UNITED NATIONS
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TAX AND COMMERCIAL
ILLICIT FINANCIAL FLOWS

Part II - Methods
Global distribution of MNEs' profits and corporate taxes

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Suggested methods – Aggresive tax avoidance / profit shifting

- Profit shifting flows in BoP, FDI, FATS?
- Strong recent development in methodologies
  - Concept:
    - Declared profits = Real/unobserved profits and Shifted profits
  - Approaches
    - Profit misalignment
    - Tax semi-elasticity
    - Compare MNE to domestic firms

Suggested methods – Aggresive tax avoidance / profit shifting

	#3 Global distribution of MNEs‘ profits and corporate taxes	#4 MNEs vs comparable non-MNE profit shifting
Concept	MNE shift profits to lower-tax countries	MNEs differ from domestic with profit shifting
Assumptions	Deviation from predicted profitability is profit shifting	Domestic companies do not shift profits
Strengths	Concept	Not all MNEs are equal
Limitations	Underestimation	Control group in small economies
Data sources	CbCR microdata	Firm-level data
Mitigation of limitations	Supplement with interpretation tools	Supplement with interpretation tools

Suggested methods – Aggresive tax avoidance / profit shifting

#3 Global distribution of MNEs' profits and corporate taxes

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Aggressive tax avoidance or profit shifting by MNEs: Global distribution of MNEs' profits and corporate taxes

- Concept and assumptions
  - Tax semi-elasticity approach
  - Distribution of profits of an MNE among its units globally ~ corporate (effective) tax rates and underlying economic activity of units
  - Assuming shifting profits to lower-tax units
  - Any systematic deviation from predicted profitability is a sign of potential profit shifting

    -> caution in interpretation!

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Aggressive tax avoidance or profit shifting by MNEs: Global distribution of MNEs' profits and corporate taxes

- Limitations
  - Uncertainty about results
  - Tax rate faced by MNE unit?
  - Other-than-tax incentives to shift profits
  - Tax sensitivity varying by tax regimes, or size of MNE

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Aggressive tax avoidance or profit shifting by MNEs: Global distribution of MNEs' profits and corporate taxes

- Overcoming limitations
  - Use effective tax rate
  - Use quadratic tax variable specification
  - Use subsamples: quartiles of consolidated revenues
  - Use tools to confirm and interpret results
    - Location of the unit -> role of the unit
    - Economic activity of the unit
    - LCUs, experts of MNE

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- Source data
  - Data on MNE and their units (profits before taxes, effective tax rates, number of employees, value of tangible assets)
  - Microdata
  - OECD CbCR
  - Firm-level tax returns from Tax authority
  - Availability?

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- Source data
  - OECD ADIMA, AMNE, Tax Database
  - Global Groups Register
  - EuroGroups register

  - Population, GDP, tax rates etc.

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Aggressive tax avoidance or profit shifting by MNEs: Global distribution of MNEs' profits and corporate taxes

- Calculation
  1. Determine the presence of profit shifting
  2. Size of profit shifting

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- Calculation – presence of profit shifting

$$log(y_{i,c,t}) = \alpha_i + \beta_1 T_{i,c,t} + \beta_2 T_{i,c,t}^2 + \gamma' Firm_{i,c,t} + \delta' Country_{c,t} + \theta_t + \varepsilon_{i,c,t}$$

$y_{i,c,t}$	… sum of profits before taxes of MNE unit's *i* in country *c*
$T_{i,c,t}$	… tax variable of MNE unit's *i* in country *c*
$Firm_{i,c,t}$	… vector including variables describing unit's *i* activities in country *c*
$Country_{c,t}$	… vector including variables describing conditions in country *c*
α_i	… MNE unit's fixed effects
θ_t	… year fixed effects
	… Subscript *t* denotes time

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- Calculation – tax variable

$$log(y_{i,c,t}) = \alpha_i + \beta_1 T_{i,c,t} + \beta_2 T_{i,c,t}^2 + \gamma' Firm_{i,c,t} + \delta' Country_{c,t} + \theta_t + \varepsilon_{i,c,t}$$

$$T_{i,c,t} = \tau_{i,c,t} - \bar{\tau}_{m-i,-c,t}$$

Tax rate faced by MNE unit *i* in country *c*

Average tax rate faced by other MNE units in other countries

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- Calculation – tax variable

$$log(y_{i,c,t}) = \alpha_i + \beta_1 T_{i,c,t} + \beta_2 T_{i,c,t}^2 + \gamma' Firm_{i,c,t} + \delta' Country_{c,t} + \theta_t + \varepsilon_{i,c,t}$$

  - Effective average tax rate
    - Microdata available: $\tau = \frac{paid\ taxes}{reported\ profits}; m - i$
    - Data availability limited:
      - EATR as reported
      - EATR = 0 if statutory tax rate = 0
      - EATR = (statutory tax rate) – (Median difference (statutory-effective tax rate))

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- Calculation – *Firm* vector

$$log(y_{i,c,t}) = \alpha_i + \beta_1 T_{i,c,t} + \beta_2 T_{i,c,t}^2 + \gamma' Firm_{i,c,t} + \delta' Country_{c,t} + \theta_t + \varepsilon_{i,c,t}$$

  - Logarithms of:
    - Number of employees
    - Value of tangible assets

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- Calculation – *Country* vector

$$log(y_{i,c,t}) = \alpha_i + \beta_1 T_{i,c,t} + \beta_2 T_{i,c,t}^2 + \gamma' Firm_{i,c,t} + \delta' Country_{c,t} + \theta_t + \varepsilon_{i,c,t}$$

  - Logarithms of
    - GDP p.c. (PPP)
    - Population

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- Calculation – tax semi-elasticities

$$log(y_{i,c,t}) = \alpha_i + \beta_1 T_{i,c,t} + \beta_2 T_{i,c,t}^2 + \gamma' Firm_{i,c,t} + \delta' Country_{c,t} + \theta_t + \varepsilon_{i,c,t}$$

  - Marginal effect of a tax rate at certain tax rate
  - Marginal effect is negative

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- Calculation – size of profit shifting
  - How declared profits would change without tax incentive?
  - Declared profits sum of real profits & shifted profits
  - Shifted profits part of real profits, combined with tax elasticity and tax variable

$$S_{i,c,t} = \frac{y_{i,c,t} * \hat{\beta}T_{i,c,t}}{1 + \hat{\beta}T_{i,c,t}} \qquad \hat{\beta}T_{i,c} = \beta_1 T_{i,c} + \beta_2 T_{i,c}^2$$

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- Calculation – size of profit shifting
  - Results for each MNE and per country
  - S<0 -> profits shifted out of a country
  - S>0 -> profits shifted into a country

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- Calculation – outward and inward IFFs

$$OutwardIFFs_{i,c,t} = \left|min\left(0, S_{i,c,t}\right)\right|$$

$$InwardIFFs_{i,c,t} = max\left(0, S_{i,c,t}\right)$$

  - Underestimation from data undercoverage
  - National-specific circumstances and enhancements!