Markets and Markups

A New Empirical Framework and Evidence on Exporters from China

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Introduction

How does the market power of exporting firms influence the gains from trade and consumer welfare?

To get at this question, we need to understand how prices are set and how they change in response to a changing economic environment.

Outline

1. Literature on trade, market power and firms in a multilateral world
2. Empirical Framework
   - Economics meets linguistics: a general classification of high- and low-differentiation products
   - Trade Pattern Sequential Fixed Effects
3. Evidence from China's Multi-destination Exporters

Markups and Market Power in international trade

The trade literature has long been concerned with the importance of firms' market power for the international distribution of welfare

- The strategic trade policy literature of the 1980s was built on the assumption of market power by exporting firms.
- Krugman (1979):'New' trade theory explains trade in differentiated manufactured goods; opening to trade implies welfare gains associated with declines in price-cost markups.
- Melitz and Ottaviano (2008): larger market size is associated with lower markups => trade libs have a pro-competitive effect

Bilateral trade policy and multilateral trade flows

The trade agreements and trade policy literature has examined the inefficiencies created when a policy change between one bilateral pair affects trade flows and prices between other bilateral pairs in a many-country world.

- A bilateral trade policy change by one country against a second causes trade volumes and prices from the second country to all other destinations to change. Bown and Crowley (2006, 2007).
- A tariff increase between a bilateral pair can 'spill-over' to reduce an exporters' entry into other foreign markets (tariff scares). Crowley, Song and Meng (2016)

Takeaways from the trade literature

Market size has been used to proxy for the degree of competition in order to predict changes in price-cost markups.

The degree to which national markets are integrated also matters for pricing power. Are markets segmented? Is it easy to arbitrage?

Goods trade on exchanges or via negotiated sales (Rauch 1999)

Table 2
Shares of commodity categories in value of total trade (percent)

		1970	1980	1990
Conservative Aggregation	Organized exchange	19.5	27.2	12.6
	Reference priced	24.0	21.3	20.3
	Differentiated	56.5	51.5	67.1
Liberal Aggregation	Organized exchange	24.7	31.7	16.0
	Reference priced	21.8	19.5	19.5
	Differentiated	53.6	48.9	64.6

Note: Column totals may not sum to 100.0 due to rounding error.

Global size of market is not a good proxy for market competitiveness (Shoes vs. lead).

The share of "differentiated goods" in international trade has been increasing over time.

Product market competition depends on the type of good

Both tomato paste and tractors are differentiated manufactured goods. Do producers hold similar amounts of market power?

Empirical Framework: Economics meets linguistics

Can we develop a more useful way of classifying differentiated goods?

Are some differentiated goods REALLY differentiated?

Economics meets linguistics: A general classification of high- and low-differentiation products

Measure word use in Chinese customs data for exports, 2007

Quantity Measure	Meaning	Types of goods	Percent of export value
qiān kè, 千克	kilogram	grains, chemicals	36.20
gè, 个	small items	golf balls, batteries, spark plugs	30.65
tái, 台	machines	engines, pumps, fans	13.95
shuāng, 双	paired sets	shoes, gloves, snow-skis	3.94
kuài, 块	chunky items	multi-layer circuit boards	3.09
tào, 套	sets	suits of clothes, sets of knives	2.26
jiàn, 件	articles of clothing	trousers, blouses	1.88
liàng, 辆	wheeled vehicles	cars, tractors, bicycles	1.69
sōu, 艘	boats	tankers, cruise ships, sailboats	1.53

Economics meets linguistics: A general classification of high- and low-differentiation products

Wide variety of count classifiers in Chinese customs data:

Quantity Measure	HS08 Code	English Description	Chinese Description
tào, 套	82111000	Sets of assorted knives	成套的刀
bǎ, 把	82119100	Table knives having fixed blades	刃面固定的餐刀
bǎ, 把	82119200	Other knives having fixed blades	其他刃面固定的刀
bǎ, 把	82119300	Pocket & pen knives & other knives with folding blades	可换刃面的刀
bǎ, 把	82121000	Razors	剃刀
piàn, 片	82122000	Safety razor blades, incl razor blade blanks in strips	安全刀片, 包括未分开的刀片条

$\Rightarrow$ Unit values close to transaction prices

Comparing Classification Systems: CCHS and Rauch

Share of goods by classification: obs. weighted (2000-14)

	Corsetti-Crowley-Han-Song (CCHS)		
	Low Differentiation/ Mass Noun	High Differentiation/ Count Noun	
Rauch (Liberal Version)			
Differentiated Products	41.1	38.8	79.8
Reference Priced	6.9	0.7	7.6
Organized Exchange	0.6	0.0	0.6
Unclassified†	10.5	1.5	12.0
	59.1	40.9	100.0

Our classification distinguishes product differentiation **within differentiated products**.

Empirical Framework: Trade Pattern
Sequential Fixed Effects

Do firms with market power price discriminate across export markets?

Or do they set a uniform price in response to global demand?

