The Health Wedge and Labor Market Inequality

Amy Finkelstein, Casey McQuillan, Owen Zidar, and Eric Zwick

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Motivation

- High and rising labor market inequality in the U.S.
  - SBTC, decline of unions, minimum wage, trade and outsourcing, firm sorting, etc

- Rapidly rising health care spending per capita and the uniquely American approach to providing health insurance through the workplace

  - *Because health insurance premiums are fixed, the wage penalty is the same for a low-wage secretary as it is for a highly paid executive. This severely depresses wages for tens of millions of moderate-income workers.*

    —Saez and Zucman 2019

  - *Employer-based health insurance is a wrecking ball, destroying the labor market for less-educated workers...At the very least, America must stop financing health care through employer-based insurance, which encourages some people to work but it eliminates jobs for less-skilled workers.*

    —Case and Deaton 2020

How large is the effect of the health care 'head tax' on inequality?

Approach: we develop and calibrate a simple model of the labor market to explore how the U.S. approach to health insurance financing contributes to labor market inequality

Results:

1. If employer-provided health insurance were financed by a national firm payroll tax:
   - the college wage premium would be 11% lower
   - Non-college employment would increase 500K

2. If U.S. health spending as a share of GDP were reduced to the Canadian share:
   - the college wage premium would be 5% lower
   - the non-college earnings would have be 5% bigger

3. Had we used a national payroll tax on firms from 1987-2019:
   - the college wage premium rise would have been 20% smaller
   - the non-college emp rate rise would have been 5% bigger

Takeaway: Effects are comparable in size to other sources of labor market inequality including outsourcing, robot adoption, rising trade, and declining unionization
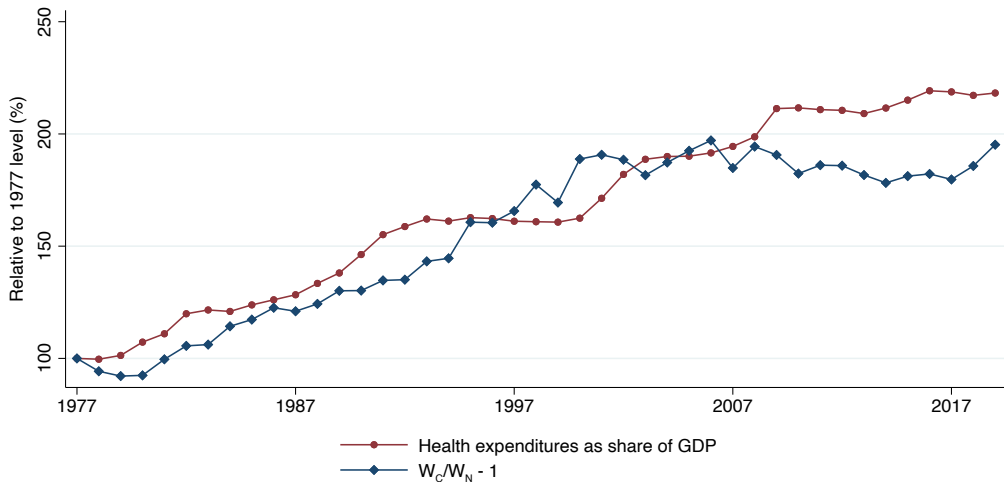
1. Background facts

U.S. health expenditures and college premia across countries
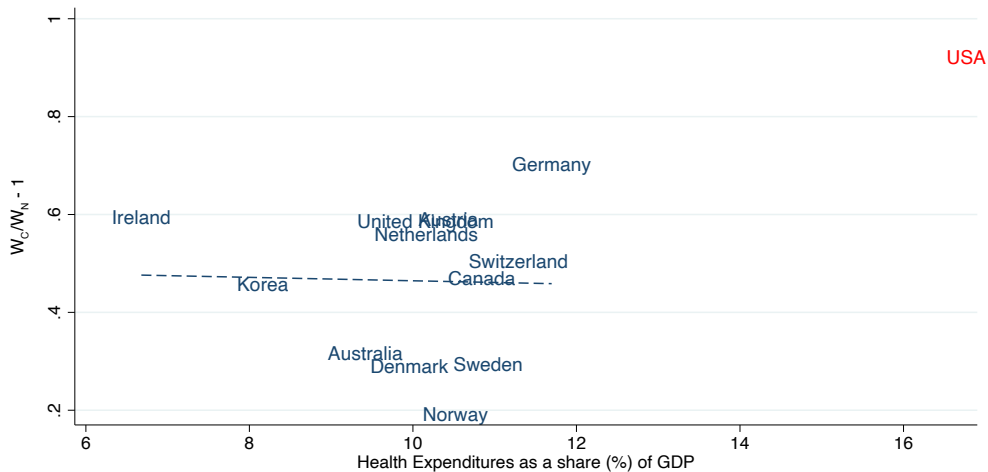
Sources: OECD, CPS

