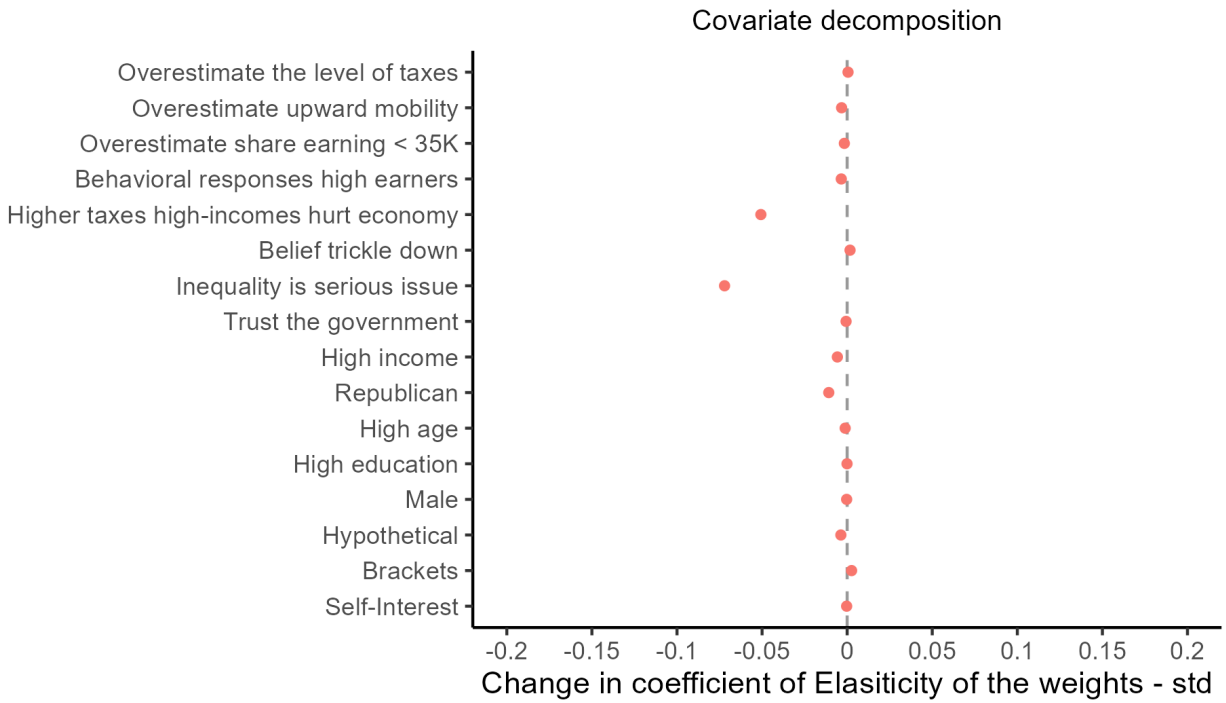
Notes: The dependent variable (*Redistribution*) takes values from -2 to +2, where positive (negative) values indicate that income should be further redistributed by taking from higher-income (lower/middle-income) individuals and giving to lower/middle-income (higher-income) individuals.

