The capacity to be aggressive:
structured management and profit shifting practices in the firm

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PRELIMINARY — VERY MUCH WORK IN PROGRESS

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Introduction

Big picture question: Why do some firms avoid taxes and others do not? What drives/enables them?

We know that:

- There is large amount of tax avoidance, especially amongst MNEs.
  Panama and Paradise papers 2015, Torslov et al. 2018, Bilicka 2019

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- The extent of profit shifting has been increasing over time.
  Clausing 2016, OECD 2017
- Higher profits are linked to more structured management practices...
  Bloom et al 2012, 2014

...**BUT**, unclear whether better management generates higher **taxable** corporate income or whether it also has a potential to enable **better avoidance** of legal taxation.

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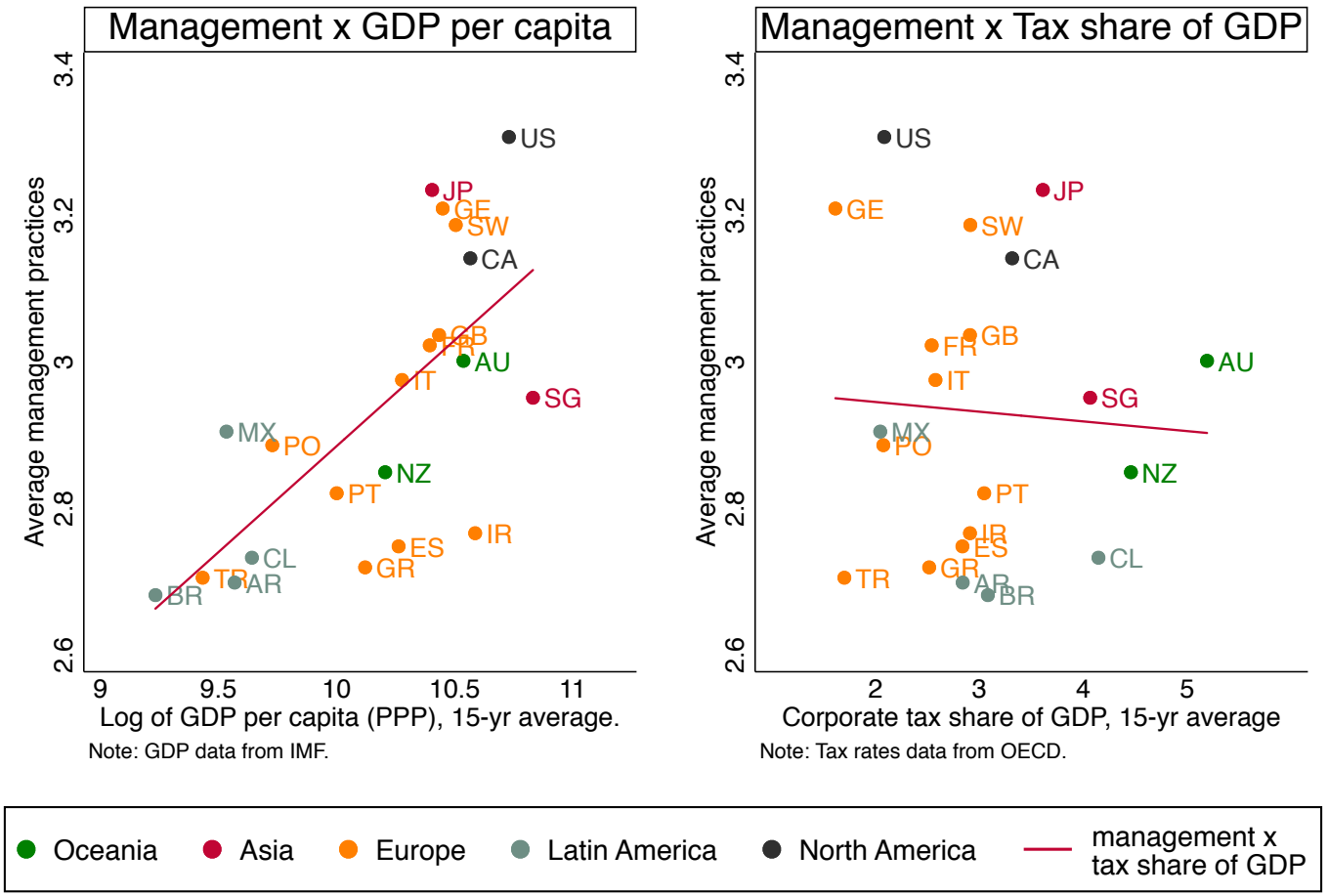

Note: Data from WMS, IMF and OECD. 15-year averages for GDP and corporate tax revenue.

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What we use: New matched firm data

- Firm accounting records for 19 countries (2004-2019): Orbis BvD
- Firm management practices: World Management Survey

What we do:

1. Classify firms according to the corporate tax rate:
   - for every country-year cell.
   - by **location of their operations** (high/low tax subsidiary/headquarter).
2. Classify firms as "aggressive tax avoiders" in two ways:
   - if they report ROAs close to zero. Johannesen et al 2019
   - if they report large disparities in book tax differences (BTD). Desai 2003, Desai and Dharmapala 2006, Desai and Dharmapala 2009

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3. Document the relationship between **reported ROA** and **structured management** in each environment for each type of firm.

