Trade Misinvoicing: A Channel for \textit{de facto} Capital Account Openness

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Existence of *de jure* capital controls provides an opportunity for engaging in trade misinvoicing to evade capital controls.

Historically, countries have misinvoiced trade for two major reasons:

- Capital flight to prevent loss of wealth due to nationalization or confiscation of wealth.
- Underinvoicing imports to evade high tariff and custom duties.

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Countries like India & China with strong economic performance and significant trade liberalization should witness a reduction in misinvoicing. However, evidence of trade misinvoicing from countries like India and China suggest that this is not the case. Need to revisit the question of what causes misinvoicing in the context of the new policy environment where trade liberalization has taken place with bright economic outlook but capital controls exist.

We focus on the extent to which misinvoicing is motivated by the desire to avoid capital controls and constitutes an important element of \textit{de facto} capital account convertibility. We construct a data set for about 50 major countries over the last 26 years to evaluate the extent of trade misinvoicing, and identify the principal factors affecting capital mobility through trade misinvoicing. During the period of our study several industrialized countries liberalized their trade and financial accounts while developing countries, though opened up the trade account, moved cautiously in liberalizing the capital account.
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Boyce & Ndikumana (2001) and Schulze (1994) argue that evasion of import restrictions and customs duties are a principle motivation for trade misinvoicing among sub-Saharan African countries.

In countries with restrictions on flow of capital, agents can easily move capital in and out of the country by misreporting their trade transactions. Aizenman & Noy (2008) and Aizenman (2004)

High income and corporate tax rates act as a strong deterrent to keep their capital within the country and encourages capital flight. Loungani and Mauro (2002)

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- Most studies of sub-Saharan economies including Hermes & Lensink (1992), Murinde et al. (1996) and Ndikumana & Boyce (2002) have found external debt to be the most important factor influencing the extent of capital flight.

- Hermes and Lensink (2001) also argue that uncertainty about budget deficit, government consumption expenditure, inflation, real interest rates and taxes also have a significant positive impact on capital flight in these economies.

- Lensink et al. (2000), Ndikumana & Boyce (2002) and Nyoni (2002) argues that economies characterized by high political instability are found to witness greater capital flight.

- Similarly, the extent of corruption exerted a major influence on capital flight from sub-Saharan countries. Ndikumana and Boyce (2002)
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Measures of Misinvoicing

- Measure trade misinvoicing by using data from IMFs Data on Trade Statistics (DOTS) CD ROM, which reports bilateral merchandise trade data between trading partners.

- Ideally exports from country A to country B in cif terms should match imports of Country B from Country A. If not, then there is misinvoicing.

- Measure misinvoicing vis-à-vis industrialized countries and world. Separately look at misinvoicing vis-à-vis industrial country trade data on the assumption that industrial country trade statistics are more accurately recorded.

- Cover 53 countries (18 industrialized & 35 developing), which account for more than 90% of global GDP.

- We look at data over the 26 year period 1980-2005, which allows us to account for several important changes like trade liberalization, experience with capital controls etc.
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Among industrialized countries, one finds that the extent of mis invoicing has steadily decreased over the last 25 years.

However, the decline in export mis invoicing in developing countries was nowhere as dramatic and the evidence from developing countries is quite mixed.

Focusing on import mis invoicing also yields a similar picture.
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Patnaik, Sen Gupta & Shah ()
Trade Misinvoicing
NIPFP-DEA 2008
Misinvoicing in India

- Misinvoicing can occur due to two different motives – evading high custom duties and loss of confidence in the health of the economy.

- Prior to the reforms of 1991, India had an extremely restrictive external sector regime with extremely high import weighted average tariffs, quantitative restrictions & non-tariff barriers.

- The post 1991 reforms were aimed at liberalizing the current account. Efforts included making the exchange rate more market determined, significant reduction in list of imports subject to QRs, devaluation of the rupee and removal of temporary measures like foreign exchange licensing, export-based imports, and dual exchange rate system.

- A conscious policy to reduce maximum tariffs was combined with a reduction in average level of tariffs. From a high of 355% in 1990-91, the maximum tariff rate was reduced to 45% in 1997-98.

- Moreover, there has been significant improvement in the overall economic health since 1992. According to the economic stability measure developed by ICRG, India’s overall score has jumped from 25.5 in 1992 to 36 in 2005.
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The significant improvement in the economic health and reduction in custom duties and tariffs should have led to reduction in trade misinvoicing.

However this did not happen.

One of the reasons for continued trade misinvoicing could be the extent of capital account liberalization in India relative to other countries.

Over the last decade and a half, the liberalization of the capital account did not take place in a sustained manner with the process being rolled back several times.
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The various measures of capital account openness show that India has moved relatively slowly on opening the capital account compared to other countries.

A number of the restrictions are on outflow of capital by domestic residents. Thus the closed nature of the capital account could offer an explanation for agents preferring to misinvoice trade.

