

# Wages, Taxes, and Labor Supply Elasticities: The Role of Social Preferences

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“Wage elasticities exceed net-of-tax-rate elasticities — because individuals care about how their taxes are used.”

## 1 Research question

Are labor supply responses to wages and taxes equivalent? Canonical models assume both affect behavior only through disposable income, so wage and net-of-tax-rate elasticities are interchangeable — and most estimates rely on after-tax wage variation. If individuals have social preferences over tax-funded government expenditure, the two elasticities will diverge. We quantify this **wage-tax elasticity wedge**.

## 2 Theory

$$\begin{aligned} \max_{c_i, h_i} \quad & U(c_i, h_i, g_i) \\ \text{s.t.} \quad & c_i = (1 - \tau)w_i h_i + N_i \\ & g_i = \tau w_i h_i \end{aligned}$$

One change to the canonical model: utility also depends on  $g_i$ , the individual's tax-funded government expenditure.

- If people have **positive social preferences**, the **wage elasticity** of labor supply will be **larger than the net-of-tax rate elasticity** of labor supply.
- A tax rise hurts less than an equivalent wage cut: public goods / warm glow partly compensate.
- A wage rise benefits **both** consumption and  $g$ .
- Holds for Marshallian, Hicksian, and Frisch

### Frisch wage vs net-of-tax rate elasticities

$$\epsilon_W^F = \frac{-w_i(1 - \tau)U_{cc} \left[ U_c + \frac{\tau}{1 - \tau}(U_g + U_{gg}g_i) \right]}{h_i(U_{cc}U_{hh} - U_{ch}^2 + \tau^2 w_i^2 U_{cc}U_{gg})}$$

$$\epsilon_{1-\tau}^F = \frac{-w_i(1 - \tau)U_{cc} \left[ U_c - (U_g + U_{gg}g_i) \right]}{h_i(U_{cc}U_{hh} - U_{ch}^2 + \tau^2 w_i^2 U_{cc}U_{gg})}$$

- Caveat up front:** the wedge may partly reflect *other* social preferences — e.g., status utility from a higher gross wage.
- But the **government-related channel is corroborated:** the wedge is larger for respondents with better opinions of government, and when taxes fund programs they like (→ blocks 7–8).

