

Responsiveness of income subject to taxation

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- 1 Tax distortions
- 2 Why taxable income
- 3 Applications
- 4 Empirics
 - Data
 - Methodology
 - Evidence
- 5 Conclusions

Outline

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Tax distortions

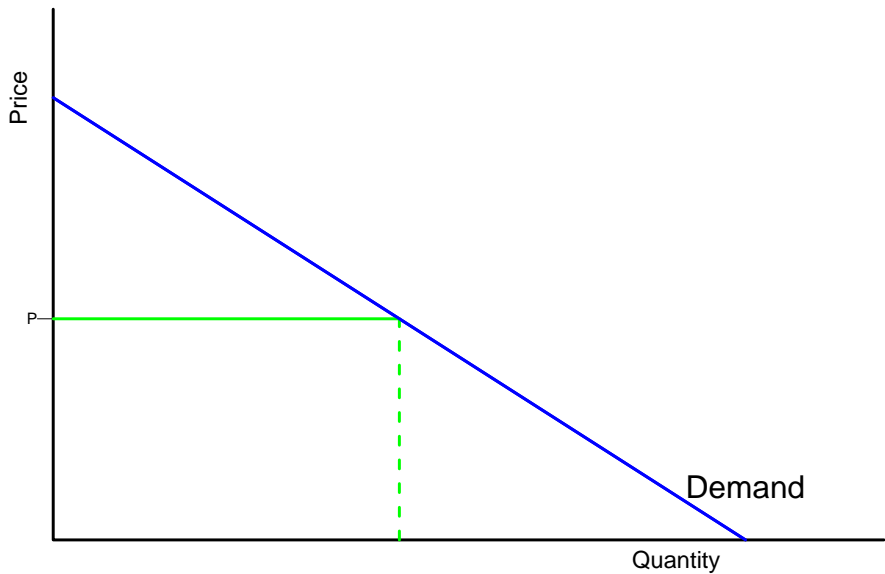
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- For example, labor income tax affects the relative price of consumption and leisure
- The social cost of taxation depends on how elastic is the tax base
- The more elastic the tax base, the higher the cost of taxation