Export prices

The price of an exported good:

$$p_{ifdt} = \Gamma_{ifdt}(e_{dt}, .) + mc_{ift}(e_{dt}, .)$$

where

- for exporter f's product i sold in destination market d at time t;
- Γ_{ifdt} is the exporter-product-destination specific markup;
- mc_{ift} is the exporter-product specific marginal cost;
- e_{dt} is the bilateral nominal exchange rate (exporter's currency/ destination currency): an increase is an appreciation of the destination currency

Decomposing export prices

$$
\begin{aligned}
p_{ifdt} &= \Gamma_{ifdt}(e_{dt}, .) + mc_{ift}(e_{dt}, .) \\
\Gamma_{ifdt} &= \mathcal{F}_i + \mathcal{F}_f + \mathcal{F}_d + \mathcal{F}_t \\
&\quad + \mathcal{F}_{if} + \mathcal{F}_{id} + \mathcal{F}_{it} + \mathcal{F}_{fd} + \mathcal{F}_{ft} + \mathcal{F}_{dt} \\
&\quad + \mathcal{F}_{fdt} + \mathcal{F}_{idt} + \mathcal{F}_{ift} + \mathcal{F}_{ifd} \\
&\quad + \mathcal{F}_{ifdt} \\
mc_{ift} &= \mathcal{C}_i + \mathcal{C}_f + \mathcal{C}_t \\
&\quad + \mathcal{C}_{if} + \mathcal{C}_{it} + \mathcal{C}_{ft} \\
&\quad + \mathcal{C}_{ift}
\end{aligned}
$$

- $\mathcal{F}_i$: product specific factors/properties, etc.
- $\mathcal{F}_{d,t}$: exchange rate, CPI, and other macro variables.
- $\mathcal{F}_{f,d,t}$: firm destination market share, etc.
- $\mathcal{F}_{i,f,t}$: firm-product level factors affecting markups that could be a function of the unobserved marginal cost mc_{ift}

Trade-pattern sequential fixed effects

- Many firms (75%) export the same product to multiple destination at any given time.
- The **idea** of sequential fixed effects is to make use of high dimensional panel data to calculate the deviation of the product i price in destination d at time t, from the average price across all destinations where the same product is sold at that time—the i,f,t-specific trade pattern.
- **Key:** Price deviations need to be calculated for the relevant trade pattern.
- **Main Advantage:** Correctly removes the marginal cost component and captures the markup elasticity to exchanges rate shocks.

Multi-product, multi-destination exporters

Distribution for 2007

	No. of Products	Number of Countries 1	2-5	6-10	10+	Total
by Share of Exporters	1	13.5	6.4	1.6	1.2	22.6
	2-5	9.5	16.5	5.8	5.8	37.6
	6-10	2.2	5.5	3.3	4.4	15.3
	10+	2.1	4.7	4.1	13.6	24.6
	Total	27.2	33.1	14.7	25.0	100.0
by Share of Exports	1	1.2	1.3	0.8	1.3	4.7
	2-5	1.9	4.3	3.3	8.8	18.4
	6-10	0.6	2.2	2.0	8.1	13.0
	10+	1.6	4.0	4.2	**54.0**	63.9
	Total	**5.4**	11.9	10.4	72.3	100.0

Note: Each cell in the top panel is the percentage of observations in the Chinese customs data in 2007 that fall under the relevant description. The bottom panel presents the corresponding value of exports.

Trade pattern sequential fixed effect

Making use of the four dimensions of data: firm, product, destination, time

1. Destination-demean at the firm-product-time level
   (i) For each firm-product-time triplet, calculate the mean of each dependent and independent variable over all destinations the firm serves, i.e., calculate:

$$\frac{1}{n^D_{ift}} \sum_{d \in D_{ift}} x_{ifdt} \quad \forall x \in \{p_{ifdt}, e_{dt}, X_{dt}\}$$

   where n^D_{ift} is the number of foreign destinations for each firm-product-time triplet.

   (ii) Remove the mean over all destinations in order to obtain the residual variation in the variable by destination:

$$\widetilde{x}_{ifdt,D_{ift}} = x_{ifdt} - \frac{1}{n^D_{ift}} \sum_{d \in D_{ift}} x_{ifdt} \quad \forall x \in \{p_{ifdt}, e_{dt}, X_{dt}\}$$

Trade pattern sequential fixed effect (cont.)

2. Identify the trade pattern for each product sold by a firm in each time period and turn this information into a "trade pattern fixed effect" that incorporates information about the destination associated with each observation as well as the set of all destinations reached by the firm-product in that period.
   For each firm-product-time (f, i, t) triplet:
   (i) Collect the set of destinations served:

$$\{d : p_{i'f'dt'} \text{ is observed} : i' = i, f' = f, t' = t\}.$$

   (ii) Generate a string variable that identifies this set of destinations. For example, VN-KR-JP is attached to a firm f which exports product i to Vietnam, Korea, and Japan in a year t. Notationally, denote this string as D_{ift}.

Trade pattern sequential fixed effect (cont.)

(iii) Create a trade pattern fixed for each *ifdt* observation by appending the destination country for that observation to the front of its trade pattern string. For example, for the trade pattern fixed effects VN-VN-KR-JP, KR-VN-KR-JP and JP-VN-KR-JP, the first string is associated with a firm's shipment to Vietnam in a year in which the firm sells to Vietnam, Korea and Japan. The second string is associated with that firm's shipment to Korea in the same year, etc. Notationally, denote this trade pattern fixed effect as $TP_{d,D_{ift}}$.

