Trade Misinvoicing: A Channel for *de facto* Capital Account Openness

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Introduction

- Trade misinvoicing refers to misreporting of trade data to move capital in or out of the country.
- 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.
  - Underinvoice 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 *de facto* capital account convertibility. ▸ India
- 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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A Brief Review of the Literature

- 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)
- Across some Latin American countries higher real interest rate compared to others reduce the incentive to engage in capital flight. Cuddington (1986, 1987), Ketkar & Ketkar (1989) and Pastor (1990).

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- 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.
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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-á-vis* industrialized countries and world. Separately look at misinvoicing *vis-á-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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- Comparing the density plots of the developing countries with the industrialized countries, it is evident that a sizeable proportion of observations for developing countries lie outside the 95% interval for the industrialized countries. Graphs
- Among industrialized countries, one finds that the extent of misinvoicing has steadily decreased over the last 25 years. Graphs
- However, the decline in export misinvoicing in developing countries was nowhere as dramatic and the evidence from developing countries is quite mixed. Graphs
- Focusing on import misinvoicing also yields a similar picture.

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Outline

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. ▸ India

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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. Import Misinvoicing Export Misinvoicing
- 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. ▸ Openness
- 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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- Like India, China has also seen a strengthening economy. Graphs
- 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. Graphs

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

- Much of the traditional literature has focused on evasion of customs duties, and capital flight, as being reasons behind misinvoicing, implying that China and India should experience sharp decrease in misinvoicing, which hasn't happened.
- 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 Outline