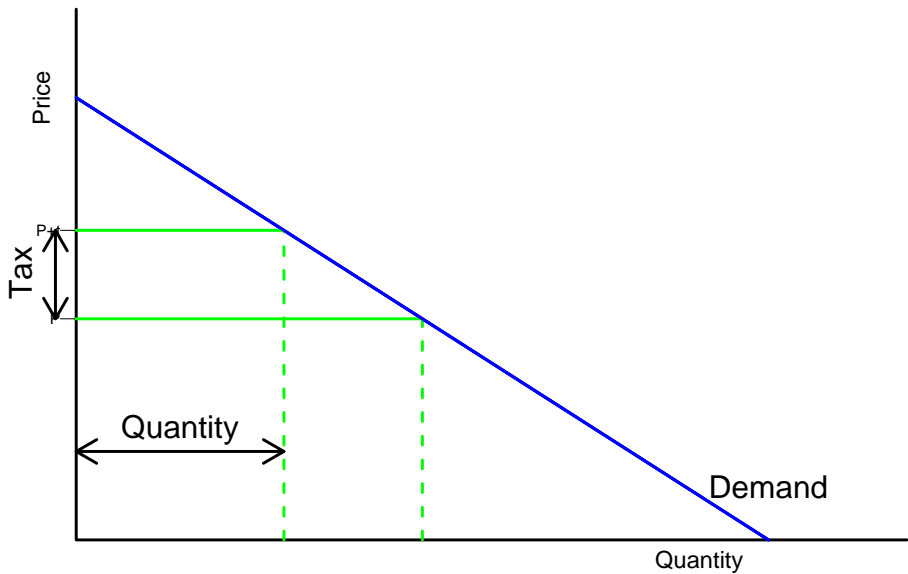
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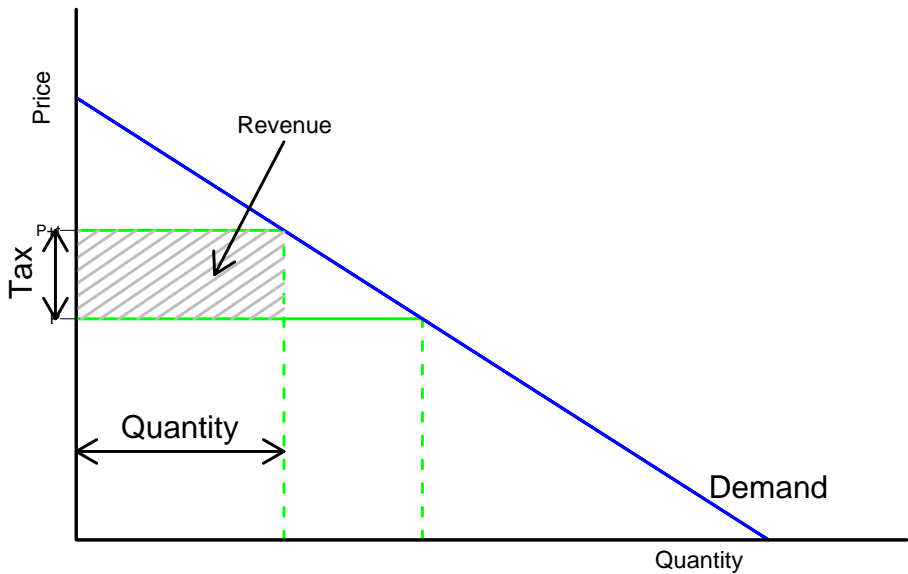
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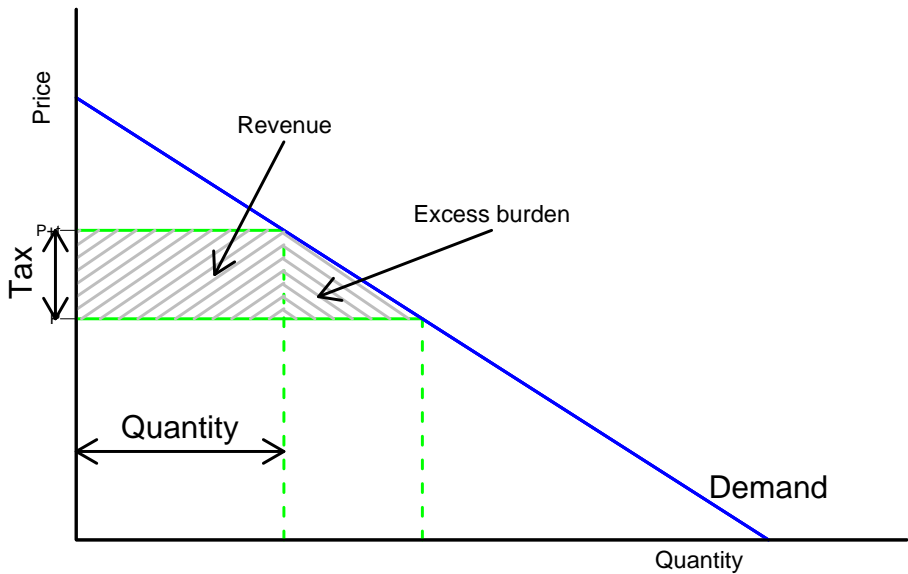