Overview of findings

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2. There is a **negative** relationship between structured management and ROA for firms **operating** in high-tax country-years
   - but a positive one in low-tax country-year
3. This relationship is driven by firms with **HQ in high-tax country-years**: **Structured management** firms with HQs in high-tax country-years report:
   - **higher** ROAs in **low-tax** countries
   - **lower** ROAs in **high-tax** countries.
4. Better managed firms are more likely to be **tax aggressive**.

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We argue that these patterns are **consistent with profit shifting behaviour**, suggesting that better managed firms are more likely to shift profits out of high-tax country affiliates into low-tax country affiliates.

CONCEPTUAL FRAMEWORK

Decision-making

- All firms have an objective function of **after-tax profit maximization**:
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- Headquarters also strategize on **tax planning**

  Objective function of the manager at the HQ includes:
  - all of the affiliates profits and all the tax rates of affiliate locations.
  - subsidiary can also be involved in tax planning decisions, but only together with HQ

How can firms shift profits?

- Debt shifting
- Transfer pricing
- Patent location

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  - Tax planning is easier when the firm has clear production plans and a predictable income stream
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We should observe firms with **high organizational capacity** reporting **low pre-tax profits** in high tax countries (and vice-versa).

DATA

Firm data: Orbis matched with World Management Survey

- Tax and performance data for **multinationals** come from BvD Orbis.
- WMS measures the **level of adoption** of structured management practices via phone surveys in mid-sized manufacturing firms (50-5000 employees).
- Main measure is the **average management score**.

  Includes 18 practices such as performance tracking and review, process documentation, target setting, people management.
- 1-hour interview with plant managers, responses scored on a 1-5 scale:

  Score of 1: "little/no formal management practices"
  Score of 2: "some informal management practices"
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Data structure

- **Financial** and tax data is a **annual panel** (2004-2018)
  - We match WMS MNEs into firm financial data to form our **baseline sample**
  - 2068 unique firms, yielding 26,251 observations
  - Main measure of profitability: ROA
- **Management** data is a **single measure** within the sample time period.
  - Management is a very slow-moving variable.
  - We use the index as a continuous variable and a binary index.
  - Main measure of org capacity: operations (avg 12 questions)
- **Ownership** data comes from Orbis and is the latest static information
  - for each firm in the matched Orbis-WMS we identify the HQ and its location

Corporate group structure: baseline sample

Firms in the same corporate group count	**Total factories** N	**Subsidiary factories** N	**HQ factories** N
1	1446	958	488
2	294	286	8
3	129	125	4
4	84	83	1
5	60	60	0
6	30	30	0
8	16	16	0
9	9	9	0
Total	**2068**	**1567**	**501**

Empirical Strategy

$$ROA_{it} = \alpha + \beta_1 M_i + \beta_2 HTSub_{ct} + \beta_3 M_i \times HTSub_{ct} + \eta_c + \delta_t$$

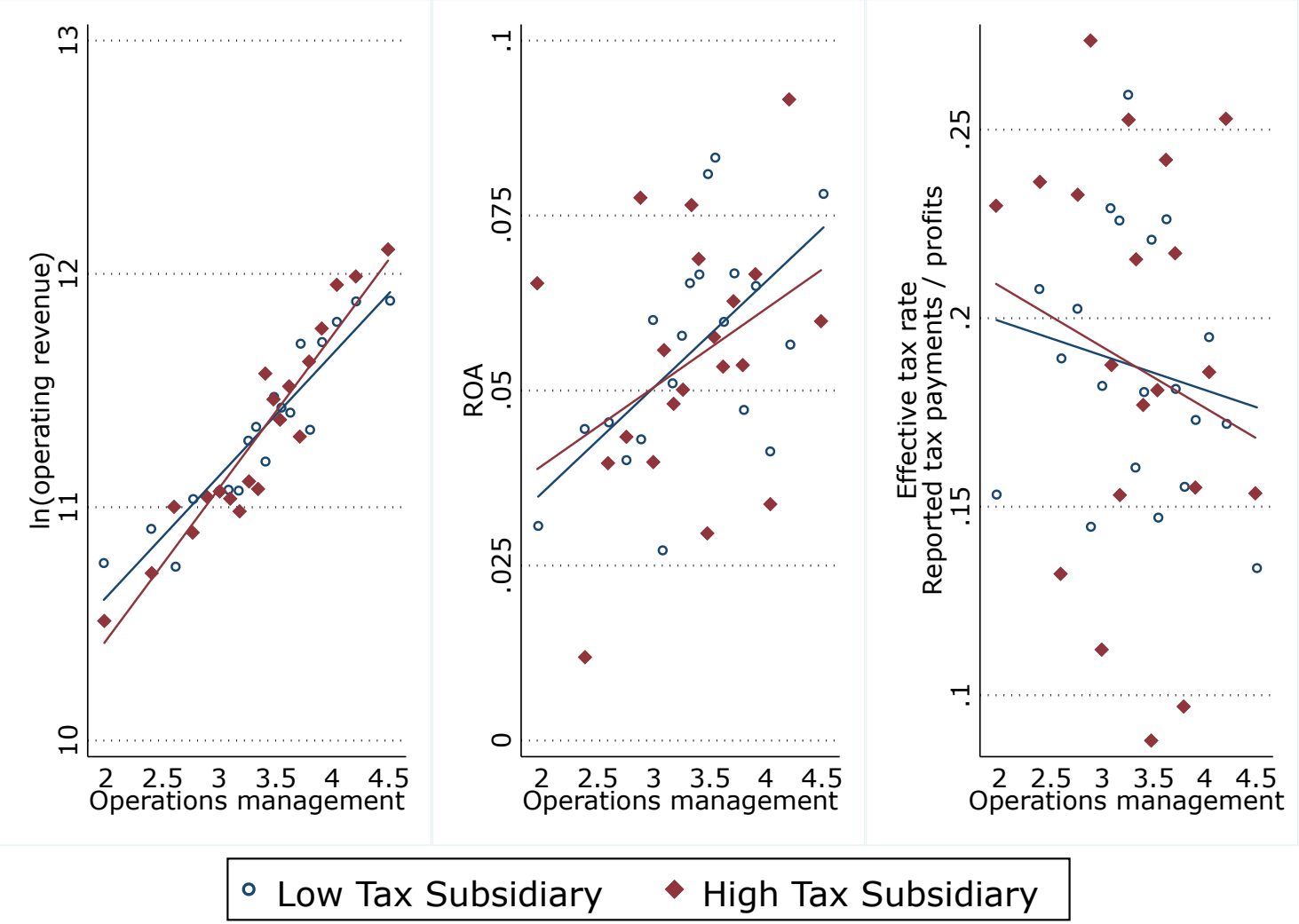
- ROA_{it} is the ratio of profits to total assets in the subsidiary in time t
- M_i is operations management score
- $HTSub_{ct}$ is a dummy whether a subsidiary operates in low or high tax country-year
- η_c are country fixed effects
- δ_t are year fixed effects

