COMPARATIVE ADVANTAGE AS A SOURCE OF EXPORTERS' PRICING POWER: EVIDENCE FROM CHINA AND INDIA

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Motivation

- Empirical literature reports evidence of a decline in ERPT (PTM) in the developed markets and higher PT in emerging markets (Brun-Aguerre et al., 2012).

- Even in emerging markets, the sensitivity of traded goods prices to exchange rates (ERPT) is incomplete and declining.
  - Aggregate import prices (Choudhri et al. 2005, Choudhri & Hakura 2006, Barhoumi 2006, Ca'Zorzi et al 2007) or import prices at product level (Frankel et al 2012, Gaulier et al 2008)
  - For India, similar evidence is found at 2-digit level (Mallick & Marques 2008a, 2008b, 2010)
  - Significant markup adjustments exist even at 4-digit export prices of India across markets - G3 and BRICS (Mallick & Marques 2012)

Motivation (continued)

- Prices in the exporter's currency are more sensitive to exchange rates - possibly fostered by
  - Trade liberalization - increasing emerging exporters' market power in international markets (Corsetti & Dedola 2005)
  - Alternative currency regimes (Fixers versus floaters) with inflation targeting in these markets (Taylor 2000, Choudhri et al. 2005, Reyes 2007, Gopinath & Rigobon 2008) inducing different levels of exchange rate volatility
    - $\Longrightarrow$ increasing PTM and reducing (incomplete) ERPT both in the short and long run (Hoffmann 2007, Corsetti et al. 2008, Bergin & Feenstra 2009)
- Although there is empirical work at the firm level for one single country (Chaney 2008) for the US, Chatterjee et al (2010) for Brazil, Berman et al (2012) for France, Manova and Zhang (2012) for China), there are no consistent and harmonized cross-country firm-level datasets.

ERPT and PTM - Fixed versus Variable mark-ups

- Complete pass-through – if changes in exchange rate lead to one-for-one change in prices in the importer's currency
  - Exporter's mark-up does not change

- Incomplete pass-through – Exchange rate changes lead to less than one-for-one change in the local currency import prices (departure from LOOP and PPP)
  - Exporter's mark-up changes with exchange rate $\Longrightarrow$ Mark-ups can differ across export markets (PTM) because of market segmentation (e.g. trade barriers) and the invoicing currency.
  - If prices are set in the currency of the exporter (PCP), incomplete PT indicates ex-ante price discrimination and PTM.

- No ERPT - Exchange rate changes do not impact on prices in the importer's currency. LCP models (Gopinath & Rigobon, 2008) assume that stickiness in the buyer's currency (LCP) is the reason why consumer prices do not respond much to exchange rates.

Comparative Advantage is missing in ERPT/PTM research

- The effect of exchange rate variations can differ depending on the international competitiveness of a commodity group. This has not been detected in this literature.
- Bernard, Redding and Schott (2007) have shown that heterogeneous firms react differently to changes in market conditions depending on the industry CA level.
- CA industries can have a relatively large export margin and a greater presence in international markets, so firms in these industries
  - may have lower fixed costs of exporting
  - can exercise a greater degree of market power
- Higher industry CA level implies (Cadot et al 2013)
  - more exporters in that industry (proxy for network effects)
  - higher survival probability of that product in foreign markets (proxy for access to credit)

Comparative Advantage is missing in ERPT/PTM research (continued)

- ERPT/PTM research with heterogeneous productivity firms does not consider the industry CA level as a determinant of firm performance.
  - Chaney (2008), Auer and Chaney (2009), Chatterjee et al (2010), Alessandria and Kaboski (2011), Rodriguez-Lopez (2011), Basile et al (2012), Berman et al (2012), Johnson (2012), Manova and Zhang (2012)
- The growing importance of North-South trade brought by the development of global value chains renewed the importance of inter-industry trade based on CA patterns (Hanson 2012)
- Pricing strategies may differ according to the industry CA level
  - If the fixed cost effect dominates, export prices should be lower in high CA industries
  - If the market power effect dominates instead, export prices could actually be higher in those industries.
- If CA is correlated with exchange rate variations, ERPT estimates that do not take CA into account could be biased

Why China and India?

- China and India have been undergoing substantial trade liberalization and specialization reorientation in the last 20 years
  - e.g., Hsieh and Klenow (2009), Feenstra and Wei (2010), Amiti and Freund (2010), Harrigan and Deng (2010), Girma (2012)
  - China started opening up to international trade and investment in 1979, with the creation of the special economic zones (Huang, 2012)
  - India started trade liberalization in 1991 following economic reforms under IMF adjustment programme (Alessandrini et al., 2011; Mallick and Marques, 2008a)
- They also have different exchange rate regimes
  - Fixers (China has lower exchange rate volatility) versus floaters (India has higher exchange rate volatility)
- Both are important emerging economies that under the current economic downturn have taken up the role of growth engines in the world economy (Hanson, 2012).

Contribution of this paper

- In this paper we compare pricing strategies of Chinese and Indian exporters relative to NEER and REER variations
  - Considering product-level CA with product level data over the period 1994-2007 from UN-COMTRADE
  - High income and low income main markets during 1994-2007
  - Over 1 million market- and product-specific export prices at HS 6-digits
- **Main findings:**
- Different pricing strategies with NEER
  - China amplifies exchange rate changes
  - India dampens them (incomplete ERPT)
- With REER there is zero ERPT due to higher relative prices
- ERPT is lower in higher CA industries but export prices increase with CA
  - A stronger presence in export markets allows both higher market power & lower fixed costs of exporting, but the market power effect prevails.

A Pricing Model

Domestic currency profit of a firm located in country i and exporting a 6-digit product k to country j is (e.g., Betts & Devereux (2000), Devereux & Yetman (2003), Ghironi & Melitz (2005), Melitz & Ottaviano (2008), Chaney (2008), Helpman et al (2008), Rodriguez-Lopez (2011)):

$$\Pi_{ijk} = \left(p_{ijk} - \frac{w_{ik}\tau_{ijk}}{\varphi_{ik}} \right) C_{ijk} - F_{ij} \tag{1}$$

$$C_{ijk} = \left(\frac{P_j^*}{p_{ijk}^*} \right)^{\lambda} C_j \tag{2}$$

where C_{ij} is the demand faced in country j; $p_{ijk}^* = e_{ij} p_{ijk}$ is the firm's price of its exports (in foreign currency); e_{ij} is exchange rate (units of foreign currency per unit of domestic currency); P_j^* is the price index of all foreign goods sold in the destination market; C_j is the expenditure level of the destination; $\frac{w_{ik}}{\varphi_{ik}}$ is the productivity-adjusted wage cost at the producer's location; τ_{ijk} is iceberg transport cost (depends on distance); F_{ij} is fixed cost of exporting (country-specific but not firm-specific). λ is the mark-up parameter (price elasticity of external market demand).