3. Run a regression using destination-demeaned variables and the trade pattern fixed effects.

$$\widetilde{p}_{ifdt,D_{ift}} = \kappa_0 + \kappa_1 \widetilde{e}_{dt,D_{ift}} + \widetilde{X}'_{dt,D_{ift}} \kappa_2 + TP_{d,D_{ift}} + \widetilde{u}_{ifdt,D_{ift}}$$

Estimation results

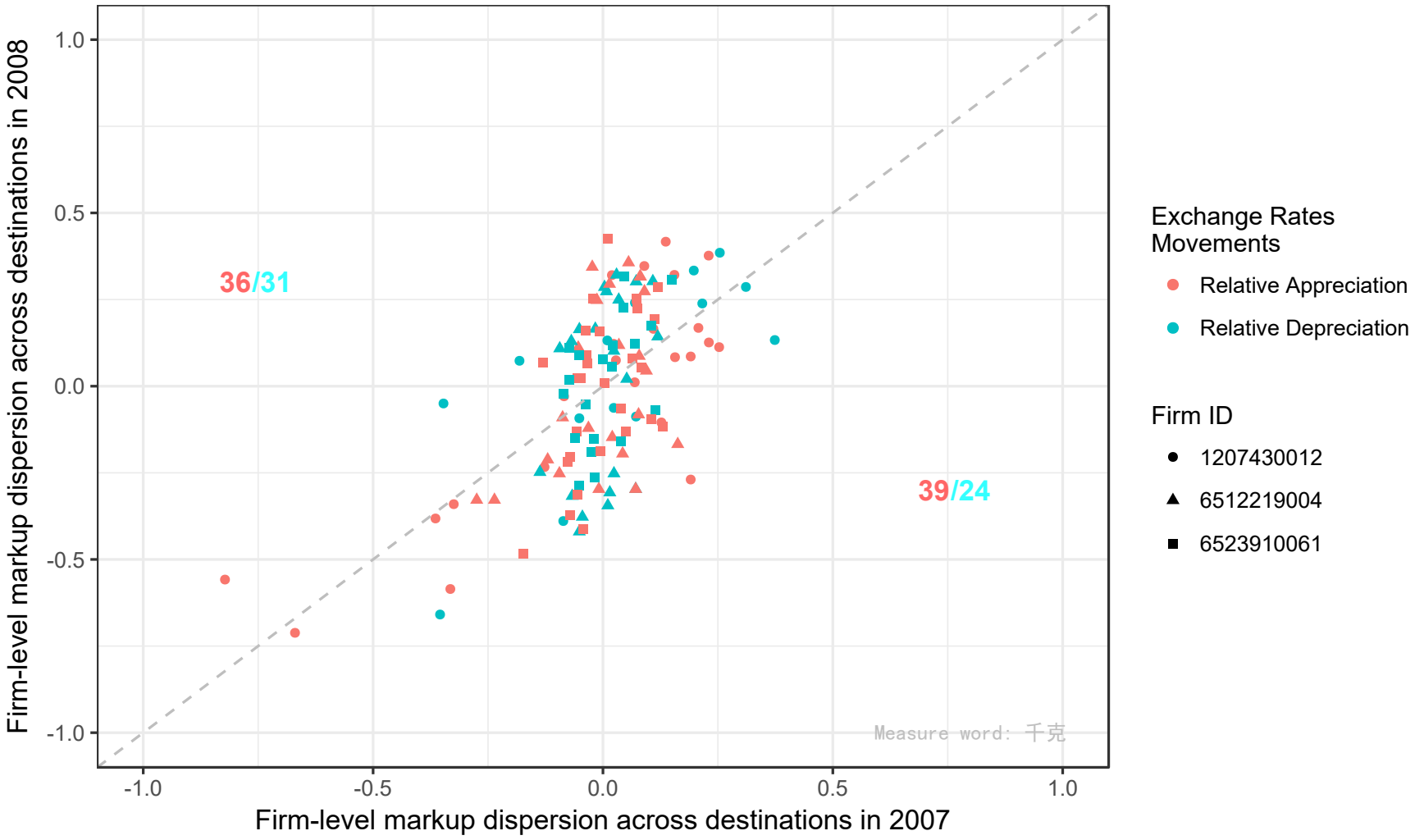
Total ERPT versus Markup Adjustments

	(1) Price Elasticity 2000-2005	(2) Price Elasticity 2006-2014	(3) Markup Elasticity 2000-2005	(4) Markup Elasticity 2006-2014
Bilateral nominal exchange rates	0.23***	0.24***	0.07***	0.11***
	(0.01)	(0.01)	(0.01)	(0.01)
Destination CPI	0.09***	0.58***	-0.03*	-0.00
	(0.02)	(0.01)	(0.02)	(0.01)
Destination real GDP	0.41***	0.05***	-0.02	-0.01
	(0.03)	(0.01)	(0.02)	(0.00)
Import-to-GDP ratio	0.22***	0.30***	0.01	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
Observations	516,552	3,050,928	1,072,775	4,824,344
FE	No	No	TPSFE	TPSFE
SE	Robust	Robust	Robust	Robust
Con Price Change	Yes	Yes	Yes	Yes

