International Corporate Tax Avoidance: A Review of the Channels, Effect Sizes, and Blind Spots

Sebastian Beer, Ruud de Mooij, and Li Liu

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Motivation 1

International tax avoidance by multinational companies (MNCs) continues to be on top of the international tax policy agenda:

- Implementation of G20-OECD Base Erosion and Profit Shifting (BEPS) outcomes
- Re-launch of CCCTB proposal by European Commission
- Taxation of digital economy
- Wider debate on future of international tax regime
- Many unilateral reforms including the U.S. tax reform

Motivation 2

Meta-Analysis as a useful tool in evaluating tax reform:
- For the same research question, i.e. how responsive is own-country's tax rate to changes in others' rates, different studies tend to get different answers (point of estimate + standard error)
- Variation due to inclusion of different controls, estimation methods, type of data, geographic coverage, time period, and etc…
- Useful information though not analyzed in the primary studies
- This is when meta-analysis comes handy! ☺, by
  - Providing a more systematic comparison of different studies
  - Assessing the relative importance of particular empirical choices
  - Predicting the average estimate of the structural parameter researchers would find with the best available dataset and credible estimation strategy

Overview

Stock Taking

What the `international tax architecture' really is

Main channels of **international corporate tax avoidance**

Empirical evidence on the importance of a few channels, and on specific anti-avoidance regulations

New Meta-Analysis

Estimating the overall magnitude of tax-motivated **profit shifting**

A new consensus estimate on the semi-elasticity of reported profitability w.r.t. international tax differentials

New insights into different drivers of the tax sensitivity and their relative importance

# Main Channels of International Tax Avoidance

How big is the (observable) problem and why should we bother?

- Abundance of papers estimated tax sensitivity of reported profit, using variants of

$$\log(\pi) = \varepsilon\tau + \gamma'x + u_{is}$$

- Estimates of semi-elasticity ε differ widely. No surprise, given differences in
  - Datasets (more profit shifting among US firms?)
  - Depended variables (EBIT does not capture debt shifting)
  - Tax rates (backward looking effective tax rates are endogenous)
  - Time span (maybe profit shifting decreased over time?)
  - …

- Semi-elasticity is central parameter, both for theory (revenue maximizing tax rates) and applied policy simulations (impact of US tax reform)

- Thus critical to understand what factors drive estimates and to distill the "true" semi-elasticity

