The use of surveys to improve statistics in Central Bank of Brazil: The measurement of foreign investment in Brazil and Brazilian investment abroad

Camila Maia and Katherine Hennings
Foreign Direct Investment in Brazil (FDI)

Stock of Foreign Direct Investment (FDI)

FDI percentage of GDP

US$ millions

Source: BCB
Central Bank of Brazil has two mandatory surveys to compile the stock of direct investment, inward and outward

- **Foreign Direct Investment Survey:**
  - Each five-year since 1995
    - Surveyed population: enterprises with direct non-resident participation on equity of any amount, or recipient of short-term credit, granted by non-residents, above US$ 1 million
  - Annual since 2011
    - Sample survey: enterprises – including investment funds – with direct non-resident participation in the equity capital, in any amount, where the net worth equals or exceeds US$100 million or recipient of short-term credit, granted by non-residents, above US$ 10 million

- **Brazilian Capital Survey:**
  - Annual since 2001
    - Surveyed population: enterprises and households whose assets abroad totaled US$100 thousand or more
  - Quarterly since 2011
    - Sample survey: enterprises and household whose assets abroad totaled US$100 million or more
Surveys - Description

• Surveys data are used to compile:
  – International Investment Position
  – Coordinated Direct Investment Survey (CDIS)
  – Coordinated Portfolio Investment Survey (CPIS)
  – External data publications on Central Bank of Brazil web site
Survey - Respondents

Number of respondents - Foreign Direct Investment Survey

Number of respondents - Brazilian Capital Survey

<table>
<thead>
<tr>
<th>Year</th>
<th>Population surveys</th>
<th>Sample surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>6,322</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>11,404</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>17,605</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>16,844</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>3,210</td>
<td>2,398</td>
</tr>
<tr>
<td>2012</td>
<td>2,398</td>
<td>2,082</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Household respondents</th>
<th>Company respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>13,426</td>
<td>1,805</td>
</tr>
<tr>
<td>2008</td>
<td>14,228</td>
<td>1,877</td>
</tr>
<tr>
<td>2009</td>
<td>14,990</td>
<td>1,935</td>
</tr>
<tr>
<td>2010</td>
<td>17,879</td>
<td>2,192</td>
</tr>
<tr>
<td>2011</td>
<td>19,430</td>
<td>2,308</td>
</tr>
<tr>
<td>2012</td>
<td>23,199</td>
<td>3,257</td>
</tr>
<tr>
<td>2013</td>
<td>27,014</td>
<td>3,559</td>
</tr>
<tr>
<td>2014</td>
<td>33,145</td>
<td>3,907</td>
</tr>
</tbody>
</table>
Surveys – Data Collection

• Foreign Direct Investment Survey
  – Expansion for non-respondents based on cumulative transactions for the period. Data for new companies compiled through FDI registers on an alternative BCB system

• Brazilian Capital Survey
  – Expansion for non-respondents on quarterly surveys

<table>
<thead>
<tr>
<th>Direct Investment abroad stock (million US$)</th>
<th>2012Q3</th>
<th>% 2012Q3 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>216,723</td>
<td>100.0%</td>
</tr>
<tr>
<td>Respondent Data</td>
<td>190,363</td>
<td>87.8%</td>
</tr>
<tr>
<td>Imputed Data</td>
<td>26,360</td>
<td>12.2%</td>
</tr>
</tbody>
</table>
Surveys – Data Validation

• Highly concentrated values due to large respondent companies
  For instance, on 2010 population survey, 80% of FDI value was concentrated on 3% larger companies

• These larger companies are submitted to a careful validation process
  Data verification sources include stock market, balance of payment transactions, company’s public information

• For the remaining respondents, only consistency automatic rules are applied
  Outliers check, questions and time consistency are used for the majority of respondents

• When problems are detected, the respondent is reached by a phone call or e-mail in order to confirm or correct the response
Surveys – Global Process

- BoP
- IRS
- RDE
- Survey

Data Handling → Unified Data → Extrapolation → Raw Data → Validation → Final Data → Publishing
FDI in Brazil – Final Investor Countries

Source: BCB
FDI in Brazil – Investment Sectors

Source: BCB
FDI in Brazil – Investment Sectors

**Sectors Participation Evolution**

- **Crop, livestock and mineral extraction**: 2.2%
- **Industry**: 30.9% (2000), 42.4% (2013)
- **Services**: 66.9% (1995), 45.6% (2013)

Source: BCB
FDI in Brazil – Investor Country and Sectors

Source: BCB
FDI in Brazil – Return on Assets (ROA) for Investment Sectors

Source: BCB
FDI in Brazil – Return on Assets (ROA) for Investment Sectors and Countries

Source: BCB
Brazilian Direct Investment Abroad

Stock of Brazilian Investment Abroad

US$ millions

BDI percentage of GDP

Source: BCB
Brazilian Direct Investment Abroad – Stock Evolution for Investment Sectors

Source: BCB
Brazilian Direct Investment Abroad – Return on Equity (ROE) for Investment Sectors

Source: BCB
Thank you!

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