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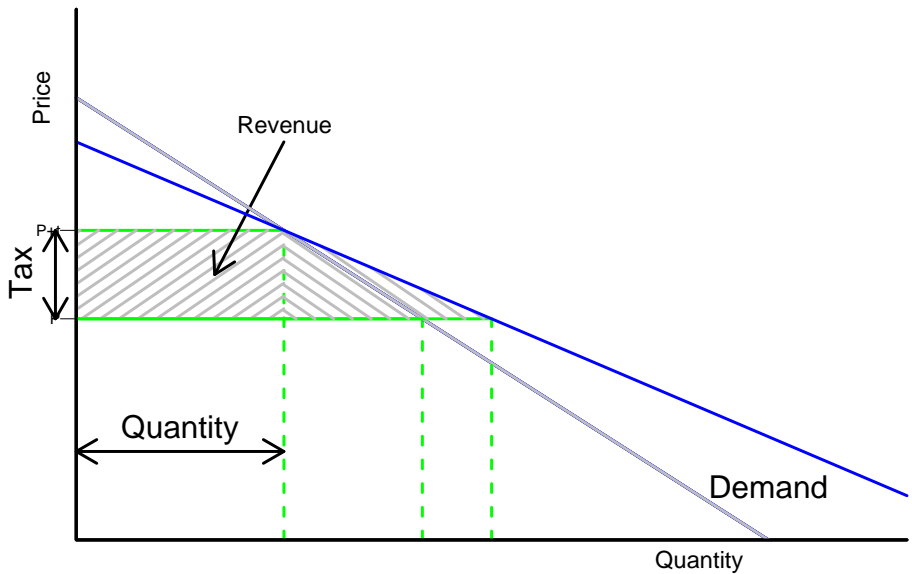
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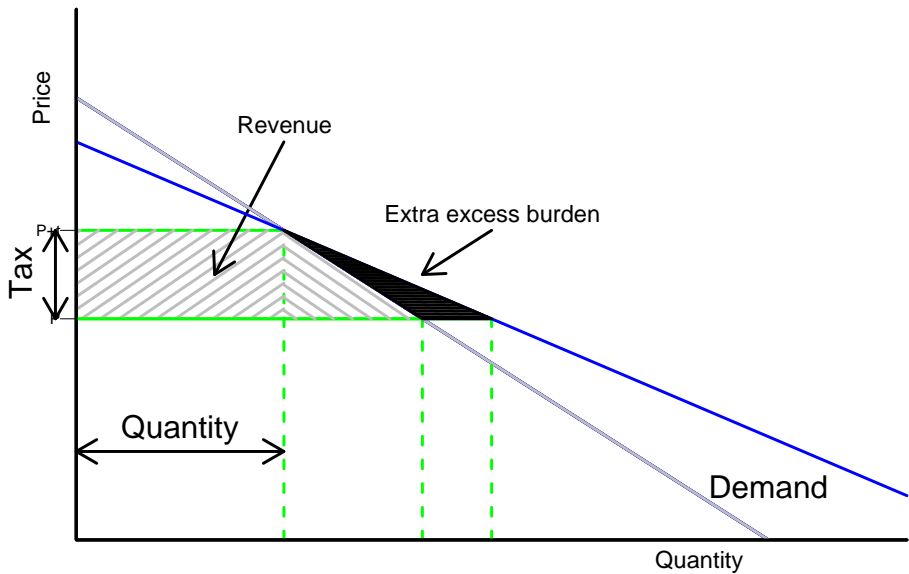