Solving the model

Profit-maximization with respect to the choice variable p_{ijk} results in the first-order condition:

$$f'(C_{ijk})\left(p_{ijk} - \frac{w_{ik}\tau_{ijk}}{\varphi_{ik}}\right) = -C_{ijk}$$

Substituting external demand, the equilibrium export price (foreign currency) is:

$$p^*_{ijk} = \frac{\lambda}{\lambda - 1}\left(\frac{e_{ij}w_{ik}\tau_{ijk}}{\varphi_{ik}}\right) \tag{3}$$

The exporter's productivity φ_{ik} is unobservable! Wages and transport costs are at country-level, but productivity is at firm level. Helpman et al (2008) propose using product-level data whilst proxying for unobservable firm-level productivity.

- As exchange rate appreciates $(e_{ij} \uparrow)$, the model predicts that foreign currency export price will increase$\Longrightarrow$domestic currency export price can decline depending on mark-up adjustment parameter λ.
- λ could depend on comparative advantage of a product in the destination market, which in turn can determine firm productivity and thereby export prices.

Does CA explain export pricing?

- Unobservable firm productivity (φ_{ik}) is, in a given country, a measure of competitiveness and thus it is a function of product-specific CA (CA_{ik}) and of the exchange rate (e_{ij}):

$$\varphi_{ik} = \exp^{\gamma_i CA_{ik}} e_{ij}^{\gamma_j CA_{ik}}$$

- In logged form, $\ln \varphi_{ik} = \gamma_i CA_{ik} + \gamma_j CA_{ik} \ln e_{ij}$
- Upon substitution, the pricing equation also in logged form becomes:

$$\ln p^*_{ijk} = \ln\left(\frac{\lambda}{\lambda - 1}\right) - \gamma_i CA_{ik} + \left(1 - \gamma_j CA_{ik}\right) \ln e_{ij} + \ln w_{ik} + \ln \tau_{ijk} \tag{4}$$

- **Assumption (network-type argument)**: firms producing high CA products are also more productive, as they benefit from lower fixed costs of exporting through a greater presence in international markets.

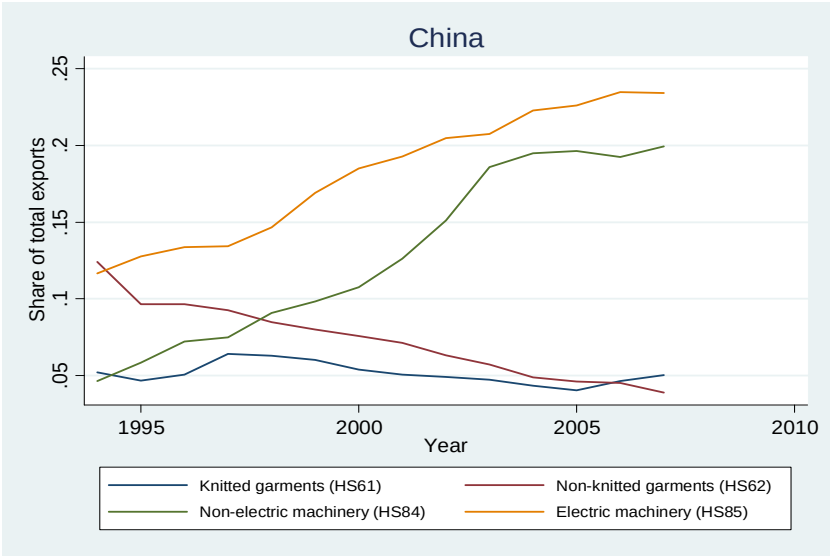
Empirical strategy: Identification of product-level CA

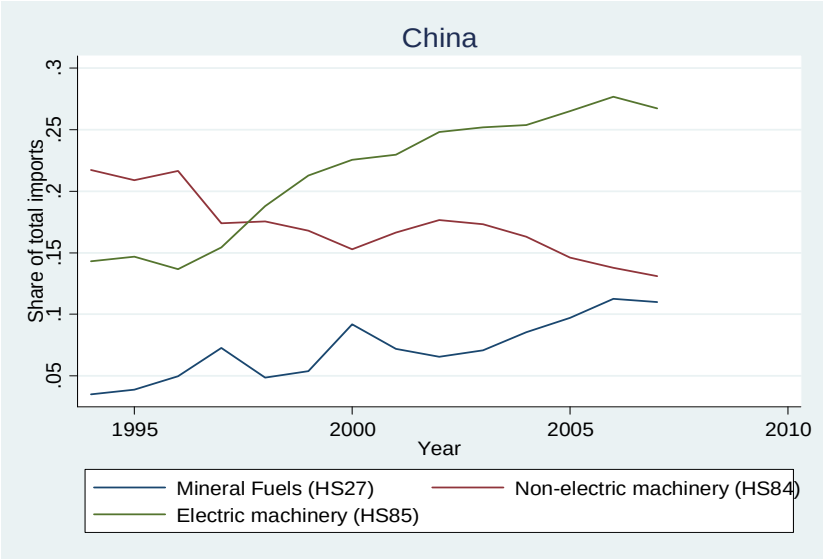
- The industry CA level is identified using a transformation of the RCA index proposed by Hanson (2012)
- For product k exported by country i, this index (RCA_{ik}) is defined as the ratio between the difference and the sum of the share of product k in country i's exports and the share of product k in country i's imports:

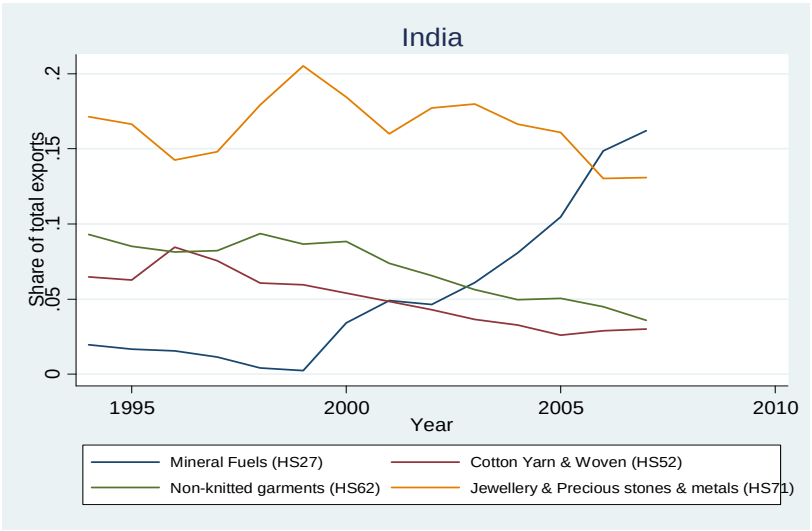
$$RCA_{ik} = \frac{\frac{X_{ik}}{X_i} - \frac{M_{ik}}{M_i}}{\frac{X_{ik}}{X_i} + \frac{M_{ik}}{M_i}} \tag{5}$$

