Joint Taxation of Income and Wealth

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Motivation

Joint taxation of income and wealth
A tax system in which the marginal tax rate of income depends on wealth, or vice versa.

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- Cap on wealth tax liability as a proportion of income

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Examples:
  - Abgeltungssteuer in Germany
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There were 12 European countries who levied wealth taxes in 1990. 7 of them imposed some kind of cap on wealth tax liability.

Is this (in)efficient?

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1. A static simple framework to understand trade-offs.
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- Pro Jointness: Wealth and income are positively correlated. This should
    - lower distortions
    - allow for more targeted redistribution
- Contra Jointness: Jointness implies two distortions.
    - E.g. increasing wealth tax only for people with income $> \$100k$ not only distorts wealth margin but also income margin

Reduced-form model

We consider

- A joint distribution of income and wealth, $F(y, a)$
    - Independent if $F(y, a) = F_Y(y) \cdot F_A(a)$

- A bivariate tax payment function, $T(y, a)$
    - Marginal income tax rate: $\frac{\partial T(y,a)}{\partial y} = T'_Y(y, a)$
    - Marginal wealth tax rate: $\frac{\partial T(y,a)}{\partial a} = T'_A(y, a)$
    - Separable if $\frac{\partial^2 T(y,a)}{\partial y \partial a} = 0 \implies T(y, a) = T_Y(y) + T_A(a)$

Model analysis

- Tax perturbation approach
    - Change in tax liability $\Delta T(y, a)$

- Rely on sufficient statistics
    - Elasticity of income, $\varepsilon_{y,1-T'_Y}$
    - Elasticity of wealth, $\varepsilon_{a,1-T'_A}$
    - Extension to cross-elasticities work in progress, main mechanisms very similar

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We look at the revenue and welfare effects of ...
  - separable income and wealth tax reforms
  - joint tax reforms

Separable income tax reform
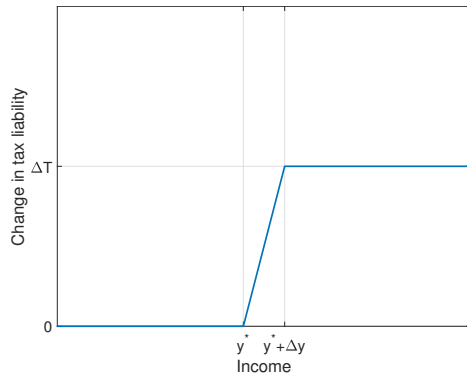
Figure: Simple income tax reform

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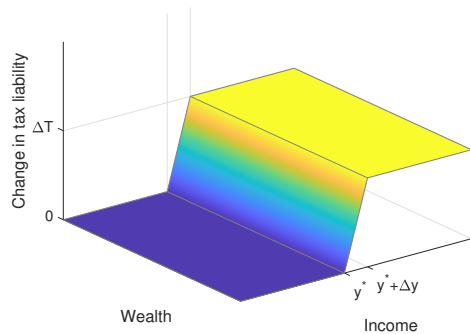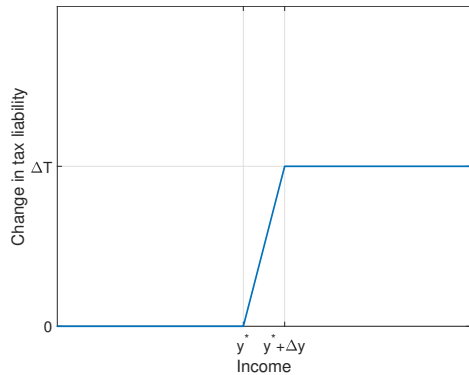
Figure: Simple income tax reform

Marginal excess burden – separable tax reforms

- Marginal excess burden for increasing $T'_y(y^*)$

$$MEB_Y(y^*) = \frac{T'_Y(y^*)}{1 - T'_Y(y^*)} \varepsilon_{y^*, 1 - T'_Y} \frac{f_Y(y^*)y^*}{1 - F_Y(y^*)}$$

- The term $\frac{f_Y(y^*)y^*}{1 - F_Y(y^*)}$ plays a key role. (Saez, 2001)

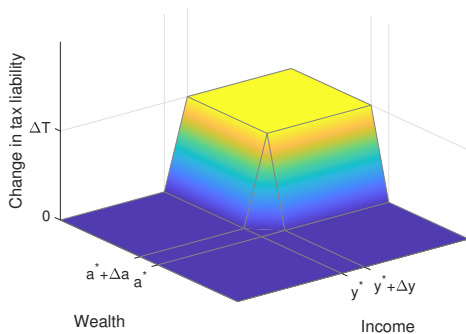- Similar analysis for $T'_A(a^*)$. (Saez and Stantcheva, 2018)

Joint reform

Figure: Joint tax reform

- Increases tax payment for people with $y > y^*$ and $a > a^*$.