U.S. health expenditures and college premia over time

Sources: OECD, CPS

Employer-sponsored health insurance

- About half of the U.S. population and most with private insurance receive health insurance through an employer

- Employer contributions to employee health insurance are excluded from taxable income. Approx $300 billion a year, or about 2/5 of amount spent on Medicare

- Tax subsidy to ESHI is uniformly reviled by economists
  - Regressive
  - Distorts wage compensation towards health insurance

2. Model of labor market effects of the health care head tax

Key Model Assumptions

1. Perfectly competitive labor market
2. CES technology that combines services of college and non-college workers
3. Demand for each type depends on total cost to firms (=wages + cost of ESHI)
4. Individual labor supply determined by three factors
   - wages
   - the amenity value of health insurance
   - idiosyncratic taste for work
5. Labor supply decisions of full timers on extensive margin only (no hours choices)
6. Caveats:
   - Partial equilibrium
   - Frictionless environment
   - Representative firm
   - Wages and employment only margins of adjustment (e.g., part time work, contracting, firm offering health insurance, plan generosity)

Two Types of Counterfactuals

1. **National payroll tax on firms** with no changes in what employers offer
   - Outcomes in 2019
   - Change in outcomes from 1987-2019

2. **Reduced level of US health care spending** as share of GDP to Canadian share
   - Outcomes in 2019

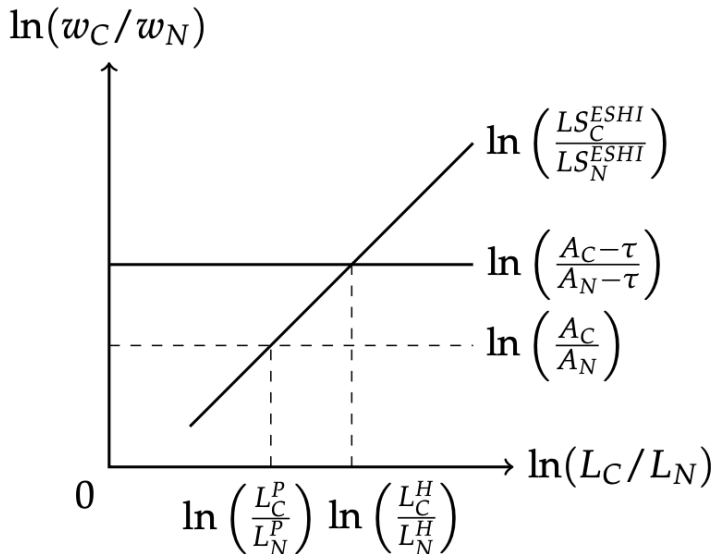# Labor demand for workers under head tax and national payroll tax on firms
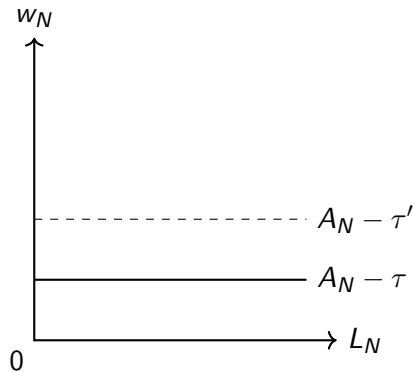
(a) Non-college