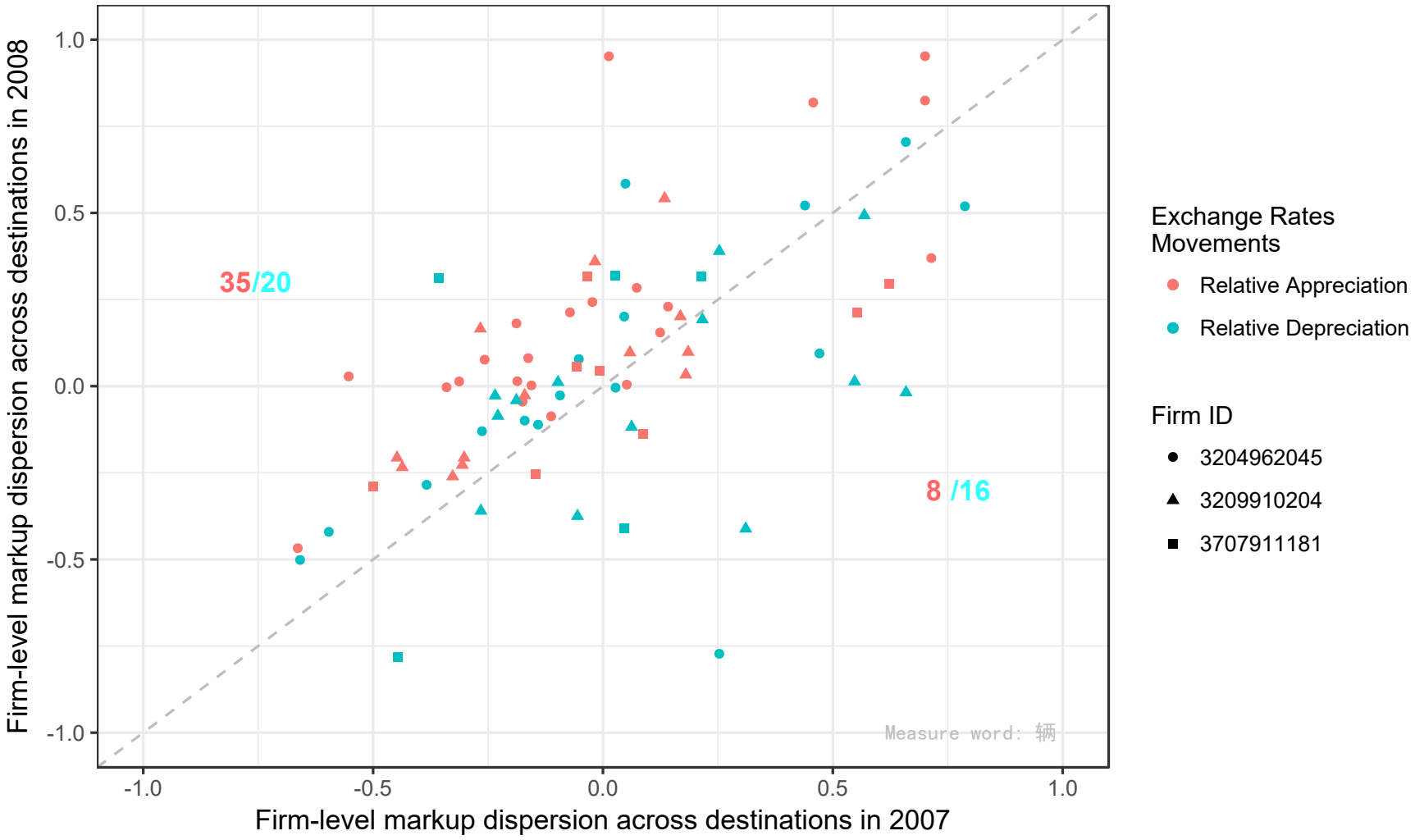
Note: Export price denominated in RMB. Bilateral exchange rates are defined as RMB per foreign currency, i.e an increase means RMB depreciation.

Destination-specific markup elasticities
High and Low Differentiation Goods

Tomato Paste (Low Differentiation)



Wheeled Tractors (High Differentiation)



Markup elasticities: High v. Low Differentiation Goods

	All		High Differentiation		Low Differentiation		
	Price	Markup	Price	Markup	Price	Markup	n. of obs
2000 – 2005	0.23***	0.07***	0.25***	0.14***	0.22***	0.02	1,076,815
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	
2006 – 2014	0.24***	0.11***	0.32***	0.20***	0.19***	0.06***	4,863,196
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	

Over 2006-2014:

- higher pass through into import prices for LD goods (81%)
- lower pass through into import prices for HD goods (68%)
- two-thirds of incomplete pass through for HD goods due to markup adjustment