7 Appendix

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

Net Capital Flows & Net Misinvoicing

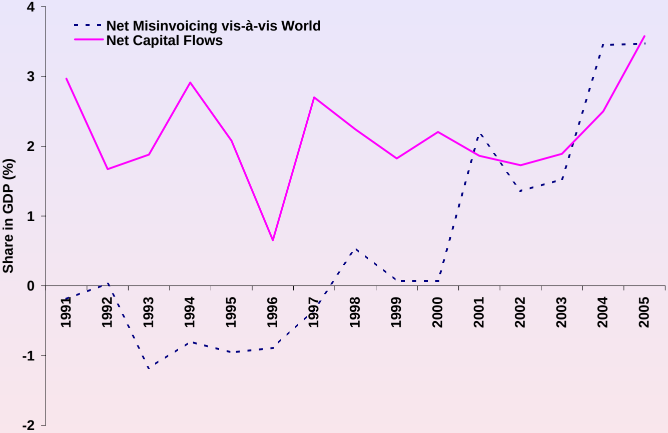

Figure: Capital Flows & Misinvoicing

▸ Introduction

Misinvoicing against Industrialized Countries

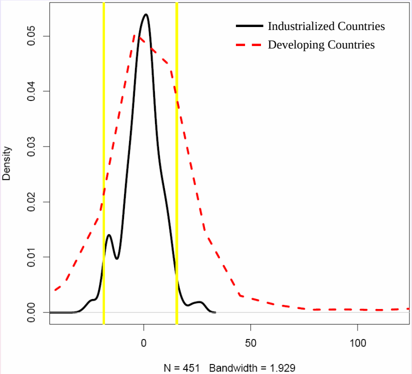

Figure: Export Misinvoicing

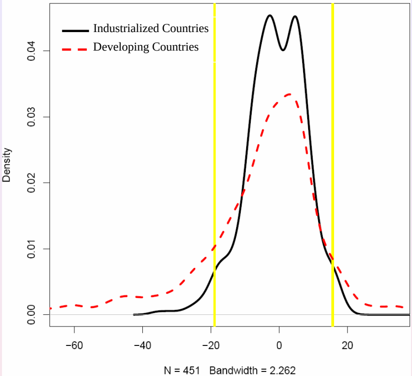

Figure: Import Misinvoicing

Data

Misinvoicing against World

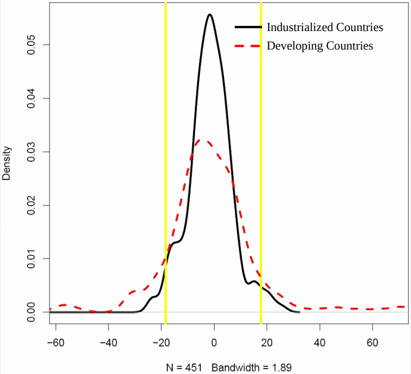

Figure: Export Misinvoicing

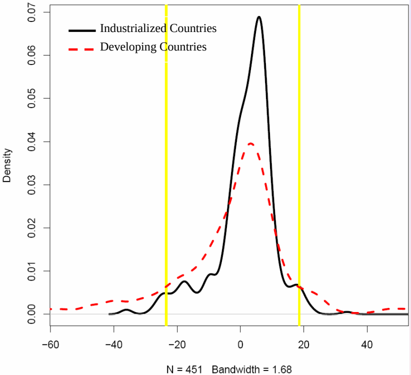

Figure: Import Misinvoicing

Data

Industrialized Countries Misinvoicing

▸ Data

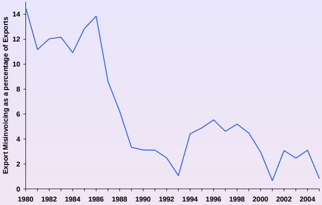

Figure: USA

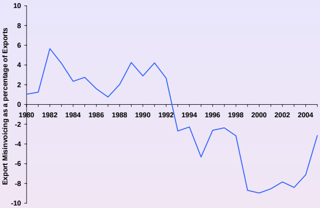

Figure: France

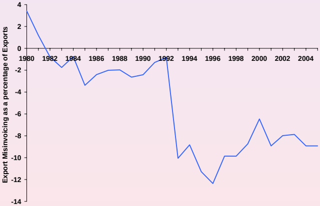

Figure: Italy

Developing Countries Misinvoicing

Data

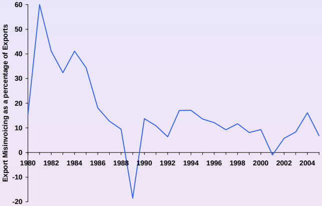

Figure: India

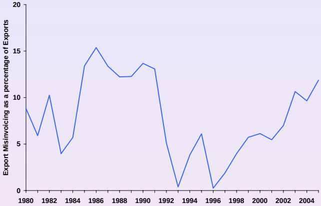

Figure: Brazil

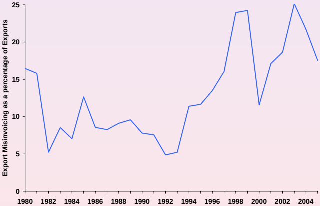

Figure: Indonesia

FGLS Estimates: Determinants of Export Underinvoicing

	I	II	III	IV	V	VI
Dependent Variable: Share of Export Underinvoicing in Exports to Industrialized Countries						
Current Account Deficit	0.267***	0.221***	0.204**	0.203**	0.152*	0.083
	[3.311]	[2.770]	[2.550]	[2.449]	[1.900]	[0.667]
Capital Account Openness	-1.326**	-1.137**	-1.298**	-1.039*	-0.854**	-1.413**
	[-2.349]	[-2.060]	[-2.324]	[-1.675]	[-1.992]	[-1.982]
Customs Rate	0.026	0.198	0.177	0.169	0.312**	0.333**
	[0.177]	[1.305]	[1.252]	[0.985]	[2.287]	[2.150]
Political Stability	-0.079*	-0.074*	-0.087**	-0.071*	-0.094**	0.107*
	[-1.717]	[-1.811]	[-2.090]	[-1.700]	[-2.054]	[1.702]
Real Interest Rate		-0.015	-0.021	-0.007	0.016	0.040
		[-0.411]	[-0.518]	[-0.181]	[0.453]	[0.920]
Log of Inflation			0.127	0.217	0.194	0.32
			[0.606]	[1.084]	[0.936]	[0.564]
Exchange Rate Rigidity				-0.083		
				[-0.408]		
Trade Openness					0.062***	0.877***
					[3.710]	[3.864]
Indebtedness						0.050**
						[1.983]
No. of Countries	36	34	34	34	33	17

▸ Data

FGLS Estimates: Determinants of Export Underinvoicing in Industrialized Countries