w_N

$\frac{A_N}{1+t}$

$A_N - \tau$

0 L_N

(b) College

w_C

$A_C - \tau$

$\frac{A_C}{1+t}$

0 L_C
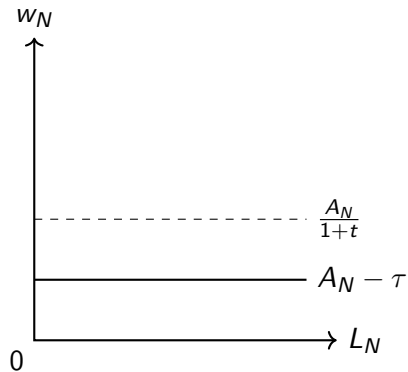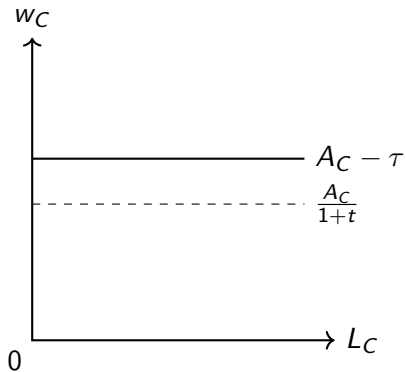
College premium going from head to a national payroll tax on firms

Labor demand for workers under smaller head tax $\tau' < \tau$

(a) Non-college

w_N

$A_N - \tau'$

$A_N - \tau$

0 → L_N

(b) College

w_C

$A_C - \tau'$

$A_C - \tau$

0 → L_C
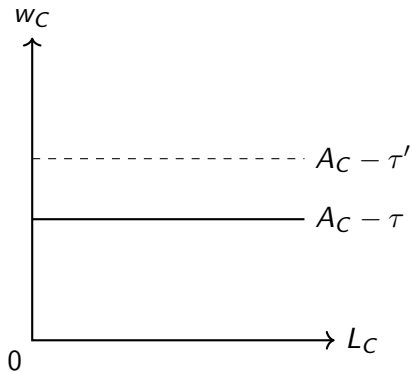
College premium under smaller head tax $\tau' < \tau$

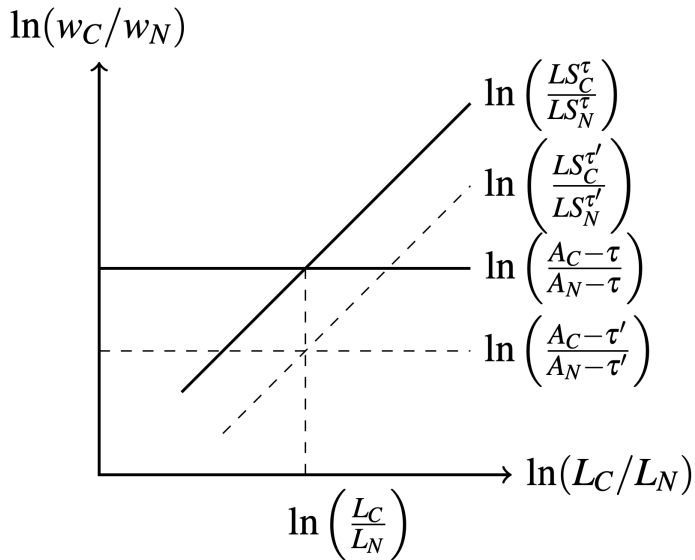# 3. Calibration and Results

Key Calibrated Values

1. Full-time, full-year wages earnings and employment rates of those aged 25-64 are
   - $96K and 76% for college workers
   - $50K and 62% for non-college workers

2. The labor supply elasticity is 0.40 and 0.26 for college and non-college groups
   - We also report specifications that use estimates from Chetty (2012)

3. CES parameter $\rho = 0.38$ based on Autor, Goldin, Katz (2020)

4. Mean health insurance premiums for employer provided health insurance $11,764
   - We scale down τ by 0.67 to account for share of FTFY workers who are policyholders
   - Incomplete coverage reflects employers who don't offer & workers who don't take up
   - $\tau_{2019} = \$11,764 \times .67 \approx \$7,758$

#1. Labor Market Effects of National Payroll Tax Financing on Firms in 2019

	Baseline	Full Coverage
Fixed Per Worker Cost τ:	$7,758	$11,764
Payroll Tax Rate:	11.06%	16.80%
Wages:		
$\Delta(w_C)$	-$2,181	-$3,158
$\Delta(w_N)$	$1,660	$2,383
$\%\Delta(w_C/w_N - 1)$	-11.26%	-16.00%

#1. Labor Market Effects of National Payroll Tax Financing on Firms in 2019

	Baseline	Full Coverage
Employment:		
$\Delta(P_C)$	-0.69 pp	-1.00 pp
$\Delta(P_N)$	0.52 pp	0.75 pp
Δ(Total Employment):	86,833	119,495
College	-408,588	-591,747
Non-College	495,420	711,242
Wage Bill:		
Δ(College Share):	-1.77 pp	-2.55 pp