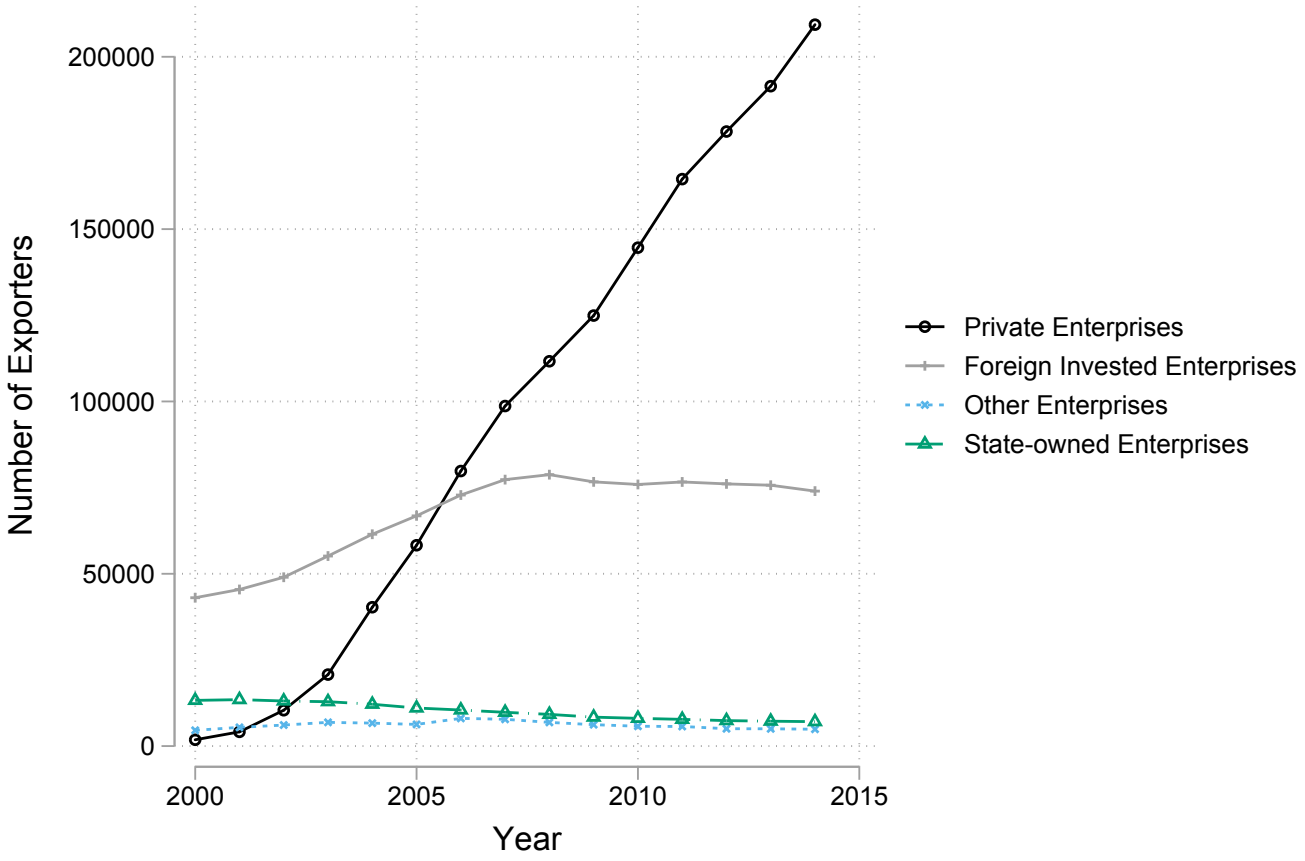
Product differentiation and Broad Economic Category

	All		High Differentiation		Low Differentiation		
Category	Price	Markup	Price	Markup	Price	Markup	n. of obs
2000 – 2005							
Consumption	0.25***	0.10***	0.29***	0.17***	0.19***	0.02	426,462
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	
Intermediate	0.23***	0.03	0.22***	0.14***	0.24***	0.01	294,929
	(0.02)	(0.02)	(0.06)	(0.05)	(0.02)	(0.02)	
2006 – 2014							
Consumption	0.33***	0.20***	0.44***	0.32***	0.16***	0.08***	1,756,214
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	
Intermediate	0.21***	0.05***	0.34***	0.12***	0.19***	0.05***	1,593,591
	(0.01)	(0.01)	(0.06)	(0.04)	(0.01)	(0.01)	

