A method for estimating ‘pass-through activities’ in official FDI statistics

Topias Leino,
Bank of Finland

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¹ This presentation was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.
A method for estimating ‘pass-through activities’ in official FDI statistics

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What do we mean by ’pass-through activities’?

Activities where foreign finance in form of foreign direct investment (recorded as FDI liabilities or inward FDI) are passed through as direct investment abroad (recorded as FDI assets or outward FDI)

NB: This is not the only meaningful definition in external sector statistics.

NB2: Other terms like 'capital-in-transit' and 'pass-through funding' are also used to broadly refer to the phenomenon.
Why identifying such activities is important?

- FDI statistics are widely used to analyze cross-border investment phenomena in ‘real economic sense’
  - How attractive is the economy to foreign investment?
  - How significant are foreign companies in the domestic economy?
  - How much have domestic companies expanded their operations abroad?
  - …

- Inclusion of pass-through activities in data hampers such analyses
  - Per-unit impacts of inward FDI are arguably smaller with ‘pass-through’ than without
  - Outward FDI does not reflect investments originating from the reporting economy
  - Comparability issues between countries

- ‘Pass-through’ can be an interesting phenomenon in itself and needs to be communicated to the users
Globally, inward and outward FDI are highly correlated

Inward and outward FDI positions in selected countries relative to GDP at end-2015, excluding resident SPEs*

- Inward FDI stock, excl. resident-SPEs
- Outward FDI stock, excl. resident-SPEs

Correlation coefficient = 0.964

Data source: OECD.

*) Special Purpose Entities; only for countries that have reported the data to OECD

To what extent do the inward and outward FDI figures reflect FDI merely passing through the economies?

Are FDI figures comparable between countries?

...particularly among countries with high GDP per capita
Current statistical standards* provide two methods for segregating pass-through in FDI

1) Calculation of FDI according to the 'directional principle'
   - Essential idea: Net out investments that flow in reverse direction vis-à-vis the determined direction of influence/control

   Problems:
   - Does not allow for "parent-to-subsidiary pass-through" → underestimation
   - Does not allow for pass-through 'in chains' → underestimation
   - Does not allow for non-FDI finance → overestimation

2) Segregation of Special Purpose Entities (SPEs)
   - Essential idea: Label all FDI to/from SPEs as 'pass-through'

   Problems:
   - Does not allow for pass-through activities in non-SPEs → underestimation
   - Numerous specification problems → underestimation or overestimation

*) OECD Benchmark Definition of Foreign Direct Investment, 4th ed. (BD4) and IMF Balance of Payments Manual, 6th ed. (BPM6)
Directional principle: what it does?

But it does not allow for
- "parent-to-subsidiary pass-through"
- non-FDI finance

Direction of influence/control
- Assets of Enterprise X (stock or flow)
- Liabilities of Enterprise X (stock or flow)
Blanchard & Acalin (2016):

- "FDI inflows and outflows are highly correlated, even at high frequency and using different methodologies"

- "A lot of measured FDI reflects flows through rather than to the country and…"

- "…the suggested corrections – from separate treatment of SPEs, to measures of capital in transit, to the use of directional flows measures – reduce but do not eliminate the problem"

Conceptual issues in determining ‘pass-through’

- Funding is often interchangeable → Linkages between the source and the use of funding are often obscure
- Estimating ‘pass-through’ by using FDI flow data is highly interpretative:

→ We estimate ‘pass-through’ by using data on FDI positions
Our method for estimating pass-through of FDI

1. We choose the FDI figure which is closer to zero (this is the theoretical maximum of 'pass-through')

2. We weight this with the % of FDI liabilities in total liabilities

### Enterprise X

<table>
<thead>
<tr>
<th>Liabilities</th>
<th>Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI liabilities 500</td>
<td>FDI assets 400</td>
</tr>
<tr>
<td>Other foreign liabilities 200</td>
<td>Other foreign assets 100</td>
</tr>
<tr>
<td>Domestic liabilities 100</td>
<td>Domestic assets 300</td>
</tr>
<tr>
<td><strong>Total liabilities</strong> 800</td>
<td><strong>Total assets 800</strong></td>
</tr>
</tbody>
</table>