Effects of a joint reform

There are three effects of a joint reform
1. Increase in tax revenue
2. Distortion on income generation
3. Distortion on wealth accumulation

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$$\text{Marginal excess burden} = \frac{\text{Distortion on income} + \text{Distortion on wealth}}{\text{Increased tax revenue}}$$

Marginal excess burden I

Proposition 1

If the initial tax schedule is separable, it can be shown that

$$MEB_{joint}(y^*, a^*) = w_Y(y^*, a^*) \cdot MEB_Y(y^*) \cdot \frac{\varepsilon_{y, 1-T'_Y}|_{a > a^*}}{\overline{\varepsilon_{y, 1-T'_Y}}}$$

$$+ w_A(y^*, a^*) \cdot MEB_A(a^*) \cdot \frac{\varepsilon_{a, 1-T'_A}|_{y > y^*}}{\overline{\varepsilon_{a, 1-T'_A}}}$$

where $w_Y(y, a)$ and $w_A(y, a)$ are the weights that depend on the joint distribution of income and wealth. They are given by

$$w_Y(y^*, a^*) = \frac{Pr(a > a^* | y = y^*)}{Pr(a > a^* | y > y^*)} \qquad w_A(y^*, a^*) = \frac{Pr(y > y^* | a = a^*)}{Pr(y > y^* | a > a^*)}$$

Graphical intuition
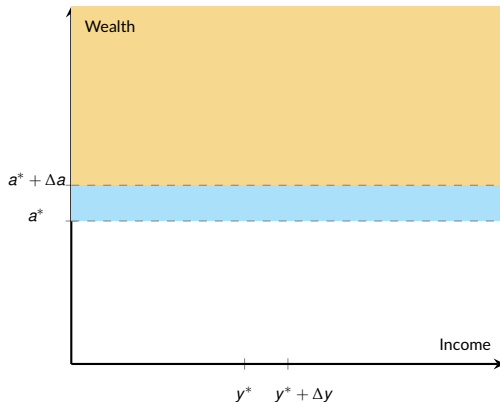
Figure: Graphical intuition of Proposition 1

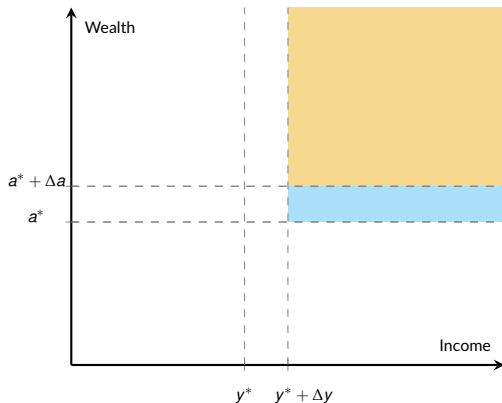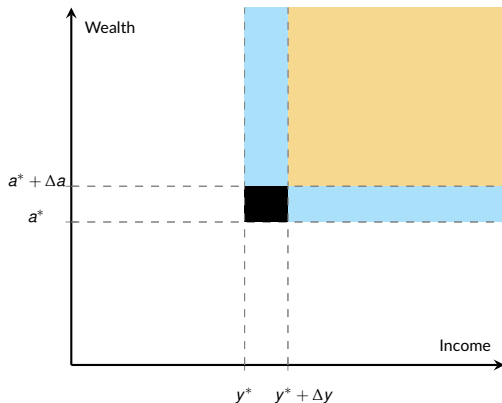$$w_A(y^*, a^*) = \frac{Pr(y > y^*|a = a^*)}{Pr(y > y^*|a > a^*)}$$

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Marginal excess burden II

Proposition 2

If income and wealth are independently distributed, elasticites are cross-independent, and the initial tax schedule is separable, then the marginal excess burden of a joint reform is given by

$$MEB_{joint}(y^*, a^*) = MEB_Y(y^*) + MEB_A(a^*)$$

(▸ Proof)

What if wealth and income not independent...