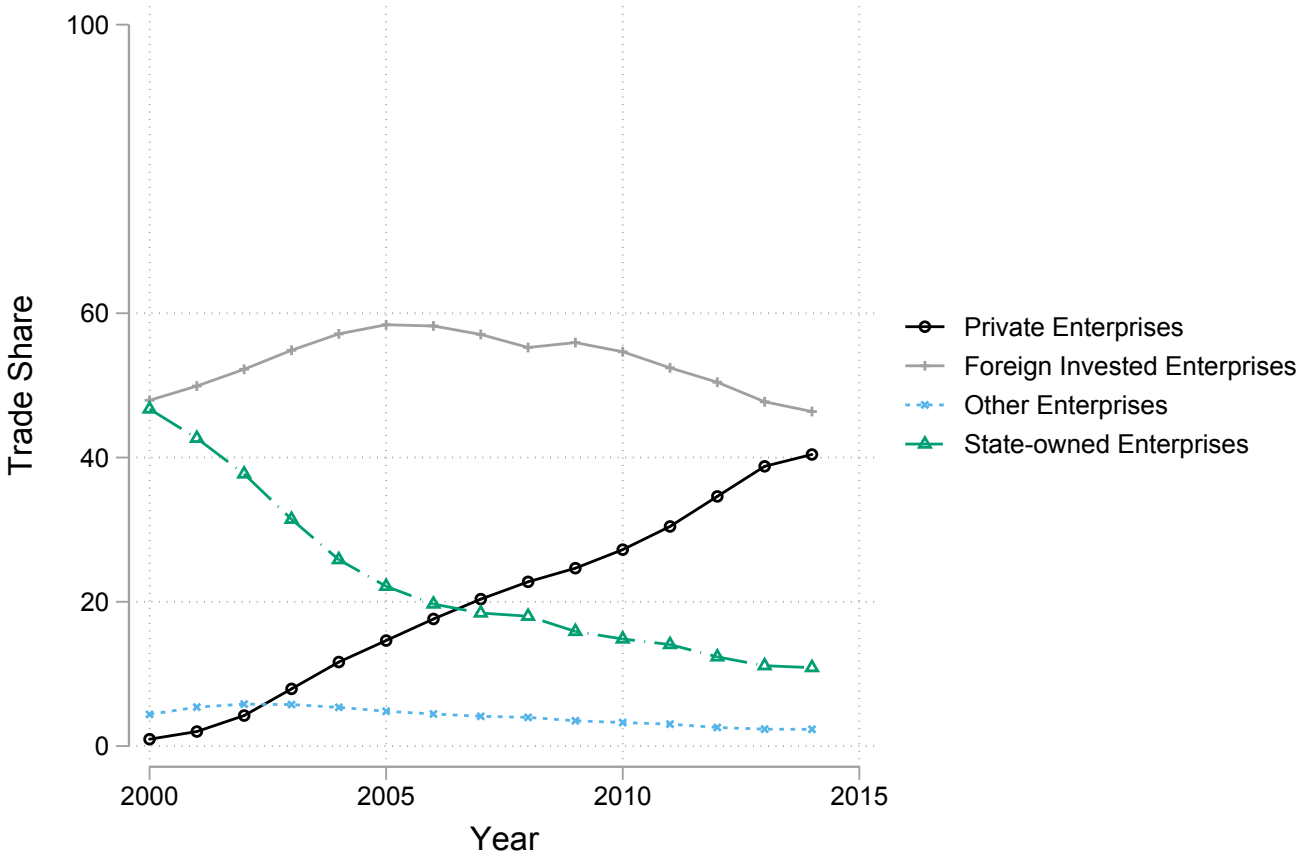
- Markup adjustments to exchange rate largest for HD consumption goods (32%)
- LD intermediates have small markup elasticity - price to global, not local, factors

China's growth as an exporting power: Destination-specific markup elasticities State-owned vs. foreign-invested vs. private enterprises

China's Exports: The rise of private enterprises



China's Exports: The importance of foreign-invested enterprises



Pricing Strategies by Firm Registration Types (2006-2014)

	Price Elasticity	Markup Elasticity	Naive Reg.	CMSE	n. of obs
High Differentiation					
State-owned Enterprises	0.46***	0.39***	-0.69***	0.38***	283,697
	(0.03)	(0.03)	(0.00)	(0.14)	
Foreign Invested Enterprises	0.53***	0.35***	-0.69***	0.09	446,663
	(0.02)	(0.02)	(0.00)	(0.12)	
Private Enterprises	0.16***	0.09***	-0.75***	2.54***	1,153,886
	(0.01)	(0.01)	(0.00)	(0.53)	
Low Differentiation					
State-owned Enterprises	0.24***	0.13***	-0.71***	0.62*	360,688
	(0.02)	(0.02)	(0.00)	(0.35)	
Foreign Invested Enterprises	0.47***	0.14***	-0.69***	0.24	607,071
	(0.02)	(0.02)	(0.00)	(0.28)	
Private Enterprises	0.07***	0.02***	-0.67***	8.42**	1,856,290
	(0.01)	(0.01)	(0.00)	(3.34)	

SOEs and FIEs

- have low pass through to import prices (50% for HD goods) and
- make big adjusments to markups (explains 66-85% of incomplete pass through for HD goods)

Pricing Strategies by Firm Registration Types (2006-2014)

	Price Elasticity	Markup Elasticity	Naive Reg.	CMSE	n. of obs
High Differentiation					
State-owned Enterprises	0.46***	0.39***	-0.69***	0.38***	283,697
	(0.03)	(0.03)	(0.00)	(0.14)	
Foreign Invested Enterprises	0.53***	0.35***	-0.69***	0.09	446,663
	(0.02)	(0.02)	(0.00)	(0.12)	
Private Enterprises	0.16***	0.09***	-0.75***	2.54***	1,153,886
	(0.01)	(0.01)	(0.00)	(0.53)	
Low Differentiation					
State-owned Enterprises	0.24***	0.13***	-0.71***	0.62*	360,688
	(0.02)	(0.02)	(0.00)	(0.35)	
Foreign Invested Enterprises	0.47***	0.14***	-0.69***	0.24	607,071
	(0.02)	(0.02)	(0.00)	(0.28)	
Private Enterprises	0.07***	0.02***	-0.67***	8.42**	1,856,290
	(0.01)	(0.01)	(0.00)	(3.34)	

- Private enterprises (LD goods): respond to small changes in destination-specific markups with enormous changes in quantity supplied (Cross-Market Elasticity of Subsitution = 8.4).
- SOEs and FIEs (HD goods): tiny quantity responses to large changes in destination specific markups.