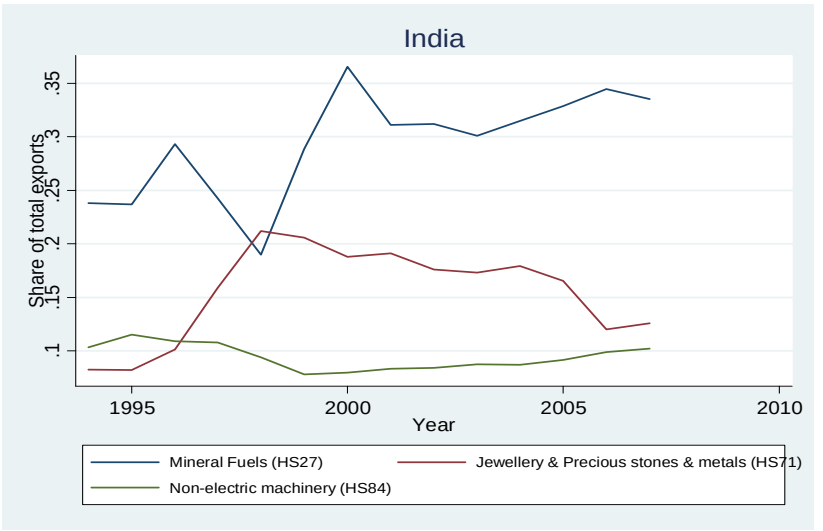
- Bounded between –1 (maximum CD) and 1 (maximum CA) with 0 representing intra-industry trade (independent of the number of markets and products).
- Calculated with COMTRADE trade data
  - At the HS 2-digit industry level (upper bound for intra-industry trade)
  - At the HS 6-digit product level (lower bound for intra-industry trade)

Industries with over 5% share of exports (LHS) and Industries with over 10% share of imports (RHS)



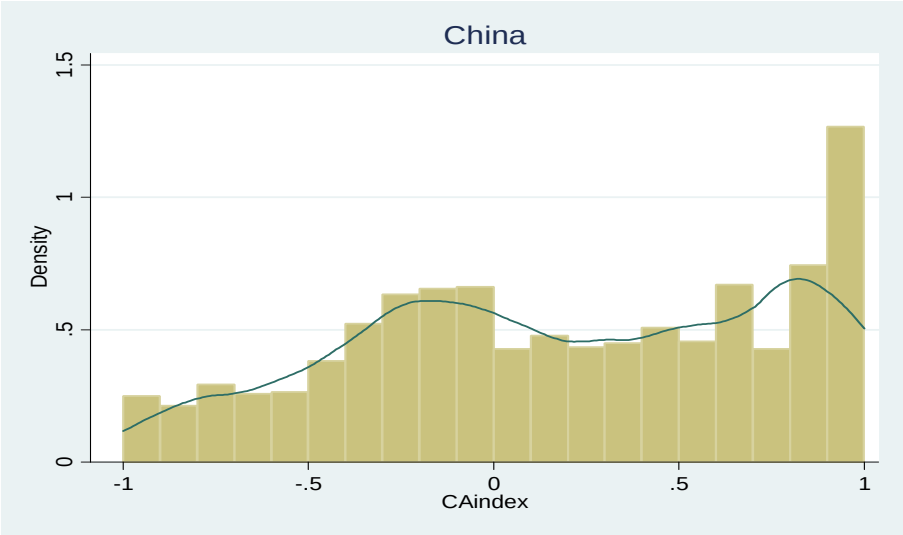




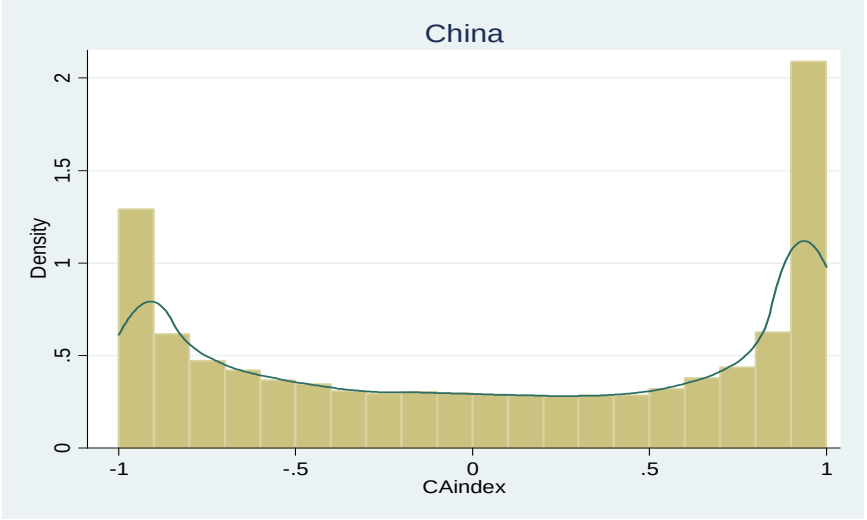


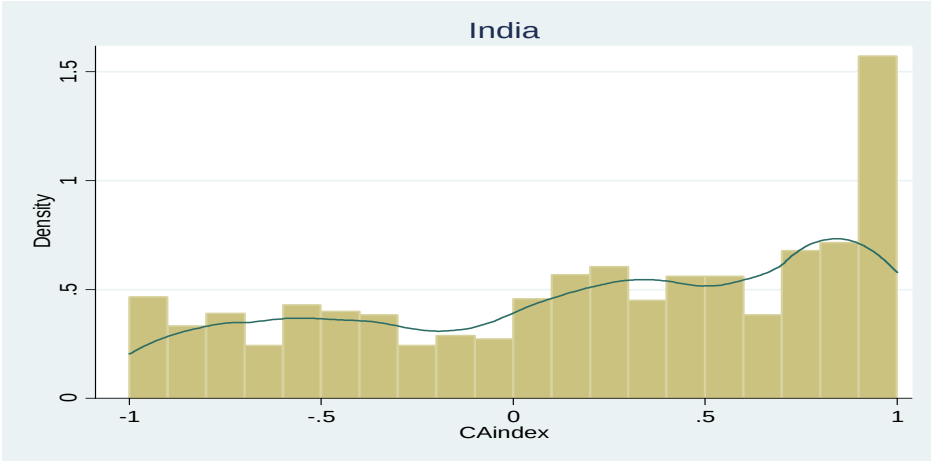
CA index kernel density distribution for China and India