Semi-elasticities in economics literature
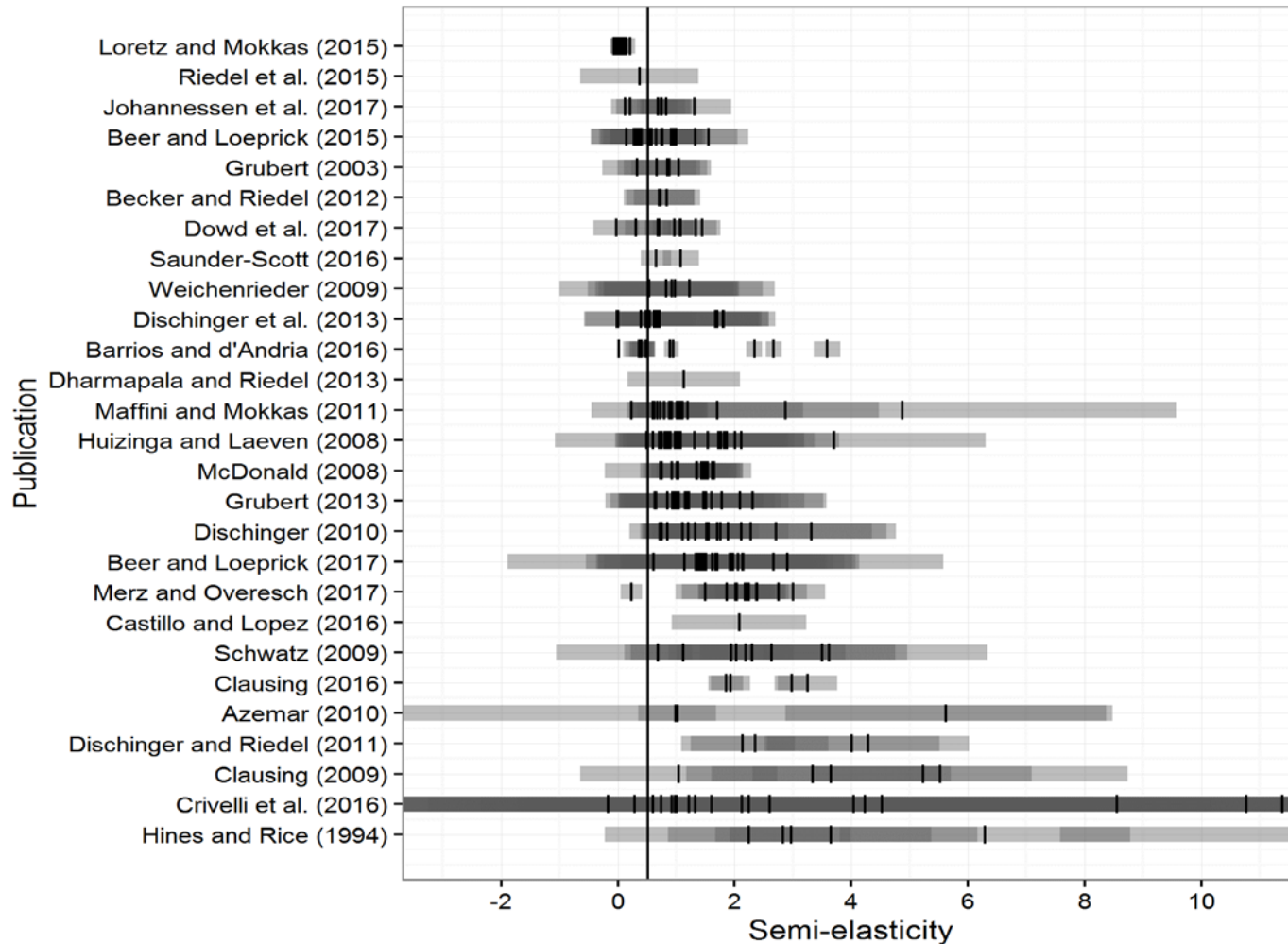
Empirical strategy: meta-analysis

- Basic idea: explain variation in primary study estimates with study-specific characteristics, x, using simple regression framework

$$\varepsilon_{is} = \beta' \, x_{is} + u_{is}$$

- Allows computing conditional mean elasticity $E[\varepsilon_{is}|x]$ for any x

We can thus predict mean sensitivity researchers would find with the best available dataset and credible estimation strategy

(Some of) our contributions

1. **Use comprehensive and up-to-date pool of primary estimates**
   - Based on broad literature review, our dataset covers 318 semi-elasticity estimates from 27 studies (only economics literature)
   - Expands sample against Heckemeyer and Overesch (2017) by more than 50%, by using conditional elasticities, recent estimates, and industry-specific results

2. **Improve estimation approach by controlling for intra-study correlation**
   - Prior studies use WLS, where more weight is given to observations with small standard errors
   - Neglects the fact that semi-elasticity estimates are clustered at study level.
   - We incorporate between-study variation by estimating GLS