## 3 The vignette experiment

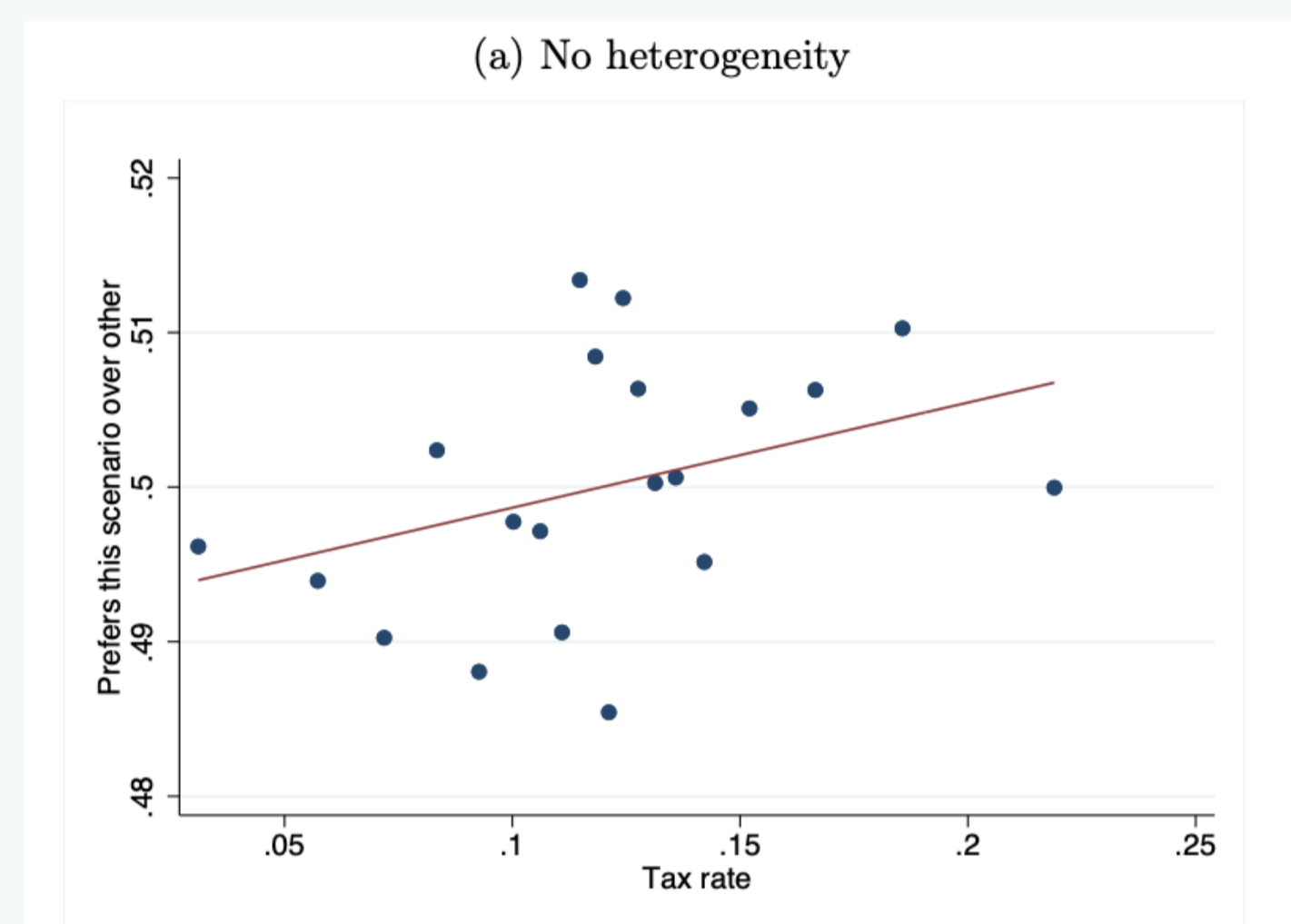
- Online vignette experiment, March–June 2023
- 5,439 employed US adults, 25–64;** representative on age, gender, income.
- Ten pairs of hypothetical job offers**, randomizing wage, hours, and the **federal income tax rate**.
- Pre-tax pay, tax paid to government, take-home pay all shown — salience held constant.
- Choices: *take this job?* and *which do you prefer?*
- Pairs 9–10: tax earmarked to fund a **specific program**.
- Comprehension and attention checks throughout.

Scenario details	If unemployed, would you take up this job?		Which scenario would you prefer?
	Yes	No	
<b>Scenario 1</b> Hourly wage rate: \$12.00 Weekly work hours: 35 hours Income tax rate: 4% This means that, every month: (1) Your pre-tax earnings: \$1,680 You pay this tax to the government: \$67 Your post-tax earnings: \$1,613	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
<b>Scenario 2</b> Hourly wage rate: \$10.00 Weekly work hours: 60 hours Income tax rate: 20% This means that, every month: (1) Your pre-tax earnings: \$2,400 You pay this tax to the government: \$480 Your post-tax earnings: \$1,920	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