**Pass-through of FDI:**

\[
400 \times \frac{500}{800} = 250
\]

**NB:** If FDI liabilities and FDI assets have different signs (common with flow data), we determine pass-through FDI as zero. Note that negative pass-through are still allowed.
Pass-through activities may also take place in chains of local enterprise group units

3. We take this into account by using data aggregated at local enterprise group level.

Pass-through of FDI:

\[ 30 \times \frac{30}{180} = 5 \]

**Local Enterprise Group**

<table>
<thead>
<tr>
<th>FDI liabilities 30</th>
<th>FDI assets 170</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other liabilities 150</td>
<td>Other assets 10</td>
</tr>
<tr>
<td>Total liabilities 180</td>
<td>Total assets 180</td>
</tr>
</tbody>
</table>
Formal presentation of our method

\[ X_t = \sum_i f(I_{i,t}, O_{i,t}, \lambda_{i,t}) \]

\[ f(I_{i,t}, O_{i,t}, \lambda_{i,t}) = \begin{cases} 
\min(I_{i,t}, O_{i,t}) \times \lambda_{i,t}, & I_{i,t} > 0 \text{ and } O_{i,t} > 0 \\
\max(I_{i,t}, O_{i,t}) \times \lambda_{i,t}, & I_{i,t} < 0 \text{ and } O_{i,t} < 0 \\
0, & \text{otherwise} 
\end{cases} \]

where:
\[ X_t \] = Total of pass-through FDI in the economy
\[ I_{i,t} \] = FDI liabilities (or inward FDI) of enterprise (group) \( i \) at time point \( t \)
\[ O_{i,t} \] = FDI assets (or outward FDI) of enterprise (group) \( i \) at time point \( t \)
\[ \lambda_{i,t} \] = % of FDI liabilities in total liabilities of enterprise (group) \( i \) at time point \( t \)

**NB:** In addition to FDI positions, the method can be applied to measure pass-through FDI flows (though the above-mentioned conceptual issues need to be considered). Also, an application to cover also other BoP/IIP items in estimation is possible.
Results for Finland (preliminary)

Estimated pass-through positions of FDI in Finland

- FDI liabilities stock
- FDI assets stock
- Our best estimate on pass-through of FDI (using A/L data)
- Pass-through of FDI as % of FDI liabilities (right-hand scale)
- Pass-through of FDI as % of FDI liabilities, only non-financial corporations (right-hand scale)

Sources: author’s calculations, Bank of Finland, Statistics Finland
Results for Finland: comparison to the directional principle calculation

Our estimations on pass-through of FDI vs. directional principle

- Funds netted out by the directional principle calculation
- Our best estimate on pass-through of FDI
- Our estimate on pass-through of FDI without allowing for non-FDI finance

Overall, directional principle seems to overestimate 'pass-through' for Finland

Non-FDI finance is a highly significant factor!

Source: author’s calculations.
Results for Finland: comparison to the directional principle calculation (2)

Difference between our best estimate of 'pass-through' and the funds netted out by the directional principle calculation*

Foreign enterprise groups
Domestic enterprise groups

*Here, a negative figure can be interpreted as an overestimation and a positive figure as an underestimation of 'pass-through' by the directional principle calculation. Enterprise group's nationality is determined based on the residency of the ultimate controlling parent enterprise.

Source: author's calculations.

However, 'overestimation' is mainly due to Finnish enterprise groups in the data.

‘Pass-through’ by foreign groups in Finland seem rather to be underestimated by the directional principle.
Evaluation of our method

- Simple
- Works theoretically best with positional FDI asset/liability data
  - Can be applied to other FDI and BoP/IIP data, but some conceptual ambiguities need to be addressed
- Captures ‘pass-through activities’ in SPEs and non-SPEs
- May not require any extra data collection from statistics compiler
  - But requires access to firm-level data
Thank you!

- Questions?
  - Topias.Leino@bof.fi