Methods of empirical analysis of tax havens and offshore FDI

Daniel Haberly, University of Sussex
Key Questions:
Who does offshore FDI belong to, what is it doing where and why?
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Agenda:
- Construction of new FDI dataset through integration of macro & micro-level sources
- Analysis of determinants of offshore FDI (preliminary with new data, & older with existing data)
- Concluding thoughts
Collaboration between University of Sussex School of Global Studies (PI Daniel Haberly and Research Assistant Di Song), International Centre for Tax and Development (co-I Mick Moore) Tax Justice Network (external impact partner Alex Cobham), and Jonathan Gray (KCL/Public Data Lab), Chris Anderson (University of Leeds), and Michele Mauri and Angeles Briones (DensityDesign) (interactive visualization collaboration)
Two key components:

1) Construct the first database of 3D/trilateral (home-conduit-host) and 4D FDI (“real” home-nominal home-conduit-host) in major economies
The Atlas of Offshore FDI

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1) Construct the first database of 3D/trilateral (home-conduit-host) and 4D FDI ("real" home-nominal home-conduit-host) in major economies
   - Integrate multiple macro and micro-level datasets to estimate who bilateral aggregate offshore FDI positions actually belong to / where they actually originate (including where data is relatively poor)
   - Quantify the residual uncertainty
The Atlas of Offshore FDI

Two key components:

1) Construct the first database of 3D/trilateral (home-conduit-host) and 4D FDI (“real” home-nominal home-conduit-host) in major economies

2) Construct a user-friendly online interactive mapping tool (“Atlas”)

Two key components:

1) Construct the first database of 3D/trilateral (home-conduit-host) and 4D FDI (“real” home-nominal home-conduit-host) in major economies

2) Construct a user-friendly online interactive mapping tool (“Atlas”)
From bilateral to trilateral (3D) FDI

Immediate FDI Source (bilateral) (CDIS, OECD, UNCTAD data)

“Onshore” immediate parent

“Offshore” immediate parent (conduit)

FDI Host

“Onshore” Subsidiary
From bilateral to trilateral (3D) FDI

Ultimate FDI Source (trilateral FDI) (now OECD ultimate bilateral data)

“Onshore” ultimate parent

Immediate FDI Source (bilateral)
(CDIS, OECD, UNCTAD data)

“Onshore” immediate parent

“Offshore” ultimate parent

“Offshore” immediate parent (conduit)

FDI Host

“Onshore” Subsidiary
From bilateral to 4D FDI

“Real” Ultimate FDI Source (4D FDI)

“Real” nationality of parent co. (onshore)

Ultimate FDI Source (trilateral FDI) (now OECD ultimate bilateral data)

“Onshore” ultimate parent

Immediate FDI Source (bilateral) (CDIS, OECD, UNCTAD data)

“Onshore” immediate parent

“Onshore” Subsidiary

“Real” nationality of parent co. (offshore)

“Offshore” ultimate parent

“Offshore” immediate parent (conduit)
## Levels of Offshore FDI Analysis

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<thead>
<tr>
<th>Level</th>
<th>Resolution</th>
<th>Accuracy Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Macro-level</strong></td>
<td>Low Resolution</td>
<td>country-bilateral (2D) aggregate</td>
</tr>
<tr>
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<td>High Accuracy</td>
<td>official</td>
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<td><strong>Meso-level/ Hybrid</strong></td>
<td>Medium Resolution</td>
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<tr>
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Levels of Offshore FDI Analysis

Macro-level (CDIS, OECD, UNCTAD, etc.)
- Low Resolution
  - country-bilateral (2D) aggregate
- High Accuracy
  - official

Meso-level/Hybrid (Atlas of Offshore FDI)
- Medium Resolution
  - 3D (country-trilateral) to 4D aggregate
- Medium Accuracy
  - with quantifiable uncertainty

Micro-level (Orbis…)
- High Resolution
  - firm/entity-level
- Low Accuracy
  - large data gaps, errors; unknown