- The sum of the weights is above two for a negative correlation.
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- For the empirically plausible case of positive correlation
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- Let's look at some data!

Data

Survey of Consumer Finances
- Representative household survey
- Data from 2016
- 5000+ households

Variable definitions:
- Income
    - Wages, salaries and self-employment income
- Wealth
    - Assets (financial and non-financial) net of liabilities

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Non-parametric estimation of the joint distribution (▸ Data fit)
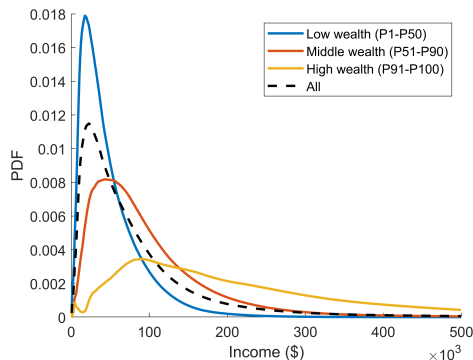
- **High correlation** between income and wealth.

Conditional hazard rates
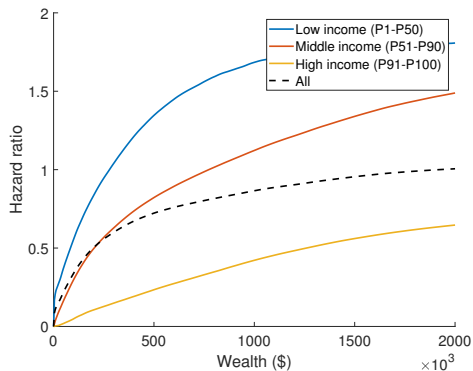
- Hazards ratios of wealth distribution is smaller for higher income groups.

Conditional hazard rates
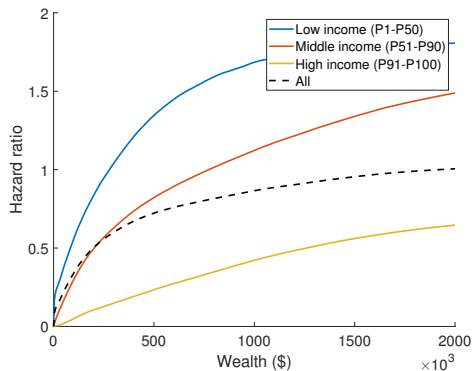
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Tagging!

Assumptions on elasticities & current taxes

- Elasticities
    - $\varepsilon_{y,1-T'_Y} = 0.3$
    - $\varepsilon_{a,1-T'_A} = 10$ (Jakobsen et al., 2020)

- Taxes: we assume separable tax
    - Income tax schedule is estimated using TAXSIM calculator. Then polynomial fit for marginal labor income tax rate. (▸ Estimation)

    - For wealth tax: assume that it is currently 1% $\leftrightarrow$ 5% capital return and 20% capital income tax rate.

MEB of joint reforms
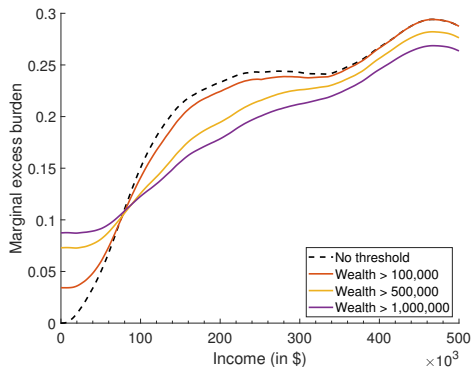
(a) Income tax increase
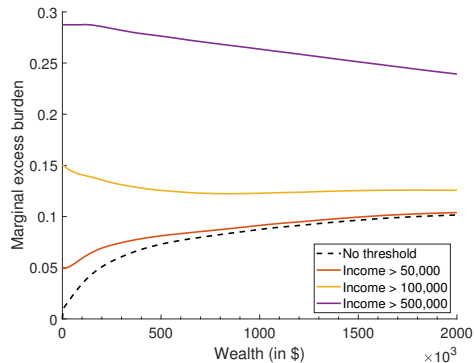
(b) Wealth tax increase

Figure: Revenue effect of joint tax reforms

Takeaways

- Excess burden of increasing high income taxes is lower if conditional on high wealth

- Excess burden of wealth tax is higher if conditional on high income

- Main reason: Distortions on the wealth margin very low in the benchmark

(▸ Alternative calibration)

Welfare analysis

- So far we only talked about distortions but **distributional gains** also change.