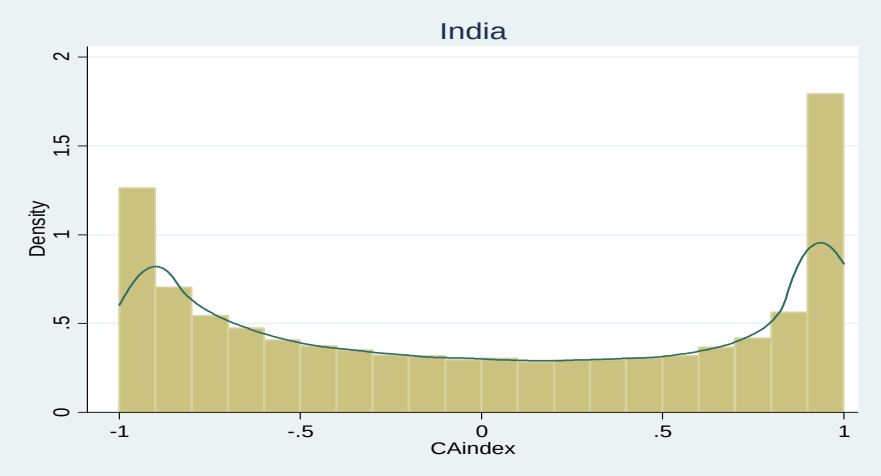
HS 2-digits, 1994-2007



HS 6-digits, 1994-2007







Summary statistics of CA index in China and India at 6-digits HS level

India's CA has moved from disadvantage position to comparative advantage

Table 1: Summary statistics of CA index in China and India at 6-digits HS level (2000-2007)

	China					India				
Year	Mean	P25	Median	P75	Freq.	Mean	P25	Median	P75	Freq.
1994	0.003	-0.765	-0.036	0.808	4807	-0.075	-0.806	-0.206	0.715	3354
1995	0.040	-0.710	0.026	0.834	4682	-0.079	-0.808	-0.204	0.704	3510
1996	0.030	-0.725	0.014	0.817	4725	-0.037	-0.777	-0.140	0.742	3599
1997	0.022	-0.736	-0.014	0.827	4759	-0.026	-0.764	-0.109	0.757	3802
1998	0.021	-0.730	-0.029	0.830	4753	-0.011	-0.733	-0.102	0.775	3914
1999	0.013	-0.732	-0.033	0.815	4742	0.009	-0.725	-0.017	0.771	4028
2000	0.040	-0.706	0.027	0.826	4725	0.035	-0.669	0.021	0.797	4140
2001	0.039	-0.710	0.026	0.833	4719	0.029	-0.675	0.017	0.782	4291
2002	0.061	-0.685	0.102	0.831	4668	0.024	-0.696	0.014	0.766	4358
2003	0.081	-0.656	0.130	0.842	4653	0.066	-0.630	0.087	0.789	4440
2004	0.107	-0.597	0.190	0.855	4649	0.079	-0.608	0.113	0.805	4435
2005	0.138	-0.557	0.249	0.860	4665	0.052	-0.635	0.059	0.764	4466
2006	0.169	-0.503	0.291	0.873	4675	0.040	-0.627	0.018	0.759	4486
2007	0.189	-0.470	0.331	0.870	4426	0.019	-0.673	-0.017	0.764	4372

Source: COMTRADE data

Summing up the CA values

- The CA index values are near zero, so the CA pattern of China and India (emerging markets) is coming closer to that of the EU27 (advanced economies)
- Product export shares are all less than 20% of total exports of China, India or the EU27
- For the few groups with more than a 5% export share
  - Static specialization pattern for the EU27 (advanced economies) and more dynamic for China and India (emerging markets)
  - China's exports of machinery have risen sharply and in 2007 took about 40% of exports, four times more than clothing
  - India is a strong textile exporter, especially of cotton, and of products derived from natural resources such as mineral fuels, precious metals, stones and jewellery.

Summing up the CA values (continued)

- CA index at 2-digits (lower bound for intra-industry trade)
  - Between 0 and 0.01 (-0.01 and 0) for around 45% (35%) of China's exported products and for a little over 30% (around 45%) of India's exported products
  - Share of intra-(inter-)industry trade is around 80% (20%) in both cases
- CA index at 6-digits (upper bound for intra-industry trade)
  - Between -0.087 and 0.131 for China and between -0.154 and 0.154 for India
  - The extensive margin of China decreased over the sample period, whilst the extensive margin of India increased up to 2006, thus China, having started from a broader product base in 2000, got to 2007 with a product base similar to that of India

Short-run pricing equation specification

- The empirical panel specification for the export price of product k is a log-linear equation with discrete change:

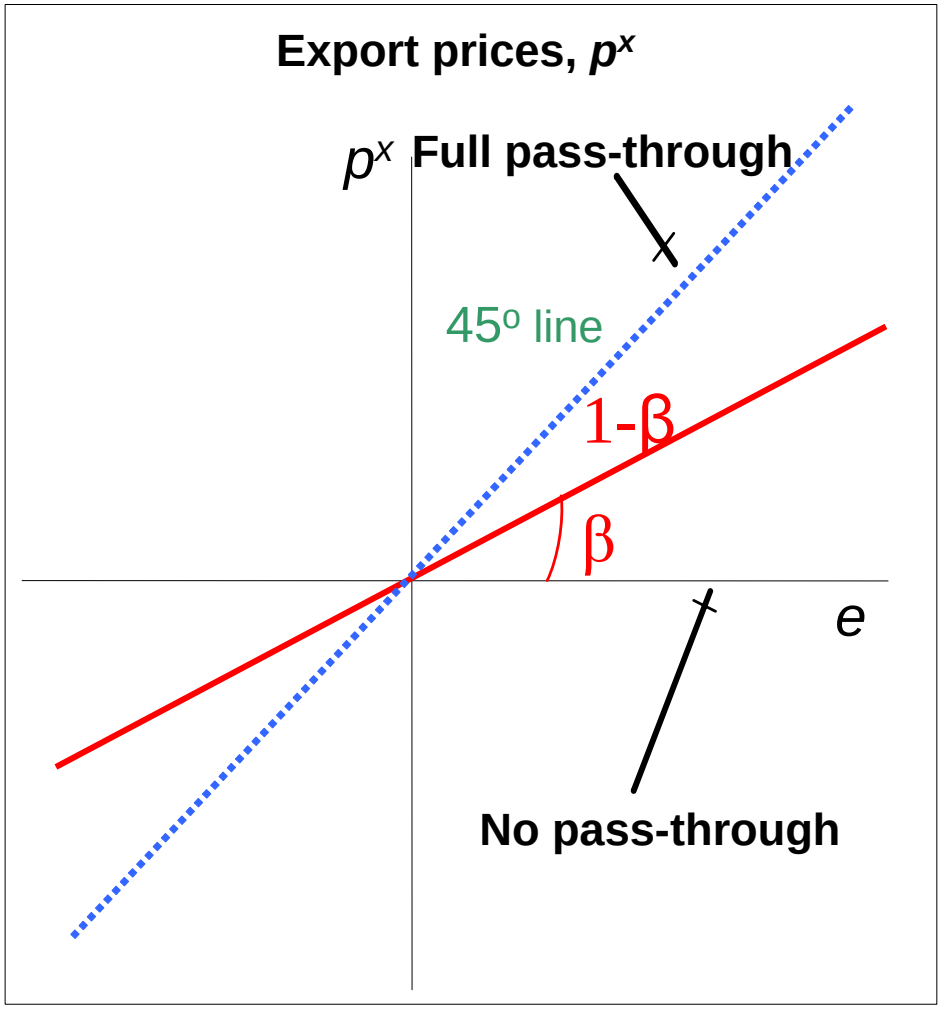
$$\begin{aligned}\Delta \ln P^{*}_{ijk,t} = {} & \beta_0 + \beta_1 \Delta \ln neer_{i,t-1} + \beta_2 \ln GDPpc_{i,t-1} + \beta_3 \ln GDPpc_{j,t-1} \\ & + \beta_4 var\left[\Delta \ln neer_{i,t-1}\right] + \beta_5 Pshare_{ij,t-1} + \beta_6 HSshare_{ik,t-1} \\ & - \gamma_i CA_{ik,t-1} - \gamma_j CA_{ik,t-1} \Delta \ln neer_{i,t-1} + u_{ijk,t}\end{aligned}$$