We run a **pooled OLS analysis**, for now not using the time series dimension.

Today, primarily a descriptive story establishing new stylized facts.

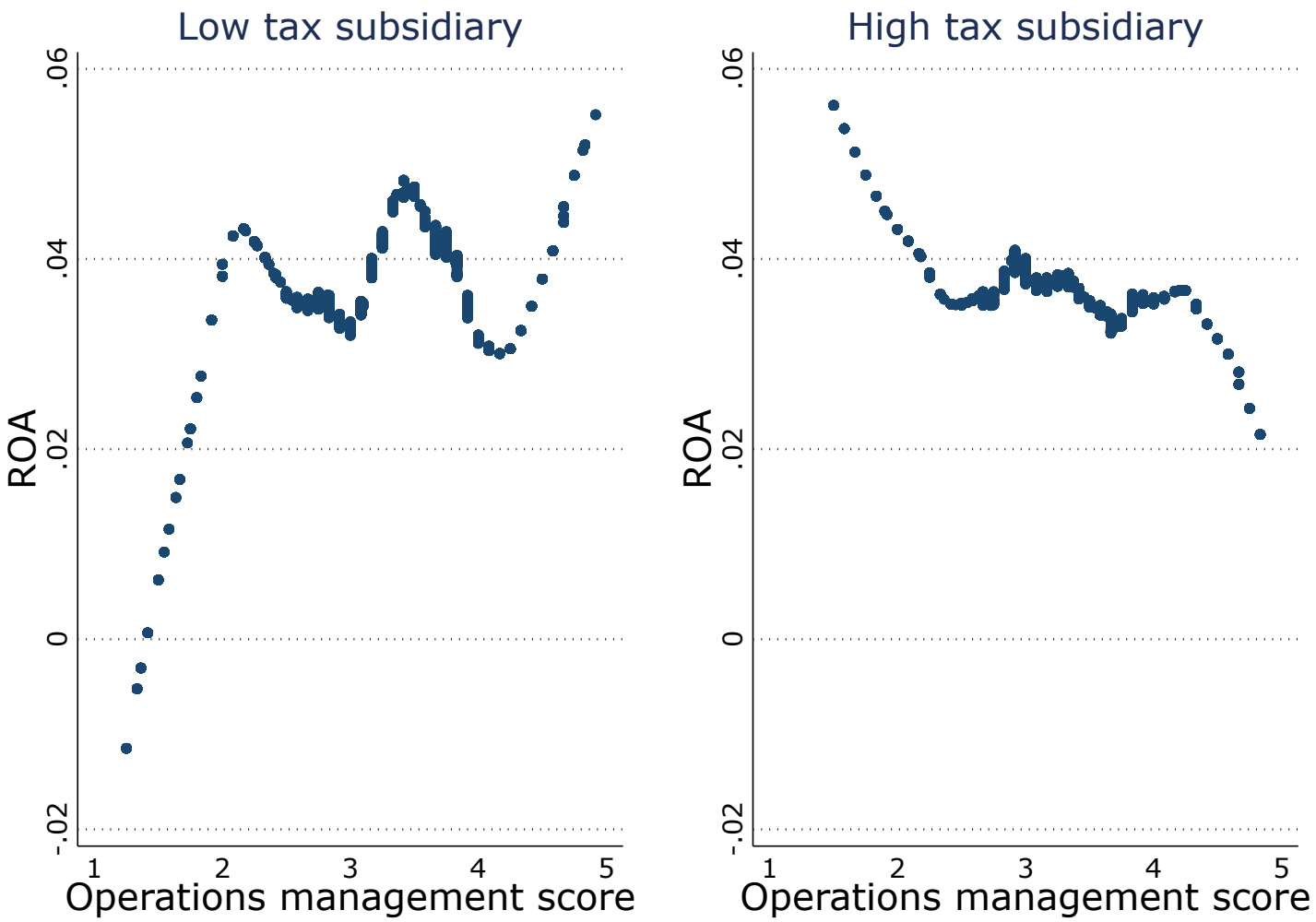
RESULTS

Result 1: Firms with more structured management...