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Assume that the initial, separable tax schedules are optimal.

1. Estimate welfare weights for income and wealth. (Inverse-optimum approach)
2. Combine two separate welfare weights to obtain a joint welfare weight.

(▸ Welfare weights)

Welfare effects of joint reforms

Figure: Marginal effects of a joint tax reform

Alternative calibration
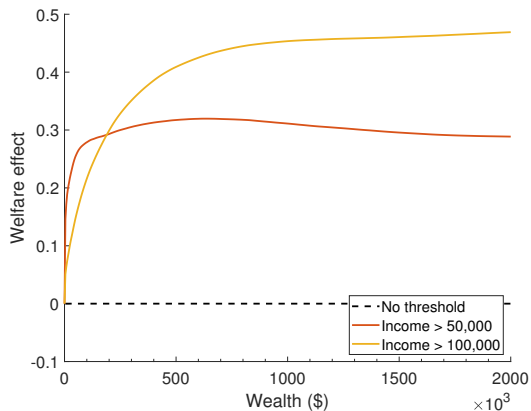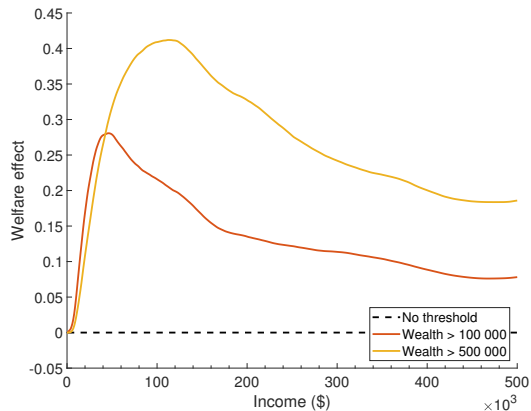
Conclusion

- Joint reforms introduce **another front of distortion**.

- This needs to be traded off against **the welfare gain of tagging**.

- Future work:
    - More careful calibration
    - Distinguishing different concepts of wealth
    - Structural model approach

Any questions?

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Proof of Proposition 1

$$MEB_1 = y^* \varepsilon_y \frac{\int\limits_{a^*}^{\infty} \frac{T_1(y^*,a)}{1-T_1(y^*,a)} f(y^*,a)\, da}{\int\limits_{y^*}^{\infty}\int\limits_{a^*}^{\infty} f(y,a)\, da\, dy} + a^* \varepsilon_a \frac{\int\limits_{y^*}^{\infty} \frac{T_2(y,a^*)}{1-T_2(y,a^*)} f(y,a^*)\, dy}{\int\limits_{y^*}^{\infty}\int\limits_{a^*}^{\infty} f(y,a)\, da\, dy}$$

$$MEB_1 = y^* \varepsilon_y \frac{\tau_y}{1-\tau_y} \frac{f_Y(y^*) \int\limits_{a^*}^{\infty} f_A(a)\, da}{\int\limits_{y^*}^{\infty} f_Y(y) \int\limits_{a^*}^{\infty} f_A(a)\, da\, dy} + a^* \varepsilon_a \frac{\tau_a}{1-\tau_a} \frac{f_A(a^*) \int\limits_{y^*}^{\infty} f_Y(y)\, dy}{\int\limits_{y^*}^{\infty} f_Y(y) \int\limits_{a^*}^{\infty} f_A(a)\, da\, dy}$$

$$MEB_1 = y^* \varepsilon_y \frac{\tau_y}{1-\tau_y} \frac{f_Y(y^*)(1-F_A(a^*))}{(1-F_Y(y^*))(1-F_A(a^*))} + a^* \varepsilon_a \frac{\tau_a}{1-\tau_a} \frac{f_A(a^*)(1-F_Y(y^*))}{(1-F_Y(y^*))(1-F_A(a^*))}$$