- $neer_i$ is the exporting country's NEER (a rise is an appreciation of the exporter's currency); $GDPpc_i$ and $GDPpc_j$ are the exporter and the importer GDP per capita
- Trade costs τ_{ijk} proxied by three measures
  - Exchange rate volatility ($var[\Delta ln(neer_{i,t-1})]$)
  - Share of exporter i in market j ($Pshare_{ij,t-1}$)
  - Share of product k in exporter i's export basket ($HSshare_{ik,t-1}$)

Expected theoretical results: the ERPT and PTM coefficients

- The ERPT coefficient is β_1
- The implicit PTM coefficient is $[1 - \beta_1]$
- $\beta_1 = 1 \Longrightarrow$ Full ERPT (PCP): exporter's mark-up does not react
- $\beta_1 = 0 \Longrightarrow$ No ERPT (LCP): price in the importer's currency does not change
- PTM requires $\beta_1 \neq 0$ or $[0 < \beta_1 < 1] \Longrightarrow$ incomplete ERPT
  - PTM (incomplete ERPT): exporter's mark-up reacts to exchange rates and thus may differ across invoicing currencies

A Summary Graph



- PTM is inversely related to the pass-through (PT)
- PTM coefficient is specific to the exporter, the country of destination, and the product
- PTM is null when PT is complete; PTM is positive as long as exporters absorb currency changes in their mark-ups in order to keep their local currency price stable

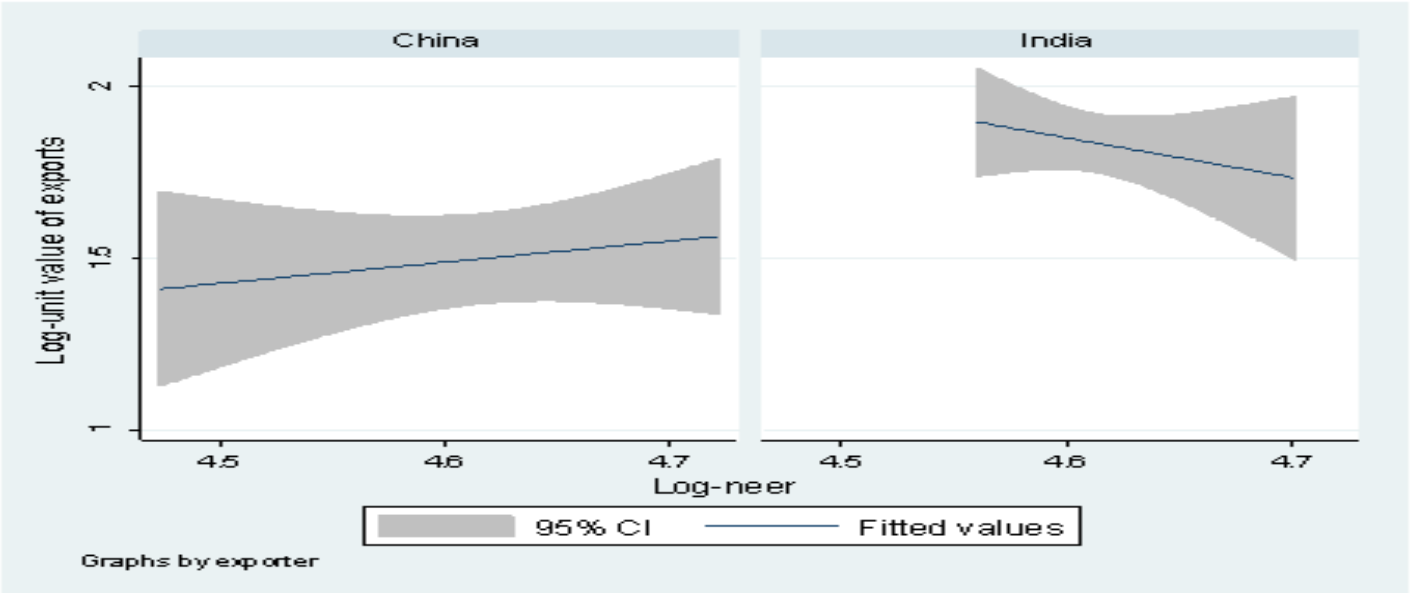
Data

- Export unit values (trade values over trade quantities) from UN Comtrade: HS 6-digits / 2-digits
- NEER and REER data from IMF IFS (2005=100); GDP per capita from WDI
- Given the global trade collapse since 2008, we use data up to 2007
- At 6-digit product level, we have over 1 million observations!