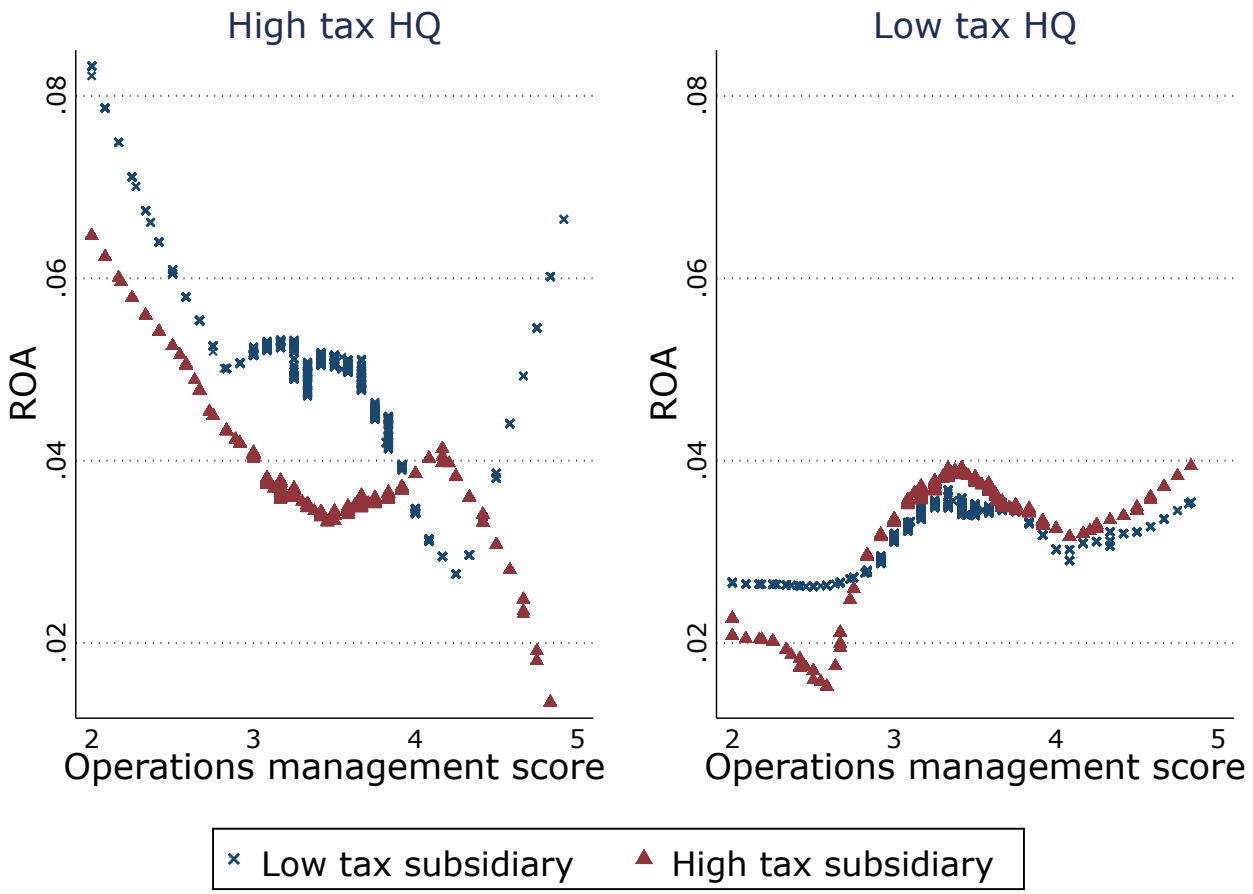
... are more productive, but report lower ETRs

Result 2: Firms with more structured management...



... report lower profits in high-tax countries.