Pricing Strategies by Firm Registration Types (2000-2006)

	Price Elasticity	Markup Elasticity	Naive Reg.	CMSE	n. of obs
High Differentiation					
State-owned Enterprises	0.28***	0.15***	-0.77***	1.97***	234,928
	(0.02)	(0.02)	(0.01)	(0.54)	
Foreign Invested Enterprises	0.20***	0.10***	-0.63***	5.82***	123,590
	(0.04)	(0.03)	(0.01)	(2.18)	
Private Enterprises	0.15**	0.14***	-0.82***	1.14	85,859
	(0.06)	(0.04)	(0.01)	(1.08)	
Low Differentiation					
State-owned Enterprises	0.21***	0.03	-0.71***	$6.32^{\dagger}$	284,746
	(0.02)	(0.02)	(0.01)	(4.93)	
Foreign Invested Enterprises	0.26***	0.01	-0.56***	$17.72^{\dagger}$	145,008
	(0.03)	(0.03)	(0.01)	(40.86)	
Private Enterprises	0.10**	0.07**	-0.72***	$3.56^{\dagger}$	130,515
	(0.05)	(0.03)	(0.01)	(2.50)	

Conclusions

1. We construct a new proxy for market power based on product differentiation.
2. We develop a trade pattern sequantial fixed effect estimator and estimate destination-specific markup elasticities to bilateral exchange rate shocks for Chinese exporters (**7-11%**), but...
3. there is substantial eterogeneity in markup elasticities across product and firm types:
   - HD goods and consumption goods have high destination-specific markup elasticities (32%)
   - LD goods and intermediates have tiny destination-specific markups elasticities (5%) - uniform pricing rule?
   - Big firms have big markup elasticities.
   - Private entreprises ($\approx$ small firms) have tiny destination-specific markup elasticities
4. Cross-Market Elasticity of Supply - firms exploit market seqmentation in HD goods.

What do we learn from these estimates?

- The distribution of welfare gains from currency movements depends on firm pricing behaviour.
- For a bilateral appreciation of a destination currency, low pass through into import prices implies smaller welfare gains.
- The welfare gains from the bilateral appreciation are captured by exporters in China who raise their markups.
- But, who owns these exporting firms?
- Recently, (small) private enterprises in China have had high pass through to export prices and made only small markup adjustments.
- The dynamics of firm growth and the relationship to a firm's market power warrants further study.

Appendix

CCHS product classification within each sector

Sector (HS chapters)	Sector's share of total exports	Value share of CCHS high differentiation products
1-5 Live animals; animal products	0.8	**4.0**
6-14 Vegetable products	1.0	**0.6**
15 Animal/vegetable fats	0.0	**0.0**
16-24 Prepared foodstuffs	1.4	**0.0**
25-27 Mineral products	2.1	**0.0**
28-38 Products of chemical and allied industries	4.6	**0.2**
39-40 Plastics/rubber articles	3.4	**15.0**
41-43 Rawhides/leather articles, furs	1.6	**58.6**
44-46 Wood and articles of wood	0.8	**0.5**
47-49 Pulp of wood/other fibrous cellulosic material	0.8	**0.0**
50-63 Textile and textile articles	13.2	**68.4**
64-67 Footwear, headgear, etc.	2.9	**43.5**
68-70 Misc. manufactured articles	1.8	**3.2**
71 Precious or semiprec. stones	1.4	**0.0**
72-83 Base metals and articles of base metals	7.7	**1.9**
84-85 Machinery and mechanical appliances, etc.	42.2	**73.1**
86-89 Vehicles, aircraft, etc.	4.7	**66.1**
90-92 Optical, photographic equipment etc.	3.5	**79.7**
93 Arms and ammunition	0.0	**82.5**
94-96 Articles of stone, plaster, etc.	6.0	**65.0**
97 Works of art, antiques	0.1	**60.8**

Typical pass-through regression

Time Difference + Fixed Effects:

- Time difference is taken over logged variables as nominal series such as bilateral exchange rates cannot be directly compared across destinations.
- However, when the panel is endogenously unbalanced due to changes in exchange rates and marginal cost shocks, applying time differences changes the dimension in which the unobserved marginal cost varies, making impossible to control it by simply adding fixed effects in the later stage.