$$MEB_1 = MEB_Y + MEB_A$$

Estimation Fit
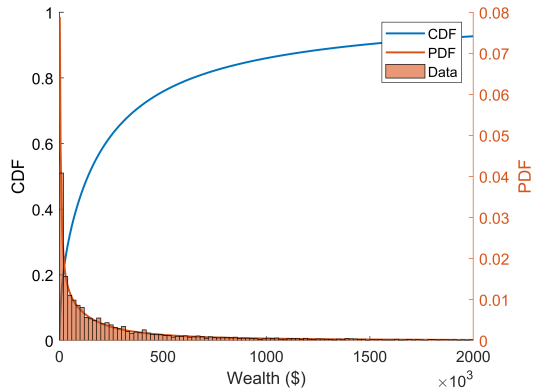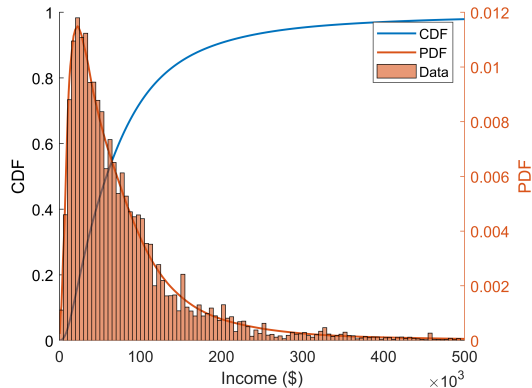
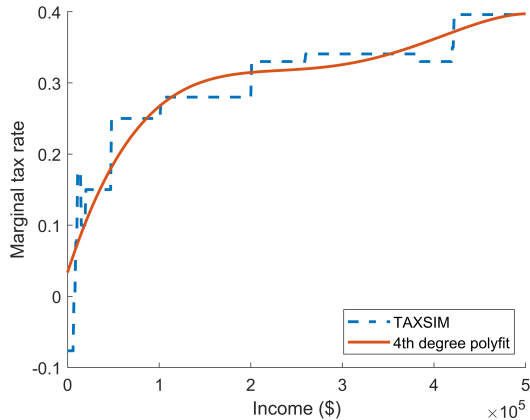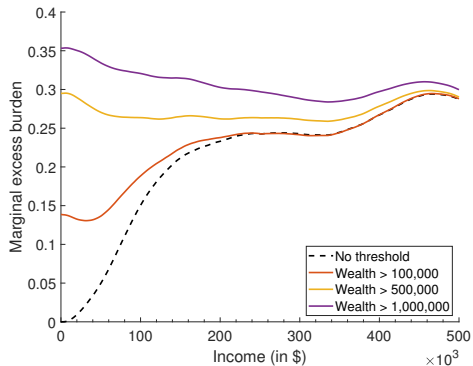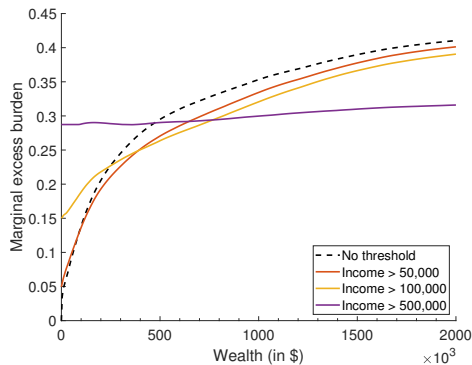Figure: Estimation fit

Income Tax Rate Estimation

Figure: Polynomial fit for marginal income tax rate

MEB of joint reforms

Alternative calibration

(a) Income tax increase

(b) Wealth tax increase

Figure: Revenue effect of joint tax reforms (Alternative calibration)