▸ Sensitivity: Substitutability   ▸ Sensitivity: Labor Supply Elasticities

#2. Changes over Time: Head Tax and Payroll Tax Equilibrium 1977-2019

	Head Tax	Payroll Tax	
		Baseline	Full Coverage
Employer-Sponsored Health Insurance:			
Change in Cost of τ		$5,937	$9,003
Change in Payroll Tax t		7.16 pp	10.88 pp
Wages:			
Change in College Wages	$33,903	$32,121	$31,339
Change in Non-college Wages	$7,754	$9,305	$9,976
PP Change in College Wage Premium	44.83 pp	35.80 pp	32.08 pp
Employment Rate:			
Change in College Employment Rate	5.77 pp	5.44 pp	5.31 pp
Change in Non-college Employment Rate	9.13 pp	9.55 pp	9.73 pp
Wage Bill:			
College Share of the Wage Bill	31.06 pp	29.62 pp	29.00 pp

▸ Sensitivity: Substitutability   ▸ Sensitivity: Labor Supply Elasticities

Comparing magnitudes to other sources of labor market inequality

- A 0.5 pp decline in the non-college non-employment rate from payroll tax funding is similar to:
  - $500 increase in **import** exposure per worker [Autor, Dorn, Hanson (2013)]
  - Doubling growth in **robots** per thousand workers [Acemoglu and Restrepo (2020)]

- 11 percent decline in college wage premium from payroll tax funding is similar to:
  - Effect of domestic **outsourcing** in Germany [Goldschmidt and Schmieder (2017)]
  - Decade of decline in relative supply of **college workers** [Autor, Goldin, Katz (2020)]

- 20 percent smaller rise in the college wage premium if payroll tax funding from 1977-2019 is similar to:
  - Impact of rising **trade** and declining **unionization** over a similar time period [Binder and Bound (2019)]

Takeaway: Magnitude of the health wedge comparable to other leading causes of labor market inequality (and channels aren't mutually exclusive)

#3. Counterfactual of reducing τ to Canadian share of GDP

Note: α is the (potentially group-specific) amenity value health insurance expenditures relative to wages

	Canada		
	$\alpha = 0.75$	$\alpha = 1$	$\alpha = 1.25$
Change in Cost of τ	-$2,740	-$2,740	-$2,740
Wages:			
Change in College Wages	$2,755	$2,740	$2,726
Change in Non-college Wages	$2,729	$2,740	$2,752
Change in College Wage Premium	-5.10%	-5.18%	-5.25%
Employment Rate:			
Change in College Employment Rate	0.22 pp	0.00 pp	-0.22 pp
Change in Non-college Employment Rate	0.21 pp	0.00 pp	-0.21 pp
Wage Bill:			
College Share of the Wage Bill	-0.61 pp	-0.61 pp	-0.60 pp

‣ Construction   ‣ Health exp. graph

Concluding discussion

Impact of "health wedge" on labor market inequality comparable to changes in outsourcing, robot adoption, rising trade, unionization, and the real minimum wage

Caveats and additional directions for research:
- Partial equilibrium
- Perfectly competitive, frictionless environment with a representative firm
- Does not incorporate potentially important employer responses (e.g., contracting out, part-time work, domestic outsourcing and offshoring, plan generosity changes)
- Abstracts from more general effects on U.S. competitiveness

Connection to inequality at large
- Labor market prospects of non-college workers (Binder and Bound, 2019)
- Head-tax financing may contribute to "hollowing out" of the middle class

Bottom line: If the cost of health care in the U.S. continues its rapid rise, labor market inequality will continue to grow absent reforms to how we finance health insurance in America.
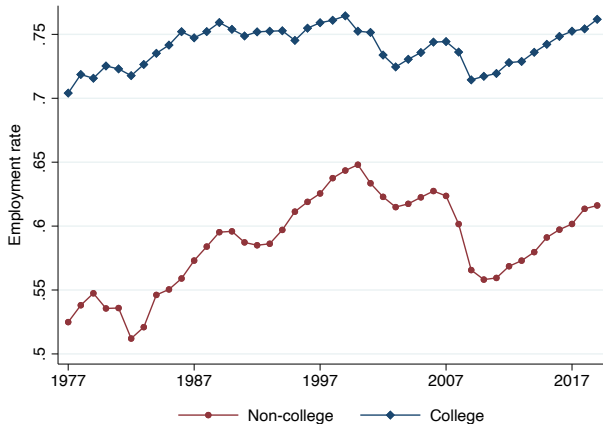
Appendix