Which Factors Predict Preferences for Redistribution back



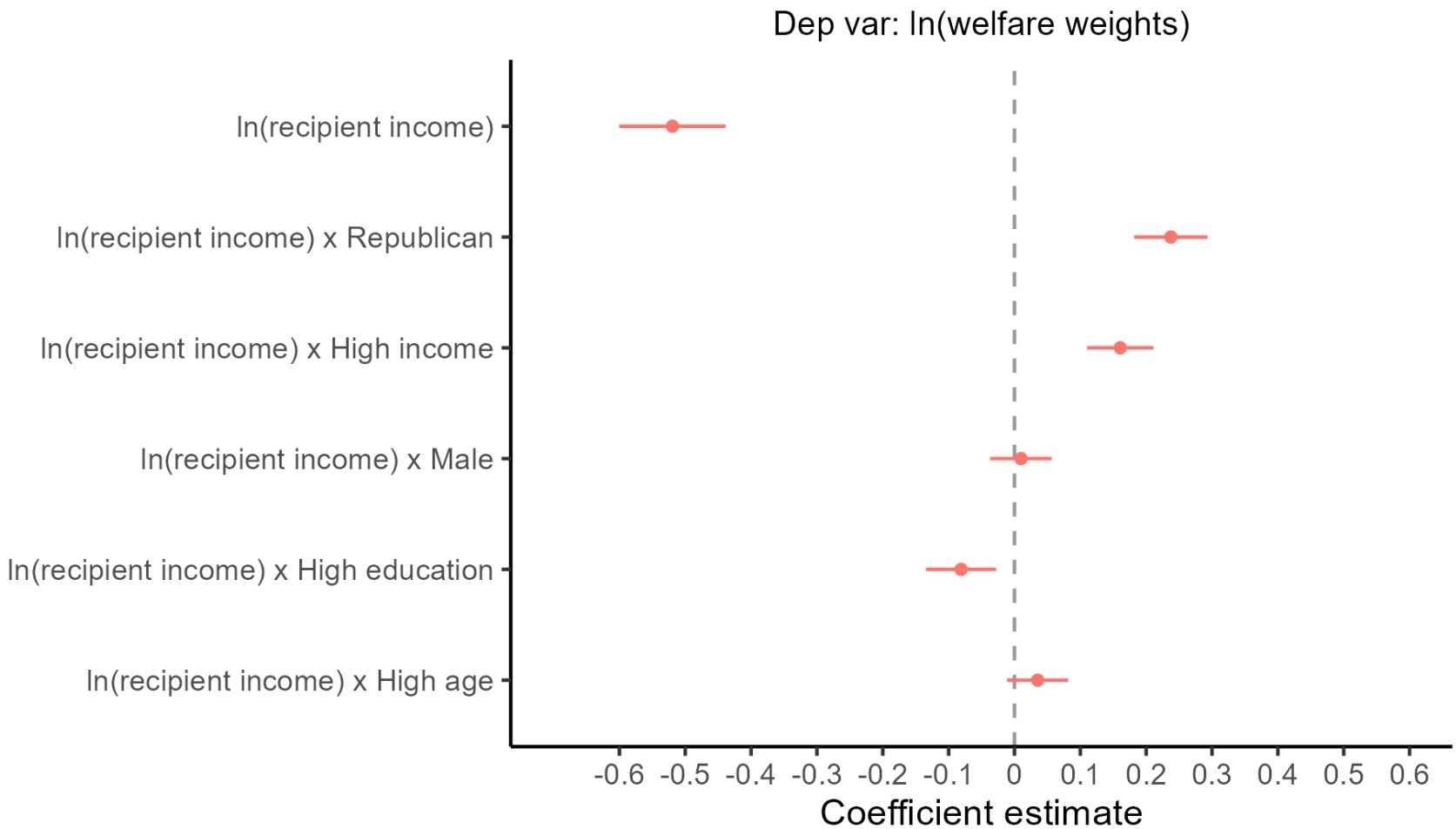
Notes: The dependent variable (*Redistribution*) takes values from -2 to +2, where positive (negative) values indicate that income should be further redistributed by taking from higher-income (lower/middle-income) individuals and giving to lower/middle-income (higher-income) individuals.

Do Welfare Weights Capture Other Factors? back



Gelbach Decomposition of *Elasticity of the weights - std*

Weights by Demographics back



- **Result:** Republicans and high-income Architects assign less progressive welfare weights

Compare to Hendren (2020) back

- Step 1: Optimal income-tax function
  - $T' = f(..., g)$
  - T': marginal tax rates, g: welfare weights
- Step 2: Obtain inverse-optimum function
  - $g = f^{-1}(T'_c, \dots)$
  - T'_c: current tax schedule
  - g: "Inverse-optimum" weights
- Step 3: Plug in the relevant parameters
  - Universe of tax returns in the U.S. 2012
  - Income taxes, alternative minimum tax (AMT), earned income tax credits (EITC), state and local taxes, and Medicare.
- Step 4: Re-normalize the weights to sum to 1