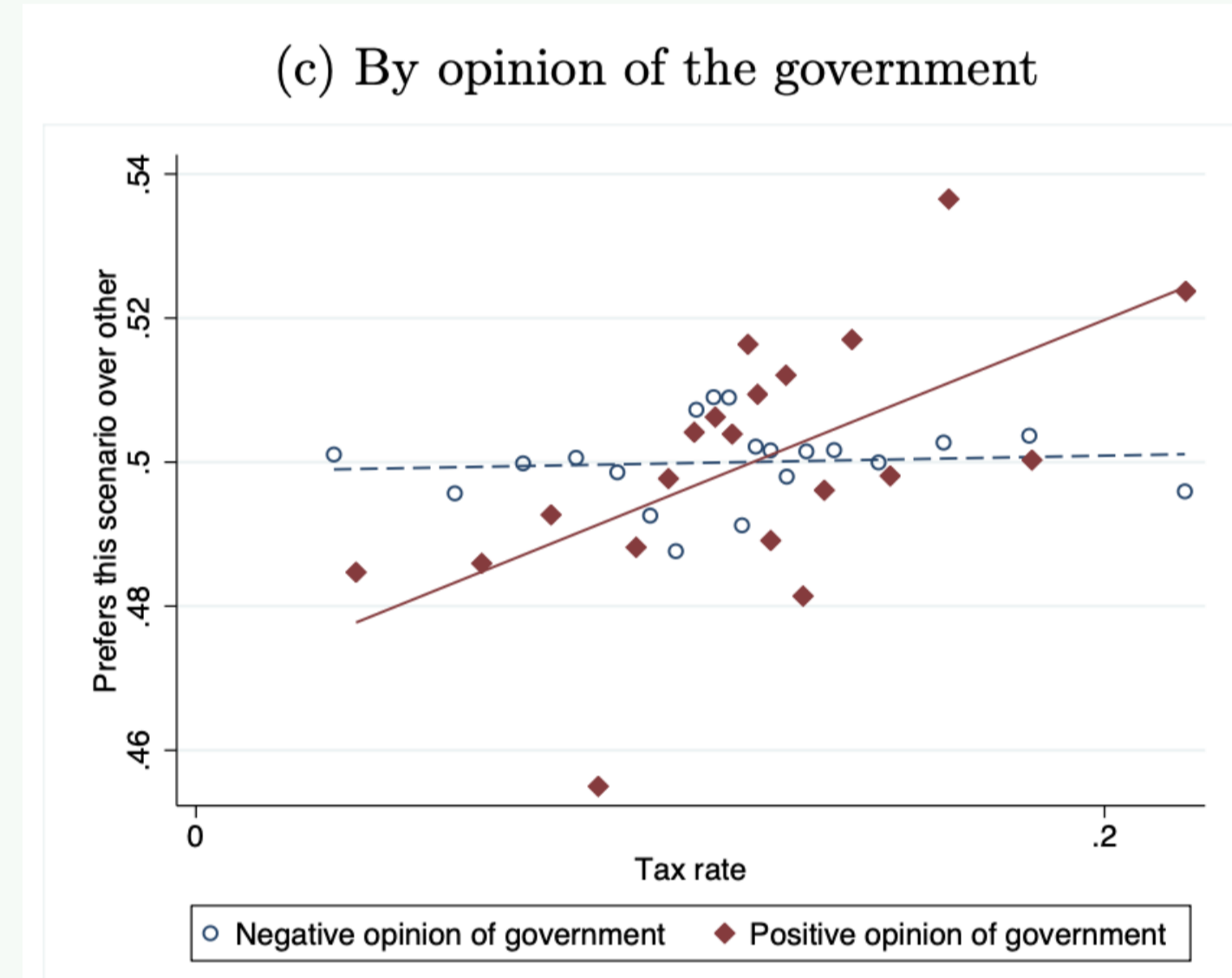
Finally, check the top box if you would prefer Scenario 1, or check the bottom box if you would prefer Scenario 2. This is also your chance to check if your answers on this page are what you intend before you submit.

## 4 Reduced-form evidence

- Higher taxes mechanically cut take-home pay — so we hold **disposable income and work hours** fixed (200-quantile × hours cells; individual, pair, order FE).
- Conditional on take-home pay and hours, respondents **prefer higher-tax scenarios**.



- Concentrated among **Democrats** and those with a **positive opinion of government**; non-aligned groups are flat.
- Choices respond to more than disposable income — in a government-aligned pattern.



## 5 Empirical strategy

- First, estimate conditional logit (respondent-pair FE) choice model
- Translog utility in consumption and leisure + **cubic in g** — sign and curvature of social preferences unrestricted.

$$\begin{aligned} U(c_{itj}, h_{itj}, g_{itj}) = & \beta_c \log c_{itj} + \beta_h \log(L - h_{itj}) \\ & + \beta_{cc} (\log c_{itj})^2 + \beta_{hh} (\log(L - h_{itj}))^2 + \beta_{ch} \log c_{itj} \cdot \log(L - h_{itj}) \\ & + \beta_g g_{itj} + \beta_{gg} g_{itj}^2 + \beta_{ggg} g_{itj}^3 + \text{controls} + \varepsilon_{itj} \end{aligned}$$

- Second, simulate elasticities using the coefficients and the respondents' actual values; delta-method SEs.

Estimated:  $E(U_g) > 0$ ,  $E(U_{gg}; g) < 0$  — positive, diminishing social preferences.

## 6 Main result: the wedge

- Wage elasticity **exceeds** net-of-tax-rate elasticity for **all three types** ( $p < .01$ ).
- Frisch wage elasticity **1.74** ≈ 1.5× its net-of-tax-rate counterpart (1.15).
- Hicksian net-of-tax-rate elasticity ≈ **zero**.
- Survives **16 robustness checks**: e.g. utility functional form, sample trimming, reweighting.