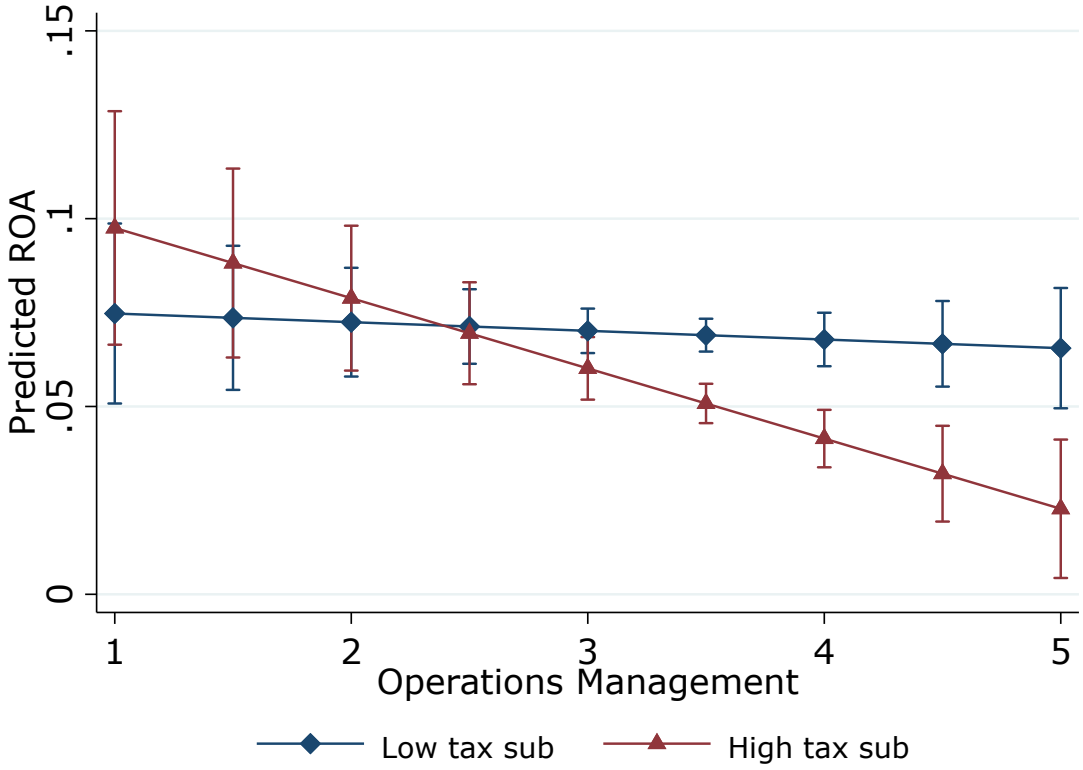
Result 3: Firms with more structured management...



... headquartered in high-tax countries report lower profits in high-tax countries, but higher profits in low-tax countries

But is this a good proxy for within-group tax planning?

- For a subset of firms, we have data for multiple subsidiaries of the same HQ.
- Using only these firms, we look at the relationship for subsidiaries with different tax rates belonging to the same HQ: the relationship holds.



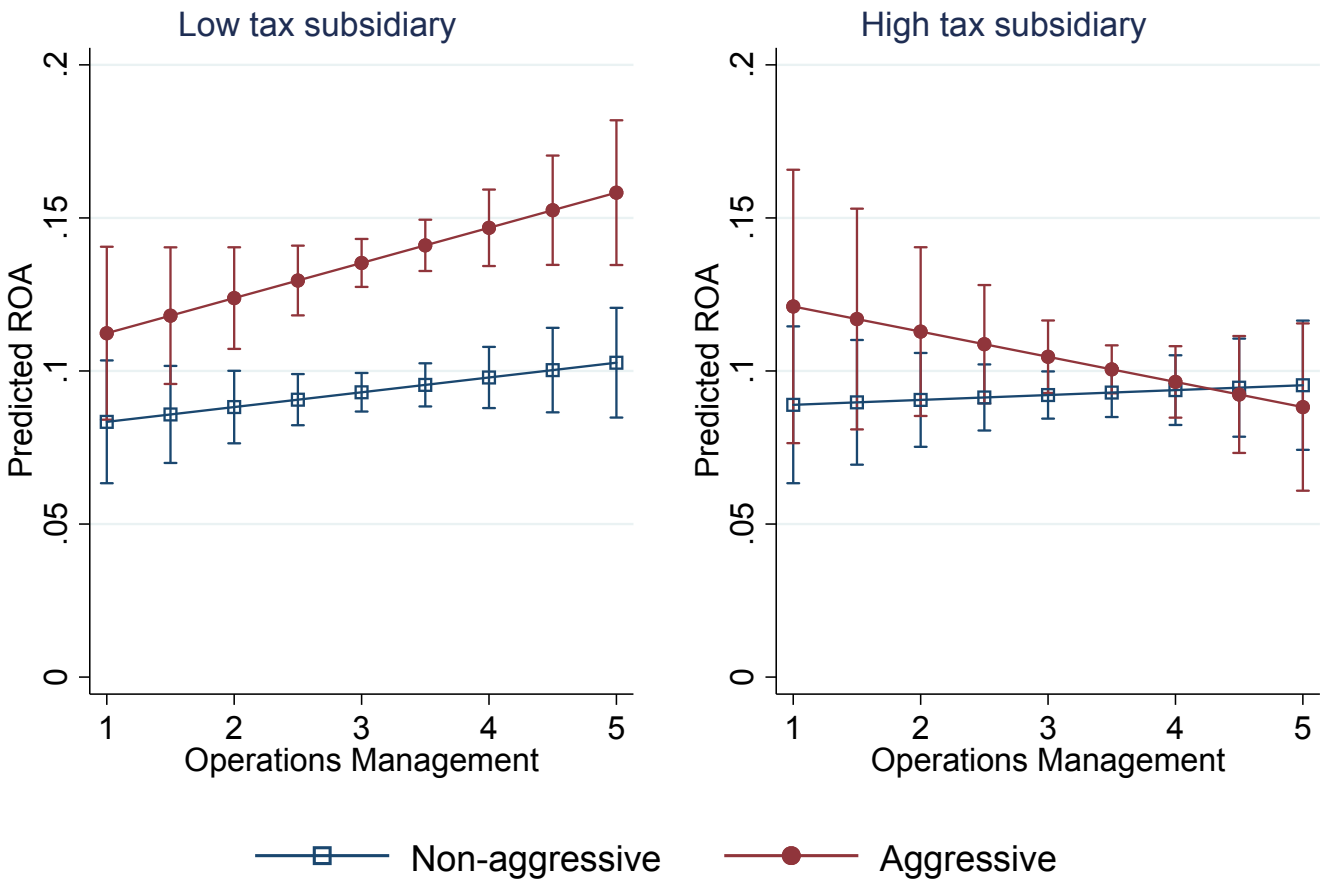
Evidence of aggressive tax planning?