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Labor income

- In the context of income tax, there are many margins of response.
- very naturally, one can think of income tax as a tax on labor income and hence in the past there was a lot of focus on the response of labor supply
- Empirical literature focusing on the impact of relative prices (including taxes) on labor supply is enormous, and we know a lot about it.
- Uncompensated hours-of-work elasticities for people with strong attachment to labor force are small (1% increase in net wage, $\approx 1/10\%$ increase in labor supply).
- Some groups respond more strongly — part-time workers, mothers on welfare, wives of high-income men, women in general (but with evidence that the gap between full-time employed men and women is small).
- Response on the extensive (participation) margin much stronger than on the intensive margin. Important for low incomes and from the lifetime perspective (retirement).

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Is income tax costly then?

- If you rely only on labor supply responses, the cost of income tax is not large
- Is it reasonable? There are many other ways to respond
 - effort
 - investment in human capital
 - occupational choice, entrepreneurship
 - a lot of other variables affect tax liability — other types of income, e.g., interest income, dividends, capital gains, rent etc.; deductions; marital status; children
 - form of compensation (eg., fringe benefits)
 - timing of payments
 - tax avoidance (legal) and tax evasion (illegal); informal economy
- A lot of research on these topics in isolation

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Taxable income

- It is not clear how to use all of this information for “big picture” questions
- Feldstein (1999): for the purpose of evaluating the efficiency cost of taxation, the responsiveness of income subject to taxation is a sufficient statistic for all the responses.
- Intuition:
 - every tax motivated action is reflected in taxable income
 - any margin of response will be pursued up to the point where the marginal cost (the nature of which depends on the decision considered) is equal to the marginal benefit (tax savings — measured by the marginal tax rate)
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Comments

- Very attractive because one is interested in a variable that is directly observed on tax returns (of course you need to somehow get tax data first).
- There are limitations though (see Slemrod, 1998):
 - in principle you should consider full income — various taxes interact (eg., corporate and individual), responses take time and lifetime perspective would be appropriate. In practice, it is rarely possible
 - short-term and long-term responses likely different
 - arbitrage responses where small change in taxes implies big change in quantities do not fit
 - evasion does not exactly fit because we need to account for monetary penalties

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Suppose we get it. What is it good for?

- Measuring the overall cost of the tax system
- Measuring the marginal cost of funds (MCF) — the social cost of collecting an extra $\$$ of revenue that accounts for the efficiency cost of taxation
- MCF can (and should be) used in the benefit-cost analysis of public spending
- Estimating the optimal shape of tax schedule and the optimal extent of redistribution (given preferences for redistribution)
- Predicting the revenue impact of tax changes

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Laffer curve

- We can also use this information to estimate the location of the peak of the Laffer curve and to test where we are:
- simple math:

$$\frac{d t \cdot I}{d t} = I + t \frac{\partial I}{\partial t} = I \left(1 - \frac{t}{1-t} \left[\frac{1-t}{I} \frac{\partial I}{\partial 1-t} \right] \right) = I \left(1 - \frac{t}{1-t} \varepsilon \right)$$

- we are on the wrong side of the Laffer curve if

$$\varepsilon > \frac{1-t}{t}$$

- This is exactly what was found for the U.S. by Feldstein (1995) (and even earlier by Lindsey, 1987) and stimulated a lot of interest in research on this topic.

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- There must be variation in tax rates — either over time or cross-sectional or, ideally, both.
- Inference based on aggregate data next to impossible

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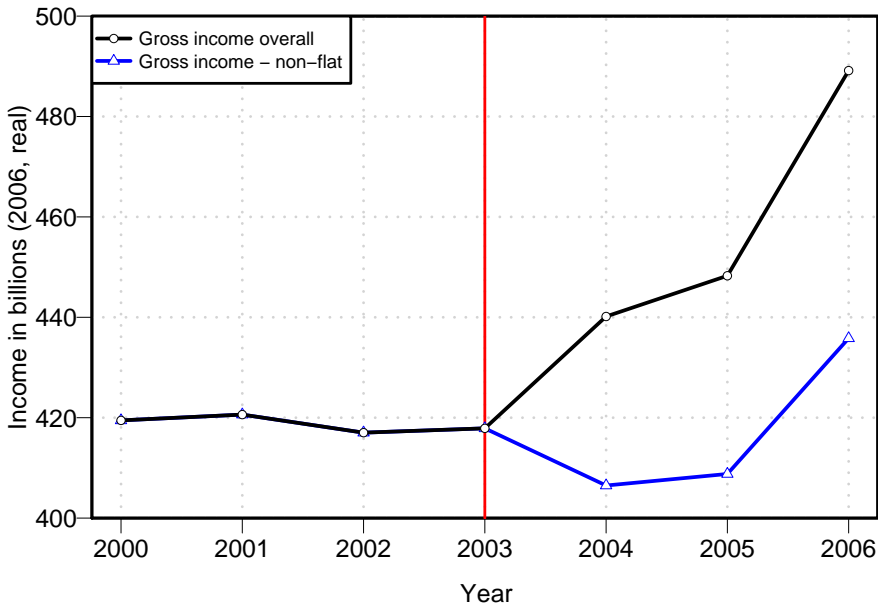
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Gross income reported on personal income tax returns in Poland



Natural experiments

- An ideal situation would be if someone randomized taxes, we'd just compare “treatment” and “control” groups
- In practice, we have to look for experiments generated by nature or, more realistically, policy.
- How does it work? Suppose brunettes and blondes are taxed differently, then *assuming* that blondes and brunettes are otherwise identical we can just compare them as in a randomized experiment.
- In practice, sources of variation in tax treatment are never as nice, but there are opportunities: comparing various income groups, comparing different states, relying on variation generated by family situation, relying on the situation in the past, etc.