Triangulation Approach
Generating 4D FDI matrix: Methodology

Monte Carlo simulation of what FDI could be based on “triangulation” between micro (Orbis) and macro (bilateral OECD and IMF) data
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• **Step 1**: Download Orbis data on financials and ownership of all foreign-controlled subsidiaries in 9 host countries (US, UK, FR, DE, IT, & BRICs)
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- **Step 4**: Generate large number of randomized matrices of what Orbis-based FDI estimates “could have just as easily have been” based on observed error function (Monte Carlo)
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- **Step 4**: Generate large number of randomized matrices of what Orbis-based FDI estimates “could have just as easily have been” based on observed error function (Monte Carlo)
- **Step 5**: Adjust values in matrices to force convergence on known (officially-reported) bilateral IMF and OECD FDI data (by immediate investor, or immediate and ultimate investor simultaneously)
Results
68% “offshore”
68% “offshore”
2015 FDI in Brazil, Russia, India and China by immediate and ultimate source

Mainland China

Hong Kong

$780-$990 Bill.

Offshore Conduit Jurisdictions in Orange

Created by Daniel Haberly 2019
2015 FDI in Brazil, Russia, India and China by immediate and ultimate source

Round-tripping
2015 FDI in Brazil, Russia, India and China by immediate and ultimate source

Round-tripping

Estimated FDI position
- $10 - 25 B
- $25 - 50 B
- $50 - 100B
- 100 - 200B
- 200-400B

Estimate Stability (ratio 75% percentile to 25% percentile)
- 10:1 - 4:1
- 4:1 - 2:1
- <2:1

“Offshore” Conduit Jurisdictions in Orange

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“Offshore” Conduit Jurisdictions in Orange

Mainland China

Est. 53% SOEs (CN-HK-CN)

$780-$990 Bill.
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Est. 53% SOEs (CN-HK-CN)

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Russia

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Created by Daniel Haberly 2019
2015 FDI in Brazil, Russia, India and China by immediate and ultimate source

Round-tripping

Est. 53% SOEs (CN-HK-CN)

Mainland China

Portfolio Investment

Estimated FDI position
$10 - 25 B
$25 - 50 B
$50 - 100 B
100 - 200 B
200-400 B

Estimate Stability (ratio 75% percentile to 25% percentile)
10:1 - 4:1
4:1 - 2:1
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“Offshore” Conduit Jurisdictions in Orange

India

UK

USA

Neth.

Belg.

Cyprus

Korea

Japan

France

Germany

Spain

Can.
68% “offshore”
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2015 FDI in US, UK, France, Germany and Italy by immediate and ultimate source

Round-tripping

Estimated FDI stock (2015)
- $12 - 25 B
- $25 - 50 B
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- $100 - 200B
- > 200B

Estimate stability (ratio 75% percentile to 25% percentile)
- >10:1
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Created by Daniel Haberly, 2019
Top-US Corporate Inversion Domiciles
(by estimated round-trip FDI in US)

Distribution of simulated values
- First Quartile
- Second Quartile
- 50% upper
- Fourth Quartile

Bill. USD FDI stock in US (in billions):
- Ireland
- UK
- Bermuda
- Netherlands
- Singapore
- Switzerland
- Cayman I.
- Panama
- Luxembourg
- Jersey

Round-trip excl. inversions
2015 FDI in US, UK, France, Germany and Italy by immediate and ultimate source

**Round-tripping**

- **USA**
  - Connections to: Japan, Canada, S. Korea, Mexico, Sweden, Norway.
  - Connections from: UK, Ireland, Lux.

- **UK**
  - Connections to: USA, Ireland, Neth., Ireland.
  - Connections from: Germany, Italy.

- **France**
  - Connections to: USA, Luxembourg, Switzerland.
  - Connections from: Canada, Brazil, Mexico.

- **Germany**
  - Connections to: USA, France, Switzerland.
  - Connections from: Canada, Holland, Luxembourg.

- **Italy**
  - Connections to: USA, Switzerland.
  - Connections from: Holland, Luxembourg.

**Estimated FDI stock (2015):**
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**Estimate stability:**
- (ratio 75% percentile to 25% percentile)
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2015 FDI in US, UK, France, Germany and Italy by immediate and ultimate source

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Estimate stability (ratio 75% percentile to 25% percentile)
- >10:1
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Created by Daniel Haberly, 2019
What factors influence use of offshore jurisdictions for FDI?
(preliminary analysis of new dataset)
% of Outward FDI* Passing through Offshore Jurisdictions (excluding round-tripping)

*in US, UK, France, Germany, Italy, Brazil, Russia, India & China
## Determinants of Offshore % of Outward FDI

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<td>-0.0020</td>
<td>-0.0019</td>
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<tr>
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<td>0.44*</td>
<td>0.50**</td>
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* >10% significance
** >5% significance
*** >1% significance

† Higher values of Corruption Perceptions Index (CPI) indicate lower corruption.
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What factors influence use of offshore jurisdictions for FDI?