We interpret the evidence as suggestive that **better managed firms may be better at aggressive tax planning.**

To dig further, **proxy for aggressive tax avoidance** using:

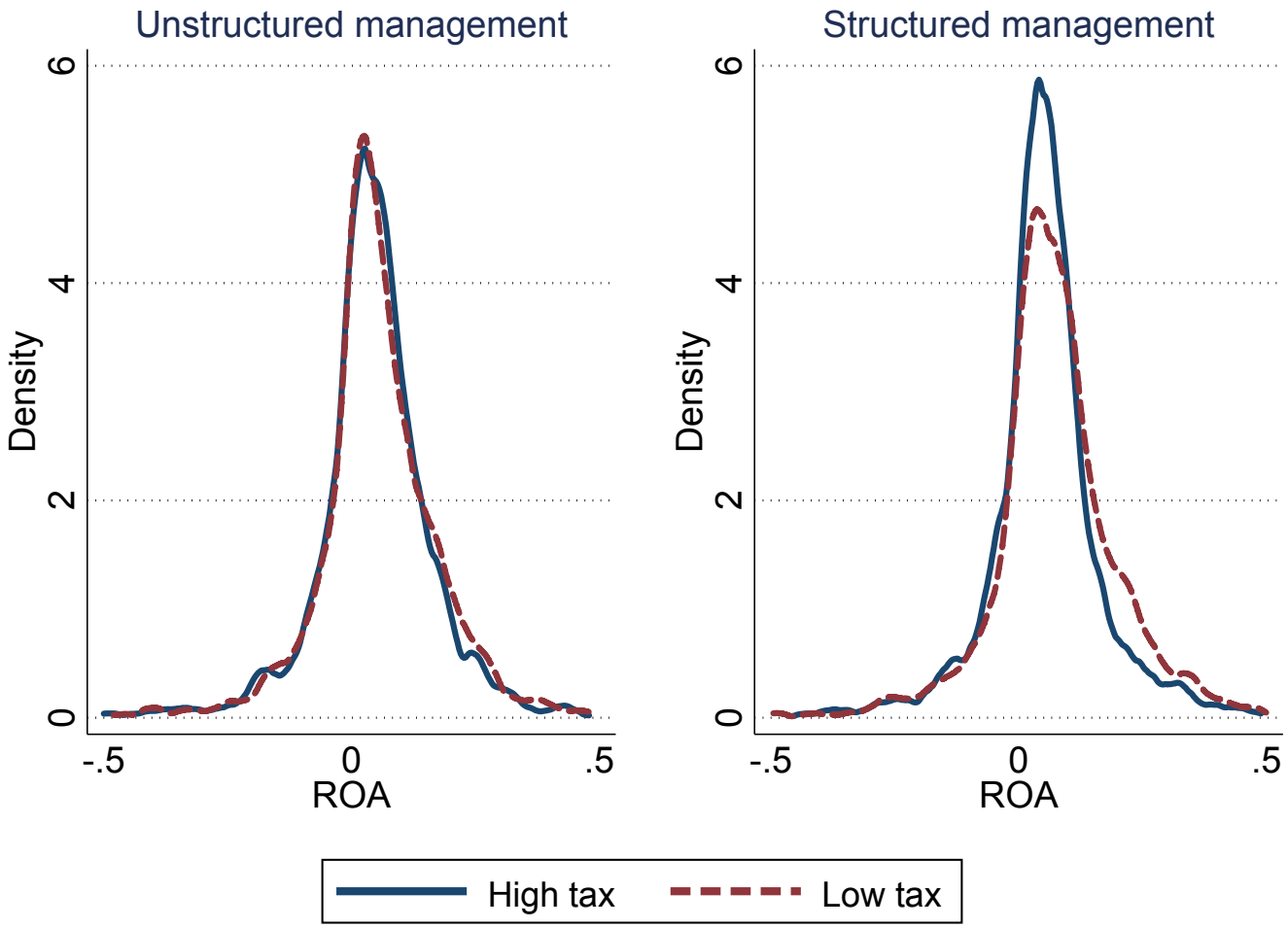
- Book tax differences (BTDs) measures the difference between pre-tax book earnings and taxable income.
  - the literature has linked this measure with tax avoidance activities of MNEs (with caveats!)
    Manzon and Plesko 2002, Desai & Dharmapala 2006, 2009, Desai 2003
  - we calculate the size of BTDs for each firm, scale it by total assets and **define aggressive taxation behavior as having above median BTDs.**
- Near zero ROAs
  - the literature has considered firms bunching around zero ROAs as a good proxy for aggressive tax avoidance
    Johannesen et al 2019, Bilicka 2019

Result 5a: Aggressive tax avoiders...