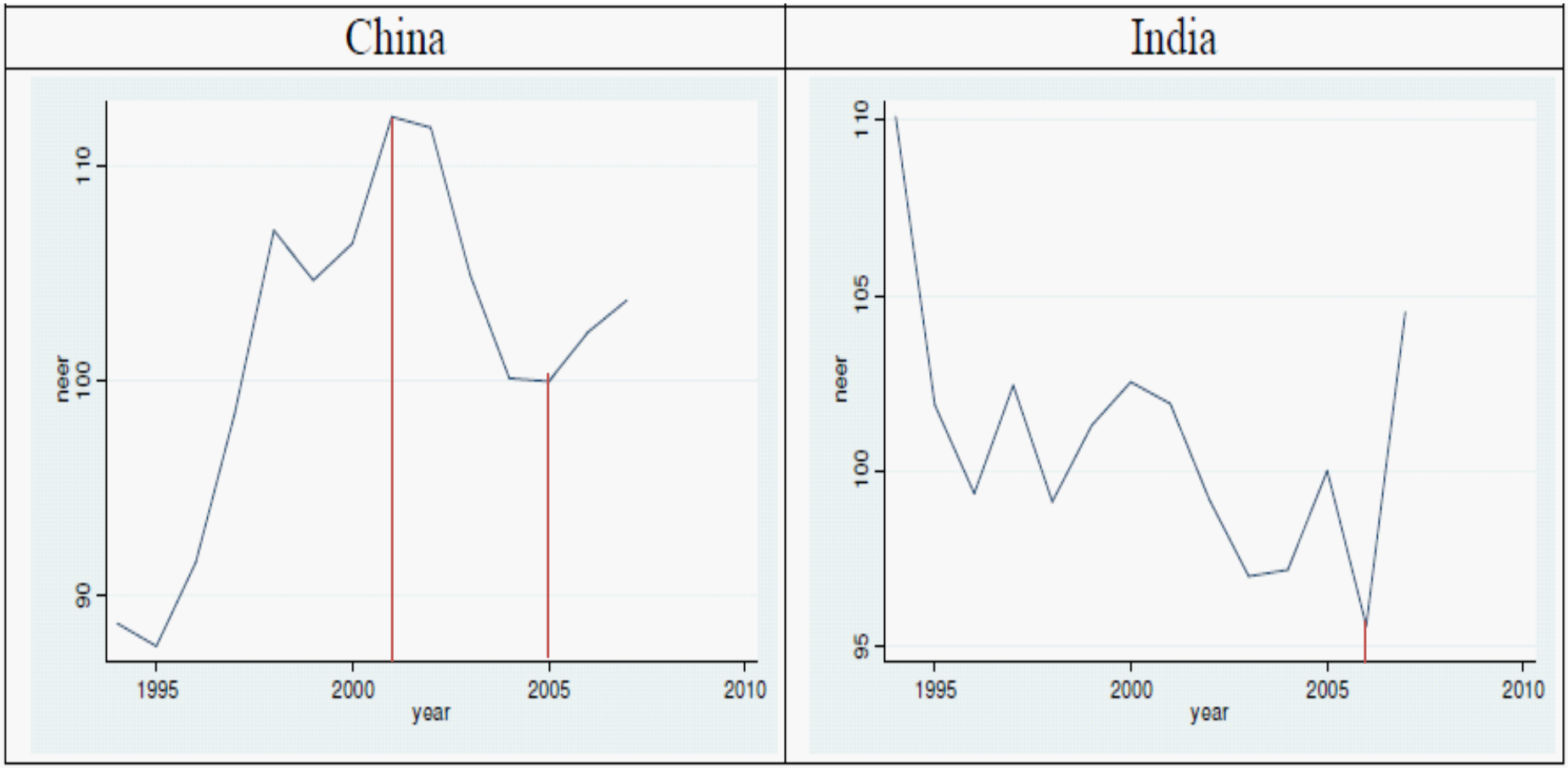
Table A1: Export price data availability for high and low-income markets using the 10,000USD classification as in Hanson (2012)

High-income (1994-2007 GDP per capita average higher than 10,000USD)				Low-income (1994-2007 GDP per capita average lower than 10,000USD)			
China		India		China		India	
Australia	34760	Canada	22919	Argentina	23896	Argentina	8469
Austria	15292	Hong Kong	19429	Brazil	26461	Brazil	11508
Belgium	21433	France	25938	Bulgaria	12475	Chile	8547
Canada	36431	Germany	33225	Chile	25746	China	16211
Hong Kong	57011	Israel	15027	Colombia	17638	Colombia	6358
Cyprus	13147	Italy	27169	Czech Rep.	15717	Egypt	16198
Denmark	19485	Japan	23943	Egypt	27193	Indonesia	17997
Finland	18656	Korea Rep.	16585	Estonia	8347	Iran	11821
France	33845	USA	42905	Hungary	15739	Jordan	10553
Germany	40910	UK	37458	India	31805	Malaysia	25845
Greece	21764			Indonesia	38279	Mexico	10882
Iceland	4756			Iran	22991	Morocco	6836
Ireland	13541			Jordan	18453	Pakistan	9030
Israel	26480			Latvia	9909	Peru	4818
Italy	37066			Lithuania	10568	Philippines	12838
Japan	53661			Malaysia	35607	Russian Fed.	12413
Luxembourg	2753			Mexico	22063	South Africa	16719
Malta	9106			Morocco	16582	Thailand	20109
Netherlands	30015			Pakistan	26052	Tunisia	4224
New Zealand	24535			Peru	16974	Turkey	14756
Norway	16346			Philippines	30580	Viet Nam	10218
Portugal	16605			Poland	20321		
Korea Rep.	5420			Romania	16184		
Singapore	37356			Russian Fed.	28005		
Slovenia	10529			Slovakia	8097		
				South Africa	20990		

Evolution of unit values (1994-2007)



NEER in China and India (1994-2007)



PTM estimates with comparative advantage

Table 2: static ERPT net of relative price effects			
	ALL	CHINA	INDIA
$\Delta ln(neer_{i,t-1})$	-1.161**†	-1.154**†	-0.692**†
	(0.024)	(0.027)	(0.110)
$CA_{ik,t-1} * \Delta ln(neer_{i,t-1})$	-0.005**	-0.004	-0.006*
	(0.002)	(0.002)	(0.003)
$\ln GDPpc_{i,t-1}$	0.045**	0.017**	0.125**
	(0.004)	(0.005)	(0.010)
$\ln GDPpc_{j,t-1}$	0.049**	0.063**	-0.012
	(0.006)	(0.007)	(0.013)
$var[\Delta ln(neer_{i,t-1})]$	12.445**	2.658	24.356**
	(1.295)	(1.836)	(2.689)
$pshare_{ij,t-1}$	-0.327**	-0.430**	-0.151**
	(0.021)	(0.026)	(0.036)
$HSshare_{ik,t-1}$	-3.081**	-3.720**	-2.221**
	(0.440)	(0.672)	(0.611)
$CA_{ik,t-1}$	-0.008	-0.004	-0.011
	(0.006)	(0.007)	(0.010)
Constant	-0.721**	-0.642**	-0.673**
	(0.040)	(0.049)	(0.080)
Observations	926175	688064	238111
Importer-product groups	152599	106926	45673
F-test	699.80**	597.95**	134.13**

*NOTES: Panel fixed effects regression. Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. † different from 1 at 5%.*

Long-run pricing equation specification

- Estimate a System GMM (Arellano and Bover, 1995; Blundell and Bond, 1998):

$$\begin{aligned}\Delta \ln P^*_{ijk,t} = \; & \beta_0 + \beta_1 \Delta \ln neer_{i,t-1} + \beta_2 \ln GDPpc_{i,t-1} \\ & + \beta_3 \ln GDPpc_{j,t-1} + \beta_4 var\left[\Delta \ln neer_{i,t-1}\right] \\ & + \beta_5 Pshare_{ij,t-1} + \beta_6 HSshare_{ik,t-1} \\ & - \gamma_i CA_{ik,t-1} - \gamma_j CA_{ik,t-1} \Delta \ln neer_{i,t-1} \\ & + \beta_7 \Delta \ln P^*_{ijk,t-1} + \beta_8 \Delta \ln P^*_{ijk,t-2} + u_{ijk,t}\end{aligned}$$