(preliminary analysis of new dataset)
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(preliminary analysis of new dataset)

Results of older analysis of determinants of inward offshore FDI using CDIS data
(from Haberly and Wojcik 2015)
Taxation Variables Results

- LN(Tax Rate) (host)
  - Double Taxation Treaty (host)
  - Zero Withholding Rate (bilateral)
  - Zero Withholding Rate (host)

% Models significant 10% level (negative) vs. % Models significant 10% level (positive)
Wealth and Institutions Variables Results
(offshore FDI only)

- GDP/cap (host)
- Rule of Law (host)
- Communist History (host)
- CFC Rules (host)
Proximity Variables Results

% Models significant 10% level (negative)

% Models significant 10% level (positive)
### Proximity Variables Results

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*Offshore FDI distance sensitivity dependent on host country rule of law*
Economic Agreements Variables Results

-100%  -75%  -50%  -25%  0%
% Models significant 10% level (negative)

0%  25%  50%  75%  100%
% Models significant 10% level (positive)

- Econ. Integration Agreement
- EIAs (host)
- Shared EU
- EU (host)
- Shared OECD
- OECD (host)
- Shared WTO
- WTO (host)
Discussion

- FDI defines backbone of offshore system: need to understand structure and function to contextualize IFFs (particularly tax-related)
- Individual data source limitations, but possible to integrate multiple micro and macro-level datasets to make them greater than sum of parts
Discussion

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- Individual data source limitations, but possible to integrate multiple micro and macro-level datasets to make them greater than sum of parts
  - Could estimate FDI flows from change in stocks
Discussion

• FDI defines backbone of offshore system: need to understand structure and function to contextualize IFFs (particularly tax-related)

• Individual data source limitations, but possible to integrate multiple micro and macro-level datasets to make them greater than sum of parts

• Data issues (some):
  – Crucial to account for inversions & data errors, but labor intensive
  – Orbis data quality uneven internationally – also potential biases (difficult to account for)
  – Massive outward-inward reporting asymmetries in official FDI data
FDI defines backbone of offshore system: need to understand structure and function to contextualize IFFs (particularly tax-related)

Individual data source limitations, but possible to integrate multiple micro and macro-level datasets to make them greater than sum of parts

Data issues (some):

**Interpretive issues:**

- Convergent evolution of similar structures for divergent purposes (from nefarious to innocuous)
Discussion

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• Data issues (some):

• **Interpretive issues:**
  – Convergent evolution of similar structures for divergent purposes (from nefarious to innocuous)
    • Limited “North-South” offshore structural divide in general (except apparent OECD offshore “club” effect)
    • Quantitative impact of communist history, but qualitative diversity in uses and composition
    • Impact of historical and relational path dependency / accretion
• FDI defines backbone of offshore system: need to understand structure and function to contextualize IFFs (particularly tax-related)
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    - Example: Chinese VIEs
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      • Example: Chinese VIEs
      • Shaped by onshore tacit political understandings, compromises and deadlocks
      • Technically legal loopholes created, and abuses of legal structures or technically illegal behaviors ignored for various reasons (e.g. backdoor tax relief, reconciliation of globalization with state economic control)
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      - Different countries will interpret the same transaction/structure differently
Discussion

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    - Question of how to measure progress in combatting tax-related “illicit” flows also very hard.
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    – Question of how to measure progress in combatting tax-related “illicit” flows also very hard
      • Need to make sure apparent progress on IFF SDG indicators isn’t at cross-purposes to other SDGs
      • Race-to-the-bottom in corporate taxation can cause fall in value of both tax avoidance and tax collection
The Atlas of Offshore FDI

Coming soon!

British Virgin Islands (VC)

Total Outward FDI Stock (2015) 1,532
Nominal GDP (2015) 165,979
FDI as percentage of GDP 0.9%
Secrecy Score (2018) 66.05

How to manipulate the chart

- Click on ALL FLOWS to get additional information about them.
- Click on Countries (like SOURCE CONDUITS and DESTINATION) to see their location and additional information about them.
- Drag the Countries to move them on the screen.
Thank You!

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