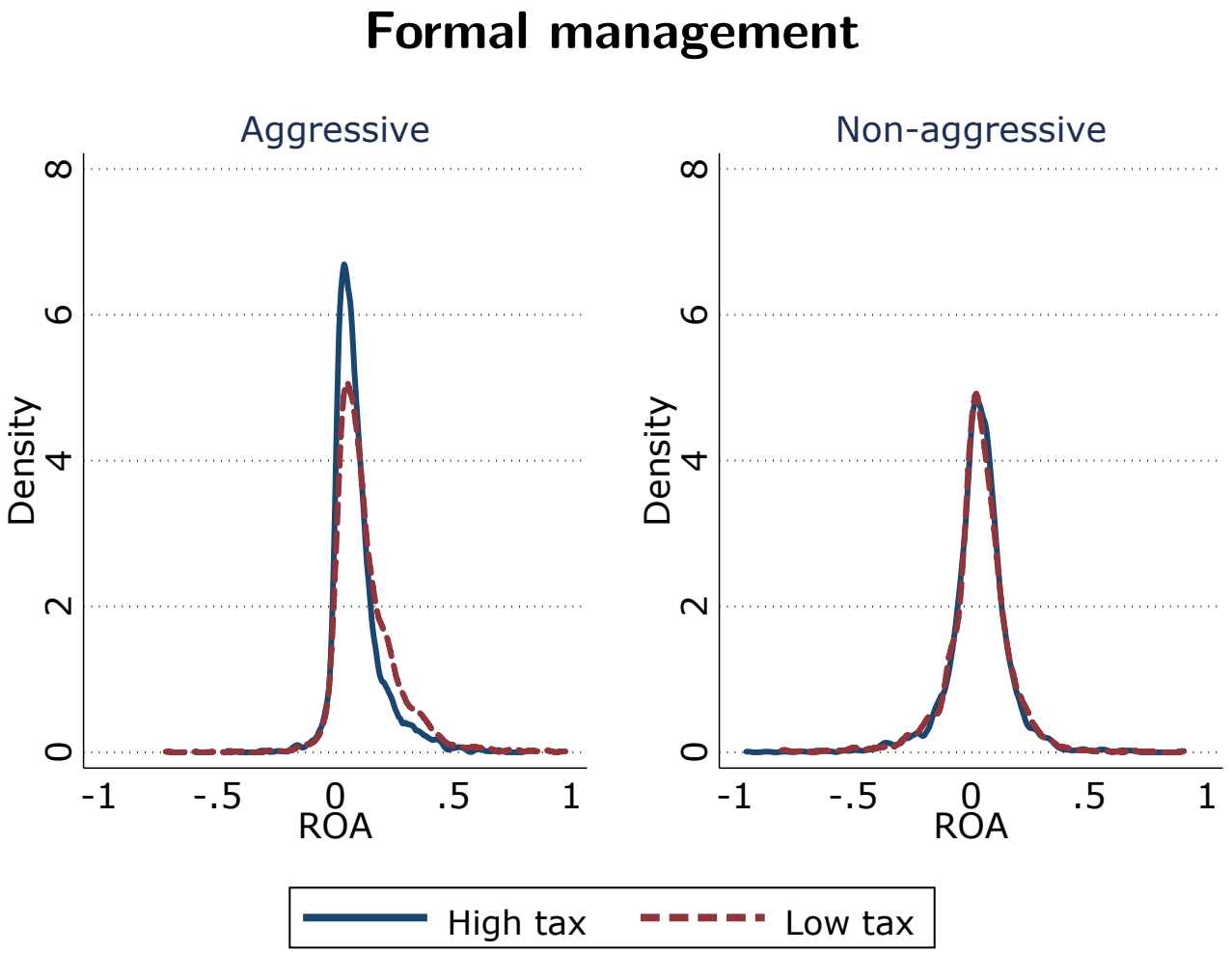
...report ⇑ ROAs in low-tax countries if they have structured management
(relative to high-tax countries and to non-aggressive firms).

Result 5b: Firms with more structured management...



... bunch more around zero ROA in high-tax countries.

Result 5c: Aggressive tax avoiders...



... bunch more around zero ROA in high tax countries if they have structured management.