Compare to Hendren & Sprung-Keyser (2020) back

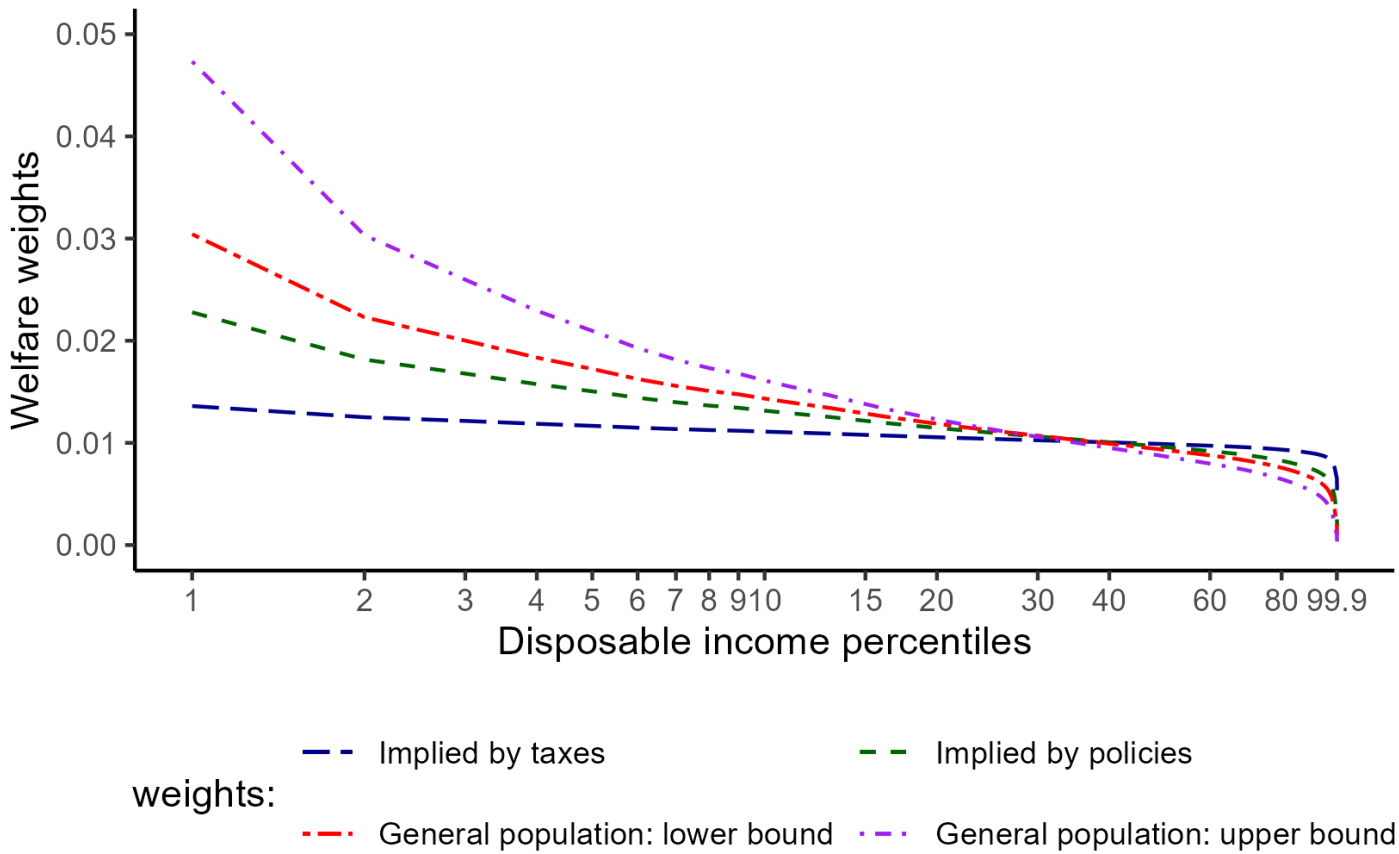
- Consider a policy that affects those with incomes near z^*
- A policy's Marginal Value of Public Funds (MVPF) $= s^*/c$.
  - s^*: individuals' WTP from their income for the policy change
  - c: the net cost to the government of the policy
- Replicating s^* through modifications to the tax schedule would cost the government $s^* g(z^*)$
  - $g(z^*)$ is the marginal value of an additional dollar of consumption (welfare weight)
- It would be cheaper to replicate s^* through the tax schedule iff $s^* g(z^*) \geq c$