Intuition for effect of incorporating between-group variation in univariate setting
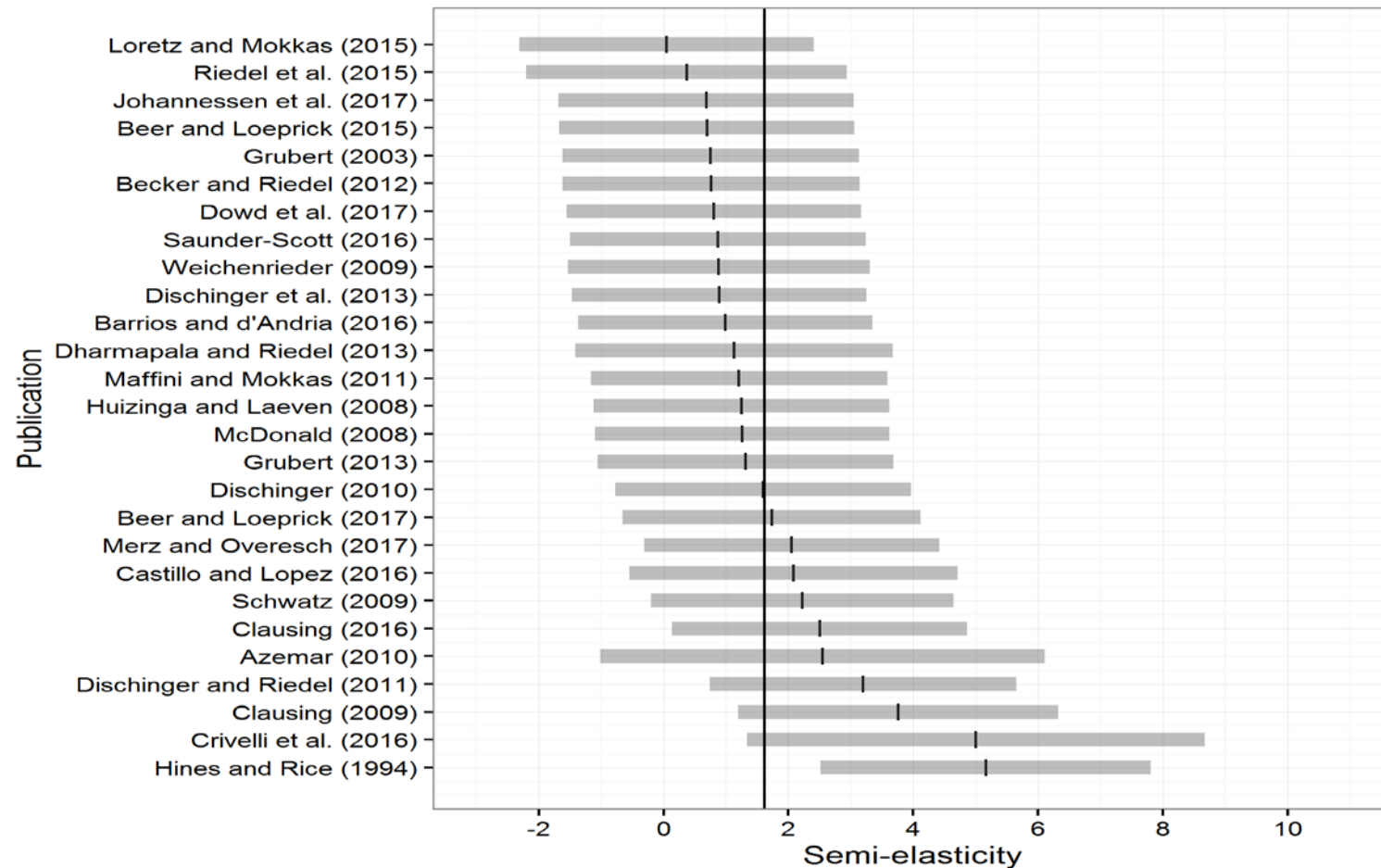
Main results

Average semi-elasticity is 1.2

- Implying that revenue implications are much more severe than previous consensus estimate suggests

Reported estimates deviate from this mean prediction

1. due to estimation choices and sample properties, including

Use of	Instead of	Effect on estimate
EBIT	Profit	-0.09*
Profitability ratio	Log	0.34***
Domestic tax rate	Tax differential	-0.86***
Aggregate data	Micro data	0.81*
…	…	…

2. and partly due to more structural issues:
   - Sensitivity of reported profit has increased since 1980s
   - US firms are more responsive to tax differentials

Conclusion

There exists granular evidence for many areas of tax avoidance, but:

1. Data limitations and complexity of the issue have impeded examination of some important tax avoidance responses:
   - Creation of permanent establishments?
   - Offshore indirect sales?
   - Risk transfer?

2. Most tax avoidance estimates are derived on aggregated level. Country/Industry-specific estimates important to inform policy discussion

3. Interaction between tax avoidance responses, and between real and avoidance response is understudied