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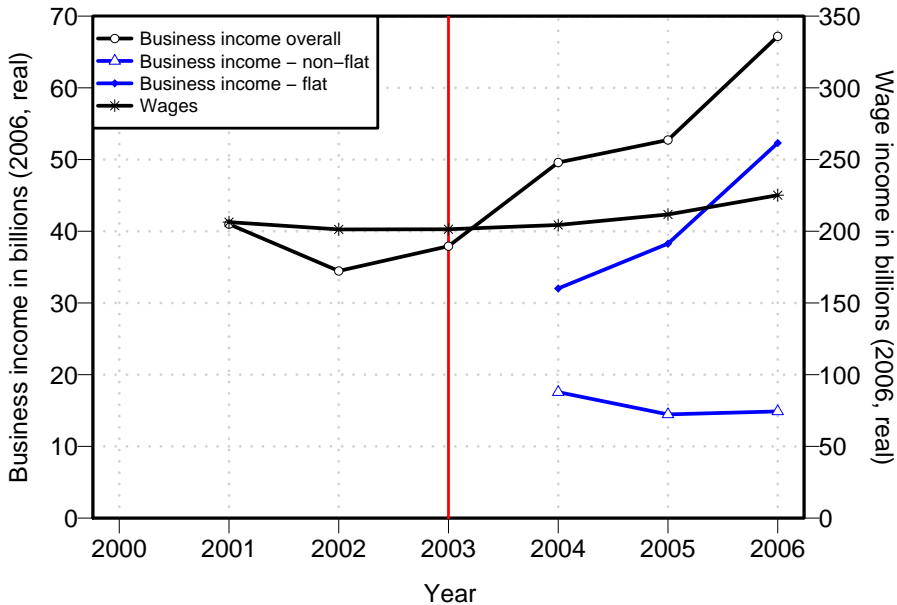
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Methodology

- Basic idea — difference-in-difference
- Δ control group=trend; Δ treatment group=trend + tax effect
- If trends identical,

$$\Delta\text{treatment group} - \Delta\text{control group} = \text{tax effect}$$

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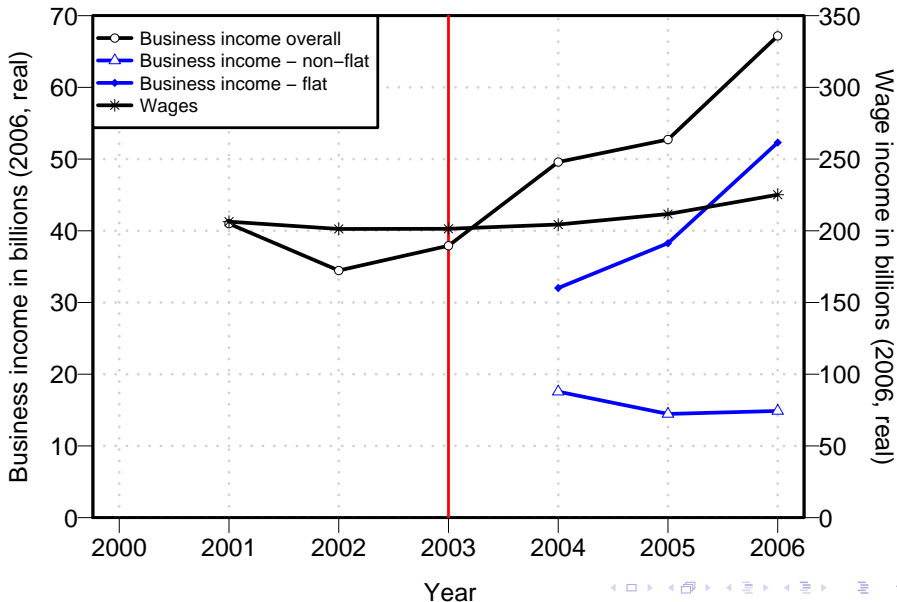
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Business income reported on personal income tax returns in Poland