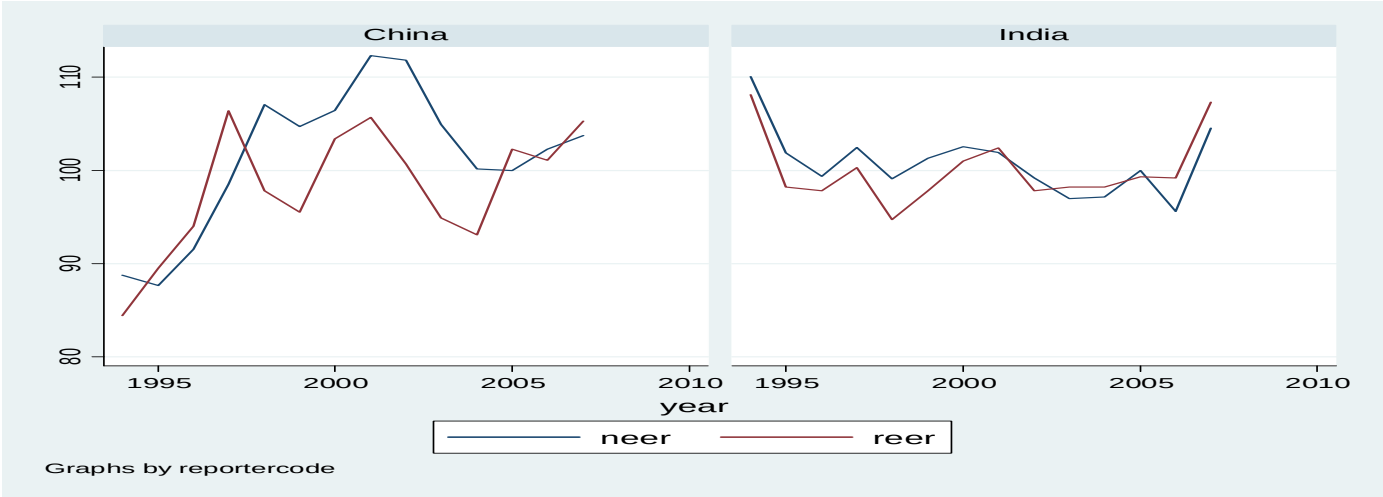
- Why System GMM?
  - cross-sectional dimension much larger than time-series dimension
  - 5-6 years observed per importer-product group on average
- Why two price lags?
  - unbalanced panel with gaps
  - third lag loses significance

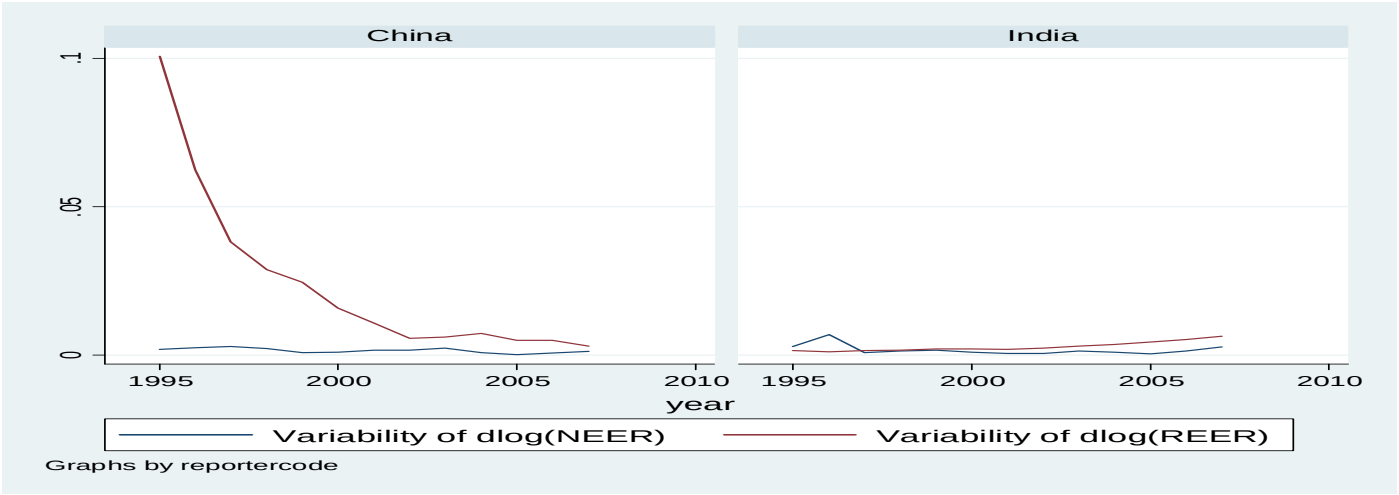
Long-run results

Table 3: dynamic ERPT net of relative price effects			
	ALL	CHINA	INDIA
$\Delta ln(neer_{i,t-1})$	-1.371** †	-1.584** †	-0.316** †
	(0.036)	(0.042)	(0.112)
$CA_{ik,t-1}$*$\Delta ln(neer_{i,t-1})$	-0.010**	-0.011**	-0.012**
	(0.002)	(0.003)	(0.003)
$\ln GDPpc_{i,t-1}$	0.118**	0.067**	-0.045
	(0.011)	(0.013)	(0.025)
$\ln GDPpc_{j,t-1}$	0.024	0.072**	0.141**
	(0.014)	(0.017)	(0.022)
$var[\Delta ln(neer_{ij,t-1})]$	5.751**	13.745**	22.278**
	(1.726)	(2.225)	(5.353)
$pshare_{ij,t-1}$	-0.437**	-0.605**	-0.159**
	(0.039)	(0.052)	(0.059)
$HSshare_{ik,t-1}$	-4.554**	-5.902**	-4.142**
	(0.668)	(1.140)	(0.832)
$CA_{ik,t-1}$	0.067**	0.156**	0.035*
	(0.012)	(0.016)	(0.017)
$\Delta \ln p^{*}_{ijk,t-1}$	-0.327**	-0.303**	-0.390**
	(0.003)	(0.004)	(0.005)
$\Delta \ln p^{*}_{ijk,t-2}$	-0.114**	-0.087**	-0.188**
	(0.002)	(0.003)	(0.005)
Constant	-0.993**	-1.128**	-1.004**
	(0.080)	(0.102)	(0.154)
Observations	675783	499760	176023
Importer-product groups	116933	83445	33488
Wald chi2test	15850.59**	10802.57**	6978.02**

*NOTES: System GMM dynamic panel estimation . Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. † different from 1 at 5%. Instruments for differenced equation: GMM-type: L(2/.).D.ln_uv. Standard: LD2.ln_neer LD2.CA_neer LD.ln_GDPpc_x LD.ln_GDPpc_m D.garch_var_neer LD.pshare LD.HSshare D.CAindex. Instruments for level equation: GMM-type: LD2.ln_uv. Standard: _cons. Number of instruments = 85.*

Evolution of NEER and REER in China and India (1994-2007) [Values and GARCH volatility]





