Assessing the impact of tax and transfer reforms - estimates and model predictions

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Disclaimer

The views expressed are those of the authors and do not necessarily reflect the official view of the European Commission.

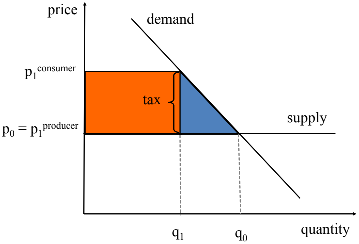
Three main purposes for government intervention (Musgrave 1959)

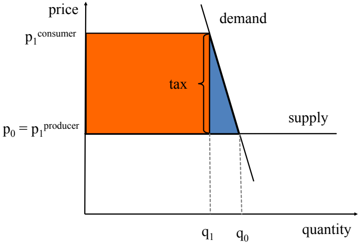
- Allocation: private outcome is Pareto inefficient because of market failures
- Distribution: private outcome leads to a "socially undesirable division of economic goods
- Stabilization: private outcome leaves some resources underutilized (recent interpretation: labor market allocation)
- Welfare effects described in terms of efficiency and incidence

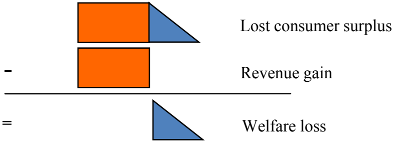
Taxation

- Standard approach: need to generate some revenue
  - Collect taxes on various economic transactions like sales, corporate and personal income
  - Ideal setup: "lump sum taxation" - regardless of individual choice
  - Reality: taxes influence prices, thus choices - a source of potential inefficiency
  - How to minimize the efficiency loss?
- Variant 2: want to redistribute income
  - Again a loss due to distorted individual choices
  - Need to tradeoff efficiency vs equity
- The sensitivity of individual behavior to taxes is always a key ingredient of the evaluation

Elasticities and efficiency losses







Model objectives

- Assessing the impact of tax and transfer reforms:
  - Static effects (impact on incomes and the income distribution. . .)
  - Long run effects on:
    - Labor markets
    - GDP
    - Government budget
- With a microsimulation model
  - ...with a labor supply extension
  - ... both on the extensive and the intensive margin
  - embedded into a small macro model
- The model is long run, so it is supply determined
  - and not demand driven (short run "consumption effect")

Overview of the model

- Calculate pre- and post-reform net wages
  - Observed wage for the employed
  - Predicted wage for the unemployed
- Calculate pre- and post-reform transfers
- Assess the pre- and post-reform “probability of activity” and “effective hours given employed” using empirical estimates
- We add these up to get the aggregate “labor supply shock”
- Which we then feed into a small macromodel

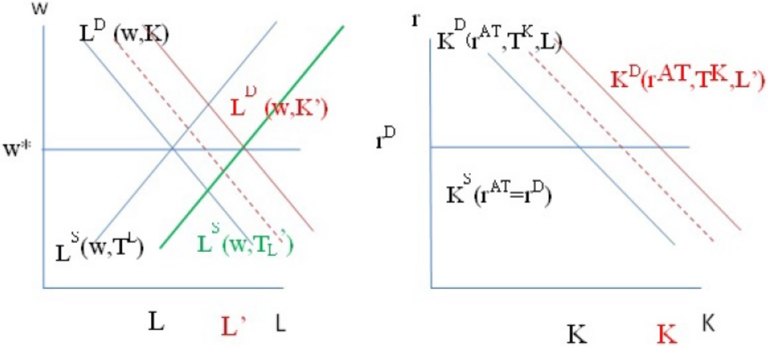
The macro model

- A small neoclassical model
  - Able to capture general equilibrium effects:
  - ... the adjustment of capital stocks anf factor prices (w, r)
  - ... to equalize their prices and marginal products
- Firms are represented by an estimated/calibrated CES production function
- Small open economy: capital supply is “very” elastic
  - In case of infinite elasticity...
  - ... the capital stock changes and factor prices return to their original levels

The macro model – underlying dynamics

- For the perfectly elastic case:
  1. gross wage drops, the rental rate goes above the required rate of return
  2. capital flows in, increased labor demand, gross wage starts to reverse
  3. a bit more labor supplied, further capital inflow
  4. gross wage gradually returns to its original level

A graphical representation of the micro-macro model



Labor supply elasticities

- At the intensive and extensive margin
- Intensive margin results:
  - Bakos, Benczúr and Benedek (2008)
  - Kiss and Mosberger (2011)
  - Benczúr, Kiss and Mosberger (2013)
  - Mostly the top 10-20% responds
- Extensive margin results:
  - Benczúr, Kátay, Kiss and Rácz (2012)
  - Substantial adjustment, mostly for...
  - ... the low skilled and the elderly,
  - ... a bit less so for women in child-bearing age

Actual measures 2008-2010 and 2010-2012(3)

- Both periods:
  - Increase in (employee-side) contributions
  - Increase in VAT (20 to 25 to 27%)
  - Measures to postpone retirement
- 2008-2010:
  - PIT cut for middle-income individuals
  - Cut in employer-side contributions

Actual measures cont.