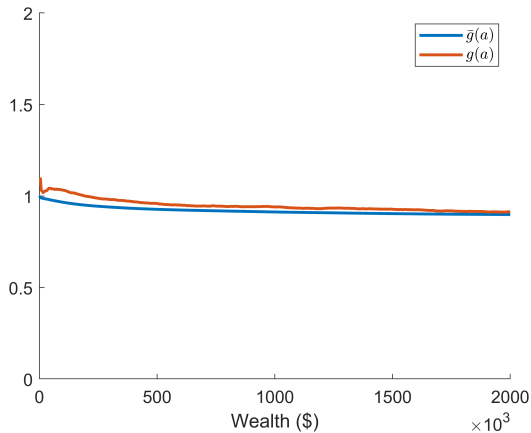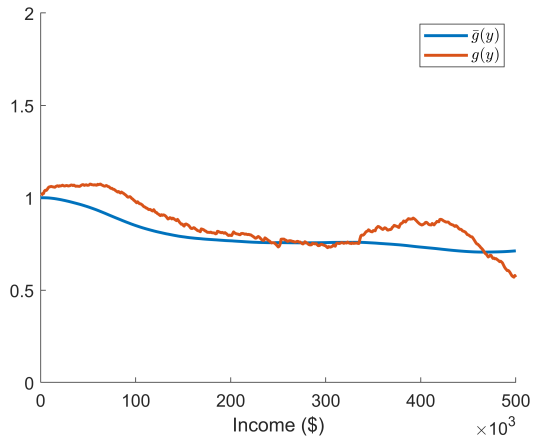# Welfare Weights for Income and Wealth

Figure: Welfare weights

Welfare effects of joint reforms
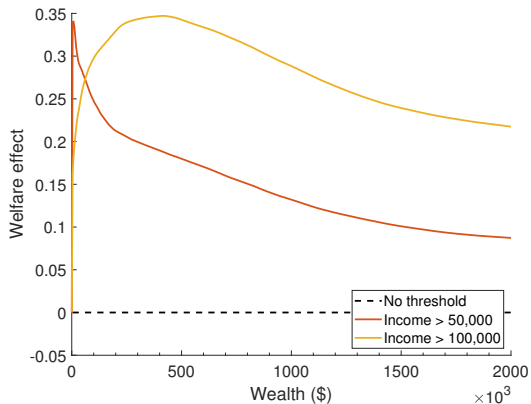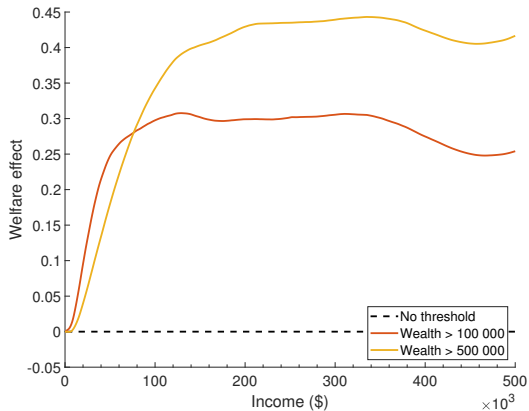
Alternative Calibration

Figure: Marginal effects of a joint tax reform (Alternative)

(◂ Back)

Income Tax Reform

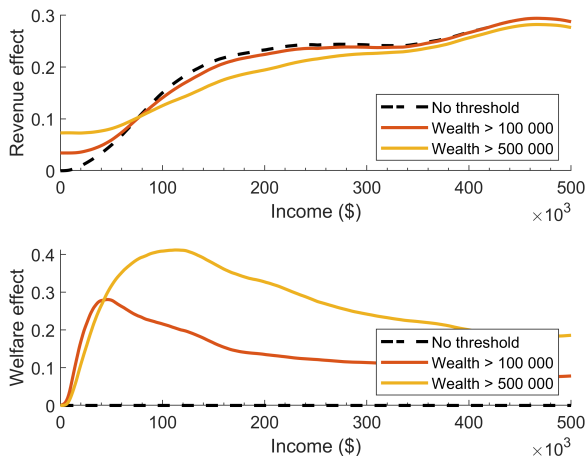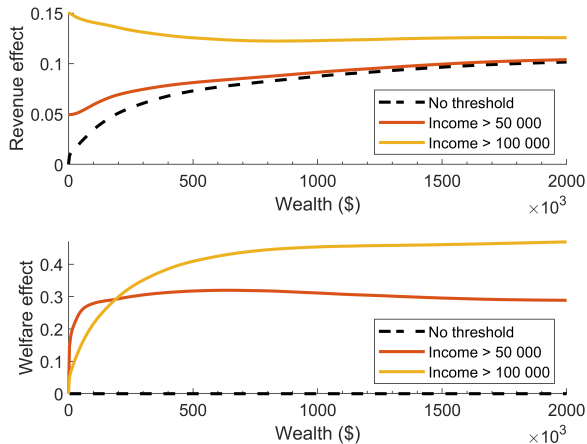Figure: Income tax reform conditional on wealth

Wealth Tax Reform

Figure: Wealth tax reform conditional on income