$$MVPF = \frac{s^*}{c} \geq \frac{1}{g(z^*)} \tag{1}$$

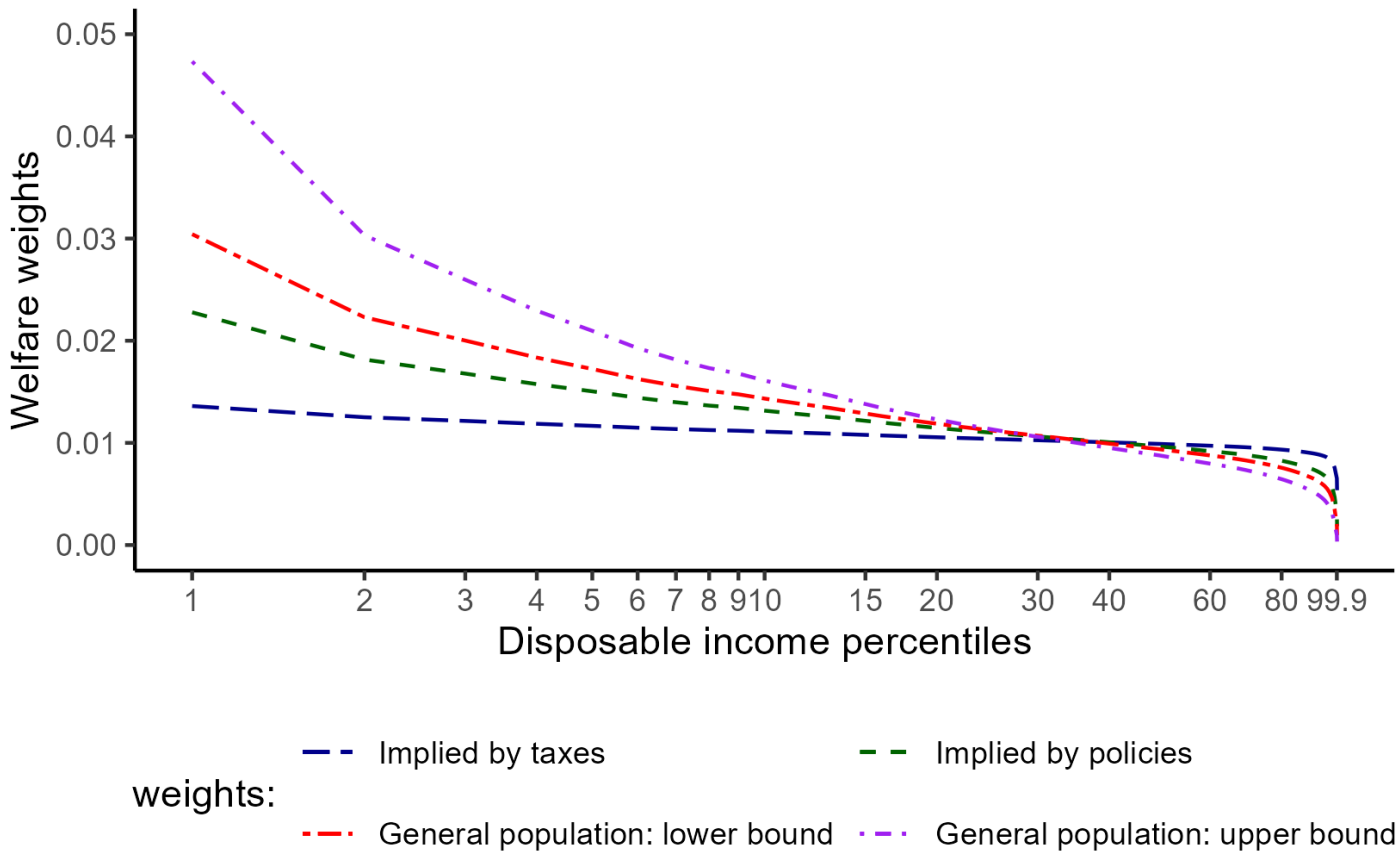
- Welfare weights implied by transfer policies $\Rightarrow$ inverse of the MVPF
- Hendren & Sprung-Keyser (2020) provide MVPFs of various policies
  - We focus on taxes, cash transfers, and in-kind transfers
  - We restrict the policies with a positive MVPF