Dependent Variable: Share of Export Underinvoicing in Exports to Industrialized Countries					
	I	II	III	IV	V
Current Account Deficit	-0.188	0.042	0.018	-0.039	-0.04
	[-1.134]	[0.272]	[0.115]	[-0.222]	[-0.244]
Capital Account Openness	-0.183	0.645	0.24	0.07	0.534
	[-0.0894]	[0.339]	[0.136]	[0.0366]	[0.300]
Customs Rate	2.366***	2.122***	2.131***	2.061***	1.681***
	[3.625]	[3.596]	[3.866]	[3.472]	[2.725]
Political Stability	0.008	0.075	0.068	0.079	0.108
	[0.0991]	[0.997]	[0.877]	[1.007]	[1.347]
Real Interest Rate		-0.432***	-0.383**	-0.405**	-0.382**
		[-2.802]	[-2.113]	[-2.066]	[-2.179]
Log of Inflation			-0.137	-0.125	-0.108
			[-0.270]	[-0.241]	[-0.212]
Exchange Rate Rigidity				-0.191	
				[-0.714]	
Trade Openness					-0.059
					[-1.642]
Number of Countries	11	11	11	11	11

▸ Data

FGLS Estimates: Determinants of Export Underinvoicing in Developing Countries

Dependent Variable: Share of Export Underinvoicing in Exports to Developing Countries						
	I	II	III	IV	V	VI
Current Account Deficit	0.322***	0.298***	0.285***	0.260**	0.181*	0.083
	[3.414]	[3.216]	[2.900]	[2.154]	[1.802]	[0.667]
Capital Account Openness	-1.006**	-1.196**	-1.249**	-1.407**	-0.83*	-1.413*
	[-2.475]	[-1.969]	[-1.982]	[-2.074]	[-1.868]	[-1.823]
Customs Rate	-0.123	0.038	0.012	0.084	0.258*	0.334**
	[-0.741]	[0.220]	[0.0706]	[0.674]	[1.694]	[2.150]
Political Stability	-0.171**	-0.193***	-0.193***	-0.216***	-0.160**	-0.107
	[-2.519]	[-3.016]	[-2.896]	[-3.019]	[-2.568]	[-1.202]
Real Interest Rate		-0.004	0.001	-0.039	0.046	0.04
		[-0.0948]	[0.0261]	[-0.824]	[1.154]	[0.920]
Log of Inflation			0.361	-0.011	0.364	0.321
			[1.398]	[-0.0265]	[1.376]	[0.564]
Exchange Rate Rigidity				-0.324		
				[-0.763]		
Trade Openness					0.092***	0.088***
					[4.523]	[3.864]
Indebtedness						0.05
						[1.933]
Number of Countries	25	23	23	23	22	17

▸ Data

FGLS Estimates: Determinants of Import Overinvoicing

	I	II	III	IV	V	VI
Dependent Variable: Share of Import Overinvoicing in Imports to Industrialized Countries						
Current Account Deficit	0.260***	0.219***	0.232***	0.228***	0.246***	0.734***
	[4.846]	[3.208]	[3.331]	[2.906]	[3.205]	[2.619]
Custom Duties	-0.357***	-0.332***	-0.320***	-0.274**	-0.275**	-0.319**
	[-3.448]	[-3.054]	[-2.875]	[-2.396]	[-2.390]	[-1.982]
Overvaluation	0.028*	0.047***	0.053***	0.067***	0.073***	0.049
	[1.935]	[2.702]	[2.994]	[3.314]	[3.574]	[1.295]
Political Stability	-0.043	-0.044	-0.042	-0.022	-0.028	-0.113
	[-1.309]	[-1.038]	[-1.018]	[-0.375]	[-0.462]	[-0.746]
Capital Account Openness		-0.188	-0.35	-0.664	-0.84	1.003
		[-0.361]	[-0.592]	[-0.982]	[-1.218]	[0.830]
Log of Inflation				-0.469	-0.464	-2.781
				[-1.009]	[-0.986]	[-1.567]
Real Rate	0.071***	0.053		0.046		-0.005
	[3.434]	[1.568]		[1.184]		[-0.0646]
Exchange Rate Regime				-0.586	-0.571	1.32
				[-1.555]	[-1.494]	[1.324]
Real Interest Rate Differential			-0.042		-0.023	
			[-1.160]		[-0.475]	
Indebtedness						-0.026
						[-0.357]
Number of Countries	33	33	33	33	33	16

Data

Key Macroeconomic Indicators for India

	1992	1996	2000	2005
Real GDP Growth (3 year average)	4.02	6.39	5.54	9.07
Current Account Deficit (% of GDP)	-1.84	-1.55	-1.00	-0.97
Fiscal Deficit (% of GDP)	5.89	5.29	6.17	4.50
Inflation	8.97	7.55	3.52	4.45
External Debt (% of GNI)	37.34	24.3	21.77	15.39
Reserves ($ Billion)	9.54	24.89	41.06	137.82