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- The current account has seen rising surpluses.
- Trade liberalization has progressed through a reduction in custom duties.
- The renminbi has consistently remained undervalued.
- However, like India the capital account has not been opened up.
- This combination has created the incentives and the means to misinvoice trade.
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Identify the principal determinants of cross-country variation in the level of trade misinvoicing *vis-à-vis* industrialized countries over the period 1980-2005.

Employ FGLS estimation focusing on a number of economic and institutional variables.

Look separately as the principle determinants of export underinvoicing and import overinvoicing.
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Principal Determinants of Trade Misinvoicing

- Higher current account deficit and trade openness tend to be associated with greater underinvoicing of exports.

- On the other hand, more open capital account and more stable political regimes lead to lower export underinvoicing.

- Focusing on subsample analysis, we find custom duties and real interest rate are the significant predictors of export underinvoicing in industrialized countries.

- In developing countries, current account deficit, trade and capital account openness and political stability have a significant impact on underinvoicing of exports.

- Custom duties exert a strong negative influence on import overinvoicing.

- Current account deficit and exchange rate overvaluation are the other principal determinants of import overinvoicing.
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- On the other hand, more open capital account and more stable political regimes lead to lower export underinvoicing. ▶ Table

- Focusing on subsample analysis, we find custom duties and real interest rate are the significant predictors of export underinvoicing in industrialized countries. ▶ Table

- In developing countries, current account deficit, trade and capital account openness and political stability have a significant impact on underinvoicing of exports. ▶ Table

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By focusing on industrialized and developing countries we can analyze the different approaches taken by these groups towards trade and financial liberalization.

We find that in the developing countries while substantial opening took place on the trade account, a lot of *de jure* restrictions against capital flows remain in place.

We find a link between *de jure* capital controls and capital flows achieved through export underinvoicing.

The size of the capital movements achieved through such misinvoicing are substantial when compared with those seen under the capital account on the Balance of Payments.

Trade misinvoicing is an important element of *de facto* convertibility and an open current account might not be compatible with a closed capital account.
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Appendix

- Net Capital Flows & Net Misinvoicing
- Misinvoicing against Industrialized Countries
- Misinvoicing by Individual Countries
- Empirical Results
- India’s Trade Misinvoicing
- Misinvoicing in China
Figure: Capital Flows & Misinvoicing

- Net Misinvoicing vis-à-vis World
- Net Capital Flows

Share in GDP (%)


Misinvoicing against Industrialized Countries

**Figure:** Export Mis invoicing

**Figure:** Import Mis invoicing
Misinvoicing against World

Figure: Export Misinvoicing

Data

Figure: Import Misinvoicing

Patnaik, Sen Gupta & Shah ()
NIPFP-DEA 2008
Industrialized Countries Misinvoicing

Figure: USA

Figure: France

Figure: Italy
Developing Countries Misinvoicing

Figure: India

Figure: Brazil

Figure: Indonesia
### FGLS Estimates: Determinants of Export Underinvoicing

<table>
<thead>
<tr>
<th>Dependent Variable: Share of Export Underinvoicing in Exports to Industrialized Countries</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
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<tbody>
<tr>
<td>Current Account Deficit</td>
<td>0.267***</td>
<td>0.221***</td>
<td>0.204**</td>
<td>0.203**</td>
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<td>-1.137**</td>
<td>-1.298**</td>
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### FGLS Estimates: Determinants of Export Underinvoicing in Industrialized Countries

**Dependent Variable:** Share of Export Underinvoicing in Exports to Industrialized Countries

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
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<tbody>
<tr>
<td><strong>Current Account Deficit</strong></td>
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<td><strong>Capital Account Openness</strong></td>
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<td><strong>Customs Rate</strong></td>
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<td>1.681***</td>
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<td><strong>Political Stability</strong></td>
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<td>0.068</td>
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<td><strong>Real Interest Rate</strong></td>
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<td><strong>Exchange Rate Rigidity</strong></td>
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<td><strong>Trade Openness</strong></td>
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<td><strong>Number of Countries</strong></td>
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</tr>
</tbody>
</table>

*Data: Patnaik, Sen Gupta & Shah () Trade Misinvoicing NIPFP-DEA 2008*
### FGLS Estimates: Determinants of Export Underinvoicing in Developing Countries

**Dependent Variable:** Share of Export Underinvoicing in Exports to Developing Countries

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<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.322***</td>
<td>0.298***</td>
<td>0.285***</td>
<td>0.260**</td>
<td>0.181*</td>
<td>0.083</td>
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<tr>
<td>[3.414]</td>
<td>[3.216]</td>
<td>[2.900]</td>
<td>[2.154]</td>
<td>[1.802]</td>
<td>[0.667]</td>
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<tr>
<td>Capital Account Openness</td>
<td>-1.006**</td>
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<td>-1.249**</td>
<td>-1.407**</td>
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<tr>
<td>Customs Rate</td>
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<td>0.012</td>
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<td>0.334**</td>
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<tr>
<td>Political Stability</td>
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<td>-0.193***</td>
<td>-0.216***</td>
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<tr>
<td>Real Interest Rate</td>
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**Number of Countries:**
- I: 25
- II: 23
- III: 23
- IV: 23
- V: 22
- VI: 17