- 2010-2012(3):
  - PIT cut for high-income individuals
  - PIT increase for low income earners, cut for families w. children
  - Corporate tax cut
  - Extraordinary (temporary?) “crisis” taxes on banks, telecom, retail
  - Cut in unemployment benefits (12 months to 3 months)
  - Transaction taxes, new small business taxes
  - Selective contribution cuts for certain subgroups (pre-retirement, youth, mothers with infants, low-skill)

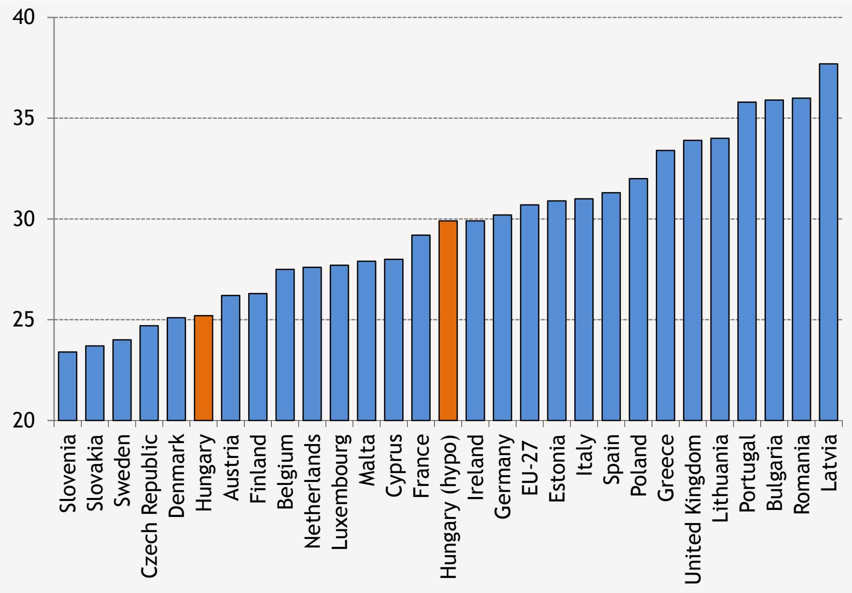
Displaying the results

- Effect on the distribution of incomes (of recent reforms)
  - At the household level
  - Winners/losers
  - Gini coefficient, p90/p10
- One table with labor and GDP effects
- Revenue effect:
  - Static – immediate effect (no behavioral response, extra income is all spent)
  - Dynamic: long run, behavioral response also turned on
- Another table with robustness to some (a) key parameters

Effect on the income distribution

- Substantial redistribution (static effect)
  - Tax changes favored the high-income (mostly: top 5-10%)
  - The elimination of wage tax credit and changes in transfers hurt low-income households
- Income inequality measures (the Gini coefficient, p90/p10 etc. ratios):
  - Move from a low level similar to Denmark and Austria to a medium level similar to Germany (EU average)
  - This is the dynamic effect
  - The true 2011 Gini is indeed higher (2009: 24.7, 2010: 24.1, 2011: 26.8, 2012: 26.9)

The impact on the Gini coefficient



2008-10 and 2010-13

	2008-10			2010-13		
	static	w/o pension	w/	static	w/o	w/
Effective labor		1.7%	4.8%		4.6%	7.9%
Employment		2.3%	5.8%		2.6%	5.8%
Capital stock		1.9%	4.4%		3.7%	6.4%
GDP		1.7%	4.7%		4.3%	7.4%
Average gross wage		4.3%	4.2%		2.3%	2.1%
Disposable income		3.6%	2.8%		1.7%	1.2%
Δ budget balance	-530	-84	342	-20	463	876

2010-13 and the required rate on investment

Hypothetical shock affecting the risk premium	0	50 bp	100 bp
Effective labor	4.6%	4.3%	3.0%
Employment	2.6%	1.5%	0.9%
Capital stock	3.7%	-5.5%	-15.4%
GDP	4.3%	0.9%	-3.5%
Average gross wage	2.3%	-1.6%	-5.4%
Disposable income	1.7%	-1.1%	-4.5%
Change of budget balance	463	117	-290

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Conclusions from the exercises

- GDP, effective labor and employment effects often go in opposite directions
- In case of income taxes:
  - In general: more important effects on the intensive margin
  - Smaller effects on the extensive margin
  - Many of the 2012 measures would have a negative impact on the extensive margin!
- 2010-12: moving from the bottom 25% to the median in terms of income inequality
- An increase in the required rate of return can undo most of the benefits of a tax reform!
- A useful and ready-to-use tool for evaluating tax and welfare reforms

The suggested research agenda – a "checklist" for Hungary

- Labour supply and tax price elasticities
  - Through the income distribution
  - Top of the income distribution
  - Margins of adjustment?
  - Extensive and intensive margin
- Analyzing labor income underreporting
- A microsimulation tool combining all these behavioral responses and a macro side as well
- Advertisement: The Hungarian Labor Market Yearbook, 2013
  - Its section on "Taxes, transfers and the labour market" summarizes all these developments
  - See: http://econ.core.hu/english/publications/lmyb.html