BLS Employer Cost of Employee Compensation (Health Insurance)
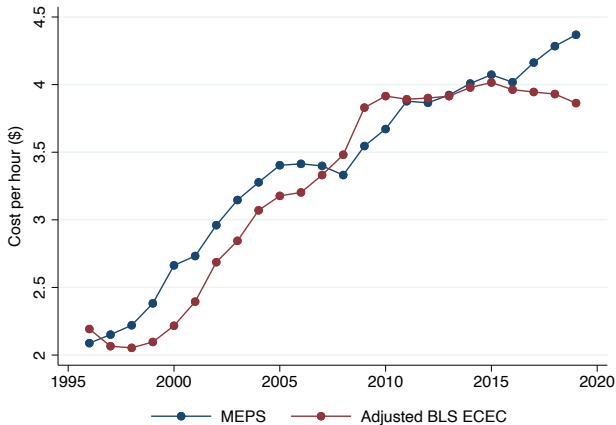
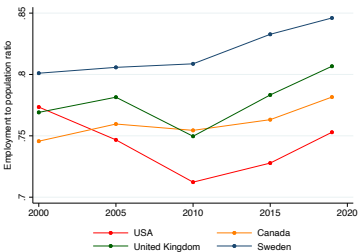Source: CPS-ASEC, BLS Employer Cost of Employee Compensation ▸ Go back
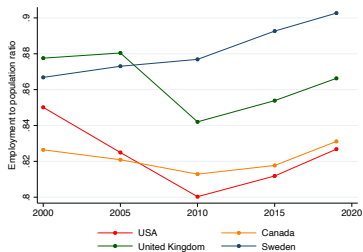
Employment rate, by education (FTFY workers)

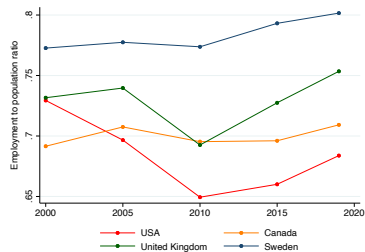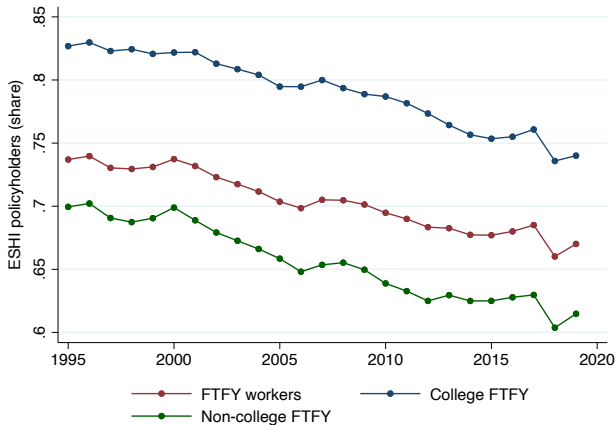
Source: CPS-ASEC ▸ Go back

Employment rate, by country

Source: OECD ▸ Go back

ESHI policyholders (share of population)

Source: CPS-ASEC ▸ Go back

## Quick Aside on the value of employer-provided health insurance

A priori, α_g may be bigger than or less than one.

- If health insurance is only available through the employer, employee risk aversion could produce a value of health insurance that is more than wages ($\alpha_g > 1$).

- In the presence of moral hazard, the (privately and socially) optimal amount of insurance would be to provide health insurance h until $\alpha_g = 1$ (Baily 1978; Chetty 2006).

- However, as emphasized by Feldstein (1973), the preferential tax treatment of employer-provided health insurance may well result in a value of health insurance that is less than wages ($\alpha_g < 1$).
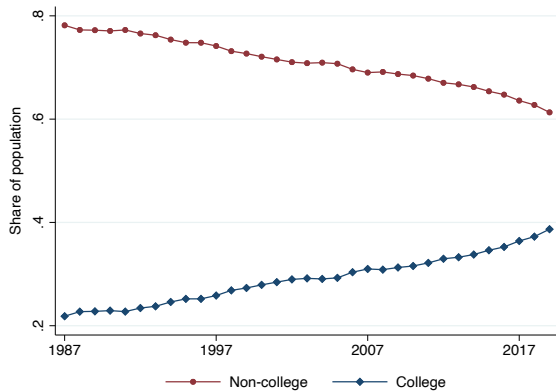
N.b. α doesn't matter for head-to-payroll tax reform, but is **central for other reforms**.