India

India's Import Misinvoicing

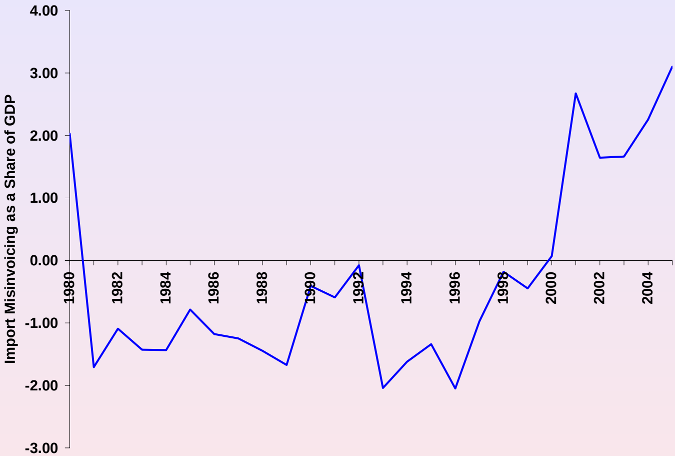

Figure: Import Misinvoicing

India

India’s Export Misinvoicing

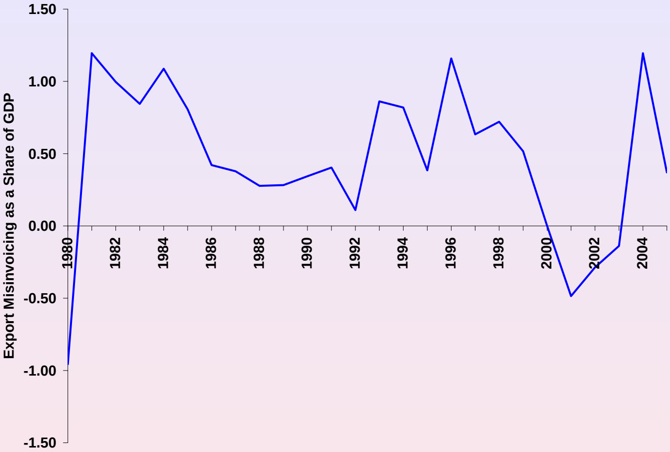

Figure: Export Misinvoicing

India

Extent of Capital Account Openness in India & China

	India	China	Full Sample Median	Emerging Markets Median
Chinn-Ito				
1985	-1.13	-1.13	-1.13	-1.13
1995	-1.13	-1.13	-0.09	-0.09
2006	-1.13	-1.13	0.14	0.03
Edwards				
1985	25	37.5	50	37.5
1995	25	37.5	75	50
2000	75	37.5	81.25	62.5
Miniane				
1985	0.83		0.86	0.86
1995	0.83		0.43	0.86
2000	0.86		0.36	0.86
Lane & Milesi-Ferreti				
1985	23.95	17.54	99.97	74.47
1995	31.93	58.71	113.51	100.05
2004	57.75	102.78	156.52	132.28

India

Strengthening of the Chinese Economy

China

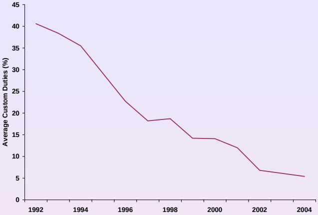

Figure: Custom Duties

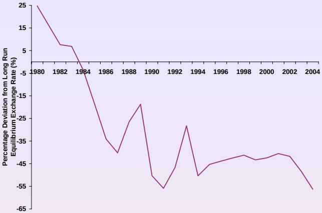

Figure: Overvaluation

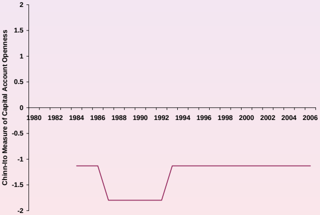

Figure: Cap Acc Openness

Misinvoicing in China

▸ China

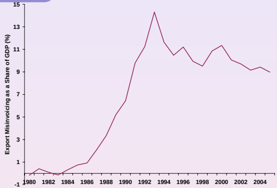

Figure: Export Misinvoicing

Figure: Import Misinvoicing

Figure: Net Misinvoicing