Short-run estimates with REER

Table 4: static ERPT inclusive of relative price effects			
	ALL	CHINA	INDIA
$\Delta \ln(reer_{i,t-1})$	-0.305**†	-0.240**†	-1.136**†
	(0.018)	(0.018)	(0.077)
$CA_{ik,t-1} * \Delta \ln(reer_{i,t-1})$	-0.009**	-0.007**	-0.009**
	(0.002)	(0.002)	(0.003)
$\mathbf{var}[\Delta \ln(reer_{i,t-1})]$	-1.035**	-1.163**	25.545**
	(0.084)	(0.086)	(1.028)
$pshare_{ij,t-1}$	-0.325**	-0.413**	-0.127**
	(0.021)	(0.026)	(0.036)
$HSshare_{ik,t-1}$	-2.974**	-3.481**	-2.181**
	(0.427)	(0.640)	(0.611)
$CA_{ik,t-1}$	0.021**	0.034**	-0.007
	(0.006)	(0.007)	(0.010)
Constant	0.059**	0.060**	-0.040**
	(0.003)	(0.003)	(0.006)
Observations	828719	605975	222744
Importer-product groups	137727	95290	42437
F-test	173.06**	163.10**	143.48**

*NOTES: Panel fixed effects regression. Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. † different from 1 at 5%.*

Long-run estimates with REER

Table 5: dynamic ERPT inclusive of relative price effects			
	ALL	CHINA	INDIA
$\Delta \ln(reer_{i,t-1})$	0.027† (0.020)	0.031† (0.021)	-0.066† (0.092)
$CA_{ik,t-1} * \Delta \ln(reer_{i,t-1})$	-0.009** (0.002)	-0.009** (0.003)	-0.012** (0.003)
$\text{var}[\Delta \ln(reer_{i,t-1})]$	-3.249** (0.329)	-3.997** (0.333)	23.287** (2.462)
$pshare_{ij,t-1}$	-0.443** (0.039)	-0.599** (0.052)	-0.165** (0.059)
$HSshare_{ik,t-1}$	-4.537** (0.676)	-5.825** (1.155)	-4.036** (0.828)
$CA_{ik,t-1}$	0.064** (0.012)	0.137** (0.016)	0.036* (0.017)
$\Delta \ln p^{*}_{ijk,t-1}$	-0.328** (0.003)	-0.305** (0.004)	-0.389** (0.005)
$\Delta \ln p^{*}_{ijk,t-2}$	-0.117** (0.002)	-0.092** (0.003)	-0.187** (0.005)
Constant	0.077** (0.006)	0.067** (0.007)	-0.039** (0.012)
Observations	675783	499760	176023
Importer-product groups	116933	83445	33488
Wald chi2test	13040.32**	7977.22**	6708.06**

*NOTES: System GMM dynamic panel estimation. Robust standard errors in parentheses. * significant at 5%; ** significant at 1%. † different from 1 at 5%. Instruments for differenced equation: GMM-type: L(2/.).D.ln_uv. Standard: LD2.ln_reer LD2.CA_reer D.garch_var_reer LD.pshare LD.HSshare D.CAindex. Instruments for level equation: GMM-type: LD2.ln_uv. Standard: _cons. Number of instruments = 83.*

System GMM - with REER to account for relative price effects

Table 6: System GMM PTM and ERPT estimates			
	ALL	**CHINA**	**INDIA**
Net of relative price effects			
CA slope	-0.010**	-0.011**	-0.012**
CA intercept	0.067**	0.156**	0.035*
[SR ERPT] $\Delta \ln(neer_{i,t-1})$	-1.371**†	-1.584**†	-0.316**†
[SR PTM with Δ**NEER** $= -1\%$**]**	-0.371**†	-0.584**†	0.684**†
[LR ERPT using 5% CI]	-0.951**†	-1.140**†	-0.200**†
[LR PTM with Δ**NEER** $= -1\%$**]**	0.049**†	-0.140**†	0.800**†
Inclusive of relative price effects			
CA slope	-0.009**	-0.009**	-0.012**
CA intercept	0.064**	0.137**	0.036*
[SR ERPT] $\Delta \ln(reer_{i,t-1})$	0.027†	0.031†	-0.066†
[SR PTM with Δ**REER** $= -1\%$**]**	1.027**	1.031**	0.934**
[LR ERPT using 5% CI]	0.019†	0.022†	-0.042†
[LR PTM with Δ**REER** $= -1\%$**]**	1.019**	1.022**	0.958**
*NOTES: ** significant at 5%; † different from 1 at 5%.*			

A counterfactual experiment: 'what if China was a floater and India a fixer'

Table 7: A counterfactual experiment			
	ALL	**CHINA**	**INDIA**
Net of relative price effects			
CA slope	-0.008**	-0.008**	-0.011**
CA intercept	0.054**	0.121**	0.048**
[SR ERPT] $\Delta \ln(neer_{i,t-1})$	-1.331**†	-1.511**†	-0.457**†
[SR PTM with Δ**NEER** $= -1\%$**]**	-0.331**†	-0.511**†	0.543**†
[LR ERPT using 5% CI]	-0.923**†	-1.083**†	-0.291**†
[LR PTM with Δ**NEER** $= -1\%$**]**	0.077**†	-0.083**†	0.709**†
Inclusive of relative price effects			
CA slope	-0.008**	-0.008**	-0.011**
CA intercept	0.052**	0.129**	0.040*
[SR ERPT] $\Delta \ln(reer_{i,t-1})$	0.062**†	0.112**†	0.089†
[SR PTM with Δ**REER** $= -1\%$**]**	1.062**†	1.112**†	1.089**
[LR ERPT using 5% CI]	0.043**†	0.080**†	0.056†
[LR PTM with Δ**REER** $= -1\%$**]**	1.043**†	1.080**†	1.056**
*NOTES: ** significant at 5%; † different from 1 at 5%.*			

Conclusion

- This paper explored the responsiveness of export pricing at product level to exchange rate fluctuations using 6-digit product-level data for Chinese and Indian exporters
- The pricing strategy of exporters is different according to the CA level of their industry
  - Exporters are more concerned with defending their market share in industries where the country is more competitive.
  - Data for HS 6-digit product-level in industries with different CA levels in high- and low-income markets during 1994-2007
- Long-run (2 years) qualitatively similar to short-run
- Different export pricing behaviour of Chinese and Indian exporters – take a 1% NEER depreciation
  - China reduces yuan prices, amplifying the depreciation
  - India raises rupee prices, leading to incomplete ERPT
- If relative price effects are considered (REER), ERPT is 0
  - Inflationary pressures offseting NEER depreciation

Conclusion (continued) – the role of CA

- CA is a rotation factor that flattens the impact of exchange rate fluctuations
  - CA decreases ERPT (slope)...
    - Exporters prefer to defend their market share more in high CA industries
  - ...but increases export prices (level)
    - Exporters have more market power in high CA industries
  - Robust to using NEER or REER, and significant in the long-run

- In this sample, CA is a (sig) positive determinant of export prices and is (sig) positively correlated to the exchange rate
  - ERPT estimates that do not take CA into account may be upward biased
    - Up to 1.56% for China and 0.36% for India
  - This bias underestimates mark-up adjustment by exporters