Population and share of total population, by college group

Population
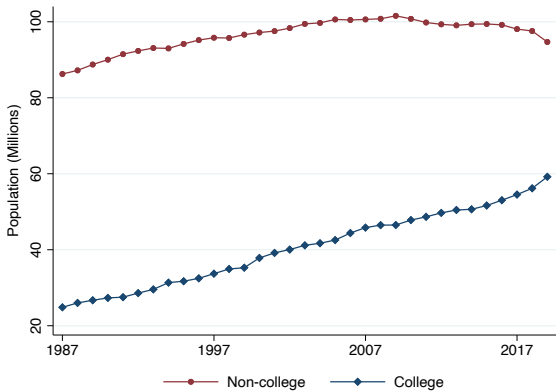
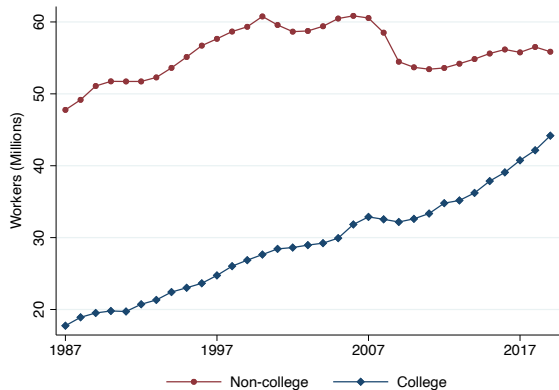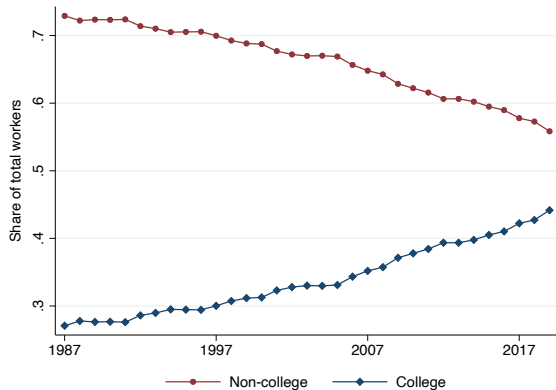Share of population

Workers and share of total population, by college group

Welfare of group g

$$W_g \equiv \mathbb{E}[\max\{U_g^e, 0\}] = \mathbb{E}[\max\{V_g - \epsilon_i, 0\}] = \frac{(V_g - \underline{\kappa})^2}{2\left(\overline{\kappa} - \underline{\kappa}\right)} \tag{1}$$

If the value of employment changes from V_g^1 to V_g^2, labor supply and welfare change:

$$\Delta(L_g) = \frac{V_g^2 - V_g^1}{\overline{\kappa} - \underline{\kappa}} \times N_g.$$

$$\Delta(W_g) = \underbrace{P_g^1 \cdot (V^2 - V^1)}_{\text{Change for still employed}} + \underbrace{\int_{V^1}^{V^2} \left(V^2 - \epsilon\right) f(\epsilon) \, d(\epsilon)}_{\text{Change for marginal workers}}$$

$$\Delta(W_g) = \underbrace{-1 \cdot P_g^2 \cdot (V^1 - V^2)}_{\text{Change for still employed}} + \underbrace{\int_{V^2}^{V^1} \left(V^1 - \epsilon\right) f(\epsilon) \, d(\epsilon)}_{\text{Change for marginal workers}}$$

(The former welfare eq is more intuitive when the V_g increases so that $V^2 > V^1$)

Sensitivity Analysis: Labor Market Effects of Payroll Tax Financing in 2019

	College Wage Premium	College Employment Rate	Non-College Employment Rate	Payroll Tax Rate
Substitutability (ρ)				
Perfect Substitutes ($\rho = 1$)	-13.39%	-0.82 pp	0.63 pp	11.07%
Gross Substitutes ($\rho = 0.38$, Baseline)	-11.26%	-0.69 pp	0.52 pp	11.06%
Cobb-Douglas ($\rho = 0$)	-10.28%	-0.63 pp	0.48 pp	11.06%