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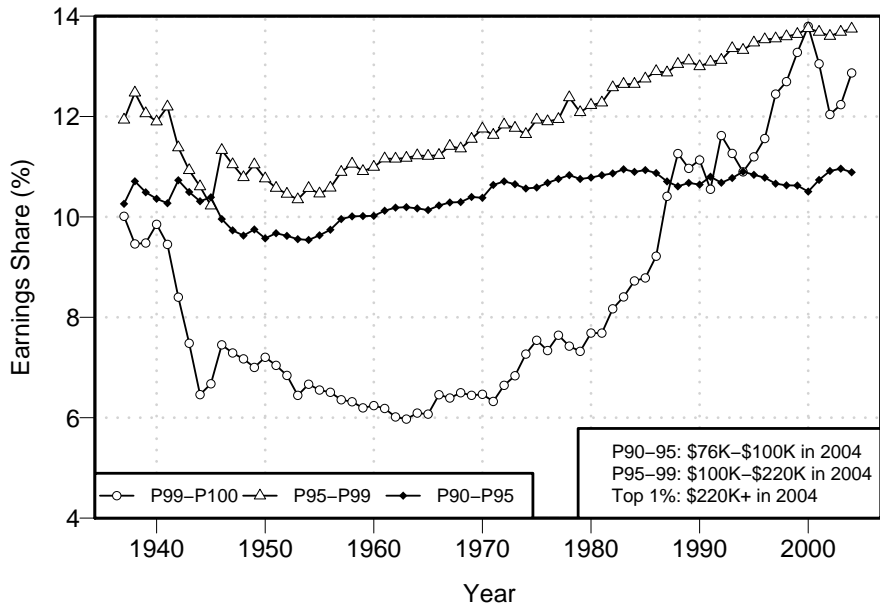
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- Assumption of similar trends across groups may not be valid. Most importantly, growing inequality an issue (Goolsbee, 2000a)
- Short vs. long-term responses. Strong evidence that retiming of income is quantitatively very important (Goolsbee, 2000b)
- Source of response — are these just shifts from other tax bases. In particular: reclassifying of income from corporate to personal important (Gordon and Slemrod, 2000)
- Mean reversion complicates econometrics. A person with temporarily low/high income will see income increase/decline but it's easy to confuse with the tax effect (Moffitt and Wilhelm, 2000)
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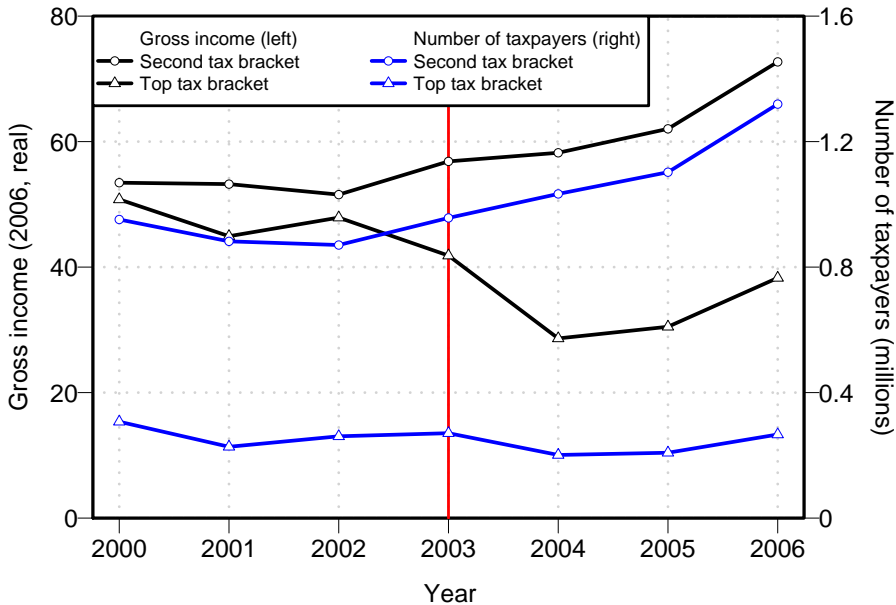
Figure 2B: Upper Earnings Shares



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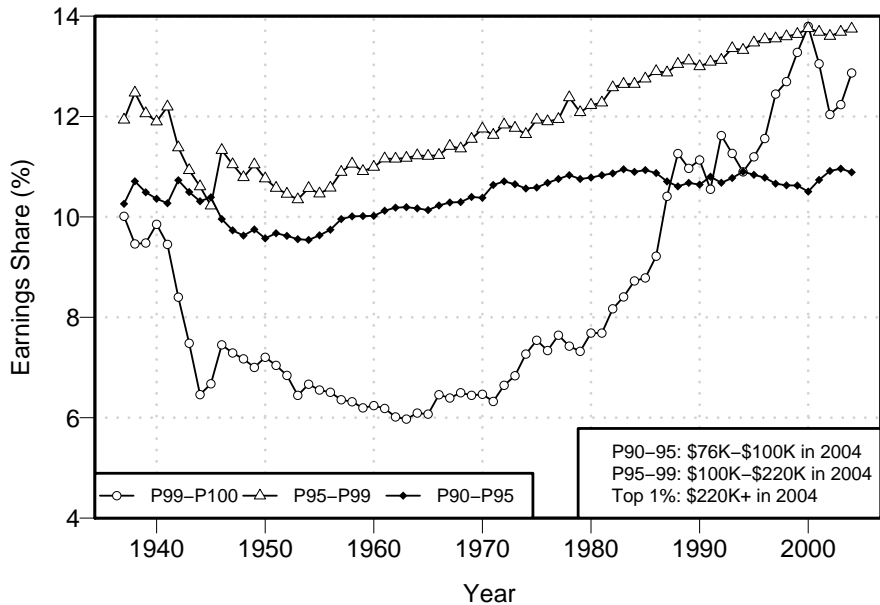
Gross income and taxpayers by bracket (non-flat) in Poland



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Overview of results

- A lot of papers — mostly about the U.S. (Feldstein, 1999; Auten and Carroll, 1999; Gruber and Saez, 2002; Saez, 2004; Kopczuk, 2005, Singhal and Looney 2006; Giertz, 2006, 2007). Also work in other countries Canada (Sillamaa and Veall, 2001), Sweden (Ljunge and Ragan, 2005; Selén 2005, Blomquist and Selin 2007), Germany, Norway (Aarbu and Thoreson, 2001), Iceland (Bianchi et al., 2001), Finland, Denmark (Kleven and Schultz, 2007)
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Results (continued)

- Elasticities at high income levels much higher
- Timing effects very large, using years adjacent to a reform is misleading
- The relationship between business and labor income and corporate and non-corporate form is known to be important but serious gaps in evidence due to the lack of suitable data
- Point estimates vary depending on the country, period, type of income and the extent of deductibility (definition of tax base). Hence, taxable elasticities are unlikely to be structural (ie., having source in preferences and technology only) but are also a function of other aspects of tax policy. A serious caveat to using them: policy makers may actually influence the strength of response (eg., via enforcement or broadening base) and need not take it as given

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Outline

- 1 Tax distortions
- 2 Why taxable income
- 3 Applications
- 4 Empirics
- 5 Conclusions**

Conclusions

- Active and relatively recent field of (mostly) empirical research that has challenged the consensus from 10 years ago about the relative non-importance of tax distortions
- Most studies are about high-income countries, no good evidence from middle or low-income countries.
- One would expect that these types of responses are more pronounced in countries with large informal economy, less efficient tax administration and weaker norms.
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