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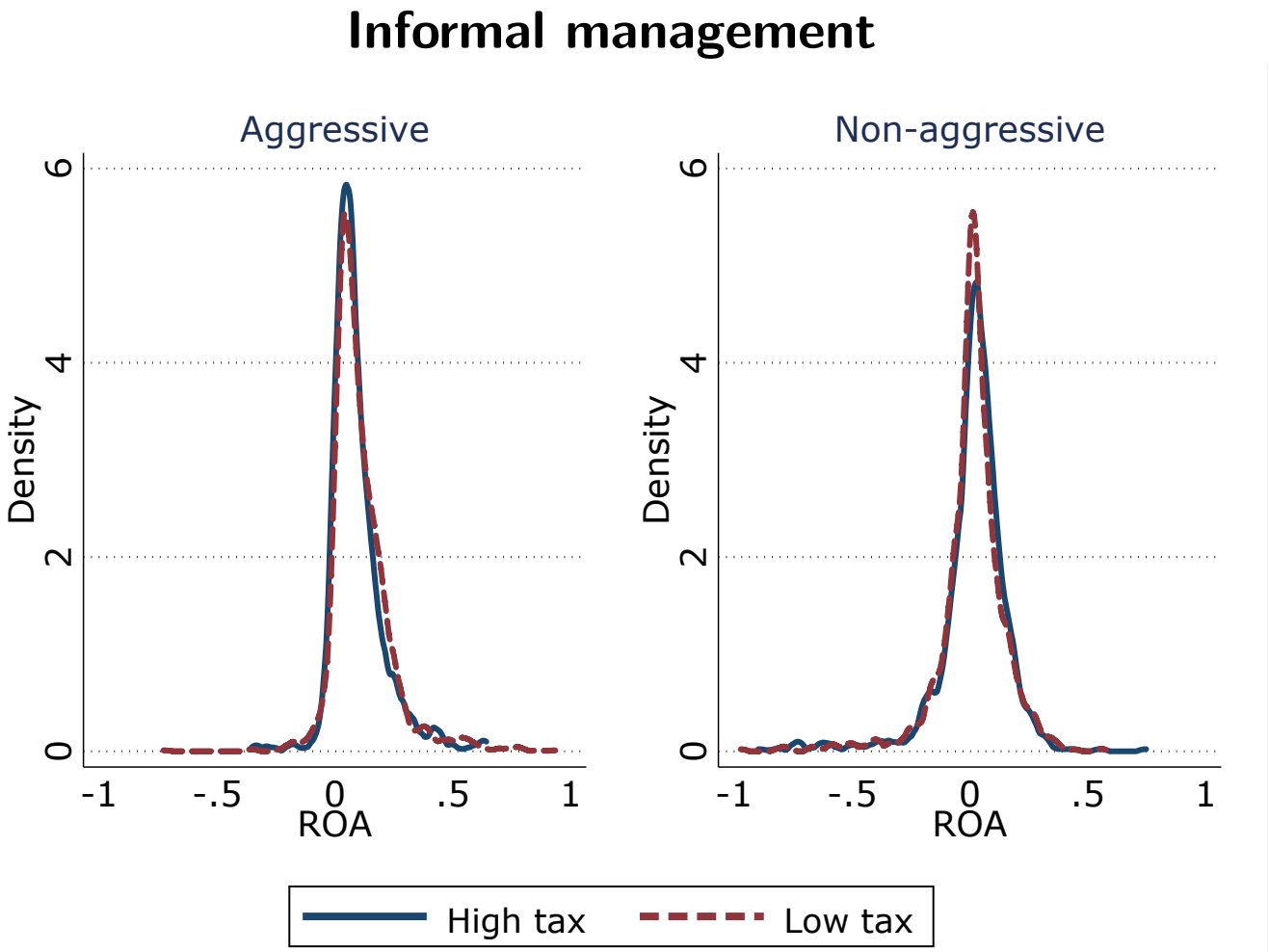

...not true for firms not adopting structured management.

Summary of results for baseline sample

	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA	(7) ROA
Formal management=1	0.018***	-0.001	0.051***	0.022	0.073***	0.051**	0.025***
	(0.004)	(0.009)	(0.015)	(0.022)	(0.015)	(0.021)	(0.004)
High tax subsidiary	-0.006	0.009					
	(0.007)	(0.007)					
Formal management=1	-0.004	-0.022***					
× High tax subsidiary	(0.006)	(0.007)					
Subsidiary Corporate Tax Rate			-0.121	-0.151	-0.038	-0.227**	
			(0.077)	(0.121)	(0.082)	(0.104)	
Formal management=1			-0.127**	-0.077	-0.249***	-0.093	
× Subsidiary corp tax rate			(0.051)	(0.073)	(0.052)	(0.073)	
BTD above median							0.108***
							(0.005)
Formal management=1							-0.018***
× BTD above median							(0.005)
Year x Country FE	✓	✓	✓	✓	✓	✓	✓
HQ FE		✓					
Observations	26333	26333	26333	10610	10989	13899	24888
R-squared	0.0154	0.374	0.0160	0.0199	0.0441	0.0296	0.0926
Sample	**Baseline**	**Baseline**	**Baseline**	**High tax HQ**	**BTD above median**	**BTD below median**	**Baseline**

Discussion

Main economic question of firm behavior: does organizational capacity affect more than just productivity?

- Labour markets. Song et al 2019, Cornwell et al 2019
- Tax planning. [this paper!]

Governments want...

- to spur as much firm productivity and growth as possible.
- to maximize tax revenues without creating distortions.

Policies that help firms improve management do (1), but may also affect (2).

Insofar as governments have started funding management-improvement projects, **this matters.**

Thank you! Thoughts welcome! Download the paper here: