Revealing Equity Principles from the Tax System
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Overview

Question: How can we reveal equity concerns that would support current tax policy?
Contribution: I disentangle the roles of vertical and horizontal equity in determining taxes in theory and in an empirical application.

Background

- Optimal income tax formulas (Mirrlees 1971, Saez 2001, and Saez and Stantcheva 2016) depend on the marginal social welfare weight society attaches to giving one more dollar to individuals with income z.
- Following Bourguignon and Spadaro’s (2012) inverse optimal tax approach, one can use the actual tax system to back out the weights that make the actual system the optimal one.

The three sufficient statistics for inverse optimal tax:
- Elasticities of taxable income (ETI): \( \varepsilon(z) \)
- Marginal tax rates: \( T(z) \)
- Elasticities of the income distribution: \( \rho(z) \)

which produce marginal welfare weights: \( g(z) \)

\[
g(z) = 1 - \frac{T(z)}{\rho(z)} \tag{1}
\]

- Tagging: Taxes can in principle be conditioned on characteristics, such as age, height or gender (Akerlof 1978, Mankiw and Weinzierl 2010, and Almiron, Ichino and Karabarbounis 2011).
- Vertical equity (VE) is society’s aversion to inequality across income levels. Here defined by the willingness to forego aggregate income increases for reductions in inequality across income levels.
- Horizontal equity (HE) is society’s aversion to treating individuals with the same income unequally. Here defined by the willingness to forgo aggregate income increases to exclude tagging.

Tagging reduces the cost of redistribution when either:
- The within-characteristic income distributions differ.
- The within-characteristic ETIs differ.

Hence, three types of inputs to the tagging deduction algorithm:
- Aggregate sex- and characteristic-specific ETIs
- Marginal tax rates
- Joint and marginal income distributions

Theory

Consider two tax systems that produce different welfare weights:

No tagging \( g(z) \) and tagging \( g'(z) \).

I use these to measure the local value of VE and HE:

\[
VE(z) = g(z) - 1 \tag{2}
\]

is the loss of aggregate income society incurs per dollar increase in income at income level \( z \), when all instruments are exploited.

\[
HE(z) = g(z) - g'(z) \tag{3}
\]

is the extra loss of aggregate income society incurs per dollar increase in income at income level \( z \) by excluding tagging.

(2) + (3) \( \Rightarrow \) \( g(z) = VE(z) + HE(z) + 1 \tag{4}

shows that the welfare weights measured from the actual tax schedule can be decomposed into the concern for VE and HE.

I use these estimates to calculate welfare weights for the actual tax system and counterfactual tax system.

Empirical application

Gender tax: Consider the hypothetical experiment of introducing different taxes for male and female wage earners in Norway in 2010.

- ETIs for males (\( \varepsilon_{m} \)) and females (\( \varepsilon_{f} \)) from panel estimation.
- Tax rates from Norwegian tax-benefit calculator.
- Income distributions for males and females.

I disentangle the roles of vertical and horizontal equity and in an empirical application.

Main result

- I use these estimates to calculate welfare weights for the actual tax system and counterfactual tax system.

Conclusion

- The results imply that society’s valuation of horizontal equity makes the welfare weight schedule flatter.
- The intuition is that the horizontal equity concern increases the cost of redistribution.
- Welfare weights as measures of the vertical equity concern are upward biased if one fails to account for the horizontal equity concern.
- The application illustrates that how redistributive we consider a society to be should depend on what instruments it is willing to employ to reduce inequality.

Figure 1: Income distributions for males and females

Figure 2: Welfare weights without tagging \( g(z) \) and with tagging \( g'(z) \)

Figure 3: Contribution of vertical equity and horizontal equity to \( g(z) \)