*Data: Patnaik, Sen Gupta & Shah*
### FGLS Estimates: Determinants of Import Overinvoicing

The table below presents the results of a panel data regression analysis (FGLS) to determine the determinants of import overinvoicing in industrialized countries. The dependent variable is the share of import overinvoicing in imports to industrialized countries. The independent variables include current account deficit, custom duties, overvaluation, political stability, capital account openness, log of inflation, real rate, exchange rate regime, and real interest rate differential.

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<td>0.219***</td>
<td>0.232***</td>
<td>0.228***</td>
<td>0.246***</td>
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</tr>
</tbody>
</table>

The table includes the coefficients and t-values for each independent variable across different specifications (I to VI). The t-values are given in brackets. The analysis includes data from 33 countries for specifications I to V and 16 countries for specification VI.
## Key Macroeconomic Indicators for India

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Real GDP Growth (3 year average)</td>
<td>4.02</td>
<td>6.39</td>
<td>5.54</td>
<td>9.07</td>
</tr>
<tr>
<td>Current Account Deficit (% of GDP)</td>
<td>-1.84</td>
<td>-1.55</td>
<td>-1.00</td>
<td>-0.97</td>
</tr>
<tr>
<td>Fiscal Deficit (% of GDP)</td>
<td>5.89</td>
<td>5.29</td>
<td>6.17</td>
<td>4.50</td>
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<tr>
<td>Inflation</td>
<td>8.97</td>
<td>7.55</td>
<td>3.52</td>
<td>4.45</td>
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<tr>
<td>External Debt (% of GNI)</td>
<td>37.34</td>
<td>24.3</td>
<td>21.77</td>
<td>15.39</td>
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<tr>
<td>Reserves ($ Billion)</td>
<td>9.54</td>
<td>24.89</td>
<td>41.06</td>
<td>137.82</td>
</tr>
</tbody>
</table>
Figure: Import Misinvoicing

India’s Import Misinvoicing

Import Misinvoicing as a Share of GDP


-3.00 -2.00 -1.00 0.00 1.00 2.00 3.00 4.00

1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004

Import Misinvoicing as a Share of GDP

Figure: Import Misinvoicing
India's Export Misinvoicing

Figure: Export Misinvoicing
# Extent of Capital Account Openness in India & China

<table>
<thead>
<tr>
<th>Year</th>
<th>Chinn-Ito</th>
<th>Edwards</th>
<th>Miniane</th>
<th>Lane &amp; Milesi-Ferreti</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>India</td>
<td>China</td>
<td>Full Sample Median</td>
<td>Emerging Markets Median</td>
</tr>
<tr>
<td>1985</td>
<td>-1.13</td>
<td>-1.13</td>
<td>-1.13</td>
<td>-1.13</td>
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<tr>
<td>1995</td>
<td>-1.13</td>
<td>-1.13</td>
<td>-0.09</td>
<td>-0.09</td>
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<tr>
<td>2006</td>
<td>-1.13</td>
<td>-1.13</td>
<td>0.14</td>
<td>0.03</td>
</tr>
<tr>
<td>1985</td>
<td>25</td>
<td>37.5</td>
<td>50</td>
<td>37.5</td>
</tr>
<tr>
<td>1995</td>
<td>25</td>
<td>37.5</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>2000</td>
<td>75</td>
<td>37.5</td>
<td>81.25</td>
<td>62.5</td>
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<tr>
<td>1985</td>
<td>0.83</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
</tr>
<tr>
<td>1995</td>
<td>0.83</td>
<td>0.43</td>
<td>0.86</td>
<td>0.86</td>
</tr>
<tr>
<td>2000</td>
<td>0.86</td>
<td>0.36</td>
<td>0.86</td>
<td>0.86</td>
</tr>
<tr>
<td>1985</td>
<td>23.95</td>
<td>17.54</td>
<td>99.97</td>
<td>74.47</td>
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<tr>
<td>1995</td>
<td>31.93</td>
<td>58.71</td>
<td>113.51</td>
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<td>2004</td>
<td>57.75</td>
<td>102.78</td>
<td>156.52</td>
<td>132.28</td>
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</tbody>
</table>
Strengthening of the Chinese Economy

Figure: Custom Duties

Figure: Overvaluation

Figure: Cap Acc Openness
Misinvoicing in China

Figure: Export Misinvoicing

Figure: Import Misinvoicing

Figure: Net Misinvoicing