$$\begin{aligned}\Delta_{s|ifd} p_{ifdt} \quad = \quad & \Delta_{s|ifd}\mathcal{F}_t + \Delta_{s|ifd}\mathcal{C}_t \\ & + \Delta_{s|ifd}\mathcal{F}_{it} + \Delta_{s|ifd}\mathcal{F}_{ft} + \Delta_{s|ifd}\mathcal{F}_{dt} + \Delta_{s|ifd}\mathcal{C}_{it} + \Delta_{s|ifd}\mathcal{C}_{ft} \\ & + \Delta_{s|ifd}\mathcal{F}_{fdt} + \Delta_{s|ifd}\mathcal{F}_{idt} + \Delta_{s|ifd}\mathcal{F}_{ift} + \Delta_{s|ifd}\mathcal{C}_{ift} \\ & + \Delta_{s|ifd}\mathcal{F}_{ifdt}\end{aligned}$$

Alternative methods addressing the problem of unobserved marginal cost using proxies

Different proxies for *mc* are used:

1. nominal wage index: Campa and Goldberg (2005), Mumtaz, Oomen and Wang (2011)
2. the PPI of the exporting-country: Marazzi et al (2005), Campa and Minguez (2008)
3. estimated productivity of firms: Berman, Martin and Mayer (2012)
4. estimated productivity of firms and cost of imported inputs: Amiti, Itskhoki and Konings (2014)

Problems:

1–2 Poor proxies for marginal costs

3–4 Complicated matching process across datasets; productivity estimation usually only at yearly frequency.
Productivity is observable at best at firm-level, but trade is at the product-level.

CCHS and Rauch

	All		High Differentiation		Low Differentiation		
Category	Price	Markup	Price	Markup	Price	Markup	n. of obs
2000 – 2005							
Differentiated Products	0.22***	0.09***	0.25***	0.14***	0.20***	0.04**	815,223
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	
Organized Exchange	0.60***	0.02	-	-	0.62***	0.02	11,925
	(0.06)	(0.05)			(0.06)	(0.05)	
Reference Priced	0.23***	0.09**	0.05	0.26**	0.24***	0.08*	88,959
	(0.03)	(0.04)	(0.16)	(0.12)	(0.04)	(0.04)	
2006 – 2014							
Differentiated Products	0.22***	0.12***	0.32***	0.20***	0.14***	0.07***	3,944,681
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	
Organized Exchange	1.02***	-0.05	-	-	1.03***	-0.05	27,235
	(0.07)	(0.05)			(0.07)	(0.05)	
Reference Priced	0.43***	0.11***	0.14	0.16*	0.45***	0.10***	366,974
	(0.02)	(0.02)	(0.10)	(0.09)	(0.02)	(0.02)	

Quantity Responses

	All		High Differentiation		Low Differentiation		
	Naive Reg.	CMSE	Naive Reg.	CMSE	Naive Reg.	CMSE	n. of obs
2000 – 2005	-0.71***	4.09***	-0.74***	2.57***	-0.68***	†	1,076,815
	(0.00)	(0.82)	(0.00)	(0.49)	(0.00)		
2006 – 2014	-0.70***	1.51***	-0.73***	0.83***	-0.68***	2.47***	4,863,196
	(0.00)	(0.16)	(0.00)	(0.12)	(0.00)	(0.43)	

† First stage is not significant different from zero.

Quantity Responses

	All		High Differentiation		Low Differentiation		
	Naive Reg.	CMSE	Naive Reg.	CMSE	Naive Reg.	CMSE	n. of obs
2000 – 2005	-0.71***	4.09***	-0.74***	2.57***	-0.68***	†	1,076,815
	(0.00)	(0.82)	(0.00)	(0.49)	(0.00)		
2006 – 2014	-0.70***	1.51***	-0.73***	0.83***	-0.68***	2.47***	4,863,196
	(0.00)	(0.16)	(0.00)	(0.12)	(0.00)	(0.43)	

† First stage is not significant different from zero.

Cross Market Supply Elasticity by BEC Classifications (2006 – 2014)

	All		High Differentiation		Low Differentiation		
Category	Naive Reg.	CMSE	Naive Reg.	CMSE	Naive Reg.	CMSE	n. of obs
Consumption	-0.71***	0.54***	-0.77***	0.23**	-0.63***	1.92***	1,756,214
	(0.00)	(0.11)	(0.00)	(0.09)	(0.00)	(0.59)	
Intermediate	-0.71***	2.92***	-0.74***	1.33	-0.70***	3.27***	1,593,591
	(0.00)	(0.73)	(0.01)	(0.86)	(0.00)	(0.90)	

Cross Market Supply Elasticity by BEC Classifications (2006 – 2014)

	All		High Differentiation		Low Differentiation		
Category	Naive Reg.	CMSE	Naive Reg.	CMSE	Naive Reg.	CMSE	n. of obs
Consumption	-0.71***	0.54***	-0.77***	0.23**	-0.63***	1.92***	1,756,214
	(0.00)	(0.11)	(0.00)	(0.09)	(0.00)	(0.59)	
Intermediate	-0.71***	2.92***	-0.74***	1.33	-0.70***	3.27***	1,593,591
	(0.00)	(0.73)	(0.01)	(0.86)	(0.00)	(0.90)	