	Based on dep. var.: Will work in this scenario		Based on dep. var.: Prefers this scenario over other	
	No social preferences (1)	With social preferences (2)	No social preferences (3)	With social preferences (4)
Wage	1.29*** (0.11)	1.21*** (0.10)	1.84*** (0.15)	1.74*** (0.14)
Net-of-tax rate	1.29*** (0.11)	0.64*** (0.085)	1.84*** (0.15)	1.15*** (0.11)
Wage-tax elasticity wedge	0 (.)	0.57*** (0.068)	0 (.)	0.59*** (0.063)
Respondents	4,670	4,670	5,380	5,380

Simulated Frisch elasticities and wedge

## 7 Who drives the wedge?

- If government-related social preferences drive the wedge, it should be larger where they're stronger. **It is:**
- Larger for **Democrats**.
- Larger with **positive opinion of government, trust, perceived benefit, perceived fairness**.

	Average partial effect of the specified heterogeneity variable on the wage-tax elasticity wedge		
	Marshallian (1)	Hicksian (2)	Frisch (3)
Panel A: Effect of political affiliation on the wedge			
Respondent is Democrat	0.032* (0.017)	0.070* (0.041)	0.13** (0.062)
Number of Respondents	4,994	4,994	4,994
Panel B: Effect of attitudes towards the government on the wedge			
General opinion of government	0.045** (0.021)	0.12** (0.048)	0.26*** (0.085)
Importance of government	-0.0041 (0.019)	0.0054 (0.044)	0.017 (0.060)
Trust in government	0.044 (0.029)	0.16** (0.068)	0.29** (0.13)
Programs benefit people like me	0.042* (0.024)	0.11** (0.056)	0.17** (0.083)
Government revenue allocation is fair	0.047*** (0.018)	0.12*** (0.042)	0.20*** (0.065)

Wedge by party and attitudes towards government

- Earmarked-tax vignette pairs 9-10: wedge is **larger when respondents like the program more**
- Wage-side channels (gross-pay status, reciprocity) should not produce these patterns.

	Average partial effect of liking the program on the wedge specified (1)
Marshallian wage-tax elasticity wedge	0.15** (0.071)
Hicksian wage-tax elasticity wedge	0.41** (0.19)
Frisch wage-tax elasticity wedge	0.40* (0.21)
Respondents	3,136

Liking of the funded program (pairs 9–10).

## 8 External validity: ETI

- Vignettes = stated preferences. Do social preferences matter for labor supply responses to taxation in real-world settings?
- Merge **Neisser (2021)** ETI meta-analysis (60 studies, 16 countries) with **World Values Survey** proxies for government-related social preferences.
- Confidence in government, parties, parliament** ⇒ **lower ETI**, conditional on study controls.
- Robust to institutional controls (union density, tax breadth, audit yield) and FE.

	Dependent variable: ETI. Government-related social preferences proxy is						
	Confidence in government (1)	Confidence in political parties (2)	Confidence in parliament (3)	Confidence in civil service (4)	Income should be made more equal (5)	Govt should increase ownership of businesses (6)	Proud to be a citizen (7)
Govt-related social preferences proxy	-0.50*** (0.079)	-0.36*** (0.075)	-0.41*** (0.12)	-0.29* (0.12)	-0.042 (0.057)	-0.16** (0.078)	-0.37*** (0.13)
Observations	1,701	1,701	1,701	1,701	1,701	1,701	1,701
Number of studies	60	60	60	60	60	60	60

## 9 Conclusion & policy

**Wage and net-of-tax-rate elasticities are not interchangeable — and the wedge is meaningfully large:** the frictionless Frisch wage elasticity is **1.5×** its net-of-tax-rate counterpart. If tax changes are less salient than wage changes, the real-world wedge is **larger still**.

- Macro models calibrated with tax-based elasticities **understate** labor supply responses.
- Positive social preferences ⇒ **higher optimal tax rates** than standard models imply.
- Government buy-in **reduces the labor-supply distortion** of taxation — supporting transparency about how tax money is used.

Attitudes towards government and programs that taxes fund are important for reducing the distortionary effect of taxes, not just for compliance