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Discussion of

Who Truly Bears (Bank) Taxes?
Evidence from only Shifting Statutory Incidence

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The Textbook

- Competitive market for a single good
- Demand $D = D(p_c)$, supply $S = S(p_s)$
- Tax $t = p_c - p_s$
- Equilibrium: $D(p_c) = S(p_s)$
- Physical neutrality (Jenkin, Proc. Royal Soc. Edinburgh, 1872): Equilibrium quantities do not depend on how the tax is statutorily distributed between consumers and producers.
- Economic incidence: At the margin (for small *t*), consumers bear $p_c'(t)$ of the tax and producers $1 - p_c'(t)$.
- Pass-through rate: at the margin,

$$p_c'(t) \approx \frac{\varepsilon_s(p_s)}{\varepsilon_s(p_s)+\varepsilon_c(p_c)}$$

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What is happening here?

- Market(s) for mortgages, tax on the underlying mortgage collateral
- Spain, November 2018: statutory incidence passed from households to banks, no change in tax rates
- On average only approx. 80% of the tax change was passed on to the households (through higher rates)
- Large variation of pass-throughs depending on household and local market characteristics
- No significant quantity changes

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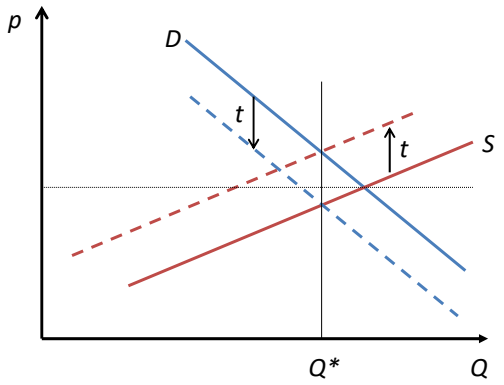
Is this the picture?



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What is different (I)?

Mortgages are not spot transactions, but credit transactions.
Therefore question: How do you translate "*p*" into "*r*"?

Simple accounting model (ignoring default, for illustration only):
Suppose banks lend mortgage *B* at possible markup *m*,
households pay tax *T*, collateral ("mortgage liability") *C*.
Let r_t be the mortgage interest, d_t the annual discharge,
M the maturity of the mortgage.

Mortgage size given by haircut *h, 0 < h <1*: *B = hC*.
Tax levied on collateral: *T = qC*.

Accounting banks: $(1+m)B = \sum_{t=1}^{M} \frac{r_t+d_t}{(1+\bar{r})^t} B$

Now suppose banks pay the tax. If banks adjust interest and discharge by δ, the accounting becomes:

$$(1+m)B + T = \sum_{t=1}^{M} \frac{r_t+\delta+d_t}{(1+\bar{r})^t} B.$$

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Hence, $\sum_{t=1}^{M} \frac{\delta}{(1+\bar{r})^t} = \frac{T}{B} = \frac{q}{h}$

Result: Mechanical relation at full pass-through: $\delta = \hat{\delta} \equiv \frac{q}{h} \frac{\bar{r}(1+\bar{r})^M}{(1+\bar{r})^M - 1}$

Interpretation:
- Highly non-linear in *M* and $\bar{r}$, negative relation between interest rate markup δ and collateral haircut *h*.
- Empirics Table 7: No impact of tax reform on *B* and *M*, significant effect on δ (+) and *h* (+).
- Conclusion: The pass-through cannot be mechanic and full.

Remark:
The real question is not whether $\delta > 0$ (as discussed in Regressions (1) – (4)), but whether $\delta = \hat{\delta}$ (not reported). It would be nice to see the explicit model that is estimated here.

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What is different (II)?

Since mortgages are credit transactions, “buyers” are by construction liquidity constrained.

Consequence: It is efficient to let the banks pay the tax. The resulting efficiency gain is passed on partially, no contradiction to statutory incidence neutrality.

Plausible? The tax is quite small. In fact, based on average values, the tax is approx. 0.015 x 161, 000 = 2, 415 €.

Note: The whole loss in the pass-through as computed in the paper is approx. 0.2 x 2, 415 = 480 €. This refers to transactions with an average value of more than 160, 000 €. Hence, tiny changes or inaccuracies of the accounting reverse the pass-through results completely.

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What is different (III)?

Mortgage markets may not be competitive.
Reasons: Local market power by local banks, informational capture in banking relationships, household inexperience, …

First reaction: In this case, expect $\delta > \bar{\delta}$.

Second reaction: No. Need a theory of tax incidence in imperfectly competitive markets.

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Preliminary: Monopoly

Let demand be given by *p(Q)*. Monopolist has cost function c(Q).
If households pay the tax, resulting demand is $\hat{p}(Q) = p(Q) - t$.
Hence, monopolist chooses Q to maximize

$$\hat{p}(Q)Q - c(Q)$$

which yields $p'(Q)Q + p(Q) - t = c'(Q)$

If supplier pays the tax, she maximizes $p(Q)Q - tQ - c(Q)$
which yields $p'(Q)Q + p(Q) - t = c'(Q)$

Hence, the Jenkin Neutrality Principle holds:
Equilibrium quantities do not depend on how the tax is statutorily distributed between consumers and producers.

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Monopoly: More on tax incidence

Envelope Theorem: Suppliers distort quantities optimally, therefore take the quantity sold as given when evaluating the impact of (small) tax changes on profits. Hence, they bear the tax burden 1:1. But the price-taking consumers still bear the competitive burden of $p_c'(t)$. Hence, Jenkin's economic incidence principle does not hold:

Economic incidence: The total tax burden is larger than the amount raised by the tax. At the margin, the supplier bears 100% of the tax and the consumer additionally bears $p_c'(t)$.

For more on this, see Weyl and Fabinger, JPE 2013.

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What is different (IV)?

Perhaps this is not a problem of public finance or banking, but of the housing market.

Example: German Law on the statutory incidence of real estate agent fees of December 2020: As of 2021, if a seller mandates a real estate agent with the sale of private real estate, she must bear at least half of the resulting fees.

In a few years, we will (hopefully) know more about the economic incidence of such fees ...

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Conclusion

Very nice, thought-provoking paper, with a wealth of data, an interesting natural experiment, a very careful econometric analysis, and an interesting economic theory of tax incidence under partial consumer ignorance.

There is more to be done in terms of understanding the empirical findings:

- Is this a paper about a fundamental problem of public finance, which incidentally concerns a problem of imperfect banking competition with non-trivial intertemporal pricing,

or

- Is this a paper about imperfect competition in banking, which involves a conceptually difficult problem of public finance?

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