Sensitivity Analysis: Labor Market Effects of Payroll Tax Financing in 2019

	College Wage Premium	College Employment Rate	Non-College Employment Rate	Payroll Tax Rate
Labor Supply Elasticities:				
Derived Group-Specific Elasticities:				
$\epsilon_C = 0.42$ and $\epsilon_N = 0.28$ (Baseline)	-11.26%	-0.69 pp	0.52 pp	11.06%
Assumed Common Elasticities:				
$\epsilon_C = \epsilon_N = 0.15$	-12.28%	-0.28 pp	0.34 pp	11.05%
$\epsilon_C = \epsilon_N = 0.30$	-11.35%	-0.52 pp	0.62 pp	11.06%
$\epsilon_C = \epsilon_N = 0.45$	-10.55%	-0.73 pp	0.85 pp	11.07%

Sensitivity Analysis: Changes over Time

	College Wage Premium	College Employment Rate	Non-College Employment Rate	Payroll Tax Rate
Substitutability (ρ)				
Perfect Substitutes ($\rho = 1$)	34.46 pp	5.47 pp	9.61 pp	7.17 pp
Gross Substitutes ($\rho = 0.38$, Baseline)	35.80 pp	5.44 pp	9.55 pp	7.16 pp
Cobb-Douglas ($\rho = 0$)	36.49 pp	5.44 pp	9.52 pp	7.16 pp

▸ Go back

Sensitivity Analysis: Changes over Time

|	College Wage Premium	College Employment Rate	Non-College Employment Rate	Payroll Tax Rate
Labor Supply Elasticities:				
Derived Group-Specific Elasticities:				
$\epsilon_C = 0.42$ and $\epsilon_N = 0.28$ (Baseline)	35.80 pp	5.44 pp	9.55 pp	7.16 pp
Assumed Common Elasticities:				
$\epsilon_C = \epsilon_N = 0.15$	35.32 pp	5.58 pp	9.43 pp	7.15 pp
$\epsilon_C = \epsilon_N = 0.30$	36.04 pp	5.42 pp	9.69 pp	7.16 pp
$\epsilon_C = \epsilon_N = 0.45$	36.66 pp	5.28 pp	9.91 pp	7.17 pp

Construction of No Growth Counterfactual

- US health expenditures have increased from 6.25% of GDP in 1977 to 16.77% by 2019

- In "No Growth" counterfactual, the cost of employer-provided health insurance remains fixed at the 1977 level in real terms

- In 1977, average employer-provided premiums were \$2,760 (in 2019 dollars)
  - $\tau_{1997} = \$1,820 = 0.66 \cdot \$2,760$

- Under this counterfactual, the head tax would be \$5,937 lower than under the observed baseline (\$7,758)

Health expenditures as a share of GDP

Source: OECD ▸ No Growth counterfactual ▸ Canada counterfactual
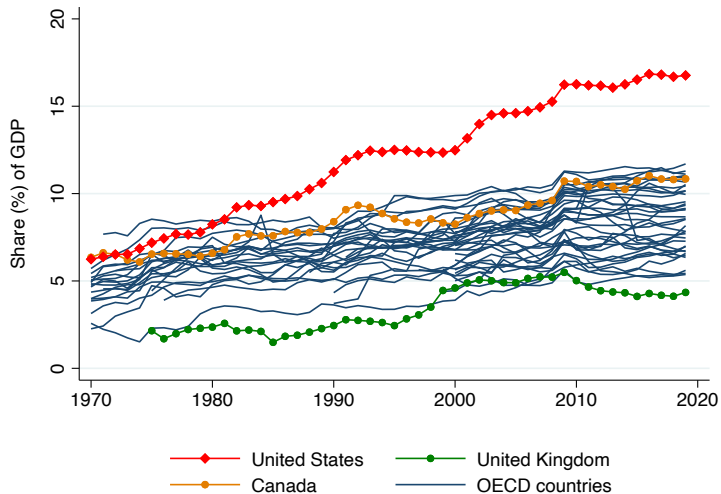
Construction of Canada Counterfactual

- In "Canada" counterfactual, health care spending in the US is the same share of GDP in 2019 as it is in Canada (10.84% instead of 16.77%)

- We scale our baseline 2019 head tax by the ratio of the Canadian to US share of the economy that consists of health care spending
  - $\tau_C = \$7,758 \cdot (10.84/16.77) = \$5,017$

- Under this counterfactual, the head tax would be \$2,740 lower than under the observed baseline (\$7,758)

‣ Go back