Compare to Weights Implied by Tax and Transfer Policies

back



Compare to Weights Implied by Tax and Transfer Policies back



- General population weights are
  - 3.7 to 5.3 times more progressive than the weights implied by the tax schedule
  - 1.4 to 2 times more progressive than the weights implied by transfer policies

Calibrating Optimal Income Taxes back

$$T'(z) = \frac{1 - \bar{G}(z)}{1 - \bar{G}(z) + e(z) \cdot \alpha(z)} \tag{2}$$

- $T'(z)$ is the marginal tax rate for income z
- $e(z)$ is the average elasticity of earnings w.r.t the retention rate $1 - T'(z)$
  - We set $e(z) = 0.25$, a mid-range elasticity (Saez et al. 2012)
- $\alpha(z) = zh(z)/[1 - H(z)]$
  - Local Pareto parameter; indicates the thinness of the distribution
  - We set $\alpha(z) = 1.5$ for simplicity
- $\bar{G}(z)$ is the average welfare weight assigned to those earning above z
  - Welfare weights assigned using the function $\bar{g}_j(z) = z^{\nu}$
  - We re-normalize the weights such that they sum to 1
  - Compute $\bar{G}(z)$
- Create a smooth income distribution using smoothing splines with percentiles (0.1, 0.2, ... 99.9, 100).

References

Allcott, H., Lockwood, B. B. & Taubinsky, D. (2019), 'Regressive sin taxes, with an application to the optimal soda tax', *The Quarterly Journal of Economics* **134**(3), 1557–1626.

Bourguignon, F. & Spadaro, A. (2012), 'Tax–benefit revealed social preferences', *The Journal of Economic Inequality* **10**(1), 75–108.

Cappelen, A. W., Konow, J., Sørensen, E. Ø. & Tungodden, B. (2013), 'Just luck: An experimental study of risk-taking and fairness', *American Economic Review* **103**(4), 1398–1413.

Drenik, A. & Perez-Truglia, R. (2018), 'Sympathy for the diligent and the demand for workfare', *Journal of Economic Behavior & Organization* **153**, 77–102.

Fleurbaey, M. & Maniquet, F. (2018), 'Optimal income taxation theory and principles of fairness', *Journal of Economic Literature* **56**(3), 1029–79.

Hendren, N. (2020), 'Measuring economic efficiency using inverse-optimum weights', *Journal of Public Economics* **187**, 104198.

Hendren, N. & Sprung-Keyser, B. (2020), 'A unified welfare analysis of government policies', *The Quarterly Journal of Economics* **135**(3), 1209–1318.

Lockwood, B. B. & Weinzierl, M. (2016), 'Positive and normative judgments implicit in us tax policy, and the costs of unequal growth and recessions', *Journal of Monetary Economics* **77**, 30–47.

Saez, E. (2002), 'Optimal income transfer programs: intensive versus extensive labor supply responses', *The Quarterly Journal of Economics* **117**(3), 1039–1073.

Saez, E., Slemrod, J. & Giertz, S. H. (2012), 'The elasticity of taxable income with respect to marginal tax rates: A critical review', *Journal of economic literature* **50**(1), 3–50.

Saez, E. & Stantcheva, S. (2016), 'Generalized social marginal welfare weights for optimal tax theory', *American Economic Review* **106**(1), 24–45.

Weinzierl, M. (2014), 'The promise of positive optimal taxation: normative diversity and a role for equal sacrifice', *Journal of Public Economics* **118**, 128–142.

Weinzierl, M. (2018), 'Revisiting the classical view of benefit-based taxation', *The Economic Journal* **128**(612), F37–F64.